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ENVIRONMENT

Richborough Estates
Sandwich Road
Sholden
Phase 1 Geo-Environmental Assessment

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Sholden
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				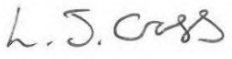	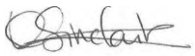
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				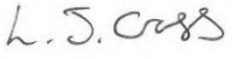	

Notice

EXECUTIVE SUMMARY

Site Address	Sandwich Road, Sholden, Deal.
Proposed Development	The project is understood to comprise the erection of up to 117 dwellings with associated parking and means of access.
Current Site Use	The site is currently utilised as arable agricultural land, with several public footpaths crossing the site. The site is located in an agricultural and residential setting, with residential developments to the east and agricultural land to the south, west and north.
Site History	The site has comprised arable agricultural fields from earliest available mapping (1871) until present day. The surrounding area has generally comprised agricultural and residential uses, with areas of worked ground (gravel and chalk pits) noted 500m south of site.
Ground Conditions	Superficial deposits are absent across the south western area, with the north easter area underlain by Head Deposits (Unproductive Strata). The majority of the site is directly underlain by the bedrock geology of the Seaford Chalk Formation (Principal Aquifer). Coal bearing strata are located at significant depth beneath the site, overlain by members of both the Selborne Group (Gault and Greensand Formations) and the Ancholme group (Oxford Clay and Kellaways Formations) to depths greater than 300m. Several seams are indicated to have been worked beneath the site at depths of between 520m and 643m. The site is not indicated to be located within an EA groundwater SPZ, although Zone 2 and 3 SPZs are located c. 500m south. An active groundwater abstraction borehole is recorded approximately 535m north-east of the site. Third party investigation undertaken c. 500m south of the site reported standing groundwater levels to be between 2.15m and 3.69m bgl. Permeability testing undertaken within superficial deposits recorded infiltration rates of between 4.24x10-4 m/s and 8.85x10-6 m/s, indicating good to poor drainage characteristics. The closest surface water feature is South Stream, a tributary of the River Stour, located 400m south east of site, with the area adjacent at high risk of flooding.
Geotechnical Review	Based on the proposed residential development, it is considered that shallow spread foundations are likely to be suitable for use at the site. The site is indicted to be a low risk from solution features and previous limited investigations undertaken in the surrounding area have not reported solution features to be present. However, it should be noted that previous investigations did not advance into the deeper chalk bedrock and as such the risk from solution features cannot be fully discounted.
Environmental Review	Limited sources of potential contamination have been identified at the site, resulting in a low risk to human health and controlled waters receptors, which is mainly driven by the underlying Principal Aquifer.
Recommendations	A ground investigation should be undertaken at the site to confirm ground conditions, assess the ground gas regime and allow for in-situ and laboratory testing to inform foundation design Whilst the risk from contamination at the site has 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.

	It is recommended that basic radon protection measures are installed within properties in the east of the site, where between 3% and 5% of properties would exceed the radon action level. A UXO Risk Assessment should be obtained for the site prior to any intrusive ground investigation woks being undertaken. Although it is indicated that the site is at low risk from solution features, it is recommended that intrusive investigation is undertaken at the site prior to development to confirm the absence of solution features.
This summary should be read in conjunction with BWB's full report (reference SRS-BWB-ZZ-XX-RP-YE-0003-PH1) and reflects an assessment of the site based on information received by BWB at the time of production.	

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TABLES

APPENDICES

1. INTRODUCTION

Instruction

1.1 BWB Consulting (BWB) was instructed by Richborough Estates (the Client) to carry out a Phase 1 Geo-Environmental Assessment for the site at Sandwich Road, Sholden. Details of the project brief are included in BWB proposal reference 200911/REV2/121602-121605/BMW2914, dated September 2020.

1.2 The project is understood to comprise for the erection of up to 117 dwellings with associated parking and means of access. A proposed illustrative masterplan is presented as **Appendix 1**.

Objectives

1.3 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'*.

1.4 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.

1.5 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

1.6 The scope of work included:

- A review of the following information:
  - Groundsure report, reference HMD-214-7125913 (**Appendix 2**);
  - Historical Ordnance Survey mapping (**Appendix 3**);

- Historical aerial photographs (Google Earth) and other imagery (Groundsure);
- British Geological Survey (BGS) 1:50 000 Scale, 'Dover', Sheet 290, Solid and Drift, (1977);
- 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-214-27125912 (**Appendix 4**);
- Regional unexploded bomb risk maps;

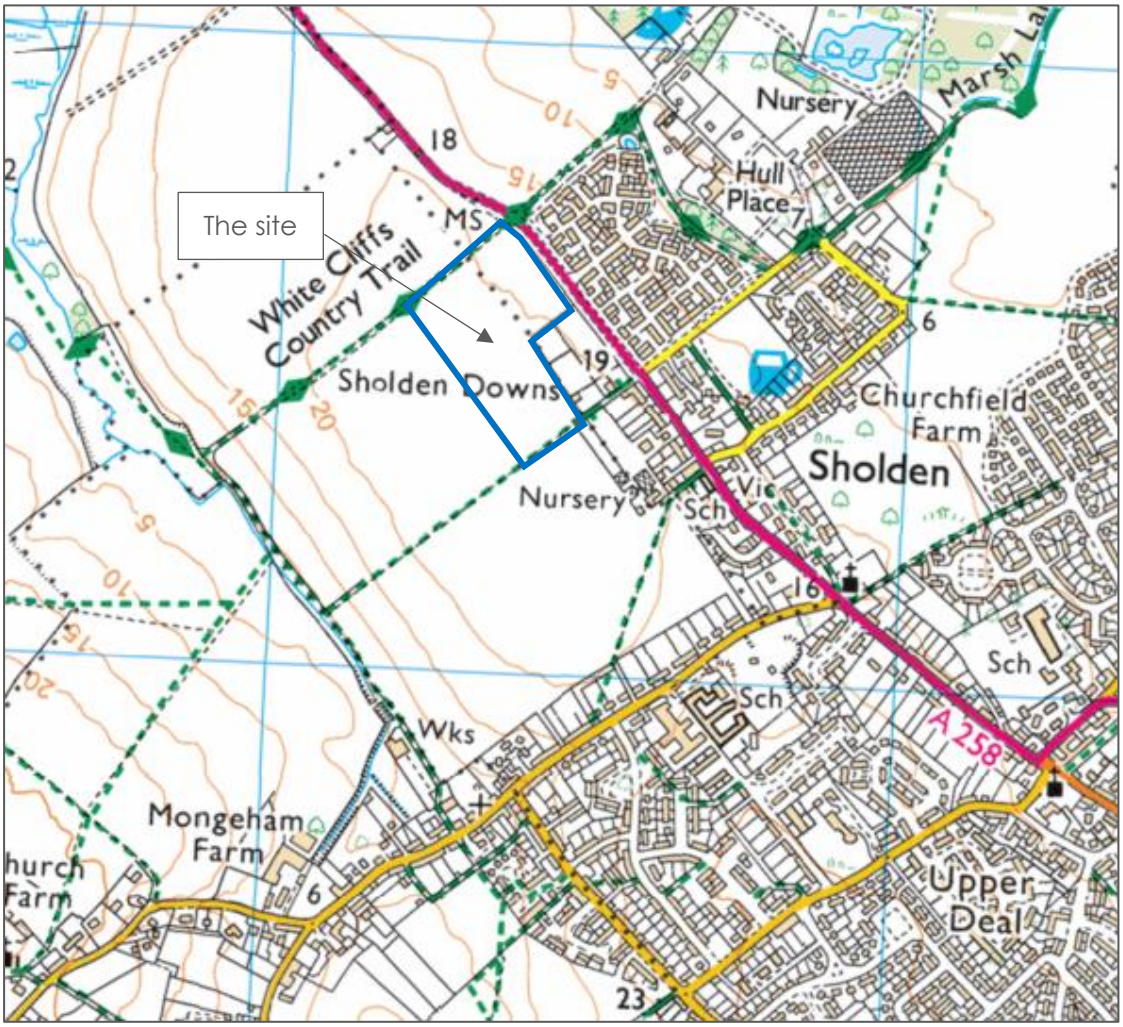
- A summary of the key hazards or uncertainties that require additional investigation in order to further characterise the associated risks; and
- Production of a Geo-Environmental Assessment (this report), concluding in a qualitative assessment of the risks from contamination and ground-related constraints which may impact on the site.

2. THE SITE

Site Location

2.1 The site is located at Sandwich Road, in Sholden, centred at approximate National Grid Reference 635433, 152135. The approximate location of the site is shown below in **Figure 2:1.**

Figure 2:1: Site Location Plan



Site Description

2.2 A site walkover has not been undertaken as part of this assessment.

2.3 The site comprises an irregularly shaped parcel of land covering an area of approximately 4.99 hectares to the north-west of the village of Sholden.

2.4 The topography of the site decreases in elevation from south west to north east from approximately 22m above ordnance datum (AOD) to approximately 19m AOD along the eastern boundary.

2.5 It is understood that the site is currently utilised as arable agricultural land, with public footpaths crossing the site.

2.6 The site is located in an agricultural and residential setting, with residential developments to the east. South Stream (a tributary of the River Stour) is located 400m south west.

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

Geology	Information published by the British Geological Survey (BGS) indicates that superficial deposits are absent across the south western area of the site and underlain by Head Deposits (clay and silt) in the north east. Topsoil is expected to be present across the site. The site is underlain by the bedrock geology of the Seaford Chalk Formation (SCF). The BGS Lexicon database describes the SCF as a firm white chalk with flint seams. Coal bearing strata are located at significant depth beneath the site, overlain by members of both the Selborne Group (Gault and Greensand Formations) and the Ancholme group (Oxford Clay and Kellaways Formations) to depths greater than 300m. Several historic BGS borehole logs are recorded on site and adjacent to the site to the north-east and east related to Betteshanger Colliery, although no details regarding shallow geology are recorded. Several trial pit logs are recorded off-site to the north-east, generally recording ground conditions to comprise Topsoil (of thicknesses up to 0.35m) overlying a brown sandy silty clay with flint gravels (assumed Head Deposits) to depths of between 1.60m and 2.60m below ground level (bgl). Weathered deposits of the SCF were recorded below this, generally as a soft yellowish brown silty sandy clay with zones of putty chalk and flint over a yellowish white to white rubbly to blocky chalk, the base depth of which was unproven to depths greater than 5.10m bgl.
Hydrogeology	The Environment Agency (EA) classifies the Head Deposits as Unproductive Strata and the Alluvium as a Secondary A Aquifer. The bedrock geology of the SCF is classified as a Principal Aquifer. Groundwater has not been recorded within historic BGS borehole and trial pit logs. An active groundwater abstraction borehole is recorded approximately 535m north-east of the site, with a maximum daily volume of 110m^3 used for spray irrigation at Turnhouse Nurseries. No licenced discharge consents issuing to groundwater are recorded in close proximity to the site. The site is not indicated to be within an EA groundwater Source Protection Zone (SPZ), although a SPZ 3 (total catchment) and a SPZ 2 (outer catchment) are located approximately 500m south of site. The risk from groundwater flooding is indicated to be moderate to high sporadically across the site, increasing to high in the south-western (currently outside of the proposed development area) and south-eastern corners.
Surface Waters	The closest surface water feature to the site is South Stream (a tributary of the River Stour), located 400m south-west of the site. The site is not located within an EA designated flood zone. The nearest surface water abstraction is recorded approximately 525m west of the site, with a maximum daily volume of approximately 1820m^3 used for spray irrigation. No licenced discharge consents issuing to groundwater are recorded in close proximity to the site.

Ground Gas & Radon	It is recommended that basic radon protection measures are installed within properties in the eastern area of the site, where between 3% and 5% of properties would exceed the radon action level.
Mining & Mineral Extraction	The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is presented as **Appendix 4**. The report details several seams which have been worked beneath the site from depths of between 520m and 643m. The last worked seam is recorded as seam No. 6, of 1.60m thickness in 1987. The colliery from which the seams were worked is not recorded. There are no shallow workings or mine entries recorded within 100m of the site and no damage claims have been recorded for properties within 50m of the site boundary since 1994. No surface workings are indicated to have been present on-site, although two ceased records are detailed including Sholden Chalk Pit (approximately 300m south east of site) and Ellen Hill Gravel Pit (approximately 1km south-west of site).
Environmental Sensitivity	The site is indicated to be located within a nitrate vulnerable zone for both surface water and groundwater. Most of the site has an agricultural land classification of Grade 1 (excellent quality) with a small area in the south of the site described as urban.

4. SITE HISTORY

4.1 Historical Ordnance Survey (OS) mapping for the site area has been reviewed. These maps and plans date from 1871 to 2020. The historical plans reviewed are provided in **Appendix 3**. 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
1871 - 1897	The site comprises agricultural land, with several field boundaries and footpaths mapped across the site.	The surrounding area generally comprises undeveloped agricultural land, with sporadic residential development to the east and south. Several areas of worked ground are mapped including **CHALK PITS** (between 500m and 1km from the site boundary) and a **GRAVEL PIT** 1km south-west of the site.
1905 - 1938	No change noted.	The majority of areas of worked ground are no longer labelled, indicating that working has ceased. Residential development is ongoing surrounding the site, particularly to the south. A **BRICK WORKS** is mapped 600m east of the site.
1947	No change noted.	By 1947, the brick works has been extended.
1957	No change noted.	A **GARAGE** is mapped 600m south of the site.
1960 - 1974	No change noted.	A nursery has been developed 100m south easy, with several greenhouses present. Between 1968 and 1974, several **ELECTRICITY SUBSTATIONS** are mapped 500m to the south of the site.
1980 - 2020	No change noted.	A **WORKS** is mapped 500m south of site A **LANDFILL** is indicated to be present 600m north of the site, at its closest point.

Historical Aerial Photography and Imagery

4.2 Aerial imagery and photographs available through Google Earth and included within the Groundsure report, dated from 1940 to 2019 shows the site as undeveloped agricultural land, with changes to fields boundaries and footpaths visible over time.

Operational/Company Records

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

5. PLANNING HISTORY

5.1 The Planning Portal for Dover District Council was accessed on 7th October 2020 and indicated that no planning applications have previously been submitted for the site.

5.2 However, a search of the planning portal indicated that several applications have been previously submitted for the land at 126 Mongeham Road (c.500m south of site area), as detailed below.

July 2018 – 18/00764

5.3 The most recent application (reference 18/00764) was for a development of 35 houses with a new access road and landscaping on the site of the former works in July 2018. Permission was granted in November 2019.

5.4 As part of the application, three trial pits were excavated in order to undertake soil infiltration testing. Ground conditions were generally recorded to comprise a brown slightly sandy clay Topsoil (to depths of between 0.13m and 0.62m bgl), over a brown slightly sandy clay (assumed Alluvium up to 1.25m bgl), over a brown sandy clay with flint gravel (assumed Head Deposits up to 1.40m bgl). Broken chalk/clay was recorded below 1.40m bgl, with chalk (assumed unweathered) from 1.50m bgl.

5.5 Soil infiltration rates were recorded between $8.97x10^{-6}$ m/s and $16.2x10^{-6}$ m/s, indicating low permeability and good/poor drainage characteristics.

August 2015 – 15/00829

5.6 Prior to this in August 2015, an application (reference 15/00829) was submitted for the development of 14 dwellings, which was later withdrawn in February 2016. Included within this application was a Phase 1 Environmental Assessment.

5.7 A walkover of the site reported a small amount of surface light oil staining within internal workshop areas, with no other visible or olfactory contamination noted anywhere on the site.

5.8 The report stated that there were no natural cavities within 500m of the site and the risk of ground dissolution hazards was very low.

June 2008 – 08/00641

5.9 In June 2008, an application (reference 08/00641) was submitted for the development of 5 dwellings, for which a Phase 2 Site Investigation was undertaken. The investigation comprised thirteen boreholes by various techniques, five trial pits, soil sampling and testing, falling head permeability testing and groundwater and ground gas monitoring.

