

2. SITE DESCRIPTION

	Comments	References
2.1 Site Size & Extent	The Site lies just beyond the south-eastern margins of Horton Heath, 9km north-east of Southampton City Centre and is centered on Grid Coordinates: Easting 449897, Northing 116374. The nearest Post Code is SO32 2BW. The investigation was carried out within an approximate pentagonal area with maximum dimensions of 320m by 300m. The aerial image (dated 2020) in Figure 5 below, shows the location of the field that comprises the study area. 	Google Earth, 2025
2.2 Topography	Regionally, the Site is slightly elevated within a gently undulating landscape. The study area was raised centrally with a maximum elevation of 35.0m AOD, reducing to the north and east to approximately 27.0m AOD.	Google Earth, 2025
2.3 Geological Summary	The BGS on-line viewer indicates Sand, Silt and Clay and sandy Clay of the Wittering Formation immediately underlying the Site. The Wittering Formation is described as greyish brown laminated clay; wavy- to lenticular-bedded sand interbedded with clay in equal proportions; and fine- to medium-grained sparsely glauconitic sand. The strata encountered by the previous investigation were consistent with this designation.	BGS Online Viewer (2025) GeolInsight Report, Appendix 2 (2025) BGS Lexicon (2025) AIS Report AD804 (October 2024)

3. POTENTIAL SOURCES

	Comments	Source Risk Potential	References
3.1 Historical Industrial Land Use & Historical Mapping	Consistent with the mapping review The EnviroInsight Report lists no on-site historical industrial land uses. The following are listed within a 250m radius of the study area: 101m E – Refuse Heap – Date 1868 Based on the type, size, age, and distance from the study area, this is not considered to be contaminative land usage that could significantly impact upon the Site.	Low	Enviro & Geo Insight Report (Appendix 2) Appendix 4
3.2 Waste and Landfill	There are no EA, BGS or Local Authority planning records of active or historical landfill with 250m of the Site. Storage, using, and disposal of waste exemptions at Snakemoor Farm (88m E, 171m E and 194m E) are listed in the EnviroInsight Report . However, these are 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 and are consequently have a low risk of impacting the study area.	Low Low	Enviro & Geo Insight Report (2024) - Appendix 2
3.3 Current Industrial Land Usage	There are no records of recent industrial land uses within a 250m radius of the Site, that could cause significant impact upon the study area. The study area is currently (and has historically) been used as both arable land and pastureland and the use of pesticides & herbicides cannot be ruled out and some may have contained chemicals that are now known to be harmful. However, this is not considered to represent an on-going risk as the compounds typically used in pesticides and herbicides were not designed to be persistent in the environment, as detailed in DEFRA publication CLAN4/04.	Low Low	Enviro & Geo Insight Report (2024) - Appendix 2 DEFRA, 2004
3.4 Environmental Permits, Incidents & Part IIA EPA Contaminated Land Register	No significant on-site permits & consents of significance, pertaining to the Site, are listed within the records. The Site is not situated on or within 250m of any area determined as contaminated land in Part 2A of the EPA, 1990:	Low Low	Enviro & Geo Insight Report (2024) - Appendix 2
3.5 Artificial and Made Ground	No on-site areas of previously quarried, worked and subsequently infilled (artificial) ground or Made Ground of significance are recorded. No area of previously quarried, worked and subsequently infilled (artificial) ground or Made Ground of significance are recorded within a radius of 250m from the Site.	Low Low	Enviro & Geo Insight Report (2024) - Appendix 2

