



Priority School Building Programme

Mill Green School Geo-environmental Desk Study

January 2013
Education Funding Agency


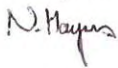

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Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
A	January 2013	G Miles 	N Haynes 	H Brocklebank 	First Issue

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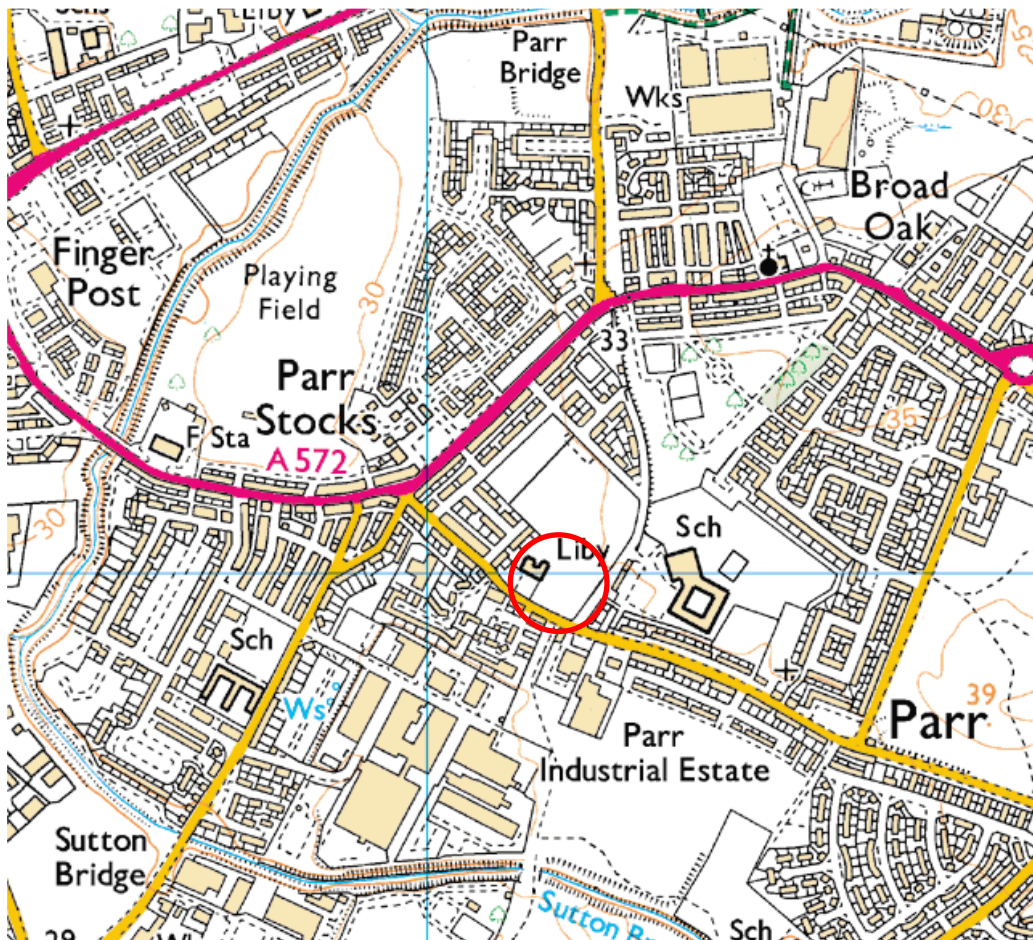
1. Introduction

As part of the Priority School Building Programme (PSBP), the Education Funding Agency (EFA) proposes to relocate Mill Green School to the vacant site of the former Parr High School, off Lansbury Avenue, St Helens, Merseyside, WA9 1TB. Mott MacDonald has been commissioned by the EFA to provide a Geo-environmental Desk Study for the proposed new site of Mill Green School to inform the development of the feasibility study for the proposed construction of the new school.

The proposed new school site is bounded by Lansbury Avenue to the East, Simms Avenue to the North, Evelyn Avenue, Stocks Avenue and Mather Avenue to the West and Fleet Lane to the South. The proposed location of the new Mill Green School is shown below in Figure 1.1.

The proposed site for the new Mill Green School has previously been investigated for development back in 2003 by private developers and in 2008 for St Helens Borough Council (SHBC) as part of the former Labour government's BSF scheme. SHBC have made available the ground investigation data from the 2003 investigation; the 2008 ground investigation data was already held by Mott MacDonald but has not been formally obtained through SHBC. None of the investigation data is currently warranted to PSBP.

Figure 1.1: Proposed new location of Mill Green School



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The existing site layout is shown in Appendix A with the proposed new school layout shown in Appendix B.

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2. Summary of Phase 1 Assessment

Table 2.1 summarises the findings of the Phase 1 Geo-environmental Assessment. The sources for the information below are contained in the appendices and the Envirocheck report in Appendix F.

Table 2.1: Desk study findings

Site Location		The proposed new site of Mill Green School is located within the Parr area of St Helens, Merseyside WA9 1TB. The new school will be located at National Grid Reference (NGR) 353230, 395090.
Site Description		The proposed site is detailed in Appendix A and has an area of 7 Ha. The site is currently a derelict site with all previous buildings on site having been demolished, however, previously Parr High School was situated on site. Surrounding the site Parr Industrial Estate lies to the south and to the north and west of the site residential properties are situated with occasional areas of playing fields. To the east of the site lies Lansbury Bridge School and Sports college which was constructed in 2005.
Site Walkover		<p>A site walkover survey was undertaken by Mott MacDonald at the site on the 9th January 2013. The site walkover plan and associated photographs are included in Appendix C.</p> <p>At the time of the site walkover the site was unoccupied. The most recent use of the site was the former Parr High School which was demolished in the early 2000's.</p> <p>The surface covering of the site is typically tarmacadam however this is occasionally broken up by vegetation breaking through. Towards the eastern side of the site the surface covering is grass with the topography relatively flat. Historical maps have indicated that this was likely to be the location of the former school playing fields. To the west of the site the majority of the cover is grass however there is occasional tarmacadam areas. Surrounding the boundary of the site there are several mature trees and towards the West of the site there are several isolated trees approximately 5.0 m in height. To the south of the site there is a mature tree approximately 15 m in height.</p> <p>The main access to the site is via a double gate off of Lansbury Avenue however an additional access gate is situated off of Evelyn Avenue but is likely to be unsuitable for vehicular access.</p> <p>There is an existing electrical sub station situated on the Western boundary of the site however access to this is gained off Stocks Avenue in the residential estate immediately to the west of the site.</p>
Topography		<p>The topography of the site is variable with flat areas and sloped areas, the level of the site varies between 99.0 to 101.0 m AOD. The area of the former school playing field towards the east of the site is flat with a level of approximately 101.0 m AOD. Towards the North and North East of the site the site boundary has a slope of approximately 5° with a ground level ranging between 100 to 101 m AOD.</p> <p>Within the centre of the site there is a level difference of upto 2.0 m between the former school playing fields to the east of the site and the former Parr High Girls school to the north of the site.</p> <p>Towards the east of the site and the adjacent Lansbury Avenue the ground levels are approximately the same however to the north west of the site and Evelyn Avenue the level difference is approximately 1.5 to 2.0 m.</p>
Published Geology	Superficial Deposits (1:50 000)	Reference to the BGS Geological Survey website http://www.bgs.ac.uk/home.html indicates that the site is underlain by superficial Glacial Till deposits (Diamicton).
	Solid Deposits (1:50 000)	Reference to the BGS Geological Survey website indicates that the Solid deposits likely to be present on site will consist of the Pennine Middle Coal Measures including the Ravenhead Rock Sandstone. Published geological mapping also indicates significant N-S trending faulting exists within the area. 3No coal seams are indicated to sub-crop beneath the Glacial Deposits across the site, trending SSW-NNE; the Lower Pigeon House seam running across the northern site area, and the younger Higher Florida and Lower Florida seams sub-cropping beneath the south eastern site area. The solid geology is believed to have between a 10-20° dip towards the SSE, hence the geological records suggest that a further 6-10 coal seams, extending down to the Little Delf seam at a depth of approximately 170m, may be encountered beneath the site.

Historical Exploratory Information	There have been two previous ground investigations undertaken on site by Rotary Test Drilling (RTD) Ltd in 2003 and Fugro Engineering Services Ltd in 2008. The following ground model has been indicated on site from these two previous ground investigations:			
	Strata	Typical Description	Depth (mbgl)	Thickness (m)
	Surfacing	<p>Blacktop Areas: These were not investigated however it is assumed that the pavement will typically comprise 100-150mm blacktop overlying 100-300mm limestone hardcore. (MG Pavement)</p> <p>Grass Areas: 100-300mm topsoil (Topsoil)</p>	0.00 – 0.10/0.40m	0.1-0.40
	Made Ground	<p>Made ground deposits across the site are variable; typically Made Ground depths may be anticipated to be <1m thick. Two areas appear to possess greater Made Ground depths, possessing distinct material compositions and sources, namely variable demolition waste and colliery spoil – these are described below. Elsewhere the Made Ground composition is variable between the two types described below:</p> <p>Demolition waste located within areas of former school buildings (NE and S of site area): (RTD: TP5, BH1, Shaft Location B) (Fugro: TP6, TP8 and TP9) - typically composed of grey and red, sandy, gravely brick and concrete cobbles, with fragments of timber, metal and coal.</p> <p>Colliery waste located within areas of historical coal pit workings or raised land (S of site area and W of site area respectively): (RTD TP2, BH2, BH4, BH7, R2, R5) (Fugro: TP1, TP5, TP7) - typically composed of soft to firm and firm dark grey sandy, gravely clay with gravel of mudstone and coal. Locally overlain by dark grey, very gravely fine to coarse sand of ash (Fugro TP5).</p>	0.10/0.40-0.30/1.00m	0.30-0.90
	Glacial Till	Firm to stiff, red brown to orange brown, mottled grey, slightly sandy slightly gravely CLAY. Sand is fine to coarse. Gravel is subrounded to rounded, fine to coarse, of mixed lithologies. (Glacial Till). Locally with fine sand bands towards the base.	0.20/3.70 - 5.30/11.50m	5.10 - 10.60m
	Bed Rock	Depth to bedrock increases from 5m at the northern site boundary to approximately 11m at the southern site boundary.	5.30/11.50m – Base not proven	Base not proven
		<p>Weak to medium strong fine and medium grained Siltstone/ Sandstone/ Mudstone moderately weathered with occasional coal bands.</p> <p>Coal seams were encountered within 4 boreholes (RTD: R2, R3, R4 and Fugro</p>		

	<p>BH1); at least 4 coal horizons appear apparent, assuming a strata dip of 10-20° to the SE, however the upper two of these possess thicknesses of 0.1-0.2m, and hence are unlikely to have been economically viable to work; the lower seams as detailed below, are of sufficient thickness to have been worked.</p> <p>Coal Seam 1: Typically 0.7-1.2m thick located at following locations and depths (RDT: R2 (6.9-7.6m), R3 (16.6-17.8m), R4 (25.00-26.90m): Fugro BH1: (25.5-26.5m)</p> <p>Coal Seam 2: Located in RDT R2 only (12.50-12.90m).</p> <p>Groundwater</p> <p>Groundwater strikes were encountered at 18mbgl (BHMGO1), 7.40mbgl (BH2), 4mbgl (BH3), 6.8mbgl (BH4), 6.5mbgl (BH5), 6.8mbgl (BH6), 7.2mbgl (BH7) and 8.5mbgl (BH8) within the Glacial deposits. Shallow seepages were encountered in Fugro TP's 2,5,7 and 8 at depths of 3.00-2.50mbgl. Long-term RTD monitoring of the full ground sequence in 2003-2004 encountered groundwater at 3.20-4.50mbgl. Long-term monitoring of BHMGO1 at the Glacial Till/Bedrock interface encountered groundwater at 0.90-1.90mbgl, hence it is considered that at depth some confinement of groundwater may be evident.</p> <p>Reports from the previous two ground investigations undertaken on site are presented in Appendix G and H.</p>
<p>Geotechnical Risks</p>	<p>The Envirocheck Report from August 2008 highlighted the following potential for geological stability hazards :</p> <ul style="list-style-type: none"> ▪ Collapsible ground: No Hazard ▪ Compressible ground: No Hazard ▪ Ground dissolution: No Hazard ▪ Landslide: Very Low (SW) ▪ Running sand: Very Low (SW) ▪ Shrinking or Swelling: Very Low (SW) ▪ Coal Mining – In an area which may be affected by coal mining activity shallow mining hazard recorded as Low-Moderate <p>Coal Mining</p> <p>Historical maps and the ground investigation undertaken by Rotary Test Drilling (RTD) Ltd (2003) states that “extracts from the 2nd edition (circa 1930's) Geological Survey Map shows the site to be occupied by Parr Stocks Colliery, with one mine shaft within the site boundary. A Coal Authority Report included within Appendix I confirmed that the site is underlain by coal workings of 8 seams from shallow to 580m depth, last worked in the 1930's. The Coal Authority report shows two mineshafts within the site boundary. RTD's 2003 ground investigation attempted to locate these shafts utilizing a grid pattern of boreholes at the recorded shaft locations, however these failed. As part of the previous 2008 BSF scope of works Mott MacDonald contacted the Coal Authority officer for St. Helens and it was confirmed at the time that the coal authority held no further information in relation to these mineshafts.</p> <p>As part of the FES Ltd (2008) ground investigation a geophysical survey by electromagnetic conductivity and magnetic survey was undertaken over the southern site area to attempt to determine the presence or otherwise of mine shafts. The survey</p>