5.10 Exploratory hole logs were not provided with the application, but ground conditions were recorded to have comprised varying thicknesses of Made Ground or Topsoil (between 0.40m and 2.50m) overlying superficial deposits, unproven to depths greater than 3.00m bgl overlying chalk to depths greater than 20.00m bgl.

5.11 Groundwater was encountered from depths of between 1.80m and 5.50m bgl, with standing water levels recorded between 2.15m and 3.69m bgl. Permeability testing undertaken within the superficial deposits recorded infiltration rates of between $4.24x10^{-4}$ m/s and $8.85x10^{-6}$ m/s, indicating good to poor drainage characteristics.

5.12 It was considered that shallow spread foundations would be suitable at the site for the proposed residential dwellings.

5.13 Chemical analysis of soils reported elevated concentrations of several poly aromatic hydrocarbons (PAH) and total petroleum hydrocarbons (TPH), as well as asbestos fibres, within Made Ground soils at the site. No remedial action was considered necessary within areas covered by buildings or hardstanding, but a clean cover system or removal of contaminated material was recommended in areas of soft landscaping.

5.14 An elevated TPH concentration as recorded within one groundwater sample, although specific concentrations are not reported. It was recommended that the EA be consulted, and that further assessment could be required.

6. REGULATORY SETTING

Permits, Consents and Authorisations

6.1 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 2.**

6.2 No significant features have been identified which are considered likely to have had a detrimental impact on the site.

Landfilling and Waste Management

6.3 A full listing of EA, BGS and Local Authority recorded landfills are provided in the Groundsure report presented in **Appendix 2.**

6.4 No significant facilities have been identified which are considered likely to have had a detrimental impact on the site.

7. GEOTECHNICAL APPRAISAL

7.1 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 7:1**.

Table 7:1: Ground Related Constraints & Opportunities

Potential Constraint/ Opportunity	Explanation	Potential Mitigation Options
Topsoil	Topsoil is expected to be present across the site.	Topsoil 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	Based on the proposed residential development, shallow strip foundations likely to be suitable at the site.	Ground investigation should be undertaken to confirm ground conditions at the site and allow for in-situ and laboratory testing to inform foundation design.
Shrinking & Swelling Clays	The Groundsure report indicates a low risk where Head Deposits are present and a negligible risk across the rest of the site.	Ground conditions are predominantly non-plastic therefore no further assessment required.
Compressible & Collapsible Deposits	The Groundsure report indicates a negligible risk from compressible deposits and running sands at the site. Where Head Deposits are present in the north-east of the site, there is a moderate risk of collapsible deposits, with the rest of the site indicated to be at very low risk.	Ground investigation should be undertaken to confirm the ground conditions at the site.
Coal Mining	The site is located within a coal mining area as defined by the Coal Authority. The Coal Authority Report (**Appendix 4**) details several seams which have been worked beneath the site from depths of between 520m and 643m.	Given that the depths to worked seams are over 500m, any risk to the site is considered low. No further assessment is required.
Earthworks	The proposed development is not expected to include any significant changes to site levels.	No further assessment is required.
Slope Stability	The Groundsure report indicates a negligible to very low risk on site.	It is indicated that slope instability problems are unlikely to be present on-site therefore no further assessment required.
Drainage & Soakaways	Soakaways may be a viable option at the site, depending on	Should soakaways be considered as part of the drainage strategy, it

Potential Constraint/ Opportunity	Explanation	Potential Mitigation Options
	the extent of the weathering of the underlying chalk bedrock. Third party infiltration testing in the surrounding area has indicated good to poor drainage characteristics within superficial deposits.	is recommended that infiltration testing in accordance with current guidance is undertaken. Care must be taken that the type of soakaway installed does not lead to solution features within the chalk with a drainage engineer consulted.
Roads & Pavements	California Bearing Ratio (CBR) values should be sought for road, car park and pavement design.	In-situ testing should be undertaken to infer CBR values. Furthermore, geotechnical testing should be undertaken to provide consistency of results.
Ground Dissolution Hazards	The Groundsure report indicates a low to very low risk on site.	Previous limited investigations undertaken in the surrounding area have not reported solution features to be present. However, it should be noted that previous investigations did advance into the deeper chalk bedrock and as such the risk from solution features cannot be fully discounted. Although it is indicated that the site is at low risk, it is recommended that intrusive investigation is undertaken at the site prior to development to confirm the absence of solution features.
Unexploded Ordnance (UXO)	Review of the UXO risk maps available online indicates the south western area is a high risk area in terms of UXO whilst the north eastern area is indicated to be low risk.	It is recommended that a UXO Risk Assessment is obtained prior to intrusive investigation works being undertaken at the site.

8. PRELIMINARY ENVIRONMENTAL RISK ASSESSMENT

Introduction

8.1 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.

8.2 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.

8.3 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.

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

8.5 **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).

8.6 **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.

8.7 **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

8.8 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 8:1** and **Table 8:2** and further information about the risk classification scheme is included within **Appendix 5**, with reference to CIRIA C552 '*Contaminated land risk assessment - a guide to good practice*'.

8.9 A tabulated version of the Preliminary CSM based on the desk study and site observations is presented in **Table 8:3.**

Table 8:1: Potential Sources of Contamination

Location	Potential Source	Contaminants of Potential Concern (CoPC)
On-site	Contamination associated former arable agricultural activities undertaken at the site.	• Pesticides and herbicides • Heavy metals • hydrocarbons
Off-site	Contamination associated with neighbouring residential and agricultural land uses.	• Heavy metals • Inorganics, such as cyanides, sulphates and nitrates • Polycyclic aromatic hydrocarbons (PAHs) • Petroleum hydrocarbons • Methane and carbon dioxide

Table 8:2: Relevant Potential Pathways and Receptors

Receptors	Pathways
Human Health: • Future site users (residential) • Neighbouring public (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 (Principal Aquifer beneath the site, SPZ 500m south and groundwater abstraction borehole to north-east) • Surface water (South Stream)	• Leaching of soil contaminants • Vertical and lateral migration
Property: • Underground utilities • Building structures	• Direct contact

Table 8:3: Preliminary Conceptual Site Model

Source	Pathway	Receptor	Con	Prob	Risk	Potential Mitigation/Investigation Requirements
On-site sources as detailed in **Table 8:1**.	Dermal contact with, and incidental ingestion of soil and/or dust. Inhalation of dust and/or fibres.	Future site users (residential)	Mi	Lw	L	Buildings and hardstanding within the proposed development will limit the potential for direct contact with and minimise dust generation from potentially contaminated soils at the site post construction. In public open space and garden areas the provision of a clean capping layer would restrict direct access to potentially contaminated soils. It is recommended that an intrusive ground investigation be completed in order to assess the extent of any potential contamination at the site. 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.
		Intrusive maintenance workers				
	Ingestion of contaminated vegetables and/or soil attached to vegetables.	Future site users (residential)	Mi	Ul	VL	In garden areas or where there is the potential for allotments, the provision of a clean capping layer with appropriate demarcation at depth would limit the potential for vegetables to be grown in potentially contaminated soils.
	Leaching and permeation through soil profile.	Groundwater (Principal Aquifer beneath the site, SPZ 500m south and groundwater abstraction borehole to north-east)	Mi	Lw	L	No groundwater or surface water data is currently available for the site. Ground investigation should include the installation of groundwater monitoring wells to allow for sampling of groundwater for chemical analysis, in order to assess whether potentially unacceptable levels of CoPC are present. The recommendations of DEFRA and EA guidance document '*Pollution prevention for businesses*' should be considered during construction.
	Vertical and lateral migration of contaminants.					
	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.

Source	Pathway	Receptor	Con	Prob	Risk	Potential Mitigation/Investigation Requirements
		Buried structures/ foundations	Mi	Lw	L	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 8:1**.	Migration and accumulation of ground gases in enclosed spaces leading to asphyxiation (carbon dioxide) or explosion (methane).	Future site users (residential)	Mi	Lw	L	Made Ground surrounding the site could possibly represent a source of ground gas. It is recommended that ground gas monitoring be completed as part of an intrusive ground investigation in order to characterise the ground gas regime at the site.
	Lateral migration of contaminated groundwater.	Groundwater (Principal Aquifer beneath the site, SPZ 500m south and groundwater abstraction borehole to north-east)	Mi	Lw	L	Where possible, groundwater monitoring wells should be located along the site boundaries in order to delineate any potential contamination.

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 limited historical activities that have taken place both on-site and in the surrounding area, the proposed development is considered to pose a low risk to human health and controlled waters, with the main drivers considered to be the potential for pesticides and herbicides to be present on-site and the sensitivity of the underlying Principal Aquifer. It is recommended that a ground investigation be undertaken to quantify the identified pollutant linkages and assess likely mitigation measures.

9. ENVIRONMENTAL LIABILITY ASSESSMENT AND DEVELOPMENT IMPLICATIONS

Statutory Liability

9.1 The contaminated land regime has implications for those who cause or knowingly permit land to be contaminated, or who own or occupy land that is contaminated. Contaminated land is defined in Section 78A(2) of Part IIA of the Environmental Protection Act 1990 as:

"Any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that:

i. Significant harm is being caused or there is a significant possibility of such harm being caused; or

ii. Significant pollution of controlled waters is being caused or there is a significant possibility of such pollution being caused."

9.2 Harm is defined in Section 78(4) of the Environmental Protection Act 1990 as:

"Harm to the health of living organisms or other interference with ecological systems of which they form part and, in the case of man, includes harm to his property."

9.3 Once an area of land has been identified as contaminated land, appropriate persons will be identified as being responsible for the cost of cleaning up the land by the enforcing authority. The appropriate person will be liable for all or part of the remediation of the land. Two classes of appropriate person have been identified:

- Class A appropriate persons are those who cause or knowingly permit the pollutants to be in, on or under the land.
- Class B appropriate persons are the owners(s) or occupier(s) of the land.

9.4 Where no Class A appropriate persons can be identified, then Class B appropriate persons may become liable.

9.5 Based on the information available regarding the site, the potential for Statutory Authority action based on "pollution of controlled water" or "significant harm" as defined by Part IIA of the Environmental Protection Act 1990 is considered to be low.

Third Party Liability

9.6 Based on the information contained in this report, it is the opinion of BWB that the potential for legal action by surrounding landowners, based on the potential for contamination to migrate off-site, is considered to be low when considering the limited historical activities that have bene undertaken at the site.

Public Relations

9.7 The likelihood of public relations being tarnished due to contamination issues at the site are considered to be low.

Development Implications

9.8 The site is located within an area of low to high risk of UXO. It is recommended that a UXO Risk Assessment is obtained prior to intrusive investigation works being undertaken at the site.

9.9 Previous limited investigations undertaken in the surrounding area have not reported solution features to be present. However, it should be noted that previous investigations did advance into the deeper chalk bedrock and as such the risk from solution features cannot be fully discounted. Although it is indicated that the site is at low risk, it is recommended that intrusive investigation is undertaken at the site prior to development to confirm the absence of solution features.

10. CONCLUSION AND RECOMMENDATIONS

Conclusions

10.1 The site comprises an irregularly shaped parcel of land covering an area of approximately 4.99ha hectares to the north-west of the village of Sholden.

10.2 The topography of the site decreases in elevation from south west to north east from approximately 22m above ordnance datum (AOD) to approximately 19m AOD along the eastern boundary.

10.3 The site has comprised arable agricultural fields from earliest available mapping (1871) until present day. The surrounding area has generally comprised agricultural and residential uses, with areas of worked ground (gravel and chalk pits) noted 500m from the site

10.4 Superficial deposits are absent across the south western area, with the north easter area underlain by Head Deposits (Unproductive Strata). The majority of the site is directly underlain by the bedrock geology of the Seaford Chalk Formation (Principal Aquifer).

10.5 Coal bearing strata are located at significant depth beneath the site, overlain by members of both the Selborne Group (Gault and Greensand Formations) and the Ancholme group (Oxford Clay and Kellaways Formations) to depths greater than 300m. Several seams are indicated to have been worked beneath the site at depths of between 520m and 643m.

10.6 The site is not indicated to be located within an EA groundwater SPZ, although Zone 2 and 3 SPZs are located c. 500m south. An active groundwater abstraction borehole is recorded approximately 535m north-east of the site.

10.7 Third party investigation undertaken c. 500m south of the site reported standing groundwater levels to be between 2.15m and 3.69m bgl. Permeability testing undertaken within superficial deposits recorded infiltration rates of between 4.24x10-4 m/s and 8.85x10-6 m/s, indicating good to poor drainage characteristics.

10.8 The closest surface water feature is South Stream, a tributary of the River Stour, located 400m south east of site, with the area adjacent at high risk of flooding.

10.9 Limited sources of potential contamination have been identified at the site, resulting in a low risk to human health and controlled waters receptors, which is mainly driven by the underlying Principal Aquifer.

10.10 Based on the proposed residential development, it is considered that shallow spread foundations are likely to be suitable for use at the site.

10.11 The site is indicated to be at low risk of solution features and previous limited investigations undertaken in the surrounding area have not reported solution features to be present. However, it should be noted that previous investigations did not advance

into the deeper chalk bedrock and as such the risk from solution features cannot be fully discounted.

10.12 The site is indicated to be located within an area at low to high risk of UXO.

Recommendations

10.13 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.

10.14 Whilst the risk from contamination at the site has 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.

10.15 It is recommended that basic radon protection measures are installed within properties in the east of the site, where between 3% and 5% of properties would exceed the radon action level.

10.16 Based upon third party data soakaway drainage is considered a viable option across the site, however care must be taken that the type of soakaway installed does not lead to solution features within the chalk and a drainage engineer should be consulted.

10.17 A UXO Risk Assessment should be obtained for the site prior to any intrusive ground investigation woks being undertaken.

10.18 Although it is indicated that the site is at low risk from solution features, it is recommended that intrusive investigation is undertaken at the site prior to development to confirm the absence of solution features.

11. REFERENCES

1. BS 10175:2011+A2:2017 *Investigation of potentially contaminated sites. Code of practice*. British Standards Institute, 2017.

2. CIRIA C552 *Contaminated land risk assessment. A guide to good practice*. Rudland, D J, Lancefield, R M, Mayell, P N, 2001.

3. Environmental Protection Act 1990: Part 2A, Contaminated Land Statutory Guidance. Department for Environment Food and Rural Affairs (DEFRA), 2012.

4. Contaminated Land Report 11 (CLR11) *Model Procedures for the Management of Land Contamination*. Environment Agency, 2004.

5. https://www.gov.uk/government/collections/land-contamination-technical-guidance.