3. POTENTIAL SOURCES

	Comments	Source Risk Potential	References
3.6 Ground Workings, Ponds, Pits or Infilled Land	No significant areas of surface ground workings, pits or infilled land, are recorded within a 250m radius of the study area.	Low	Enviro & Geo Insight Report (2024) - Appendix 2
	A small pond is shown adjacent to the eastern boundary and is documented in the historical map review and Walkover Survey but has not been infilled and is therefore not considered a contamination risk.	Low	Appendices 4 & 5
3.7 Walkover Survey	From the Walkover Survey, no potentially significant pollutant sources (on-site or off-site) were identified	Low	Appendix 5
	Whilst not an exhaustive survey, no evidence of Japanese Knotweed or Himalayan Balsam was observed during the Walkover Survey.	Low	
	No evidence of asbestos containing materials (ACM's) were identified within exposed surface areas.	Low	
	An inspection cover and partially infilled, presumably redundant drain was noted adjacent to the southern boundary and may have been a soakaway servicing former farm outbuilding(s). Buried structures may remain in this area and be potential obstacles for future groundworks.	Moderate	
	No other visual or olfactory indications of contamination were observed during the Walkover Survey.	Low	
3.8 Organic Soils (Naturally Occurring)	Geological mapping would indicate that no organic soils of significance are present under or near to the study area.	Low	Enviro & Geo Insight Report (2024) - Appendix 2
3.9 Radon (Naturally Occurring)	The Site is not within a Radon Affected Area as defined by the Health Protection Agency (HPA) as less than 1% of properties exceed the Action Level.		Enviro & Geo Insight Report (2024) - Appendix 2
	Therefore for new build and extensions, no Radon Protection Measures are required.	Low	BRE Publication BR211

4. PATHWAYS & RECEPTORS

		Comments	Significance	References
4.1	Hydrogeology and Hydrology.	<u>Aquifer (Bedrock)</u> The underlying geology of the Wittering Formation is designated as a Secondary A Aquifer with a medium to high vulnerability (a high risk of transmitting pollution (where present) to groundwater via well connected fractures). A Secondary A Aquifer is defined as permeable layers capable of supporting water supplies at a local rather than strategic level, and in some cases forming an important source of base flow to rivers. <u>Abstraction Licenses.</u> There are no groundwater or potable or surface water abstraction licenses within 250m of the Site. <u>Source Protection Zones (SPZ)</u> Records show the Site is not within a Source Protection Zone. <u>Surface Water Features</u> The nearest surface water feature is documented as an inland river (stream) not influenced by normal tidal action at 10m to the north-east of the study area.	Low Low Low Low	Enviro & Geo Insight Report (2024) - Appendix 2
4.2	Designated Environmentally Sensitive Sites	The Site lies within a SSSI Impact Risk Zone and as a planning application extending outside an existing settlement, consultation with Natural England is required. Within a 250m radius of the Site the following environmental designations are also recorded: Ancient and Semi-Natural Woodland (Scorey's Copse) is adjacent to the north-western boundary of the study area.	Moderate Moderate	Enviro & Geo Insight Report (2024) - Appendix 2
4.3	Historical Mapping	Woodland comprising Scorey's Copse as above.	Low	Appendix 4
4.4	Walk Over Survey	Stream and pond adjacent to the eastern boundary. Woodland comprising Scorey's Copse as above.	Moderate Moderate	Appendix 5

5. GEOTECHNICAL & FLOOD RISK

Comments		References
5.1 Geology	<u>Made Ground / Worked Ground</u> No Artificial Ground is shown on-site or adjacent to the Site.	Enviro & Geo Insight Report (2024) - Appendix 2
	<u>Superficial Deposits and Landslips Map (Geologically Recent)</u> No superficial Deposits are shown to underlie the Site.	
	However, the previous investigation encountered firm to stiff, brown mottled light grey-brown, sandy, slightly gravelly CLAY where the gravel is disseminated sub angular, fine medium coarse flint & chert. This horizon was interpreted as Head* Deposits and was proved to depths of between 0.9m and 1.1m BGL. The gravel content was recorded as fine medium coarse, sub angular, flint & chert.	AIS Report AD804 (October 2024)
	<i>*Head is defined as poorly sorted and poorly stratified angular soil/rock debris and/or clayey hill-wash and soil creep, mantling a hillslope and deposited by solifluction and gelifluction and is dependent on the upslope source and distance from the source.</i>	
	<u>Bedrock</u> The study area is shown to be underlain by sandy Clay and Sand, Silt & Clay of the Wittering Formation.	AIS Report AD804 (October 2024)
	This was confirmed by the previous investigation which encountered, firm to stiff, brown mottled light grey brown & gleyed, locally sandy & silty, CLAY with a localised horizon of loose, light brown yellow, silty, fine SAND.	
	<u>Faults</u> There are no records of faults within 250m of the study area.	
	<u>Drainage</u> On-site permeability of the underlying bedrock deposits is documented as follows: • Intergranular flow type with a permeability range of between low & high.	
	Consistent with the above, testing from the previous investigation recorded no measurable soakage in two locations and a rate of 5.91 x 10 ⁻⁶ m/s in one location.	AIS Report AD804 (October 2024)
	<u>Historical Boreholes</u> No borehole information relevant to the Site is available from the BGS.	