		identified anomalies in 5 No areas, interpreted as “possible mineshafts”, with a further 12No anomalies identified as “possible mineshaft-less likely”. Several of the anomalies were subsequently investigated by mechanical excavator; in each case the anomaly appeared to represent a localised increase in Colliery Spoil depth, as opposed to a backfilled shaft.	
Hydrogeology		<p>The Environment Agency classify the Middle Coal Measures bedrock to be a Secondary ‘A’ aquifer which are described as 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.</p> <p>The overlying glacial till deposits are classified as unproductive strata. These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow. These were previously referred to as Non Aquifers.</p> <p>Information obtained from the Environment Agency web site indicates the site is not within 1 km of a groundwater source protection zone.</p>	
Hydrology		<p>Within the Envirocheck report purchased for the site in August 2008 the South West of the site is shown to be within an area at risk from extreme flooding from rivers and sea without defences (Zone 3) relating to Sankey Brook situated 550 m to the east of the site boundary . It should be noted however that following a review of the Environment Agencies website the site is no longer shown to be in an area at risk from flooding by rivers and sea.</p> <p>The nearest surface water feature is shown as Sutton Brook which is situated 365 m to the South of the site boundary.</p>	
Site History	1849 (1:10,000 scale)	An old coal pit is shown towards the South of the site. There are several North to South orientated railway tracks running through the site and Broad Oak branch railway is shown running down the eastern boundary of the site. Parr Stocks Colliery is shown immediately to the West of the site. The remaining surrounding land use appears to be fields. A shaft is shown approximately 50 m to the south of the site. Sankey Brook colliery is shown approximately 200 m to the North West of the site.	
	1894	1:10,000 scale	The site is shown as having a reservoir in the centre. The Blackbrook and Broad Oak branch railway lines are shown running from North to South across the East of the site. Fleet Lane and Chancery Lane are shown to the South West and North west of the site respectively.
		1:2,500 scale	A colliery is shown immediately to the North of the site with areas of colliery spoil heaps. Ramford Brick and Tile works is shown to the South of the site boundary with areas of spoil heaps. There are several small buidlings inside the southern boundary of the site.
	1908 (1:2,500 scale)	The reservoir is still shown in the middle of the site and to the North of the site two shafts are shown associated with Coal mining with evidence of spoil tips shown adjacent to the shafts likely to be colliery spoil tips. Gaskell park is shown off site to the North East. Surrounding the site there has been further residential development and industrial development. There appears to be evidence of spoil tips approximately 100m to the East of the site boundary this is likely to be related to colliery spoil.	
	1909 (1:10,000 scale)	The reservoir is still shown at the centre of the site. Two old shafts are shown to the North and North East of the site. Ramford Brick and Tile works is shown outside of the site boundary immediately to the South. Broad oak branch and Blackbrook branch are still shown on site. There appears to be further residential developments situated along Chancery Lane and Parr Stocks Road. The surrounding land use appears to be developing with further collierys, chemical works being shown. An Electro chemical works is shown approximately 350 m to the North West of the site boundary. Surrounding the site there appears to be significant areas of mounded earth possibly colliery spoil tips. Ashton Green colliery is shown 500 m the south east of the site boundary.	
	1928 (1:2,500 scale)	The reservoir is no longer shown in the centre of the site and Ramford Brick and Tile works is no longer shown. Only one of the coal mining shafts is shown within the North of the site boundary and the colliery spoil tips immediately to the North of the site have reduced in size. The spoil tips 100 m to the East of the site are still shown. Within the 1928 to 1929 (1:10,000 scale) map the Broad Oak Branch and Blackbrook branch railway lines are still shown to on the eastern side of the site.	

	1956 (1:10,000 scale)	Two schools are shown within the site boundary to the North and South. It is understood that these are the former boys and girls schools of Parr High School. There has been further residential development surrounding the site. There are now no shafts marked on the site. Lansbury Avenue is now shown on the Eastern boundary of the site.
	1958 – 1959 (1:1,250 scale)	Parr Central County Secondary Girls school and Boys school is now shown on site with the remainder of the site used as school playing fields. Parr Industrial Estate is shown to the South West of the site. The area to the North of the site where the two former colliery shafts were located have now had residential developments and roads constructed on top. There are several small mounds of material shown on site towards the South East, South West and North West. There has been further residential development surrounding the site. There are still spoil tips shown approximately 150 m to the South East of the site with areas of marshy ground now shown adjacent to the spoil tips.
	1964 – 1974 (1:1,250 scale)	Parr Secondary Girls and Boys schools have now been merged and there has been development of the school on site with additional buildings connecting the two schools. Tennis courts are now shown on site and the school playing fields appear to have been reduced possibly replaced by hardstanding associated with the school. The electrical sub station is now shown in its current location on the western boundary of the site. The spoil tips and marshy area which were shown to the East of the site have now changed into playing fields with a Primary school and residential development being built. To the North West of the site there has been further residential development. Parr Industrial estate to the South of the site now shows an Engineering Works, Clothing Factory and Glove Factory. Blackbrook railway branch is no longer shown.
	1965 (1:10,000 scale)	There has been significant amounts of residential development surrounding the site.
	1982 – 1992 (1:10,000 scale)	There has been an expansion of the school building to the south of the site and Tennis courts are now shown on the West of the site.
	1994 (1:1,250 scale)	The only change is a community centre is now shown within the southern part of Parr High School with the building being extended.
	1999 (1:10,000 scale)	There has been further change to the school building to the South of the site.
	2008 (1:10,000 scale)	Following school closure in 2002 both schools have now been demolished and all that is shown on site is Parr Library
	Present	Refer to site description during the site walkover survey
Industrial Land Use	<p>From the 2008 Envirocheck report there is one Contemporary Trade Entry's located on site and sixteen within 250m of the site and eleven within 500m. The contemporary trade entry which was shown to be on site is shown as inactive and was classified as industrial services. Some of the trade directory entries which have been shown to be within 500 m of the site and were recorded as active consisted of precision engineers, engineering machine services, general engineers, waste disposal services, bath resurfacing, recycling centre, roller shutter manufacturer, pallets crates and packing cases, service car body repairs, Some of the inactive entries within 500 m of the site included Industrial services, engine rebuild and reconditioning, sheet metal work, vehicle bodybuilders and repairs, clothing manufacturer, waste disposal service and medical waste disposal.</p> <p>The 2008 Envirocheck report indicated three Fuel Station Entries within 1 km of the site. The closest fuel station entry was situated 458 m to the west of the site and recorded as a petrol station. The status has been recorded as open.</p> <p>An Electrical sub station is shown to be present to the West of the site.</p>	
Local Authority Pollution and Prevention Control within 500m	Eight Local Authority Pollution Prevention and Controls have been recorded within 1 km of the site. These have been related to blending, packing loading and use of cement , furnaces for the extraction of non ferrous metal from scrap, waste oil burners and a petrol filling station.	
Water Abstraction / Discharge Consents within 500m	There are sixty six discharge consents recorded between 500 to less than 1 km from the site. These are typically recorded as storm sewage overflows into the Sutton Brook, Sankey Brook and Black Brook.	

	<p>There is one Water Abstraction within 1 km of the site and 11 within 2 km of the site. The closest water abstraction point is situated 968 m to the North of the site. The source of the abstraction is stated as the canal and the licence has since been revoked.</p>
Pollution Incident to Controlled Waters within 500m	<p>There are three Pollution Incidents to Controlled Waters within 500m of the site. The closest pollution incident is 208 m to the South West of the site. The pollutant was noted as being foam which appears to have been used to treat a fire at the site. The incident was classified as category 3 minor incident. The remaining two pollution incidents were situated 243 m to the SE of the site and 488 m to the SW of the site both incidents were classified as category 3 with the pollutant being Alkali chemicals and hydraulic oils respectively.</p>
Waste related activities	<p>There are five historical landfill sites recorded within 1 km of the site. The closest is 168 m to the West of the site and is known as Parr Stocks landfill site. The specified waste was not stated and the last input date is not provided. The four remaining landfill sites are situated between a distance of 655 to 979 m away from the site. Where stated the waste is indicated as including Household waste, Commercial Waste and Unknown material.</p>
Sensitive Land Uses and Statutory Designations	<p>There are no Sites of Special Scientific Interest (SSSI) within 500m of the site. Two areas of adopted Green belt are shown to be situated 543 m to the NE of the site and 761 m to the SE of the site. There are two local nature reserves situated within 1 km of the site. One nature reserve is situated 685 m to the N and one is situated 803 m to the SE.</p>
BGS Recorded Mineral Sites	<p>The Envirocheck report indicates that there are 6 recorded mineral sites within 1 km of the site. One of the mineral sites is stated as being Ashton's Green Colliery and is situated 421 m from the site.</p> <p>The site has historically been subject to coal mining with the 1849 OS Plans detailing an old coal pit and well over the southern site area and OS Plans from 1909 onwards detailing a line of old coal shafts to the immediate north of the site boundary.</p> <p>Neighbouring collieries included Parr Stocks Colliery, Ashton Green Colliery and Broad Oak Colliery. In addition a reservoir is located centrally to the site between OS Plans for 1894 through to 1926</p>
Unexploded Ordnance (UXO)	<p>The regional unexploded bomb risk map indicates that the proposed site for the new Mill Green School is in an area at moderate risk from possible Unexploded Ordnance (UXO) resulting from the Second World War (WWII).</p> <p>http://www.zetica.com/productsandservices/download_merseyside.htm</p>
Radon Potential	<p>The proposed site is not in a radon affected area, as less than 1 % of homes are above the action level.</p> <p>No radon protective measures are necessary in the construction of new dwellings or extensions in the area of interest.</p>

3. Qualitative Contamination Risk Assessment

The primary regulatory regime under which contaminated land is managed in the UK is Part IIA of the Environmental Protection Act (EPA), 1990. The framework for the assessment of potential land contamination adopted in this report is based on current guidance documents regarding the implementation of Part IIA of the EPA and the assessment of potentially contaminated land, with particular reference to: Contaminated Land Research Report SC050021/SR2/ SR3 and British Standard (BS) 10175:2011.

Contamination and environmental considerations are studied by developing a conceptual model of the site that describes the environmental features of the site together with the expected interaction of potential contamination sources and the wider environment. The potential sources of contamination on the site are reviewed and the potential risks to sensitive receptors are presented through a Qualitative Risk Assessment (see Appendix D for more details).

A key element of an environmental risk assessment is the development of a conceptual model which is done by undertaking a Source –Pathway – Receptor analysis of the Site:

Sources (S) are potential or known contaminant sources e.g. a former land use;

Pathways (P) are environmental systems thorough which a contaminant could migrate e.g. air, groundwater;

Receptors (R) are sensitive environmental receptors that could be adversely affected by a contaminant e.g. site occupiers, groundwater resources.

Where a source, relevant pathway and receptor are present, a pollutant linkage is considered to exist whereby there is a circumstance through which environmental harm could occur and a potential environmental liability is considered to exist.

The Conceptual model for the proposed new Mill Green School site is presented in Table 3.1. The model has been constructed from the available information summarised in this report.

Table 3.1: Summary of Conceptual Model Results

Source	Receptor	Pathway	Consequence	Probability	Risk	Comments
S1: Historical mining activities including colliery spoil on site S2: Backfill to Pond/Drainage Ditch (Circa 1950)	R1: Groundwater residing within the Made Ground/Glacial Deposits	P1: Horizontal and vertical migration of contamination through the potential permeable soils and variably permeable geological formations	Mild	Low Likelihood	Low Risk	Groundwater seepages have been recorded within the Made Ground encountered on site. Although the Middle Coal Measures have been classified as a secondary A aquifer the overlying Glacial deposits have been classified as an unproductive strata due to their low permeability therefore there is unlikely to be significant vertical migration of contamination. Due to the inherent variability in the thickness of the Made Ground on site once again there is unlikely to be any significant horizontal migration of contamination. Based on this information the risks to groundwater beneath the site is considered to be LOW .
	R2: Surface water	P1: Horizontal and vertical migration of contamination through the potential permeable soils and variably permeable geological formations P2: Surface runoff	Medium	Low Likelihood	Moderate	It is possible that surface water may be at risk from surface run off from areas of hard standing. The nearest surface water is 365m from the site, however it is likely that run off will flow into surface drains. Based on this information the risks to surface water is considered to be MODERATE .
S3: Demolition waste from former Parr High School buildings	R3: Sub-surface infrastructure	P1: Horizontal and vertical migration of contamination through the potential permeable soils and variably permeable geological formations P6: Direct contact	Mild	Likely	Moderate	Previous tests on soil samples recovered during historical ground investigations have indicted an Design Sulphate classification of DS-4 with an Aggressive Chemical Environment for concrete of AC-3s. Therefore the risk to buried concrete has been confirmed as MODERATE .
S4: Leakage from existing/abandoned drains	R4: Flora and Fauna	P3: Root uptake	Mild	Likely	Moderate	Given the presence of colliery spoil and demolition waste at shallow depths across the site the risk to Flora and Fauna is considered to be MODERATE .
S5: Electrical Substation on site	R5: Construction and maintenance workers	P4: Human uptake pathways. P5: Vertical and lateral migration of volatile vapours and ground gas.	Medium	Likely	Moderate	It is highly likely that construction workers will come into contact with soils and ground gas during site works and until further information on the contamination status of the site has been obtained, the risk should be considered to be MODERATE .

Source	Receptor	Pathway	Consequence	Probability	Risk	Comments
	R6: Final end users	P4: Human uptake pathways. P5: Vertical and lateral migration of volatile vapours and ground gas	Mild	Low Likelihood	Low	Following the works, end users at the school are unlikely to come into contact with the soils at the site. Assuming that any necessary remedial works are undertaken prior to development, the risks to final end users should be considered to be LOW .

4. Potential of Ground Related Constraints to Proposed Development

The following table identifies potential constraints posed by ground related risks to the proposed development at Mill Green School. The risks shown below are also presented in a geo-environmental risk plan in Appendix E

Constraint	Explanation	Consequence
Made Ground	- Historical ground investigations undertaken on site have indicated Made Ground to be present in some areas to a depth of 3.7 m. The Made Ground has typically either been colliery waste or demolition waste or a combination of the two.	- Made Ground can be contaminated and can cause excessive differential settlement and damage to structures.
Previous Coal Mining on site	- Historical plans have indicated that former mine shafts are situated on site and a Coal Authority report obtained as part of this desk study has indicated that the site was underlain by coal workings of seams from shallow to 580m depth and were last worked in the 1930's	- Potential for ground gas - Potential for subsidence/ground collapse at ground surface from collapse of mine shafts or underground mine workings. As shown within the geo-environmental risk plan the proposed location of Mill Green School is immediately adjacent to the two suspected mine shafts. It should be noted that previous ground investigations undertaken on site have not encountered any shaft or shallow mine workings however this is not conclusive evidence of no shallow workings being present if boreholes have penetrated through unworked pillars within former shallow workings.
Groundwater	- Previous ground investigations on site have indicated that groundwater was encountered within the Glacial deposits between a depth of 4.0 to 8.5 m bgl. Shallow seepages were also encountered within the Made Ground and glacial deposits between a depth of 2.5 to 3.0 m bgl	- Excavation below the water table will lead to ingress of groundwater. Excavation sidewalls could become unstable and collapse. Therefore, groundwater control measures will have to be considered for excavations below the water table.
Buried foundations of former structures on site	- Existing underground infrastructure present on the site.	- Subsurface obstructions could be present due to previous structures being present on site i.e. Parr High School. It should be noted that the current location of the proposed new Mill Green School will sit over the former Parr High Boys School therefore there is a distinct possibility of encountering buried former foundations.
Existing services	- As Parr High school was previously situated on site there could well be former utilities present across the site.	- Potential hazard during construction if existing utilities are not fully determined on site

5. Conclusions and Recommendations

The following provides recommendations to mitigate those constraints identified by the Phase 1 Geo-Environmental assessment and the available ground investigation data for the site.