6. The Control of Asbestos Regulations. Health and Safety Executive, 2012.

APPENDICES

Appendix 1: Proposed Illustrative Masterplan

PLANNING

Site Boundary *(4.99ha)*

Land in same ownership

Rev.	Date	Description

Land South West of Sandwich Road, SHOLDEN

Illustrative Masterplan

Job ref:	Drawing number:	Revision:
275	P01	-

Scale:	Date:
1:1,500 @ A3	March 2021

EDGE URBAN DESIGN

part of
edge Placemaking Group Ltd
Company Reg No: 11447550 VAT No: 299072069

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Thame
Oxfordshire
OX9 3EW

01865 522395
enquiries@edgeUD.co.uk
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Appendix 2: Groundsure Report

Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

STREET RECORD, SHOLDEN DRIVE, SHOLDEN, CT14 0AD

Order Details

Date: 05/10/2020

Your ref: BMW2914-POR032415

Our Ref: HMD-214-7125913

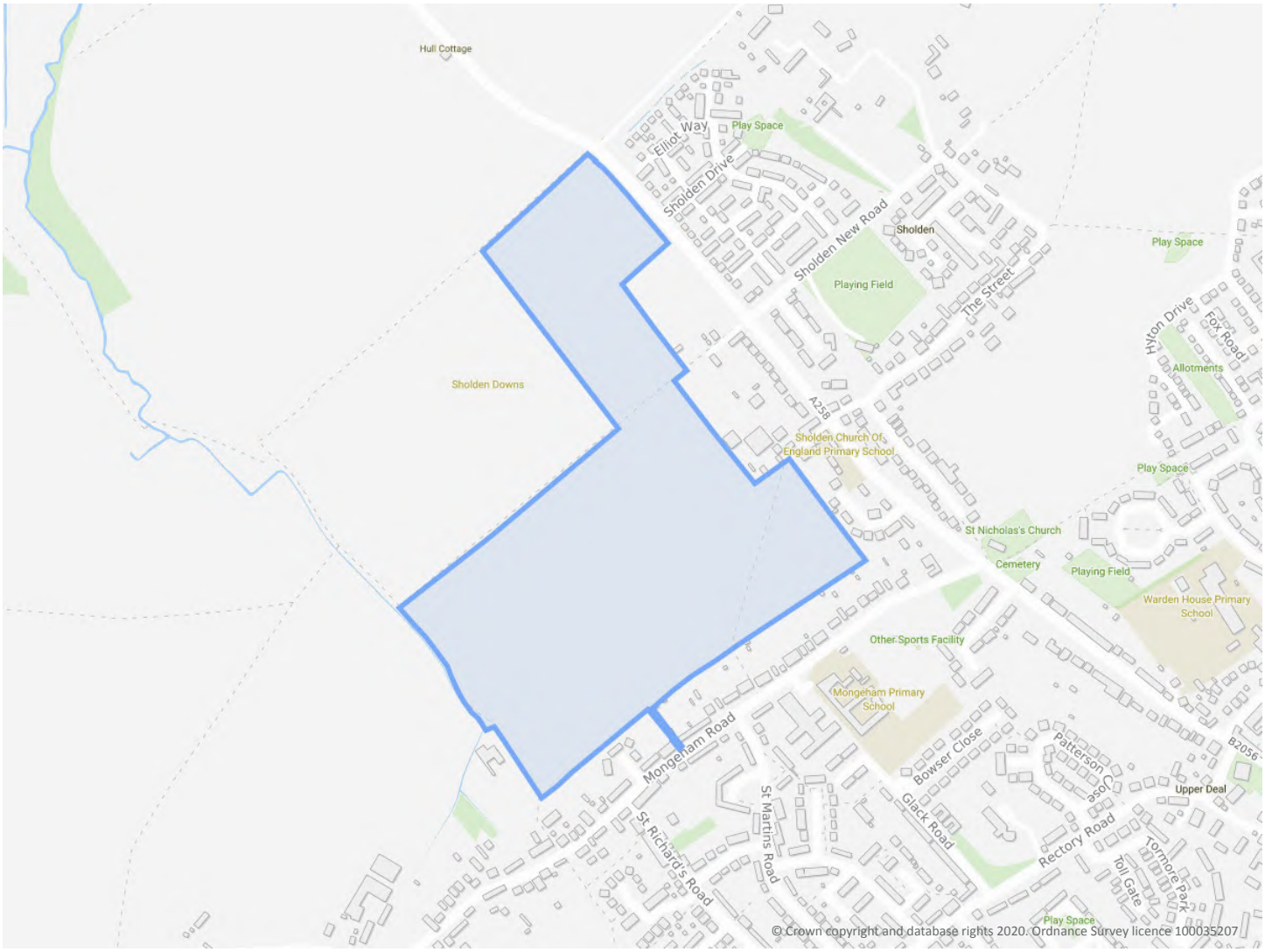
Client: BWB Consulting Limited

Site Details

Location: 635433 152135

Area: 23.08 ha

Authority: Dover District Council



Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	Historical industrial land uses	1	7	20	12	-
15	1.2	Historical tanks	0	0	1	6	-
16	1.3	Historical energy features	0	2	4	6	-
16	1.4	Historical petrol stations	0	0	0	0	-
17	1.5	Historical garages	0	0	1	0	-
17	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
18	2.1	Historical industrial land uses	1	13	31	21	-
21	2.2	Historical tanks	0	0	1	7	-
22	2.3	Historical energy features	0	4	6	10	-
23	2.4	Historical petrol stations	0	0	0	0	-
23	2.5	Historical garages	0	0	4	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
24	3.1	Active or recent landfill	0	0	0	0	-
24	3.2	Historical landfill (BGS records)	0	0	0	0	-
25	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
25	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
25	3.5	Historical waste sites	0	0	0	0	-
25	3.6	Licensed waste sites	0	0	0	0	-
25	3.7	Waste exemptions	0	0	0	16	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
28	4.1	Recent industrial land uses	1	3	9	-	-
29	4.2	Current or recent petrol stations	0	0	1	0	-
30	4.3	Electricity cables	0	0	0	0	-
30	4.4	Gas pipelines	0	0	0	0	-
30	4.5	Sites determined as Contaminated Land	0	0	0	0	-

30	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
30	4.7	Regulated explosive sites	0	0	0	0	-
31	4.8	Hazardous substance storage/usage	0	0	0	0	-
31	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
31	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
31	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
31	4.12	Radioactive Substance Authorisations	0	0	0	0	-
32	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
32	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
32	4.15	Pollutant release to public sewer	0	0	0	0	-
32	4.16	List 1 Dangerous Substances	0	0	0	0	-
32	4.17	List 2 Dangerous Substances	0	0	0	0	-
33	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
33	4.19	Pollution inventory substances	0	0	0	0	-
33	4.20	Pollution inventory waste transfers	0	0	0	0	-
33	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
34	**5.1**	**Superficial aquifer**	Identified (within 500m)				
36	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
38	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
39	**5.4**	**Groundwater vulnerability- soluble rock risk**	Identified (within 0m)				
40	5.5	Groundwater vulnerability- local information	None (within 0m)				
41	**5.6**	**Groundwater abstractions**	0	0	0	0	3
42	**5.7**	**Surface water abstractions**	0	0	0	0	24
48	**5.8**	**Potable abstractions**	0	0	0	0	1
48	**5.9**	**Source Protection Zones**	0	0	2	0	-
48	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
49	**6.1**	**Water Network (OS MasterMap)**	0	2	13	-	-

51	6.2	Surface water features	0	2	5	-	-
51	6.3	WFD Surface water body catchments	2	-	-	-	-
52	6.4	WFD Surface water bodies	0	0	0	-	-
52	6.5	WFD Groundwater bodies	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
53	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	High (within 50m)				
54	7.2	Historical Flood Events	0	0	0	-	-
54	7.3	Flood Defences	0	0	0	-	-
54	7.4	Areas Benefiting from Flood Defences	0	0	1	-	-
54	7.5	Flood Storage Areas	0	0	0	-	-
55	7.6	Flood Zone 2	Identified (within 50m)				
56	7.7	Flood Zone 3	Identified (within 50m)				
Page	Section	Surface water flooding					
57	8.1	Surface water flooding	1 in 30 year, Greater than 1.0m (within 50m)				
Page	Section	Groundwater flooding					
59	9.1	Groundwater flooding	High (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
60	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	3	0
61	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	2	0
62	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
62	10.4	Special Protection Areas (SPA)	0	0	0	0	1
62	10.5	National Nature Reserves (NNR)	0	0	0	0	0
62	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
63	10.7	Designated Ancient Woodland	0	0	0	0	0
63	10.8	Biosphere Reserves	0	0	0	0	0
63	10.9	Forest Parks	0	0	0	0	0
63	10.10	Marine Conservation Zones	0	0	0	0	0
63	10.11	Green Belt	0	0	0	0	0
64	10.12	Proposed Ramsar sites	0	0	0	0	0

64	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
64	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
64	10.15	Nitrate Sensitive Areas	0	0	0	0	0
65	**10.16**	**Nitrate Vulnerable Zones**	2	0	0	0	2
66	**10.17**	**SSSI Impact Risk Zones**	3	-	-	-	-
69	**10.18**	**SSSI Units**	0	0	0	2	15
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
76	11.1	World Heritage Sites	0	0	0	-	-
77	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
77	11.3	National Parks	0	0	0	-	-
77	**11.4**	**Listed Buildings**	0	0	6	-	-
78	**11.5**	**Conservation Areas**	0	0	1	-	-
78	11.6	Scheduled Ancient Monuments	0	0	0	-	-
78	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
79	**12.1**	**Agricultural Land Classification**	Grade 1 (within 250m)				
80	12.2	Open Access Land	0	0	0	-	-
80	12.3	Tree Felling Licences	0	0	0	-	-
81	12.4	Environmental Stewardship Schemes	0	0	0	-	-
81	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
82	**13.1**	**Priority Habitat Inventory**	0	0	5	-	-
83	**13.2**	**Habitat Networks**	1	0	1	-	-
83	13.3	Open Mosaic Habitat	0	0	0	-	-
83	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
84	**14.1**	**10k Availability**	Identified (within 500m)				
85	14.2	Artificial and made ground (10k)	0	0	0	0	-
86	14.3	Superficial geology (10k)	0	0	0	0	-

86	14.4	Landslip (10k)	0	0	0	0	-
87	14.5	Bedrock geology (10k)	0	0	0	0	-
87	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
88	**15.1**	**50k Availability**	Identified (within 500m)				
89	15.2	Artificial and made ground (50k)	0	0	0	0	-
89	15.3	Artificial ground permeability (50k)	0	0	-	-	-
90	**15.4**	**Superficial geology (50k)**	1	1	3	3	-
91	**15.5**	**Superficial permeability (50k)**	Identified (within 50m)				
91	15.6	Landslip (50k)	0	0	0	0	-
91	15.7	Landslip permeability (50k)	None (within 50m)				
92	**15.8**	**Bedrock geology (50k)**	1	0	0	1	-
93	**15.9**	**Bedrock permeability (50k)**	Identified (within 50m)				
93	**15.10**	**Bedrock faults and other linear features (50k)**	0	0	1	1	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
94	**16.1**	**BGS Boreholes**	2	0	10	-	-
Page	Section	Natural ground subsidence					
96	**17.1**	**Shrink swell clays**	Low (within 50m)				
98	**17.2**	**Running sands**	Low (within 50m)				
100	**17.3**	**Compressible deposits**	Moderate (within 50m)				
102	**17.4**	**Collapsible deposits**	Moderate (within 50m)				
104	**17.5**	**Landslides**	Very low (within 50m)				
106	**17.6**	**Ground dissolution of soluble rocks**	Low (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
108	18.1	Natural cavities	0	0	0	0	-
109	**18.2**	**BritPits**	0	0	1	1	-
109	**18.3**	**Surface ground workings**	0	10	29	-	-
111	18.4	Underground workings	0	0	0	0	0
111	18.5	Historical Mineral Planning Areas	0	0	0	0	-

111	**18.6**	**Non-coal mining**	1	0	2	1	0
112	**18.7**	**Mining cavities**	0	0	0	0	1
112	18.8	JPB mining areas	None (within 0m)				
113	**18.9**	**Coal mining**	Identified (within 0m)				
113	18.10	Brine areas	None (within 0m)				
113	18.11	Gypsum areas	None (within 0m)				
113	18.12	Tin mining	None (within 0m)				
113	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
114	**19.1**	**Radon**	Between 3% and 5% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
116	**20.1**	**BGS Estimated Background Soil Chemistry**	9	5	-	-	-
117	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
117	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
118	21.1	Underground railways (London)	0	0	0	-	-
118	21.2	Underground railways (Non-London)	0	0	0	-	-
118	21.3	Railway tunnels	0	0	0	-	-
118	21.4	Historical railway and tunnel features	0	0	0	-	-
118	21.5	Royal Mail tunnels	0	0	0	-	-
119	21.6	Historical railways	0	0	0	-	-
119	21.7	Railways	0	0	0	-	-
119	21.8	Crossrail 1	0	0	0	0	-
119	21.9	Crossrail 2	0	0	0	0	-
119	21.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 05/05/2018

Site Area: 23.08ha

Recent site history - 2015 aerial photograph

Capture Date: 14/04/2015

Site Area: 23.08ha

Recent site history - 2012 aerial photograph

Capture Date: 27/05/2012

Site Area: 23.08ha

Recent site history - 2008 aerial photograph

Capture Date: 20/09/2008

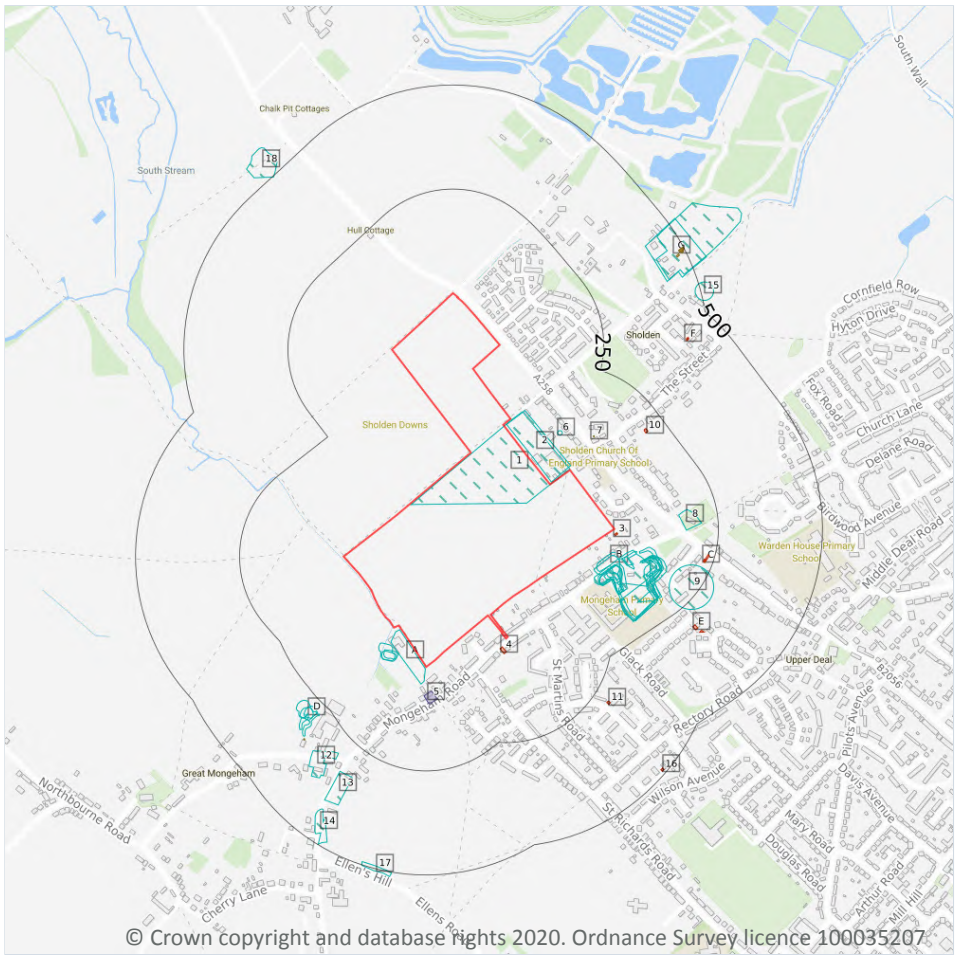
Site Area: 23.08ha

Recent site history - 1999 aerial photograph

Capture Date: 29/08/1999

Site Area: 23.08ha

1 Past land use



1.1 Historical industrial land uses

Records within 500m	40

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

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

ID	Location	Land use	Dates present	Group ID
1	**On site**	**Nursery**	**1960**	**2362008**

