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ENVIRONMENT

Ethical Partnership
Land Off North Road
West Boldon, South Tyneside
Phase 1 Geo-Environmental Assessment

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Birmingham
Livery Place, 35 Livery Street, Colmore Business District, Birmingham, B3 2PB
T: 0121 233 3322

Leeds
Whitehall Waterfront, 2 Riverside Way, Leeds, LS1 4EH
T: 0113 233 8000

London
11 Borough High Street, London, SE1 9SE
T: 0207 407 3879

Manchester
11, Portland Street, Manchester M1 3HU
T: 0161 233 4260

Market Harborough
Harborough Innovation Centre, Wellington Way, Airfield Business Park,
Leicester Road, Market Harborough, Leicestershire, LE16 7WB
T: 01858 455020

Nottingham
Waterfront House, Station Street, Nottingham NG2 3DQ
T: 0115 924 1100

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EXECUTIVE SUMMARY

Executive Summary	
Site Address	Land off North Road, West Boldon, South Tyneside.
Proposed Development	The proposed development is anticipated to comprise 35-40 residential properties of a greenfield site.
Current Site Use	Grassed fields, currently used for horse grazing.
Site History	The site has been used as grazing land throughout mapping history, with a small building and access road present in the north of the site.
Ground Conditions	Information published by the British Geological Survey (BGS) indicates that the site is underlain by Till across the majority of the south-eastern half of the site, with superficial deposits absent across the north-western half of the site. Alluvium (clay, silt, sand and gravel) is indicated to be present encroaching along the north-western boundary and the Pelaw Clay Member (silty clay with pebbles and cobbles) across the south-eastern boundary. The bedrock geology is anticipated to comprise Pennine Upper Coal Measures Formation described as mudstone, siltstone and sandstone across the western half of the site and specifically sandstone in the east of the site. The Environment Agency (EA) classifies the superficial deposits of Alluvium as a Secondary A Aquifer, the Till deposits as a Secondary (undifferentiated) Aquifer and the Pelaw Clay Member as an unproductive strata. The bedrock deposits of Pennine Upper Coal Measures Formation are classified as a Secondary A Aquifer.
Geotechnical Review	No significant risks have been identified within the desk-based assessment. Dependent on the proposed development, it is likely that a shallow spread foundation would be suitable for lightly loaded structures. The site slopes from east to west from approximately 36mAOD to 30mAOD, therefore earthworks may be required prior to the development. The site is within an area of historical coal mining activity with three underground seams recorded under the site ranging in depth between 434m bgl and 562m bgl. Given the depth of the coal seams, they are not considered to represent a ground stability risk to the proposed development. No shallow workings or mine entries are recorded on the site or within 100m of the enquiry site boundary.
Environmental Review	When considered in the context of the conceptual site model and the historical activities that have taken place, the potential for contamination to impact on the proposed development is generally considered to be low to moderate. It is considered that the main driver for the risk rating for human health is ground gas generation, albeit from potentially limited sources.
Recommendations	A ground investigation to characterise ground conditions, the presence/ absence of contamination and determine the site's geotechnical properties is recommended to support any future development.
This summary should be read in conjunction with BWB's full report (ref. NRB-BWB-ZZ-XX-RP-YE-0001-Ph1) and reflects an assessment of the site based on information received by BWB at the time of production.	

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1. INTRODUCTION

Instruction

1.1 BWB Consulting (BWB) was instructed by Ethical Partnership (the Client) to carry out a Phase 1 Geo-Environmental Assessment for the site at Land Off North Road, West Boldon, South Tyneside. Details of the project brief are included in BWB proposal reference 191217/01/002/MCW2139/CR/RC, dated 17th December 2019.

1.2 The proposed development is anticipated to comprise of 35-40 residential properties of a greenfield site.

1.3 The proposed development masterplan produced by Cummings Architects, Ref 19085, drawing 002, dated 04/12/19 is provided as **Appendix 1**.

Objectives

1.4 This report has been completed to present pertinent information into the environmental risks and liabilities associated with the site. It has been completed to fulfil the requirements of a preliminary risk assessment in accordance with BS 10175:2011+A2:2017 *'Investigation of potentially contaminated sites, code of practice'* and CLR11 *'Model Procedures for the Management of Land Contamination'*.

1.5 The report has also been prepared with reference to land contamination technical guidance available through https://www.gov.uk/government/collections/land-contamination-technical-guidance.

1.6 The objectives of this report are to:

- Assess historical activities at the site with respect to their potential impact on the site environment;
- Characterise the environmental setting of the site, identify migration pathways and vulnerable receptors for contamination originating at the site, focusing on potential soil and groundwater liabilities;
- Assess historical and current surrounding land use in relation to known or potential off-site contamination issues that may impact the site;
- Review existing site investigation and remediation information for the site, where available;
- Develop a preliminary Conceptual Site Model (CSM); and
- Assess potential environmental liabilities associated with the site.

Scope of Work

1.7 The Scope of Work included:

- A site visit to inspect the current site and immediate surroundings, identify potential hazards associated with ground conditions or contamination and to determine

potential constraints with regards to ground investigation (photographs presented as **Appendix 2**);

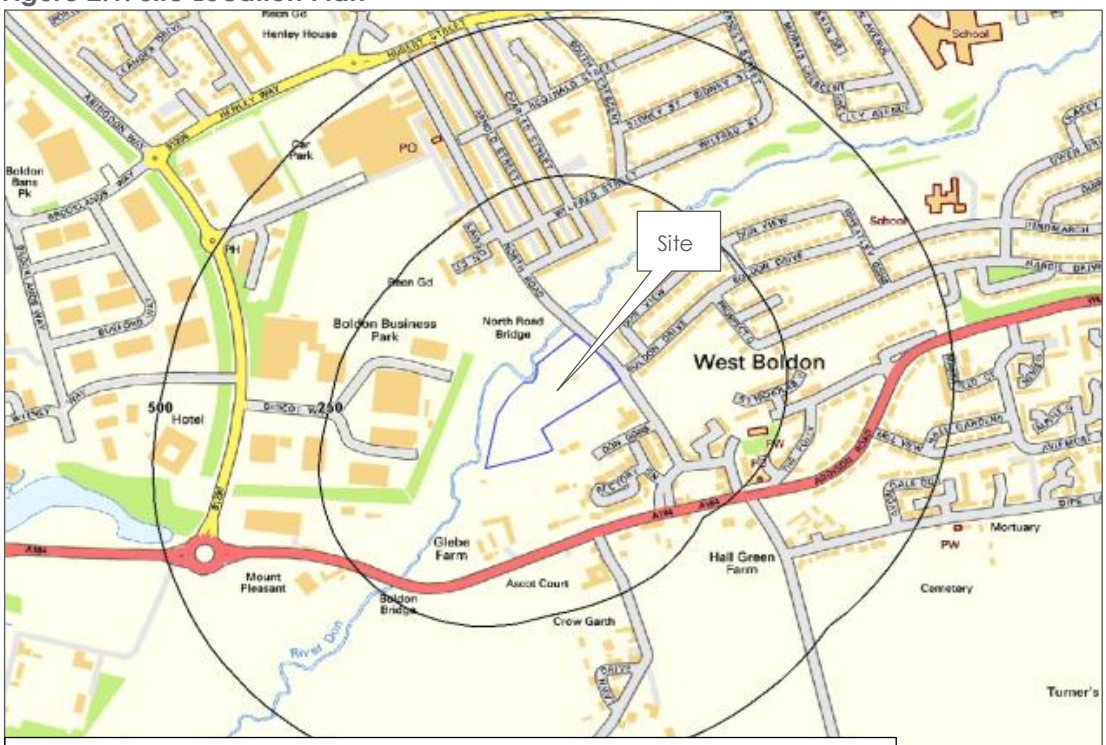
- A review of the following information:
  - Groundsure report, reference HMD-214-6574771 and HMD-214-6574772 (**Appendix 3**);
  - Historical Ordnance Survey Mapping (**Appendix 4**);
  - Historical aerial photographs (Google Earth) and other imagery (Groundsure);
  - British Geological Survey (BGS) 1:50 000 Scale, '*Sunderland*', Sheet 21, Solid and Drift, (1978);
  - BGS online geological maps and exploratory hole records (www.bgs.ac.uk);
  - MAGIC website (www.natureonthemap.naturalengland.org.uk/magicmap);
  - Coal Authority Interactive Map Viewer (http://mapapps2.bgs.ac.uk/coalauthority/home.html);
  - Coal Authority Consultants Coal Mining Report, reference HMD-214-6574774-1 and HMD-214-6574774-2 (**Appendix 5**); and
  - Regional unexploded bomb risk maps.
- A summary of the key hazards or uncertainties that require additional investigation in order to further characterise the associated risks; and
- Production of a Geo-Environmental Assessment (this report), concluding in a qualitative assessment of the risks from contamination and ground-related constraints which may impact on the site.

2. THE SITE

Site Location

2.1 The site is located at Land Off North Road, in West Boldon, South Tyneside, centred at National Grid Reference 434782, 561175. The approximate location of the site is shown below in **Figure 2:1.**

Figure 2:1: Site Location Plan



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Site Description

2.2 A site walkover was completed on 27/01/2020 by a representative of BWB. Photographs from the walkover are presented in **Appendix 2**.

2.3 The site comprises of a grassed field separated into three paddocks used to graze horses. The site occupies an approximate area of 1.9 hectares. The site slopes steeply down towards the west - northwest with the highest point being approximately 36m above ordnance datum (AOD). The northern western extents of the site were noted to be flat, sitting approximately 1.0m above the water level within the River Don, with the western area being noted as waterlogged at the time of the site visit.

2.4 The site is accessed via a locked gate along North Road, a gravel track leads to a small stable towards the centre of the site.

2.5 Mature trees were typically noted within the hedgerows around the premature of site with a small wooded / overgrown area to the north of the site. A large hay pile was also noted in the centre of the site.

2.6 A small bank was noted in the field immediately north of the site (across the River Don) and is assumed to be a flood alleviation measure indicating the river levels can rise by 1.0 – 1.5m.

Potential Constraints to Ground Investigation

2.7 The steep slopes on the site may limit the use of some drilling techniques during ground investigation.

Site Surroundings

2.8 The surrounding land uses at the time of the walkover survey are summarised in **Table 2:1**.

Table 2:1: Surrounding Land Use

Surrounding Land Use	
North	North Road with soft landscaping, a play park, the River Don and residential developments beyond.
East	Residential developments and soft landscaping.
South	Residential developments.
West	River Don with soft landscaping, a bridleway and commercial units beyond.

2.9 An aerial photograph representative of the site and surroundings, dated 18/07/2018, is presented as **Figure 2:2**.

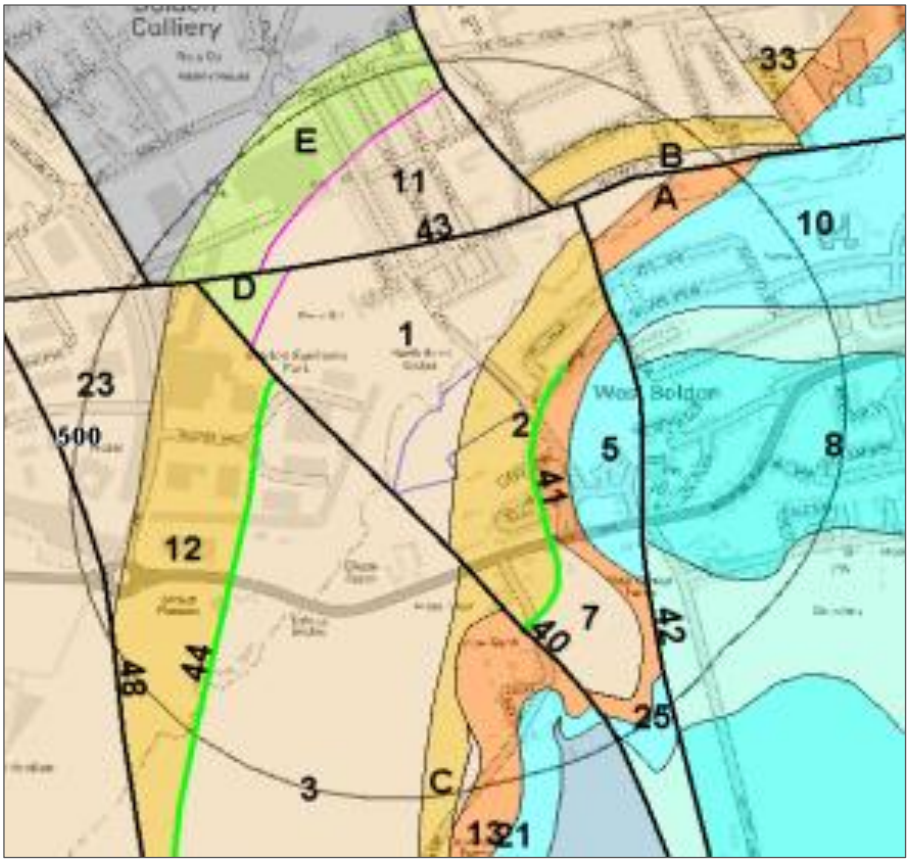
Figure 2:2: Aerial Photograph



3. ANTICIPATED GROUND CONDITIONS

3.1 The anticipated ground conditions for the site and controlled waters vulnerability is discussed within **Table 3:1**.

Table 3:1: Summary of Anticipated Ground Conditions

	Anticipated Ground Conditions
Geology	Information published by the British Geological Survey (BGS) indicates that the site is underlain by Till across the majority of the south-eastern half of the site, with superficial deposits absent across the north-western half of the site. Alluvium (clay, silt, sand and gravel) is indicated to be present encroaching along the north-western boundary and the Pelaw Clay Member (silty clay with pebbles and cobbles) across the south-eastern boundary. The bedrock geology is anticipated to comprise the Pennine Upper Coal Measures Formation (No.1 in **Figure 3.2** below) described as mudstone, siltstone and sandstone across the western half of the site and specifically sandstone in the east of the site, as presented in **Figure 3.2.** **Figure 3.1: Bedrock Geology**  There is normal inferred fault across the mostly southerly point of the site and coal seam inferred approximately 20.0m south-east of the site. Several BGS boreholes with available data are located close to the site (borehole reference: NZ36SW585 located 136m south-east, NZ36SE230 located 144m south-east, NZ36SW1003 located 181m north-west and NZ36SW1012 located 173m south of the site).

Anticipated Ground Conditions	
	The recorded geology in borehole NZ36SW585 was 0.5m thick ash and brick fill, overlying 0.7m thick layer of soil and rubble, overlying limestone to 1.50m below ground level (bgl). Material recorded within borehole NZ36SE230 was 3.10m thick soil and rubble layer with ash present from 2.50m bgl, overlying 1.2m thick layer of soil with limestone, overlying 0.70m of sand and limestone fragments, overlying limestone to 5.20m bgl. The recorded geology in borehole NZ36SW1003 was 0.25m of Topsoil, overlying 0.55m thickness of sandy slightly gravelly clay, overlying 1.80m of stiff sandy slightly gravelly clay with fine silt lined fissures up to 2.60m bgl. Material recorded within borehole NZ36SW1012 was 0.2m thick Made Ground of sandy slightly gravelly clay, overlying 0.80m thick layer of sandy gravelly clay with occasional sandstone cobbles, overlying 0.30m thick layer of brown fine to medium sandstone, overlying limestone to 1.60m bgl.
Hydrogeology	The Environmental Agency (EA) classifies the superficial deposits of Alluvium as a Secondary A Aquifer, Till deposits as a Secondary (undifferentiated) Aquifer and Pelaw Clay Member as an unproductive strata. The bedrock deposits of Pennine Upper Coal Measures Formation are classified as a Secondary A Aquifer. There are two historical and one active groundwater abstraction licences located within 1km from the site. The licences are for make-up or top up water, fish farm/cress pond throughflow and lake & pond throughflow. The site is located within an area of low to High Soil Leaching Potential. The site is not located within an EA groundwater Source Protection Zone, although a Zone 3 Total Catchment is located approximately 120m south-east of the site. The site is located within a Groundwater Flooding Susceptibility Area.
Surface Waters	The closest surface water feature to the site is the River Don, 4m west of the site. One minor pollution incident relating to water is recorded approximately 240m west of the site relating to hydraulic oils in August 2002. There are nine licenced discharge consents recorded within 500m of the site relating to sewage discharges-final/treated effluent-no water company, agriculture-livestock farming, and trade discharge-site drainage all discharged to River Don. Two records of potential harmful discharge to the public sewer were recorded 317m west of the site, both issued to Hashimoto Ltd. No surface water abstraction licences are recorded within 2km of the site. The site is located within Zone 2 and Zone 3 of an EA designated Floodplain.
Ground Gas & Radon	Limited sources of ground gas have been identified off site including Made Ground recorded 116m east, 167m north-east and 300m west of the site and several potentially infilled land areas associated with old quarries, workings, pits, brick works, ponds and grave yard ranging 3.m (old quarry 3m south) to 495m of the site. The site is in a Radon Affected Area, as between 1% and 3% of properties are above the action level. However, no radon protective measures are necessary.
Mining and Mineral Extraction	An old quarry is recorded adjacent to the southern boundary of the site. Numerous unspecified workings, quarries, pits, heaps and brick works are also recorded within 250m of the site. Unspecified underground workings are recorded 99m east of the site, with various collieries recorded within 1km of the site. Ceased workings are recorded 8m south of the site, commodity extracted - sandstone. Several other, all ceased, ground workings are recorded within 1km of the site. Commodities extracted – dolomite, clay & shale and sandstone.

Anticipated Ground Conditions	
	The site is within an area of historical coal mining activity and three underground seams are recorded beneath the site ranging in depth between 434m bgl and 562m bgl. No shallow workings or mine entries are recorded at the site or within 100m of the boundary.
Environmental Sensitivity	North East Greenbelt is located 152m south of the site.

4. SITE HISTORY

4.1 Historical Ordnance Survey (OS) mapping for the site area has been reviewed. These maps and plans date from 1856 to 2020. The historical plans reviewed are provided in **Appendix 4**. The key points of the historical development of the site and surrounding area are summarised in **Table 4:1**. All distances quoted are approximate.

Table 4:1: Key Points of Development History

Dates	On Site	Off-Site
1856 - 1858	Site comprises open ground divided into three plots.	The River Don is located 4.0m north-west of the site. West Boldon is located 90m east, **old quarries** are located 105m and 120m east and 500m south of the site. Pontop & South Shields Branch railway is located400m west of the site.
1895	Site comprises open ground divided into two plots.	**Boldon Colliery** is located 750m north-west of the site and **Brick Works** 300m south-west of the site.
1896 - 1989		**An old quarry** with several industrial style buildings are located adjacent to the southern site boundary.
1919 - 1938		The old quarry adjacent to site no longer shown. **Allotments** are shown 20m north of the site with large residential development beyond. **Globe farm** is located 100m south of the site.
1939 - 1951		An **abattoir** is located 70m east of the site.
1955 -1965	Water trough located in the middle of the site, potential site use as grazing or pasture land.	Allotments are no longer shown. Residential development is ongoing in the surrounding area. Ruins are located 50m and 70m east of the site. A **garage** is located 200m south-east and a **nursery** 270m south-east of the site.
1968 - 1974	Water trough no longer shown.	There are **active workings** 20m east of the site.
1984 - 1992	No significant changes noted.	The Boldon Junior and Infant school is located adjacent to the east. Boldon Colliery is mapped as largely dismantled by 1992.
1993		Garage no longer shown.
2001-2020	A small building is located in the northern part of the site.	Boldon Business Park is located 90m west of the site.

Historical Aerial Photography and Imagery

4.2 Aerial photographs/imagery available through Google Earth and included within the Groundsure report are summarised in **Table 4:2**.

Table 4:2: Summary of Aerial Photography

Date (Source)	Description
2001 (Google Earth)	The site is shown as agricultural land with relatively small building in the north of the site with an access road to the building from North Road. Surrounding area to the east and south comprises residential properties. Towards the west and north is agricultural land with commercial units and residential properties beyond. Small ground working area noted to the north-west of the building on-site.
2002, 2005, 2006, 2008 (Google Earth)	No significant changes noted.
2009 (Google earth)	Small ground working area noted to the south-west of the building on-site.
2012 (Google earth)	Small ground working area in the south-west of the site no longer shown.
2013, 2015, 2017, 2018 (Google earth)	No significant changes noted.
2018 (Groundsure)	

Operational / Company Records

4.3 No operational records have been made available for review as part of this assessment.

Planning History

4.4 The South Tyneside Council Planning Portal was accessed on 04/02/2020 and indicated that no planning applications have been submitted for the site.

5. REGULATORY SETTING

Permits Consents and Authorisations

5.1 A full listing of permits, consents and authorisations including discharge consents, pollution incidences and other environmental information, is included in the Groundsure report, presented in **Appendix 3.**

5.2 The following pertinent features have been identified, however, due to distance from the site, are not considered to have had or could have a detrimental impact on the site:

- One not active, List 1 Dangerous Substance Inventory Site is recorded 382m north-west of the site, authorised substances are mercury (other) and cadmium.
- Three not active, List 2 Dangerous Substance Inventory Sites are located 199m, 207m and 344m west of the site, authorised substances are chromium, nickel, zinc, copper and iron.
- Several current and historical Part A2 and Part B permits were issued for coating processes, petrol vapour recovery, surface cleaning and unloading of petrol into storage at service stations within 500m of the site. No enforcements are recorded.
- Several RAS Licences are recorded as superseded by variation or surrendered, with one currently issued for the keeping and use of radioactive materials and the disposal of radioactive waste, issued to Ids Ltd located 298m and 337m west of the site.

Landfilling and Waste Management

5.3 A full listing of EA, BGS and Local Authority recorded landfills are provided in the Groundsure report presented in **Appendix 3.**

5.4 The following facilities have been identified, however due to distance from the site, are is not considered to have a detrimental impact on the site.

- One historical landfill site was identified within 1km of the site, located 643m south of the site, accepted inert, industrial, commercial and household waste. Licence issued on 17th March 1980 and surrendered on 28th April 1994.
- Two licenced waste sites located within 1km of the site, both associated with household, commercial and industrial waste landfill.

6. GEOTECHNICAL APPRAISAL

6.1 The Groundsure report, site history, current site setting and geological setting have all been considered in order to provide an indication of the potential ground related constraints and opportunities in the context of the proposed development as set out in **Table 6:1**.

Table 6:1: Ground Related Constraints & Opportunities

Potential Constraint / Opportunity	Explanation	Potential Mitigation Options
Topsoil / Made Ground	Topsoil is expected to be present across the majority of the site. Limited Made Ground is expected to be present along the access road to the building located in the northern part of the site.	Topsoil and Made Ground may be suitable for reuse on site, subject to confirmation of chemical status and engineering properties via ground investigation, and confirmation of potential restrictions on reuse associated with waste management licencing.
Preliminary Foundation Solution	Dependent on the proposed development and associated loadings, a shallow spread foundation solution is likely to be suitable.	Ground investigation should be undertaken to confirm ground conditions at the site and allow for in-situ and laboratory testing to inform foundation design.
Buried Obstructions	Given the historical uses of the site there is limited potential for buried obstructions such as services and former foundations, however, these may be present in the northern part of the site where a structure has historically been present.	Buried obstructions may require removal from site within areas of proposed development.
Trees	Mature trees were noted along the site boundaries.	Foundations in close proximity to new or existing trees may need to be locally deepened beyond the zone of influence of tree roots and/or heave precautions adopted.
Shrinking and Swelling Clays	The Groundsure report indicates a negligible to low risk on site.	The plasticity of any cohesive materials should be assessed during an intrusive ground investigation.
Coal Mining	The Coal Authority Report did not indicate any shallow workings on site or mine entries within 100m of the site. Three underground seams are recorded beneath the site between 434m bgl and 562m bgl.	The site is not in a development high risk area. It is considered that due to the depth of the underground seams, they would not impact the proposed development. No further assessment required.

Potential Constraint / Opportunity	Explanation	Potential Mitigation Options
Mineral Extraction	Potential historical mineral abstraction has been noted adjacent to the southern site boundary.	Ground investigation should be undertaken to confirm the ground conditions at the site.
Earthworks	The site slopes from east to west from approximately 36mAOD to 30mAOD. Earthworks may therefore be required prior to the development.	Geotechnical testing should seek to clarify the properties of soils on site, and to determine their potential for re-use.
Drainage and Soakaways	Based on the anticipated ground conditions, a soakaway drainage solution may be possible within the Alluvium and Till Deposits present on site. However, they are not consistent across the entire site. Soakaways may also be a viable option within the bedrock depending on the extent of the weathering of the underlying mudstone, siltstone and sandstone.	Should soakaways be considered as part of the drainage strategy, it is recommended that infiltration testing in accordance with current guidance is undertaken.
Compressible & Collapsible Deposits	The Groundsure report indicates a moderate risk from compressible deposits and a very low risk from collapsible deposits along the north-western site boundary, associated with the Alluvium.	Ground investigation should be undertaken to confirm the ground conditions at the site.
Running Sands	The Groundsure report indicates a low risk of running sands along the north-western site boundary, associated with the Alluvium.	Ground investigation should be undertaken to confirm the ground conditions at the site.
UXO	Review of the unexploded ordnance risk maps available online indicates the site to be in an area of low risk from UXO.	No further assessment required.

7. PRELIMINARY ENVIRONMENTAL RISK ASSESSMENT

Introduction

7.1 The risk posed by any contaminants in soil or groundwater will depend on the nature of the hazard, the probability of exposure, the pathway by which exposure occurs, and the likely effects on the receptors. A contaminant is defined as a substance that has the potential to cause harm, while a risk is considered to exist if such a substance is present in sufficient concentration to cause harm and a pathway exists for a receptor to be exposed to the substance.

7.2 Three impact potentials exist for any given site, all of which need to be considered in a risk assessment, which are:

- The site impacting upon itself;
- The site impacting on its surroundings; and
- The surroundings impacting on the site.

7.3 The following sections discuss all the identified potential on and off-site sources, pathways and receptors in the context of the proposed development and plausible pollutant linkages which may represent a risk to identified receptors such as human health and/or controlled waters from the data gained from the desk study.

7.4 The assessment is qualitative and aimed to determine all likely pollutant linkages, with consideration of significance and allowing for uncertainties.

7.5 **Sources (S):** These are potential or known sources of contamination that may relate to a former land use or present site feature or process (e.g. fuel storage tanks).

7.6 **Pathways (P):** A pathway is defined as a mechanism or route by which a contaminant comes into contact with, or otherwise affects a receptor. Pathways by which the identified receptors may be impacted upon in the context of the proposed development.

7.7 **Receptors (R):** Receptors are defined as people, living organisms, ecological systems, controlled waters, atmosphere, structures and utilities that could be adversely affected by contaminant(s).

Conceptual Site Model

7.8 Consideration has been given to the likely sources, pathways and receptors which may be present, based on the information in the previous sections. These are presented in **Table 7:1** and **Table 7:2** and further information about the risk classification scheme is included within **Appendix 6**, with reference to CIRIA C552 '*Contaminated land risk assessment - a guide to good practice*'.

7.9 A tabulated version of the Preliminary CSM based on the desk study and site observations is presented in **Table 7:3.**

Table 7:1: Potential Sources of Contamination

Location	Potential Source	Contaminants of Potential Concern (CoPC)
On-site	**MADE GROUND** associated with the building and access road in the northern part of the site.	• Heavy metals • Inorganics, such as cyanides, sulphates and nitrates • pH • PAHs • Asbestos Containing Materials (ACMs) • Petroleum hydrocarbons • Methane, carbon dioxide
Off-site	Contamination associated with the neighbouring commercial land uses, landfills and areas of potentially infilled land (old quarries, brick works and workings) surrounding the site.	• Heavy metals • Inorganics, such as cyanides, sulphates and nitrates • PAHs • Petroleum hydrocarbons • Methane, carbon dioxide

Table 7:2: Relevant Potential Pathways and Receptors

Receptors	Pathways
Human Health: • Future site users (residential) • Intrusive maintenance workers	• Dermal contact with soil or dust • Incidental ingestion of soil and/or dust • Inhalation of dust and/or fibres • Ingestion of contaminated vegetables and/or soil attached to vegetables • Migration and accumulation of ground gas in enclosed spaces leading to inhalation or explosion
Controlled Waters: • Groundwater (Secondary A Aquifer and Secondary (undifferentiated) Aquifers) • Surface water (River Don)	• Leaching of soil contaminants • Vertical and lateral migration • Surface run-off
Property: • Underground utilities • Building structures	• Direct contact • Accumulation and explosion of gas

Table 7:3: Preliminary Conceptual Site Model

Source	Pathway	Receptor	Con	Prob	Risk	Potential Mitigation/Investigation Requirements
On-site sources as detailed in **Table 7:1**.	Dermal contact with, and incidental ingestion of soil and/or dust. Inhalation of dust and/or fibres.	Future site users (residential)	Mi	Lw	L	It is unlikely that significant contamination exists at the site, however, if contamination is identified, the risk to future site users could be mitigated via a clean capping topsoil layer, with/ without a membrane, or hardstanding.
		Intrusive maintenance workers	Mi	Ul	VL	The exposure of intrusive maintenance workers can be mitigated by the adoption of suitable working methods, utilising appropriate personal protective equipment (PPE) and maintaining good hygiene. If significant asbestos is recorded, the requirements of the Control of Asbestos Regulations (CAR) 2012 should be complied with.
	Ingestion of contaminated vegetables and/or soil attached to vegetables.	Future site users (residential)	Mi	Ul	VL	In garden areas the provision of a clean capping layer would limit the potential for vegetables to be grown in potentially contaminated soils.
	Migration and accumulation of ground gases in enclosed spaces leading to asphyxiation (carbon dioxide) or explosion (methane).	Future site users (residential)	Md	Ul	L	The potential presence of Made Ground and Alluvium within localised areas of the site present a potential albeit limited risk from ground gases. Ground investigation should include the installation of ground gas monitoring wells in order to determine the risk posed from ground gases.
	Leaching and permeation through soil profile.	Groundwater: Underlying Secondary A Aquifer and Secondary (undifferentiated) Aquifer	Mi	Lw	L	No groundwater or surface water data is currently available for the site. Lack of significant contamination sources at the site result in limited potential risk to controlled waters. The recommendations of EA document PPG6: *Construction and Demolition Sites: Prevent Pollution should be considered during construction.*
	Vertical and lateral migration of contaminants.		Mi	Ul	VL	
	Surface run-off.	River Don	Mi	Lw	L	

Source	Pathway	Receptor	Con	Prob	Risk	Potential Mitigation/Investigation Requirements
	Direct contact.	Water utility pipes	Mi	Lw	L	Organic compounds in the shallow soils could taint the water supply. A ground investigation and subsequent laboratory analysis should be undertaken to inform the design of new services.
		Buried structures/ foundations.	Mi	Ul	VL	Sulphates and low pH in the ground could accelerate the degradation of buried concrete structures (e.g. foundations). Ground investigation should include an assessment of the concrete design class.
Off-site sources as detailed in **Table 7:1**.	Migration and accumulation of ground gases in enclosed spaces leading to asphyxiation (carbon dioxide) or explosion (methane).	Future site users (residential)	Md	Ul	L	Ground gas monitoring should be completed as part of an intrusive ground investigation in order to characterise the ground gas regime at the site. Where possible, monitoring wells should be located along the site boundaries in order to delineate any potential contamination migration and its source.
	Lateral migration of contaminated groundwater.	Groundwater: Underlying Secondary A Aquifer and Secondary (undifferentiated) Aquifer	Mi	Ul	VL	Where possible, groundwater monitoring wells should be located along the site boundaries in order to delineate any potential contamination migration and its source.

VH = Very High, H = High, M = Moderate, M/L = Moderate/Low, L = Low, VL = Very Low

KEY: Sv = Severe, Md = Medium, Mi = Mild, Mr = Minor, Hi = High, Li = Likely, Lw = Low Likelihood, Ul = Unlikely

Pollutant Linkage Assessment Summary

When considered in the context of the conceptual site model and the historical activities that have taken place (grazing land, small building and access road in the northern part of the site), the proposed development is considered to pose a LOW risk to human health. It is considered that the main driver for the risk rating for human health is ground gas generation, albeit from potentially limited sources.

The risk posed to controlled waters is predominantly considered to be VERY LOW to LOW due to limited contamination sources identified on site.

It is recommended that a ground investigation be undertaken to quantify the identified pollutant linkages and assess likely mitigation measures.

8. CONCLUSION AND RECOMMENDATIONS

Conclusions

8.1 The site is located west of North Road in West Boldon, South Tyneside. The site comprises of several grassed fields currently used for horse grazing.

8.2 The site has been used as grazing land throughout mapping history, with a small building and access road present in the north of the site.

8.3 Several old quarries and collieries were located within the surrounding area.

8.4 Information published by the BGS indicates that the site is underlain by Till across the majority of the south-eastern half of the site, with superficial deposits absent across the north-western half of the site. Alluvium (clay, silt, sand and gravel) is indicated to be present encroaching along the north-western boundary and the Pelaw Clay Member (silty clay with pebbles and cobbles) across the south-eastern boundary. The bedrock geology is anticipated to comprise Pennine Upper Coal Measures Formation described as mudstone, siltstone and sandstone across the western half of the site and specifically sandstone in the east of the site.

8.5 The EA classifies the superficial deposits of Alluvium as a Secondary A Aquifer, the Till deposits as a Secondary (Undifferentiated) Aquifer and the Pelaw Clay Member as an unproductive strata. The bedrock deposits of Pennine Upper Coal Measures Formation are classified as a Secondary A Aquifer.

8.6 The site slopes from east to west from approximately 36mAOD to 30mAOD, therefore earthworks may be required prior to the development.

8.7 The site is within an area of historical coal mining activity with three underground seams recorded under the site ranging in depth between 434m bgl and 562m bgl. Given the depth of the coal seams, they are not considered to represent a ground stability risk to the proposed development. No shallow workings or mine entries are recorded on the site or within 100m of the site boundary.

8.8 When considered in the context of the conceptual site model and the historical activities that have taken place, the potential for contamination to impact on the proposed development is generally considered to be low to moderate. It is considered that the main driver for the risk rating for human health is ground gas generation, albeit from potentially limited sources.

Recommendations

8.9 A ground investigation should be undertaken at the site to:

- Confirm ground conditions at the site;
- Assess the ground gas regime;
- Allow for in-situ and laboratory testing to inform foundation design; and

- Earthworks specification, if required.

8.10 The risk from contamination at the site has generally been assessed as low, it is considered best practice to allow for testing of soils as part of any ground investigation to confirm the absence of any contamination, as well as to determine the suitability of soils for reuse as part of the proposed development.

9. REFERENCES

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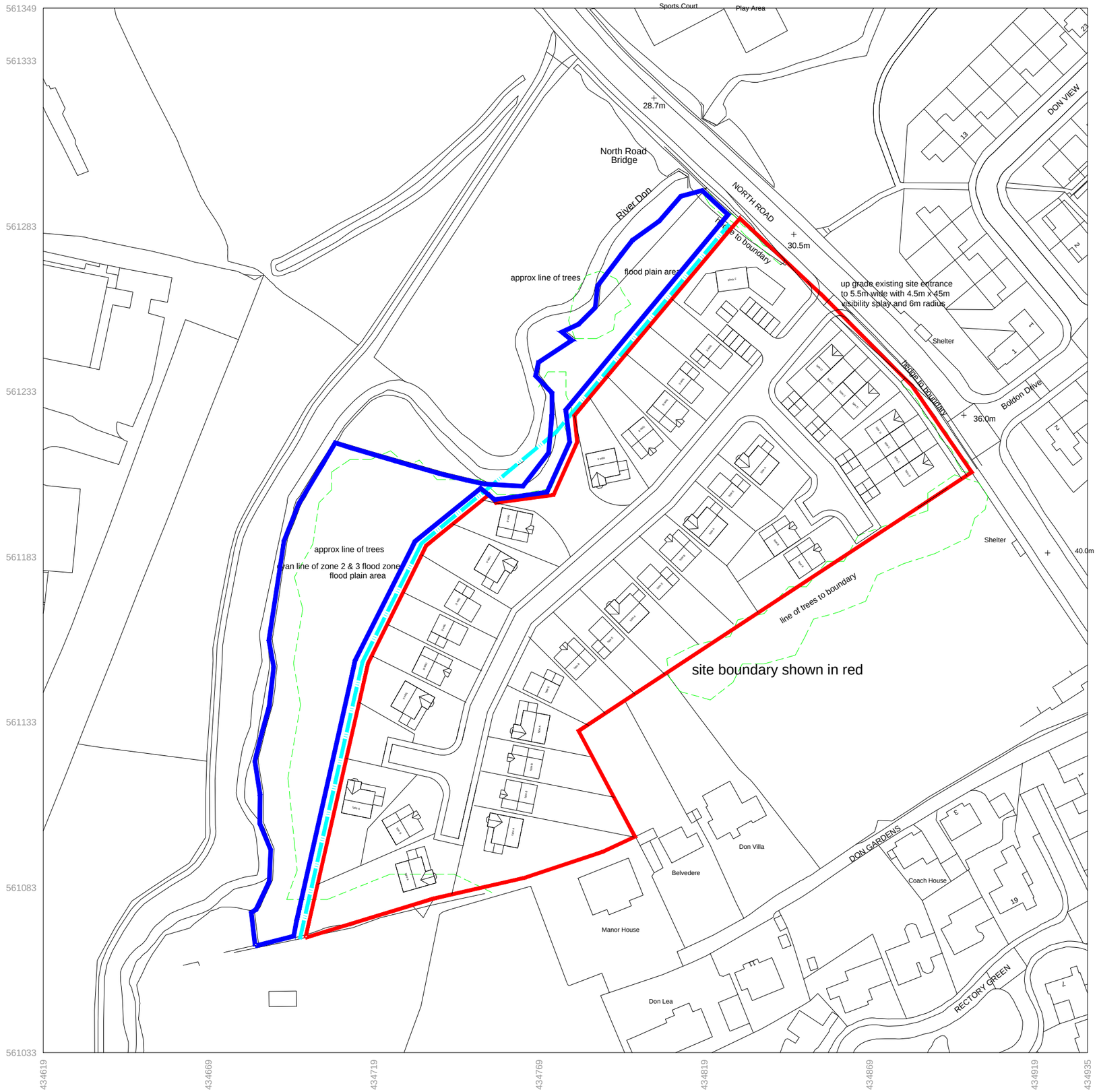
APPENDICES

Appendix 1: Proposed Development Masterplan



type A

type A 2 story 4 bed 160m²
not including garage

North

type B

type B 2 story 3 bed 110m²
not including garage

type C

type C 3 story 4 bed town house132m²
with detached garage

type D

type C 2 ½ story 3 bed town house 112m²
with detached garage

type E

type E 2 story 3 bed 95m²
not including garage

block F 3 story, 9 no 2 bed apartments 50m²
12no parking bays

cummings
Architects Limited

17 Killingworth Drive • Sunderland • SR4 8QQ • Tel: 07985442755
e-mail: info@cummingsarchitects.co.uk

PROJECT
Land North Road, West Boldon

DRAWING TITLE
proposed plan

DATE	SCALE	JOB NO.	DRAWING NO.	REV.
04.12.19	1250@ A3	19085	02	*

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Dimensions to be confirmed on site before work commences & ordering of materials. Any discrepancies must be reported to Architect before any work is undertaken. This drawing is to be read in conjunction with relevant consultants information and specifications.