5.1 Further Assessment/Consultation

Geotechnical assessment: At the time of compiling this desk study it was understood that the new school will be a single storey structure situated over the footprint of the former Parr High Boys school therefore there is a distinct possibility of encountering former buried foundations. Dependant on the likely structural loads shallow foundations within the Glacial Till may be suitable.

Where the proposed building encroaches into areas of possible former mine shafts then these areas should be investigated further to confirm if the shaft exists. It should be noted however that during the 2003 RTD ground investigation the presence of a shaft was not encountered during a series of probe drilling boreholes undertaken in a grid arrangement and a shaft was not encountered during the 2008 ground investigation. A further ground investigation should be carried out over the proposed footprint of the new school to assess the ground conditions and in particular provide further information on the depth and distribution of shallow coal seams.

Soil Agressivity : In accordance with BRE Special Digest 1 (2005) Table C2 (assuming a brown field site with pyrite) the results of 12 soil samples of Glacial Till and Made Ground and 7 samples of groundwater from previous ground investigations undertaken on site has indicated a Design Sulphate Classification for shallow foundations (i.e. <3mbgl) of DS-1, with an Aggressive Chemical Environment for Concrete (ACEC) Class AC-1s. It is recommended that further samples of Made Ground and Glacial Till are recovered during additional ground investigation works in order to confirm the above results.

Contamination assessment: Contamination data from previous ground investigations undertaken on site has indicated elevated levels of Arsenic, and Nickel with one elevated sample of speciated hydrocarbon. It is recommended that as part of any additional ground investigation further samples of Made Ground and Glacial Till should be sampled and tested for a range of contaminants in order to undertake a site specific contamination risk assessment taking into account the proposed development.

Ground Gas: Previous ground investigations undertaken on site have indicated areas of colliery waste and underlying coal seams (possibly worked), which could be a source for gas production. Gas monitoring from previous ground investigations has recorded low concentrations of Carbon Dioxide, with a low flow rate. No further potentially hazardous gases were detected. It is recommended however that the likely ground gas concentrations be re-assessed as part of any additional ground investigation undertaken.

Underground Utilities: Existing utility survey information for the site indicates that there are some utilities which encroach onto the site. A GPR survey is recommended before any intrusive works are undertaken in order to reduce the risk of encountering underground utilities.

UXO: The regional unexploded bomb risk map indicates that the proposed site for the new Mill Green School is in an area at moderate risk from possible Unexploded Ordnance (UXO). It should be noted however that given the previous Parr High School was constructed on site post WWII hence it is expected that any buried ordnance would have been encountered during construction of these schools and therefore it is considered that the UXO risk is low.

Drainage: Given the cohesive nature of the underlying glacial deposits shallow soakaway drainage is not expected to be suitable for the site. The variable nature and contamination status of the Made Ground will also prohibit the use of shallow soakaway drainage.

5.2 Intrusive ground Investigation

Given the existing ground investigation data which exists for the site and the location of the proposed development the following additional ground investigation scope is recommended:

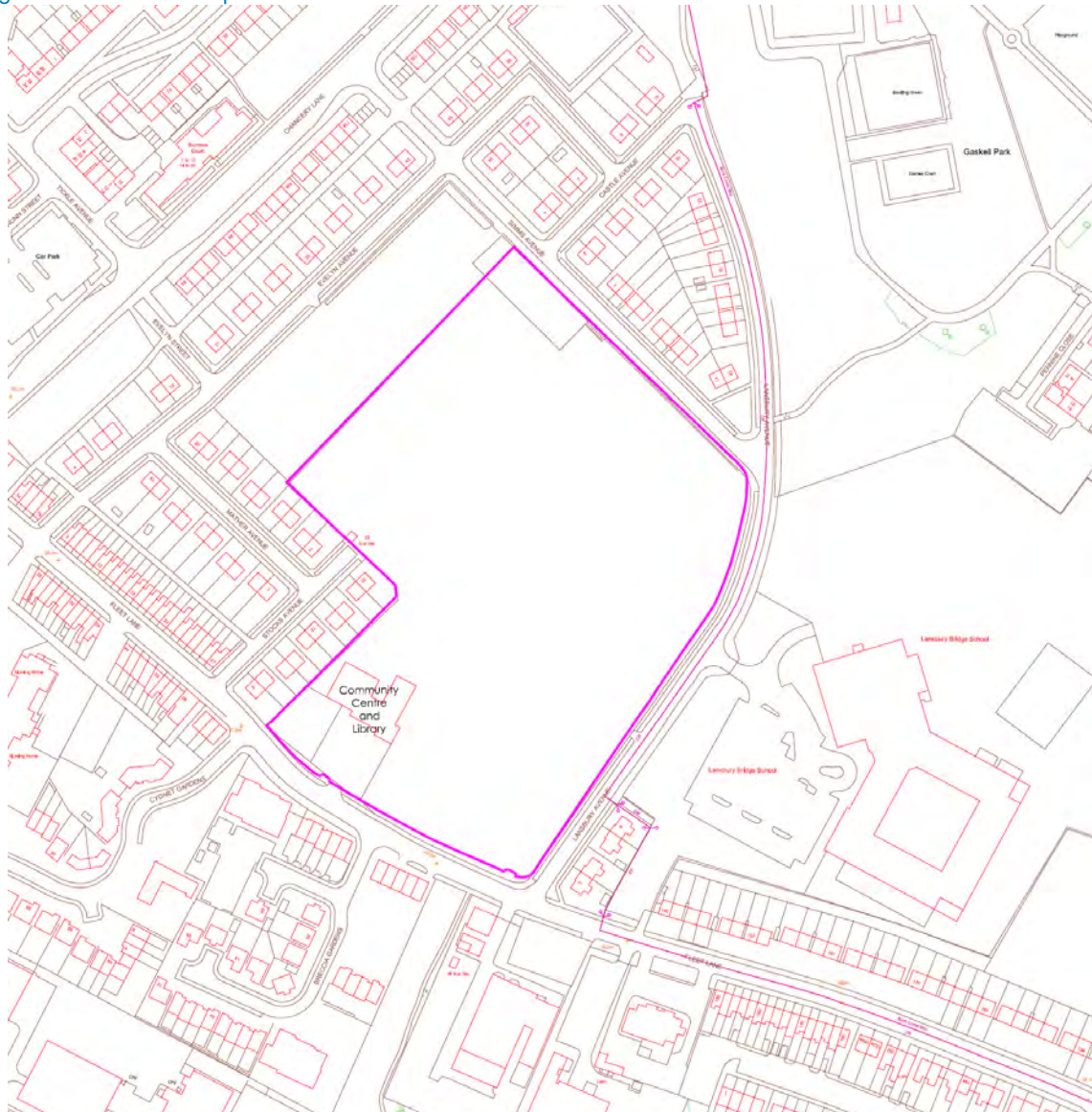
- 2 No cable percussion/rotary cored boreholes undertaken immediately to the south of the proposed building footprint to a provisional depth of 20 m bgl. The purpose of the boreholes is to provide further details regarding the stratigraphy on site as well provide further information regarding the potential for shallow mine workings within the area of the proposed new school. In situ standard penetration tests are to be undertaken within the Made Ground and superficial deposits.
- 2 No. Rotary open holes to be undertaken in the location of the suspected mine shaft. The provisional depth of the probe hole is scheduled for 15 m bgl. The purpose of the probe holes are to confirm the results of the previous RTD ground investigation.
- 2 No. Rotary open holes to be undertaken to the east of the proposed building footprint. The provisional depth of the probe hole is scheduled for 30 m bgl. The purpose of the boreholes is to provide further details regarding the stratigraphy on site as well provide further information regarding the potential for shallow mine workings within the area of the proposed new school.
- Gas and groundwater monitoring standpipes to be installed within all rotary cored holes.
- 6 No. Machine excavated trial pits to be excavated surrounding the proposed footprint of the new school.
- 2 No. Machine excavated trial pits to investigate further the geophysical anomalies detected during the 2008 FES ground investigation within the footprint of the proposed new school.
- Geotechnical and contamination testing to be undertaken recovered samples. Geotechnical testing to include for classification tests, Oedometer tests, triaxial testing.
- As the proposed ground investigation works will intersect underlying coal seams then a Coal Authority licence should be in place prior to the works and gas monitoring should be undertaken during drilling and the appropriate drilling flush is to be used.

Appendices

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Appendix A. Site Location Plan

Figure A1: Site location plan



Appendix B. Proposed School Layout

Figure A1: Proposed Site Layout



Appendix C. Site Plan and Photographs

Figure B1: Site walkover plan



Source: Mott MacDonald Altrincham

Photograph Reference 1



Photograph Reference 2



Photograph Reference 3



Photograph Reference 4



Photograph Reference 5



Photograph Reference 6



Photograph Reference 7



Photograph Reference 8



Photograph Reference 9



Photograph Reference 10



Photograph Reference 11



Photograph Reference 12



Photograph Reference 13



Photograph Reference 14



Photograph Reference 15



Photograph Reference 16



Photograph Reference 17



Photograph Reference 18



Photograph Reference 19



Photograph Reference 20



Photograph Reference 21



Photograph Reference 22



Photograph Reference 23



Photograph Reference 24



Photograph Reference 25



Appendix D. Contamination Qualitative Risk Assessment

The following Contaminated Land Risk Assessment methodology is based on CIRIA C552 (2001) *Contaminated Land Risk Assessment – A Guide to Good Practice*, in order to quantify potential risk via **risk estimation** and **risk evaluation**, which can be adopted at the Phase I stage. This will then determine an overall risk category which can be used to identify likely actions. This methodology uses qualitative descriptors and therefore is a qualitative approach.

The methodology requires the classification of:

- the magnitude of the **consequence** (severity) of a risk occurring, and
- the magnitude of the **probability** (likelihood) of a risk occurring.

The potential consequences of contamination risks occurring at this site are classified in accordance with Table C.1 below, which is adapted from the CIRIA guidance.

Table D.1: Classification of Consequence

Classification	Definition of Consequence
Severe	Short-term (acute) risks to human health. Short-term risk of pollution of sensitive water resource or ecosystem. Catastrophic damage to crops/buildings/property/infrastructure, including off-site soils.
Medium	Medium/long-term (chronic) risks to human health. Medium/long-term risk of pollution of sensitive water resource or ecosystem. Significant damage to crops/buildings/property/infrastructure (on or off-site). Contamination of off-site soils.
Mild	Easily preventable, permanent health effects on humans. Pollution of non-sensitive water resources. Localised damage to crops/buildings/property/infrastructure (on or off-site).
Minor	Easily preventable, non-permanent health effects on humans, or no effects. Minor, low-level and localised contamination of on-site soils. Easily repairable damage to crops/buildings/property/infrastructure.

The probability of contamination risks occurring at this site will be classified in accordance with Table C.2 which is also adapted from the CIRIA guidance. Note that for each category, it is assumed that a pollution linkage exists. Where a pollution linkage does not exist, the likelihood is zero, as is the risk.

Table D.2: Classification of Probability

Classification	Definition of Probability
High Likelihood	Circumstances are such that an event appears very likely in the short-term or almost inevitable in the long-term; or there is already evidence that such an event has occurred.
Likely	Circumstances are such that such an event is not inevitable, but is possible in the short-term and is likely over the long-term.
Low Likelihood	Circumstances are such that it is by no means certain that an event would occur even over a longer period, and it is less likely in the short-term.
Unlikely	Circumstances are such that it is improbable that an event would occur even in the very long-term.

For each possible pollution linkage (source-pathway-receptor) identified, the potential risk can be evaluated, as presented in Section C.1. Based upon this, CIRIA C552 presents definitions of the risk categories, together with the investigatory and remedial actions that are likely to be necessary in each

case, as in Table C.3. These risk categories apply to each pollutant linkage, not simply to each hazard or receptor.

Table D.3: Definition of Risk Categories and Likely Actions Required

Risk Category	Definition and likely actions required
Very high	Severe harm to a defined receptor is very likely, or has already occurred. The risk is likely to result in a substantial liability. Urgent investigation (if not already undertaken) is likely to be required. Urgent remediation is likely to be required.
High	Harm to a defined receptor is likely. The risk, if realised, may result in a substantial liability. Urgent investigation (if not already undertaken) is likely to be required. Remediation is likely to be required in the long term, possibly sooner.
Moderate	Harm to a defined receptor is possible, but severe harm is unlikely. Investigation is likely to be required to clarify the level of potential liability and risk. Some remediation may be required in the longer term.
Low	Harm to a defined receptor is possible, but is likely to be mild at worst. Liabilities could theoretically arise, but are unlikely. Further investigation is not required at this stage. Remediation is unlikely to be required.
Very low	Harm to a defined receptor is unlikely, and would be minor at worst. No liabilities are likely to arise. Further investigation is not required at this stage. Remediation is very unlikely to be required.

D.1. Preliminary Qualitative Risk Assessment

The potential risk can be evaluated, based on the following principle:

$$\text{Overall contamination risk} = \text{Probability of event occurring} \times \text{Consequence of event occurring}$$

The consequence of an event occurring has been classified into the following categories:

- Severe
- Medium
- Mild
- Minor

The probability of an event occurring has been classified into the following categories:

- High Likelihood
- Likely
- Low Likelihood
- Unlikely

This relationship can be represented graphically as a matrix.