ID	Location	Land use	Dates present	Group ID
2	3m NW	Nursery	1973 - 1985	2362187
A	4m SW	Unspecified Works	1985	2348375
A	40m SW	Unspecified Pits	1938	2354027
A	42m SW	Unspecified Pits	1907 - 1938	2352604
B	44m SE	Unspecified Pit	1889	2358881
A	45m SW	Unspecified Pits	1905	2364163
B	49m SE	Unspecified Pit	1908 - 1938	2352238
B	64m SE	Unspecified Hole	1872	2363100
B	69m SE	Unspecified Heap	1973 - 1985	2359299
B	71m SE	Unspecified Pit	1938	2346125
B	72m SE	Unspecified Hole	1907	2361224
B	73m SE	Unspecified Pit	1905	2364548
B	74m SE	Unspecified Hole	1938	2362072
B	75m SE	Unspecified Pit	1973 - 1985	2353341
B	75m SE	Unspecified Pit	1897	2355179
B	79m SE	Unspecified Pit	1960	2357504
B	81m SE	Unspecified Ground Workings	1907 - 1938	2363179
6	87m N	Tank	1905	2356796
B	103m SE	Unspecified Ground Workings	1905	2360071
B	104m SE	Unspecified Pits	1938	2346365
B	104m SE	Unspecified Pit	1960	2362341
B	109m SE	Unspecified Pit	1973 - 1985	2361742
B	113m SE	Unspecified Pit	1938	2356396
B	121m SE	Old Chalk Pit	1889 - 1897	2362519
B	151m SE	Unspecified Heap	1960	2351402
8	158m E	Grave Yard	1872	2346647
9	179m SE	Unspecified Hole	1897	2349469
D	270m SW	Unspecified Pit	1938	2358909

ID	Location	Land use	Dates present	Group ID
D	273m SW	Unspecified Pit	1907 - 1938	2353484
D	275m SW	Ground Workings and Refuse Heap	1905	2359566
D	293m SW	Refuse Heap	1908 - 1938	2365076
12	296m SW	Brewery	1889 - 1897	2362662
13	320m SW	Malthouse	1872	2349202
G	423m NE	Nurseries	1960	2350835
14	423m SW	Gravel Pit	1889 - 1897	2362142
G	429m NE	Nursery	1973 - 1985	2359699
15	486m E	Unspecified Tank	1938	2348146
17	492m S	Cuttings	1938	2347699
18	498m NW	Unspecified Quarry	1947	2346788

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**7**

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

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

ID	Location	Land use	Dates present	Group ID
7	98m NE	Tank or Trough	1872	423288
D	339m SW	Tank or Trough	1871	423289
G	475m NE	Tanks	1970	421559
G	486m NE	Tanks	1975 - 1993	423980
G	488m NE	Tanks	1970	425055
G	493m NE	Tanks	1970	425636
G	496m NE	Tanks	1970	424464

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	12

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

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

ID	Location	Land use	Dates present	Group ID
3	11m SE	Electricity Substation	1975 - 1993	302511
4	22m SW	Electricity Substation	1968	301262
10	199m NE	Electricity Substation	1970 - 1993	302629
C	227m E	Electricity Substation	1975	302482
C	227m E	Electricity Substation	1993	302785
C	228m E	Electricity Substation	1970	301919
11	285m SE	Electricity Substation	1974 - 1991	300871
E	301m SE	Electricity Substation	1991	300665
E	321m SE	Electricity Substation	1974	300664
F	419m NE	Electricity Substation	1993	302070
F	421m NE	Electricity Substation	1975	302176
16	487m SE	Electricity Substation	1968 - 1991	303001

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	1

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

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

ID	Location	Land use	Dates present	Group ID
5	59m S	Garage	1957 - 1968	89353

This data is sourced from Ordnance Survey / Groundsure.

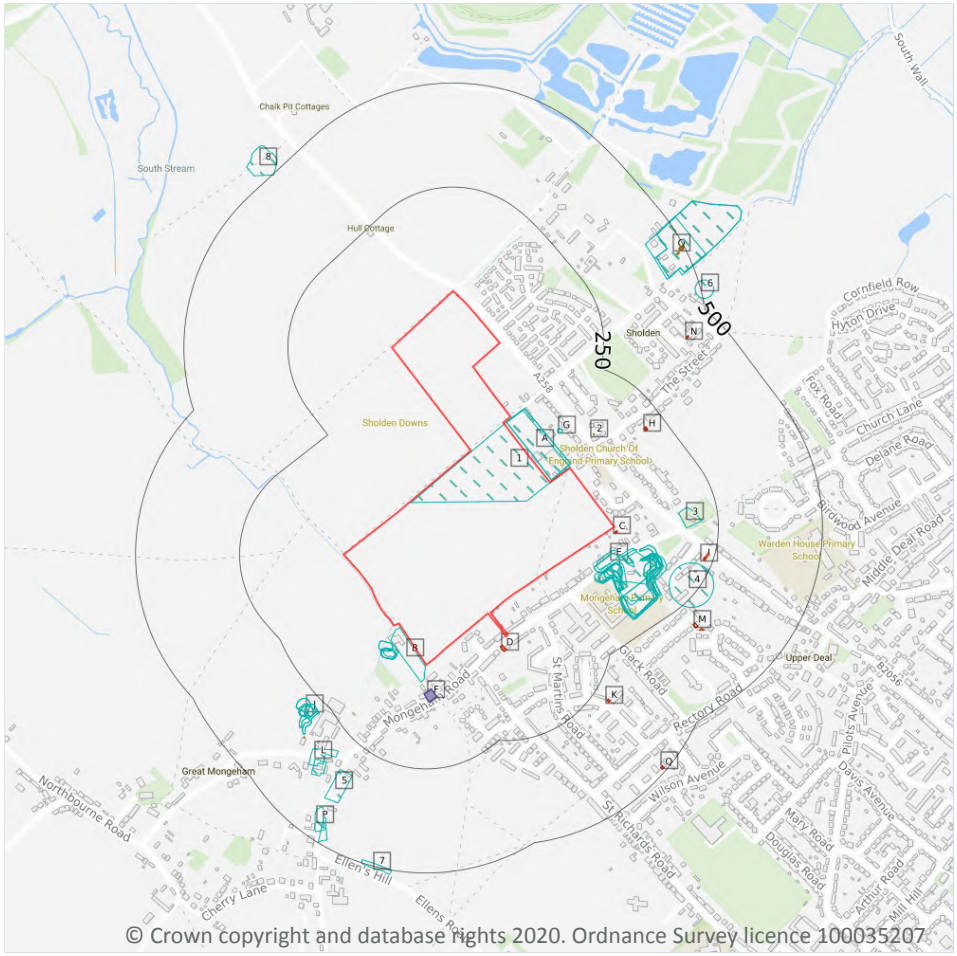
1.6 Historical military land

Records within 500m	0

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

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

2 Past land use - un-grouped



2.1 Historical industrial land uses

Records within 500m	66

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

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
1	**On site**	**Nursery**	**1960**	**2362008**
A	3m NW	Nursery	1973	2362187
A	3m NW	Nursery	1985	2362187

ID	Location	Land Use	Date	Group ID
B	4m SW	Unspecified Works	1985	2348375
B	40m SW	Unspecified Pits	1938	2354027
B	42m SW	Unspecified Pits	1908	2352604
B	42m SW	Unspecified Pits	1938	2352604
E	44m SE	Unspecified Pit	1889	2358881
B	45m SW	Unspecified Pits	1905	2364163
B	45m SW	Unspecified Pits	1905	2364163
B	47m SW	Unspecified Pits	1907	2352604
B	47m SW	Unspecified Pits	1907	2352604
E	49m SE	Unspecified Pit	1908	2352238
E	49m SE	Unspecified Pit	1938	2352238
E	64m SE	Unspecified Hole	1872	2363100
E	69m SE	Unspecified Heap	1985	2359299
E	69m SE	Unspecified Heap	1973	2359299
E	71m SE	Unspecified Pit	1938	2346125
E	72m SE	Unspecified Hole	1907	2361224
E	73m SE	Unspecified Pit	1905	2364548
E	73m SE	Unspecified Pit	1905	2364548
E	74m SE	Unspecified Hole	1938	2362072
E	75m SE	Unspecified Pit	1973	2353341
E	75m SE	Unspecified Pit	1985	2353341
E	75m SE	Unspecified Hole	1938	2362072
E	75m SE	Unspecified Pit	1897	2355179
E	79m SE	Unspecified Pit	1960	2357504
E	81m SE	Unspecified Ground Workings	1908	2363179
E	81m SE	Unspecified Ground Workings	1938	2363179
G	87m N	Tank	1905	2356796
G	87m N	Tank	1905	2356796

ID	Location	Land Use	Date	Group ID
E	100m SE	Unspecified Ground Workings	1907	2363179
E	100m SE	Unspecified Ground Workings	1907	2363179
E	103m SE	Unspecified Ground Workings	1905	2360071
E	103m SE	Unspecified Ground Workings	1905	2360071
E	104m SE	Unspecified Pits	1938	2346365
E	104m SE	Unspecified Pit	1960	2362341
E	109m SE	Unspecified Pit	1973	2361742
E	109m SE	Unspecified Pit	1985	2361742
E	113m SE	Unspecified Pit	1938	2356396
E	121m SE	Old Chalk Pit	1889	2362519
E	151m SE	Unspecified Heap	1960	2351402
E	153m SE	Old Chalk Pit	1897	2362519
3	158m E	Grave Yard	1872	2346647
4	179m SE	Unspecified Hole	1897	2349469
J	270m SW	Unspecified Pit	1938	2358909
J	270m SW	Unspecified Pit	1938	2358909
J	273m SW	Unspecified Pit	1908	2353484
J	273m SW	Unspecified Pit	1938	2353484
J	275m SW	Ground Workings and Refuse Heap	1905	2359566
J	275m SW	Ground Workings and Refuse Heap	1905	2359566
J	278m SW	Unspecified Pit	1907	2353484
J	278m SW	Unspecified Pit	1907	2353484
J	293m SW	Refuse Heap	1908	2365076
J	293m SW	Refuse Heap	1938	2365076
L	296m SW	Brewery	1889	2362662
5	320m SW	Malthouse	1872	2349202
L	334m SW	Brewery	1897	2362662
O	423m NE	Nurseries	1960	2350835

ID	Location	Land Use	Date	Group ID
P	423m SW	Gravel Pit	1889	2362142
O	429m NE	Nursery	1973	2359699
O	429m NE	Nursery	1985	2359699
P	440m SW	Gravel Pit	1897	2362142
6	486m E	Unspecified Tank	1938	2348146
7	492m S	Cuttings	1938	2347699
8	498m NW	Unspecified Quarry	1947	2346788

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**8**

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

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
2	98m NE	Tank or Trough	1872	423288
J	339m SW	Tank or Trough	1871	423289
O	475m NE	Tanks	1970	421559
O	486m NE	Tanks	1993	423980
O	487m NE	Tanks	1975	423980
O	488m NE	Tanks	1970	425055
O	493m NE	Tanks	1970	425636
O	496m NE	Tanks	1970	424464

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**20**

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

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
C	11m SE	Electricity Substation	1975	302511
C	12m SE	Electricity Substation	1993	302511
D	22m SW	Electricity Substation	1968	301262
D	23m SW	Electricity Substation	1968	301262
H	199m NE	Electricity Substation	1993	302629
H	201m NE	Electricity Substation	1975	302629
H	202m NE	Electricity Substation	1970	302629
I	227m E	Electricity Substation	1975	302482
I	227m E	Electricity Substation	1993	302785
I	228m E	Electricity Substation	1970	301919
K	285m SE	Electricity Substation	1974	300871
K	286m SE	Electricity Substation	1991	300871
M	301m SE	Electricity Substation	1991	300665
M	321m SE	Electricity Substation	1974	300664
N	419m NE	Electricity Substation	1993	302070
N	421m NE	Electricity Substation	1975	302176
Q	487m SE	Electricity Substation	1974	303001
Q	487m SE	Electricity Substation	1968	303001
Q	487m SE	Electricity Substation	1968	303001
Q	487m SE	Electricity Substation	1991	303001

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	4

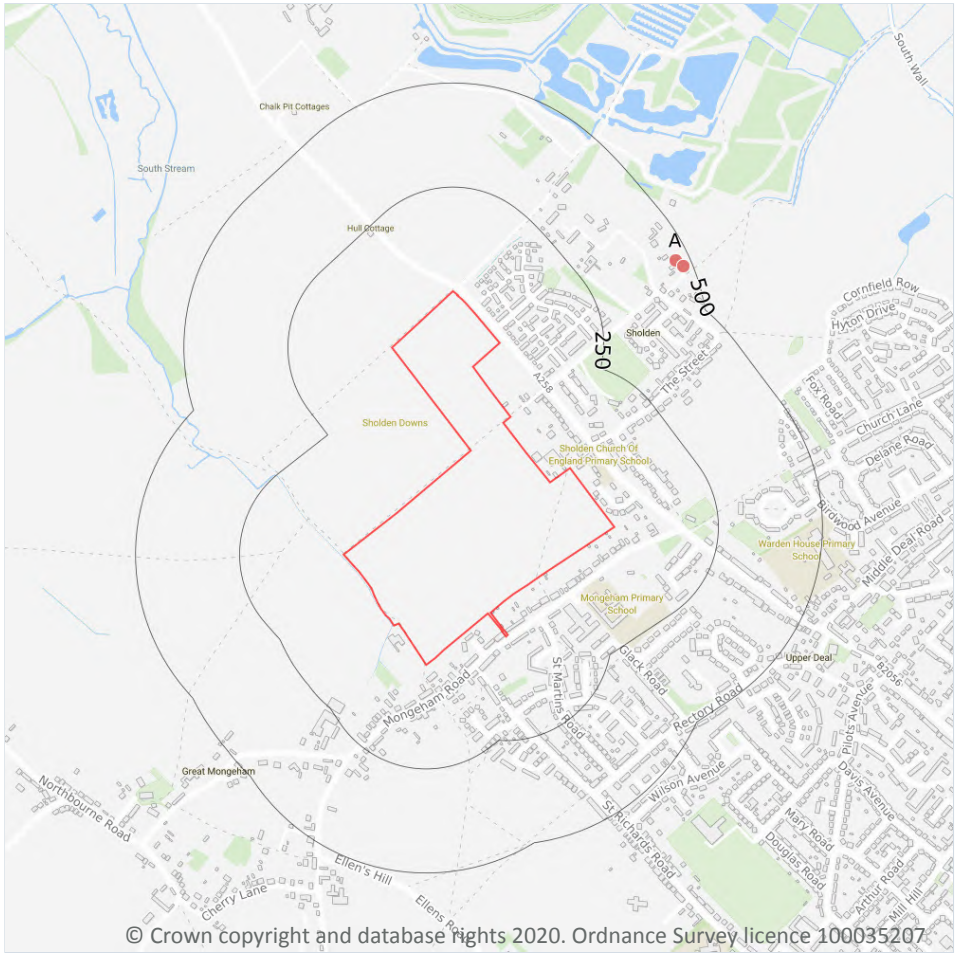
Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 18**

ID	Location	Land Use	Date	Group ID
F	59m S	Garage	1968	89353
F	59m S	Garage	1957	89353
F	60m S	Garage	1957	89353
F	60m S	Garage	1968	89353

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



Site Outline

Search buffers in metres (m)