A Member of the Royal Institute of British Architects

Appendix 2: Site Photographs

Project Number: MCW2139
Project Name: Land Off North Road
Site Photographs



Photo 1—View of the site from North Road (looking north west)



Photo 2—Site access from North Road.

Project Number: MCW2139
Project Name: Land Off North Road
Site Photographs



Photo 3—River down with the site sloping up to the south



Photo 4—View of site from Bridleway, looking south.

Project Number: MCW2139
Project Name: Land Off North Road
Site Photographs



Photo 5—New housing development to the north.



Photo 6—Bridleway (off site).

Project Number: MCW2139
Project Name: Land Off North Road
Site Photographs



Photo 7—Earth bank to the north of the River Don.



Photo 8—River Don forming the south boundary.

Project Number: MCW2139
Project Name: Land Off North Road
Site Photographs



Photo 9—View of the site (looking south) showing the site slopes.

Appendix 3: Groundsure Report

BWB Consulting Limited

5th Floor, Waterfront House, Station Street,
Nottingham, NG2 3DQ

Groundsure Reference:	HMD-214-6574771
Your Reference:	MCW2139-POR030155
Report Date	24 Jan 2020
Report Delivery Method:	Email - pdf

Enviro Insight

Address: LAND OFF NORTH ROAD, WEST BOLDEN, NE35 9BL

Dear Sir/ Madam,

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

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

Yours faithfully,

[redacted]

Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Enviro Insight

Address:	**LAND OFF NORTH ROAD, WEST BOLDEN, NE35 9BL**
Date:	**24 Jan 2020**
Reference:	**HMD-214-6574771**
Client:	**BWB Consulting Limited**

NW N NE



W E

SW S SE

Aerial Photograph Capture date: 18-Jul-2018
Grid Reference: 434782,561175
Site Size: 1.8789ha

Report Reference: HMD-214-6574771
Client Reference: MCW2139-POR030155

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Overview of Findings

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

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	2	26	46
1.2 Additional Information – Historical Tank Database	0	0	0	10
1.3 Additional Information – Historical Energy Features Database	0	0	1	25
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	4	13
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	1	24	23

Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	1
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	2	1
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	7
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	9
2.1.8 Records of Licensed Discharge Consents	0	0	3	6
2.1.9 Records of Water Industry Referrals	0	0	0	2
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	2	5
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites

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

Section 4: Current Land Use

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

Section 5: Geology

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

Section 6: Hydrogeology and Hydrology

	0-500m
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site	Identified
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site	Identified

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	3	0
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	1	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	3	1	1	0	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	No	No	No
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	0	6	4	0	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	Yes	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Enviroment Agency Zone 2 floodplains within 250m of the study site	Identified
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	Identified
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	High
7.4 Flood Defences within 250m of the study site	None identified
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified
7.6 Areas used for Flood Storage within 250m of the study site	None identified
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Potential at Surface
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	Moderate

Section 8: Designated Environmentally Sensitive Sites

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

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	0	0	0	0	0	0
8.14 Records of Green Belt land	0	0	1	0	0	5

Section 9: Natural Hazards

9.1 Maximum risk of natural ground subsidence	Moderate
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Low
9.1.2 Maximum Landslides hazard rating identified on the study site	Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Moderate
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining

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

Using this report

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

1. Historical Industrial Sites

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

2. Environmental Permits, Incidents and Registers

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

3. Landfills and Other Waste Sites

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

4. Current Land Uses

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

5. Geology

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

6. Hydrogeology and Hydrology

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

7. Flooding

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

8. Designated Environmentally Sensitive Sites

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

9. Natural Hazards

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

10. Mining

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

11. Contacts

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

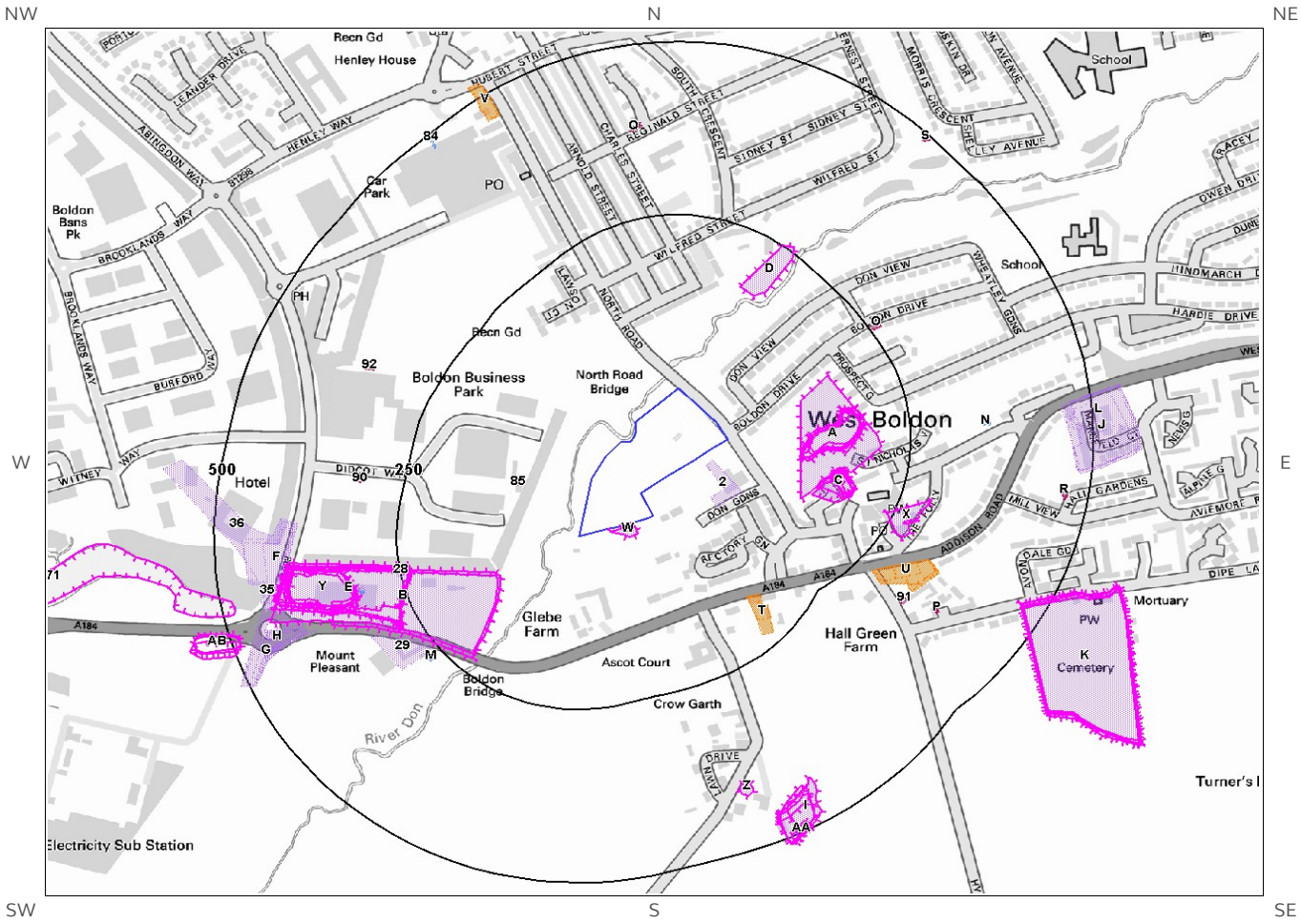
Note: Maps

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

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

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

1. Historical Land Use



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Site Outline

250
500
Search Buffers (m)

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

Industrial Land Use

Potentially Infilled Land

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

Energy Features

Petrol Stations

Historical military sites

Tanks

Garages

1. Historical Industrial Sites

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

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

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 74

ID	Distance [m]	Direction	Use	Date
1W	3	S	Unspecified Old Quarry	1898
2	14	SE	Abattoir	1965
3A	99	E	Unspecified Workings	1968
4A	101	E	Unspecified Old Quarries	1921
5A	102	E	Unspecified Pit	1950
6A	104	E	Unspecified Old Quarries	1938
7A	109	E	Unspecified Old Quarries	1898
8A	111	E	Unspecified Old Quarries	1857
9A	111	E	Unspecified Old Quarries	1921
10B	121	SW	Brick Works	1898
11B	126	SW	Brick Works	1921
12C	140	SE	Unspecified Old Quarries	1898
13C	140	SE	Unspecified Old Quarries	1857
14C	145	SE	Unspecified Old Quarries	1921
15C	148	E	Unspecified Old Quarries	1921
16C	152	E	Unspecified Old Quarries	1938
17D	168	NE	Unspecified Heap	1992
18D	168	NE	Unspecified Heap	1965
19D	168	NE	Unspecified Heap	1973
20E	234	W	Brick Works	1951
21E	235	W	Brick Works	1938
22E	236	W	Brick Works	1921
23E	236	W	Brick Works	1921
24E	239	W	Unspecified Works	1992
25E	239	W	Brick Works	1965
26E	239	W	Brick Works	1973
27X	242	SE	Grave Yard	1857
28	245	W	Unspecified Tank	1938
29	255	SW	Coal and Lime Depot	1951
30E	304	W	Unspecified Tank	1951
31E	304	W	Unspecified Tank	1938
32E	305	W	Unspecified Tank	1921
33E	309	W	Unspecified Old Tanks	1921
34G	384	W	Railway Sidings	1938

35	385	W	Railway Sidings	1921
36	390	W	Railway Sidings	1898
37F	390	W	Railway Sidings	1951
38F	392	W	Railway Sidings	1938
39G	398	W	Railway Sidings	1921
40G	398	W	Railway Sidings	1857
41G	401	W	Railway Sidings	1898
42Z	404	S	Sand Pit	1857
43H	405	W	Coal and Lime Depot	1921
44G	407	W	Railway Sidings	1951
45G	426	W	Coal and Lime Depot	1857
46G	426	W	Coal and Lime Depot	1921
47H	427	W	Railway Station	1857
48H	427	W	Railway Station	1921
49I	434	SE	Unspecified Old Quarry	1921
50I	434	SE	Unspecified Old Quarry	1857
51H	436	W	Railway Station	1898
52H	437	W	Railway Station	1938
53H	437	W	Railway Station	1951
54H	438	W	Railway Building	1898
55H	439	W	Railway Building	1938
56I	439	SE	Unspecified Ground Workings	1898
57I	446	SE	Unspecified Old Quarry	1921
58I	452	SE	Unspecified Old Quarry	1938
59J	459	E	Unspecified Mill	1898
60J	461	E	Unspecified Disused Mill	1938
61K	465	SE	Cemetery	1985
62K	465	SE	Cemetery	1968
63K	465	SE	Cemetery	1950
64K	465	SE	Cemetery	1974
65K	468	SE	Cemetery	1921
66J	469	E	Unspecified Disused Mill	1921
67J	470	E	Unspecified Mill	1974
68J	470	E	Unspecified Mill	1968
69J	470	E	Unspecified Disused Mill	1950
70L	471	E	Corn Mill	1857
71L	471	E	Unspecified Disused Mill	1921
72K	471	SE	Cemetery	1938
73K	471	SE	Cemetery	1921
74AA	486	SE	Unspecified Old Quarry	1898

1.2 Additional Information – Historical Tank Database

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

Records of historical tanks within 500m of the search boundary: 10

ID	Distance (m)	Direction	Use	Date
75M	268	SW	Unspecified Tank	1970
76M	268	SW	Unspecified Tank	1955
77M	268	SW	Unspecified Tank	1955
78M	268	SW	Unspecified Tank	1992
79E	305	W	Unspecified Tank	1919
80E	305	W	Unspecified Tank	1896
81N	350	E	Unspecified Tank	1897
82N	350	E	Unspecified Tank	1932
83N	356	E	Unspecified Tank	1919
84	477	NW	Unspecified Tank	1956

1.3 Additional Information – Historical Energy Features Database

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

Records of historical energy features within 500m of the search boundary: 26

ID	Distance (m)	Direction	Use	Date
85	92	W	Electricity Substation	1993
86O	253	NE	Electricity Substation	1977
87O	254	NE	Electricity Substation	1992
88O	254	NE	Electricity Substation	1981
89O	254	NE	Electricity Substation	1984
90	308	W	Electricity Substation	1993
91	332	SE	Electricity Substation	1993
92	337	NW	Electricity Substation	1993
93P	373	SE	Electricity Substation	1955
94P	373	SE	Electricity Substation	1973
95P	374	SE	Electricity Substation	1993
96P	374	SE	Electricity Substation	1955
97Q	375	N	Electricity Substation	1994
98Q	378	N	Electricity Substation	1994
99Q	378	N	Electricity Substation	1982
100Q	378	N	Electricity Substation	1988

101Q	378	N	Electricity Substation	1982
102Q	379	N	Electricity Substation	1970
103R	460	E	Electricity Substation	1992
104R	460	E	Electricity Substation	1981
105R	460	E	Electricity Substation	1984
106R	461	E	Electricity Substation	1977
107S	489	NE	Electricity Substation	1982
108S	490	NE	Electricity Substation	1974
109S	491	NE	Electricity Substation	1994
110S	491	NE	Electricity Substation	1993

1.4 Additional Information – Historical Petrol and Fuel Site Database

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

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

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

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

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 17

ID	Distance (m)	Direction	Use	Date
111T	173	SE	Garage	1955
112T	173	SE	Garage	1970
113T	173	SE	Garage	1955
114T	174	SE	Garage	1993
115U	273	SE	Garage	1957
116U	274	SE	Garage	1956
117U	276	SE	Garage	1981
118U	276	SE	Garage	1984
119U	276	SE	Garage	1992
120U	291	SE	Garage	1977
121U	291	SE	Garage	1968
122U	291	SE	Garage	1968
123U	322	SE	Garage	1973
124U	324	SE	Garage	1993
125V	464	NW	Garage	1982
126V	465	NW	Garage	1982

127V	467	NW	Garage	1970

1.6 Historical military sites

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

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

Database searched and no data found.

1.7 Potentially Infilled Land

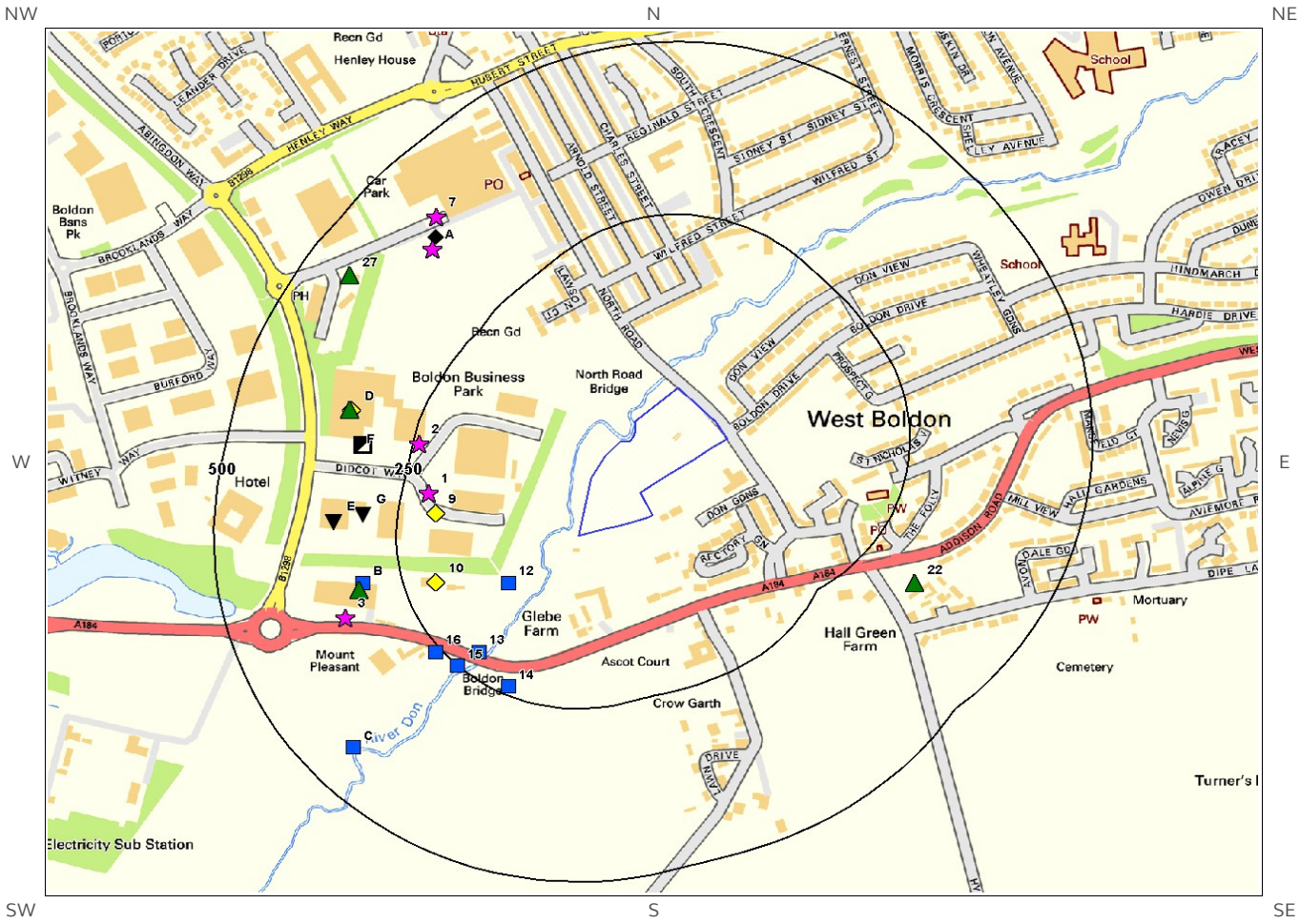
Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 48

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

ID	Distance(m)	Direction	Use	Date
128W	3	S	Unspecified Old Quarry	1898
129A	99	E	Unspecified Workings	1968
130A	101	E	Unspecified Old Quarries	1921
131A	102	E	Unspecified Pit	1950
132A	104	E	Unspecified Old Quarries	1938
133A	109	E	Unspecified Old Quarries	1898
134A	111	E	Unspecified Old Quarries	1857
135A	111	E	Unspecified Old Quarries	1921
136B	121	SW	Brick Works	1898
137B	126	SW	Brick Works	1921
138C	140	SE	Unspecified Old Quarries	1898
139C	140	SE	Unspecified Old Quarries	1857
140C	145	SE	Unspecified Old Quarries	1921
141C	148	E	Unspecified Old Quarries	1921
142C	152	E	Unspecified Old Quarries	1938
143D	168	NE	Unspecified Heap	1992
144D	168	NE	Unspecified Heap	1965
145D	168	NE	Unspecified Heap	1973
146E	234	W	Brick Works	1951
147E	235	W	Brick Works	1938
148E	236	W	Brick Works	1921
149E	236	W	Brick Works	1921
150E	239	W	Brick Works	1965
151E	239	W	Brick Works	1973
152X	242	SE	Grave Yard	1857
153Y	314	W	Pond	1898

154Y	315	W	Pond	1951
155Y	317	W	Pond	1938
156Y	317	W	Pond	1921
157Y	320	W	Pond	1921
158Z	404	S	Sand Pit	1857
159I	434	SE	Unspecified Old Quarry	1921
160I	434	SE	Unspecified Old Quarry	1857
161I	439	SE	Unspecified Ground Workings	1898
162I	446	SE	Unspecified Old Quarry	1921
163AA	452	SE	Unspecified Old Quarry	1938
164K	465	SE	Cemetery	1974
165K	465	SE	Cemetery	1985
166K	465	SE	Cemetery	1968
167K	465	SE	Cemetery	1950
168K	468	SE	Cemetery	1921
169K	471	SE	Cemetery	1938
170K	471	SE	Cemetery	1921
171	482	W	Pond	1992
172AA	486	SE	Unspecified Old Quarry	1898
173AB	487	W	Pond	1938
174AB	489	W	Pond	1921
175AB	495	W	Pond	1921

2. Environmental Permits, Incidents and Registers Map



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Site Outline

250
500
Search Buffers (m)

Recorded Pollution Incident

Dangerous Substances (List 1)

Dangerous Substances (List 2)

Water Industry Referrals

Licenced Discharge Consents

Red List Discharge Consents

RAS 3 & 4 Authorisations

Part A(1) Authorised Processes and Historic IPC Authorisations

Part A(2) and Part B Authorised Processes

COMAH / NIHHS Sites

Sites Determined as Contaminated Land

Hazardous Substance Consents and Enforcements

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

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

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

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:

1

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

ID	Distance (m)	Direction	NGR	Details	
8A	382	NW	434500 561500	Name: Hashimoto Ltd, Boldon Status: Not Active Receiving Water: Dummy Site	Authorised Substances: Mercury (other), Cadmium

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

3

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	
9	199	W	434500 561100	Name: Hashimoto Ltd Ed Plant Status: Not Active Receiving Water: Unknown	Authorised Substances: Chromium, Nickel, Zinc
10	207	W	434500 561000	Name: Domnick Hunter Fabrication Ltd Status: Not Active Receiving Water: Unknown	Authorised Substances: Copper, Iron, Nickel
11D	344	W	434384 561249	Name: Hashimoto Ltd, Boldon Status: Not Active Receiving Water: Unknown	Authorised Substances: Chromium, Nickel, Zinc

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

7

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	
21B	312	W	434395 560987	Address: Thorn Emi Rentals Didcot Way, Boldon Bus Pk, NE35 9PD Process: Coating Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
22	331	SE	435156 560998	Address: Bank Top Garage, Addison Rd, West Boldon, NE36 0QZ Process: Petrol Vapour Recovery Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
23D	345	W	434382 561248	Address: Faltec Europe Ltd, Dicot Way, Boldon Colliery, NE35 9PD Process: Surface Cleaning Status: Current Permit Permit Type: Part A2	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
24D	345	W	434382 561248	Address: Hashimoto Ltd, Didcot Way, Boldon Business Park, Boldon Colliery NE35 9PD Process: Surface Cleaning Status: Historical Permit Permit Type: Part A2	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
25D	345	W	434382 561248	Address: Faltec Europe Ltd, Dicot Way, Boldon Colliery, NE35 9PD Process: Surface Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
26D	345	W	434382 561248	Address: Hashimoto Ltd, Didcot Way, Boldon Business Park, Boldon Colliery NE35 9PD Process: Coating Processes	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified

ID	Distance (m)	Direction	NGR	Details	
				Status: Historical Permit Permit Type: Part B	
27	436	NW	434382 561443	Address: Asda Boldon Petrol Filling Station, North Road, Boldon Colliery, NE35 9AR Process: Unloading of Petrol into Storage at Service Stations 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:

9

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
39G	298	W	434400 561100	Ids Ltd, Unit 10,didcot Way,boldon Business Park, Boldon Colliery, Tyne And Wear, NE35 9PD	Ids Ltd	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AA1481	Date of Approval:19-6-1991 Effective from:19-6-1991 Last date of update:2005-01-06	Superseded By Variation
40E	337	W	434360 561090	Ids Ltd, Unit 10, Didcot Way, Boldon Business Park, Boldon Colliery, Tyne And Wear, NE35 9PD	Ids Ltd	Disposal Of Radioactive Waste (was Rsa60 Section 6).	BW5179	Date of Approval:1/12/2003 Effective from:1/1/2004 Last date of update:2015-01-01	Superseded By Variation
41E	337	W	434360 561090	Ids Ltd, Unit 10, Didcot Way, Boldon Business Park, Boldon Colliery, Tyne And Wear, NE35 9PD	Ids Ltd	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AC1172	Date of Approval:31/3/1991 Effective from:31/3/1991 Last date of update:2015-01-01	Superseded By Variation
42E	337	W	434360 561090	Ids Ltd, Unit 10, Didcot Way, Boldon Business Park, Boldon Colliery, Tyne And Wear, NE35 9PD	Ids Ltd	Disposal Of Radioactive Waste (was Rsa60 Section 6).	BK5975	Date of Approval:6/4/2001 Effective from:9/4/2001 Last date of update:2015-01-01	Superseded By Variation

ID	Distance (m)	Direction	NGR	Address	Operator	Type	Permission Number	Dates	Status
43E	337	W	434360 561090	Ids Ltd, Unit 10, Didcot Way, Boldon Business Park, Boldon Colliery, Tyne And Wear, NE35 9PD	Ids Ltd	Disposal Of Radioactive Waste (was Rsa60 Section 6).	BI9324	Date of Approval:11/8/2000 Effective from:14/8/2000 Last date of update:2015-01-01	Superseded By Variation
44E	337	W	434360 561090	Ids Ltd, Unit 10, Didcot Way, Boldon Business Park, Boldon Colliery, Tyne And Wear, NE35 9PD	Ids Ltd	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AH5345	Date of Approval:10/2/1993 Effective from:10/2/1993 Last date of update:2015-01-01	Superseded By Variation
45E	337	W	434360 561090	Unit 10, Didcot Way, Boldon Business Park, Boldon Colliery, NE35 9PD	Immunodiagnostic Systems Limited	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	BK5967	Date of Approval:6/4/2001 Effective from:- Last date of update:2018-11-01	Surrendered
46E	337	W	434360 561090	Unit 10, Didcot Way, Boldon Business Park, Boldon Colliery, NE35 9PD	Immunodiagnostic Systems Limited	Disposal Of Radioactive Waste (was Rsa60 Section 6).	CA1693	Date of Approval:13/3/2006 Effective from:- Last date of update:2018-11-01	Surrendered
47E	337	W	434360 561090	Unit 10, Didcot Way, Boldon Business Park, Boldon Colliery, NE35 9PD	Immunodiagnostic Systems Limited	-	ZB3695DC	Date of Approval:- Effective from:19-11-2014 Last date of update:2018-11-01	Issued

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

9

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

ID	Distance (m)	Direction	NGR	Details	
12	118	SW	434600 561000	Address: GLEBE FARM, NEWCASTLE ROAD, BOLDON Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 235/1892 Permit Version: 1	Receiving Water: RIVER DON Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 26/08/2004 Effective Date: 26-Aug-2004 Revocation Date: -
13	216	SW	434560	Address: TRAVELLING MAN PUBLIC HOUSE,	Receiving Water: DON

ID	Distance (m)	Direction	NGR	Details	
			560900	WEST BOLDON Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 235/1607 Permit Version: 2	Status: REVOKED - DISCHARGE CEASED (WATER ACT 1989 SCHED 12 & 6) Issue date: 15/04/1997 Effective Date: 05-Feb-2000 Revocation Date: 19/10/2007
14	238	SW	434600 560850	Address: RAILWAY TAVERN, THE, WEST BOLDON, COUNTY DURHAM Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 235/D/0058 Permit Version: 1	Receiving Water: DON Status: REVOKED - UNSPECIFIED Issue date: 27/05/1966 Effective Date: 27-May-1966 Revocation Date: 07/08/1992
15	251	SW	434530 560880	Address: MOUNT PLEASANT FARM, WEST BOLDON, TYNE AND WEAR Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 235/1208 Permit Version: 1	Receiving Water: DON (TYNE) Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Issue date: 24/08/1992 Effective Date: 24-Aug-1992 Revocation Date: -
16	258	SW	434500 560900	Address: MOUNT PLEASANT FARM, WEST BOLDON, TYNE AND WEAR Effluent Type: AGRICULTURE - LIVESTOCK FARMING Permit Number: 235/C/0101 Permit Version: 1	Receiving Water: DON Status: REVOKED - UNSPECIFIED Issue date: 17/11/1967 Effective Date: 17-Nov-1967 Revocation Date: 24/08/1992
17B	304	W	434400 561000	Address: TRAVELLING MAN PUBLIC HOUSE, WEST BOLDON Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 235/1607 Permit Version: 1	Receiving Water: DON Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 15/04/1997 Effective Date: 15-Apr-1997 Revocation Date: 04/02/2000
18B	304	W	434400 561000	Address: TRAVELLING MAN PUBLIC HOUSE, WEST BOLDON Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 235/1159 Permit Version: 1	Receiving Water: DON Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 19/08/1992 Effective Date: 19-Aug-1992 Revocation Date: 30/09/1996
19C	435	SW	434387 560762	Address: TESTO A19/184 JUNCTION IMPROVEMENTS, SITE OFFICE, NEWCASTLE ROAD Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: EPRMB3194AK Permit Version: 1	Receiving Water: RIVER DON Status: NEW ISSUED UNDER EPR 2010 Issue date: 04/07/2019 Effective Date: 04-Jul-2019 Revocation Date: -
20C	435	SW	434387 560762	Address: TESTO A19/184 JUNCTION IMPROVEMENTS, SITE OFFICE, NEWCASTLE ROAD Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: EPRMB3194AK Permit Version: 1	Receiving Water: RIVER DON Status: NEW ISSUED UNDER EPR 2010 Issue date: 04/07/2019 Effective Date: 04-Jul-2019 Revocation Date: -

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

2

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

ID	Distance (m)	Direction	Address	Permission reference	Local Authority	First Date Received	Last Date Received	Status
48F	317	W	HASHIMOTO LTD, UNIT 1 DIDCOT WAY, BOLDON BUSINESS PARK, BOLDON, TYNE AND WEAR, NE35 9PD	AB4702	SOUTH TYNESIDE METROPOLITAN BOROUGH COUNCIL	01-Jun-2001	01-Jan-2018	DEAD (APPLICATION)
49F	317	W	HASHIMOTO LTD, UNIT 5 DIDCOT WAY, BOLDON BUSINESS PARK, BOLDON COLLIERY, TYNE AND WEAR, NE35 9PD	AV1696	SOUTH TYNESIDE METROPOLITAN BOROUGH COUNCIL	01-Jun-2001	01-Jan-2018	RECEIVED

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

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

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

7

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	214	W	434490.0 561130.0	Incident Date: 27-Sep-2001 Incident Identification: 33326.0 Pollutant: Organic Chemicals/Products Pollutant Description: Paints and Varnishes	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2	242	W	434477.0 561201.0	Incident Date: 14-Aug-2002 Incident Identification: 100023.0 Pollutant: Oils and Fuel Pollutant Description: Hydraulic Oils	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
3	341	W	434376.0 560950.0	Incident Date: 03-Jun-2002 Incident Identification: 82707.0 Pollutant: Organic Chemicals/Products Pollutant Description: Hydrocarbons	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
4A	374	NW	434495.0 561483.0	Incident Date: 05-Jun-2002 Incident Identification: 82889.0 Pollutant: Other Pollutant:Pollutant Not Identified Pollutant Description: Other:Not Identified	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
5A	374	NW	434495.0 561483.0	Incident Date: 05-Jun-2002 Incident Identification: 82889.0 Pollutant: Other Pollutant Pollutant Description: Other	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
6A	374	NW	434495.0 561483.0	Incident Date: 05-Jun-2002 Incident Identification: 82889.0 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
7	403	NW	434500.0 561530.0	Incident Date: 18-Nov-2001 Incident Identification: 43485.0 Pollutant: Specific Waste Materials Pollutant Description: Tyres	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

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

0

Database searched and no data found.

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

Records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site	0

Database searched and no data found.

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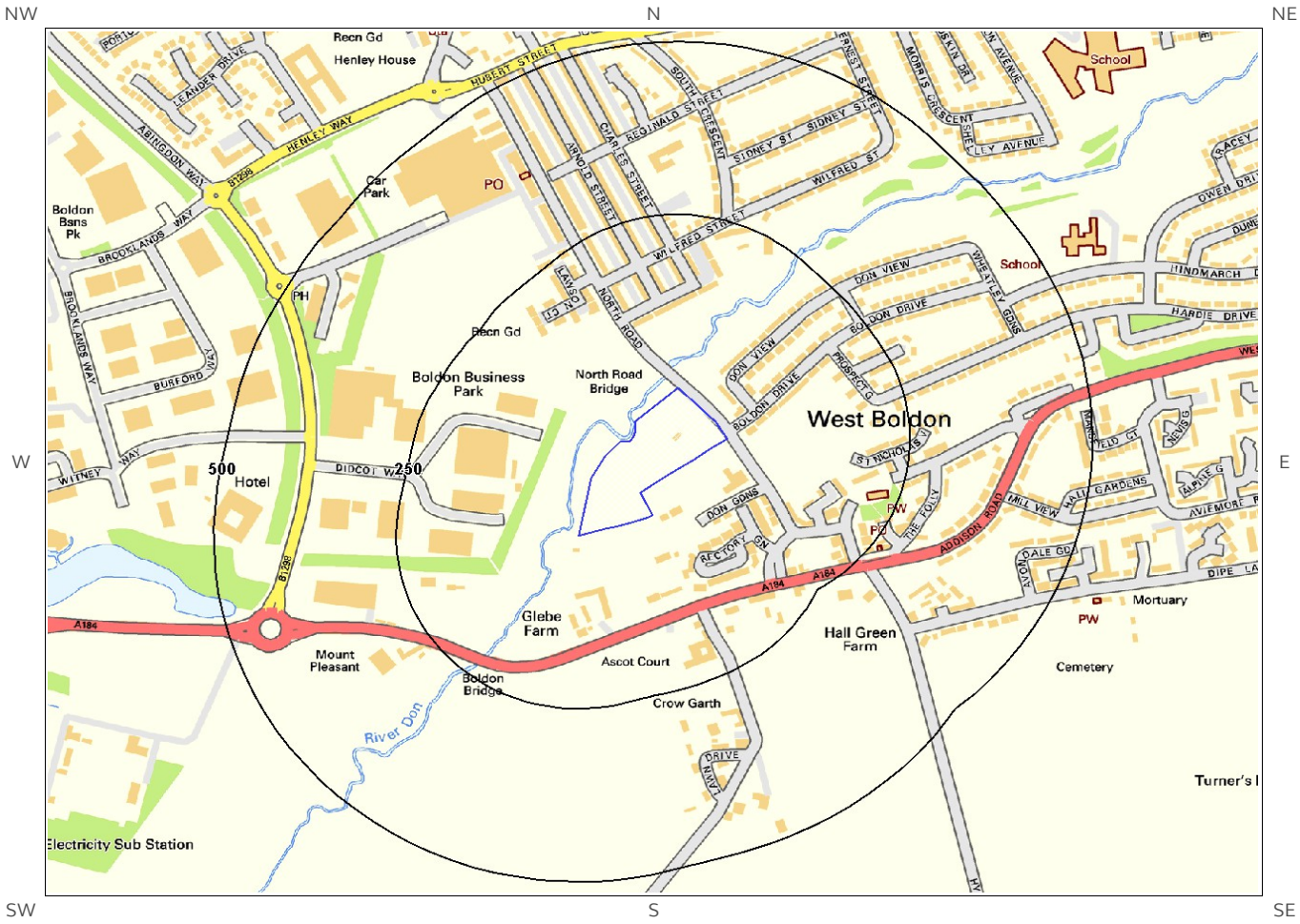
3. Landfill and Other Waste Sites Map



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Site Outline

250
500
Search Buffers (m)

EA/NRW Active Landfill

EA/NRW Historic Landfill

BGS / DoE Survey Landfill

Historic and Planned Waste Sites

EA/NRW Licensed Waste Site

Local Authority/Historical Mapping Landfill Records

3. Landfill and Other Waste Sites

3.1 Landfill Sites

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

0

Database searched and no data found.

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

2

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	643	S		Site Address: Downhill Quarry North, Downhill Lane, Boldon, Tyne and Wear Waste Licence: Yes Site Reference: ST 042, TW 058 ST, TW 085 ST, 4500/0298, ST 011 Waste Type: Inert, Industrial, Commercial, Household Environmental Permitting Regulations (Waste) Reference: TWR/L/CLE002	Licence Issue: 17-Mar-1980 Licence Surrendered: 28-Apr-1994 Licence Holder Address: Downhill Quarry, Downhill Lane, Boldon Operator: - Licence Holder: Cleartop Limited First Recorded: 17-Mar-1980 Last Recorded: 28-Apr-1994
Not shown	1359	NE		Site Address: New Road, East Boldon, Tyne and Wear Waste Licence: Yes Site Reference: TW 092 ST, ST 040 Waste Type: - Environmental Permitting Regulations (Waste) Reference: YO1/L/BRO002	Licence Issue: 21-Oct-1982 Licence Surrendered: 31-Mar-1994 Licence Holder Address: 34, Woodlands Road, Cleadon Village, Tyne and Wear Operator: - Licence Holder: F S Bromley First Recorded: - Last Recorded: -

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

0

Database searched and no data found.

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

0

Database searched and no data found.

3.2 Other Waste Sites

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

0

Database searched and no data found.