Table D.4: Probability - Consequence Matrix

		Consequence			
		Severe	Medium	Mild	Minor
Probability	Highly Likely	Very High Risk	High Risk	Moderate Risk	Low Risk
	Likely	High Risk	Moderate Risk	Moderate Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate Risk	Low Risk	Very Low Risk
	Unlikely	Low Risk	Low Risk	Very Low Risk	Very Low Risk

Source: The risk assessment process is based on guidance provided in CIRIA C552 (2001)

Appendix E. Geo-Environmental Risk Plan



Notes

Key to symbols

- BH2, TP4: Approximate location of 2003 RTD Exploratory Holes
- BHMG01, TPMG01: Approximate location of 2008 FES Exploratory Holes
- 2008 FES Geophysical Survey Area refer to report for area of anomalies
- Approximate location of Coal Shafts
- Former footprint of Parr High School. Potential for encountering former buried foundations
- Existing Slope
- Footprint of proposed Mill Green School
- Location of Former Reservoir on site
- Approximate location of probe drilling for Mine Shaft undertaken by RTD (2003)

Reference drawings

Rev	Date	Drawn	Description	0	1	2	3	4

Spring Bank House
33 Stamford Street
Altrincham, WA14 1ES
United Kingdom

T: +44 (0)161 926 4000
F: +44 (0)161 926 4100
W: www.mottmac.com

Client: Education Funding Agency

Title: Priority School Building Programme
Proposed Mill Green School
Geo-Environmental Risk Plan

Designed	GM	Eng check	NH
Drawn	GM	Coordination	GM
Dwg check	NH	Approved	HTB
Scale at A1	NTS	Status	Rev
Drawing Number			P1
MMD-313642NW08-G-DR-00-XX-0001			

1 Mott MacDonald
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P:\Manchester\Northwest\General\Ground Engineering and Environment Group\Projects\PSBP Desk Studies\Mill Green School\Geo-Environmental Risk Map.dwg, Jan 29, 2013 - 4:40PM, mtd3510

Appendix F. Envirocheck Report

Envirocheck[®] Report: Datasheet

Order Details:

Order Number:

26170275_1_1

Customer Reference:

Former Parr High School

National Grid Reference:

353230, 395090

Slice:

A

Site Area (Ha):

7.46

Search Buffer (m):

1000

Site Details:

Lansbury Bridge School

Lansbury Avenue

ST. HELENS

Merseyside

WA9 1TB

Client Details:

mr M Frackelton

Mott Macdonald

Spring Bank House

33 Stamford Street

Altrincham

Manchester

WA14 1ES

Report Section	Page Number
Summary	-
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Waste	32
Hazardous Substances	36
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Data Suppliers	54
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Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination. For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v36.0

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)	pg 36				1
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					
Geological					
BGS Recorded Mineral Sites	pg 37			1	5
BGS 1:625,000 Solid Geology	pg 38	Yes	n/a	n/a	n/a
Brine Compensation Area			n/a	n/a	n/a
Coal Mining Affected Areas	pg 38	Yes	n/a	n/a	n/a
Mining Instability	pg 38	Yes	n/a	n/a	n/a
Natural and Mining Cavities					
Potential for Collapsible Ground Stability Hazards				n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards		Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards		Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 38	Yes		n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Shallow Mining Hazards	pg 38	Yes		n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 39	1	16	11	80
Fuel Station Entries	pg 48			1	2

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Areas of Adopted Green Belt	pg 49				2
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves	pg 49				2
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
1	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewerage Network - Pumping Station - Water Company Location: Moss Nook Ps, Watery Lane, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982541 Permit Version: 1 Effective Date: 8th April 1993 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Sutton Brook Status: Post National Rivers Authority Legislation where issue date > 31/08/1989 Positional Accuracy: Located by supplier to within 100m	A8SE (S)	524	1	353400 394400
2	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Chancery Lane/Nun Street Sso, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982550 Permit Version: 1 Effective Date: 29th March 1993 Issued Date: Not Supplied Revocation Date: 30th July 1993 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 100m	A12NW (W)	526	1	352560 395280
3	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Berrys Lane, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01sth0060 Permit Version: 1 Effective Date: 29th March 1993 Issued Date: Not Supplied Revocation Date: 1st January 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Unknown Environment: Receiving Water: Unknown Outlet; Licence Status: Revoked Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 100m	A8SE (S)	564	1	353470 394380
3	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Berrys Lane, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982532 Permit Version: 1 Effective Date: 29th March 1993 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Sutton Brook Status: Post National Rivers Authority Legislation where issue date > 31/08/1989 Positional Accuracy: Located by supplier to within 100m	A8SE (S)	568	1	353470 394375



Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
4	<p>Discharge Consents</p> <p>Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Gloucester Street, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01STH0054 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 24th November 2004 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 100m</p>	A12SW (W)	628	1	352460 394970
4	<p>Discharge Consents</p> <p>Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Gloucester Street, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01sth0054 Permit Version: 2 Effective Date: 25th November 2004 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m</p>	A12SW (W)	628	1	352460 394970
5	<p>Discharge Consents</p> <p>Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Gaskell Street Bridge Cso, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982533 Permit Version: 1 Effective Date: 29th March 1993 Issued Date: 29th March 1993 Revocation Date: 8th February 2006 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 100m</p>	A7NW (SW)	649	1	352550 394630
5	<p>Discharge Consents</p> <p>Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Gaskell Street Bridge Cso, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01sth0056 Permit Version: 1 Effective Date: 29th March 1993 Issued Date: Not Supplied Revocation Date: 1st January 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Unknown Environment: Receiving Water: Unknown Outlet; Licence Status: Revoked Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m</p>	A7NW (SW)	649	1	352550 394630

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
5	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Gaskell Street Bridge Cso, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982533 Permit Version: 2 Effective Date: 9th February 2006 Issued Date: 9th February 2006 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Sutton Brook Trib Sankey Brook Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	665	1	352560 394590
6	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Other Location: Sutton Rd & Oak St Jct, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982536 Permit Version: 1 Effective Date: 29th March 1993 Issued Date: Not Supplied Revocation Date: 7th July 1994 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Sutton Brook Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 100m	A8SE (S)	711	1	353450 394220
6	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Other Location: Sutton Rd & Oak St Jct, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01sth0009 Permit Version: 1 Effective Date: 29th March 1993 Issued Date: Not Supplied Revocation Date: 1st January 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Unknown Environment: Receiving Water: Unknown Outlet; Licence Status: Revoked Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A8SE (S)	711	1	353450 394220
7	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016920130 Permit Version: 3 Effective Date: 12th August 1987 Issued Date: 12th August 1987 Revocation Date: 30th May 1998 Discharge Type: Unknown Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	740	1	353580 395915

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
7	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 7 Effective Date: 1st April 2005 Issued Date: 29th December 2000 Revocation Date: 20th December 2005 Discharge Type: Unknown Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	744	1	353580 395920
7	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 6 Effective Date: 29th December 2000 Issued Date: 29th December 2000 Revocation Date: 31st March 2005 Discharge Type: Unknown Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	744	1	353580 395920
7	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 8 Effective Date: 1st November 1998 Issued Date: 12th August 1987 Revocation Date: 28th December 2000 Discharge Type: Unknown Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	744	1	353580 395920
7	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016920130 Permit Version: 1 Effective Date: 12th January 1980 Issued Date: Not Supplied Revocation Date: 30th January 1985 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	744	1	353580 395920

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
7	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 2 Effective Date: 31st January 1985 Issued Date: Not Supplied Revocation Date: 11th August 1987 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Authorisation revoked Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	744	1	353580 395920
7	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 4 Effective Date: 31st May 1998 Issued Date: Not Supplied Revocation Date: 14th July 1998 Discharge Type: Unknown Discharge: Not Specified Environment: Receiving Water: Sankey Brook Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	744	1	353580 395920
7	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 5 Effective Date: 15th July 1998 Issued Date: Not Supplied Revocation Date: 31st July 1998 Discharge Type: Unknown Discharge: Not Specified Environment: Receiving Water: Sankey Brook Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	744	1	353580 395920
7	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 9 Effective Date: 1st August 1998 Issued Date: Not Supplied Revocation Date: 22nd March 2006 Discharge Type: Unknown Discharge: Not Specified Environment: Receiving Water: Sankey Brook Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	744	1	353580 395920

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
7	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 10 Effective Date: 20th December 2005 Issued Date: 20th December 2005 Revocation Date: 31st March 2010 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent Currently Under Appeal Positional Accuracy: Located by supplier to within 10m	A18NE (N)	751	1	353560 395940
7	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 10 Effective Date: 20th December 2005 Issued Date: 20th December 2005 Revocation Date: 31st March 2010 Discharge Type: Unknown Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent Currently Under Appeal Positional Accuracy: Located by supplier to within 10m	A18NE (N)	751	1	353560 395940
7	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 11 Effective Date: 1st April 2010 Issued Date: 20th December 2005 Revocation Date: Not Supplied Discharge Type: Unknown Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent Currently Under Appeal Positional Accuracy: Located by supplier to within 10m	A18NE (N)	751	1	353560 395940
7	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 11 Effective Date: 1st April 2010 Issued Date: 20th December 2005 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent Currently Under Appeal Positional Accuracy: Located by supplier to within 10m	A18NE (N)	751	1	353560 395940

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
8	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Watery Ln(East Of Brdg), St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01sth0062 Permit Version: 1 Effective Date: 29th March 1993 Issued Date: Not Supplied Revocation Date: 1st January 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Unknown Environment: Receiving Water: Unknown Outlet; Licence Status: Revoked Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 100m	A8SE (S)	750	1	353450 394180
8	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Watery Ln(East Of Brdg), St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982540 Permit Version: 1 Effective Date: 29th March 1993 Issued Date: 29th March 1993 Revocation Date: 12th July 2006 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Sutton Brook Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 100m	A8SE (S)	754	1	353450 394175
8	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Watery Lane(Nr Bridge), St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01sth0061 Permit Version: 1 Effective Date: 29th March 1993 Issued Date: Not Supplied Revocation Date: 1st January 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Unknown Environment: Receiving Water: Unknown Outlet; Licence Status: Revoked Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 100m	A8SE (S)	769	1	353450 394160
8	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Watery Lane(Nr Bridge), St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982508 Permit Version: 1 Effective Date: 29th March 1993 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Sutton Brook Status: Post National Rivers Authority Legislation where issue date > 31/08/1989 Positional Accuracy: Located by supplier to within 100m	A8SE (S)	774	1	353450 394155

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
9	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 6 Effective Date: 29th December 2000 Issued Date: 29th December 2000 Revocation Date: 31st March 2005 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	751	1	353640 395890
9	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 7 Effective Date: 1st April 2005 Issued Date: 29th December 2000 Revocation Date: 20th December 2005 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	751	1	353640 395890
9	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 3 Effective Date: 12th August 1987 Issued Date: 12th August 1987 Revocation Date: 30th May 1998 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	751	1	353640 395890
9	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 8 Effective Date: 1st November 1998 Issued Date: 12th August 1987 Revocation Date: 28th December 2000 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	751	1	353640 395890

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
9	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 4 Effective Date: 31st May 1998 Issued Date: Not Supplied Revocation Date: 14th July 1998 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Not Specified Environment: Receiving Water: Sankey Brook Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	751	1	353640 395890
9	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 5 Effective Date: 15th July 1998 Issued Date: Not Supplied Revocation Date: 31st July 1998 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Not Specified Environment: Receiving Water: Sankey Brook Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	751	1	353640 395890
9	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 9 Effective Date: 1st August 1998 Issued Date: Not Supplied Revocation Date: 22nd March 2006 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Not Specified Environment: Receiving Water: Sankey Brook Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	751	1	353640 395890
10	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 10 Effective Date: 20th December 2005 Issued Date: 20th December 2005 Revocation Date: 31st March 2010 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent Currently Under Appeal Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	782	1	353690 395890

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
10	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 11 Effective Date: 1st April 2010 Issued Date: 20th December 2005 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent Currently Under Appeal Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	782	1	353690 395890
10	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 6 Effective Date: 29th December 2000 Issued Date: 29th December 2000 Revocation Date: 31st March 2005 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	807	1	353730 395890
10	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 7 Effective Date: 1st April 2005 Issued Date: 29th December 2000 Revocation Date: 20th December 2005 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	807	1	353730 395890
10	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016920130 Permit Version: 3 Effective Date: 12th August 1987 Issued Date: 12th August 1987 Revocation Date: 30th May 1998 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	807	1	353730 395890

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
10	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 8 Effective Date: 1st November 1998 Issued Date: 12th August 1987 Revocation Date: 28th December 2000 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	807	1	353730 395890
10	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016920130 Permit Version: 1 Effective Date: 12th January 1980 Issued Date: Not Supplied Revocation Date: 30th January 1985 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	807	1	353730 395890
10	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 2 Effective Date: 31st January 1985 Issued Date: Not Supplied Revocation Date: 11th August 1987 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	807	1	353730 395890
10	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 4 Effective Date: 31st May 1998 Issued Date: Not Supplied Revocation Date: 14th July 1998 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	807	1	353730 395890



Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
10	<p>Discharge Consents</p> <p>Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 5 Effective Date: 15th July 1998 Issued Date: Not Supplied Revocation Date: 31st July 1998 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent expired Positional Accuracy: Located by supplier to within 10m</p>	A19NW (NE)	807	1	353730 395890
10	<p>Discharge Consents</p> <p>Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 9 Effective Date: 1st August 1998 Issued Date: Not Supplied Revocation Date: 22nd March 2006 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent expired Positional Accuracy: Located by supplier to within 10m</p>	A19NW (NE)	807	1	353730 395890
10	<p>Discharge Consents</p> <p>Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 10 Effective Date: 20th December 2005 Issued Date: 20th December 2005 Revocation Date: 31st March 2010 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent Currently Under Appeal Positional Accuracy: Located by supplier to within 10m</p>	A19NW (NE)	808	1	353720 395900
10	<p>Discharge Consents</p> <p>Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 11 Effective Date: 1st April 2010 Issued Date: 20th December 2005 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent Currently Under Appeal Positional Accuracy: Located by supplier to within 10m</p>	A19NW (NE)	808	1	353720 395900

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
11	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 6 Effective Date: 29th December 2000 Issued Date: 29th December 2000 Revocation Date: 31st March 2005 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent Issued (Section 37(1)) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	871	1	353820 395900
11	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 7 Effective Date: 1st April 2005 Issued Date: 29th December 2000 Revocation Date: 20th December 2005 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	871	1	353820 395900
11	Discharge Consents Operator: North West Water Limited Property Type: Not Given Location: St Helens A Stw, Final Effluent Authority: Environment Agency, North West Region Catchment Area: Sankey Reference: 016920130A Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 1st April 1991 Revocation Date: Not Supplied Discharge Type: Sewage Treatment Works Final Effluent - Part Biological Treatment Discharge: Freshwater Stream/River Environment: Receiving Water: Fully Treated Effluent; Final Effluent Outfall Channel(1 Or2); Sankey Brook Status: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	871	1	353820 395900
11	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 3 Effective Date: 12th August 1987 Issued Date: 12th August 1987 Revocation Date: 30th May 1998 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	871	1	353820 395900

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
11	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 8 Effective Date: 1st November 1998 Issued Date: 12th August 1987 Revocation Date: 28th December 2000 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	871	1	353820 395900
11	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Sankey Reference: 016920130 Permit Version: 2 Effective Date: 31st January 1985 Issued Date: Not Supplied Revocation Date: 11th August 1987 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	871	1	353820 395900
11	Discharge Consents Operator: United Utilities Water Ltd Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016920130 Permit Version: 1 Effective Date: 12th January 1980 Issued Date: Not Supplied Revocation Date: 30th January 1985 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	871	1	353820 395900
11	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 1 Effective Date: 12th January 1980 Issued Date: Not Supplied Revocation Date: 30th January 1985 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	871	1	353820 395900

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
11	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 4 Effective Date: 31st May 1998 Issued Date: Not Supplied Revocation Date: 14th July 1998 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Not Specified Environment: Receiving Water: Sankey Brook Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	871	1	353820 395900
11	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 9 Effective Date: 1st August 1998 Issued Date: Not Supplied Revocation Date: 22nd March 2006 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Not Specified Environment: Receiving Water: Sankey Brook Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	871	1	353820 395900
11	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: St Helens Stw Delta Road, Parr, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016920130 Permit Version: 5 Effective Date: 15th July 1998 Issued Date: Not Supplied Revocation Date: 31st July 1998 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Not Specified Environment: Receiving Water: Sankey Brook Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	887	1	353820 395920
12	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Jackson Street, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01STH0053 Permit Version: 2 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Unknown Environment: Receiving Water: Not Supplied Status: Post National Rivers Authority Legislation where issue date > 31/08/1989 Positional Accuracy: Located by supplier to within 100m	A11SE (W)	887	1	352200 394960