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

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

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

3.2 Historical landfill (BGS records)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

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

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

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

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

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

3.5 Historical waste sites

Records within 500m	0

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

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

3.6 Licensed waste sites

Records within 500m	0

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

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

3.7 Waste exemptions

Records within 500m	16

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

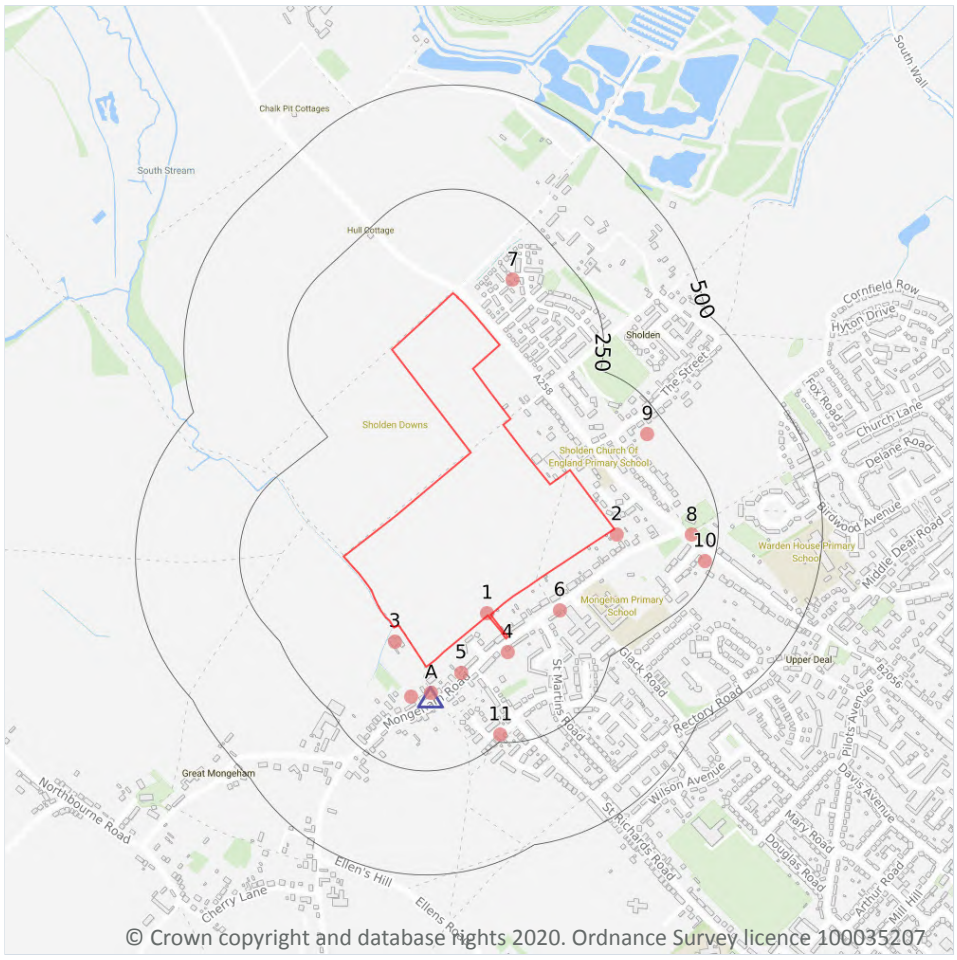
Features are displayed on the Waste and landfill map on **page 24**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	464m NE	Turnhouse Nursery The Street DEAL Kent CT14 0AH	EPR/EH0373RS/A001	Storing waste exemption	Agricultural Waste Only	Storage of waste in a secure place
A	464m NE	Turnhouse Nursery The Street DEAL Kent CT14 0AH	EPR/EH0373RS/A001	Treating waste exemption	Agricultural Waste Only	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
A	464m NE	Turnhouse Nursery The Street DEAL Kent CT14 0AH	EPR/EH0373RS/A001	Disposing of waste exemption	Agricultural Waste Only	Burning waste in the open
A	464m NE	Turnhouse Nursery The Street DEAL Kent CT14 0AH	EPR/EH0373RS/A001	Storing waste exemption	Agricultural Waste Only	Storage of waste in secure containers
A	464m NE	Turnhouse Nursery The Street DEAL Kent CT14 0AH	EPR/EH0373RS/A001	Disposing of waste exemption	Agricultural Waste Only	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice
A	476m NE	THE STREET, SHOLDEN, DEAL, CT14 0AH	WEX192022	Disposing of waste exemption	On a Farm	Burning waste in the open
A	476m NE	THE STREET, SHOLDEN, DEAL, CT14 0AH	WEX192022	Storing waste exemption	On a Farm	Storage of waste in a secure place
A	476m NE	THE STREET, SHOLDEN, DEAL, CT14 0AH	WEX036135	Disposing of waste exemption	On a farm	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice
A	476m NE	THE STREET, SHOLDEN, DEAL, CT14 0AH	WEX036135	Disposing of waste exemption	On a farm	Burning waste in the open
A	476m NE	THE STREET, SHOLDEN, DEAL, CT14 0AH	WEX036135	Storing waste exemption	On a farm	Storage of waste in secure containers
A	476m NE	THE STREET, SHOLDEN, DEAL, CT14 0AH	WEX036135	Storing waste exemption	On a farm	Storage of waste in a secure place
A	476m NE	THE STREET, SHOLDEN, DEAL, CT14 0AH	WEX036135	Treating waste exemption	On a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
A	476m NE	THE STREET, SHOLDEN, DEAL, CT14 0AH	WEX192022	Treating waste exemption	On a Farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
A	476m NE	THE STREET, SHOLDEN, DEAL, CT14 0AH	WEX192022	Storing waste exemption	On a Farm	Storage of waste in secure containers

ID	Location	Site	Reference	Category	Sub-Category	Description
A	476m NE	THE STREET, SHOLDEN, DEAL, CT14 0AH	WEX192022	Using waste exemption	On a Farm	Use of mulch
A	476m NE	THE STREET, SHOLDEN, DEAL, CT14 0AH	WEX192022	Disposing of waste exemption	On a Farm	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice

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

4 Current industrial land use



4.1 Recent industrial land uses

Records within 250m	13

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 28**

ID	Location	Company	Address	Activity	Category
1	**On site**	**Mast (Telecommunication)**	**Kent, CT14**	**Telecommunications Features**	**Infrastructure and Facilities**
2	14m SE	Electricity Sub Station	Kent, CT14	Electrical Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
3	29m SW	Works	Kent, CT14	Unspecified Works Or Factories	Industrial Features
4	33m S	Electricity Sub Station	Kent, CT14	Electrical Features	Infrastructure and Facilities
A	63m S	South Court Garage Ltd	Mongeham Road, Great Mongeham, Deal, Kent, CT14 9LL	Vehicle Repair, Testing and Servicing	Repair and Servicing
5	64m SE	Ace Pest Control	110, Mongeham Road, Great Mongeham, Deal, Kent, CT14 9LJ	Pest and Vermin Control	Contract Services
A	81m SW	Sewage Pumping Station	Kent, CT14	Waste Storage, Processing and Disposal	Infrastructure and Facilities
6	90m SE	Electricity Sub Station	Kent, CT14	Electrical Features	Infrastructure and Facilities
7	125m NE	Electricity Sub Station	Kent, CT14	Electrical Features	Infrastructure and Facilities
8	187m E	Gas Governor	Kent, CT14	Gas Features	Infrastructure and Facilities
9	201m NE	Electricity Sub Station	Kent, CT14	Electrical Features	Infrastructure and Facilities
10	231m E	Electricity Sub Station	Kent, CT14	Electrical Features	Infrastructure and Facilities
11	231m S	Electricity Sub Station	Kent, CT14	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m **1**

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 28**

ID	Location	Company	Address	LPG	Status
A	74m S	OBSOLETE	Mongeham Road, Mongeham, Deal, Kent, CT14 9LL	Not Applicable	Obsolete

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

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

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

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

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

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

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

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

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

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

Records within 500m	0

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

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

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

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

4.13 Licensed Discharges to controlled waters

Records within 500m	0

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

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

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

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

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m	0

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

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

4.17 List 2 Dangerous Substances

Records within 500m	0

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

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	0

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

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

4.19 Pollution inventory substances

Records within 500m	0

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

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

4.20 Pollution inventory waste transfers

Records within 500m	0

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

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

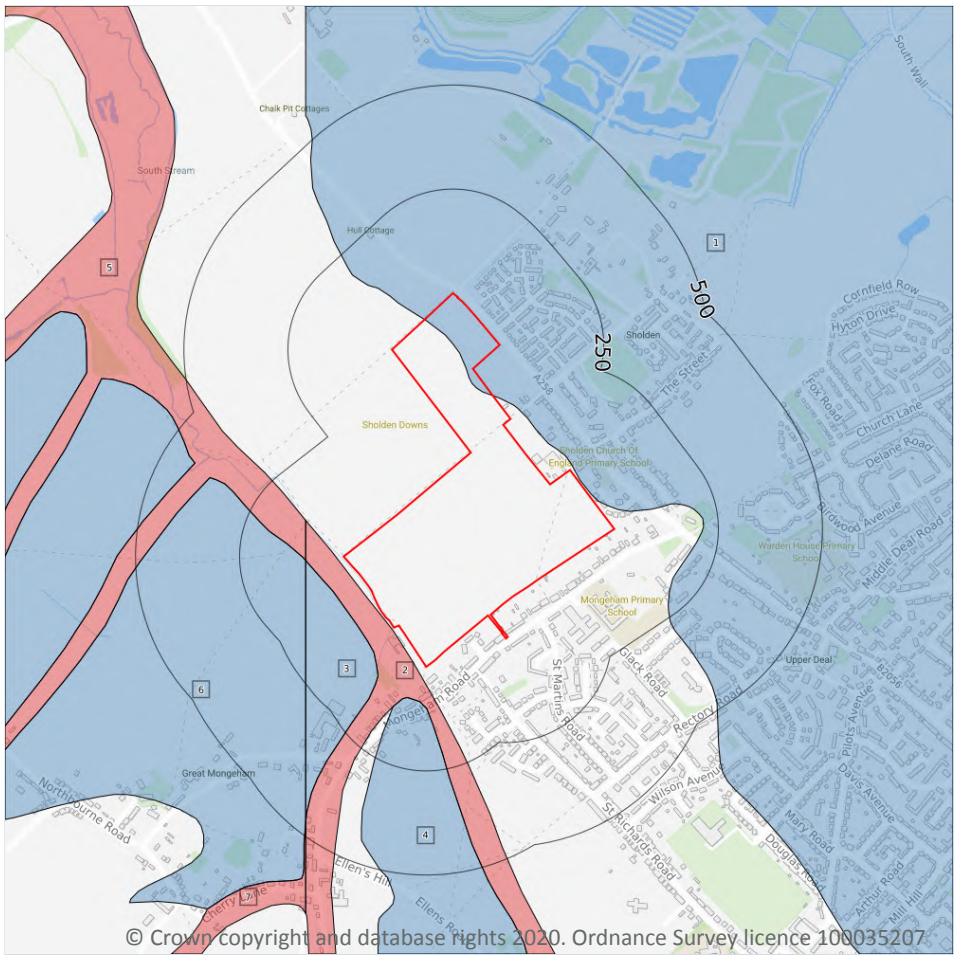
4.21 Pollution inventory radioactive waste

Records within 500m	0

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

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

5 Hydrogeology - Superficial aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive
- Unknown

5.1 Superficial aquifer

Records within 500m	7

Aquifer status of groundwater held within superficial geology.

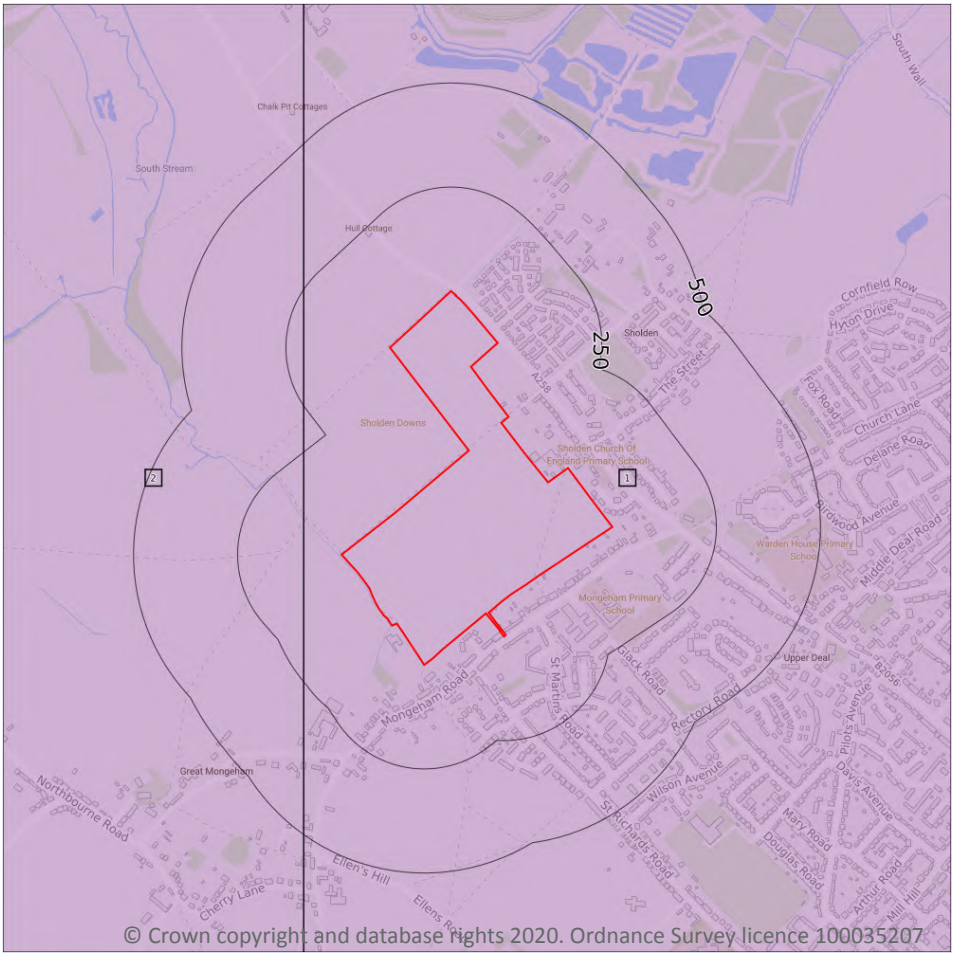
Features are displayed on the Hydrogeology map on **page 34**

ID	Location	Designation	Description
1	**On site**	**Unproductive**	**These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow**
2	6m 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

ID	Location	Designation	Description
3	67m SW	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
4	84m S	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
5	91m W	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	92m W	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
7	475m 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

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

Bedrock aquifer



5.2 Bedrock aquifer

Records within 500m	2

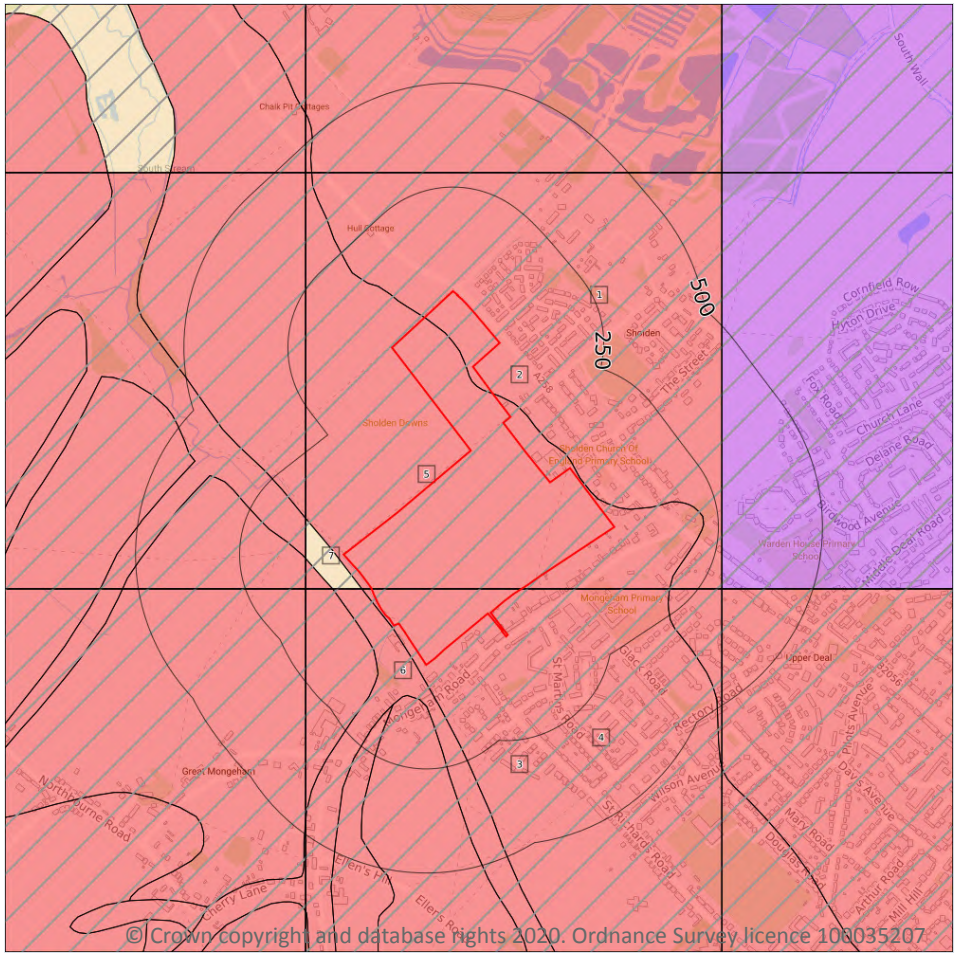
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 36**