5. GEOTECHNICAL & FLOOD RISK

Comments		References																											
5.2	Geohazards	An assessment of geo-hazard risk from the GeoInsight Report is summarised below:																											
		<table><tr><th>Hazard</th><th>Risk Assessment</th><th>Comment</th></tr><tr><td>Ground Workings</td><td>None</td><td></td></tr><tr><td>Mining, Extraction & Natural Cavities</td><td>None</td><td></td></tr><tr><td>Shrink Swell Clays</td><td>Moderate</td><td>Ground conditions predominantly high plasticity.</td></tr><tr><td>Landslides</td><td>Very low</td><td></td></tr><tr><td>Ground Dissolution</td><td>Negligible</td><td></td></tr><tr><td>Compressible Deposits</td><td>Negligible</td><td></td></tr><tr><td>Collapsible Deposits</td><td>Very low</td><td></td></tr><tr><td>Running Sand</td><td>Very low</td><td></td></tr></table>	Hazard	Risk Assessment	Comment	Ground Workings	None		Mining, Extraction & Natural Cavities	None		Shrink Swell Clays	Moderate	Ground conditions predominantly high plasticity.	Landslides	Very low		Ground Dissolution	Negligible		Compressible Deposits	Negligible		Collapsible Deposits	Very low		Running Sand	Very low	
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		Figure 6: Geo-hazard Risk Summary																											
5.3	Flood Risk	A full Flood Risk Assessment (FRA) is beyond the scope of this report. However, the Groundsure EnviroInsight Report indicates that the Site is outside any significant surface water Flood Risk Zones with a negligible surface water flooding risk assigned. The EnviroInsight Report documents an on-site <i>moderate</i> risk of flooding from groundwater with the exception of the margins of the eastern boundary (an lowest topography) which is recorded as <i>high</i>; however, in actuality this is outside of the development area.																											
		Enviro & Geo Insight Report (2024) - Appendix 2																											

	Comments	References
6.1 Pollutant Linkage Summary.	<u>Pollutant or Source (Solid / Liquid / Vapour Phase)</u> The statutory guidance for Part 2A of the Environmental Protection Act (1990) defines a contaminant as: <i>“A substance which is in, on or under the land which has the potential to cause harm or cause pollution of controlled waters”.</i> Based on the visual inspection (Walkover Survey) and review of available information, no significant, potential sources of contamination have been identified. However, additional investigation of the nature of possible fill material used in the landscaping of the playing field areas is recommended (Pollutant Linkage 01) <u>Pathway</u> The statutory guidance for Part 2A of the Environmental Protection Act (1990) defines a Pathway as: <i>“A route by which a receptor might be affected by contamination”.</i> Following preliminary risk assessment (PRA) it is considered that several potential pathways are present that could cause receptors to become exposed to contaminants (if present) and include: <i>Human Health</i> • Direct soil ingestion in areas of exposed soil; • Ingestion of soil attached to homegrown produce; • Ingestion of homegrown produce with contamination uptake; • Inhalation of indoor and outdoor vapours and dust; • Vertical and lateral migration of pollutants via unsaturated zone; • Migration of ground gas via intergranular permeability, drains or service runs; • Dermal contact with contaminated soil; • Lateral migration of impacted groundwater (groundwater flow). <i>Controlled Waters and Environment</i> • Migration/leaching of contaminants through the unsaturated zone; • Migration of contaminants through the groundwater; • Movement of contaminants through drains or services runs; <i>Infrastructure</i> • Leachable or corrosive contaminants within the soil; • Corrosive contaminants within the groundwater.	