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
12	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Jackson Street, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01sth0053 Permit Version: 1 Effective Date: 1st April 1991 Issued Date: Not Supplied Revocation Date: 31st December 1994 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Not Supplied Environment: Receiving Water: Not Supplied Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A11SE (W)	887	1	352200 394960
13	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Folds Rd/Chestnut Avenue Cso, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Sankey (Sutton) Brook Reference: 01STH0064 Permit Version: 2 Effective Date: 1st January 1995 Issued Date: 1st January 1995 Revocation Date: 7th March 2006 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Black Brook Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	970	1	353720 396100
13	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Folds Rd/Chestnut Avenue Cso, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 01sth0064 Permit Version: 1 Effective Date: 1st April 1991 Issued Date: Not Supplied Revocation Date: 31st December 1994 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Not Supplied Environment: Receiving Water: Not Supplied Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	970	1	353720 396100
14	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: 17 Malvern Road Sso, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 016982535 Permit Version: 2 Effective Date: 22nd April 2004 Issued Date: 22nd April 2004 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Sankey Brook Status: Varied by Application - (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A19NE (NE)	997	1	354080 395850

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
14	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: 17 Malvern Road Sso, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 016982535 Permit Version: 1 Effective Date: 29th March 1993 Issued Date: Not Supplied Revocation Date: 21st April 2004 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: Sankey Brook Status: Post National Rivers Authority Legislation where issue date > 31/08/1989 Positional Accuracy: Located by supplier to within 100m	A19NE (NE)	997	1	354080 395850
14	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: 17 Malvern Road Sso, St Helens, Merseyside Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01sth0013 Permit Version: 1 Effective Date: 29th March 1993 Issued Date: Not Supplied Revocation Date: 1st January 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Unknown Receiving Water: Unknown Outlet; Licence Status: Revoked Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A19NE (NE)	997	1	354080 395850
15	Integrated Pollution Prevention And Control Name: United Utilities Water Plc Location: St. Helens Water Treatment Works, Delta Road, ST. HELENS, Merseyside, WA11 9DX Authority: Environment Agency, North West Region Permit Reference: HP3631LV Original Permit Ref: Hp3631lv Effective Date: 24th October 2007 Status: Effective Application Type: Application App. Sub Type: New Positional Accuracy: Automatically positioned to the address Activity Code: 1.1 A(1) (B) (III) Activity Description: Combustion; Waste Derived Fuel Greater Or Equal To 3Mw But Less Than 50Mw Primary Activity: N Activity Code: 5.3 A(1) (C) (I) Activity Description: Other Waste Disposal; Non-Hazardous Waste >50T/D By Biological Treatment Primary Activity: Y Activity Code: 5.3 A(1) (C) (II) Activity Description: Other Waste Disposal; Non-Hazardous Waste >50T/D By Physico-Chemical Treatment Primary Activity: N	A18NE (N)	830	1	353370 396024
16	Local Authority Pollution Prevention and Controls Name: Hanson Conbloc Location: Watery Lane, ST HELENS, Merseyside, WA9 3HB Authority: St Helens Metropolitan Borough Council, Environmental Health Department Permit Reference: Percerm04 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG3/1Blending, packing, loading and use of bulk cement Status: Permitted Positional Accuracy: Manually positioned to the address or location	A8SE (S)	729	2	353378 394187
16	Local Authority Pollution Prevention and Controls Name: Boral Edenhall Concrete Products Ltd Location: Watery Lane, ST HELENS, Merseyside, WA9 3HB Authority: St Helens Metropolitan Borough Council, Environmental Health Department Permit Reference: 95 1 57 E Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG3/1Blending, packing, loading and use of bulk cement Status: Authorisation revokedRevoked Positional Accuracy: Manually positioned to the address or location	A8SE (S)	729	2	353378 394187

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
17	Local Authority Pollution Prevention and Controls Name: Delta Fluid Products Location: Delta Road, ST HELENS, Merseyside, WA9 2 Authority: St Helens Metropolitan Borough Council, Environmental Health Department Permit Reference: STHP/06/03/15/E Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG2/1Furnaces for the extraction of non-ferrous metal from scrap Status: Permitted Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	871	2	353820 395900
18	Local Authority Pollution Prevention and Controls Name: Prestige & Performance Location: Sutton Road, St Helens Authority: St Helens Metropolitan Borough Council, Environmental Health Department Permit Reference: WOIL02 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG1/1Waste oil burners, less than 0.4MW net rated thermal input Status: Permitted Positional Accuracy: Located by supplier to within 10m	A7SW (SW)	892	2	352508 394316
19	Local Authority Pollution Prevention and Controls Name: Cemex Location: Jackson Street, ST HELENS, Merseyside, WA9 3BA Authority: St Helens Metropolitan Borough Council, Environmental Health Department Permit Reference: Percem03 Dated: 27th August 1992 Process Type: Local Authority Pollution Prevention and Control Description: PG3/1Blending, packing, loading and use of bulk cement Status: Permitted Positional Accuracy: Manually positioned to the address or location	A7NW (W)	893	2	352246 394697
19	Local Authority Pollution Prevention and Controls Name: Betakreet Products Location: Jackson Street, ST HELENS, Merseyside, WA9 3AZ Authority: St Helens Metropolitan Borough Council, Environmental Health Department Permit Reference: 92 1 19 E Dated: 27th August 1992 Process Type: Local Authority Air Pollution Control Description: PG3/1Blending, packing, loading and use of bulk cement Status: Authorisation revokedRevoked Positional Accuracy: Automatically positioned to the address	A7NW (SW)	898	2	352253 394664
20	Local Authority Pollution Prevention and Controls Name: Morrisons Supermarkets Plc Location: Baxters Lane, Sutton, ST. HELENS, Merseyside, WA9 3DH Authority: St Helens Metropolitan Borough Council, Environmental Health Department Permit Reference: Petpermit003 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station Status: Permitted Positional Accuracy: Automatically positioned to the address	A7SE (SW)	924	2	352664 394156
20	Local Authority Pollution Prevention and Controls Name: Morrisons Supermarkets Plc Location: Baxter Lane, ST. HELENS, Merseyside, WA9 3DH Authority: St Helens Metropolitan Borough Council, Environmental Health Department Permit Reference: Not Supplied Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: Part B process (no specific reference) Status: Authorisation revokedRevoked Positional Accuracy: Automatically positioned to the address	A7SE (SW)	924	2	352664 394156
	Nearest Surface Water Feature	A8NW (S)	365	-	353151 394542
21	Pollution Incidents to Controlled Waters Property Type: Road Location: Parr Industrial Estate, ST HELENS Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Fire water / Foam Note: Not Supplied Incident Date: 30th January 1998 Incident Reference: SO980211 Catchment Area: Sankey Brook Receiving Water: Onto Land Cause of Incident: Fire Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SW (SW)	208	1	353000 394800

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
22	Pollution Incidents to Controlled Waters Property Type: Spillage; Accident - Static Site Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Chemicals - Alkali Note: Sutton Brook; Caustic Soda Incident Date: 23rd April 1994 Incident Reference: 94750770 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Electrical Failure Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (SE)	243	1	353400 394700
23	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Hydraulic Note: Sutton Brook Incident Date: 14th October 1992 Incident Reference: 92430135 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	488	1	352800 394600
24	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Merseyside Authority: Environment Agency, North West Region Pollutant: Unknown Note: Sankey Brook; None Pollution Found Incident Date: 11th January 1994 Incident Reference: 94750059 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18NW (N)	521	1	353200 395800
25	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Sankey Brook, Park Road, ST HELENS Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Other Note: Not Supplied Incident Date: 8th March 1998 Incident Reference: SO980424 Catchment Area: Sankey Brook Receiving Water: Freshwater Stream/River Cause of Incident: Vandalism Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18NW (N)	553	1	353005 395795
25	Pollution Incidents to Controlled Waters Property Type: Tip Drainage Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Tip Leachate Note: Not Supplied Incident Date: 11th April 1994 Incident Reference: 94750661 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Miscellaneous/Other Pollution Type Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18NW (N)	559	1	353000 395800
26	Pollution Incidents to Controlled Waters Property Type: Private Sewage (Non-PLC); Sewerage Systems Location: Merseyside Authority: Environment Agency, North West Region Pollutant: Storm Sewage Note: Sutton Brook; Sewage Incident Date: 1st July 1996 Incident Reference: 96751487 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Miscellaneous/Other Pollution Type Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	553	1	352700 394600

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
27	Pollution Incidents to Controlled Waters Property Type: Tip Drainage Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Tip Leachate Note: Not Supplied Incident Date: 1st February 1994 Incident Reference: 94750213 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Land Runoff Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NW (W)	571	1	352500 395200
28	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Merseyside Authority: Environment Agency, North West Region Pollutant: Chemicals - Alkali Note: Sutton Brook; Alkaline Leachate Incident Date: 6th December 1996 Incident Reference: 96752603 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Natural Causes Incident Severity: Category 3 - Minor incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	622	1	353400 394300
29	Pollution Incidents to Controlled Waters Property Type: Private Sewage (Non-PLC): Sewerage Systems Location: Merseyside Authority: Environment Agency, North West Region Pollutant: Crude Sewage Note: Sutton Brook; Raw Sewage Incident Date: 19th August 1996 Incident Reference: 96751844 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 1 - Major Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	628	1	352700 394500
30	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Merseyside Authority: Environment Agency, North West Region Pollutant: Oils - Unknown Note: Sankey Brook; Oil Incident Date: 7th August 1996 Incident Reference: 96751738 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	655	1	353600 395800
31	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Merseyside Authority: Environment Agency, North West Region Pollutant: Oils - Unknown Note: Rainford Brook; Oil Incident Date: 15th November 1996 Incident Reference: 96752352 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17NE (N)	691	1	352900 395900
32	Pollution Incidents to Controlled Waters Property Type: Private Sewage (Non-PLC): Sewerage Systems Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Unknown Sewage Note: Sutton Brook Incident Date: 19th March 1992 Incident Reference: 92430031 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	720	1	353400 394200

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
32	Pollution Incidents to Controlled Waters Property Type: Private Sewage (Non-PLC): Sewerage Systems Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Crude Sewage Note: Not Supplied Incident Date: 24th October 1995 Incident Reference: 95752618 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Mechanical Failure Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	725	1	353400 394195
33	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Unknown Note: Sutton Brook Incident Date: 25th June 1991 Incident Reference: 91430066 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	744	1	353500 394200
33	Pollution Incidents to Controlled Waters Property Type: Demolition Location: Stream Under Bridge, Watery Lane Authority: Environment Agency, North West Region Pollutant: Oils - Other Oil Note: Sutton - Diesel Incident Date: 17th August 1998 Incident Reference: SO981490 Catchment Area: Sankey Brook Receiving Water: Freshwater Stream/River Cause of Incident: Vandalism Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	748	1	353500 394195
34	Pollution Incidents to Controlled Waters Property Type: No Premises Identified Location: Sutton Road, ST HELENS, Merseyside Authority: Environment Agency, North West Region Pollutant: No Pollutant Note: Not Supplied Incident Date: 21st April 1999 Incident Reference: 28285 Catchment Area: Glaze (Pennington & Hey) Brook Receiving Water: River Stretch (Freshwater) Cause of Incident: Other Cause Incident Severity: Category 2 - Significant Incident Positional Accuracy: Manually positioned to the road within the address or location	A7SE (SW)	774	1	352732 394293
35	Pollution Incidents to Controlled Waters Property Type: Tip Drainage Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Tip Leachate Note: Sutton Brook Incident Date: 10th May 1993 Incident Reference: 93430053 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 1 - Major Incident Positional Accuracy: Located by supplier to within 100m	A12SW (W)	811	1	352300 394800
36	Pollution Incidents to Controlled Waters Property Type: Private Sewage (Non-PLC): Sewerage Systems Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Crude Sewage Note: Sutton Brook Incident Date: 29th April 1994 Incident Reference: 94750872 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Blocked Sewer Incident Severity: Category 2 - Significant incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	819	1	353400 394100



Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
37	<p>Pollution Incidents to Controlled Waters</p> <p>Property Type: Not Given Location: Merseyside Authority: Environment Agency, North West Region Pollutant: Not Given Note: None Pollution Found Incident Date: 10th July 1992 Incident Reference: 92430091 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m</p>	A18NW (N)	827	1	353100 396100
38	<p>Pollution Incidents to Controlled Waters</p> <p>Property Type: Not Given Location: Merseyside Authority: Environment Agency, North West Region Pollutant: Oils - Unknown Note: Sulton Brook; Oil Incident Date: 16th October 1996 Incident Reference: 96752203 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m</p>	A11SE (W)	878	1	352201 395001
39	<p>Pollution Incidents to Controlled Waters</p> <p>Property Type: Private Sewage (Non-PLC): Sewerage Systems Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Sewage Debris/Litter Note: Not Supplied Incident Date: 29th June 1995 Incident Reference: 95751593 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Blocked Sewer Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m</p>	A19SE (NE)	906	1	354100 395700
40	<p>Pollution Incidents to Controlled Waters</p> <p>Property Type: Water Company Sewage: Combined Sewer Overflow Location: Black Brook Authority: Environment Agency, North West Region Pollutant: Sewage Debris/Litter Note: Sewage Litter And Debris Incident Date: 7th May 1998 Incident Reference: SO980931 Catchment Area: Sankey Brook Receiving Water: Freshwater Stream/River Cause of Incident: CSO Normal Operation Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m</p>	A19NW (NE)	960	1	353700 396100
41	<p>Pollution Incidents to Controlled Waters</p> <p>Property Type: Tip Drainage Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Tip Leachate Note: Sulton Brook Incident Date: 13th May 1993 Incident Reference: 93430055 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m</p>	A6NE (SW)	971	1	352200 394600
42	<p>Pollution Incidents to Controlled Waters</p> <p>Property Type: Connection To Surface Drains Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Chemicals - Unknown Note: Sulton Bk; Organic Incident Date: 9th December 1994 Incident Reference: 94752690 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m</p>	A7SW (SW)	977	1	352400 394300