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

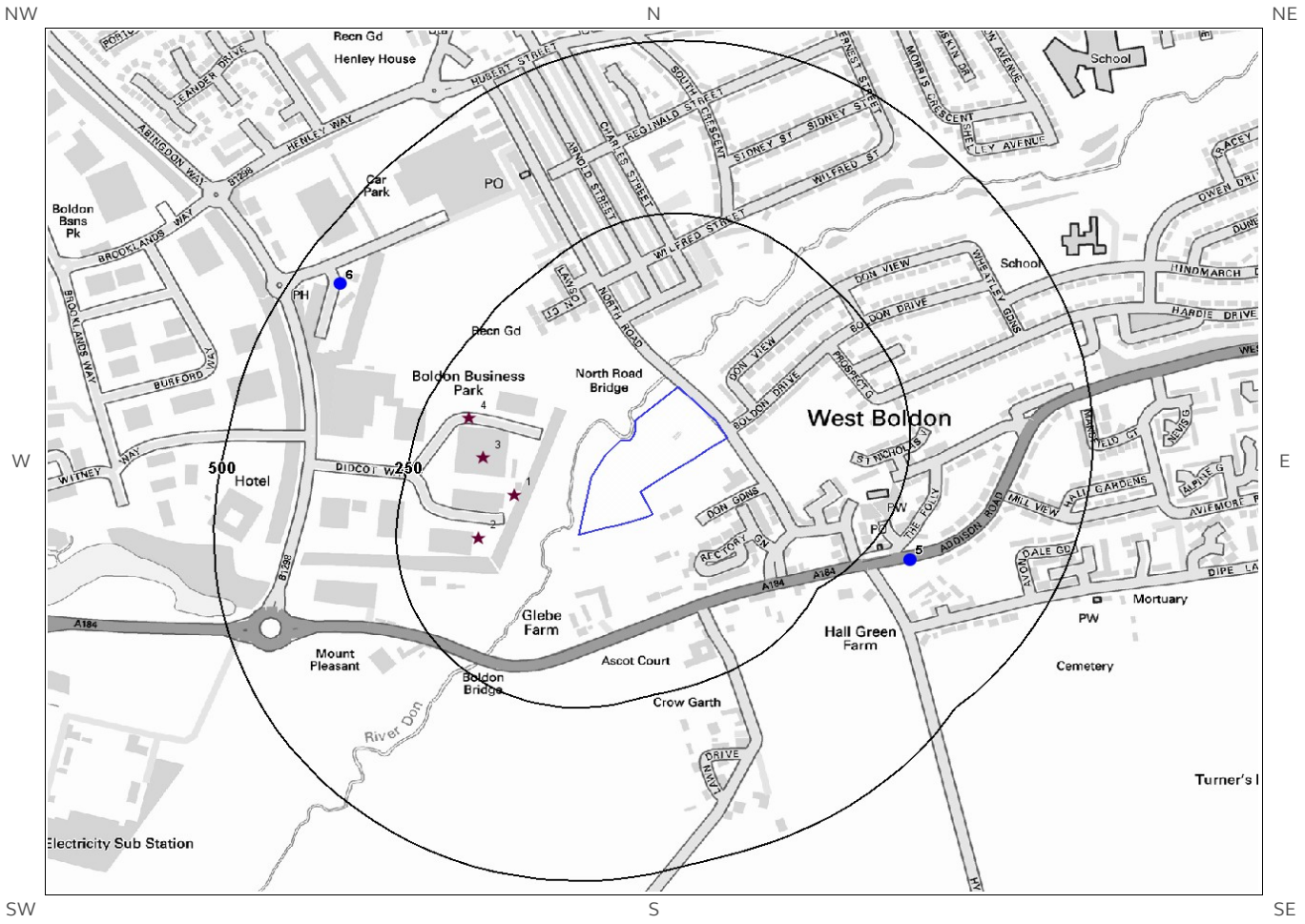
5

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	874	S	434800 560200	Site Address: Downhill Lane, Boldon, Tyne & Wear, NE36 OAX Type: Household, Commercial & Industrial Waste Landfill Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: CLE002 EPR reference: - Operator: Cleartop Ltd Waste Management licence No: 67442 Annual Tonnage: 0.0	Issue Date: 10/10/1981 Effective Date: - Modified: 11/12/1987 Surrendered Date: 28/04/1994 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Downhill Quarry - North Correspondence Address: Downhill Quarry, Downhill Lane, Boldon, Tyne & Wear, NE36 0AX
Not shown	874	S	434800 560200	Site Address: ., Downhill Lane, Boldon, Tyne & Wear, NE36 OAX Type: Household, Commercial & Industrial Waste Landfill Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: CLE002 EPR reference: EA/EPR/CP3697ZR/A001 Operator: Cleartop Ltd Waste Management licence No: 67442 Annual Tonnage: 250000.0	Issue Date: 10/10/1981 Effective Date: - Modified: 11/12/1987 Surrendered Date: Apr 28 1994 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Downhill Quarry - North Correspondence Address: -
Not shown	892	S	434900 560200	Site Address: Downhill Lane, West Boldon, Tyne & Wear, NE36 0AX Type: Household, Commercial & Industrial Waste Landfill Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: JOH001 EPR reference: EA/EPR/QP3598EC/S002 Operator: John T Barnes Waste Management licence No: 64463 Annual Tonnage: 250000.0	Issue Date: 17/03/1980 Effective Date: - Modified: - Surrendered Date: Mar 31 1994 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Downhill Quarry Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details	
Not shown	892	S	434900 560200	Site Address: Downhill Lane, West Boldon, Tyne & Wear, NE36 0AX Type: - Size: Unknown Environmental Permitting Regulations (Waste) Licence Number: JOH001 EPR reference: - Operator: John T Barnes Waste Management licence No: 0 Annual Tonnage: 0.0	Issue Date: 17/03/1980 Effective Date: - Modified: - Surrendered Date: 31/03/1994 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Downhill Quarry Correspondence Address: Downhill Quarry, Downhill Lane, Boldon, Tyne & Wear, NE36 0AX
Not shown	892	S	434900 560200	Site Address: Downhill Lane, West Boldon, Tyne & Wear, NE36 0AX Type: Household, Commercial & Industrial Waste Landfill Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: JOH001 EPR reference: - Operator: John T Barnes Waste Management licence No: 0 Annual Tonnage: 0.0	Issue Date: 17/03/1980 Effective Date: - Modified: - Surrendered Date: 31/03/1994 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Downhill Quarry Correspondence Address: Downhill Quarry, Downhill Lane, Boldon, Tyne & Wear, NE36 0AX

4. Current Land Use Map



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Site Outline

Search Buffers (m)
250
500

Current Industrial Sites

Petrol & Fuel Sites

Electricity Transmission Cables

Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 4

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	99	W	Electricity Sub Station	434607 561127	Tyne & Wear, NE35	Electrical Features	Infrastructure and Facilities
2	138	W	Electricity Sub Station	434557 561065	Tyne & Wear, NE35	Electrical Features	Infrastructure and Facilities
3	151	W	Faltec Europe Ltd	434565 561181	Unit 6, Didcot Way, Boldon Business Park, Boldon Colliery, Tyne & Wear, NE35 9PD	Vehicles	Industrial Products
4	189	NW	Electricity Sub Station	434545 561237	Tyne & Wear, NE35	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 2

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
5	305	SE	435149 561032	OBSOLETE	Addison Road, West Boldon, East Boldon, Tyne And Wear, NE36 0QZ	Not Applicable	Obsolete
6	440	NW	434369 561431	ASDA	North Road, Boldon Colliery, Tyne And Wear, NE35 9AR	No	Open

4.3 National Grid High Voltage Underground Electricity Transmission Cables

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

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

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

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

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

Database searched and no data found.

---

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

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

5.2 Superficial Ground and Drift Geology

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

Lex Code	Description	Rock Type
ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
PELC-C	PELAW CLAY MEMBER	CLAY
PELC-C	PELAW CLAY MEMBER	CLAY

5.3 Bedrock and Solid Geology

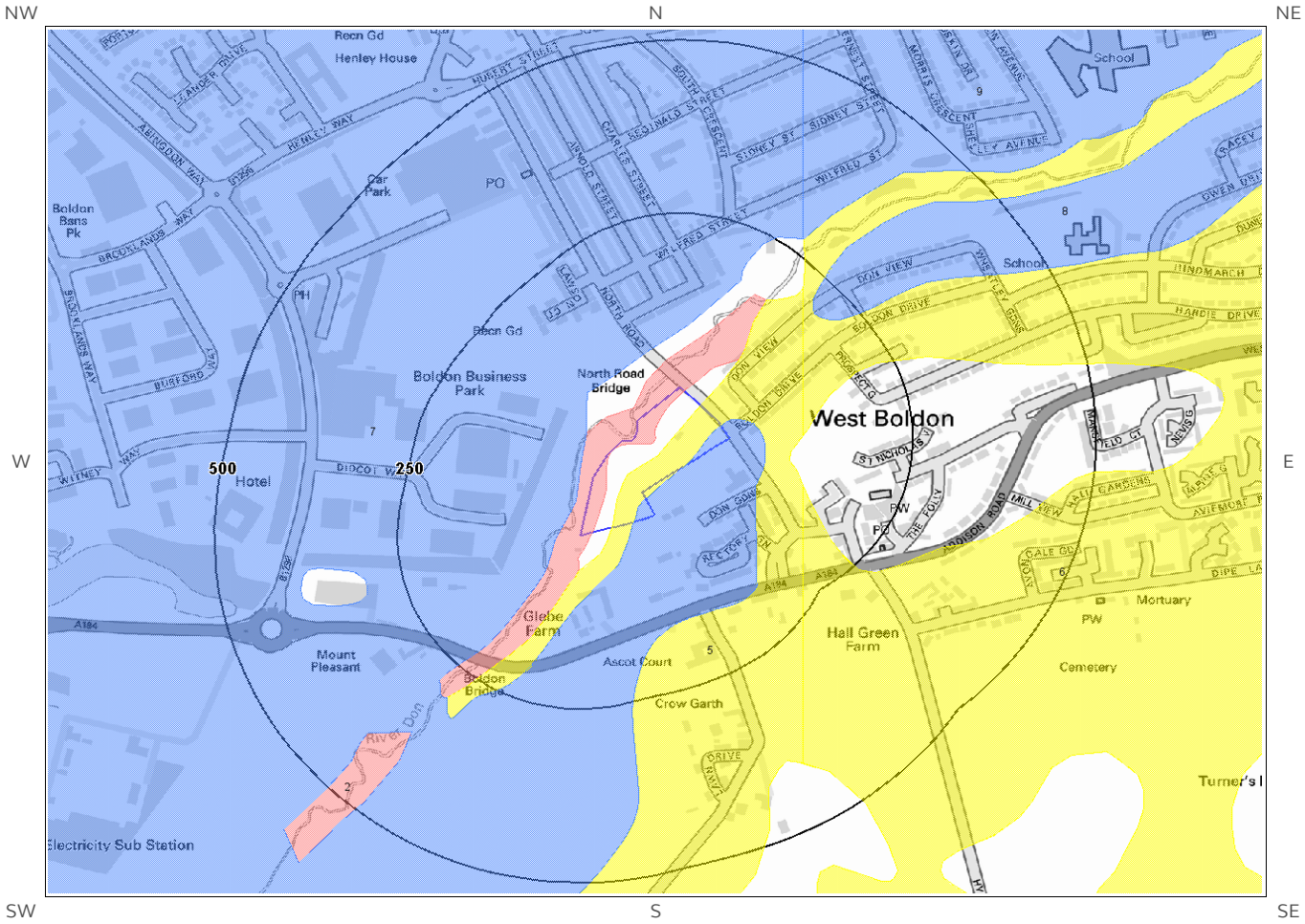
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
PUCM-MDSS	PENNINE UPPER COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE
PUCM-SDST	PENNINE UPPER COAL MEASURES FORMATION	SANDSTONE
PUCM-MDSS	PENNINE UPPER COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE
YWS-SDST	YELLOW SANDS FORMATION	SANDSTONE

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

6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology



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Site Outline

250
500
Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

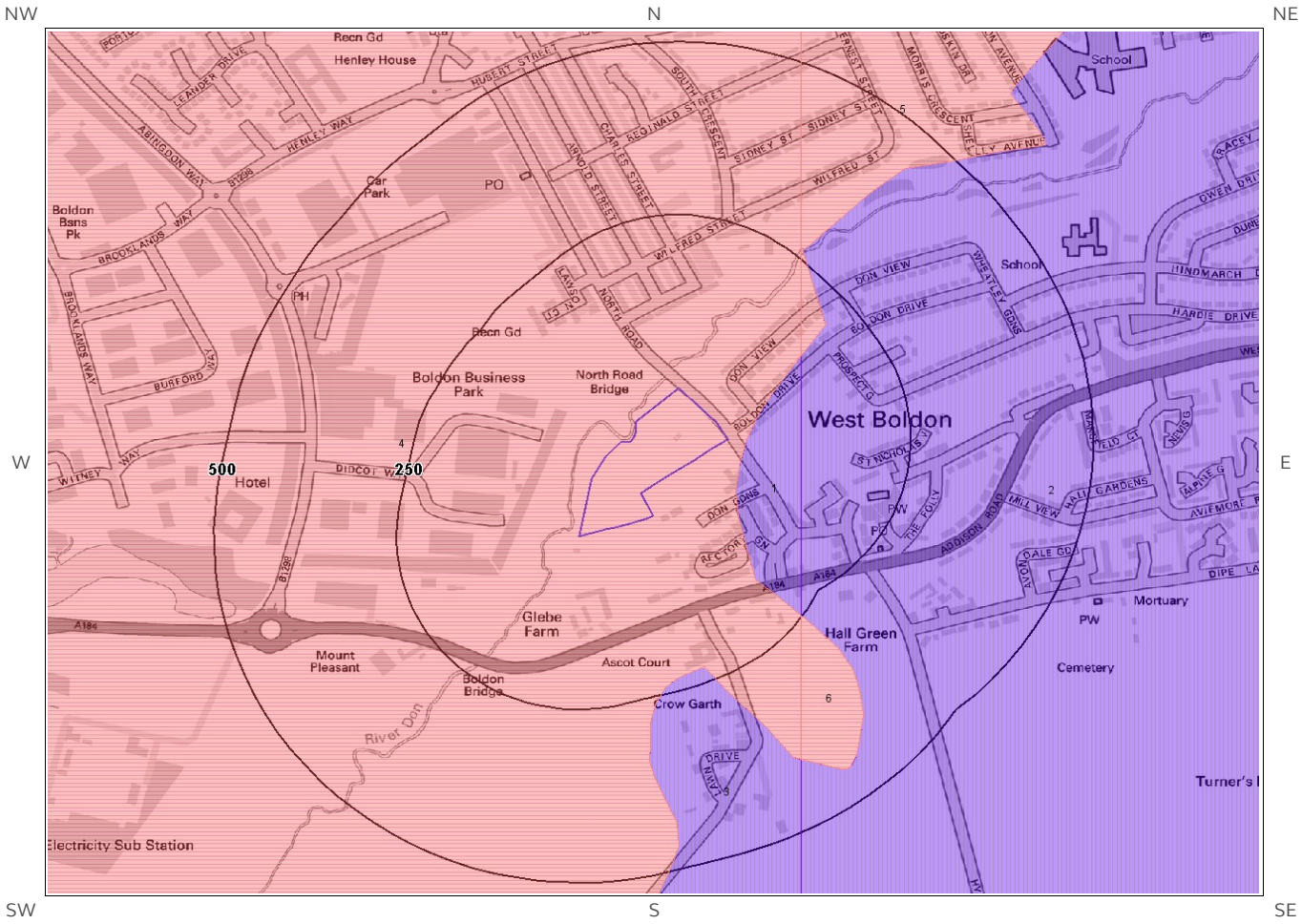
Secondary (B) Aquifer - Lower Permeability Layers

Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

6b. Aquifer Within Bedrock Geology and Abstraction Licences



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Site Outline

250
500
Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

Secondary (B) Aquifer - Lower Permeability Layers

Groundwater Abstraction Licence

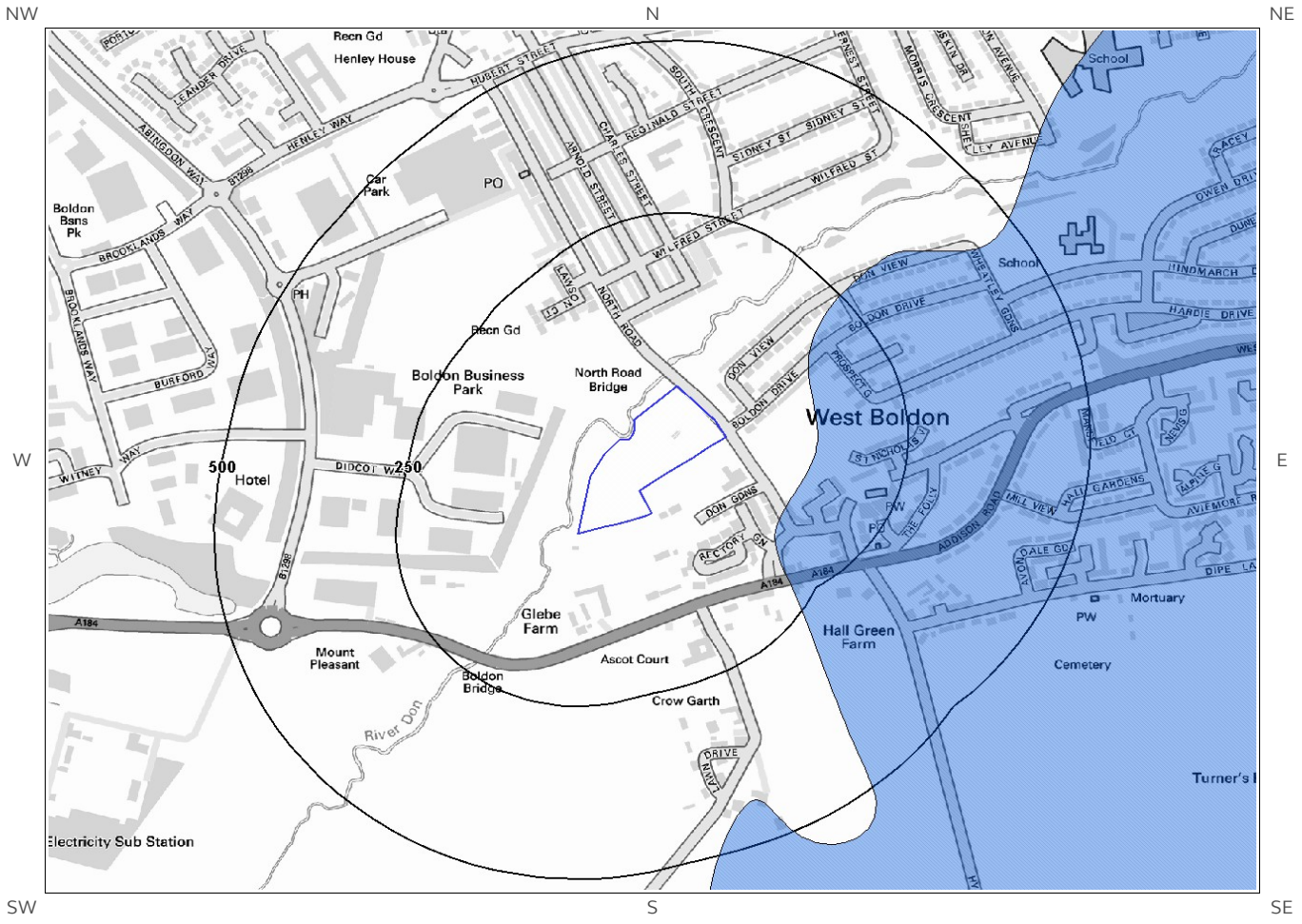
Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

Surface Water Abstraction Licence

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



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Site Outline

250
500
Search Buffers (m)

Source Protection Zone 1 - Inner Catchment

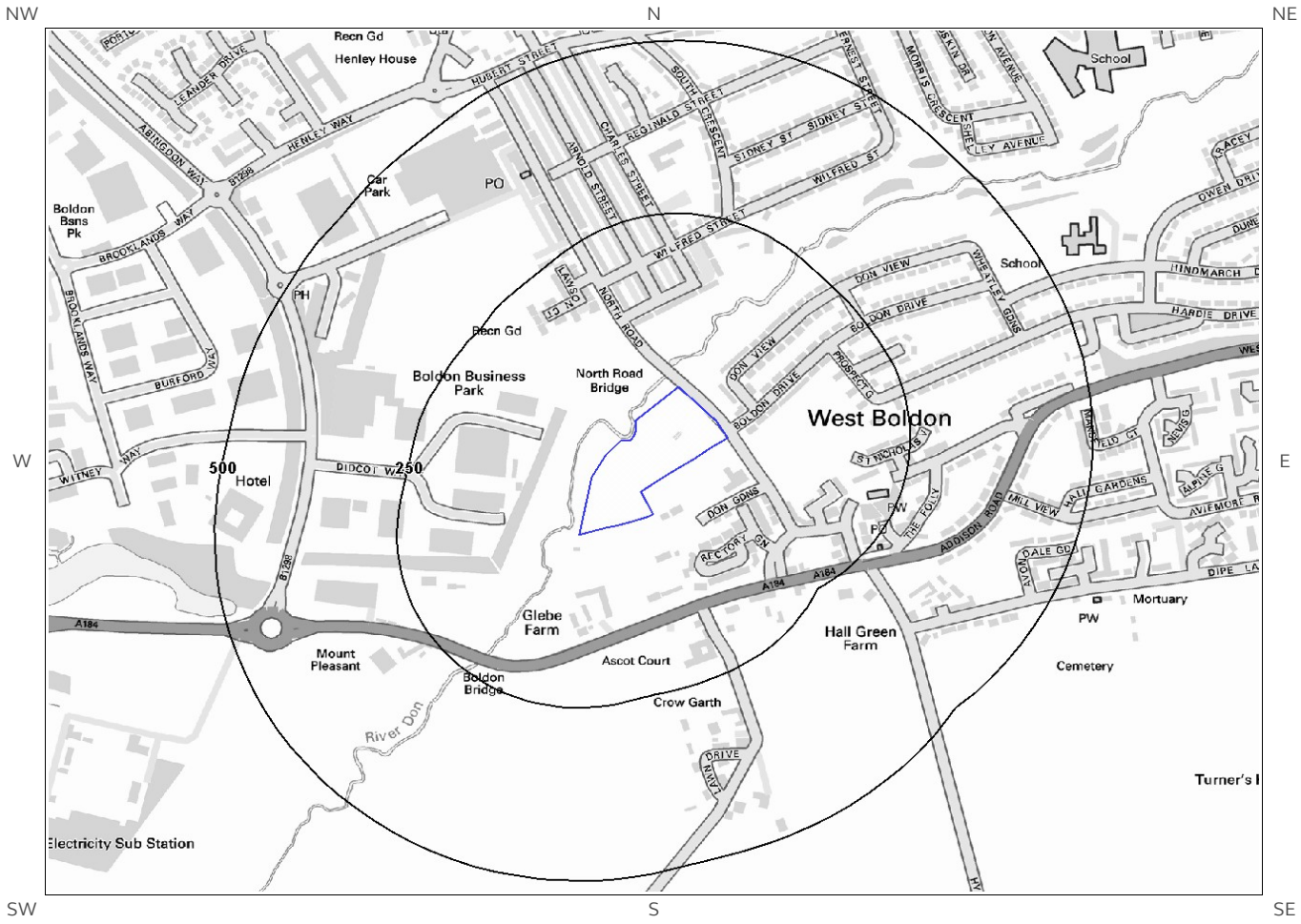
Source Protection Zone 2 - Outer Catchment

Source Protection Zone 3 - Total Catchment

Source Protection Zone 4 - Zone of Special Interest

Potable Water Abstraction Licence

6d. Hydrogeology – Source Protection Zones within confined aquifer



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Site Outline

250
500
Search Buffers (m)

Source Protection Zone 1 - Inner Catchment

Source Protection Zone 2C - Outer Catchment within Confined Aquifer

Source Protection Zone 3C - Total Catchment within Confined Aquifer

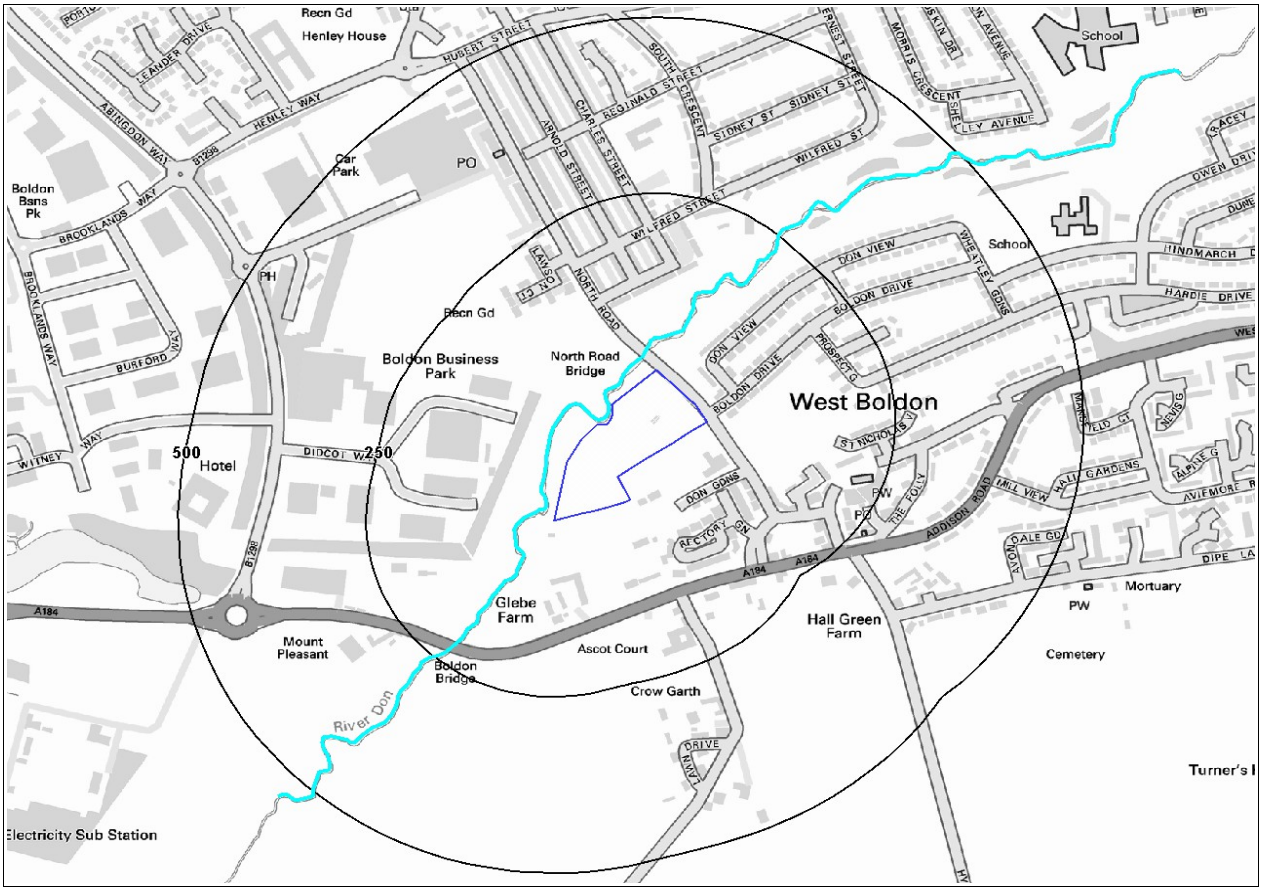
Potable Water Abstraction Licence

6e. Hydrology – Watercourse Network and River Quality

NW N NE

W E

SW S SE



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Site Outline

250 / 500 Search Buffers (m)

Watercourse type

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

Watercourse level

- On ground surface
- Underground or Elevated
- Level unknown

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

6.Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

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

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

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

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
5	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
7	0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
6	100	E	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
8	204	NE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
9	272	NE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
2	364	SW	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

6.2 Aquifer within Bedrock Deposits

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

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

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

ID	Distance (m)	Direction	Designation	Description
4	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
1	24	E	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

ID	Distance (m)	Direction	Designation	Description
2	100	E	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
5	151	NE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
3	228	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	248	SE	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

6.3 Groundwater Abstraction Licences

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

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	777	W	433920 561110	Status: Historical Licence No: 1/23/05/028 Details: Make-Up or Top Up Water Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - BOLDON Data Type: Point Name: NORTH EAST PROPERTY PARTNERSHIP LTD	Annual Volume (m^3): 79,716 Max Daily Volume (m^3): - Original Application No: - Original Start Date: 18/04/1986 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2004 Version End Date:
Not shown	777	W	433920 561110	Status: Historical Licence No: 1/23/05/028 Details: Fish Farm/Cress Pond Throughflow Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - BOLDON Data Type: Point Name: ONE NORTHEAST	Annual Volume (m^3): 79,716 Max Daily Volume (m^3): - Original Application No: - Original Start Date: 18/04/1986 Expiry Date: - Issue No: 100 Version Start Date: 02/07/1999 Version End Date:
Not shown	777	W	433920 561110	Status: Active Licence No: 1/23/05/028 Details: Lake & Pond Throughflow Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - BOLDON Data Type: Point Name: NORTH EAST PROPERTY PARTNERSHIP LTD	Annual Volume (m^3): 79,716 Max Daily Volume (m^3): - Original Application No: - Original Start Date: 18/04/1986 Expiry Date: - Issue No: 103 Version Start Date: 03/11/2015 Version End Date:

6.4 Surface Water Abstraction Licences

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

Database searched and no data found.

6.5 Potable Water Abstraction Licences

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

Database searched and no data found.

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site — Identified

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

ID	Distance (m)	Direction	Zone	Description
1	121	SE	3	Total catchment

6.7 Source Protection Zones within Confined Aquifer

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

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

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

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

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
0	On Site	Minor Aquifer/High Leaching Potential	H3	Coarse textured or moderately shallow soils which readily transmit non-adsorbed pollutants and liquid discharges but have some ability to attenuate adsorbed pollutants because of their clay or organic matter content.
0	On Site	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
3	E	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.
187	S	Major Aquifer/High Leaching Potential	H3	Coarse textured or moderately shallow soils which readily transmit non-adsorbed pollutants and liquid discharges but have some ability to attenuate adsorbed pollutants because of their clay or organic matter content.

6.9 River Quality

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

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Database searched and no data found.

6.10 Ordnance Survey MasterMap Water Network

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

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

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

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
1	4 W	River Don Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Tyne Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
30	4 W	River Don Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Tyne Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
2	25 NW	River Don Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Tyne Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
31	25 NW	River Don Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Tyne Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
3	33 N	River Don Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Tyne Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.9
32	33 N	River Don Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Tyne Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.9
4	214 SW	River Don Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Tyne Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
33	214 SW	River Don Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Tyne Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
5	233 SW	River Don Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Tyne Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
34	233 SW	River Don Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Tyne Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

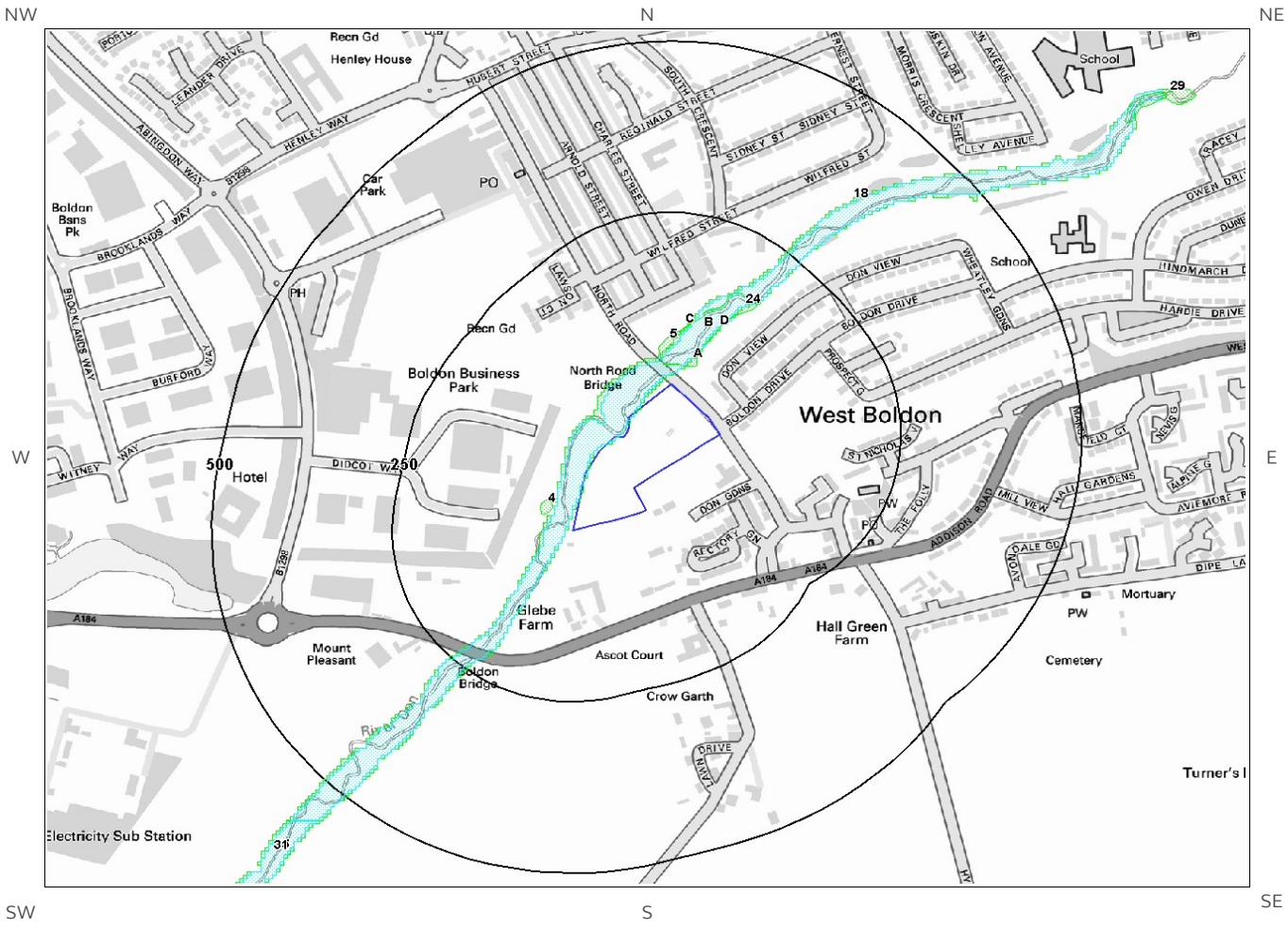
6.11 Surface Water Features

Surface water features within 250m of the study site Identified

The following surface water records are not represented on mapping:

Distance (m)	Direction
2	W
32	N
126	SW
233	SW

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



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Site Outline

Search Buffers (m)

Zone 2 Floodplain

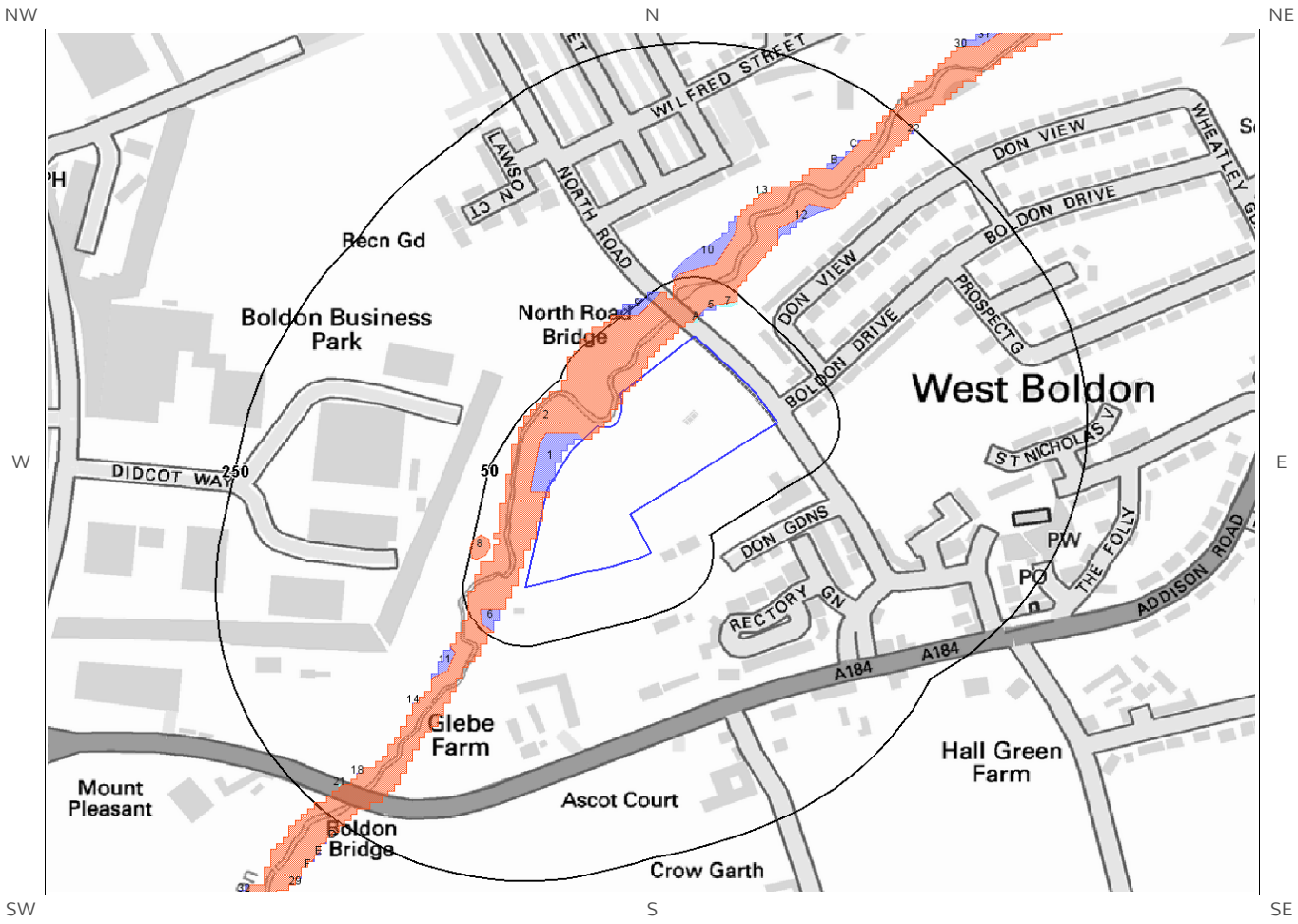
Zone 3 Floodplain

Flood Defences

Area used for Flood Storage

Area Benefiting from Flood Defences

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



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Site Outline

100
250
Search Buffers (m)

RoFRaS Rating

- Very Low
- Low
- Medium
- High

7 Flooding

7.1 River and Coastal Zone 2 Flooding

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

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

ID	Distance (m)	Direction	Update	Type
1	0	On Site	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
2B	29	N	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
3A	31	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
4	35	W	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
5	44	N	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
6A	56	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
7A	58	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
8A	61	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
9B	66	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
10B	81	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
11B	82	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
12C	83	N	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
13C	84	N	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
14B	87	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
15C	87	N	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
16B	90	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
17C	91	N	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
18	92	N	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
19B	93	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)

20D	99	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
21D	106	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
22D	112	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
23D	128	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
24	132	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

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

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

ID	Distance (m)	Direction	Update	Type
1	0	On Site	19-Nov-2019	Zone 3 - (Fluvial Models)

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

Highest risk of flooding onsite — High

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

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

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

ID	Distance (m)	Direction	RoFRas flood Risk
1	0.0	On Site	Medium
2	0.0	On Site	High
3A	12.0	N	Low
4A	17.0	N	Medium
5	23.0	N	Medium
6	28.0	SW	Medium
7	31.0	NE	Low
8	35.0	W	High
9	42.0	NW	Medium

7.4 Flood Defences

Flood Defences within 250m of the study site	None identified
Database searched and no data found.	