ID	Location	Designation	Description
1	**On site**	**Principal**	**Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers**
2	91m W	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

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

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability

- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	5

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

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

Features are displayed on the Groundwater vulnerability map on **page 38**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Principal bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer**	**Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year**	**Vulnerability: Unproductive Aquifer type: Unproductive Thickness: <3m Patchiness value: <90% Recharge potential: Medium**	**Vulnerability: High Aquifer type: Principal Flow mechanism: Well connected fractures**
4	**On site**	**Summary Classification: Principal bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer**	**Leaching class: Intermediate Infiltration value: >70% Dilution value: 300-550mm/year**	**Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: High Aquifer type: Principal Flow mechanism: Well connected fractures**
5	**On site**	**Summary Classification: Principal bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer**	**Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year**	**Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: Medium**	**Vulnerability: High Aquifer type: Principal Flow mechanism: Well connected fractures**
6	5m SW	Summary Classification: Principal bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: 300-550mm/year	Vulnerability: Medium Aquifer type: Secondary Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Principal Flow mechanism: Well connected fractures
7	15m SW	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: <3m Patchiness value: <90% Recharge potential: Medium	Vulnerability: High Aquifer type: Principal Flow mechanism: Well connected fractures

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site	**2**

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

ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
2	**Significant soluble rocks are likely to be present. Low possibility of localised subsidence or dissolution-related degradation of bedrock occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow.**	**22.0%**
3	**Significant soluble rocks are likely to be present. Low possibility of localised subsidence or dissolution-related degradation of bedrock occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow.**	**20.0%**

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

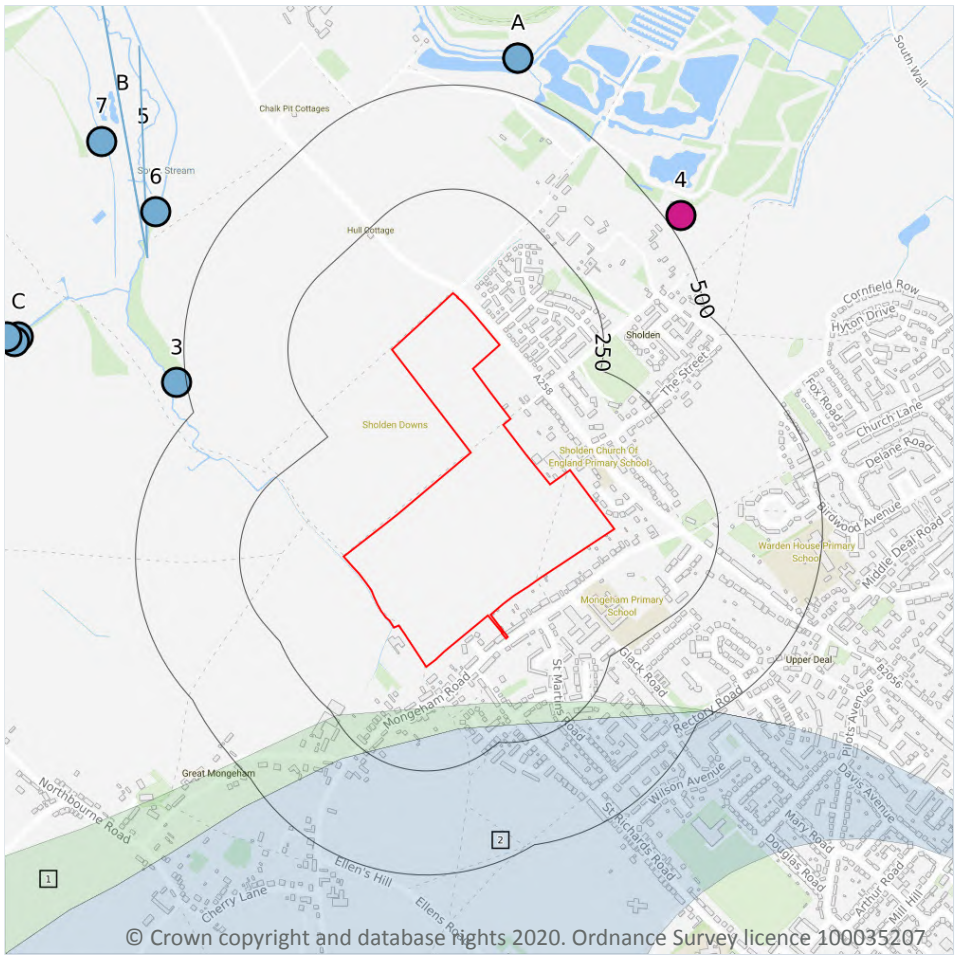
5.5 Groundwater vulnerability- local information

Records on site	**0**

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

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

Abstractions and Source Protection Zones



5.6 Groundwater abstractions

Records within 2000m	3

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 41**

ID	Location	Details	
4	534m NE	Status: Active Licence No: SO/040/0009/005 Details: Spray Irrigation - Direct Direct Source: Southern Region Groundwater Point: BOREHOLE AT TURNHOUSE NURSERIES Data Type: Point Name: Edward Vinson Plants Ltd Easting: 635901 Northing: 152902	Annual Volume (m^3): 13,200 Max Daily Volume (m^3): 110 Original Application No: - Original Start Date: 28/04/2011 Expiry Date: 31/03/2028 Issue No: 1 Version Start Date: 28/04/2011 Version End Date: -
-	996m NE	Status: Historical Licence No: 9/40/04/0119/GR Details: Spray Irrigation - Direct Direct Source: Southern Region Groundwater Point: BOREHOLE AT COURT LODGE FARM, DEAL Data Type: Point Name: Mount Bros (Deal) Ltd Easting: 636630 Northing: 152600	Annual Volume (m^3): 9092 Max Daily Volume (m^3): 454.6 Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 03/11/2006 Version End Date: -
-	1235m SE	Status: Active Licence No: 9/40/04/0279/GR Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: WELLS AT ST RICHARD'S RD DEAL Data Type: Poly4 Name: Southern Water Services Ltd Easting: 636300 Northing: 150960	Annual Volume (m^3): 2,273,000 Max Daily Volume (m^3): 9,092 Original Application No: - Original Start Date: 30/12/1966 Expiry Date: - Issue No: 100 Version Start Date: 12/12/2006 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	**24**

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 41**

ID	Location	Details	
3	523m W	Status: Active Licence No: 9/40/04/0034/SR Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINT 2, NORTH STREAM AT NORTHBOURNE Data Type: Point Name: Betteshanger Farms Ltd Easting: 634690 Northing: 152500	Annual Volume (m^3): 54,552 Max Daily Volume (m^3): 1,818 Original Application No: - Original Start Date: 29/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 02/11/2006 Version End Date: -
A	585m N	Status: Historical Licence No: 12/073 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINT A, WATERCOURSE IN SHOLDEN Data Type: Point Name: Steed Easting: 635510 Northing: 153280	Annual Volume (m^3): 19167 Max Daily Volume (m^3): 800 Original Application No: - Original Start Date: - Expiry Date: 31/03/2016 Issue No: 101 Version Start Date: 23/10/2006 Version End Date: -
A	585m N	Status: Active Licence No: SO/040/0012/002 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINT A, WATERCOURSE IN SHOLDEN Data Type: Point Name: Steed Easting: 635510 Northing: 153280	Annual Volume (m^3): 9,092 Max Daily Volume (m^3): 800 Original Application No: - Original Start Date: 07/02/1966 Expiry Date: - Issue No: 1 Version Start Date: 27/02/2017 Version End Date: -
5	627m W	Status: Active Licence No: 12/071A Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINTS A-B, SOUTH STREAM, SHOLDEN. Data Type: Line Name: CJ Bean & Sons Easting: 634620 Northing: 152800	Annual Volume (m^3): 22,000 Max Daily Volume (m^3): 600 Original Application No: - Original Start Date: 01/04/2016 Expiry Date: - Issue No: 1 Version Start Date: 01/04/2016 Version End Date: -
B	627m W	Status: Historical Licence No: 12/071 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINTS A-B, SOUTH STREAM, SHOLDEN (MOVED POINT) Data Type: Line Name: CJ Bean & Sons Easting: 634620 Northing: 152800	Annual Volume (m^3): 22000 Max Daily Volume (m^3): 600 Original Application No: - Original Start Date: - Expiry Date: 31/03/2016 Issue No: 102 Version Start Date: 23/10/2006 Version End Date: -

ID	Location	Details	
B	627m W	Status: Active Licence No: 12/071A Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINTS A-B, SOUTH STREAM, SHOLDEN (MOVED POINT) Data Type: Line Name: CJ Bean & Sons Easting: 634620 Northing: 152800	Annual Volume (m^3): 22,000 Max Daily Volume (m^3): 600 Original Application No: - Original Start Date: 01/04/2016 Expiry Date: - Issue No: 1 Version Start Date: 01/04/2016 Version End Date: -
6	656m NW	Status: Active Licence No: 12/074 Details: Make-Up Or Top Up Water Direct Source: Southern Region Surface Waters Point: POINT A, AT SOUTH STREAM SHOLDEN Data Type: Point Name: Steed Easting: 634640 Northing: 152910	Annual Volume (m^3): 1,705 Max Daily Volume (m^3): 800 Original Application No: - Original Start Date: 15/08/1995 Expiry Date: - Issue No: 100 Version Start Date: 27/02/2017 Version End Date: -
7	858m NW	Status: Active Licence No: 9/40/04/0034/SR Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINT 3, TRIB. NORTH STREAM AT NORTHBOURNE Data Type: Point Name: Betteshanger Farms Ltd Easting: 634510 Northing: 153080	Annual Volume (m^3): 54,552 Max Daily Volume (m^3): 1,818 Original Application No: - Original Start Date: 29/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 02/11/2006 Version End Date: -
C	897m W	Status: Active Licence No: 9/40/04/0034/SR Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINT 1, BROAD DIKE AT NORTHBOURNE Data Type: Point Name: Betteshanger Farms Ltd Easting: 634310 Northing: 152610	Annual Volume (m^3): 54,552 Max Daily Volume (m^3): 1,818 Original Application No: - Original Start Date: 29/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 02/11/2006 Version End Date: -
C	907m W	Status: Historical Licence No: 12/086 Details: Spray Irrigation - Storage Direct Source: Southern Region Surface Waters Point: POINT 'A' - BROAD DIKE, TRIB. OF SOUTH STREAM, NORTHBOURNE Data Type: Point Name: Betteshanger Farms Limited Easting: 634300 Northing: 152600	Annual Volume (m^3): 45454 Max Daily Volume (m^3): 1527 Original Application No: - Original Start Date: 16/01/2008 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 16/01/2008 Version End Date: -

ID	Location	Details	
C	924m W	Status: Active Licence No: 12/086/R01 Details: Spray Irrigation - Storage Direct Source: Southern Region Surface Waters Point: POINT 'A' - BROAD DIKE, TRIB. OF SOUTH STREAM, NORTHBOURNE Data Type: Point Name: Betteshanger Farms Ltd Easting: 634283 Northing: 152610	Annual Volume (m^3): 45,454 Max Daily Volume (m^3): 1,527 Original Application No: - Original Start Date: 01/04/2016 Expiry Date: 31/03/2028 Issue No: 1 Version Start Date: 01/04/2016 Version End Date: -
-	983m NE	Status: Historical Licence No: 9/40/04/0522/S Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINT X, IN SHOLDEN. Data Type: Point Name: Mount Bros (Deal) Ltd Easting: 636620 Northing: 152590	Annual Volume (m^3): 6820 Max Daily Volume (m^3): 455 Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 01/12/2006 Version End Date: -
-	1162m NW	Status: Active Licence No: 12/072 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINT A-B, SOUTH STREAM AT COTTINGTON COURT FARM Data Type: Line Name: Friend Easting: 634270 Northing: 153700	Annual Volume (m^3): 930 Max Daily Volume (m^3): 300 Original Application No: - Original Start Date: 15/08/1995 Expiry Date: - Issue No: 100 Version Start Date: 27/02/2017 Version End Date: -
-	1198m N	Status: Historical Licence No: 12/073 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINT B, WATERCOURSE IN SHOLDEN. Data Type: Line Name: Steed Easting: 634410 Northing: 154230	Annual Volume (m^3): 19167 Max Daily Volume (m^3): 800 Original Application No: - Original Start Date: - Expiry Date: 31/03/2016 Issue No: 101 Version Start Date: 23/10/2006 Version End Date: -
-	1408m NW	Status: Active Licence No: 12/069/R01 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINT F, DRAIN IN FINGLESHAM. Data Type: Point Name: Betteshanger Farms Ltd Easting: 634194 Northing: 153558	Annual Volume (m^3): 76,368 Max Daily Volume (m^3): 2,091 Original Application No: - Original Start Date: 01/04/2016 Expiry Date: 31/03/2028 Issue No: 1 Version Start Date: 01/04/2016 Version End Date: -

ID	Location	Details	
-	1448m NW	Status: Historical Licence No: 12/069 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINT F, DRAIN IN FINGLESHAM. Data Type: Point Name: Betteshanger Farms Ltd Easting: 634160 Northing: 153580	Annual Volume (m^3): 76368 Max Daily Volume (m^3): 2091 Original Application No: - Original Start Date: - Expiry Date: 31/03/2016 Issue No: 102 Version Start Date: 23/10/2006 Version End Date: -
-	1449m N	Status: Historical Licence No: 12/073 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINT C, WATERCOURSE IN SHOLDEN. Data Type: Line Name: Steed Easting: 635150 Northing: 154150	Annual Volume (m^3): 19167 Max Daily Volume (m^3): 800 Original Application No: - Original Start Date: - Expiry Date: 31/03/2016 Issue No: 101 Version Start Date: 23/10/2006 Version End Date: -
-	1680m N	Status: Active Licence No: 9/40/04/0093/SR Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: SHOLDEN RING SEWER Data Type: Line Name: Betteshanger Farms Ltd Easting: 634590 Northing: 154250	Annual Volume (m^3): 9,274 Max Daily Volume (m^3): 545.50 Original Application No: - Original Start Date: 10/05/1966 Expiry Date: - Issue No: 101 Version Start Date: 27/02/2017 Version End Date: -
-	1735m NW	Status: Active Licence No: 12/069/R01 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINT G, BROOK STREAM IN FINGLESHAM. Data Type: Point Name: Betteshanger Farms Ltd Easting: 634016 Northing: 153841	Annual Volume (m^3): 76,368 Max Daily Volume (m^3): 2,091 Original Application No: - Original Start Date: 01/04/2016 Expiry Date: 31/03/2028 Issue No: 1 Version Start Date: 01/04/2016 Version End Date: -
-	1752m NW	Status: Historical Licence No: 12/069 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINT G, BROOK STREAM IN FINGLESHAM. Data Type: Point Name: Betteshanger Farms Ltd Easting: 634000 Northing: 153850	Annual Volume (m^3): 76368 Max Daily Volume (m^3): 2091 Original Application No: - Original Start Date: - Expiry Date: 31/03/2016 Issue No: 102 Version Start Date: 23/10/2006 Version End Date: -