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
43	Pollution Incidents to Controlled Waters Property Type: Pollution Found Source Not Determined Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Unknown Note: Hardshaw Brook Incident Date: 6th September 1993 Incident Reference: 93430091 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A11SE (W)	977	1	352101 395001
43	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Merseyside Authority: Environment Agency, North West Region Pollutant: Oils - Gas Oil Note: Hardshaw Brook; Gas Oil Incident Date: 26th September 1996 Incident Reference: 96752095 Catchment Area: Sankey Brook Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor incident Positional Accuracy: Located by supplier to within 100m	A11SE (W)	978	1	352101 394996
	River Quality Name: Sutton (Sankey) Bk GQA Grade: River Quality D Reach: Qsf At Dornhouse Bridge To Gaskell St. Estimated Distance (km): 4 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A8NW (S)	392	1	353042 394546
	River Quality Name: Sutton (Sankey) Bk GQA Grade: River Quality C Reach: Gaskell St. To Rainford Bk Estimated Distance (km): 1.7 Flow Rate: Flow less than 0.62 cumecs Flow Type: River Year: 2000	A17SE (NW)	463	1	352752 395487
	River Quality Name: Sankey Bk GQA Grade: River Quality E Reach: Rainford Bk To Fwl At A57 Estimated Distance (km): 13.6 Flow Rate: Flow less than 2.5 cumecs Flow Type: River Year: 2000	A18SW (N)	478	1	353230 395758
	River Quality Name: Rainford Bk GQA Grade: River Quality D Reach: D/S A580 To Sankey Bk Estimated Distance (km): 3.2 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A19SW (NE)	610	1	353581 395758
	River Quality Name: Hardshaw (Windle) Bk GQA Grade: River Quality D Reach: Thatto Heath Bk To Sutton Bk Estimated Distance (km): .9 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A12SW (W)	736	1	352359 394888

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
	River Quality Name: Black Bk GQA Grade: River Quality B Reach: Qsl At Kings Bridge To Sankey Bk Estimated Distance (km): 7 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A18NE (N)	753	1	353502 395970
44	River Quality Biology Sampling Points Name: Sankey Bk Reach: Rainford Bk. To Fwl At A57 Estimated Distance: 13.60 Positional Accuracy: Located by supplier to within 10m Year: 1990 GQA Grade: River Quality Biology GQA Grade F - Bad Year: 1995 GQA Grade: River Quality Biology GQA Grade F - Bad Year: 2000 GQA Grade: River Quality Biology GQA Grade E - Poor Year: 2002 GQA Grade: River Quality Biology GQA Grade E - Poor Year: 2003 GQA Grade: River Quality Biology GQA Grade E - Poor Year: 2004 GQA Grade: River Quality Biology GQA Grade E - Poor Year: 2005 GQA Grade: River Quality Biology GQA Grade E - Poor Year: 2006 GQA Grade: River Quality Biology GQA Grade E - Poor	A18NW (N)	624	1	352950 395850
45	River Quality Biology Sampling Points Name: Sutton Bk Reach: Gaskell St. To Rainford Bk. Estimated Distance: 1.70 Positional Accuracy: Located by supplier to within 100m Year: 1990 GQA Grade: Not Supplied Year: 1995 GQA Grade: Not Supplied Year: 2000 GQA Grade: Not Supplied Year: 2002 GQA Grade: Not Supplied Year: 2003 GQA Grade: River Quality Biology GQA Grade E - Poor Year: 2004 GQA Grade: River Quality Biology GQA Grade E - Poor Year: 2005 GQA Grade: River Quality Biology GQA Grade E - Poor Year: 2006 GQA Grade: River Quality Biology GQA Grade D - Fair	A7NE (SW)	627	1	352600 394600

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
46	River Quality Chemistry Sampling Points Name: Sutton (Sankey) Bk Reach: Gaskell St. To Rainford Brook Estimated Distance: 1.70 Objective: River Ecosystem Class 4: Fair Quality Positional Accuracy: Located by supplier to within 10m Year: 1990 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Not Supplied Year: 1993 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Significant Failure Year: 1994 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Significant Failure Year: 1995 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Marginal Year: 1996 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Marginal Year: 1997 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 1998 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 1999 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 2000 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Compliant Year: 2001 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 2002 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 2003 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Marginal Year: 2004 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Marginal Year: 2005 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Marginal Year: 2006 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant	A12NW (W)	565	1	352508 395223

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
47	River Quality Chemistry Sampling Points Name: Rainford Bk Reach: Downstream A580 To Sankey Brook Estimated Distance: 3.20 Objective: River Ecosystem Class 4: Fair Quality Positional Accuracy: Located by supplier to within 10m Year: 1990 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Not Supplied Year: 1993 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Marginal Year: 1994 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 1995 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 1996 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 1997 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Marginal Year: 1998 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 1999 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 2000 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 2001 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 2002 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 2003 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 2004 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 2005 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 2006 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Marginal	A18NW (N)	672	1	352970 395909

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
48	River Quality Chemistry Sampling Points Name: Hardshaw (Windle) Bk Reach: Thatto Heath Brook To Sutton Brook Estimated Distance: 0.90 Objective: River Ecosystem Class 4: Fair Quality Positional Accuracy: Located by supplier to within 10m Year: 1990 GQA Grade: River Quality Chemistry GQA Grade F - Bad Compliance: Not Supplied Year: 1993 GQA Grade: River Quality Chemistry GQA Grade F - Bad Compliance: Significant Failure Year: 1994 GQA Grade: River Quality Chemistry GQA Grade F - Bad Compliance: Significant Failure Year: 1995 GQA Grade: River Quality Chemistry GQA Grade F - Bad Compliance: Significant Failure Year: 1996 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Significant Failure Year: 1997 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 1998 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant Year: 1999 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Marginal Year: 2000 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Marginal Year: 2001 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Marginal Year: 2002 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Compliant Year: 2003 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Marginal Year: 2004 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Marginal Year: 2005 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Marginal Year: 2006 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Compliant	A11SE (W)	953	1	352128 394984
49	Substantiated Pollution Incident Register Authority: Environment Agency - North West Region, South Area Incident Date: 1st October 2001 Incident Reference: 33892 Water Impact: Category 2 - Significant Incident Air Impact: Category 3 - Minor Incident Land Impact: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 10m Pollutant: Oils And Fuel: Gas And Fuel Oils	A8SE (S)	629	1	353454 394306
50	Substantiated Pollution Incident Register Authority: Environment Agency - North West Region, South Area Incident Date: 2nd May 2007 Incident Reference: 491810 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 10m Pollutant: Crude Sewage	A7NW (SW)	670	1	352496 394680
51	Substantiated Pollution Incident Register Authority: Environment Agency - North West Region, South Area Incident Date: 21st July 2001 Incident Reference: 18027 Water Impact: Category 1 - Major Incident Air Impact: Category 4 - No Impact Land Impact: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 10m Pollutant: Inorganic Chemicals : Acids	A8SE (S)	715	1	353462 394219

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
52	Substantiated Pollution Incident Register Authority: Environment Agency - North West Region, South Area Incident Date: 16th May 2004 Incident Reference: 237094 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 10m Pollutant: Sewage Materials: Final Effluent	A19NW (NE)	892	1	353890 395870
53	Substantiated Pollution Incident Register Authority: Environment Agency - North West Region, South Area Incident Date: 26th April 2001 Incident Reference: 3542 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m Pollutant: Other Sewage	A19NW (NE)	960	1	353700 396100
54	Water Abstractions Operator: British Waterways Board Licence Number: 2569025995 Permit Version: Not Supplied Location: St Helens Canal, ST HELENS Authority: Environment Agency, North West Region Abstraction: Cooling Abstraction Type: Not Supplied Source: Canal Daily Rate (m3): 0 Yearly Rate (m3): 200024 Details: Licence Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A23SE (N)	968	1	353500 396200
	Water Abstractions Operator: British Waterways Board Licence Number: 2569025051 Permit Version: Not Supplied Location: ST HELENS, Merseyside Authority: Environment Agency, North West Region Abstraction: Not Supplied Abstraction Type: Not Supplied Source: Canal Daily Rate (m3): 0 Yearly Rate (m3): 0 Details: St Helens Canal Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A24SW (N)	1003	1	353600 396200
	Water Abstractions Operator: Viridor Glass Recycling Ltd Licence Number: 2569025087 Permit Version: 1 Location: Borehole At Lancots Lane Sutton St Helens Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: Dust Suppression Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Lancots Lane, Sutton, St Helens Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 27th October 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3NW (S)	1045	1	353130 393860

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: S D Graphics Ltd Licence Number: 1322 Permit Version: Not Supplied Location: ST HELENS, Lancashire Authority: Environment Agency, North West Region Abstraction: Cooling Abstraction Type: Not Supplied Source: Reservoir/Pond Daily Rate (m3): 12000 Yearly Rate (m3): 4200000 Details: Reservoir Fed By Unnamed Tributary Of Sutton Brook; Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A4NW (S)	1187	1	353700 393800
	Water Abstractions Operator: S.D. Graphics Ltd. Licence Number: 2569025003 Permit Version: Not Supplied Location: Reservoir Fed By Un-Named Tributary, Sutton Brook, ST HELENS, Lancashire Authority: Environment Agency, North West Region Abstraction: Cooling Abstraction Type: Not Supplied Source: River Daily Rate (m3): 55 Yearly Rate (m3): 19093 Details: Licence Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A4NW (S)	1192	1	353700 393795
	Water Abstractions Operator: A Green Licence Number: 2569025082 Permit Version: 100 Location: Unnamed Trib. Of Sutton Mill Brook, Sutton, St. Helens Authority: Environment Agency, North West Region Abstraction: Sports Grounds/Facilities: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 60 Yearly Rate (m3): 3000 Details: Land At St. Helens Greyhound Stadium, Sutton, St. Helens Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 19th January 1998 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4SE (SE)	1611	1	354000 393470
	Water Abstractions Operator: British Waterways Board Licence Number: 2569025998 Permit Version: Not Supplied Location: St Helens Canal, ST HELENS Authority: Environment Agency, North West Region Abstraction: Cooling Abstraction Type: Not Supplied Source: Canal Daily Rate (m3): 0 Yearly Rate (m3): 7273600 Details: Licence Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(W)	1768	1	351306 394996

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: British Waterways Board Licence Number: 2569025051 Permit Version: Not Supplied Location: ST HELENS, Merseyside Authority: Environment Agency, North West Region Abstraction: Not Supplied Abstraction Type: Not Supplied Source: Canal Daily Rate (m3): 0 Yearly Rate (m3): 0 Details: St Helens Canal Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(W)	1772	1	351301 395001
	Water Abstractions Operator: Wood Licence Number: 2569025080 Permit Version: 100 Location: Borehole At Woodhouse Fish Farm, Newton-Le-Willows Authority: Environment Agency, North West Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 90 Yearly Rate (m3): 6865 Details: Land At Woodhouse Fish Farm, Newton-Le-Willows Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 7th July 1997 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1782	1	355140 395560
	Water Abstractions Operator: Wood Licence Number: 2569025080 Permit Version: 100 Location: Borehole At Woodhouse Fish Farm, Newton-Le-Willows Authority: Environment Agency, North West Region Abstraction: Aquaculture: Make-Up or Top Up Water Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Land At Woodhouse Fish Farm, Newton-Le-Willows Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 7th July 1997 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1782	1	355140 395560
	Water Abstractions Operator: Pilkington Properties Ltd Licence Number: 2569025077 Permit Version: 100 Location: St. Helens Canal At St. Helens, Merseyside Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 0 Yearly Rate (m3): 7273600 Details: Land And Premises At Watson Street, St. Helens, Merseyside Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 11th January 1995 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1808	1	351270 394950

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Plikington Properties Ltd Licence Number: 2569025077 Permit Version: 100 Location: St. Helens Canal At St. Helens, Mersersyde Authority: Environment Agency, North West Region Abstraction: Other Industrial/Commercial/Public Services: General Cooling (Existing Licences Only) (Low Loss) Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Land & Premises At Watson Street, St. Helens, Merseyside Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 11th January 1995 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(W)	1808	1	351270 394950
55	Water Industry Act Referrals Name: Willochrome Ltd Location: 17K WESTSIDE INDUSTRIAL ESTATE, JACKSON STREET, ST HELENS, MERSEYSIDE, WA9 3AT Authority: Environment Agency, North West Region Permit Reference: Bk0434 Dated: 22nd November 2000 Process Type: Permissions or amendments to discharge under the Water Industry Act 1991 Description: Processes which result in the discharge of Special Category effluents under The Trade Effluents (Prescribed Processes and Substances) Regulations Status: Application received by the EA but is not yet authorised Not Yet Authorised Positional Accuracy: Manually positioned to the address or location	A11SE (W)	948	1	352150 394856
	Groundwater Vulnerability Geological Classification: Minor Aquifer (Variably permeable) - These can be fractured or potentially fractured rocks, which do not have a high primary permeability, or other formations of variable permeability including unconsolidated deposits. Although not producing large quantities of water for abstraction, they are important for local supplies and in supplying base flow to rivers Soil Classification: Soils of High Leaching Potential (U) - Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) assumed, until proved otherwise Map Sheet: Sheet 16 West Cheshire Scale: 1:100,000	A3NE (S)	0	1	35331B 393771
	Drift Deposits Drift Deposit: Low permeability drift deposits occurring at the surface and overlying Major and Minor Aquifers are head, clay-with-flints, brickearth, peat, river terrace deposits and marine and estuarine alluvium Map Sheet: Sheet 16 West Cheshire Scale: 1:100,000	ABNW (S)	0	1	353147 394567
	Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Boundary Accuracy: As Supplied	A13SW (SW)	0	1	353170 395050
	Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Boundary Accuracy: As Supplied	A13SW (SW)	0	1	353170 395050
	Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Boundary Accuracy: As Supplied	A13SE (SE)	127	1	353395 394850
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
56	BGS Recorded Landfill Sites Site Name: Southport Street Location: Ashton Green, ST HELENS, Merseyside Authority: British Geological Survey, National Geoscience Information Service Ground Water: Information not available Surface Water: Information not available Geology: N/A Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Derived	A15NW (E)	976	5	354350 395391
57	Historical Landfill Sites Licence Holder: Not Supplied Location: Merseyside Name: Parr Stock's Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD16608 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste: Not Supplied Type: EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: M274	A12NE (W)	168	1	352900 395149
58	Historical Landfill Sites Licence Holder: Mersey Docks and Harbor Board Location: Gaskell Street / Jackson Street, Seftan, Merseyside Name: Brocklebank Graving Dock Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD16656 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste: Deposited Waste included Household Waste Type: EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: 068/03, GDO 174, GDO M193	A7NE (SW)	655	1	352580 394581
59	Historical Landfill Sites Licence Holder: Not Supplied Location: Merseyside Name: South of Hardshaw Brook / Sankey Brook Confluence Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD16649 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste: Not Supplied Type: EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: M275	A12SW (W)	724	1	352371 394893
60	Historical Landfill Sites Licence Holder: Not Supplied Location: Merseyside Name: Malvern Road Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD15564 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste: Deposited Waste included Unknown Material Type: EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: GDO 154	A19SE (NE)	792	1	353989 395654