7.5 Areas benefiting from Flood Defences

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

7.6 Areas benefiting from Flood Storage

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

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site: Identified

Clearwater Flooding or Superficial Deposits Flooding	Superficial Deposits Flooding

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

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

Potential at Surface

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

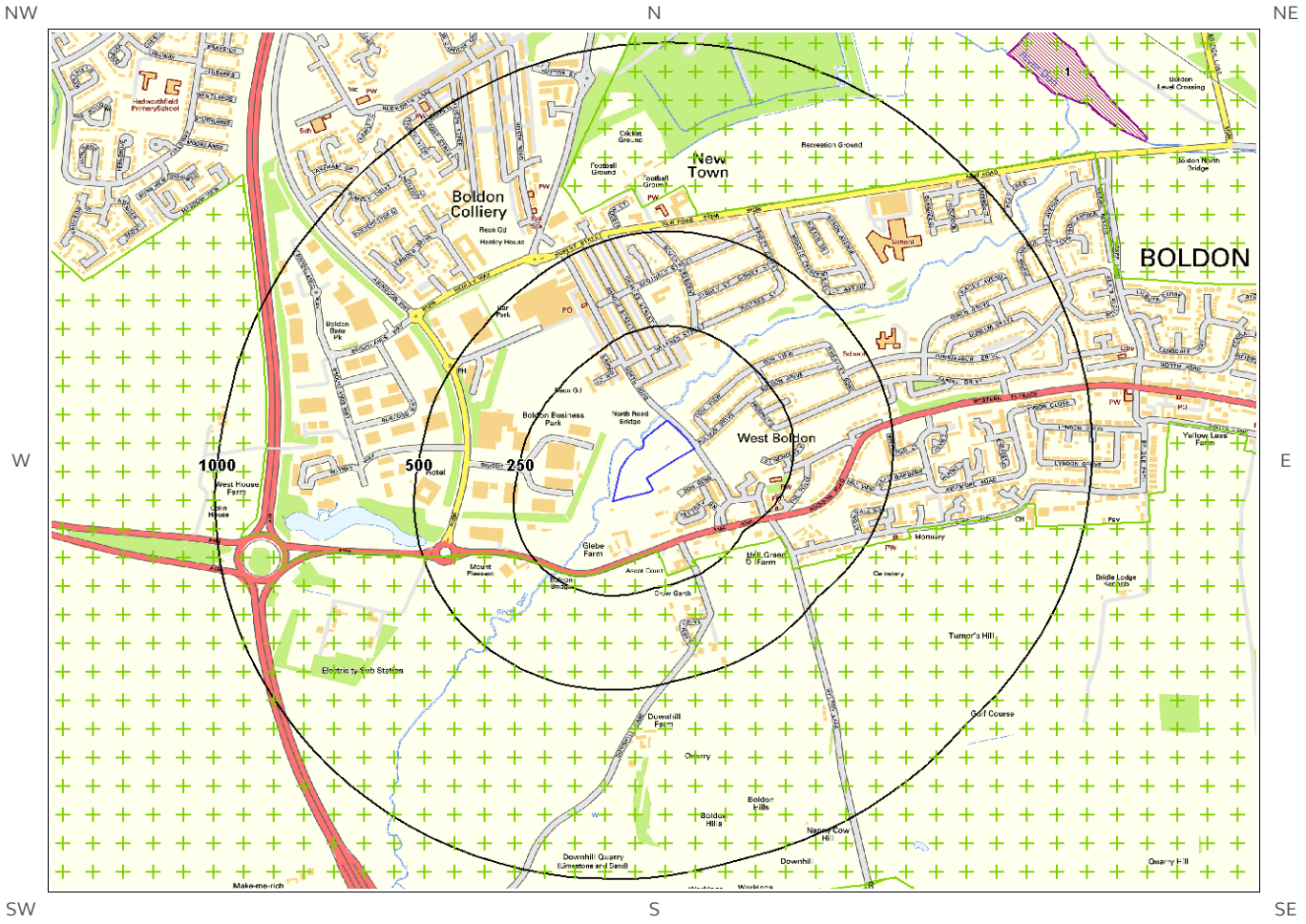
7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result	Moderate

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

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

8. Designated Environmentally Sensitive Sites Map



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Site Outline

100
250
Search Buffers (m)

AONB
National Park
SSSI
Special Protection Areas
Nitrate Vulnerable Zones
Green Belt
Environmentally Sensitive Areas
Special Areas of Conservation
World Heritage Sites
Nitrate Sensitive Areas
Ancient Woodland
National Nature Reserve
Local Nature Reserves
Ramsar Sites

8. Designated Environmentally Sensitive Sites

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

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

1

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

ID	Distance (m)	Direction	SSSI Name	Data Source
1	1293	NE	West Farm Meadow, Boldon	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

4

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

ID	Distance (m)	Direction	LNR Name	Data Source
Not shown	1186	N	Station Burn	Natural England
Not shown	1459	N	Station Burn	Natural England
Not shown	1948	NE	Tilesheds	Natural England
Not shown	1984	SE	Hylton Dene	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

6

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

ID	Distance	Direction	Green Belt Name	Local Authority Name
6	152	S	North East Greenbelt	South Tyneside District (B)
Not shown	1068	S	North East Greenbelt	South Tyneside District (B)
8	1121	S	North East Green Belt	Sunderland
Not shown	1121	S	North East Green Belt	Sunderland
Not shown	1515	SE	North East Greenbelt	South Tyneside District (B)
Not shown	1908	SW	North East Green Belt	Sunderland

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

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

9.1.1 Shrink Swell

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

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

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

9.1.2 Landslides

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

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

Hazard
Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property no significant increase in insurance risk due to natural slope instability problems.

9.1.3 Soluble Rocks

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

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

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

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

9.1.4 Compressible Ground

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

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

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

9.1.5 Collapsible Rocks

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

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

Hazard
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.

9.1.6 Running Sand

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

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

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

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

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

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

9.2.2 Radon Protection

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

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site — Identified

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

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

10.2 Non-Coal Mining

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

Database searched and no data found.

10.3 Brine Affected Areas

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

Contact Details

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

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

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

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

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

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

Local Authority
Authority: South Tyneside Council
Phone: 0191 427 7000
Web: http://www.southtyneside.info/
Address: Town Hall and Civic Offices, Westoe Road, South Shields,

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

Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England/Natural Resources Wales who retain the Copyright and Intellectual Property Rights for the data.
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Standard Terms and Conditions

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

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

Groundsure
LOCATION INTELLIGENCE

BWB Consulting Limited

5th Floor, Waterfront House, Station Street,
Nottingham, NG2 3DQ

Groundsure Reference:	HMD-214-6574772
Your Reference:	MCW2139-POR030155
Report Date	24 Jan 2020
Report Delivery Method:	Email - pdf

Geo Insight

Address: LAND OFF NORTH ROAD, WEST BOLDEN, NE35 9BL

Dear Sir/ Madam,

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

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

Yours faithfully,

[redacted]

Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Geo Insight

Address:	**LAND OFF NORTH ROAD, WEST BOLDEN, NE35 9BL**
Date:	**24 Jan 2020**
Reference:	**HMD-214-6574772**
Client:	**BWB Consulting Limited**

NW N NE

W E



SW S SE

Aerial Photograph Capture date:	18-Jul-2018
Grid Reference:	434782,561175
Site Size:	1.8789ha

Groundsure
LOCATION INTELLIGENCE

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Overview of Findings

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

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

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

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

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

Section 2: Geology 1:50,000 Scale

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

Section 3: Radon

3. Radon	3.1Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.
	3.2Radon Protection	No radon protective measures are necessary.

Section 4: Ground Workings	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	1	24	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	1	0	6
4.3 Current Ground Workings	0	1	1	2	6

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	1	0	6
5.2 Coal Mining	1	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	0	0	0	0	0
5.5 Non–Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

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

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

Section 7: Borehole Records	On-site	0-50m	51-250
7 BGS Recorded Boreholes	0	0	37

Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	9	7	0

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

1:10,000 Scale Availability



1_10,000 Availability Legend

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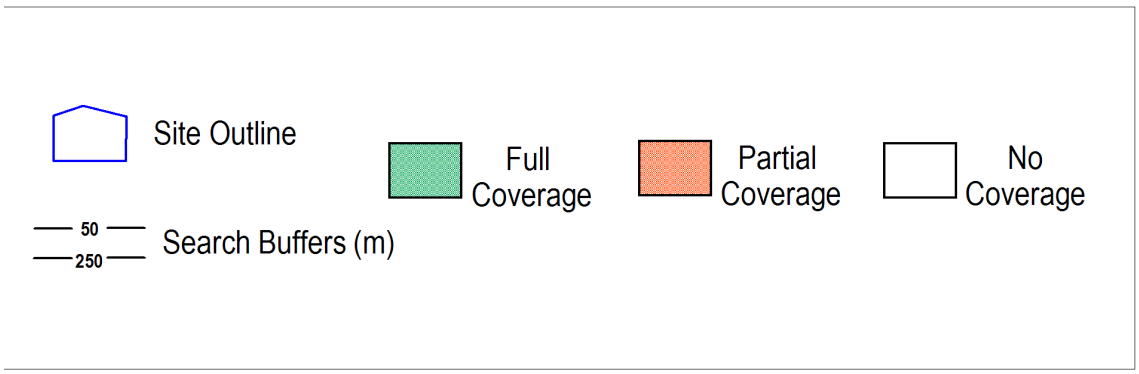


Availability of 1:10,000 Scale Geology Mapping

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

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	No coverage
2	100.0	Some deposits are mapped	Full	Full	No coverage
N3	1068.0	No deposits are mapped	No coverage	No coverage	No coverage
N4	1110.0	Some deposits are mapped	Full	Full	No coverage

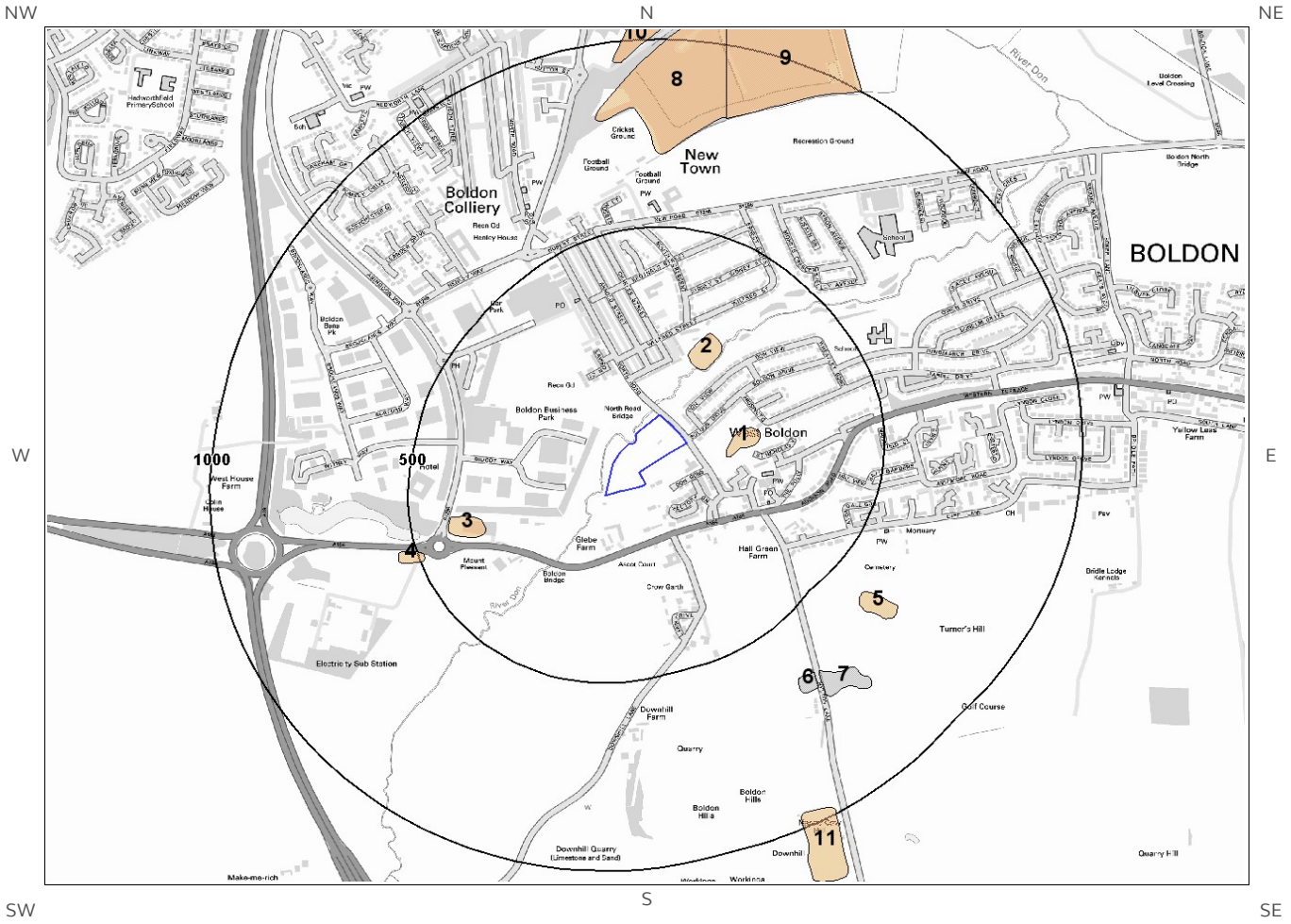
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not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

The definitions of coverage are as follows:

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

1 Geology (1:10,000 scale).

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



Artificial Ground Legend

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Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

1. Geology 1:10,000 scale

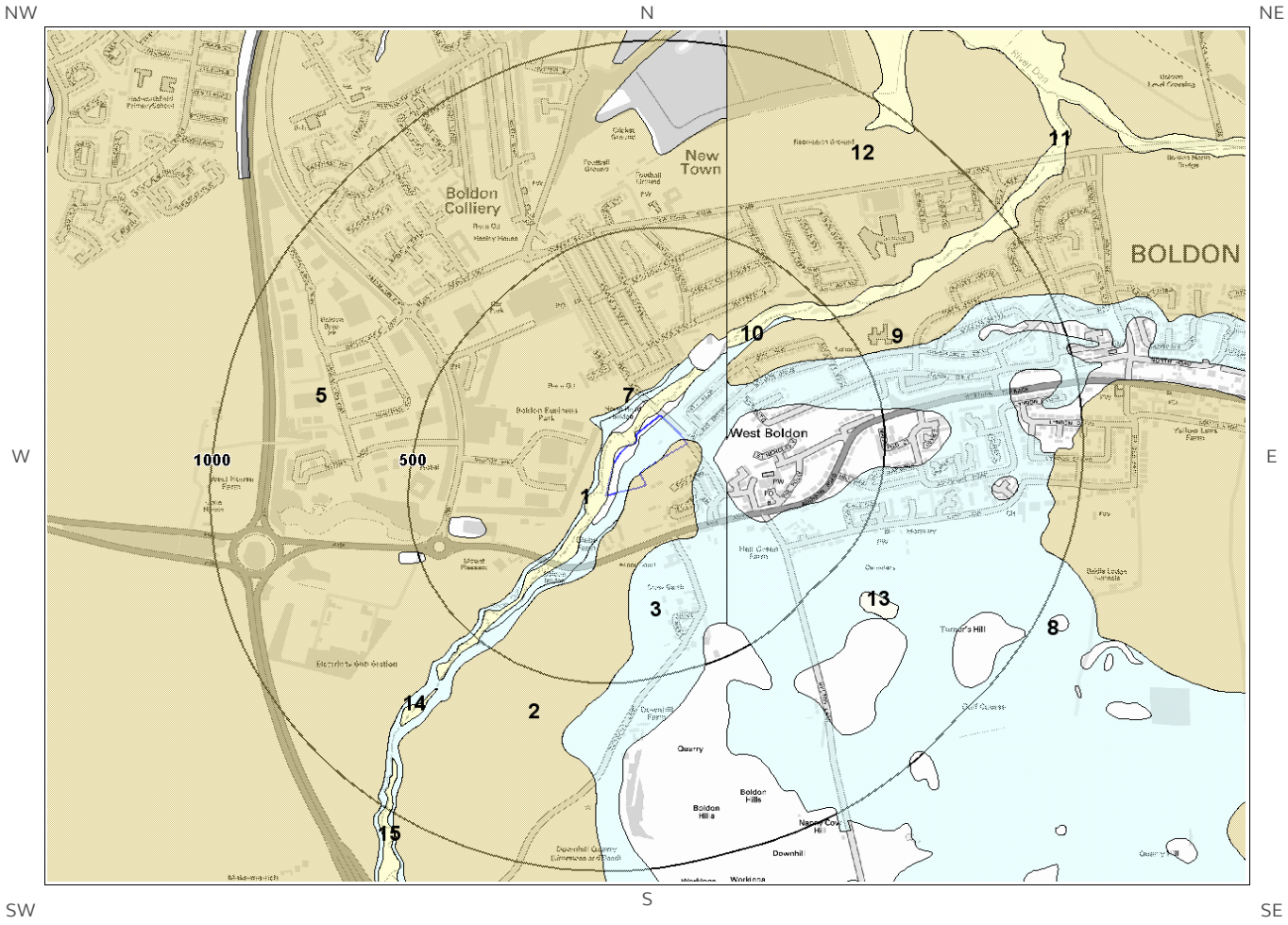
1.1 Artificial Ground

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

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	101.0	E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	156.0	NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
3	315.0	W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	485.0	W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

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



Artificial Ground Legend

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Site Outline

500
1000
Search Buffers (m)

1.2 Superficial Deposits and Landslips

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

1.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	ALV-XVSZ	Alluvium - Gravel, Sand And Silt	Gravel, Sand And Silt
2	0.0	On Site	PELC-C	Pelaw Clay Member - Clay	Clay
3	0.0	On Site	TILL-DMTN	Till - Diamicton	Diamicton
4	26.0	W	TILL-DMTN	Till - Diamicton	Diamicton
5	41.0	W	PELC-C	Pelaw Clay Member - Clay	Clay
6	68.0	S	LAC-C	Laminated Clays - Clay	Clay
7	70.0	NW	LAC-C	Laminated Clays - Clay	Clay
8	100.0	E	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
9	182.0	NE	PELC-C	Pelaw Clay Member - Clay	Clay
10	212.0	NE	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
11	246.0	NE	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
12	274.0	NE	PELC-C	Pelaw Clay Member - Clay	Clay

1.2.2 Landslip

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

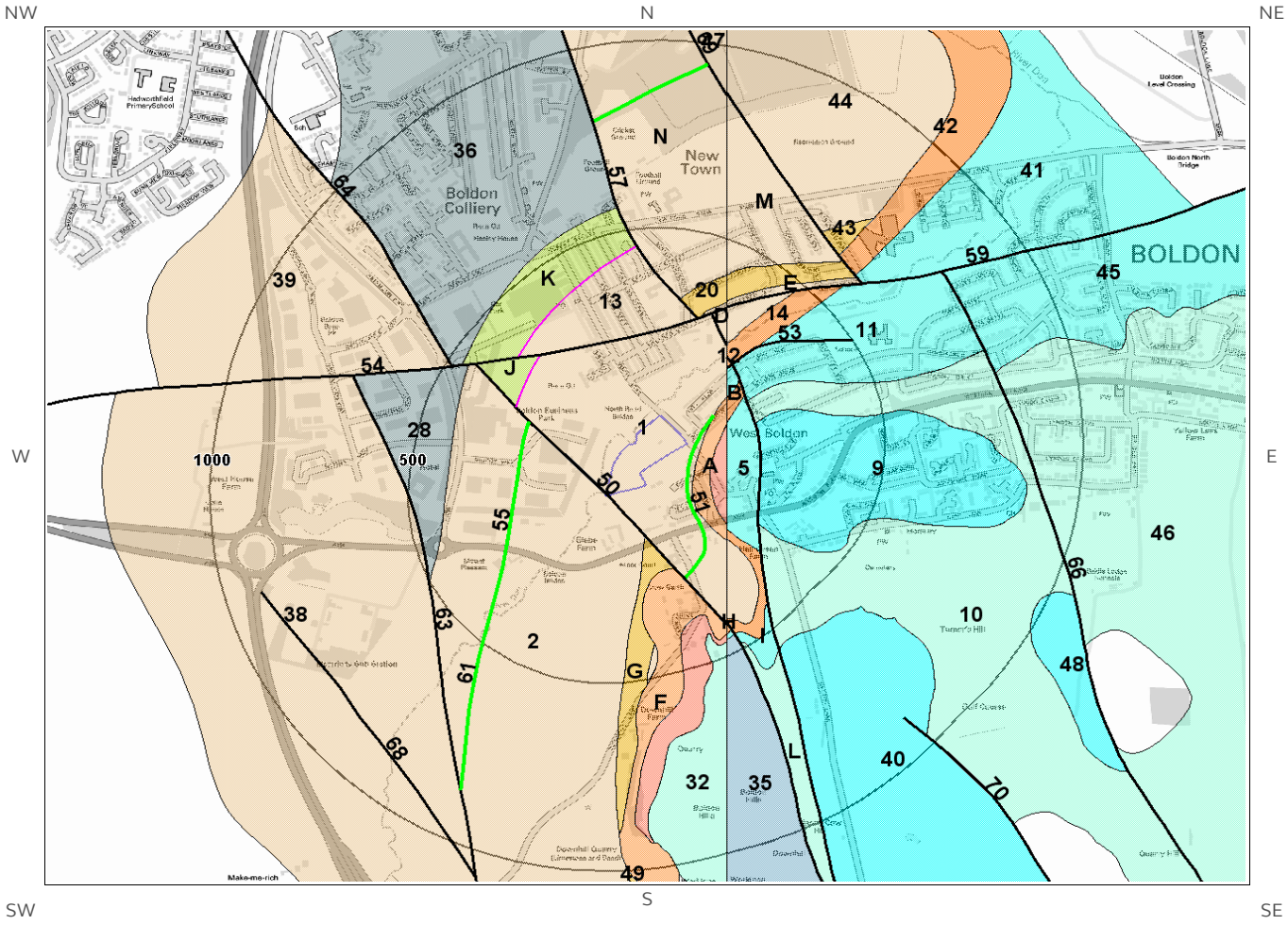
No

Database searched and no data found.

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

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

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



Bedrock and linear features Legend

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Site Outline

500
1000
Search Buffers (m)

1.3 Bedrock and linear features

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

1.3.1 Bedrock/ Solid Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	PUCM-MDSS	Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
2	0.0	On Site	PUCM-MDSS	Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
3A	36.0	E	RLG-SANDU	Rotliegendes Group - Sand	Late Permian Epoch [Obsolete name] - Cisuralian Epoch
4A	73.0	E	ZG-DLAR	Zechstein Group - Dolomitic Limestone And Argillaceous Rocks	Late Permian Epoch [Obsolete name]
5	100.0	E	RML-DOLO	Raisby Formation - Dolostone	Late Permian Epoch [Obsolete name]
6B	115.0	NE	YWS-SDST	Yellow Sands Formation - Sandstone	Late Permian Epoch [Obsolete name] - Cisuralian Epoch
7G	129.0	S	PUCM-SDST	Pennine Upper Coal Measures Formation - Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
8B	153.0	NE	RML-DOLO	Raisby Formation - Dolostone	Late Permian Epoch [Obsolete name]
9	180.0	E	ROD-DOLO	Roker Formation - Dolostone	Late Permian Epoch [Obsolete name]
10	180.0	E	FML-DOLO	Ford Formation - Dolostone	Late Permian Epoch [Obsolete name]
11	188.0	NE	RML-DOLO	Raisby Formation - Dolostone	Late Permian Epoch [Obsolete name]
12	207.0	NE	YWS-SDST	Yellow Sands Formation - Sandstone	Late Permian Epoch [Obsolete name] - Cisuralian Epoch
13	221.0	N	PUCM-MDSS	Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
14	223.0	NE	YWS-SDST	Yellow Sands Formation - Sandstone	Late Permian Epoch [Obsolete name] - Cisuralian Epoch
15F	228.0	S	RLG-SANDU	Rotliegendes Group - Sand	Late Permian Epoch [Obsolete name] - Cisuralian Epoch
16C	233.0	SE	YWS-SDST	Yellow Sands Formation - Sandstone	Late Permian Epoch [Obsolete name] - Cisuralian Epoch
17C	247.0	SE	PUCM-MDSS	Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
18D	250.0	NE	PUCM-MDSS	Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
19D	254.0	NE	PUCM-MDSS	Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
20	276.0	N	PUCM-SDST	Pennine Upper Coal Measures Formation - Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
21D	281.0	N	PUCM-MDSS	Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
22J	289.0	NW	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
23N	313.0	N	PUCM-MDSS	Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
24E	334.0	NE	PUCM-MDSS	Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
25E	349.0	NE	PUCM-SDST	Pennine Upper Coal Measures Formation - Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
26K	362.0	NW	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
27F	372.0	S	ZG-DLAR	Zechstein Group - Dolomitic Limestone And Argillaceous Rocks	Late Permian Epoch [Obsolete name]
28	404.0	W	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
29G	410.0	S	PUCM-MDSS	Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
30M	410.0	NE	PUCM-MDSS	Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
31H	419.0	SE	YWS-SDST	Yellow Sands Formation - Sandstone	Late Permian Epoch [Obsolete name] - Cisuralian Epoch
32	426.0	SE	FML-DOLO	Ford Formation - Dolostone	Late Permian Epoch [Obsolete name]
33I	437.0	SE	RML-DOLO	Raisby Formation - Dolostone	Late Permian Epoch [Obsolete name]
34H	442.0	SE	RML-DOLO	Raisby Formation - Dolostone	Late Permian Epoch [Obsolete name]
35	454.0	SE	FMLS-DOLO	Ford Formation (shelf-edge Reef) - Dolostone	Late Permian Epoch [Obsolete name]
36	465.0	NW	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
37L	477.0	SE	FML-DOLO	Ford Formation - Dolostone	Late Permian Epoch [Obsolete name]
38	481.0	W	PUCM-MDSS	Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age
39	483.0	NW	PUCM-MDSS	Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D Sub-age - Bolsovian Sub-age

1.3.2 Linear features

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

ID	Distance (m)	Direction	Category Description	Feature Description
50	0.0	On Site	FAULT	Normal fault, inferred
51	20.0	SE	ROCK	Coal seam, inferred
52I	180.0	E	FAULT	Normal fault, inferred; crossmarks on downthrow side
53	207.0	NE	FAULT	Normal fault, observed; crossmark on downthrow side
54	221.0	N	FAULT	Normal fault, inferred
55	229.0	W	ROCK	Coal seam, inferred
56D	250.0	NE	FAULT	Normal fault, inferred
57	276.0	N	FAULT	Normal fault, inferred
58J	289.0	NW	FOSSIL_HORIZON	Fossil horizon, marine band coincident with bedrock geology boundary
59	334.0	NE	FAULT	Normal fault, inferred; crossmarks on downthrow side

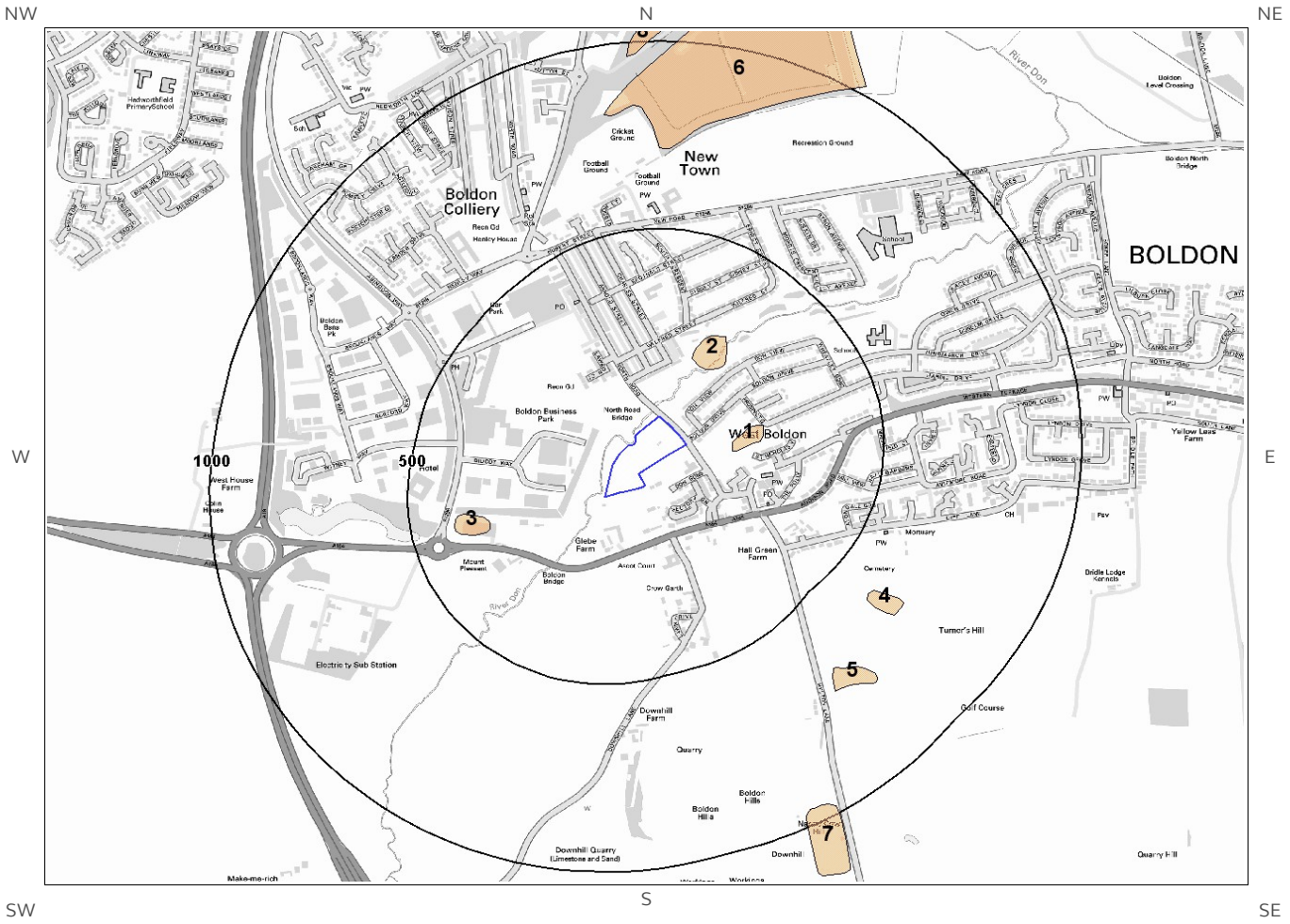
ID	Distance (m)	Direction	Category Description	Feature Description
60K	362.0	NW	FOSSIL_HORIZON	Fossil horizon, marine band coincident with bedrock geology boundary
61	403.0	SW	ROCK	Coal seam, inferred
62L	419.0	SE	FAULT	Normal fault, inferred; crossmarks on downthrow side
63	481.0	W	FAULT	Normal fault, inferred
64	483.0	NW	FAULT	Normal fault, inferred

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

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

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



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Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 021

2.1.1 Artificial/ Made Ground

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

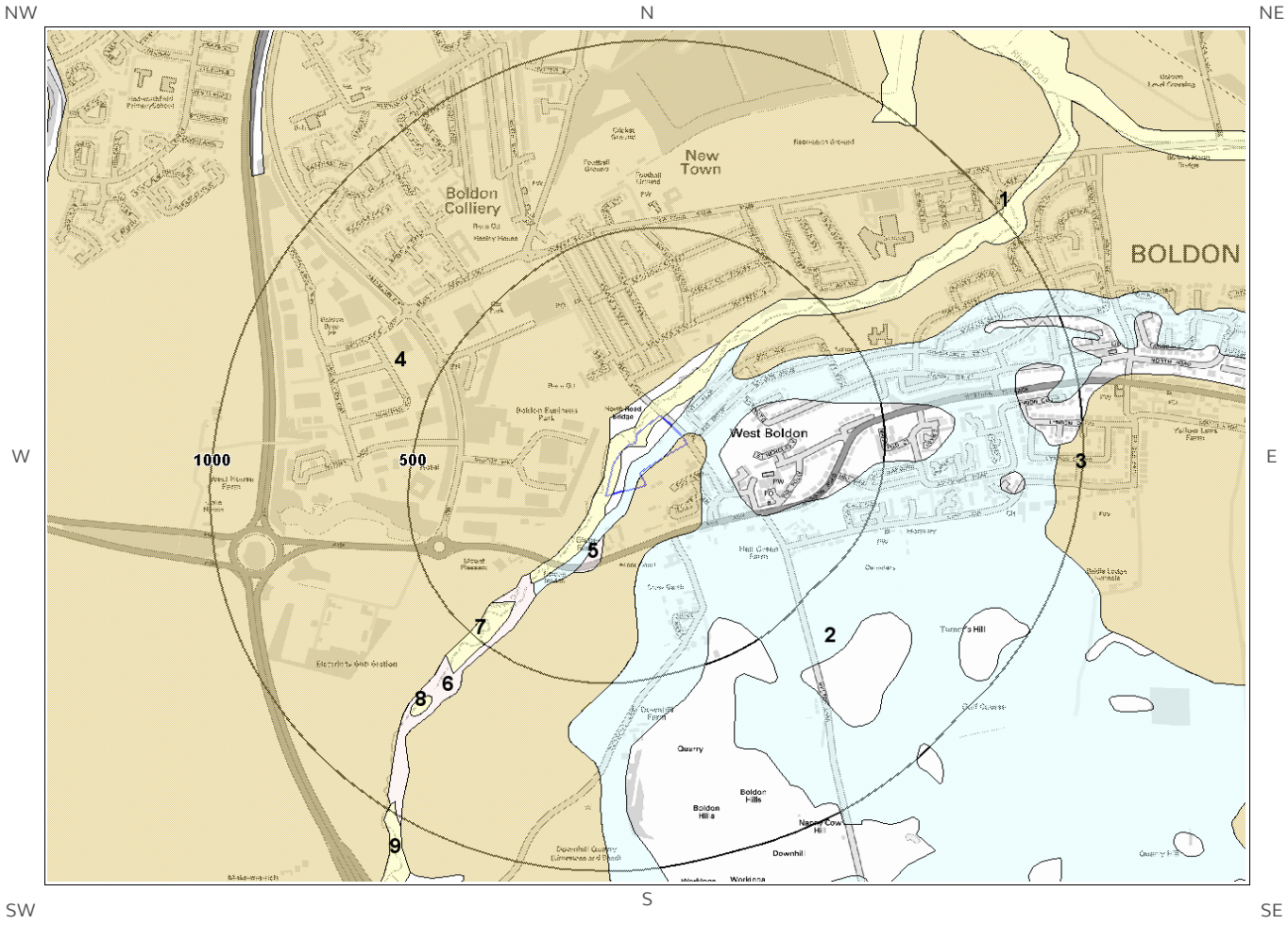
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	116.0	E	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	167.0	NE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
3	300.0	W	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

2.1.2 Permeability of Artificial Ground

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

Database searched and no data found.

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



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Site Outline

500
1000
Search Buffers (m)

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
2	0.0	On Site	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
3	0.0	On Site	PELC-C	PELAW CLAY MEMBER	CLAY
4	16.0	W	PELC-C	PELAW CLAY MEMBER	CLAY
5	102.0	S	GLLDD-XCZ	GLACIOLACUSTRINE DEPOSITS, DEVENSIAN	CLAY AND SILT
6	283.0	SW	GLLDD-XCZ	GLACIOLACUSTRINE DEPOSITS, DEVENSIAN	CLAY AND SILT
7	364.0	SW	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

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

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

2.2.3 Landslip

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

Database searched and no data found.

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

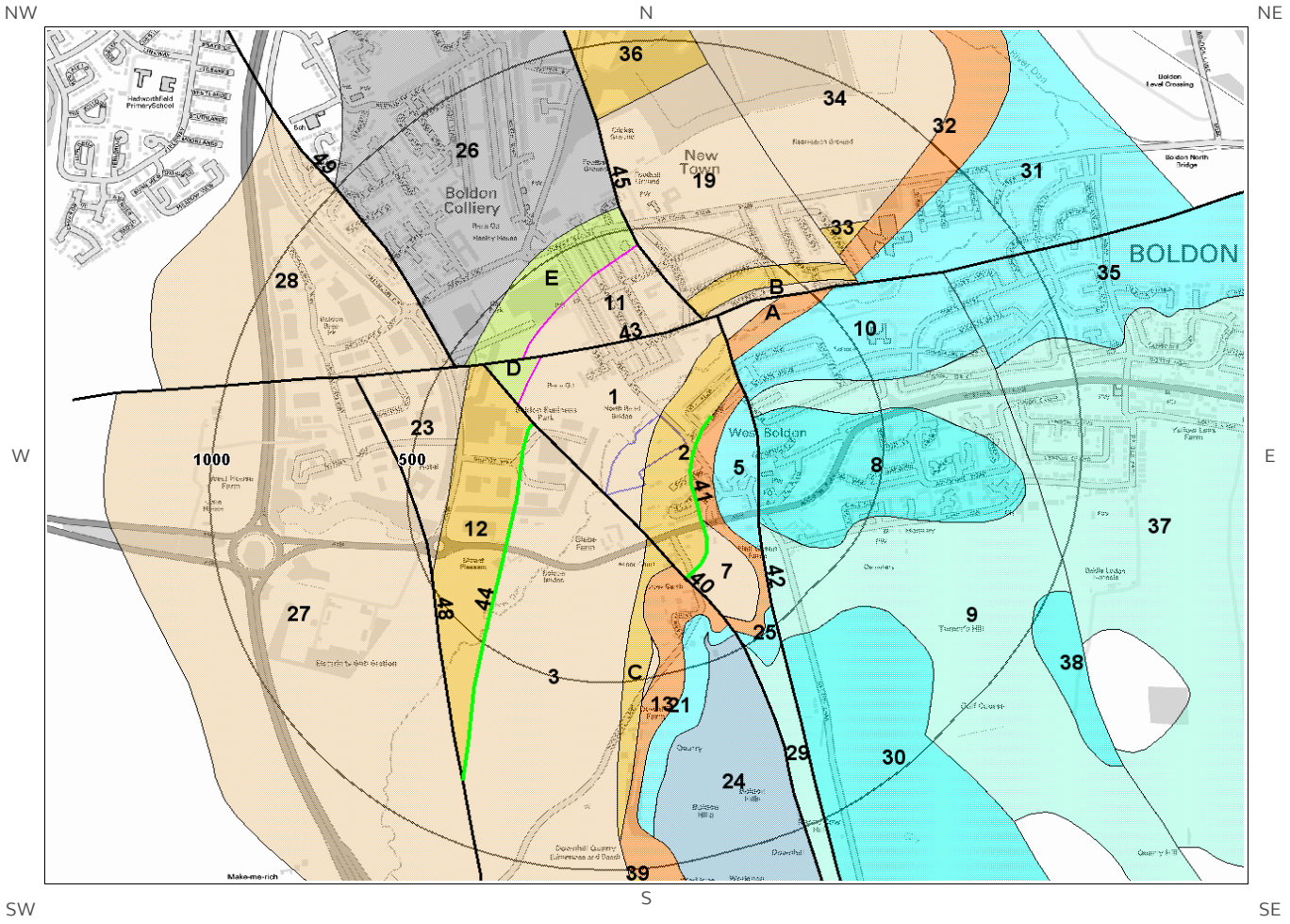
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

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

Database searched and no data found.