ID	Location	Details	
-	1783m NE	Status: Active Licence No: 9/40/04/0496/CA Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINTS 5-6, DEAL TOWN DYKE NEAR KENNELS FARM, DEAL Data Type: Line Name: Donaldson Easting: 636660 Northing: 154000	Annual Volume (m^3): 3,409 Max Daily Volume (m^3): 727.40 Original Application No: - Original Start Date: 23/02/1987 Expiry Date: - Issue No: 101 Version Start Date: 04/03/2002 Version End Date: -
-	1783m NE	Status: Active Licence No: 9/40/04/0496/CA Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINTS 6-7, KENNELS FARM LEAD DYKE NEAR KENNELS FARM, DEAL Data Type: Line Name: Donaldson Easting: 636780 Northing: 153800	Annual Volume (m^3): 3,409 Max Daily Volume (m^3): 727.40 Original Application No: - Original Start Date: 23/02/1987 Expiry Date: - Issue No: 101 Version Start Date: 04/03/2002 Version End Date: -
-	1830m NE	Status: Active Licence No: 9/40/04/0496/CA Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINTS 5-8, REDHOUSE WALL LEAD DYKE NEAR KENNELS FARM, DEAL Data Type: Line Name: Donaldson Easting: 636660 Northing: 154000	Annual Volume (m^3): 3,409 Max Daily Volume (m^3): 727.40 Original Application No: - Original Start Date: 23/02/1987 Expiry Date: - Issue No: 101 Version Start Date: 04/03/2002 Version End Date: -
-	1922m NE	Status: Historical Licence No: 9/40/04/0496/CA Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: POINTS 3-4, DEAL TOWN DYKE NEAR KENNELS FARM, DEAL Data Type: Line Name: Drew Easting: 636390 Northing: 154380	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 22/04/1996 Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	1

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 41**

ID	Location	Details	
-	1235m SE	Status: Active Licence No: 9/40/04/0279/GR Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: WELLS AT ST RICHARD'S RD DEAL Data Type: Poly4 Name: Southern Water Services Ltd Easting: 636300 Northing: 150960	Annual Volume (m^3): 2,273,000 Max Daily Volume (m^3): 9,092 Original Application No: - Original Start Date: 30/12/1966 Expiry Date: - Issue No: 100 Version Start Date: 12/12/2006 Version End Date: -

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

5.9 Source Protection Zones

Records within 500m	2

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

Features are displayed on the Abstractions and Source Protection Zones map on **page 41**

ID	Location	Type	Description
1	99m S	3	Total catchment
2	164m S	2	Outer catchment

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

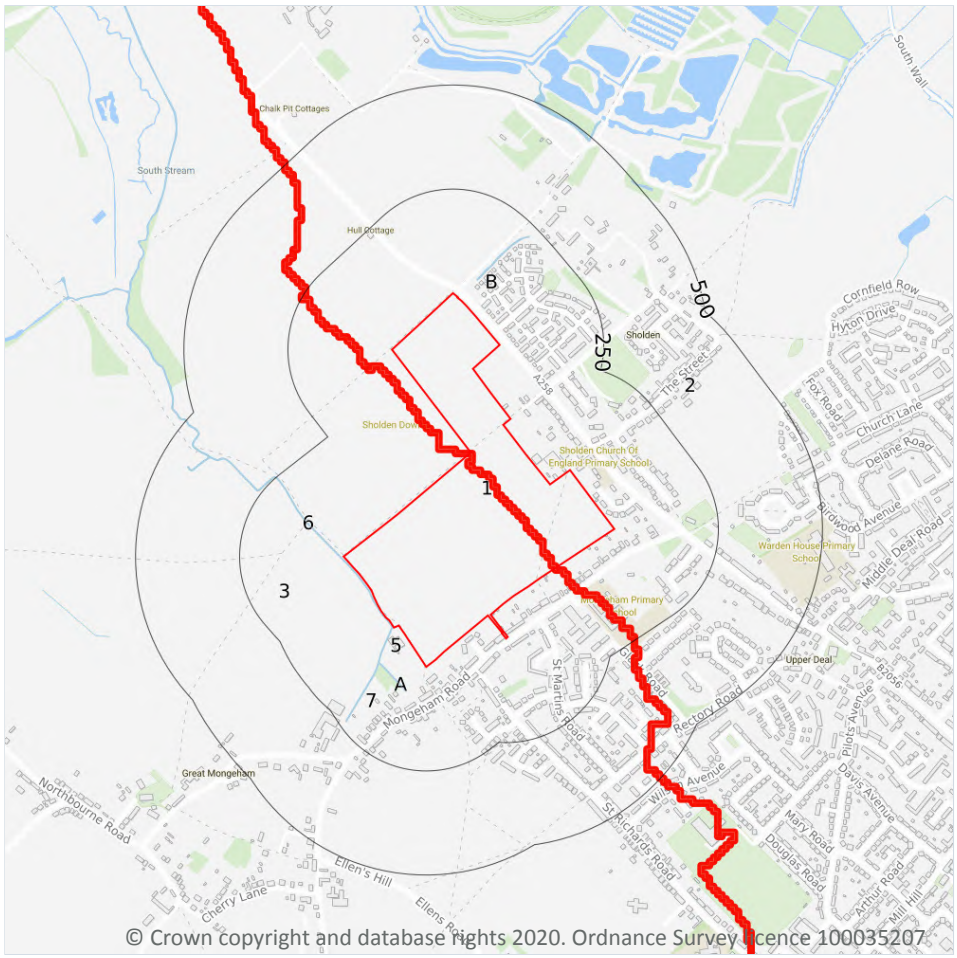
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

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

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

6 Hydrology



6.1 Water Network (OS MasterMap)

Records within 250m	15

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

Features are displayed on the Hydrology map on **page 49**

ID	Location	Type of water feature	Ground level	Permanence	Name
5	1m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
6	2m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	South Stream
B	61m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	75m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
7	89m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	103m NE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
B	111m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	127m NE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
B	130m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	152m NE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
B	164m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	178m NE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
B	184m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	207m NE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
B	217m NE	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	**7**

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

Features are displayed on the Hydrology map on **page 49**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	**2**

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

Features are displayed on the Hydrology map on **page 49**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	**On site**	**River WB catchment**	**North and South Streams in the Lydden Valley**	**GB107040019550**	**North and South Streams**	**Stour**
3	**On site**	**River WB catchment**	**North and South Streams at Northbourne**	**GB107040019720**	**North and South Streams**	**Stour**

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

6.4 WFD Surface water bodies

Records identified	2

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

Features are displayed on the Hydrology map on **page 49**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	639m W	River	North and South Streams at Northbourne	GB107040019720	Poor	Good	Poor	2016
-	2342m N	River	North and South Streams in the Lydden Valley	GB107040019550	Poor	Good	Poor	2016

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

6.5 WFD Groundwater bodies

Records on site	1

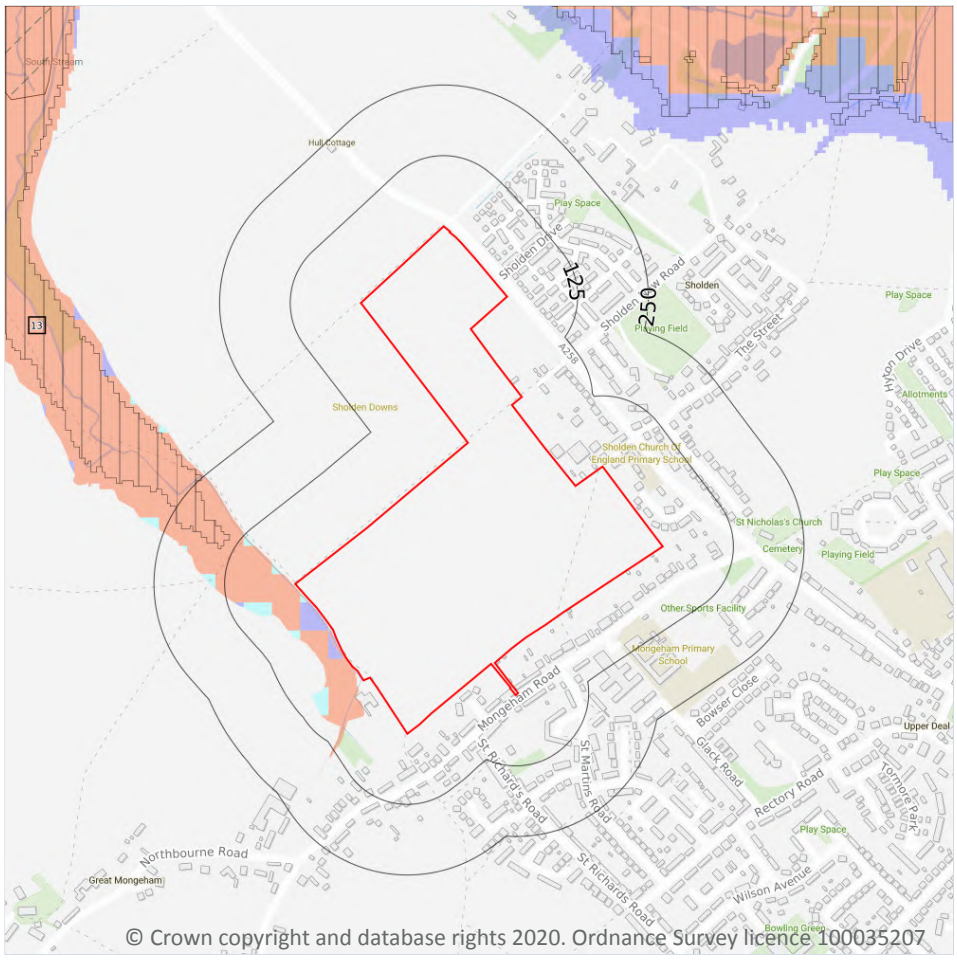
Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 49**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	**On site**	**East Kent Chalk - Stour**	**GB40701G501500**	**Poor**	**Poor**	**Poor**	**2015**

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

7 River and coastal flooding



Site Outline

Search buffers in metres (m)

Environment Agency river and coastal flooding:

- High
- Medium
- Low
- Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

7.1 Risk of Flooding from Rivers and Sea (RoFRaS)

Records within 50m	**19**

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance).

Features are displayed on the River and coastal flooding map on **page 53**

Distance	RoFRaS flood risk
On site	**High**
0 - 50m	High

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

7.2 Historical Flood Events

Records within 250m	0

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

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

7.3 Flood Defences

Records within 250m	0

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

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	1

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

Features are displayed on the River and coastal flooding map on **page 53**

ID	Location	
13	140m NW	Area benefiting from flood defences

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

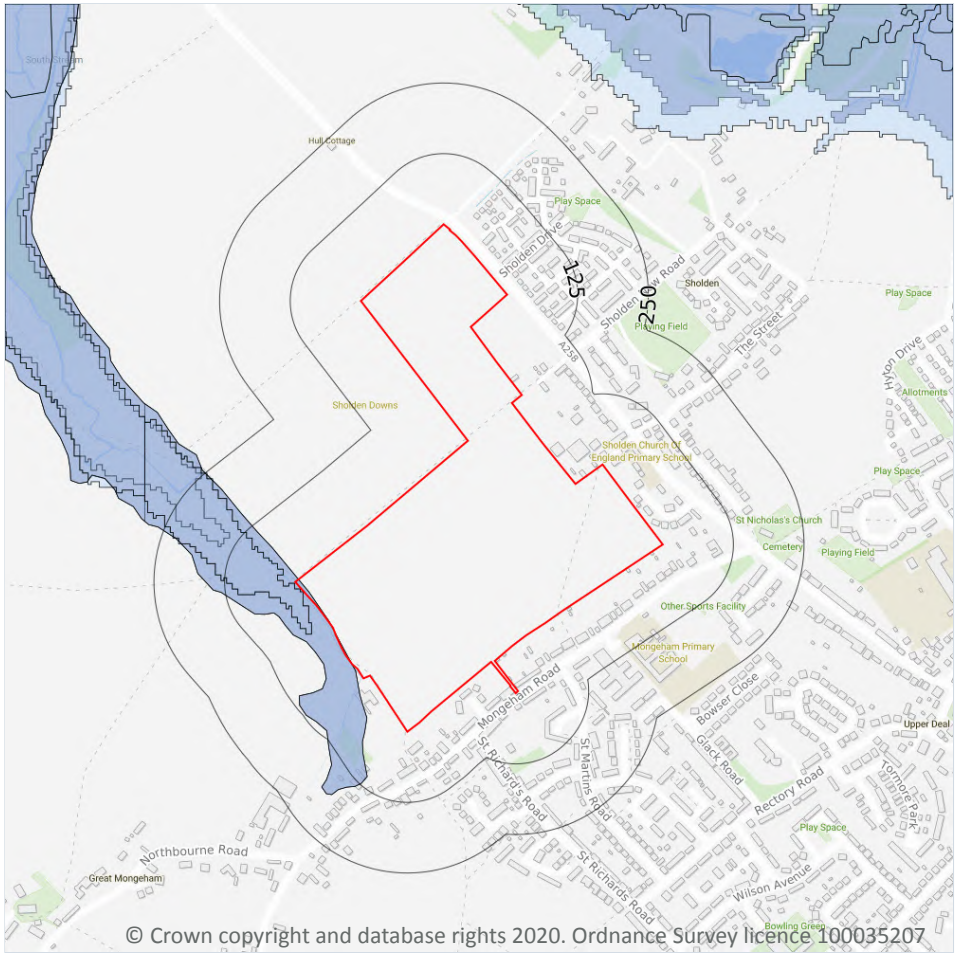
7.5 Flood Storage Areas

Records within 250m	0

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

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

River and coastal flooding - Flood Zones



Site Outline

Search buffers in metres (m)

Flood zone 2

Flood zone 3

7.6 Flood Zone 2

Records within 50m	1

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

Features are displayed on the River and coastal flooding map on **page 53**

Location	Type
On site	**Zone 2 - (Fluvial /Tidal Models)**

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

7.7 Flood Zone 3

Records within 50m	1

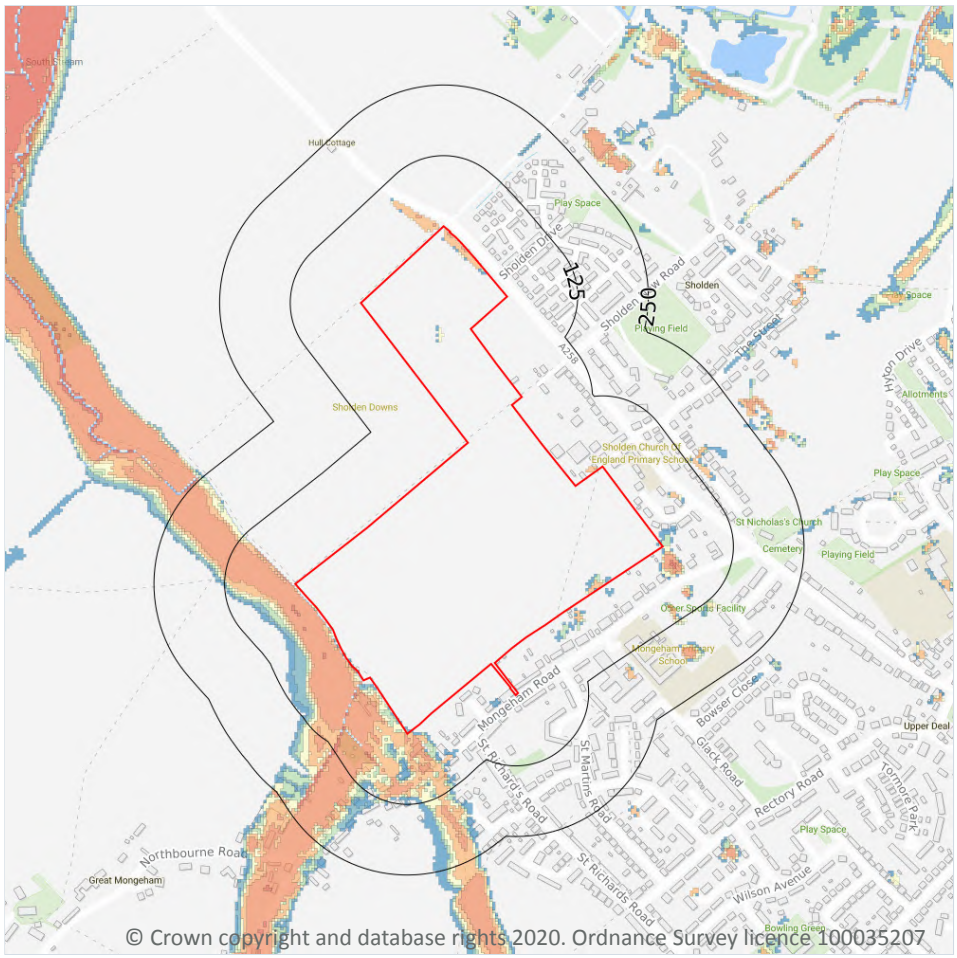
Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