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
61	Historical Landfill Sites Licence Holder: St Helens Metropolitan Borough Council Location: St. Helens, Merseyside Name: Southport Lane / Street Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD16617 First Input Date: 31st December 1964 Last Input Date: 31st August 1972 Specified Waste: Deposited Waste included Commercial and Household Waste Type: EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: 940 Other Ref: GDO M074	A15NW (E)	979	1	354343 395421
62	Licensed Waste Management Facilities (Locations) Licence Number: 50133 Location: Cornwall Street, Parr Industrial Estate, St Helens, Merseyside, WA9 1QW Operator Name: M Baker Recycling Ltd Operator Location: Baring House, 6, Exeter, Devon, EX1 1TL Authority: Environment Agency - North West Region, South Area Site Category: Material Recycling Treatment Facilities Licence Status: Issued Issued: 14th August 2002 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A8NW (S)	314	1	353067 394622
62	Licensed Waste Management Facilities (Locations) Licence Number: 50133 Location: Cornwall Street, Parr Industrial Estate, St Helens, Merseyside, WA9 1QW Operator Name: M Baker Recycling Ltd Operator Location: Cornwall Street, Parr Ind Est, St Helens, Merseyside, WA9 1QW Authority: Environment Agency - North West Region, South Area Site Category: Metal Recycling Sites (Mixed) Licence Status: Modified Issued: 14th August 2002 Last Modified: 19th February 2008 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A8NW (S)	314	1	353067 394622
63	Licensed Waste Management Facilities (Locations) Licence Number: 50529 Location: St Helen Wastewater Treatment Works, Delta Road, St Helens, Merseyside, WA11 9DX Operator Name: United Utilities Water Plc Operator Location: Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Warrington, Cheshire, WA5 3LP Authority: Environment Agency - North West Region, South Area Site Category: Not Supplied Licence Status: IPPC Issued: 4th January 2008 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: HP3631LV Positional Accuracy: Manually positioned to the address or location	A18NE (N)	829	1	353569 396023



Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
64	Licensed Waste Management Facilities (Locations) Licence Number: 53863 Location: Unit 6 & 7, Sutton Road, Sutton, St Helens, Merseyside, WA9 3DR Operator Name: Cannon Hygiene Ltd Operator Location: Northgate House, Northgate, White Lund, Morecambe, Lancashire, LA3 3BJ Authority: Environment Agency - North West Region, South Area Site Category: Clinical Waste Transfer Stations Licence Status: issued Issued: 24th March 1992 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A7SW (SW)	909	1	352500 394300
65	Licensed Waste Management Facilities (Locations) Licence Number: 50020 Location: 20 Jackson Street, St Helens, Merseyside, WA9 1AN Operator Name: Leslie & Steven Saunders Operator Location: 20 Jackson Street, St Helens, Merseyside, WA9 1AN Authority: Environment Agency - North West Region, South Area Site Category: Metal Recycling Sites (Vehicle Dismantlers) Licence Status: Issued Issued: 5th August 1999 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A11NE (W)	985	1	352085 395210
	Local Authority Landfill Coverage Name: Merseyside Waste Disposal Authority - Has supplied landfill data		0	3	355030 395084
	Local Authority Landfill Coverage Name: St Helens Metropolitan District Council - Landfill data has been supplied by another authority		0	7	355030 395083
66	Local Authority Recorded Landfill Sites Location: Gaskell Street/ Jackson Street, St Helens Reference: SH059 Authority: Merseyside Waste Disposal Authority Last Reported Status: Unknown Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A7NW (SW)	694	3	352537 394571
67	Local Authority Recorded Landfill Sites Location: Malvern Road, St Helens Reference: SH48 Authority: Merseyside Waste Disposal Authority Last Reported Status: Unknown Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Located by supplier to within 100m Boundary Quality: Not Applicable	A19SE (NE)	926	3	354200 395600



Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
68	<p>Registered Waste Transfer Sites</p> <p>Licence Holder: Cannon Hygiene Ltd Licence Reference: 30352 (352/04) Site Location: Unit 6/7 The Portland Centre, Sutton Road, ST HELENS, Merseyside, WA9 3DR Operator Location: 79 Limpsfield Road, SANDERSTEAD, Surrey, CR2 9LB Authority: Environment Agency - North West Region, South Area Site Category: Transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source: Some restriction on source of waste Restrictions: Licence Status: Operational as far as is known Dated: 1st March 1992 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Clinical - As In Col/Disp.Reg's Of '88 Max.Storage Of These Max.Waste Permitted By Licence Mortuary Waste Clothing Special Pharm'L Waste Max.Stor Treated Nappies/Incontinence Pads Treated Sanitary Towels/Tampons Wastes From Pathology Labs</p>	A7SW (SW)	875	1	352555 394300



Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
69	Control of Major Accident Hazards Sites (COMAH) Name: Glassband (NW) Limited Location: 4 West Side Jackson, ST. HELENS, Merseyside, WA9 3AT Reference: Not Supplied Type: Lower Tier Status: Record Ceased To Be Supplied Under COMAH Regulations Positional Accuracy: Automatically positioned to the address	A11SE (W)	903	4	352214 394765



Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
70	BGS Recorded Mineral Sites Site Name: Ashton'S Green Colliery Location: Broad Oak, St Helens, Merseyside Source: British Geological Survey, National Geoscience Information Service Reference: 14524 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Coal Measures Group Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A14SW (SE)	421	5	353730 394820
71	BGS Recorded Mineral Sites Site Name: Sutton Potteries Location: Worsley Brow, St Helens, Merseyside Source: British Geological Survey, National Geoscience Information Service Reference: 14523 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A8SW (S)	662	5	352222 394240
72	BGS Recorded Mineral Sites Site Name: Sutton Heath Location: Peasley Cross, St Helens, Merseyside Source: British Geological Survey, National Geoscience Information Service Reference: 14522 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A7SE (SW)	772	5	352595 394400
73	BGS Recorded Mineral Sites Site Name: Kurtz'S Brickworks Location: Peasley Cross, St Helens, Merseyside Source: British Geological Survey, National Geoscience Information Service Reference: 14521 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	784	5	352435 394560
74	BGS Recorded Mineral Sites Site Name: Gaskell Location: Sutton Oak, St Helens, Merseyside Source: British Geological Survey, National Geoscience Information Service Reference: 14520 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	848	5	352600 394300
75	BGS Recorded Mineral Sites Site Name: Providence Location: Binney Street, Sutton Oak, St Helens, Merseyside Source: British Geological Survey, National Geoscience Information Service Reference: 14519 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Etruria Formation (Etruria Marl) Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A2NE (S)	965	5	352855 394005



Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Lower Westphalian (mainly Productive Coal Measures)	A12SE (SW)	0	5	352852 394929
	Coal Mining Affected Areas Description: In an area which may be affected by coal mining activity. It is recommended that a coal mining report is obtained from the Coal Authority. Contact details are included in the Useful Contacts section of this report.	(NW)	0	6	348000 398000
	Mining Instability Mining Evidence: Inconclusive Coal Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	(N)	0	-	353000 401000
	Potential for Collapsible Ground Stability Hazards No Hazard				
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	353230 395000
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	353230 395000
	Potential for Ground Dissolution Stability Hazards No Hazard				
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	353230 395000
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	353230 395000
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	353230 395000
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	353230 395000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	353230 395000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	353230 395000
	Radon Potential - Radon Affected Areas Affected Area: The property is not in a radon affected area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	353230 395000
	Radon Potential - Radon Affected Areas Affected Area: The property is not in a radon affected area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	353230 395000
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	353230 395000
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	5	353230 395000
	Shallow Mining Hazards Risk: Low-Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	0	5	353259 395083
	Shallow Mining Hazards Risk: Low-Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	0	5	353259 395083
	Shallow Mining Hazards Risk: Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	5	353137 394976

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
76	Contemporary Trade Directory Entries Name: Enviroclear Site Services Location: Fleet La, St. Helens, Merseyside, WA9 1SZ Classification: Industrial Services Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A13SW (S)	0	-	353195 394936
76	Contemporary Trade Directory Entries Name: A B E Diesels Location: Fleet Lane, St. Helens, Merseyside, WA9 1SZ Classification: Engine Rebuilding & Reconditioning Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SW (S)	20	-	353162 394912
76	Contemporary Trade Directory Entries Name: Lex Turned Parts Location: Unit 1, Fleet Lane Industrial Estate, Fleet Lane, St. Helens, Merseyside, WA9 1TA Classification: Precision Engineers Status: Active Positional Accuracy: Automatically positioned to the address	A13SW (S)	20	-	353162 394912
76	Contemporary Trade Directory Entries Name: C M Engineering Location: Unit 8, Fleet La Ind Est, Fleet La, St. Helens, Merseyside, WA9 1TA Classification: Engineering Machine Services Status: Active Positional Accuracy: Manually positioned within the geographical locality	A13SW (S)	47	-	353177 394868
77	Contemporary Trade Directory Entries Name: Compucycle (Uk) Ltd Location: Unit 4, Fleet La Ind Est, Fleet La, St. Helens, Merseyside, WA9 1TA Classification: Computer Recycling & Disposal Status: Inactive Positional Accuracy: Manually positioned within the geographical locality	A13SE (S)	34	-	353268 394874
77	Contemporary Trade Directory Entries Name: Buildswift Ltd Location: Unit 2, Fleet Lane Industrial Estate, Fleet Lane, St. Helens, Merseyside, WA9 1TA Classification: Conveyors & Conveyor Belts Status: Active Positional Accuracy: Automatically positioned to the address	A13SW (S)	39	-	353224 394865
77	Contemporary Trade Directory Entries Name: St Helens Fabrications & Maintenance Ltd Location: Unit 2, Fleet Lane Industrial Estate, Fleet Lane, St. Helens, Merseyside, WA9 1TA Classification: Sheet Metal Work Status: inactive Positional Accuracy: Automatically positioned to the address	A13SW (S)	39	-	353224 394865
77	Contemporary Trade Directory Entries Name: Linian Crane & Hoist Co Location: Unit 9, Fleet Lane Industrial Estate, Fleet Lane, St. Helens, Merseyside, WA9 1TA Classification: Lifting Equipment Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SW (S)	39	-	353224 394865
77	Contemporary Trade Directory Entries Name: Enviroclear Site Services Location: Fleet La Ind Est, Fleet La, St. Helens, Merseyside, WA9 1TA Classification: Industrial Services Status: Inactive Positional Accuracy: Manually positioned within the geographical locality	A13SE (S)	46	-	353264 394862
77	Contemporary Trade Directory Entries Name: J P Commercials Location: Fleet La Ind Est, Fleet La, St. Helens, Merseyside, WA9 1TA Classification: Commercial Vehicle Bodybuilders & Repairers Status: Inactive Positional Accuracy: Manually positioned within the geographical locality	A13SW (S)	79	-	353218 394824
78	Contemporary Trade Directory Entries Name: G T B Components Ltd Location: Fleet Lane Industrial Estate, Fleet Lane, St. Helens, Merseyside, WA9 1TA Classification: Engineers - General Status: Active Positional Accuracy: Automatically positioned to the address	A13SE (S)	86	-	353250 394820

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
79	Contemporary Trade Directory Entries Name: Q P S Ltd Location: Cornwall Street, Parr Industrial Estate, St. Helens, Merseyside, WA9 1PW Classification: Clothing & Fabrics - Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SW (S)	179	-	353110 394753
79	Contemporary Trade Directory Entries Name: Venture Marble Ltd Location: Unit P6 Cornwall St Off Bedford St, Parr Ind Est, St Helens, Merseyside, WA9 1PN Classification: Fireplaces & Mantelpieces Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A13SW (SW)	183	-	353068 394780
80	Contemporary Trade Directory Entries Name: S M R Recycling Location: 23, Fry Street, St. Helens, Merseyside, WA9 2AB Classification: Waste Disposal Services Status: Active Positional Accuracy: Automatically positioned to the address	A13NE (NE)	193	-	353379 395385
81	Contemporary Trade Directory Entries Name: Phs All Clear Location: Unit 7, Bedford St, Parr Ind Est, St Helens, Merseyside, WA9 1PN Classification: Waste Disposal Services Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A13SW (SW)	209	-	352936 394850
81	Contemporary Trade Directory Entries Name: Phs All Clear Location: Unit 7, Bedford St, Parr Ind Est, St Helens, Merseyside, WA9 1PN Classification: Medical Waste Disposal Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A13SW (SW)	209	-	352936 394850
82	Contemporary Trade Directory Entries Name: The Bath Doctor Location: 36, Broad Oak Road, St. Helens, Merseyside, WA9 2EL Classification: Bath Resurfacing Status: Active Positional Accuracy: Automatically positioned to the address	A13NE (NE)	244	-	353419 395418
83	Contemporary Trade Directory Entries Name: Regency House Fire Places Location: 108, Parr Stocks Road, ST. HELENS, Merseyside, WA9 1NZ Classification: Fireplaces & Mantelpieces Status: Active Positional Accuracy: Automatically positioned to the address	A12NE (W)	270	-	352803 395092
84	Contemporary Trade Directory Entries Name: Almetex Location: Cornwall Street, Parr Industrial Estate, St. Helens, Merseyside, WA9 1QW Classification: Aluminium Fabricators Status: Inactive Positional Accuracy: Automatically positioned to the address	A8NW (S)	271	-	353088 394660
84	Contemporary Trade Directory Entries Name: Shore (Recycling) Ltd Location: Cornwall Street, Parr Industrial Estate, St. Helens, Merseyside, WA9 1QW Classification: Recycling Centres Status: Active Positional Accuracy: Automatically positioned to the address	A8NW (S)	271	-	353088 394660
85	Contemporary Trade Directory Entries Name: Nicholson Pet Supplies Location: 6, Bedford Street, St. Helens, Merseyside, WA9 1PH Classification: Pet Foods & Animal Feeds Status: Inactive Positional Accuracy: Automatically positioned to the address	A12SE (SW)	282	-	352827 394886
86	Contemporary Trade Directory Entries Name: Haydock Fork Truck Services Location: 7A Cornwall St, Parr Ind Est, St. Helens, Merseyside, WA9 1QT Classification: Fork Lift Trucks Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A8NW (SW)	297	-	353013 394678
87	Contemporary Trade Directory Entries Name: W Maass Ltd Location: Unit 2, Bedford Street, Parr Industrial Estate, St. Helens, Merseyside, WA9 1PN Classification: Engineers - General Status: Active Positional Accuracy: Automatically positioned to the address	A12SE (SW)	299	-	352893 394767

