

Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WMGR	Infilled Ground	Fill	Present Day - Present Day
	MGR	Made Ground (Undivided)	Fill	Holocene - Holocene

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	TILLD	Till, Devensian	Diamicton	Devensian - Devensian
	TILLD	Till, Devensian	Sandy Gravelly Cobbly Clay	Devensian - Devensian
	SSA	Shirdley Hill Sand Formation	Sand	Flandrian - Devensian
	GFDUD	Glaciofluvial Deposits, Devensian	Sand and Gravel	Devensian - Devensian

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	CPB	Chester Pebble Beds Formation	Pebbly (Gravelly) Sandstone	Scythian - Scythian
	WLSF	Wlmslow Sandstone Formation	Sandstone	Scythian - Scythian
	CPB	Chester Pebble Beds Formation	Sandstone	Scythian - Scythian
	PLOM	Pennine Lower Coal Measures Formation	Mudstone, Siltstone and Sandstone	Langsettian (Westphalian A) - Langsettian (Westphalian A)
		Faults		



Geology 1:50,000 Maps

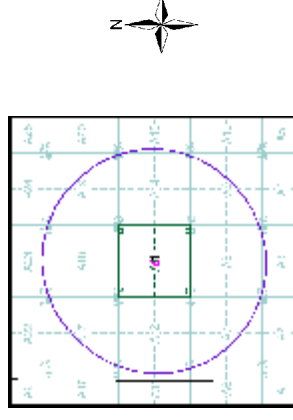
This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.

The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	187
Map Sheet No:	Runcom
Map Name:	187
Map Date:	1987
Bedrock Geology:	Available
Superficial Geology:	Available
Artificial Geology:	Not Available
Faults:	Available
Landslip:	Not Available
Rock Segments:	Available

Geology 1:50,000 Maps - Slice A



Order Details:

Order Number: 37754633, 1, 1
 Customer Reference: GRS0112-1458
 National Grid Reference: 340020, 390570
 Slice: A
 Site Area (Ha): 0.39
 Search Buffer (m): 1000

Site Details:

217 Broad Green Road, LIVERPOOL, L13 5SF



Tel: 0844 844 9952
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GEOENVIRONMENTAL

Risk

SOLUTIONS

Artificial Ground and Landslip

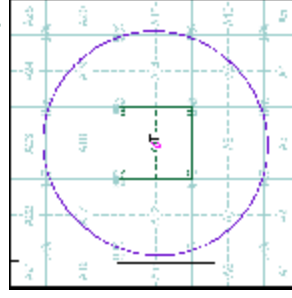
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- In-filled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landslipped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



Order Details:

Order Number: 37754633, 1.1
Customer Reference: GRS0112-1458
National Grid Reference: 340020, 390570
Slice: A
Site Area (Ha): 0.39
Search Buffer (m): 1000

Site Details:

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Bedrock and Faults

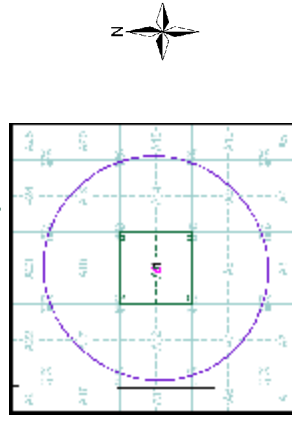
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets; for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A