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



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2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 021

2.3.1 Bedrock/Solid Geology

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

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	PUCM-MDSS	PENNINE UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
2	0.0	On Site	PUCM-SDST	PENNINE UPPER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
3	0.0	On Site	PUCM-MDSS	PENNINE UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
4	24.0	E	YWS-SDST	YELLOW SANDS FORMATION - SANDSTONE	-
5	78.0	E	RML-DOLO	RAISBY FORMATION - DOLOSTONE	-
6C	131.0	S	PUCM-SDST	PENNINE UPPER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
7	167.0	SE	PUCM-MDSS	PENNINE UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
8	180.0	E	ROD-DOLO	ROKER FORMATION - DOLOSTONE	-
9	183.0	E	FML-DOLO	FORD FORMATION - DOLOSTONE	-
10	191.0	NE	RML-DOLO	RAISBY FORMATION - DOLOSTONE	-
11	210.0	N	PUCM-MDSS	PENNINE UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
12	222.0	W	PUCM-SDST	PENNINE UPPER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
13	228.0	S	YWS-SDST	YELLOW SANDS FORMATION - SANDSTONE	-
14A	232.0	NE	YWS-SDST	YELLOW SANDS FORMATION - SANDSTONE	-
15A	261.0	NE	PUCM-MDSS	PENNINE UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
16B	276.0	NE	PUCM-MDSS	PENNINE UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
17B	276.0	NE	PUCM-SDST	PENNINE UPPER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
18D	285.0	NW	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
19	310.0	N	PUCM-MDSS	PENNINE UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
20E	348.0	NW	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
21	370.0	S	RML-DOLO	RAISBY FORMATION - DOLOSTONE	-

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
22C	392.0	S	PUCM-MDSS	PENNINE UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
23	393.0	W	PUCM-MDSS	PENNINE UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
24	425.0	SE	FMLS-DOLO	FORD FORMATION (SHELF-EDGE REEF) - DOLOSTONE	-
25	448.0	SE	RML-DOLO	RAISBY FORMATION - DOLOSTONE	-
26	456.0	NW	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
27	468.0	W	PUCM-MDSS	PENNINE UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
28	474.0	NW	PUCM-MDSS	PENNINE UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
29	484.0	SE	FML-DOLO	FORD FORMATION - DOLOSTONE	-

2.3.2 Permeability of Bedrock Ground

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

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Moderate	Low
0.0	On Site	Fracture	High	Moderate
24.0	E	Mixed	High	High

2.3.3 Linear features

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

ID	Distance	Direction	Category Description	Feature Description
40	0.0	On Site	FAULT	Fault, inferred, displacement unknown
41	24.0	E	ROCK	Coal seam, inferred
42	180.0	E	FAULT	Fault, inferred, displacement unknown
43	210.0	N	FAULT	Fault, inferred, displacement unknown
44	222.0	W	ROCK	Coal seam, inferred
45	276.0	NE	FAULT	Fault, inferred, displacement unknown
46D	285.0	NW	FOSSIL_HORIZON	Marine band
47E	348.0	NW	FOSSIL_HORIZON	Marine band
48	468.0	W	FAULT	Fault, inferred, displacement unknown
49	474.0	NW	FAULT	Fault, inferred, displacement unknown

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

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

3 Radon Data

3.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

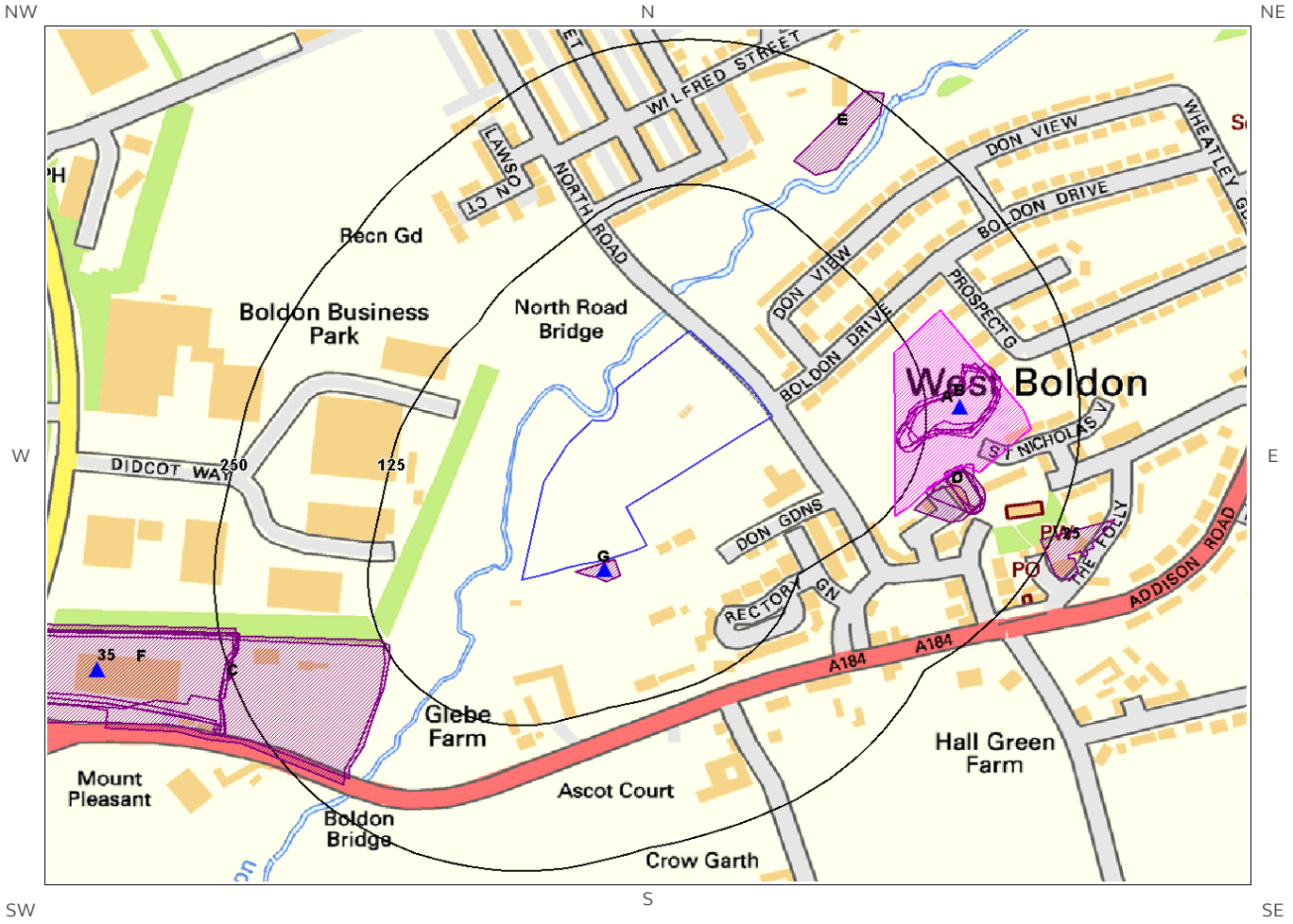
The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland,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

3.2 Radon Protection

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

---

4 Ground Workings map



Ground Workings Legend

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Site Outline

125
250
Search Buffers (m)

Historic Surface Ground Workings

Historic Underground Workings

Current Ground Workings

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

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

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

ID	Distance (m)	Direction	NGR	Use	Date
1G	3.0	S	434758 561076	Unspecified Old Quarry	1898
2A	99.0	E	435055 561212	Unspecified Workings	1968
3A	101.0	E	435041 561217	Unspecified Old Quarries	1921
4A	102.0	E	435041 561217	Unspecified Pit	1950
5A	104.0	E	435044 561213	Unspecified Old Quarries	1938
6A	109.0	E	435047 561221	Unspecified Old Quarries	1898
7B	111.0	E	435049 561220	Unspecified Old Quarries	1921
8B	111.0	E	435049 561220	Unspecified Old Quarries	1857
9C	121.0	SW	434435 560961	Brick Works	1898
10C	126.0	SW	434432 560956	Brick Works	1921
11D	140.0	SE	435047 561143	Unspecified Old Quarries	1898
12D	140.0	SE	435044 561143	Unspecified Old Quarries	1857
13D	145.0	SE	435063 561144	Unspecified Old Quarries	1921
14D	148.0	E	435056 561146	Unspecified Old Quarries	1921
15D	152.0	E	435057 561143	Unspecified Old Quarries	1938
16E	168.0	NE	434954 561453	Unspecified Heap	1965
17E	168.0	NE	434954 561453	Unspecified Heap	1992
18E	168.0	NE	434954 561453	Unspecified Heap	1973
19F	234.0	W	434374 560980	Brick Works	1951
20F	235.0	W	434369 560983	Brick Works	1938
21F	236.0	W	434371 560984	Brick Works	1921

ID	Distance (m)	Direction	NGR	Use	Date
22F	236.0	W	434371 560984	Brick Works	1921
23F	239.0	W	434377 560990	Brick Works	1973
24F	239.0	W	434377 560990	Brick Works	1965
25	242.0	SE	435148 561094	Grave Yard	1857

4.2 Historical Underground Working Features derived from Historical Mapping

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

Are there any Historical Underground Working Features within 1000m of the study site boundary? Yes

The following Historical Underground Working Features are provided by Groundsure:

ID	Distance (m)	Direction	NGR	Use	Date
26A	99.0	E	435055 561212	Unspecified Workings	1968
Not shown	586.0	NW	434665 562265	Collieries	1940
Not shown	587.0	NW	434685 562212	Colliery	1898
Not shown	594.0	NW	434688 562211	Colliery	1921
Not shown	710.0	N	434728 562298	Collieries	1965
Not shown	710.0	N	434728 562298	Collieries	1973
Not shown	811.0	N	434661 562286	Colliery	1938

4.3 Current Ground Workings

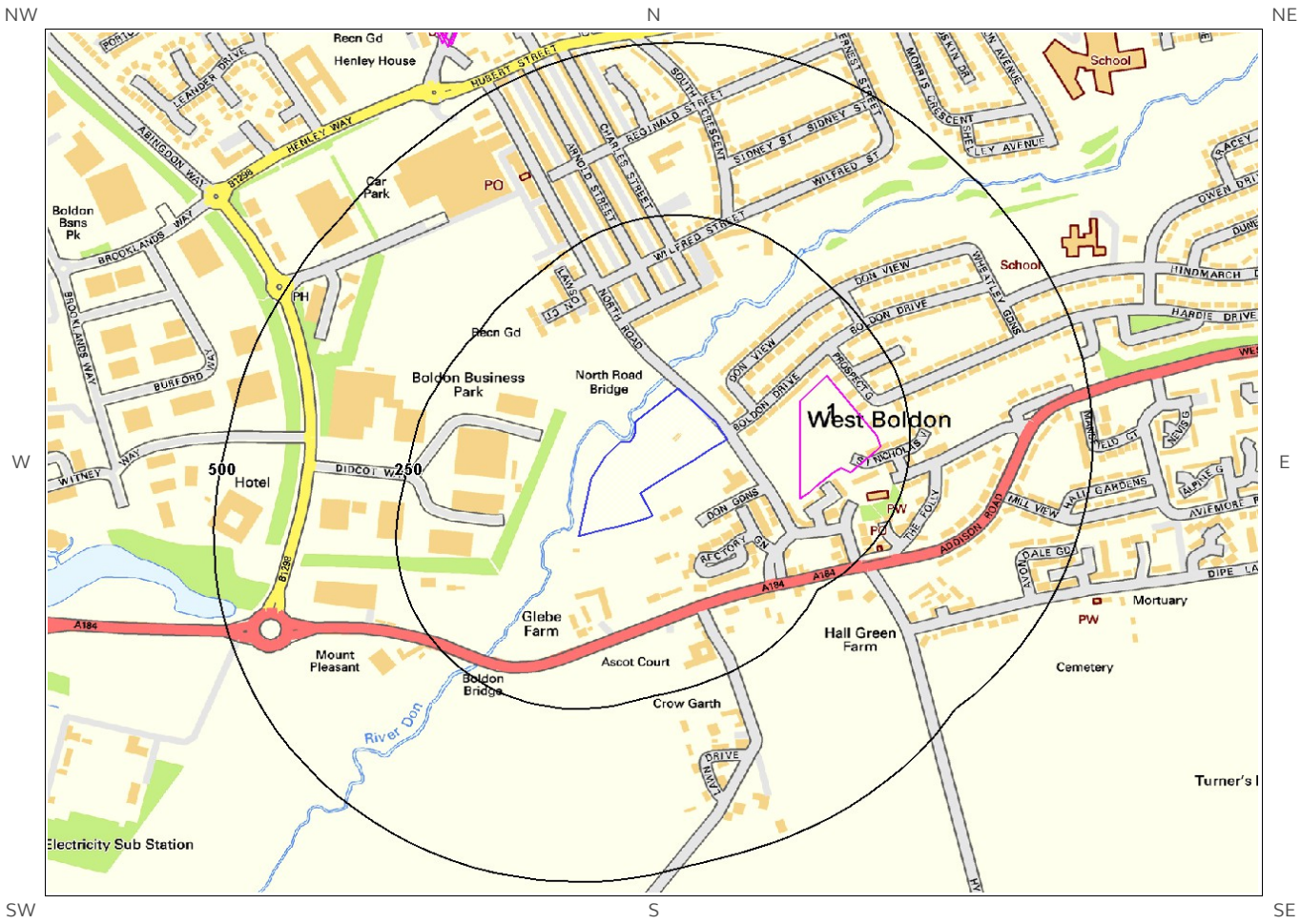
This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

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

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

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
33G	8.0	S	434763 561077	Sandstone	West Boldon	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
34B	152.0	E	435052 561217	Dolomite	North Lane Bridge	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
35	354.0	W	434350 560991	Clay & Shale	West Boldon Brick Works	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	453.0	SE	434988 560687	Dolomite	West Boldon	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	660.0	SE	435213 560585	Dolomite	Robinson's Quarry	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	721.0	SE	435386 560675	Dolomite	West Boldon	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	748.0	S	434828 560332	Dolomite	Down Hill	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	907.0	S	434787 560166	Dolomite	Down Hill	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	907.0	S	434787 560166	Sandstone	Down Hill	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	960.0	N	434811 562243	Clay & Shale	Boldon Colliery Brick Works	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

5 Mining, Extraction & Natural Cavities map



Mining, Extraction and Natural Cavities Legend

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Site Outline

Search Buffers (m)

250

500

Historical Mining

Non-Coal Mining Cavities

Natural Cavities (point data)

Natural Cavities (polygon data)

Non-Coal Mining

Highly likely

Likely

Unlikely

Highly unlikely

Rare

5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

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

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

The following Historical Mining information is provided by Groundsure:

ID	Distance (m)	Direction	NGR	Details	Date
1	99.0	E	435055 561212	Unspecified Workings	1968
2A	586.0	NW	434665 562265	Collieries	1940
3A	587.0	NW	434685 562212	Colliery	1898
4A	594.0	NW	434688 562211	Colliery	1921
Not shown	710.0	N	434728 562298	Collieries	1965
Not shown	710.0	N	434728 562298	Collieries	1973
Not shown	811.0	N	434661 562286	Colliery	1938

5.2 Coal Mining

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

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

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

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

5.3 Johnson Poole and Bloomer

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

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

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

5.4 Non-Coal Mining

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

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

Database searched and no data found.

5.5 Non-Coal Mining Cavities

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

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

Database searched and no data found.

5.6 Natural Cavities

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

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

Database searched and no data found.

5.7 Brine Extraction

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

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

Database searched and no data found.

5.8 Gypsum Extraction

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

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

Database searched and no data found.

5.9 Cornwall and Devon Metalliferous Mining

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

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

Database searched and no data found.

5.10 Clay Mining

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

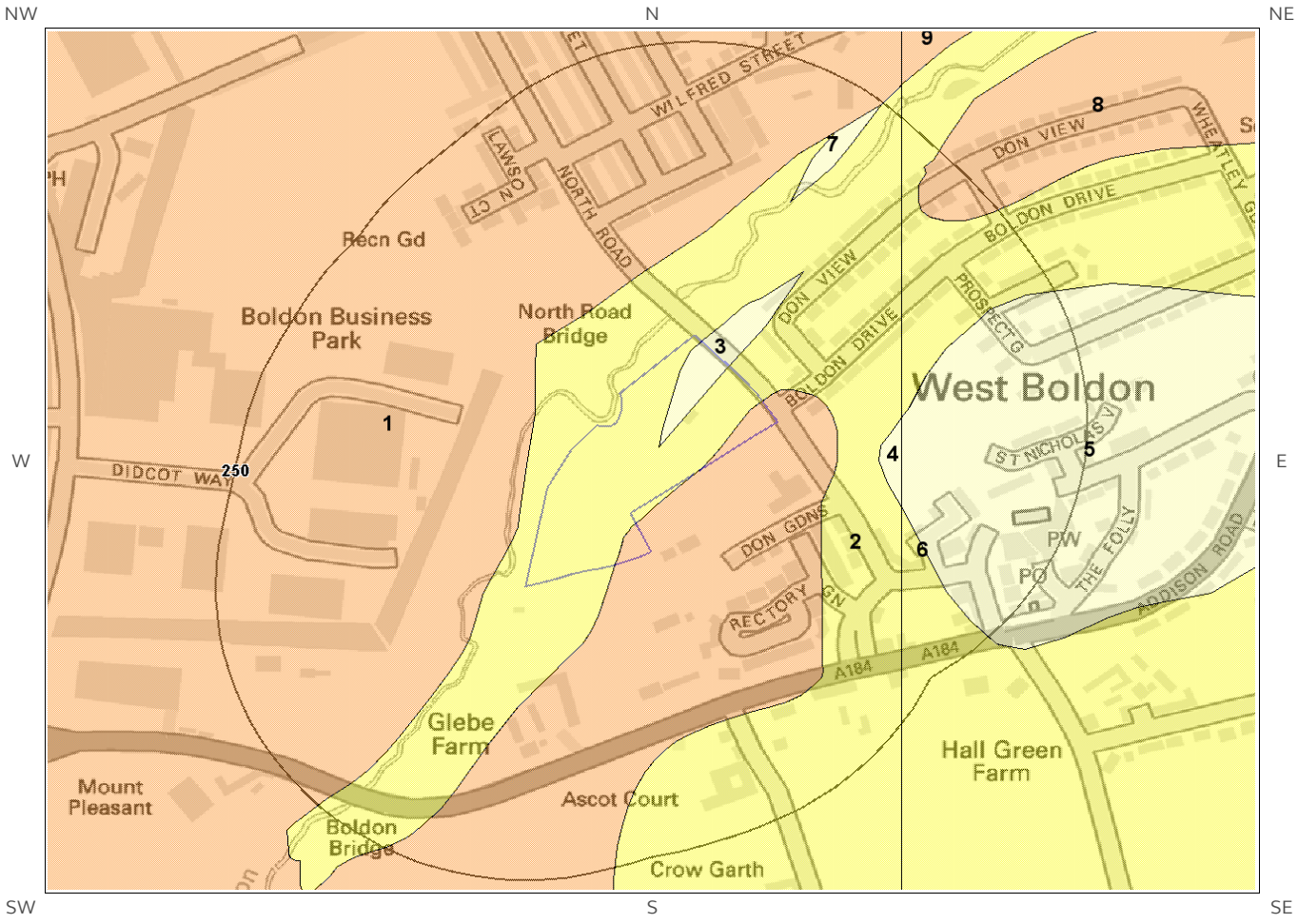
Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

---

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map



Shrink Swell Clay Legend

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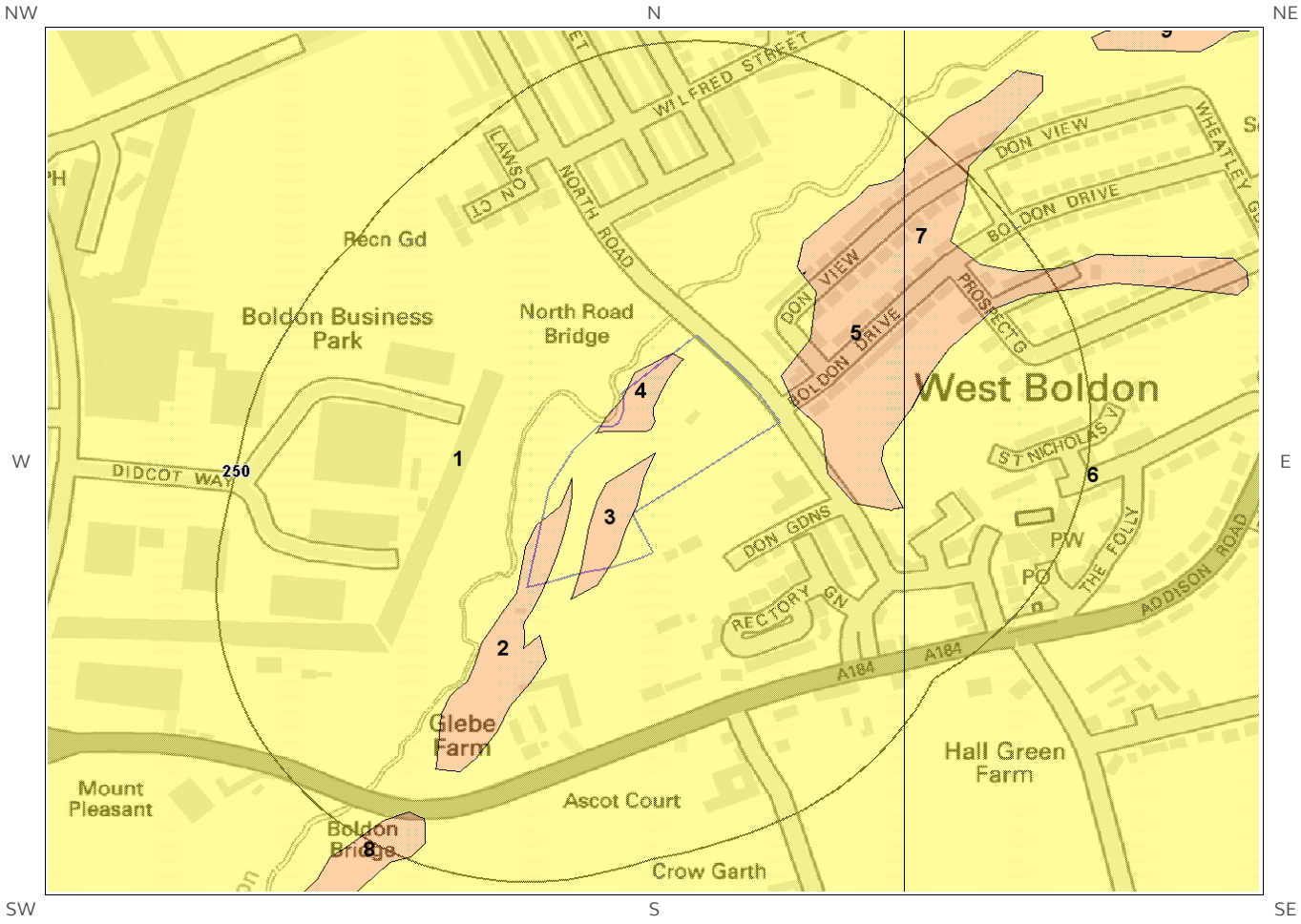
6.2 Landslides map



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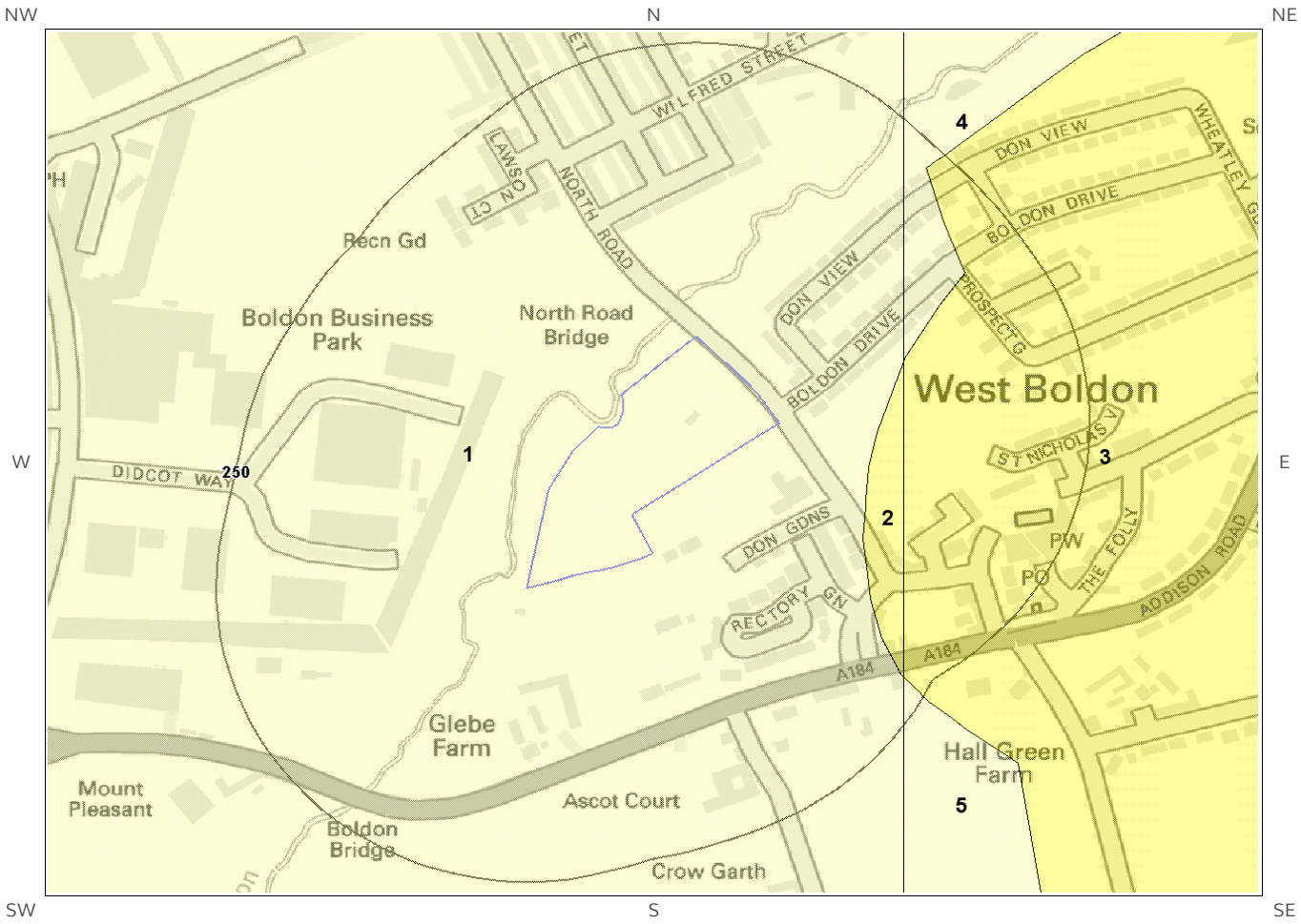
Landslides Legend



6.3 Ground Dissolution of Soluble Rocks map



Ground Dissolution Soluble Rocks Legend

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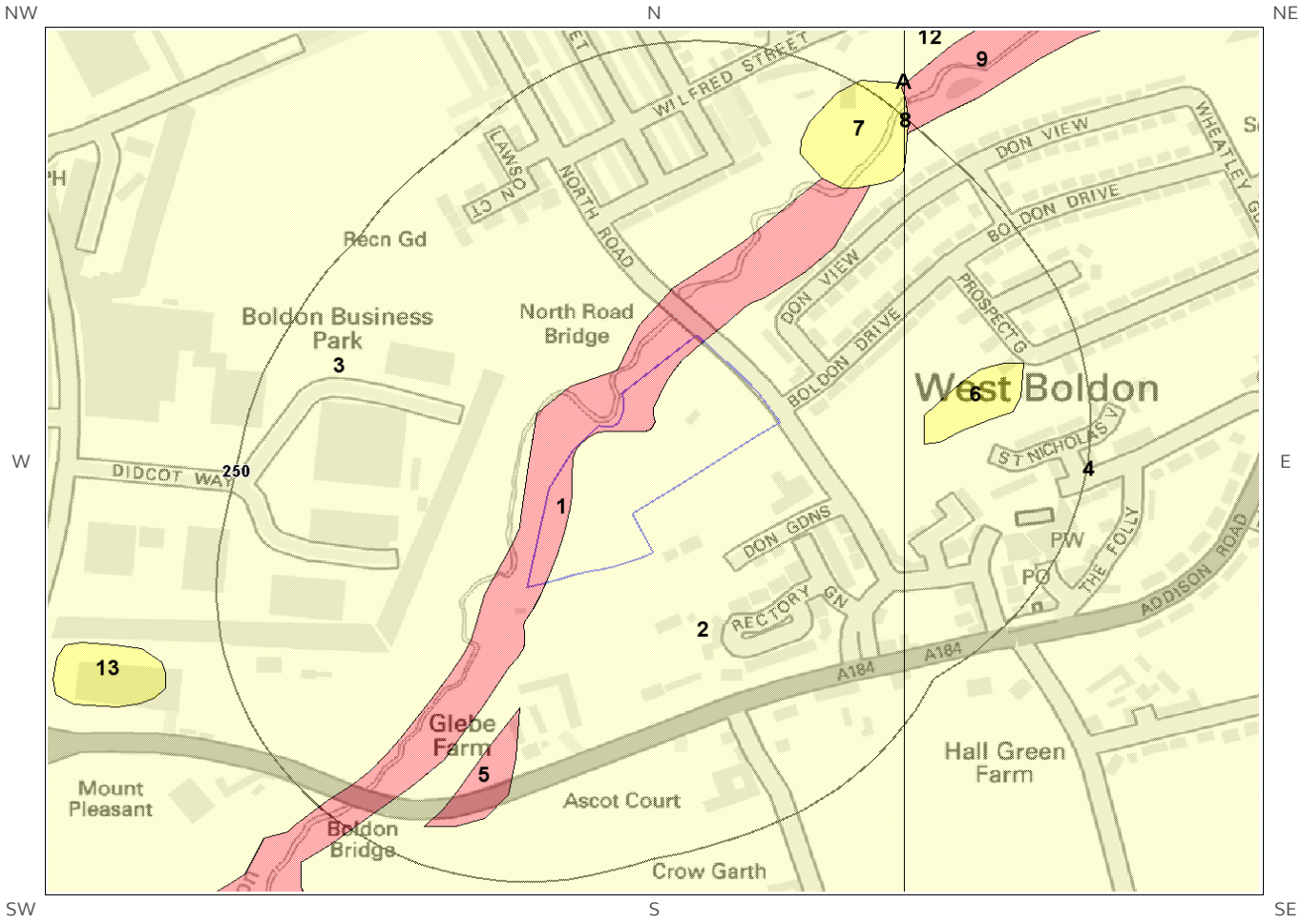
6.4 Compressible Deposits map



Compressible Deposits Legend

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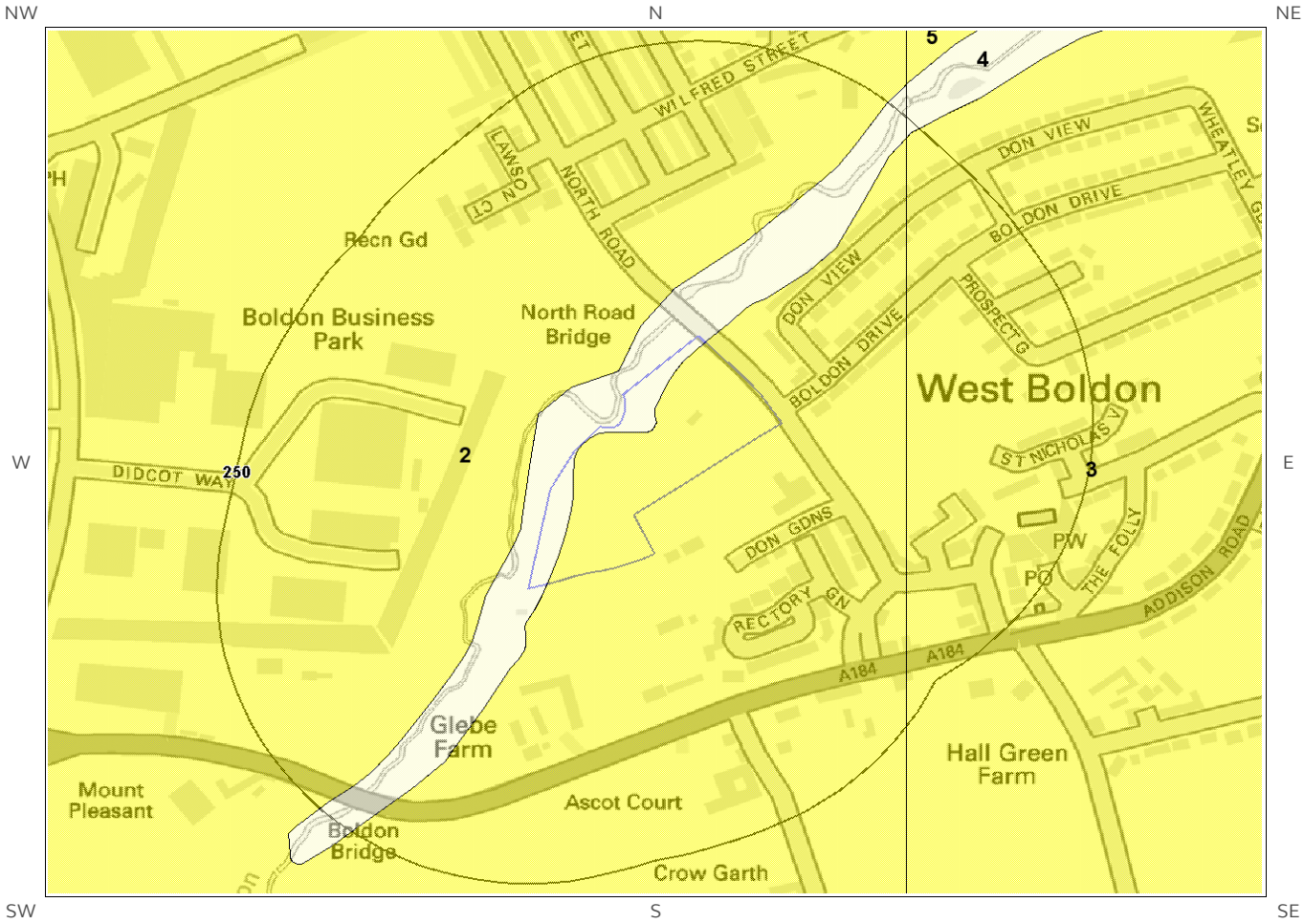
6.5 Collapsible Deposits map



Collapsible Deposits Legend

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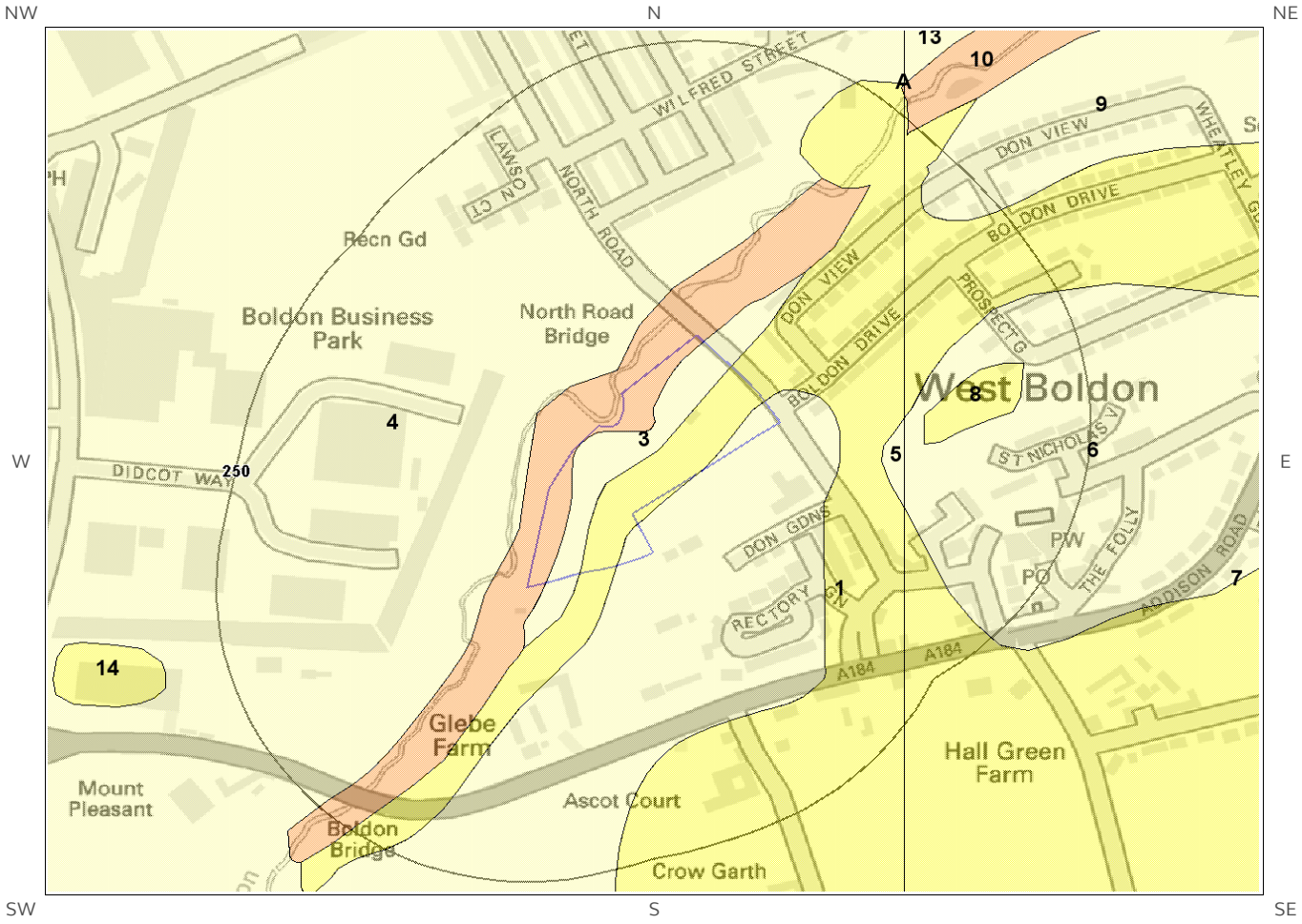
6.6 Running Sand map



Running Sand Legend

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6 Natural Ground Subsidence

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

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

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

6.1 Shrink-Swell Clays

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Low	Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.
2	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. 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.
3	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.

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

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.
2	0.0	On Site	Low	Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property - no significant increase in insurance risk due to natural slope instability problems.
3	0.0	On Site	Low	Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property - no significant increase in insurance risk due to natural slope instability problems.
4	0.0	On Site	Low	Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property - no significant increase in insurance risk due to natural slope instability problems.
5	18.0	NE	Low	Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property - no significant increase in insurance risk due to natural slope instability problems.

6.3 Ground Dissolution of Soluble Rocks

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

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

6.4 Compressible Deposits

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Moderate	Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build - consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property - possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.
2	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
3	16.0	W	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

6.5 Collapsible Deposits

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.
2	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.