	Comments	References
6.1 Pollutant Linkage Summary (Continued)	<u>Receptors</u> The statutory guidance for Part 2A of the Environmental Protection Act (1990) defines a receptor as: <i>“Something that could be adversely affected by a contaminant, for example a person, an organism, an ecosystem, property or controlled waters”.</i> The following most sensitive receptors may be considered relevant to this study: <i>Human Health – Long Term Exposure</i> • End users of the site - the future residents (future site users); • Nearby residents. <i>Human Health – Short Term Exposure</i> • Construction workers (during development) • General public (during development). <i>Controlled Waters and Environment</i> • Bedrock - Secondary A Aquifer underlying the site. • Stream & pond adjacent to north-eastern boundary. • Woodland adjacent to north-western boundary. • SSSI Impact Zone. <i>Infrastructure - Substructures</i> • Water supply pipes; • Below ground concrete (foundations / underground service structures. Based on the findings of this study, the conceptual site model complete with risk assessed pollutant linkages is presented in Appendix 7. In conclusion, no significant pollutant-source-pathway-receptor linkages have been identified by this study.	Appendix 7

6. CONCEPTUAL SITE MODEL & DISCOVERY STRATEGY (Continued)

	Comments	References
6.2	Discovery Strategy It remains possible that unexpected soil conditions may be encountered during the process of further investigation, site clearance, leveling and groundworks. Therefore, throughout the design and construction phases of the scheme a Discovery Strategy should be implemented, and appropriate records kept. Examples of potential hazards that may be encountered, include the following: • Oily pockets and dark patches within the soil; • Pockets of cement boarding or fibrous materials (e.g., asbestos); • Black ashy materials; • Soils exhibiting strong odours; • Brightly coloured staining or materials; • Buried structures & brickwork; • Buried tanks, containers, drums. Should previously undiscovered contamination be encountered, this should be reported to the Site Manager and appropriate expertise sought (e.g., Environmental Consultant). Records should be kept and if necessary additional investigation, testing and risk assessment carried out. The results of any additional work should be sent to the appropriate authorities and regulators for review and comment. Provisions should be made to ensure that all workers are made aware of their responsibility to observe, report and act on any potentially suspicious or contaminated materials they encounter.	

7. CONCLUSIONS & RECOMMENDATIONS

		Comments	References
7.1	Conclusions & Recommendations (Geoenvironmental)	7.1.1	Based on the information from the Desk Study and Walk Over Survey, no significant pollutant linkages have been identified, with respect to the proposed end-usage (<i>residential with home-grown produce</i>).
		7.1.2	A Conceptual Site Model (CSM) presenting potential pollutant to receptor linkages and assigned risks, has been developed and is appended.
		7.1.3	No evidence of asbestos containing materials (ACM's) were identified in exposed surface areas.
		7.1.4	The Phase 1 Desk Study has confirmed a low risk from naturally occurring radon gas with the Site falling within an area where less than 1% of properties are above the action limit. Therefore, no radon protection measures are necessary.
		7.1.5	It is recommended that the discovery strategy outlined in Section 6.2 (above) is implemented for all further investigation works, groundworks and construction phases of the development.
7.2	Conclusions & Recommendations (Geotechnical)	7.2.1	Geological Mapping shows the Site to be immediately underlain by sandy Clay & Sand Silt Clay of the Wittering Formation. This was consistent with the findings of a previous intrusive investigation, although a mantle of superficial Head Deposits comprising firm to stiff, gravelly Clay was initially encountered.
		7.2.2	It is likely that the presumed underlying superficial and bedrock strata of the Stair Hole Member is sufficiently competent to enable the design and construction of shallow spread foundations for low rise development. However, it is recommended that a comprehensive intrusive ground investigation is carried out to confirm soil strength, consistency and settlement characteristics of the underlying strata.
		7.2.3	With exception of a moderate shrink/swell risk, The ground stability and geo-hazard risk level has been determined as low with respect to the nature of the proposed development. The Clay of the Wittering Formation is potentially of high plasticity and whilst no current or historical desiccating vegetation has been identified, any future tree and shrub planting within the development area, should be in accordance with current NHBC Guidelines.

NHBC Standards
(2025)