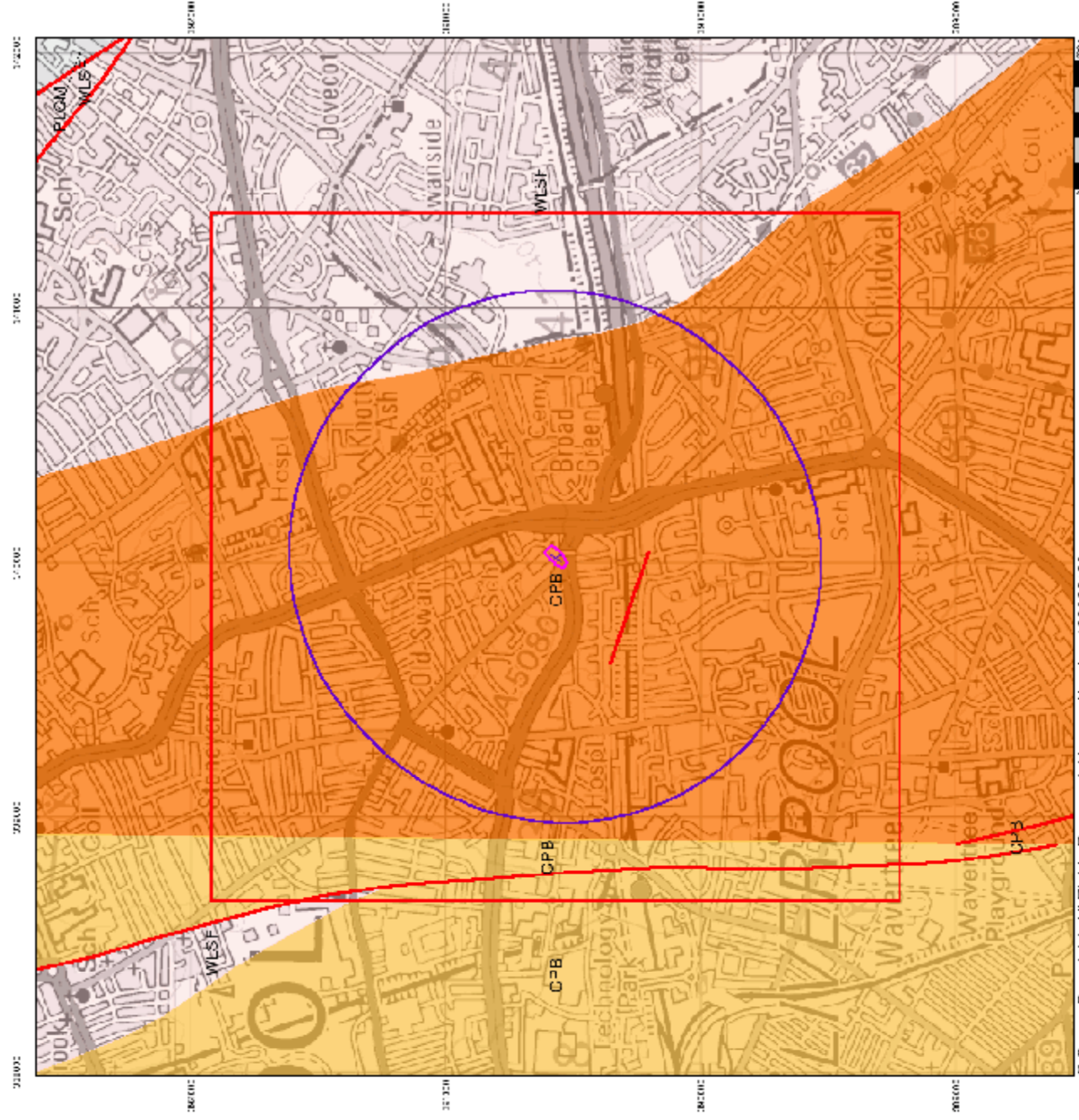


Order Details:

Order Details:
 Order Number: 37754633, 1, 1
 Customer Reference: GRS0112-1458
 National Grid Reference: 340020, 390570
 Slice: A
 Site Area (Ha): 0.39
 Search Buffer (m): 1000

Site Details:

Site Details.
217 Broad Green Road, LIVERPOOL, L13 5SF



Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

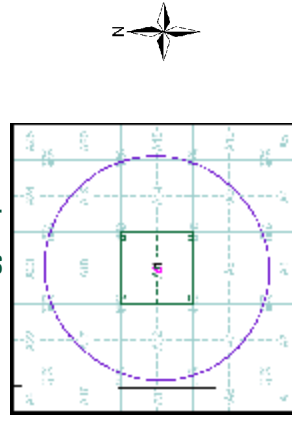
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

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website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details:

Order Details:

Order Number:	3775633_1_1
Customer Reference:	GRS0112-1458
National Grid Reference:	340020, 390570
Slice:	A
Site Area (Ha):	0.39
Search Buffer (m):	1000

Site Details:

217 Broad Green Road, LIVERPOOL, L13 5SF

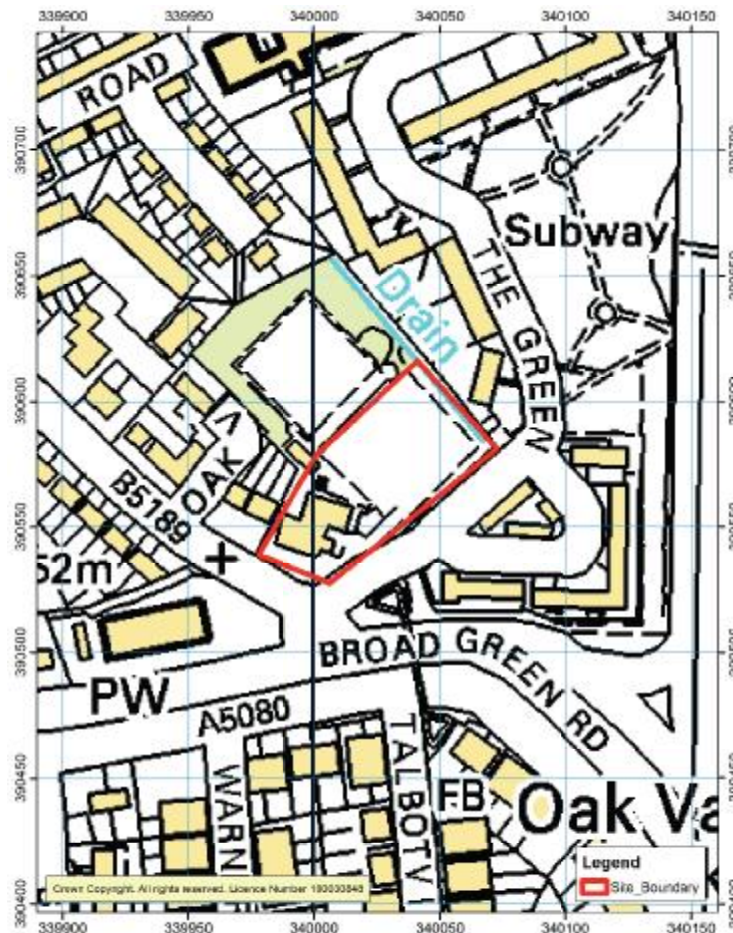
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Preliminary Unexploded Ordnance (UXO) Risk Assessment

Meeting the requirements of Phase 1 of CIRIA C681 "Unexploded Ordnance (UXO) – A guide for the Construction Industry" Risk Management Framework



6 Alpha Project Number: P2775

Landmark Order Number: 37762915_1

Client Reference: GRS01112-1458

Site: 217 Broad Green Road, Liverpool, L13 5SF

Originator: Graeme Warden (28th February 2012)

Quality Review: Gary Hubbard (28th February 2012)

Released by: Lee Gooderham (29th February 2012)