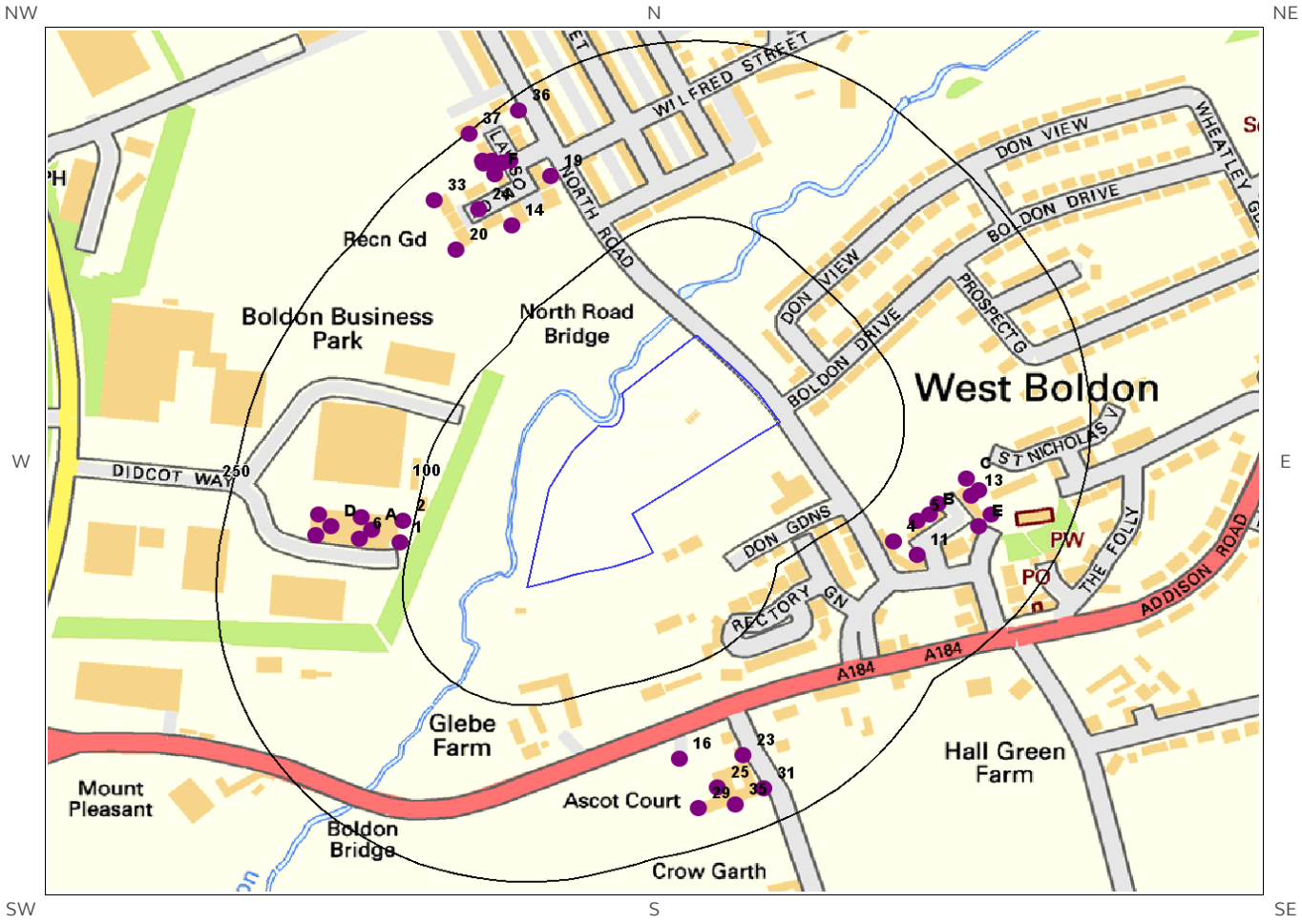
6.6 Running Sands

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
2	0.0	On Site	Low	Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build - consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property - no significant increase in insurance risk due to running sand problems is likely.

ID	Distance (m)	Direction	Hazard Rating	Details
3	0.0	On Site	Negligible	No indicators for running sand identified. 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.
4	0.0	On Site	Negligible	No indicators for running sand identified. 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.

7 Borehole Records map



Borehole Records Legend

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Site Outline

Borehole Locations

125
250
Search Buffers (m)

7 Borehole Records

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

Records of boreholes within 250m of the study site boundary: 37

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	108.0	W	434594 561106	NZ36SW943	No details	HASHMOTO LTD BOLDON BUSINESS PARK TP6
2	109.0	W	434596 561124	NZ36SW940	No details	HASHMOTO LTD BOLDON BUSINESS PARK TP3
3A	132.0	W	434571 561117	NZ36SW937	No details	HASHMOTO LTD BOLDON BUSINESS PARK 2
4	136.0	SE	434991 561107	NZ36SW585	0.75	RECTORY BANK, WEST BOLDON. BH2
5	138.0	SE	435010 561124	NZ36SE229	1.75	RECTORY BANK, WEST BOLDON. BH3
6	141.0	W	434561 561109	NZ36SW942	No details	HASHMOTO LTD BOLDON BUSINESS PARK TP5
7B	143.0	SE	435020 561130	NZ36SE93	No details	QUARRY IN WEST BOLDON
8A	143.0	W	434562 561127	NZ36SW939	No details	HASHMOTO LTD BOLDON BUSINESS PARK TP2
9B	144.0	SE	435027 561139	NZ36SE230	5.2	RECTORY BANK, WEST BOLDON. BH4
10C	157.0	E	435050 561160	NZ36SE92	No details	QUARRY IN WEST BOLDON
11	158.0	SE	435010 561095	NZ36SE228	1.5	RECTORY BANK, WEST BOLDON. BH1
12D	165.0	W	434538 561120	NZ36SW936	No details	HASHMOTO LTD BOLDON BUSINESS PARK 1
13	166.0	E	435054 561146	NZ36SE231	4	RECTORY BANK, WEST BOLDON. BH5
14	166.0	NW	434684 561375	NZ36SW999	2.6	NORTH ROAD BOLDON COLLIERY TP4
15C	170.0	E	435060 561150	NZ36SE91	No details	QUARRY IN WEST BOLDON
16	173.0	S	434819 560922	NZ36SW1012	1.6	ASCOT COURT WEST BOLDON WS2
17D	175.0	W	434526 561112	NZ36SW941	No details	HASHMOTO LTD BOLDON BUSINESS PARK TP4
18D	177.0	W	434528 561130	NZ36SW938	No details	HASHMOTO LTD BOLDON BUSINESS PARK TP1
19	178.0	NW	434715 561417	NZ36SW996	3	NORTH ROAD BOLDON COLLIERY TP1

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
20	181.0	NW	434639 561355	NZ36SW1003	2.6	NORTH ROAD BOLDON COLLIERY TP8
21E	182.0	SE	435060 561120	NZ36SE89	No details	QUARRY IN WEST BOLDON
22E	187.0	SE	435070 561130	NZ36SE90	No details	QUARRY IN WEST BOLDON
23	187.0	SE	434870 560925	NZ36SW1011	3	ASCOT COURT WEST BOLDON WS1
24	194.0	NW	434657 561389	NZ36SW1002	3	NORTH ROAD BOLDON COLLIERY TP7
25	205.0	S	434849 560898	NZ36SW1013	2.6	ASCOT COURT WEST BOLDON WS3
26F	209.0	NW	434670 561419	NZ36SW1000	2.7	NORTH ROAD BOLDON COLLIERY TP5
27F	209.0	NW	434682 561430	NZ36SW998	3.2	NORTH ROAD BOLDON COLLIERY TP3
28F	213.0	NW	434676 561429	NZ36SW1006	1.1	NORTH ROAD BOLDON COLLIERY TR2
29	217.0	S	434834 560880	NZ36SW1014	1.5	ASCOT COURT WEST BOLDON WS4
30F	218.0	NW	434668 561430	NZ36SW995	8	NORTH ROAD BOLDON COLLIERY 2
31	220.0	SE	434887 560897	NZ36SW1016	3	ASCOT COURT WEST BOLDON WS6
32F	221.0	NW	434661 561428	NZ36SW994	8	NORTH ROAD BOLDON COLLIERY 1
33	223.0	NW	434621 561397	NZ36SW1004	3	NORTH ROAD BOLDON COLLIERY TP9
34F	224.0	NW	434660 561430	NZ36SW1005	2.2	NORTH ROAD BOLDON COLLIERY TR1
35	224.0	S	434864 560883	NZ36SW1015	2.5	ASCOT COURT WEST BOLDON WS5
36	238.0	NW	434689 561473	NZ36SW997	3	NORTH ROAD BOLDON COLLIERY TP2
37	248.0	NW	434649 561453	NZ36SW1001	2.5	NORTH ROAD BOLDON COLLIERY TP6

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

#4: scans.bgs.ac.uk/sobi_scans/boreholes/17512442
#5: scans.bgs.ac.uk/sobi_scans/boreholes/17512441
#9B: scans.bgs.ac.uk/sobi_scans/boreholes/17512443
#11: scans.bgs.ac.uk/sobi_scans/boreholes/17512440
#13: scans.bgs.ac.uk/sobi_scans/boreholes/17512444
#14: scans.bgs.ac.uk/sobi_scans/boreholes/20275554
#16: scans.bgs.ac.uk/sobi_scans/boreholes/20315534
#19: scans.bgs.ac.uk/sobi_scans/boreholes/20275551
#20: scans.bgs.ac.uk/sobi_scans/boreholes/20275558
#23: scans.bgs.ac.uk/sobi_scans/boreholes/20315533
#24: scans.bgs.ac.uk/sobi_scans/boreholes/20275557
#25: scans.bgs.ac.uk/sobi_scans/boreholes/20315537
#26F: scans.bgs.ac.uk/sobi_scans/boreholes/20275555
#27F: scans.bgs.ac.uk/sobi_scans/boreholes/20275553
#28F: scans.bgs.ac.uk/sobi_scans/boreholes/20275561
#29: scans.bgs.ac.uk/sobi_scans/boreholes/20315540
#30F: scans.bgs.ac.uk/sobi_scans/boreholes/20275550
#31: scans.bgs.ac.uk/sobi_scans/boreholes/20315542
#32F: scans.bgs.ac.uk/sobi_scans/boreholes/20275549
#33: scans.bgs.ac.uk/sobi_scans/boreholes/20275559
#34F: scans.bgs.ac.uk/sobi_scans/boreholes/20275560
#35: scans.bgs.ac.uk/sobi_scans/boreholes/20315541
#36: scans.bgs.ac.uk/sobi_scans/boreholes/20275552
#37: scans.bgs.ac.uk/sobi_scans/boreholes/20275556

8 Estimated Background Soil Chemistry

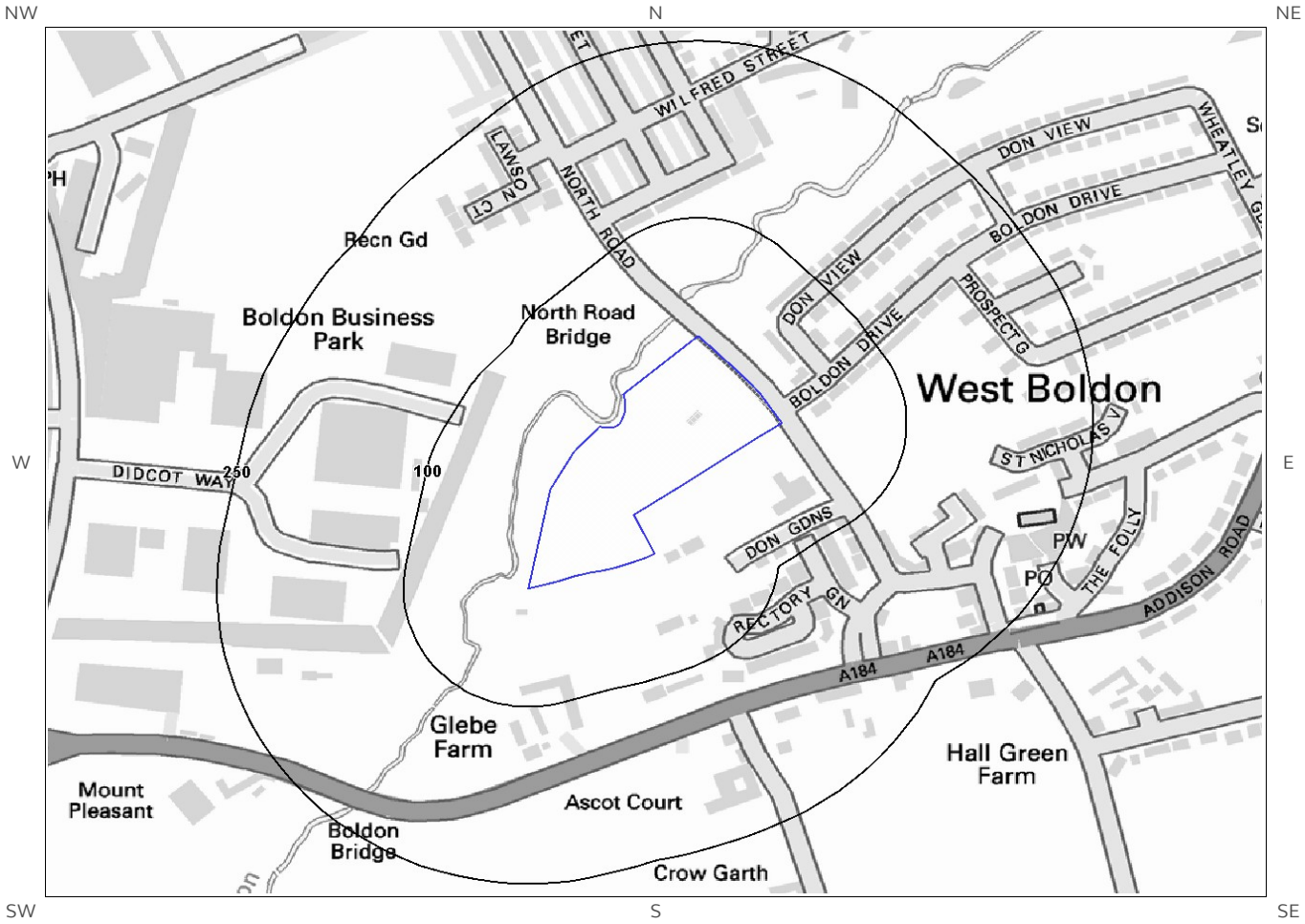
Records of background estimated soil chemistry within 250m of the study site boundary: 16

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

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
10.0	S	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
16.0	W	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
18.0	NW	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
24.0	E	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
24.0	W	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
31.0	S	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
39.0	NE	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg

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

9 Railways and Tunnels map



Railways and Tunnels Legend

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

9 Railways and Tunnels

9.1 Tunnels

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

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

Database searched and no data found.

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

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

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

Database searched and no data found.

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

9.2 Historical Railway and Tunnel Features

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

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

Database searched and no data found.

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

9.3 Historical Railways

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

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

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

Database searched and no data found.

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

9.4 Active Railways

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

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

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

Database searched and no data found.

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

9.5 Railway Projects

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

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

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

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

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

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

Contact Details

Groundsure Helpline

Telephone: 08444 159 000
info@groundsure.com

British Geological Survey Enquiries

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

British Gypsum

British Gypsum Ltd
East Leake
Loughborough
Leicestershire
LE12 6HX

The Coal Authority

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

Public Health England

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

Johnson Poole & Bloomer Limited

Harris and Pearson Building, Brettel Lane
Brierley Hill, West Midlands
DY5 3LH
Tel: +44 (0) 1384 262 000
Email:**enquiries.gs@jpb.co.uk**
Website: **www.jpb.co.uk**

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS

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

Getmapping PLC

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

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

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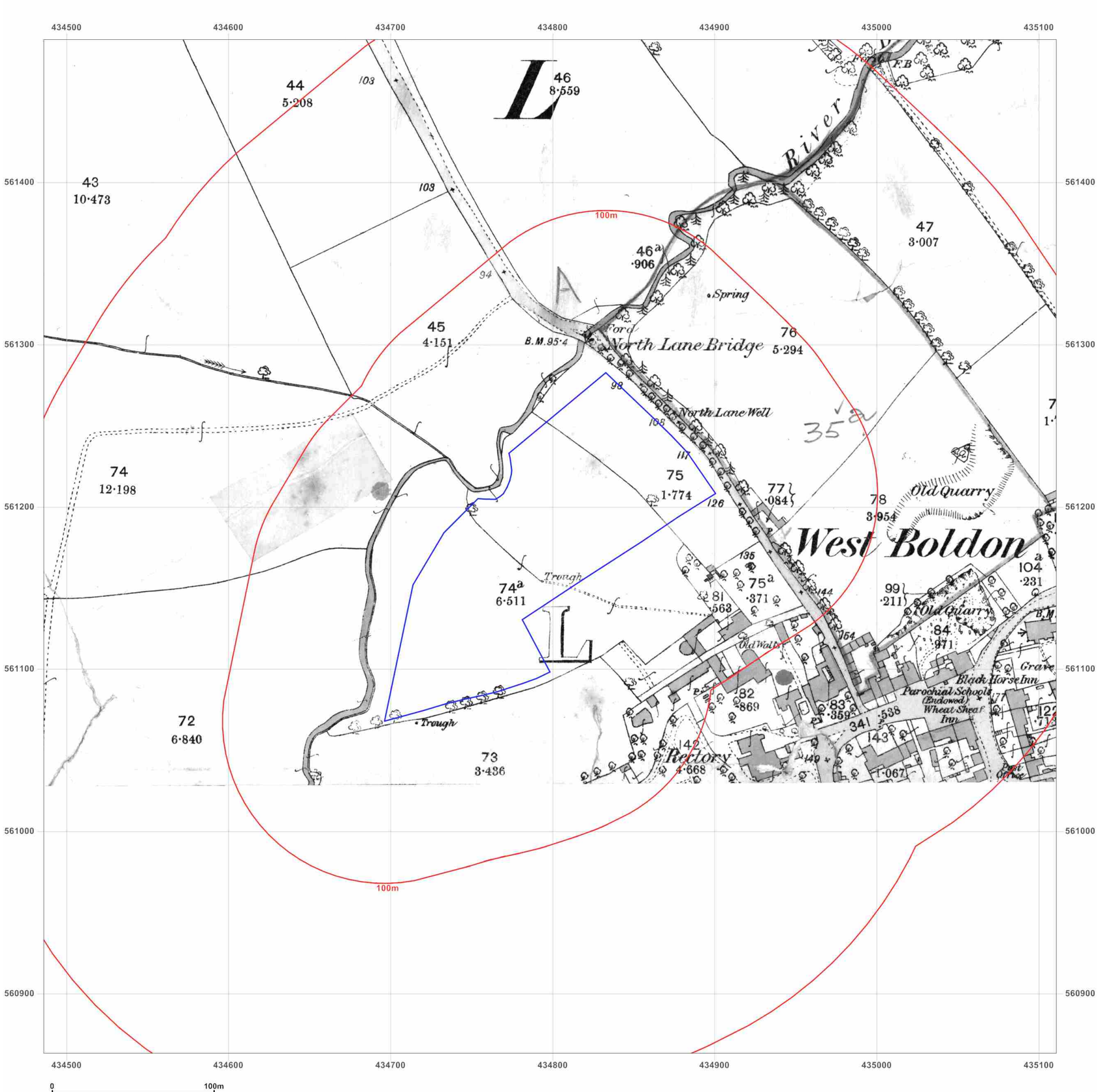
Appendix 4: Historical Mapping



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Site Details:

LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: County Series

Map date: **1856**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1856
Revised 1856
Edition N/A
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Levelled N/A

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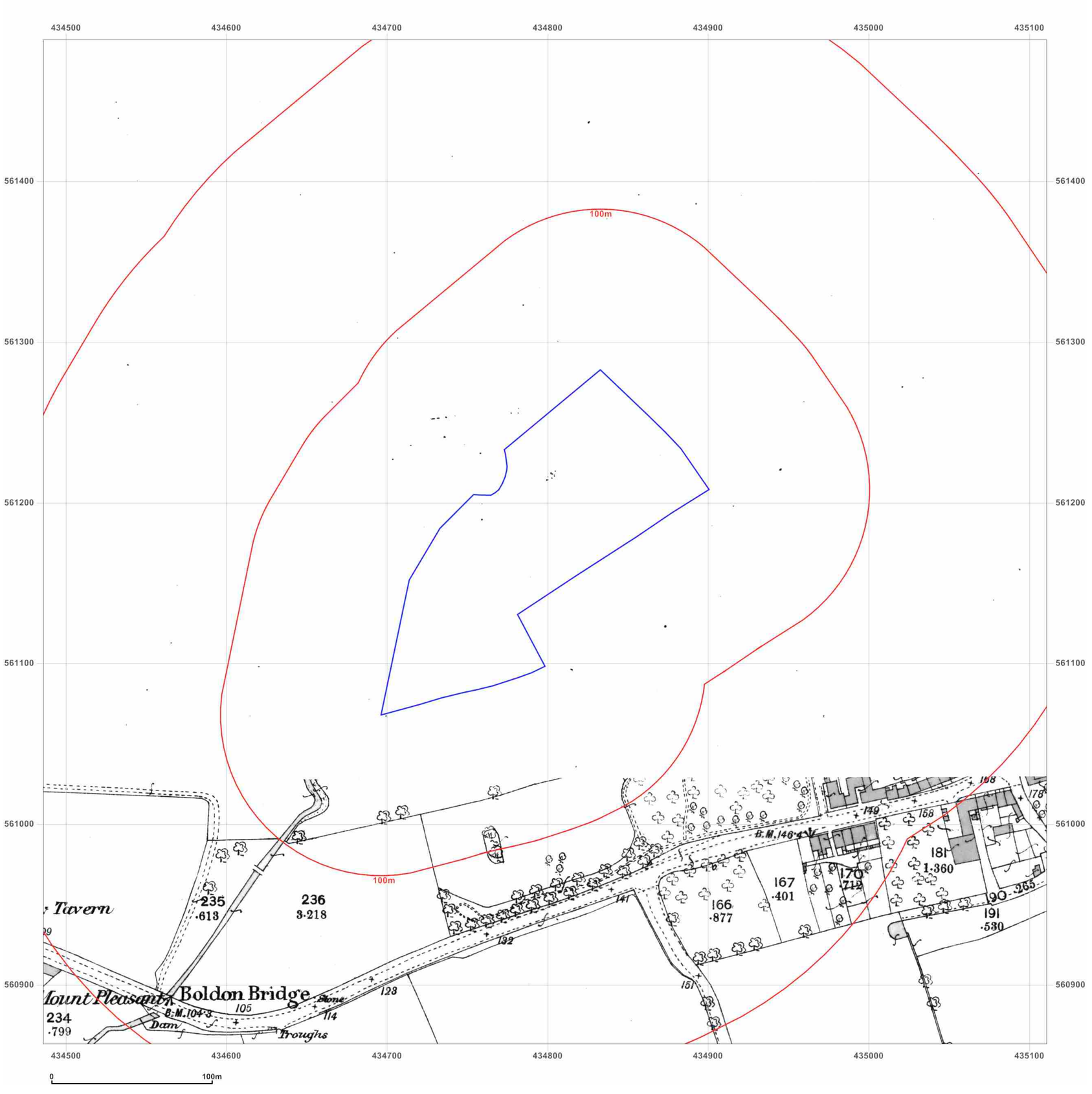

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LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: County Series

Map date: **1856**

Scale: 1:2,500

Printed at: 1:2,500

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Edition N/A
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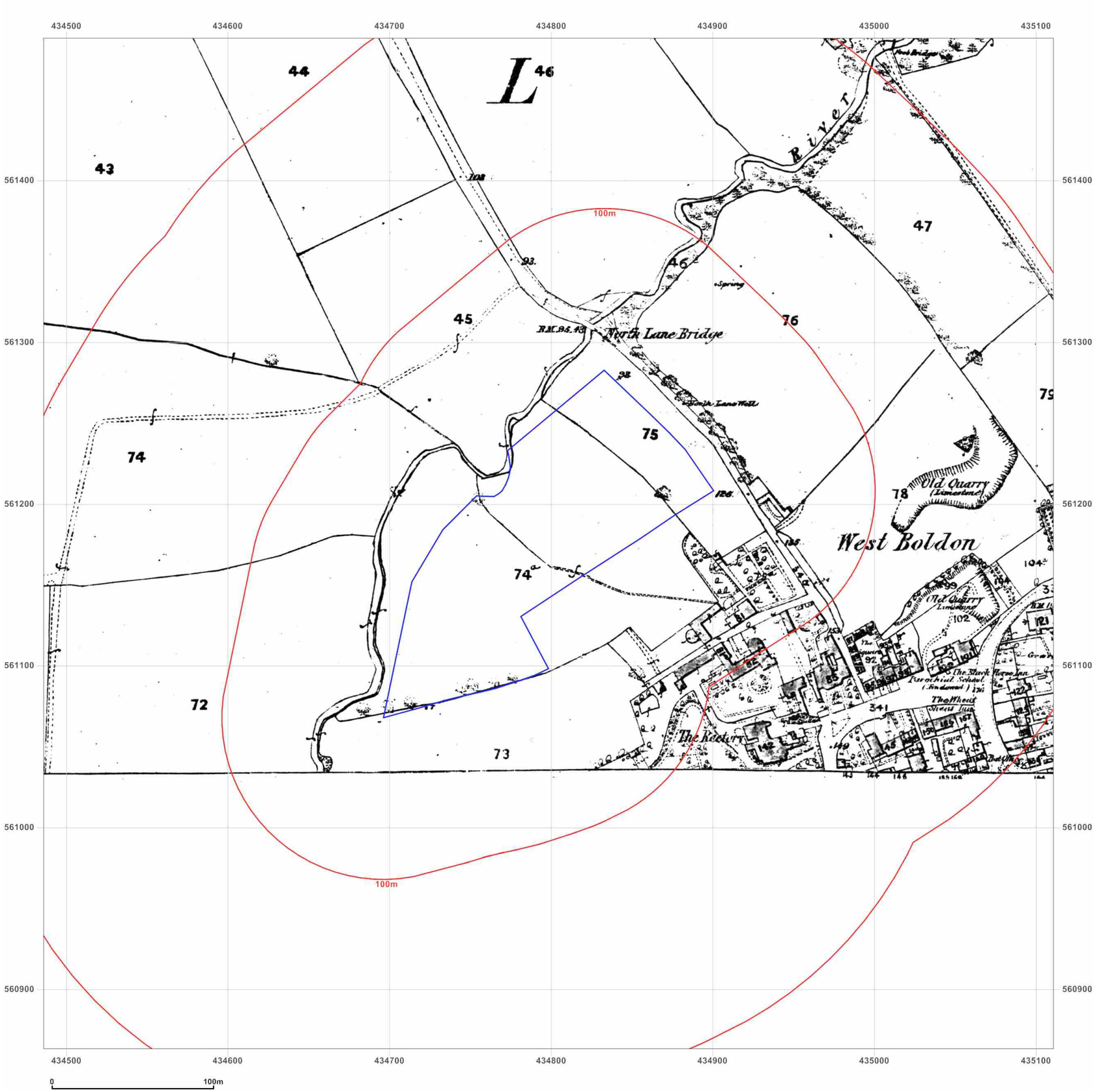

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Site Details:

LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: County Series
Map date: **1856**
Scale: 1:2,500
Printed at: 1:2,500

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Grid Ref: 434798, 561175

Map Name: County Series

Map date: **1896-1897**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1897
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Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: County Series

Map date: **1919**

Scale: 1:2,500

Printed at: 1:2,500

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Revised 1919
Edition N/A
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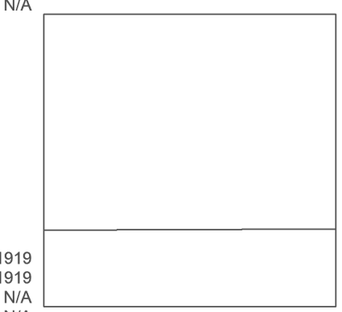

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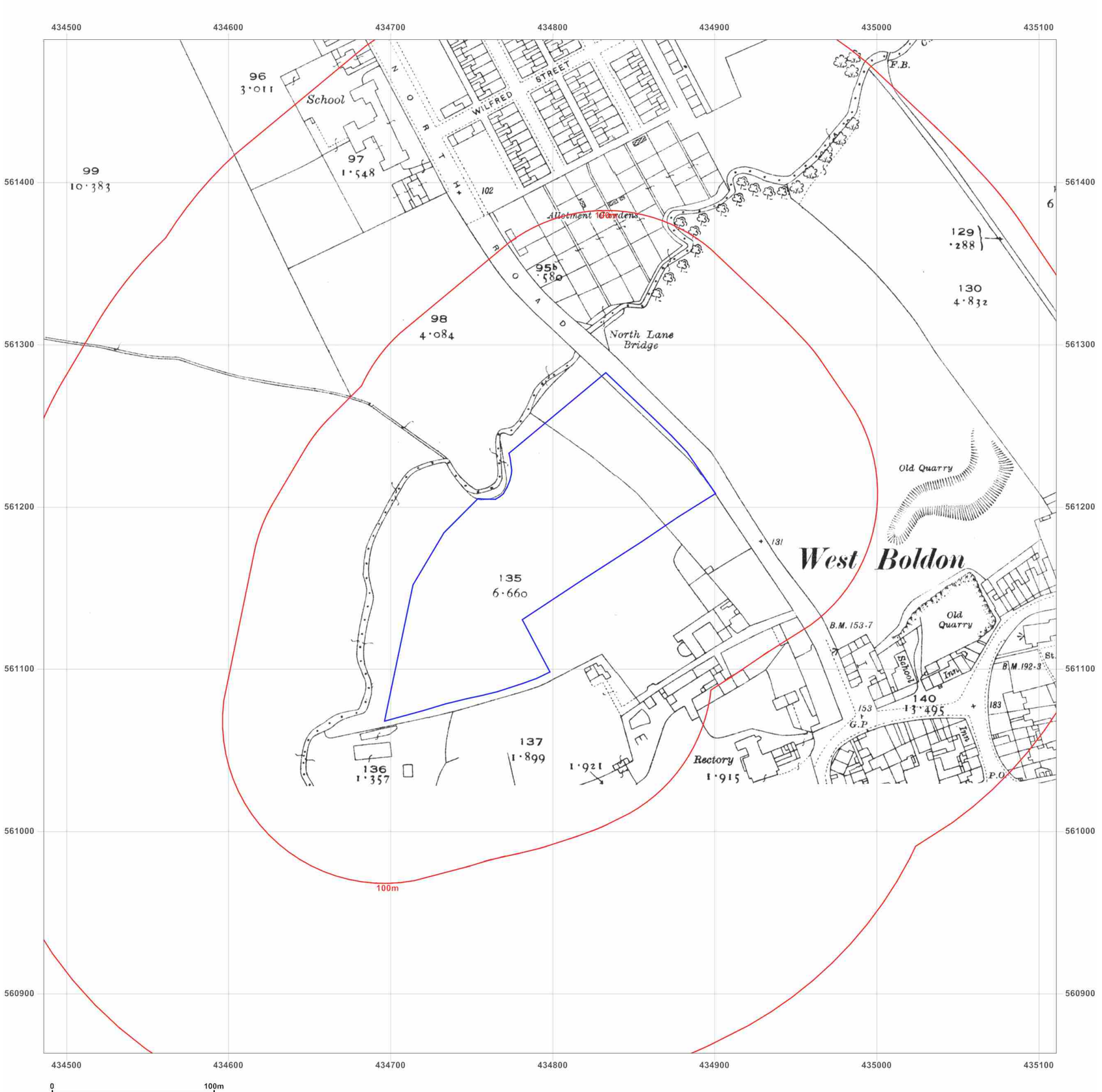

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WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: County Series

Map date: **1932**

Scale: 1:2,500

Printed at: 1:2,500

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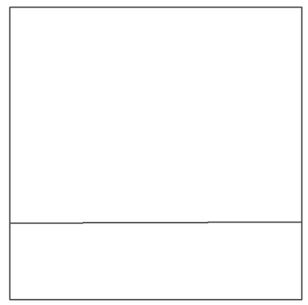

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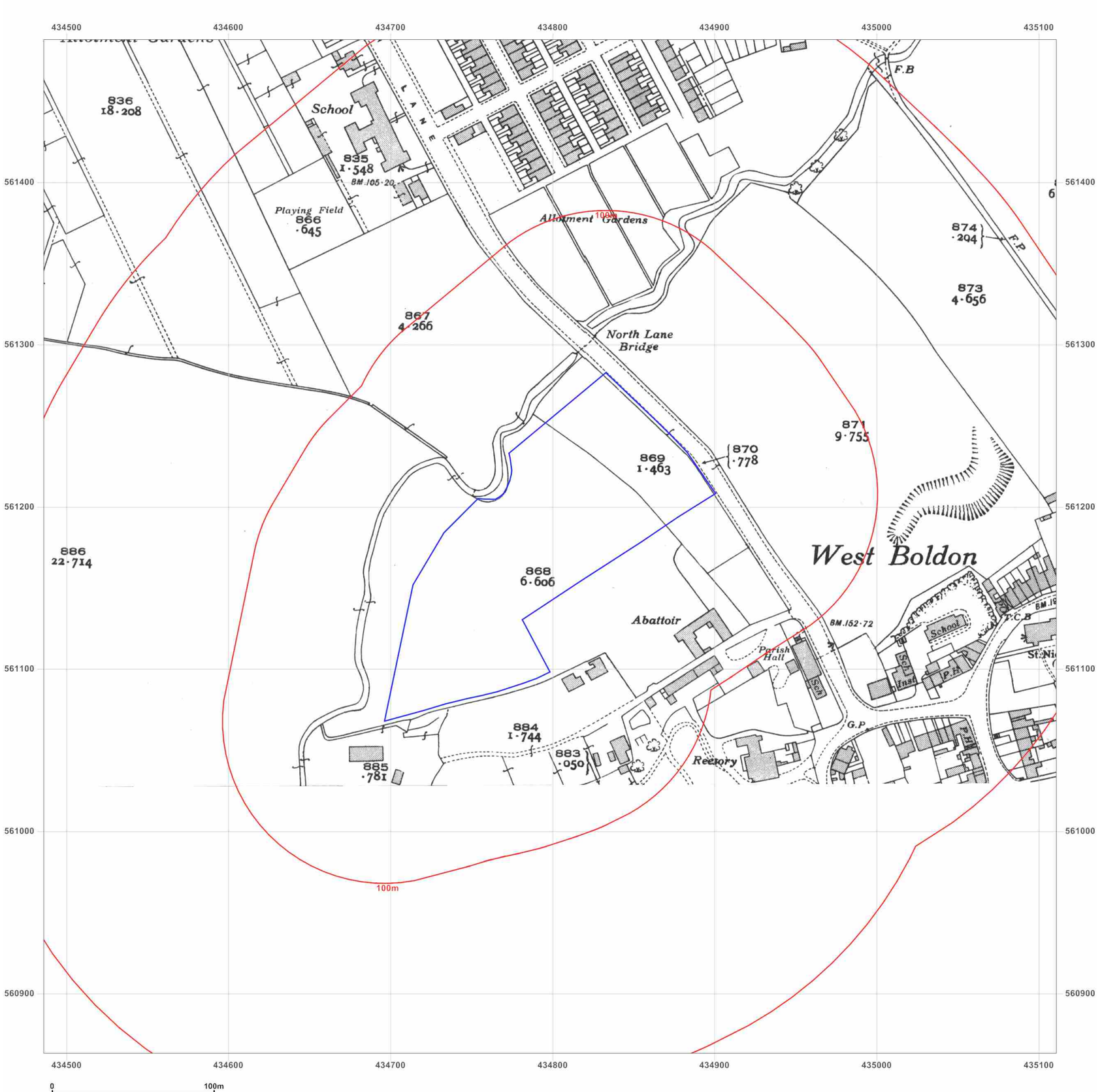

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Site Details:

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WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: County Series

Map date: **1939**

Scale: 1:2,500

Printed at: 1:2,500

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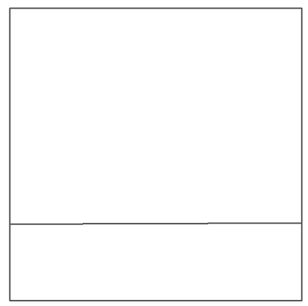
Surveyed 1939
Revised 1939
Edition N/A
Copyright N/A
Levelled N/A



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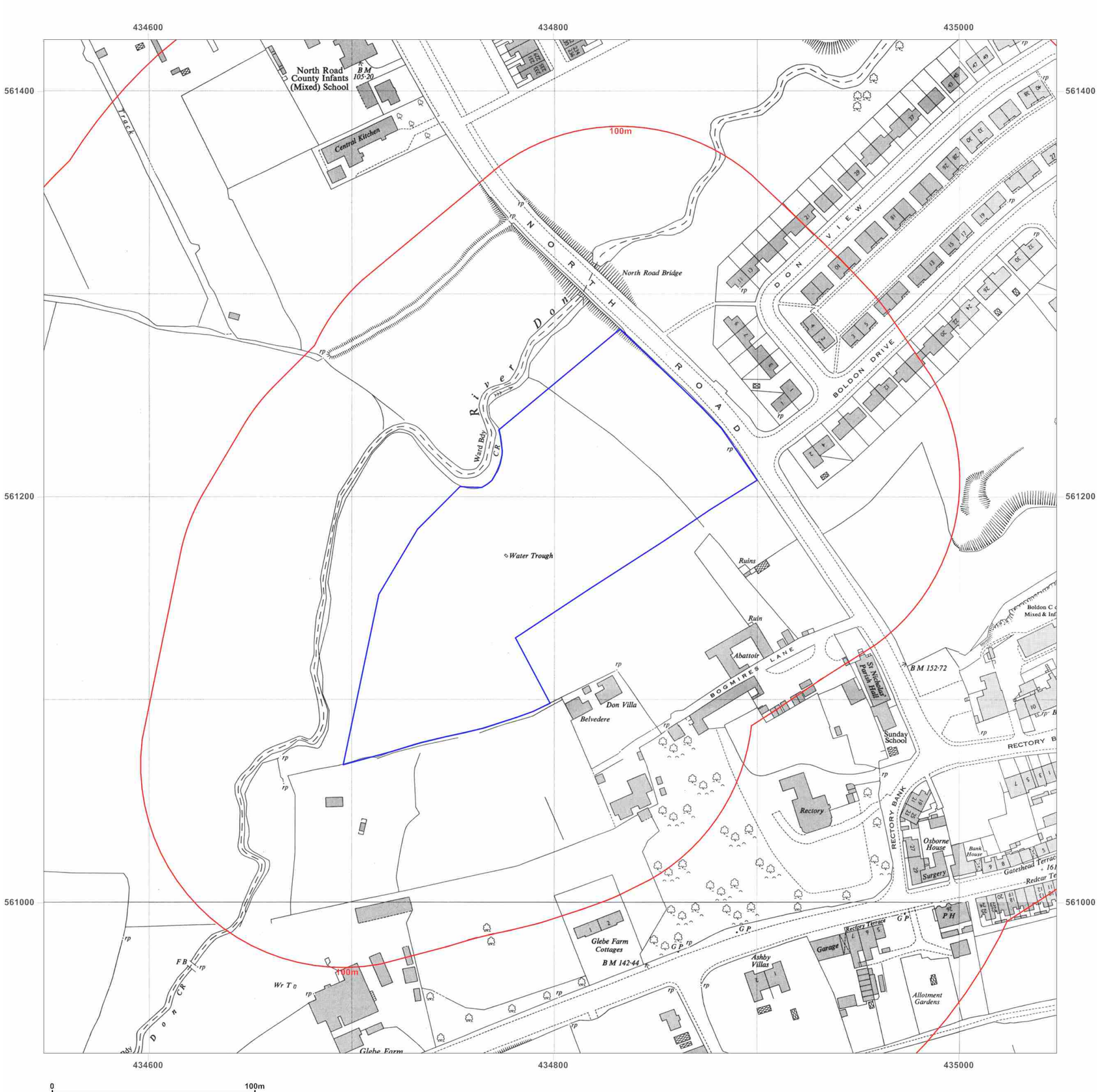