Features are displayed on the River and coastal flooding map on **page 53**

Location	Type
On site	**Zone 3 - (Fluvial Models)**

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

8 Surface water flooding



8.1 Surface water flooding

Highest risk on site	**1 in 30 year, 0.3m - 1.0m**
Highest risk within 50m	**1 in 30 year, Greater than 1.0m**

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

Features are displayed on the Surface water flooding map on **page 57**

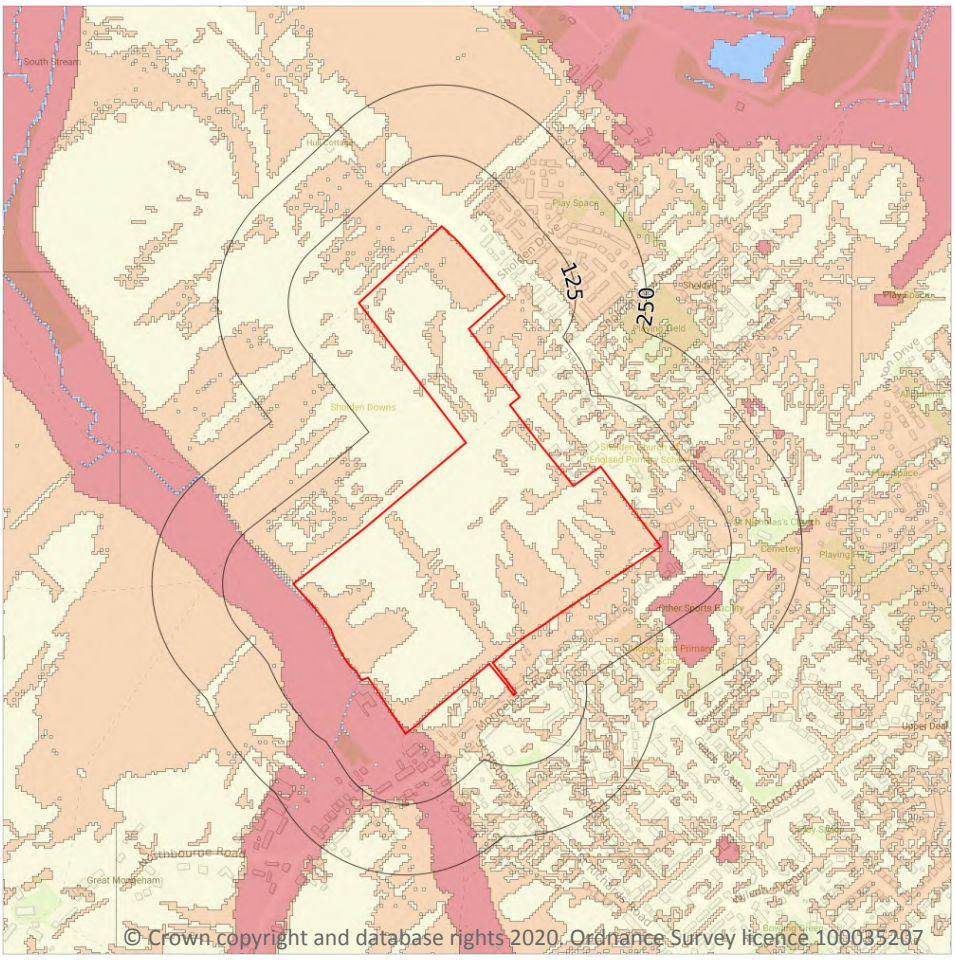
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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

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

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

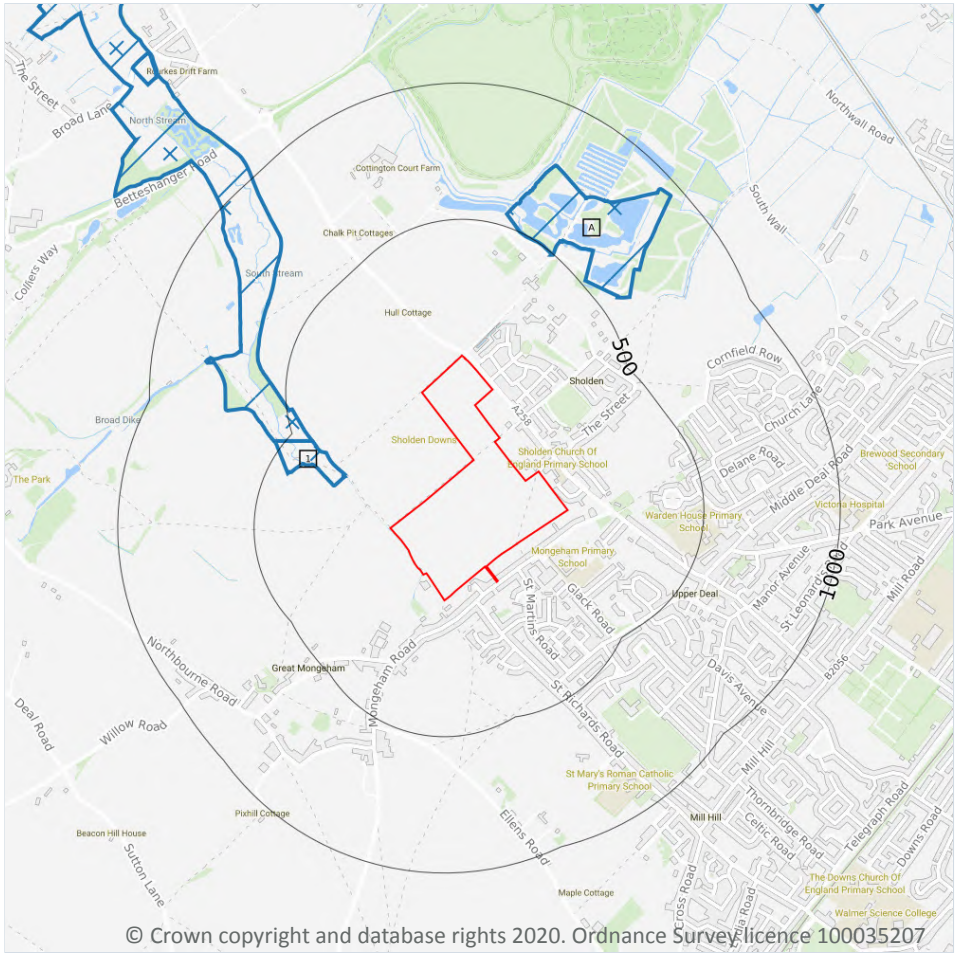
Highest risk on site	**High**
Highest risk within 50m	**High**

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

Features are displayed on the Groundwater flooding map on **page 59**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

- Sites of Special Scientific Interest (SSSI)
- Conserved wetland sites (Ramsar sites)
- Special Areas of Conservation (SAC)
- Special Protection Areas (SPA)

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	3

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

Features are displayed on the Environmental designations map on **page 60**

ID	Location	Name	Data source
1	252m NW	Sandwich Bay to Hacklinge Marshes	Natural England

ID	Location	Name	Data source
3	429m NW	Sandwich Bay to Hacklinge Marshes	Natural England
A	494m NE	Sandwich Bay to Hacklinge Marshes	Natural England

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	**2**

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

Features are displayed on the Environmental designations map on **page 60**

ID	Location	Site	Details
2	252m NW	Name: Thanet Coast & Sandwich Bay Site status: Listed Data source: Natural England	Overview: A coastal site, consisting of a long stretch of rocky shore, adjoining areas of estuary, sand dune, maritime grassland, saltmarsh and grazing marsh. The wetland habitats support 15 British Red Data Book invertebrates, as well as a large number of nationally scarce species. The site attracts internationally important numbers of turnstone Arenaria interpres, and nationally important numbers of nationally important wintering populations of four wader species: ringed plover, golden plover, grey plover and sanderling, as well as Lapland bunting. The site is used by large numbers of migratory birds. Ramsar criteria: Ramsar criterion 2 Supports 15 British Red Data Book wetland invertebrates.
A	493m NE	Name: Thanet Coast & Sandwich Bay Site status: Listed Data source: Natural England	Overview: A coastal site, consisting of a long stretch of rocky shore, adjoining areas of estuary, sand dune, maritime grassland, saltmarsh and grazing marsh. The wetland habitats support 15 British Red Data Book invertebrates, as well as a large number of nationally scarce species. The site attracts internationally important numbers of turnstone Arenaria interpres, and nationally important numbers of nationally important wintering populations of four wader species: ringed plover, golden plover, grey plover and sanderling, as well as Lapland bunting. The site is used by large numbers of migratory birds. Ramsar criteria: Ramsar criterion 2 Supports 15 British Red Data Book wetland invertebrates.

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

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

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

10.4 Special Protection Areas (SPA)

Records within 2000m	1

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

Features are displayed on the Environmental designations map on **page 60**

ID	Location	Name	Species of interest	Habitat description	Data source
4	1814m NE	Thanet Coast & Sandwich Bay	European golden plover; Ruddy turnstone; Little tern	Shingle, Sea cliffs, Islets; Humid grassland, Mesophile grassland; Other arable land; Improved grassland; Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins); Coastal sand dunes, Sand beaches, Machair	Natural England

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

10.5 National Nature Reserves (NNR)

Records within 2000m	0

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

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

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

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

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

10.7 Designated Ancient Woodland

Records within 2000m	0

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

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

10.8 Biosphere Reserves

Records within 2000m	0

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

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

10.9 Forest Parks

Records within 2000m	0

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

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

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

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

10.11 Green Belt

Records within 2000m	0

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

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

10.12 Proposed Ramsar sites

Records within 2000m	0

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

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

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

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

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

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

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

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

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

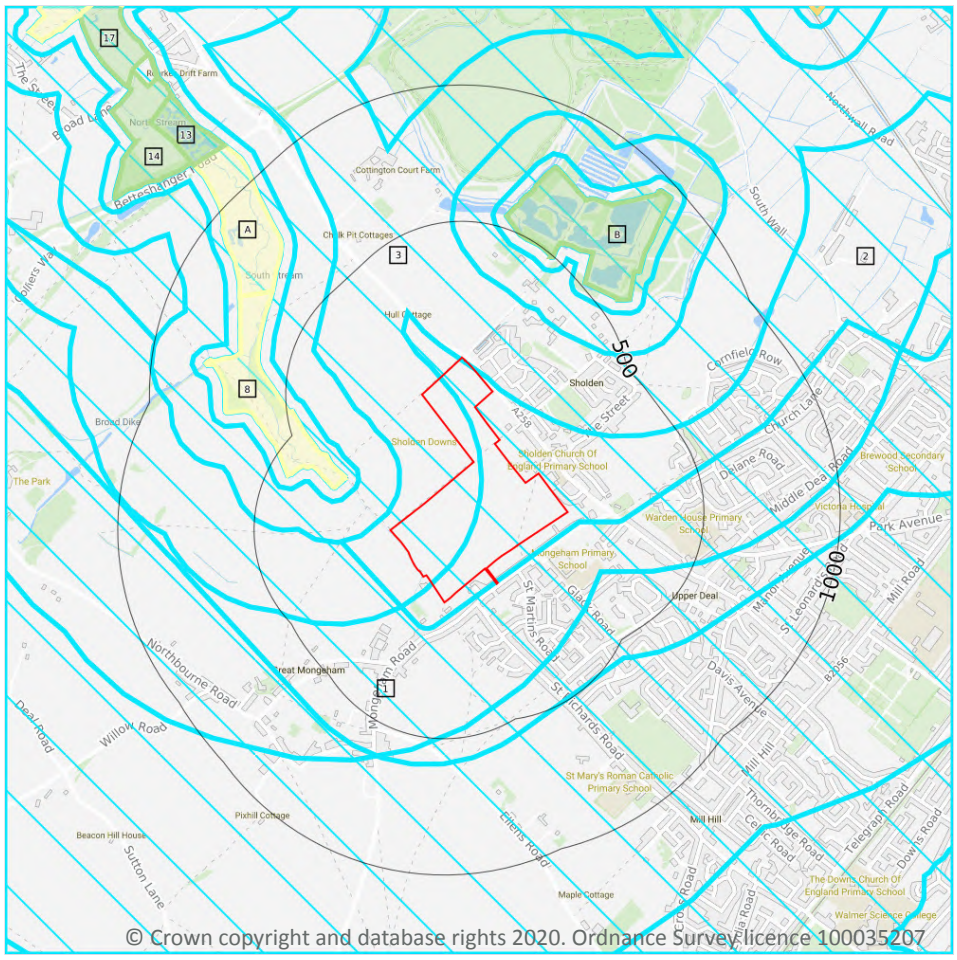
Records within 2000m	4

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

Location	Name	Type	NVZ ID	Status
On site	**North and South Streams in the Lydden Valley NVZ**	**Surface Water**	**S511**	**Existing**
On site	**East Kent**	**Groundwater**	**G67**	**Changed**
999m W	North and South Streams in the Lydden Valley NVZ	Surface Water	S511	Existing
999m W	East Kent	Groundwater	G67	Changed

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

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site	3

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

Features are displayed on the SSSI Impact Zones and Units map on **page 66**

ID	Location	Type of developments requiring consultation
1	**On site**	**Infrastructure - Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals** **Wind and Solar - Wind turbines.** **Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.** **Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha** **Residential - Residential development of 50 units or more.** **Rural residential - Any residential development of 10 or more houses outside existing settlements/urban areas.** **Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 200m² & manure stores > 250t).** **Combustion - General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion** **Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.** **Composting - Any composting proposal with more than 500 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.** **Discharges - Any discharge of water or liquid waste of more than 2m³/day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location).** **Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply** **Notes: For new residential development in this area financial contributions are required to mitigate increased recreational disturbance on coastal SPAs and Ramsar Sites. Check with Local Planning Authority.**

ID	Location	Type of developments requiring consultation
2	**On site**	**All applications - All Planning Applications (Except Householder) Outside Or Extending Outside Existing Settlements/urban Areas Affecting Greenspace, Farmland, Semi Natural Habitats Or Landscape Features Such As Trees, Hedges, Streams, Rural Buildings/structures** **Infrastructure - Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals** **Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines** **Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.** **Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha** **Residential - Residential development of 10 units or more.** **Rural residential - Any residential development of 10 or more houses outside existing settlements/urban areas.** **Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 200m² & manure stores > 250t).** **Combustion - General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion** **Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.** **Composting - Any composting proposal with more than 500 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.** **Discharges - Any discharge of water or liquid waste of more than 2m³/day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location).** **Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply** **Notes: For new residential development in this area financial contributions are required to mitigate increased recreational disturbance on coastal SPAs and Ramsar Sites. Check with Local Planning Authority.**