Delivered by



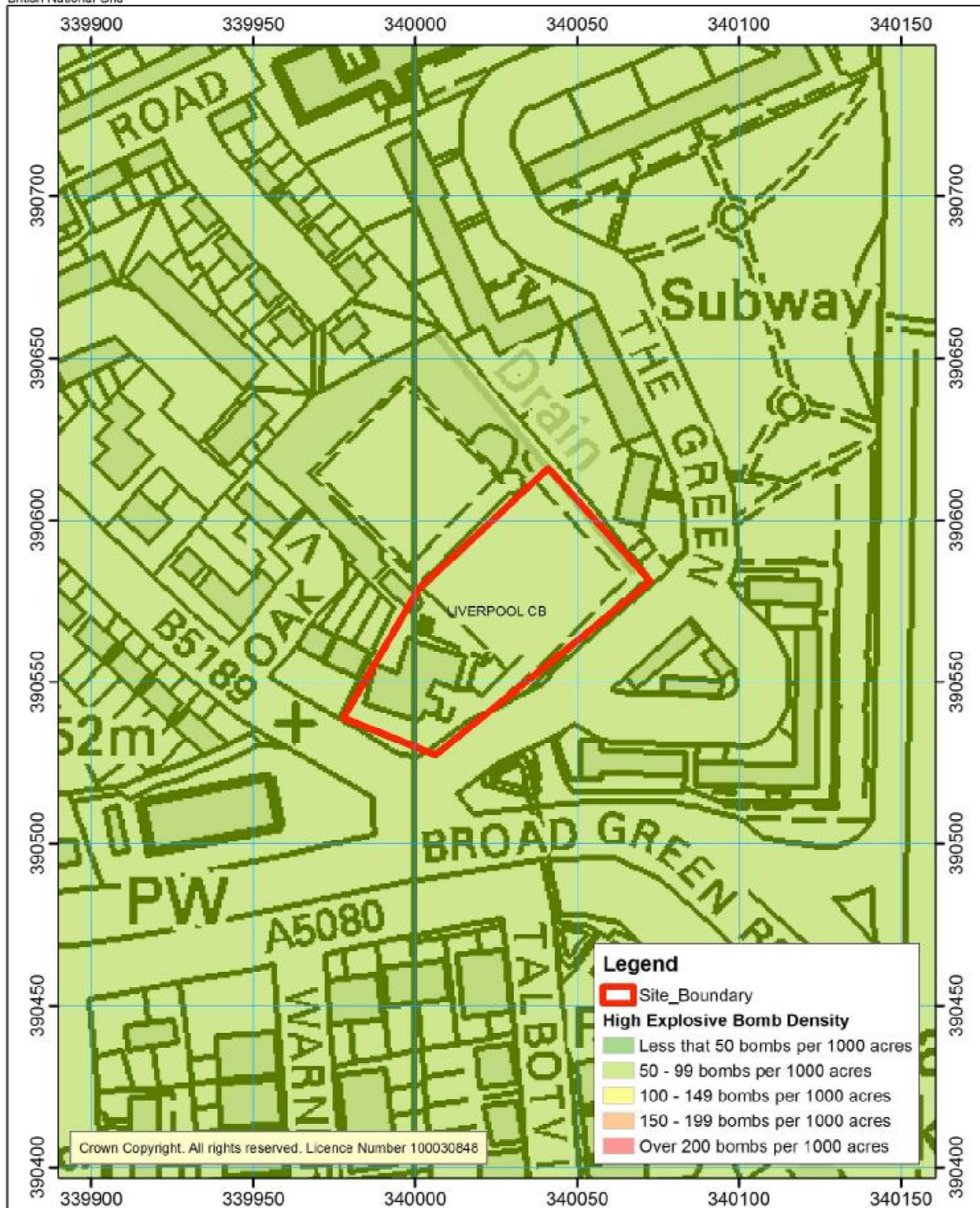
Site Address	The Client has specified the Study Site as “217 Broad Green Road, Liverpool, L13 5SF”. According to the geo-referenced Site boundary provided, this Site is centred on National Grid Reference 340020, 390570.		
Using This Report	<p>This Preliminary Assessment is designed to inform environmental and construction professionals of the potential threat of military related explosives and/or ordnance on, or in the vicinity of the Study Site.</p> <p>This assessment should be employed as an initial site-screening tool to meet with the requirement of Phase One of the CIRIA UXO Risk Management Framework; subject to the outcome, further detailed research (under Phase 2 of the same Framework) may then be required to confirm the final risk level. 6 Alpha can provide this service and any additional interpretation, if it is required.</p> <p>6 Alpha will provide two figures in the report, the Second World War (WWII) High Explosive Bomb Density and the final UXO Probability Assessment. The purpose of this approach is to demonstrate that whilst bomb density statistics set the scene for WWII bombing, they should not be relied upon exclusively to generate a holistic assessment.</p>		
Data Finding	The UXO database has been searched to 1,000m from the centre point of the Site. The data has been presented in both geospatial mapping software and tabulated format. For further information, please contact 6 Alpha.		
	Threat Source	Database Searched	Detail
	Records of current military facilities	Yes	None recorded on the Site.
	Records of historic airfield /military facilities	Yes	None recorded on the Site.
	Munitions or weapon manufacture/storage	Yes	None recorded on the Site.
	WWII decoy bombing site	Yes	None recorded on the Site.
	WWII military defensive feature	Yes	None recorded on the Site.
	WWII bombing targets	Yes	No primary targets have been identified in the vicinity of the Study Site. However, two “opportunistic” targets have been identified, <i>Broad Green Rail Station</i> was located 640m southeast of the Site and a “works” was located 670m west of the Site.
	WWII High Explosive (HE) bomb strikes	Yes	No HE bomb strikes have been identified on the Study Site. The nearest recorded HE bomb strike was approximately 900m west of the Site.
	WWII bombing density	Yes	The Study Site is located within the <i>Liverpool County Borough</i> , which recorded 79 HE Bomb strikes per 1,000 acres.
	Abandoned bomb register	Yes	None recorded on the Site.