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WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: National Grid

Map date: **1955-1956**

Scale: 1:1,250

Printed at: 1:2,000

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Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: National Grid

Map date: **1955-1957**

Scale: 1:2,500

Printed at: 1:2,500

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Edition 1956
Copyright N/A
Levelled 1939

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Edition 1958
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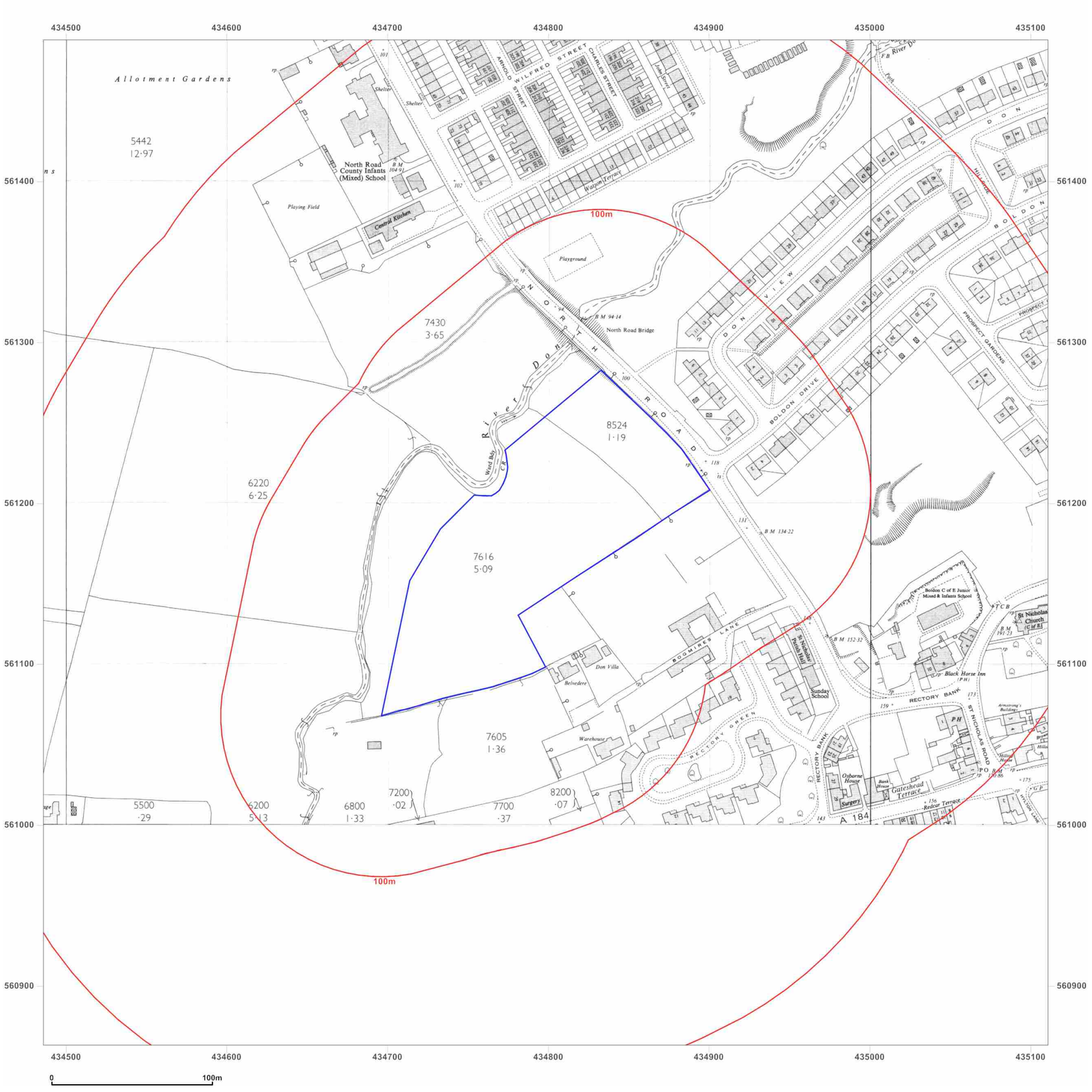

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Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: National Grid

Map date: **1968**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1968
Revised 1968
Edition N/A
Copyright 1969
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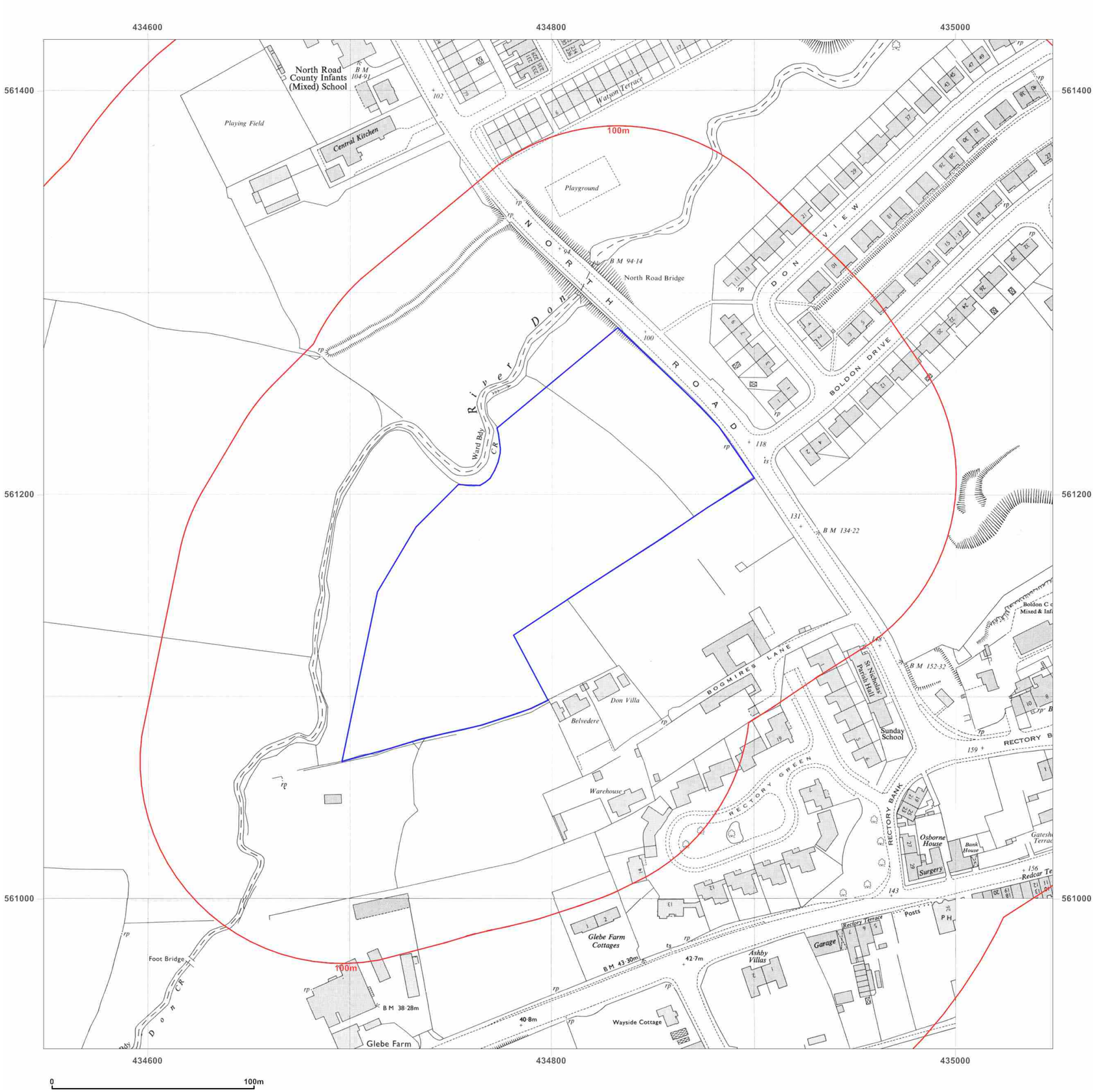

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Site Details:

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WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: National Grid

Map date: **1967-1970**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed 1955 Revised 1970 Edition N/A Copyright 1970 Levelled 1963	

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Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: National Grid

Map date: **1984-1988**

Scale: 1:1,250

Printed at: 1:2,000

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WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: National Grid

Map date: **1991-1993**

Scale: 1:1,250

Printed at: 1:2,000

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

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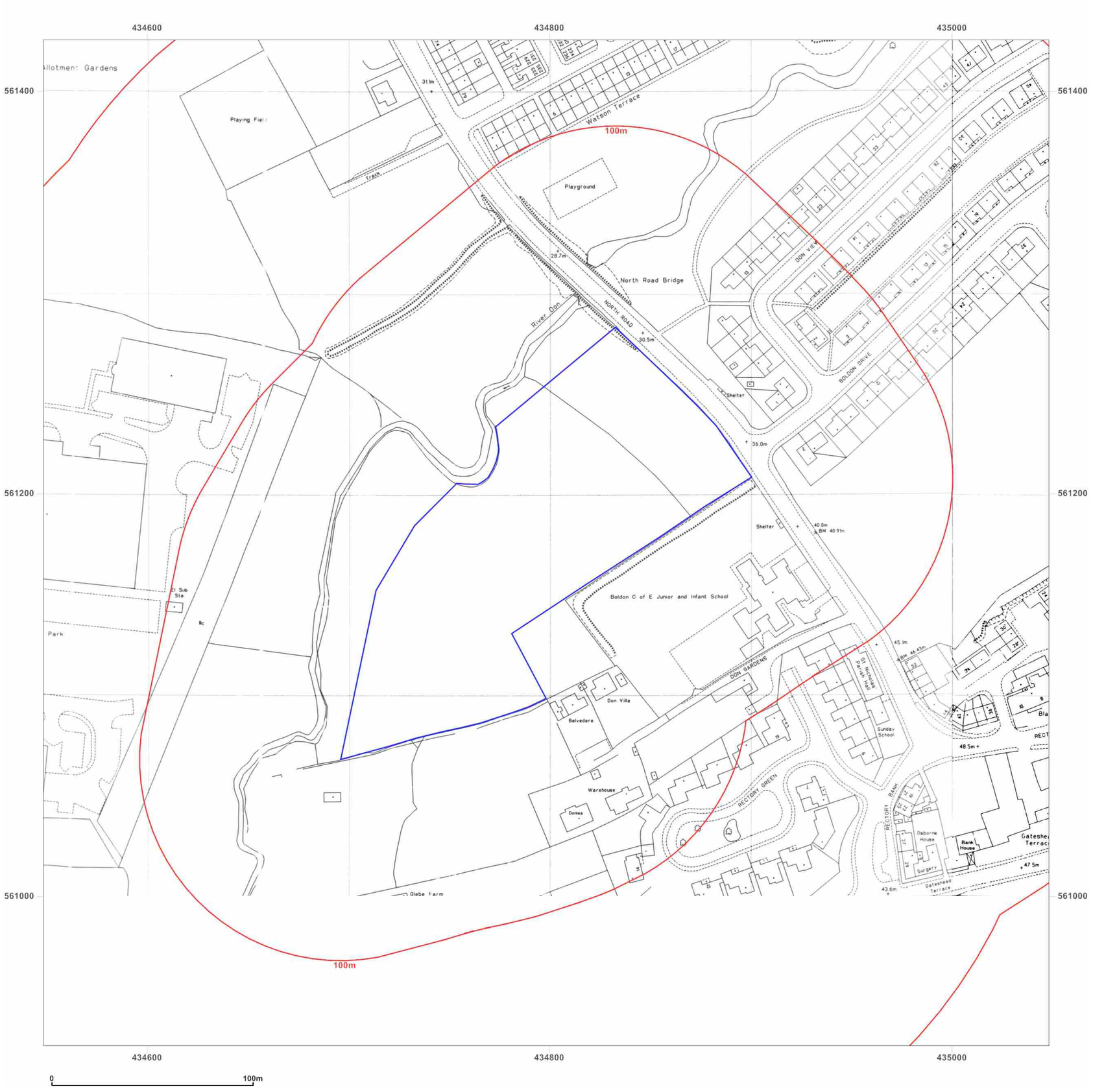

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Site Details:

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WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: National Grid

Map date: **1993**

Scale: 1:1,250

Printed at: 1:2,000

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

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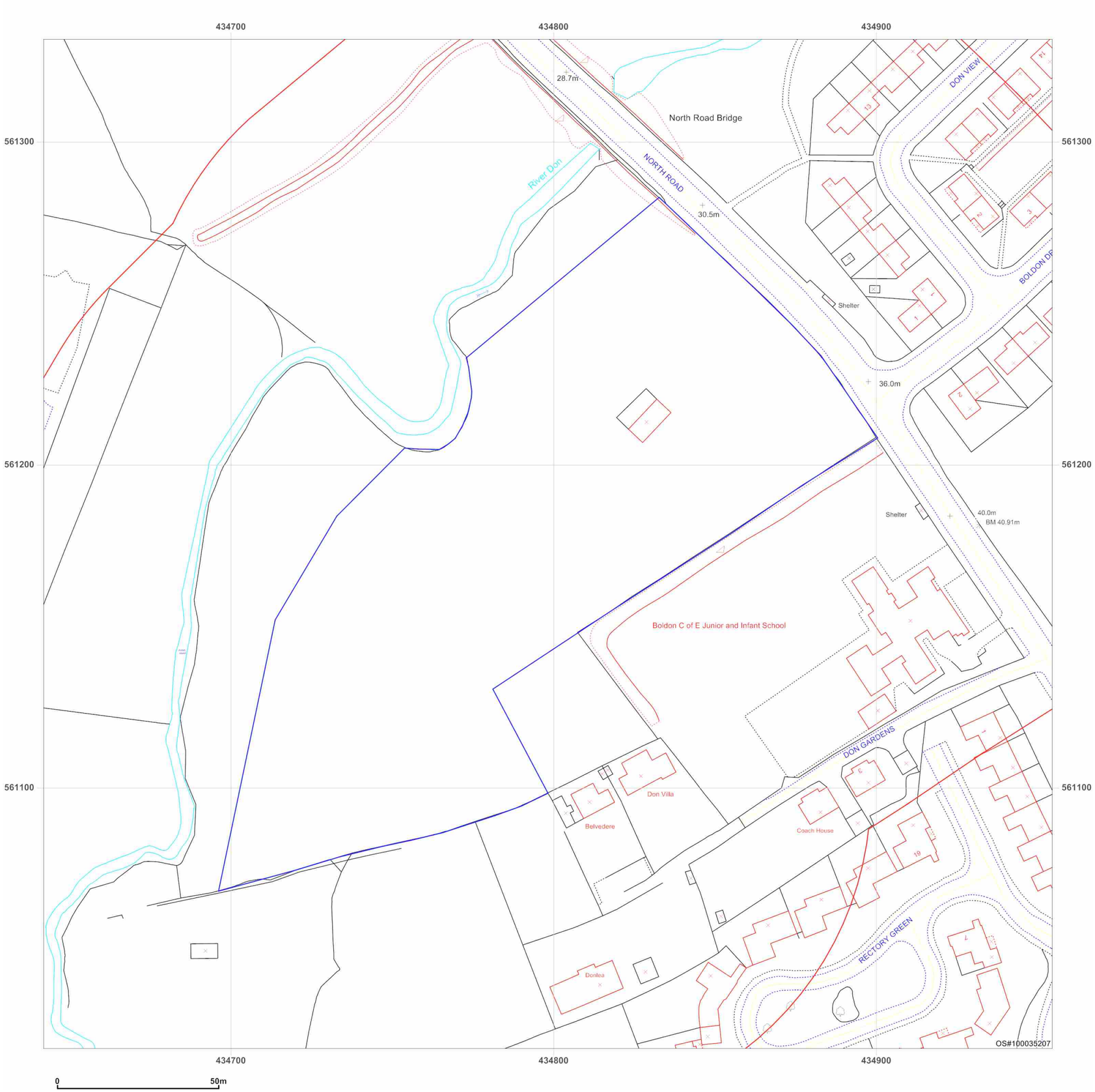

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Site Details:

LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

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

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2003

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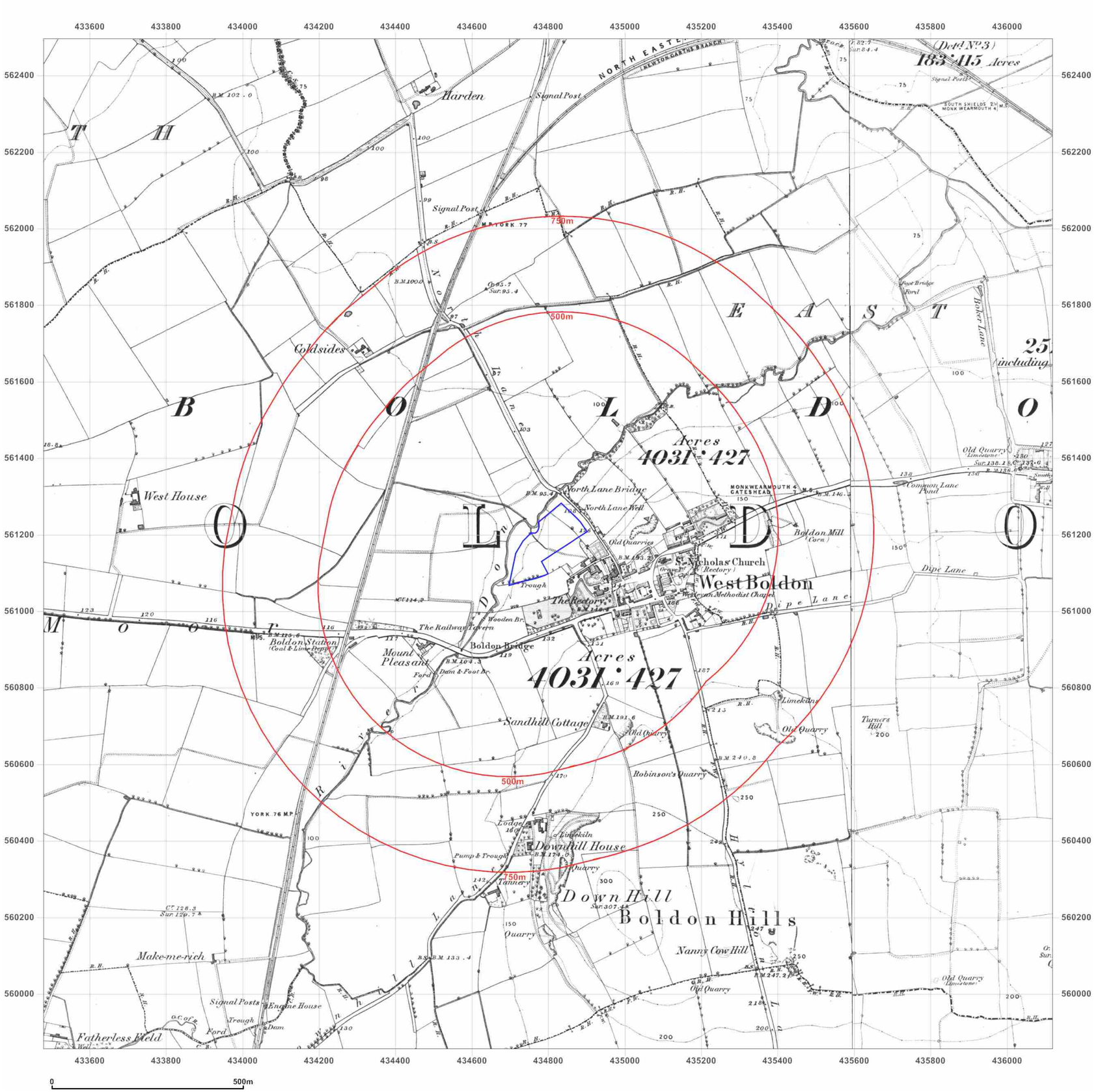

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Site Details:

LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: County Series

Map date: **1855-1857**

Scale: 1:10,560

Printed at: 1:10,560

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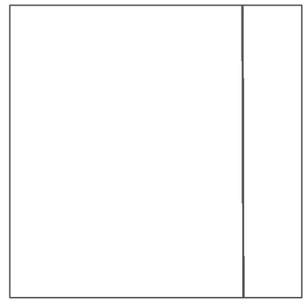

Surveyed 1857
Revised 1857
Edition N/A
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Levelled N/A

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Revised 1855
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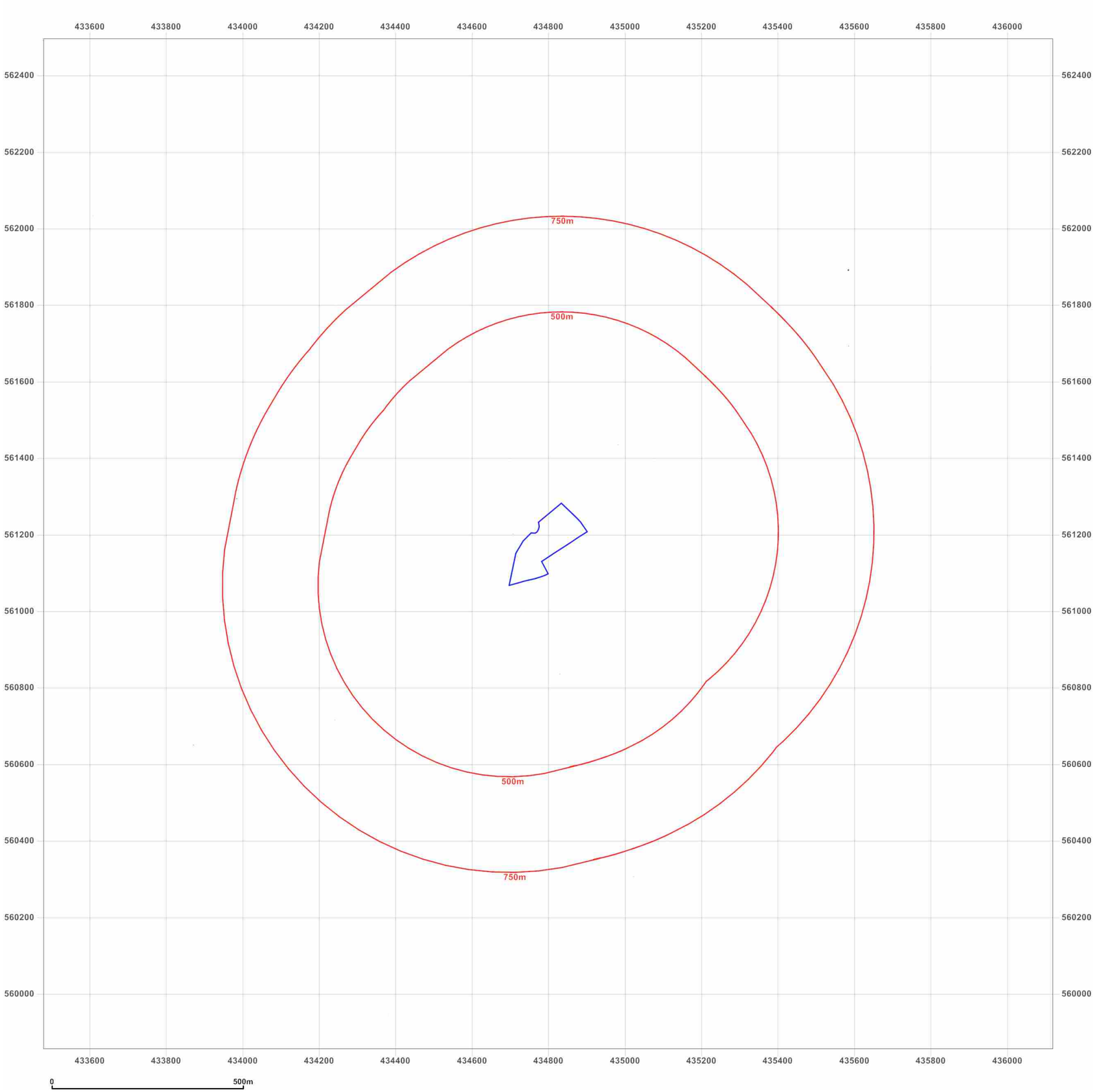

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LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: County Series

Map date: **1858**

Scale: 1:10,560

Printed at: 1:10,560

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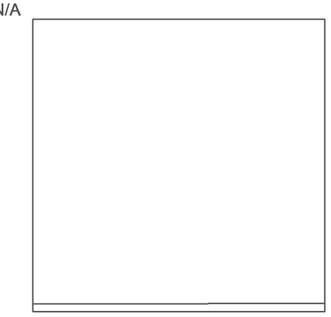
Surveyed 1858
Revised 1858
Edition N/A
Copyright N/A
Levelled N/A



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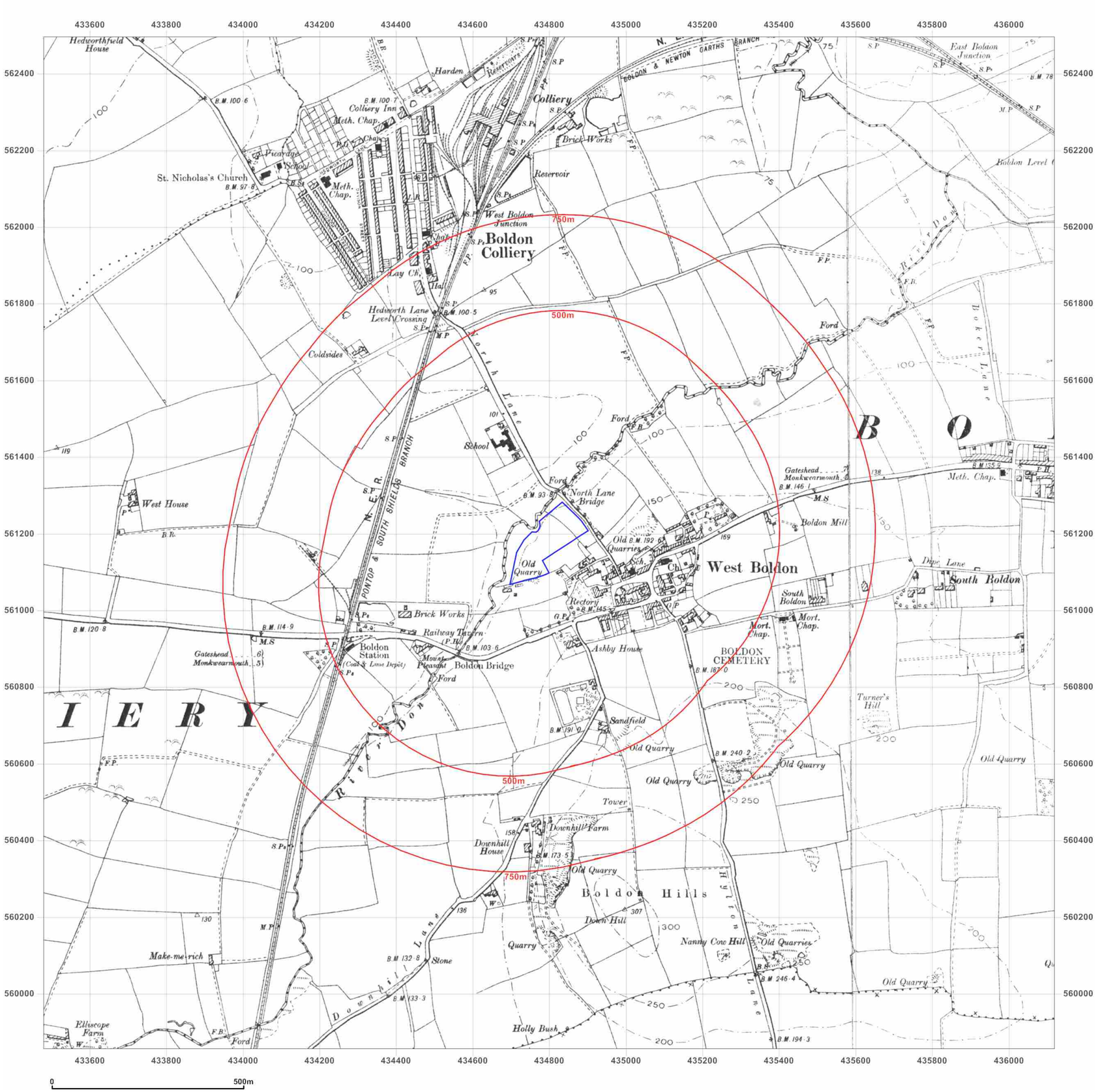

Groundsure INSIGHTS

Site Details:

LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: County Series

Map date: **1895-1898**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1898
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1855
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

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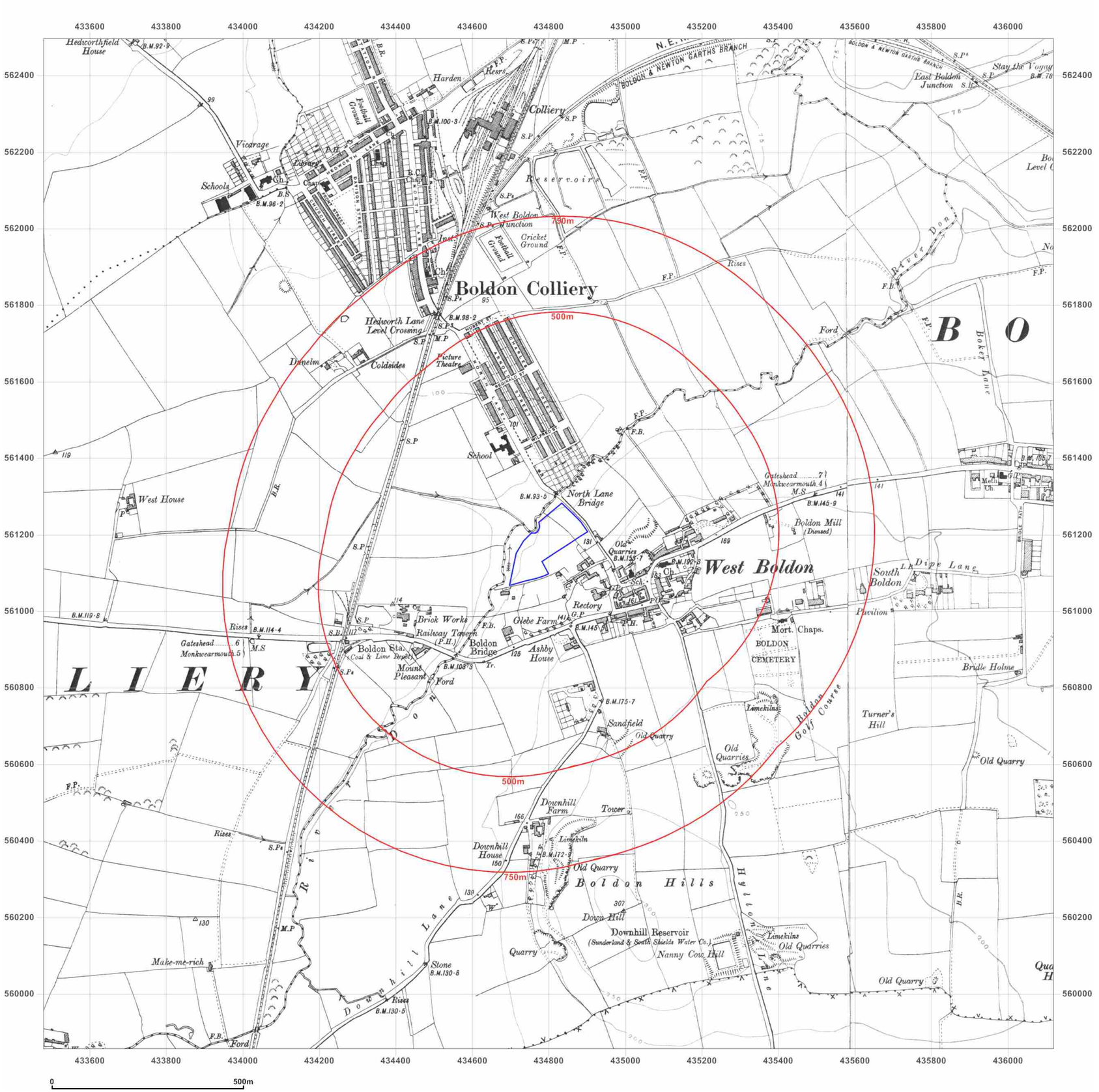

Groundsure INSIGHTS

Site Details:

LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: County Series

Map date: **1921**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1856
Revised 1921
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1857
Revised 1921
Edition N/A
Copyright N/A
Levelled N/A

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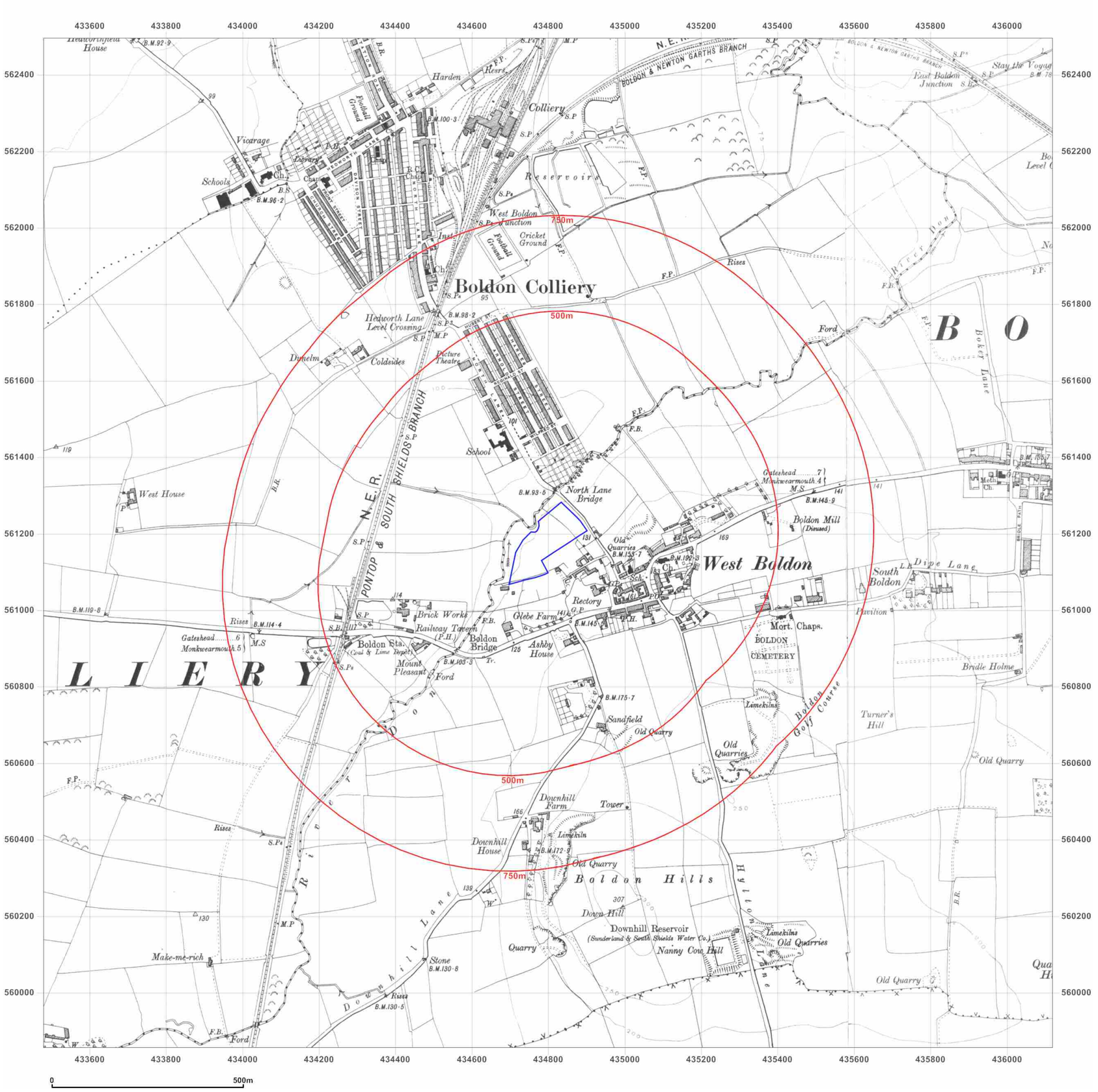

Groundsure INSIGHTS

Site Details:

LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: County Series

Map date: **1921**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1855
Revised 1921
Edition 1921
Copyright N/A
Levelled N/A