Threat Potential	<p>UXO PROBABILITY ASSESSMENT = 3 RATING, INDICATING A LOW POSSIBILITY OF UXO ENCOUNTER</p> <p>The rating scale can be seen on the final UXO Probability Assessment Map. The data may indicate that there is a varying probability rating across the defined search area. Therefore, the percentage of each category has been calculated and assessed, and whilst lower risk zones have been identified within the locality, the highest risk rating has been determined at the specific site for UXO risk consideration. Therefore, the highest risk rating has been used for the final assessment and recommendations.</p>
Summary and Recommendations	<p>The Study Site is located within <i>Liverpool County Borough</i>, which recorded a bomb density of 79 HE bombs per 1,000 acres. There were no primary <i>Luftwaffe</i> bombing targets identified in the vicinity of the Site, although two “opportunistic” targets are situated nearby, a “works” located 670m west of the Site and <i>Broad Green Rail Station</i> located 640m southeast of the Site.</p> <p>Air Raid Precaution (ARP) mapping identifies that there were no HE bomb strikes recorded on the Site, the nearest recorded HE bomb strike is located approximately 900m west of the Site. Given the comprehensive data sets available for the area, there has been no evidence located to suggest the probability for a UXO encounter is elevated above that of low.</p> <p>In light of these findings and accordance with CIRIA’s publication on managing UXO risks, 6 Alpha recommends that no further action is warranted to address the level of UXO risk at this site.</p>
Important Notes	<ol style="list-style-type: none"> 1. The term “Preliminary UXO Risk Assessment” has been used to describe this report, to fall inline with the CIRIA publication. Whilst the term “Risk” can be justifiably used at this stage, the reader should note that the “Consequence” function of “Risk” is not considered. Should it be required, this would be addressed in the “Detailed UXO Risk Assessment” (Phase 2). 2. This report is accurate and up to date at the time of writing. 3. The assessment levels have been generated from historical data and third party sources. Where possible 6 Alpha have sought to verify the accuracy of such data, but cannot be held accountable for inherent errors that may be in third party data sets (e.g. National Archive or library sources). 4. 6 Alpha have exercised all reasonable care, skill and due diligence in producing this service. 5. Empirical units may be used in the assessment given the era of the source data. 6. Whilst every effort has been used to identify all potential UXO/explosives threat, there were a number of private facilities commandeered, during both World Wars, to support the war effort in munitions production. It is therefore possible that some of the aforementioned sites may not be included within the database.

217 Broad Green Road, Liverpool, L13 5SF WWII High Explosive Bomb Density

Figure 1

British National Grid



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0 5 10 20 30 40 50 Meters

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Project Number: P2775

Drawn By: Dominique René

Checked by: Lee Gooderham

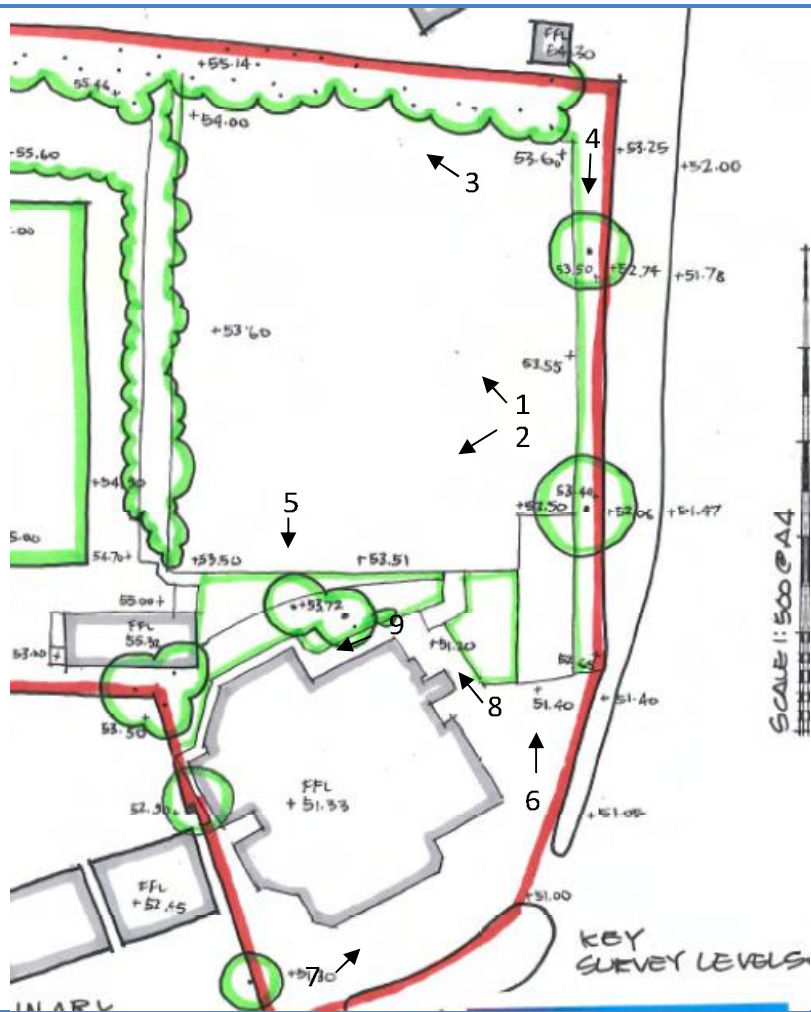
Date: 28th February 2012

Figure 2

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Rating 9 HIGH

Date: 28th February 2012



Current Site Layout Showing Photo Locations



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9