Surveyed 1855
Revised 1921
Edition 1921
Copyright N/A
Levelled N/A

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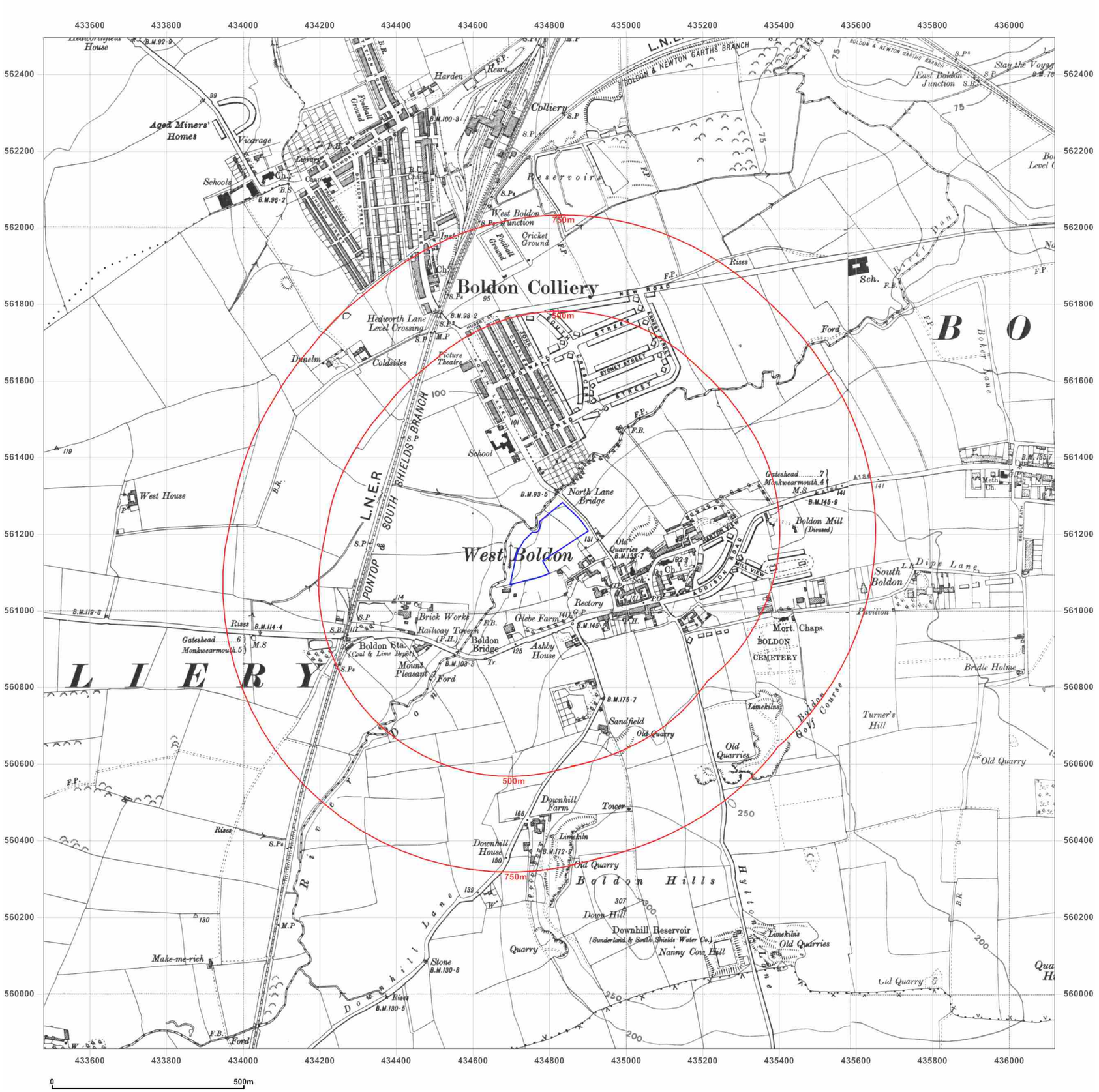

Groundsure INSIGHTS

Site Details:

LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

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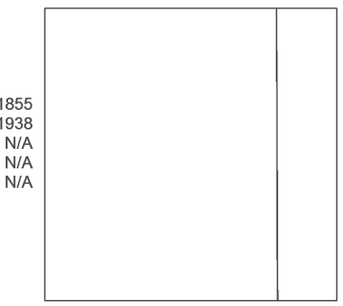
Surveyed 1855
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1855
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

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Groundsure INSIGHTS

Site Details:

LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: Provisional

Map date: **1951**

Scale: 1:10,560

Printed at: 1:10,560

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

Surveyed N/A
Revised 1950
Edition 1951
Copyright N/A
Levelled N/A

Surveyed 1940
Revised 1950
Edition 1951
Copyright N/A
Levelled N/A

Surveyed N/A
Revised 1940
Edition 1951
Copyright N/A
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Map legend available at:
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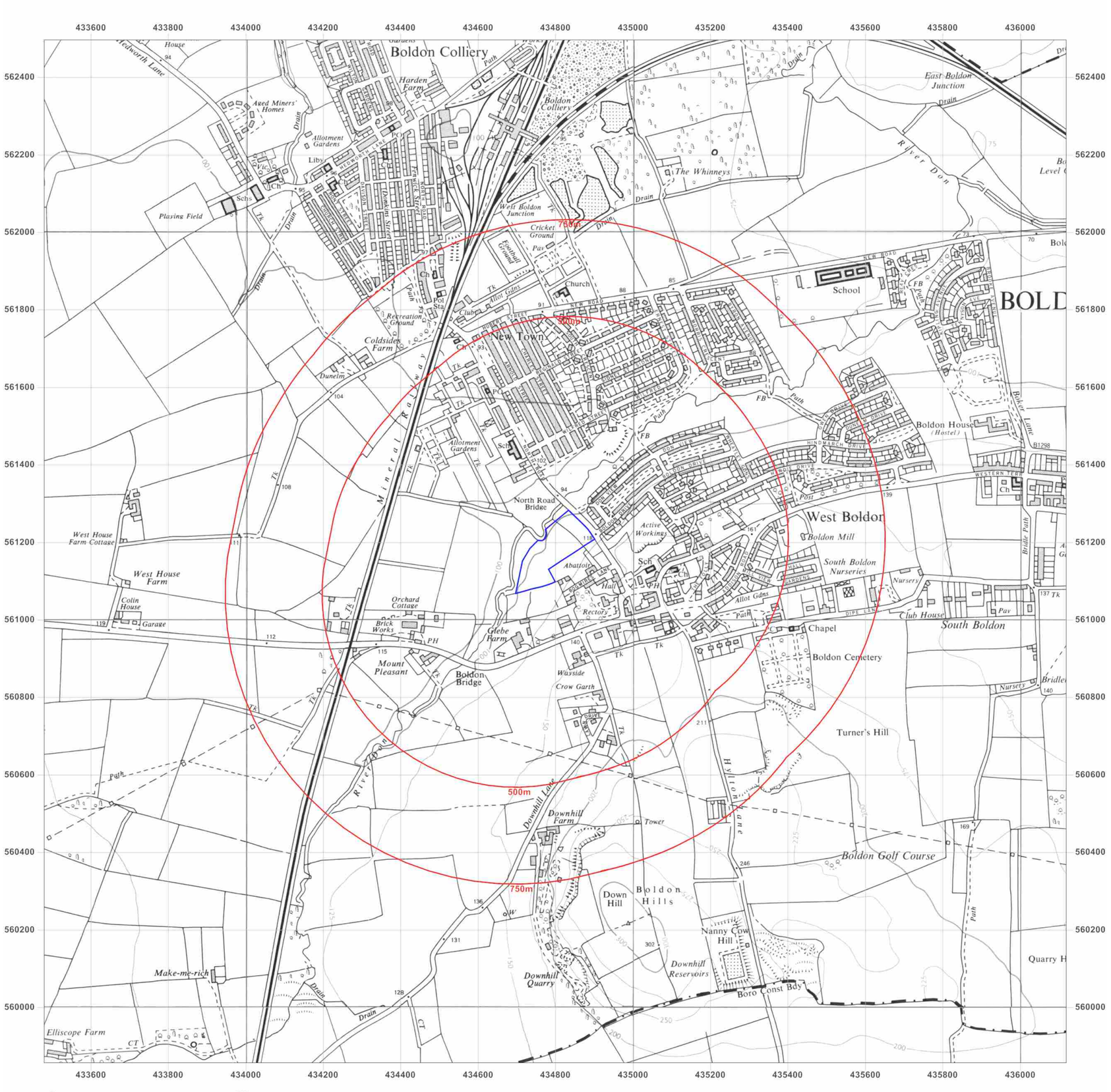

Groundsure INSIGHTS

Site Details:

LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: Provisional

Map date: **1965-1968**

Scale: 1:10,560

Printed at: 1:10,560

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

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

Surveyed 1967
Revised 1967
Edition N/A
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Levelled N/A

Surveyed 1967
Revised 1967
Edition N/A
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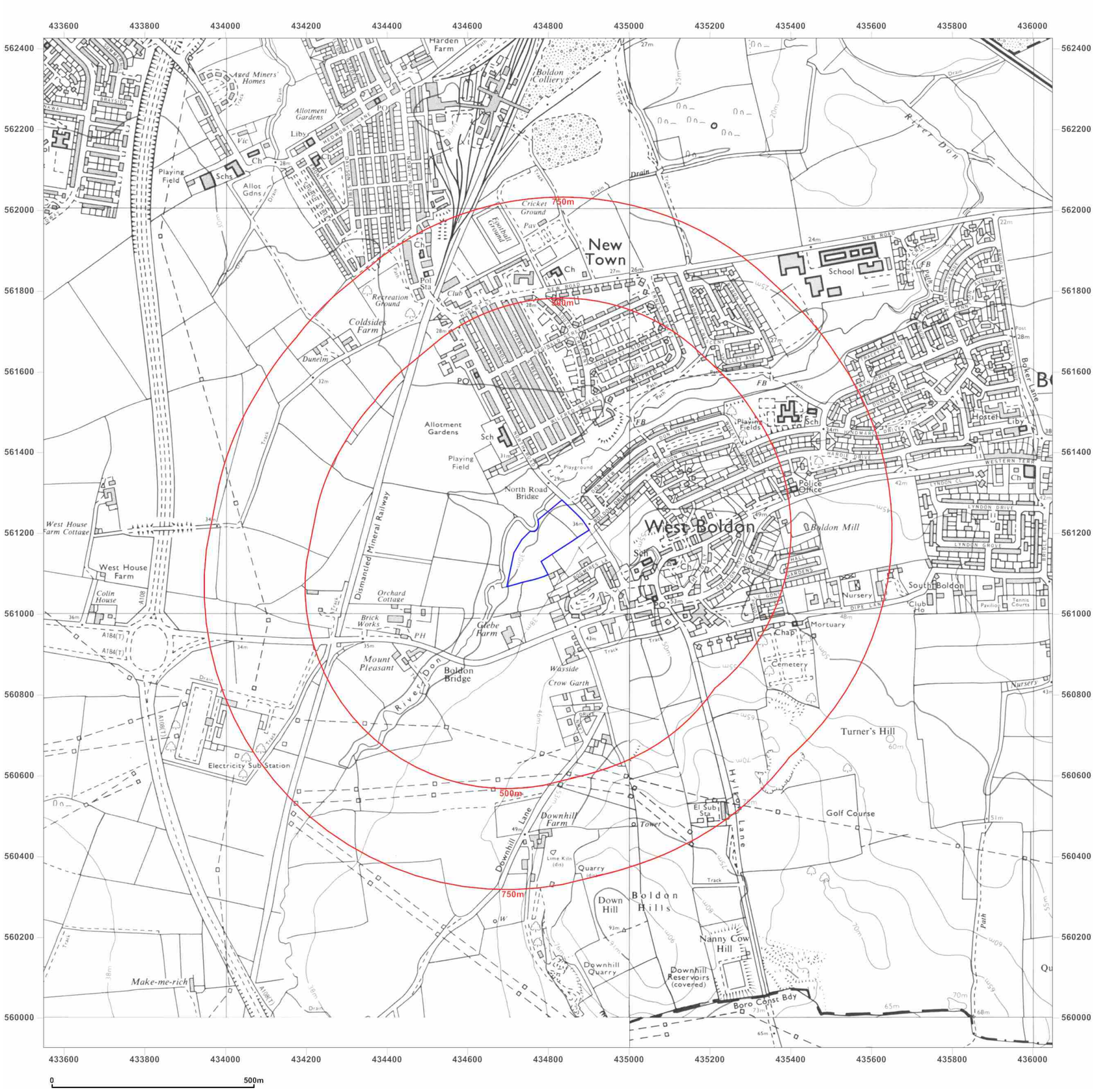

Groundsure INSIGHTS

Site Details:

LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: National Grid

Map date: **1973-1974**

Scale: 1:10,000

Printed at: 1:10,000

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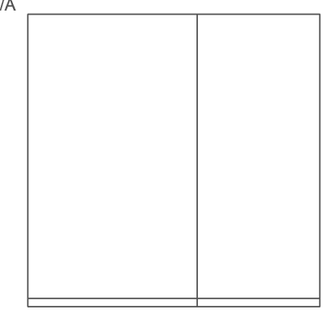
Surveyed 1973
Revised 1973
Edition N/A
Copyright N/A
Levelled N/A

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



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

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Map legend available at:
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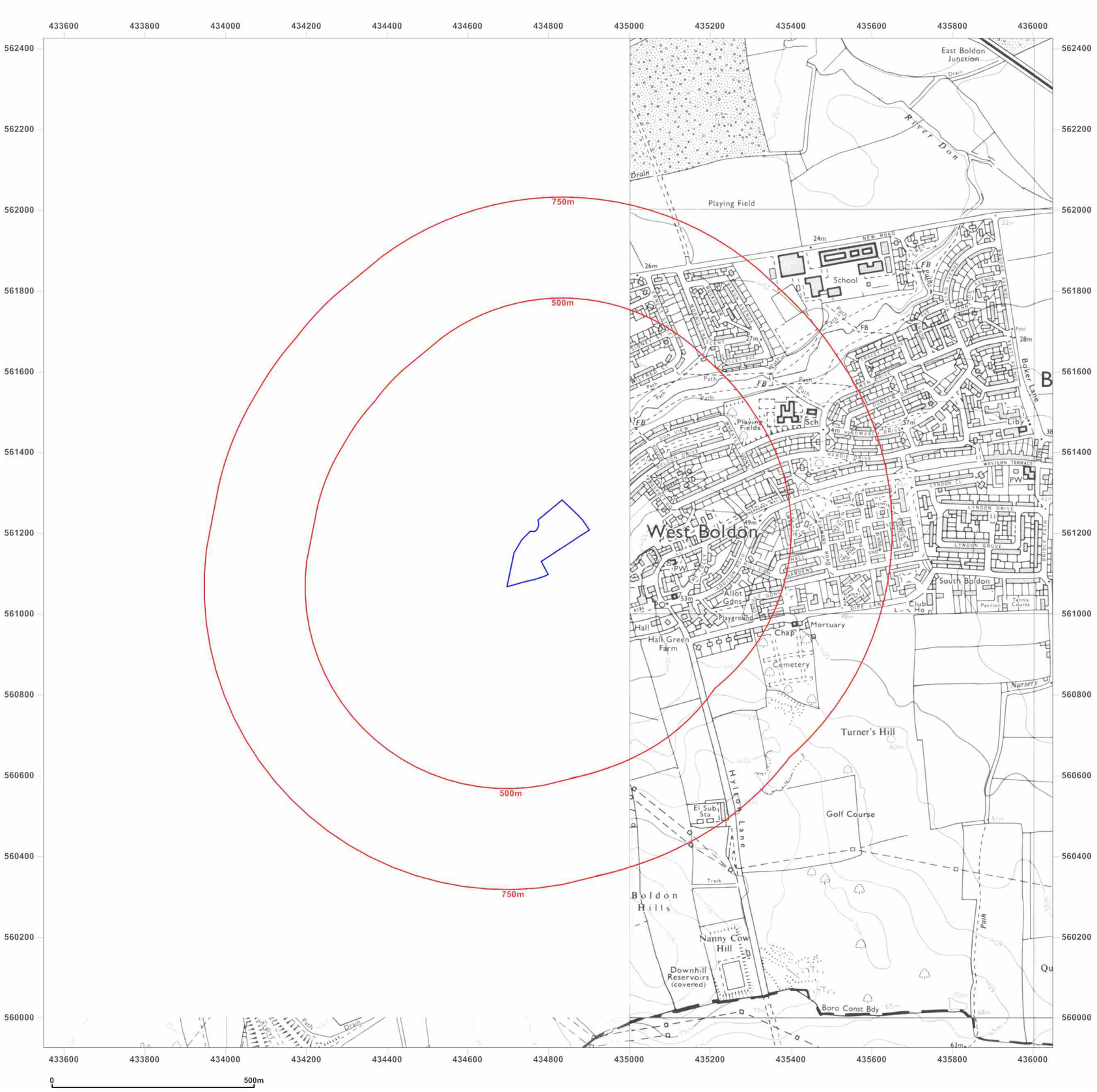

Groundsure INSIGHTS

Site Details:

LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: National Grid

Map date: **1985-1989**

Scale: 1:10,000

Printed at: 1:10,000

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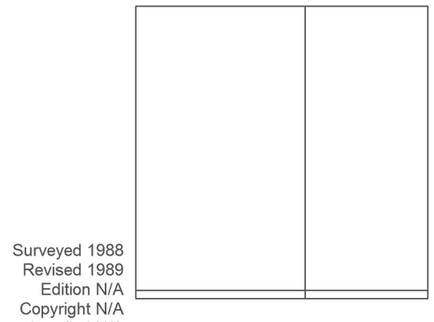

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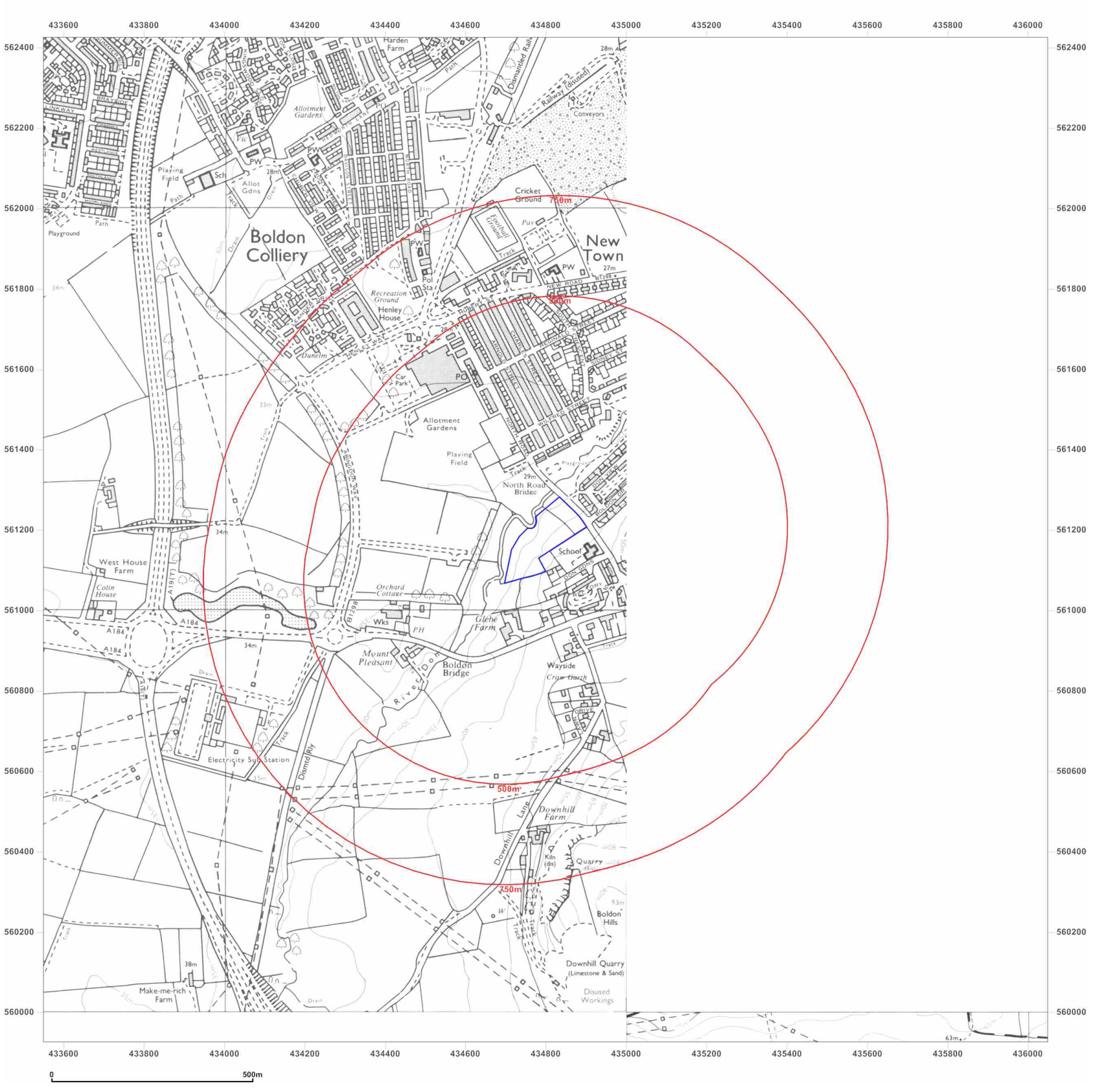

Groundsure INSIGHTS

Site Details:

LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: National Grid

Map date: **1992**

Scale: 1:10,000

Printed at: 1:10,000

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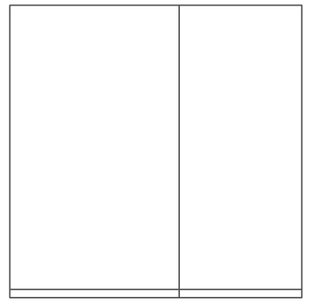
Surveyed 1989
Revised 1992
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1985
Revised 1992
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 24 January 2020

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Groundsure INSIGHTS

Site Details:

LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

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

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2001

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Groundsure INSIGHTS

Site Details:

LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

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Production date: 24 January 2020

Map legend available at:
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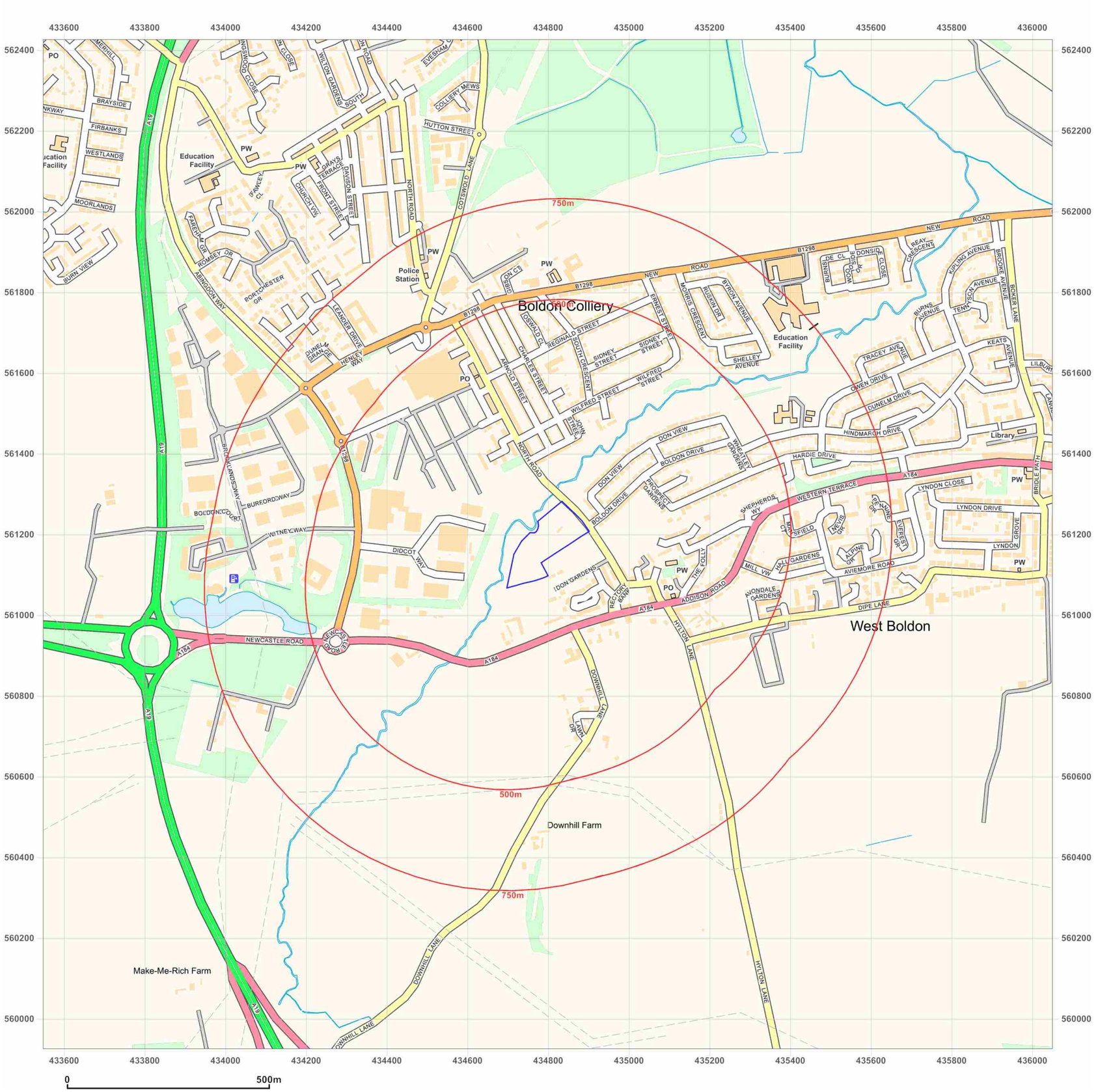

Groundsure INSIGHTS

Site Details:

LAND OFF NORTH ROAD,
WEST BOLDEN, NE35 9BL

Client Ref: MCW2139-POR030155
Report Ref: HMD-214-6574773
Grid Ref: 434798, 561175

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

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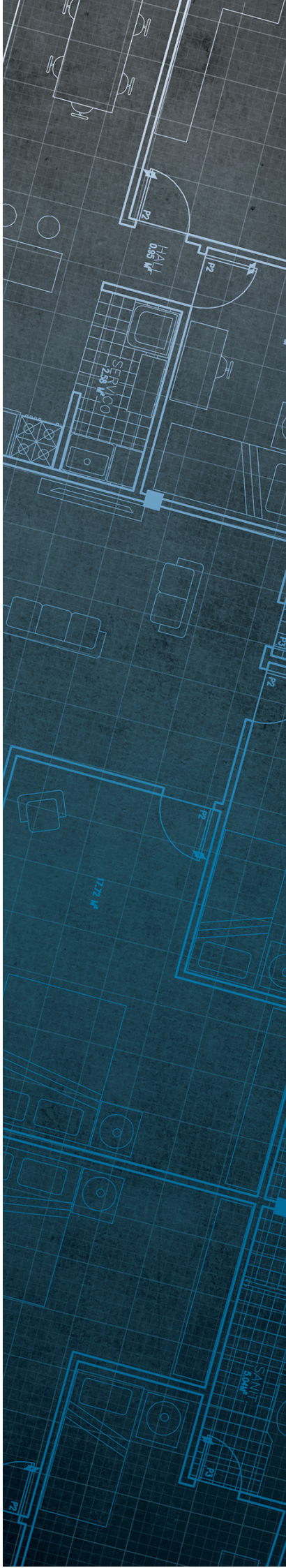
Appendix 5: Coal Mining Report

The Coal Authority

Consultants

Coal Mining Report

Land Off North Road, West Bolden,
Ne35 9bl
Tyne & Wear



Date of enquiry:	**24 January 2020**
Date enquiry received:	**24 January 2020**
Issue date:	**24 January 2020**
Our reference:	**51002235789001**
Your reference:	**HMD-214-6574774**

Consultants

Coal Mining Report

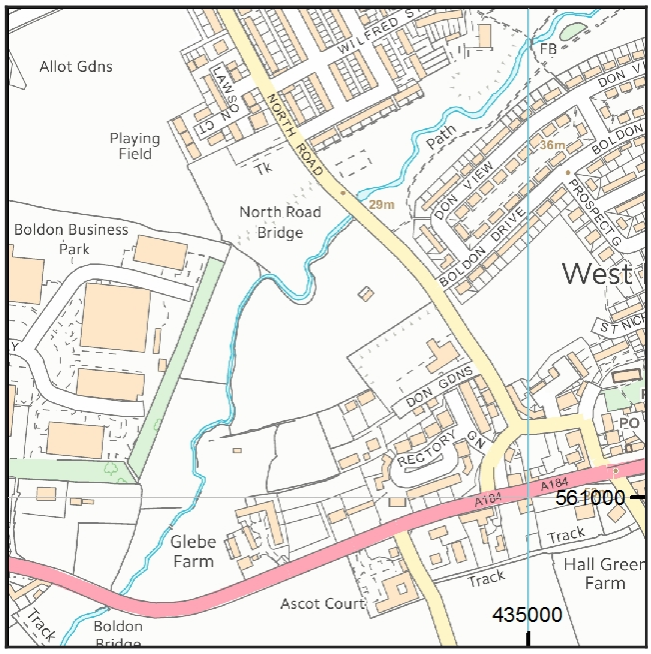
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

GROUNDSURE LIMITED

Enquiry address

Land Off North Road, West Bolden, Ne35 9bl
Tyne & Wear



Approximate position of property

Map data

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How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

@coalauthority
/company/the-coal-authority
/thecoalauthority
/thecoalauthority

Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
BOLDON	MAUDLIN	Coal	3K7O	434	South-West	20.0	South-West	170	1922
BOLDON	MAUDLIN	Coal	3K7M	443	North-West	1.1	South-East	170	1910
BOLDON	MAUDLIN	Coal	3K7L	445	North	1.3	South-East	150	1910
BOLDON	MAUDLIN	Coal	3K7Q	456	Beneath Property	2.6	East	170	1931
BOLDON	MAUDLIN	Coal	3K7P	456	West	2.3	East	170	1915
BOLDON	MAUDLIN	Coal	3K7F	468	South	3.5	North-East	160	1929
BOLDON	MAUDLIN	Coal	3K7C	477	South-West	2.6	North-East	140	1920
BOLDON	HUTTON	Coal	3K0Y	478	North-West	0.3	North-East	145	1913
BOLDON	HUTTON	Coal	3K0W	483	North	0.5	South-East	145	1910
BOLDON	HUTTON	Coal	3K0X	489	North	1.2	South-East	145	1911
BOLDON	HUTTON	Coal	3K0L	494	South	2.6	North-East	122	1914
BOLDON	HUTTON	Coal	3K13	495	Beneath Property	2.3	East	124	1918
BOLDON	HUTTON	Coal	3K10	509	West	3.0	East	124	1952
BOLDON	HUTTON	Coal	3K0K	517	West	2.2	North	122	1933
BOLDON	HUTTON	Coal	3K11	522	West	2.6	East	124	1953
BOLDON	MAUDLIN	Coal	3K7R	522	North-East	5.1	South	150	1918
BOLDON	MAUDLIN	Coal	3K7S	522	North-East	6.5	South-West	150	1917
BOLDON	HUTTON	Coal	3K12	523	West	2.6	East	124	1953
BOLDON	HUTTON	Coal	3K0J	524	South-West	4.0	East	122	1933
BOLDON	HARVEY	Coal	3JX5	553	South-West	1.9	North-West	90	1977
BOLDON	MAUDLIN	Coal	3K7W	557	East	2.9	West	170	1945
BOLDON	MAUDLIN	Coal	3K7X	559	East	2.9	West	170	1951

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Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
BOLDON	HARVEY	Coal	3JX6	562	West	1.9	South-East	90	1977

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

D1468	D1325	D863
D388		

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Fault under or close to the property recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

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Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

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Section 3 – Licensing and future mining activity

Future underground mining
None recorded.

Coal mining licensing
None recorded within 200 metres of the enquiry boundary.

Court orders
None recorded.

Section 46 notices
No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices
The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land
The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

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Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

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Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk.**

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

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Opencast mines
Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips
Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations
Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites
Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence
Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas
Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

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Mine water treatment schemes
Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining
Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing
Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders
Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices
Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices
Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land
Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

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Summary of findings

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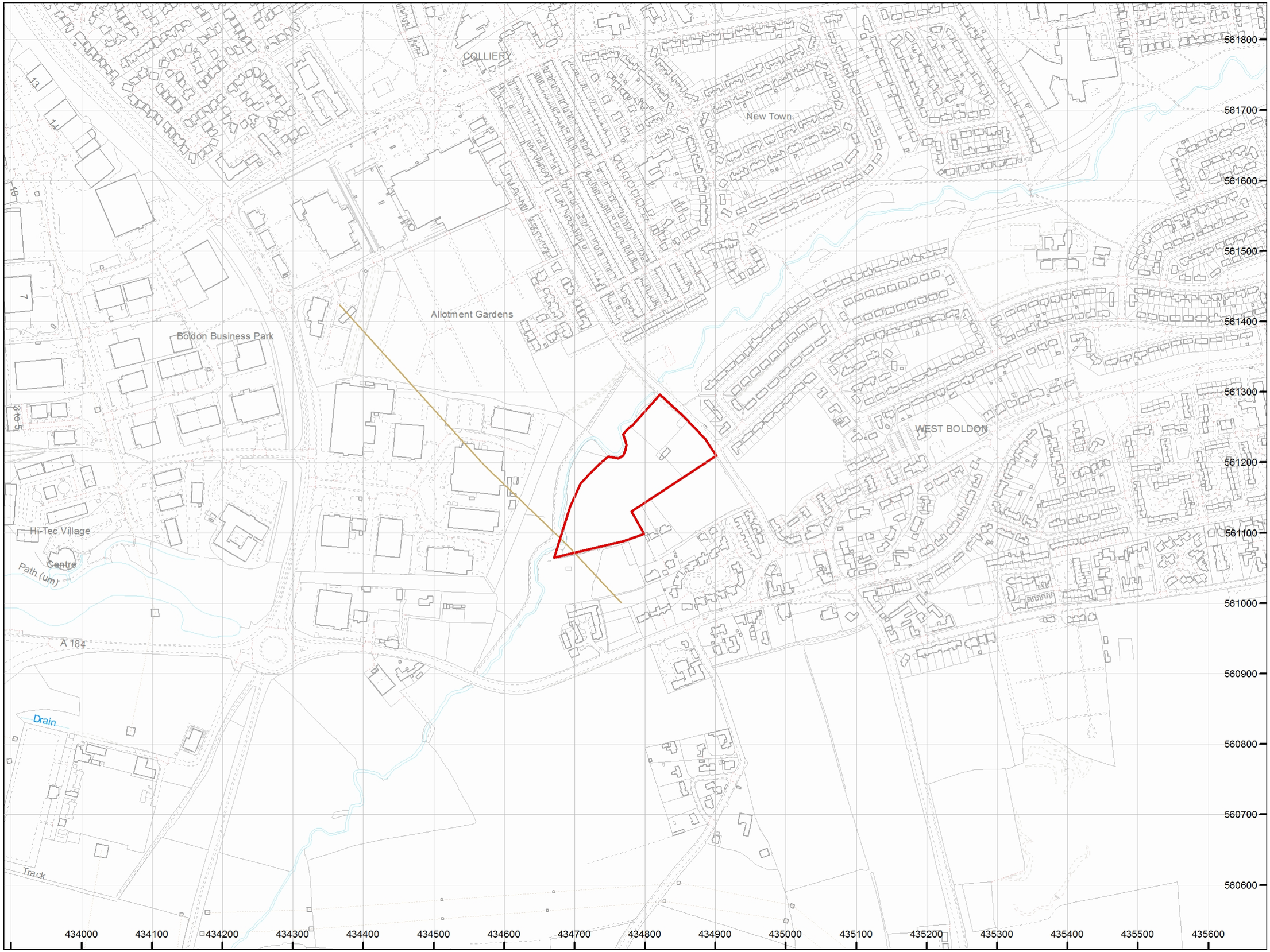
The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown

Geological faults



How to contact us
0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
www.groundstability.com

Appendix 6: Classification of Risk

BWB RISK ASSESSMENT CLASSIFICATION (AFTER CIRIA REPORT C552, CONTAMINATED LAND RISK ASSESSMENT: A GUIDE TO GOOD PRACTICE, 2001)

CIRIA Report C552, Contaminated Land Risk Assessment A Guide to Good Practice, 2001 sets out a methodology for estimating risk. The methodology for risk evaluation is a qualitative method for interpreting the output for the risk estimation stage of the assessment. It involves the classification of the:

- Magnitude of the potential consequence (severity) of risk occurring
- Magnitude of the probability (likelihood) of the risk occurring

The classification of consequence and probability are set out in table A1 and A2 below

Table A1 Classification of Consequence

Classification	Definition	Examples
Severe (Sv)	Short term (acute) risk to human health likely to result in "significant harm" as defined by the Environment protection Act 1990, Part IIA. Short term risk of pollution of controlled waters. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem	High concentrations of cyanide on the surface of an informal recreation area Major spillage of contaminants from site into controlled water. Explosion causing building collapse (can also equate to a short term human health risk if buildings are occupied.)
Medium (Md)	Chronic damage to Human Health ("significant harm"). Pollution of controlled waters. A significant change in a particular ecosystem, or organism forming part of such ecosystem.	Concentrations of contaminants from site exceeding generic or site specific screening criteria Leaching of contaminants into a major or minor aquifer. Death of species within a designated nature reserve.
Mild (Mi)	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services. Damage to sensitive buildings/structures/services or the environment	Pollution of non-classified groundwater Damage to building rendering it unsafe to occupy. (e.g. foundation damage resulting in instability)
Minor (Mr)	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by measures such as protective clothing etc). Easily reparable effects of damage to buildings, structures and services	The presence of contaminants at such concentration that protective equipment is required during site works. The loss of plants in a landscaping scheme. Discolouration of concrete.

The classification of consequence does not take into account the probability of the consequence being realised. Therefore there may be more than one consequence for a particular pollutant linkage. Both a severe and medium classification can result in death. Severe relates to short term (acute) risk while medium relates to long term (chronic) risk. Mild relates to significant harm but to less sensitive receptors. Minor classification relates to harm which is not significant but could have a financial cost.

Table A2 Classification of Probability

Classification	Definition
High likelihood (Hi)	There is a pollutant linkage and an event that either appears very likely in the short term and almost inevitable in the long term, or there is evidence at the receptor or harm or pollution
Likely (Li)	There is a pollutant linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low likelihood (Lw)	There is a pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place and is less likely in the short term.
Unlikely (Ul)	There is a pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

The classification gives a guide as to the severity and consequence of identified risk when compared with other risk presented on the site. It should be noted that if a risk is identified it cannot be classified as "no risk" but as "very low risk". Differing stakeholders may have a different view on the acceptability of a risk.

Once the consequence and probability have been classified these can be compared using a matrix(Table A3) to identify an overall risk category. These categories and the actions required are categorised in Table A4

Table A3 Risk Evaluation Matrix

		Consequence			
		Severe (Sv)	**Medium (Md)**	**Mild (Mi)**	**Minor (Mr)**
Probability	High likelihood (Hi)	Very high risk (VH)	High Risk (H)	Moderate Risk (M)	Mod/low risk (M/L)
	Likely (Li)	High risk (H)	Moderate risk (M)	Mod/low risk (M/L)	Low risk (L)
	Low likelihood (Lw)	Moderate risk (M)	Mod/low risk (M/L)	Low risk (L)	Very low risk (VL)
	Unlikely (Ul)	Mod/low risk (M/L)	Low risk (L)	Very low risk (VL)	Very low risk (VL)

Table A4 Risk Categorisations

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

Reference

Rudland, D J, Lancefield, R M, Mayell, P N; 2001; Contaminated land Risk Assessment. A guide to Good Practice; CIRIA Report C552.

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