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
88	Contemporary Trade Directory Entries Name: First Stop Security Products Location: Unit 7, Cornwall St, Parr Ind Est, St. Helens, Merseyside, WA9 1QT Classification: Roller Shutter Manufacturers Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A8NW (SW)	315	-	353004 394662
88	Contemporary Trade Directory Entries Name: Fleet Consultants Ltd Location: Unit 7, Cornwall St, Parr Ind Est, St. Helens, Merseyside, WA9 1QT Classification: Pallets, Crates & Packing Cases Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A8NW (SW)	351	-	352988 394629
89	Contemporary Trade Directory Entries Name: Bennett A & J Location: Unit 9, Cornwall Street, Parr Industrial Estate, St. Helens, Merseyside, WA9 1QT Classification: Tarpaulins Status: inactive Positional Accuracy: Automatically positioned to the address	A8NW (SW)	373	-	352924 394650
89	Contemporary Trade Directory Entries Name: Bowen Tarpaulin Repairs Location: Unit 9, Cornwall Street, Parr Industrial Estate, St. Helens, Merseyside, WA9 1QT Classification: Tarpaulins Status: Inactive Positional Accuracy: Automatically positioned to the address	A8NW (SW)	373	-	352924 394650
90	Contemporary Trade Directory Entries Name: Tulip Iron Service Location: 6, Hertford Street, St. Helens, Merseyside, WA9 1RL Classification: Ironing & Home Laundry Services Status: Active Positional Accuracy: Automatically positioned to the address	A7NE (SW)	456	-	352738 394702
91	Contemporary Trade Directory Entries Name: Steven Autocraft Location: Unit 11, Moorfoot Road Industrial Estate, St. Helens, Merseyside, WA9 2DY Classification: Car Body Repairs Status: Active Positional Accuracy: Automatically positioned to the address	A19SW (NE)	511	-	353747 395495
91	Contemporary Trade Directory Entries Name: K J Joinery Services Location: Unit 3/5, Moorfoot Road Industrial Estate, St. Helens, Merseyside, WA9 2DY Classification: Joinery Manufacturers Status: Inactive Positional Accuracy: Automatically positioned in the proximity of the address	A19SW (NE)	536	-	353770 395509
91	Contemporary Trade Directory Entries Name: Parr Mot Centre Location: Unit 6, Moorfoot Road Industrial Estate, St. Helens, Merseyside, WA9 2DY Classification: Mot Testing Centres Status: Active Positional Accuracy: Automatically positioned to the address	A19SW (NE)	573	-	353789 395540
92	Contemporary Trade Directory Entries Name: Delta Fluid Products Ltd Location: Delta Road, St. Helens, Merseyside, WA9 2ED Classification: Engineers - General Status: Active Positional Accuracy: Automatically positioned to the address	A18SE (NE)	522	-	353513 395699
93	Contemporary Trade Directory Entries Name: Horseshoe Garage Location: Derbyshire Hill Road, ST. HELENS, Merseyside, WA9 2LH Classification: Mot Testing Centres Status: Active Positional Accuracy: Automatically positioned to the address	A14NW (E)	526	-	353917 395269
94	Contemporary Trade Directory Entries Name: M & M Location: 70, Monmouth Grove, St. Helens, Merseyside, WA9 1QB Classification: Commercial Cleaning Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A7NE (SW)	543	-	352637 394690

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
95	Contemporary Trade Directory Entries Name: Direct Upvc Location: 21, Robinson Place, St. Helens, Merseyside, WA9 1BJ Classification: Cladding Suppliers & Installers Status: Inactive Positional Accuracy: Automatically positioned to the address	A12NW (W)	580	-	352516 395321
96	Contemporary Trade Directory Entries Name: Steel Pressings Ltd Location: Unit 1, Park Ind Est, Gaskell St, St. Helens, Merseyside, WA9 1PX Classification: Sheet Metal Work Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A7NE (SW)	630	-	352618 394574
97	Contemporary Trade Directory Entries Name: Plastic Raw Materials Location: Unit 3, Gaskell Street, St. Helens, Merseyside, WA9 1PX Classification: Plastics - Raw Materials Status: Inactive Positional Accuracy: Automatically positioned in the proximity of the address	A7NE (SW)	686	-	352615 394497
97	Contemporary Trade Directory Entries Name: Abird Ltd Location: Gaskell Street, ST. HELENS, Merseyside, WA9 1PX Classification: Generators - Sales & Service Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A7NE (SW)	706	-	352575 394508
98	Contemporary Trade Directory Entries Name: Ashcroft Service Station Location: Ashcroft St, St. Helens, Merseyside, WA9 1BQ Classification: Petrol Filling Stations - 24 Hour Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A12NW (W)	700	-	352388 395310
99	Contemporary Trade Directory Entries Name: Pentagon Colour Print Ltd Location: Wood Westworth House, Park Rd, St Helens, Merseyside, WA11 9AZ Classification: Printers Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A17NE (NW)	702	-	352744 395810
99	Contemporary Trade Directory Entries Name: Pentagon Printing Co Ltd Location: Wood Westworth Ho, Park Rd, St Helens, Merseyside, WA11 9AZ Classification: Printers Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A17NE (NW)	710	-	352716 395796
100	Contemporary Trade Directory Entries Name: St Helens Service Station Location: Park Rd, St. Helens, Merseyside, WA9 1HE Classification: Petrol Filling Stations Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A17NE (NW)	720	-	352688 395782
100	Contemporary Trade Directory Entries Name: Pentagon Colourprint Ltd Location: Pentagon House, Park Road, St. Helens, Merseyside, WA11 9AZ Classification: Printers Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A17SE (NW)	735	-	352650 395765
101	Contemporary Trade Directory Entries Name: Bartons Pickles Location: 60, Lascelles Street, St. Helens, Merseyside, WA9 1BA Classification: Food Products - Manufacturers Status: Active Positional Accuracy: Automatically positioned to the address	A12NW (W)	721	-	352355 395252
102	Contemporary Trade Directory Entries Name: Pentagon Printing & Stationery Location: Wood Westworth House, Park Road, ST. HELENS, Merseyside, WA11 9AZ Classification: Printers Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A17SE (NW)	743	-	352630 395756
103	Contemporary Trade Directory Entries Name: Jts Warehousing Ltd Location: Unit 33, Eastside Industrial Estate, Jackson Street, St. Helens, Merseyside, WA9 3AS Classification: Road Haulage Services Status: Active Positional Accuracy: Automatically positioned to the address	A7NW (SW)	750	-	352398 394701

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
104	Contemporary Trade Directory Entries Name: A & S Tyres Location: Ashcroft Service Station, Ashcroft Street, St Helens, Merseyside, WA9 1BQ Classification: Garage Services Status: Inactive Positional Accuracy: Manually positioned to the address or location	A12NW (W)	752	-	352341 395336
105	Contemporary Trade Directory Entries Name: Forward Autos Location: Gaskell Street, St. Helens, Merseyside, WA9 1PX Classification: Car Dealers Status: Active Positional Accuracy: Automatically positioned to the address	A7NE (SW)	753	-	352572 394445
106	Contemporary Trade Directory Entries Name: Gsb Ledwith Ltd Location: Sutton Rd, St Helens, Merseyside, WA9 3DY Classification: Commercial Vehicle Bodybuilders & Repairers Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A7SE (SW)	768	-	352764 394276
106	Contemporary Trade Directory Entries Name: Wilber Motors Location: Sutton Road, St. Helens, Merseyside, WA9 3DY Classification: Engine Rebuilding & Reconditioning Status: Active Positional Accuracy: Automatically positioned to the address	A7SE (SW)	786	-	352757 394259
107	Contemporary Trade Directory Entries Name: D A Welding Services Ltd Location: Sutton Rd, St. Helens, Merseyside, WA9 3DR Classification: Welding Equipment - Sales & Service Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A7SE (SW)	784	-	352686 394315
107	Contemporary Trade Directory Entries Name: B & S Logistics Ltd Location: Sutton Rd, St Helens, Merseyside, WA9 3DU Classification: Road Haulage Services Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A7SE (SW)	785	-	352684 394315
107	Contemporary Trade Directory Entries Name: Cannon Hygiene Ltd Location: Unit 6/7, Portland Centre, Sutton Road, St. Helens, Merseyside, WA9 3DR Classification: Hygiene & Cleansing Services Status: Active Positional Accuracy: Automatically positioned to the address	A7SE (SW)	818	-	352679 394278
107	Contemporary Trade Directory Entries Name: R W G Engineering Ltd Location: Unit 5, Portland Centre, Sutton Road, St. Helens, Merseyside, WA9 3DR Classification: Engineers - General Status: Active Positional Accuracy: Automatically positioned to the address	A7SE (SW)	818	-	352679 394278
107	Contemporary Trade Directory Entries Name: D A Welding Location: Unit 3, Portland Centre, Sutton Road, St. Helens, Merseyside, WA9 3DR Classification: Welding Equipment - Sales & Service Status: Inactive Positional Accuracy: Automatically positioned to the address	A7SE (SW)	818	-	352679 394278
107	Contemporary Trade Directory Entries Name: G D K Location: Unit 9, Portland Centre, Sutton Road, St. Helens, Merseyside, WA9 3DR Classification: Wrought Ironwork Status: Active Positional Accuracy: Automatically positioned in the proximity of the address	A7SE (SW)	829	-	352654 394282
107	Contemporary Trade Directory Entries Name: Cross Design & Project Management Ltd Location: Unit 1, Portland Centre, Sutton Road, St. Helens, Merseyside, WA9 3DR Classification: Electrical Engineers Status: Inactive Positional Accuracy: Automatically positioned in the proximity of the address	A7SE (SW)	829	-	352654 394282
108	Contemporary Trade Directory Entries Name: William Rainfords Concrete Location: Watery La, St Helens, Merseyside, WA9 3HB Classification: Concrete Products Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A8SE (S)	785	-	353512 394160



Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
109	Contemporary Trade Directory Entries Name: John K Philips Group Ltd Location: Stadium Industry Park, St. Helens, Merseyside, WA9 3AN Classification: Road Haulage Services Status: Active Positional Accuracy: Manually positioned within the geographical locality	A12NW (W)	785	-	352325 395398
110	Contemporary Trade Directory Entries Name: P & R Labpak Ltd Location: 6, Ketterer Court, St. Helens, Merseyside, WA9 3AH Classification: Laboratories Status: Active Positional Accuracy: Automatically positioned to the address	A7NW (SW)	792	-	352383 394633
111	Contemporary Trade Directory Entries Name: C B V Services Location: Unit 31, Eastside Industrial Estate, Jackson Street, St. Helens, Merseyside, WA9 3AS Classification: Garage Services Status: Active Positional Accuracy: Manually positioned to the address or location	A12SW (W)	793	-	352326 394776
112	Contemporary Trade Directory Entries Name: Ultraseal Location: 34, Brunswick Street, St. Helens, Merseyside, WA9 2JE Classification: Tyre Repairs & Retreading Status: Inactive Positional Accuracy: Automatically positioned to the address	A14SE (E)	801	-	354217 395082
113	Contemporary Trade Directory Entries Name: Cleveland Electrical Co Ltd Location: 2, Ketterer Court, St. Helens, Merseyside, WA9 3AH Classification: Electrical Engineers Status: Active Positional Accuracy: Automatically positioned to the address	A7NW (SW)	818	-	352322 394705
113	Contemporary Trade Directory Entries Name: Pc Print Location: Jackson Street, St. Helens, Merseyside, WA9 3AP Classification: Printers Status: Active Positional Accuracy: Automatically positioned to the address	A7NW (W)	838	-	352291 394735
113	Contemporary Trade Directory Entries Name: Poplar Services Location: Poplar House, Jackson Street, St. Helens, Merseyside, WA9 3AP Classification: Printers Status: Active Positional Accuracy: Automatically positioned to the address	A7NW (W)	838	-	352291 394735
113	Contemporary Trade Directory Entries Name: Imprestik Location: Poplar House, Jackson Street, St. Helens, Merseyside, WA9 3AP Classification: Tapes - industrial Status: Active Positional Accuracy: Automatically positioned to the address	A7NW (W)	838	-	352291 394735
113	Contemporary Trade Directory Entries Name: Semex Location: Jackson St, St. Helens, Merseyside, WA9 3BA Classification: Concrete & Mortar Ready Mixed Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A7NW (W)	866	-	352266 394722
113	Contemporary Trade Directory Entries Name: Astre Location: Jackson St Ind Est, Jackson St, St. Helens, Merseyside, WA9 3AS Classification: Furniture - Repairing & Restoring Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A7NW (W)	866	-	352262 394732
114	Contemporary Trade Directory Entries Name: P Y C Engineering Co Location: Unit 2, Eastside Industrial Estate, Jackson Street, St. Helens, Merseyside, WA9 3AS Classification: Precision Engineers Status: Active Positional Accuracy: Automatically positioned to the address	A12SW (W)	820	-	352273 394898

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
115	Contemporary Trade Directory Entries Name: Bullshead Garage Location: Sutton Road, St. Helens, Merseyside, WA9 3DJ Classification: Garage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A7SW (SW)	835	-	352543 394361
115	Contemporary Trade Directory Entries Name: Hmc Fleet Services Location: Sutton Rd, St Helens, Merseyside, WA9 3DJ Classification: Garage Services Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A7SE (SW)	839	-	352570 394334
115	Contemporary Trade Directory Entries Name: Wealdpark Ltd Location: Sutton Road, St. Helens, Merseyside, WA9 3DJ Classification: Precision Engineers Status: Active Positional Accuracy: Automatically positioned to the address	A7SW (SW)	862	-	352495 394368
116	Contemporary Trade Directory Entries Name: Competent Cleaners Ltd Location: Park Rd, St. Helens, Merseyside, WA9 1DP Classification: Carpet, Curtain & Upholstery Cleaners Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A17SW (NW)	840	-	352374 395616
117	Contemporary Trade Directory Entries Name: Maran Atha Fasteners Ltd Location: 8, Ketterer Court, St. Helens, Merseyside, WA9 3AH Classification: Nuts, Bolts & Fixings Status: Active Positional Accuracy: Automatically positioned to the address	A7NW (SW)	844	-	352332 394619
118	Contemporary Trade Directory Entries Name: David Horne Refinishers Location: 8, Merton Bank Road, St. Helens, Merseyside, WA9 1DH Classification: Car Body Repairs Status: Inactive Positional Accuracy: Automatically positioned to the address	A17SW (NW)	858	-	352411 395694
119	Contemporary Trade Directory Entries Name: Chapel Works Motors Location: Units 6 & 7 Chapel Works, Sutton Rd, St Helens, Merseyside, WA9 3EF Classification: Garage Services Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A3NW (S)	874	-	352992 394056
119	Contemporary Trade Directory Entries Name: Mandy Transport Location: Warehouse, Webb Street, St. Helens, Merseyside, WA9 3EE Classification: Road Haulage Services Status: Active Positional Accuracy: Automatically positioned to the address	A3NW (S)	884	-	352959 394054
120	Contemporary Trade Directory Entries Name: Furniture Pro Location: Jackson Street, St. Helens, Merseyside, WA9 3BA Classification: Furniture - Repairing & Restoring Status: Inactive Positional Accuracy: Automatically positioned to the address	A7NW (W)	884	-	352257 394690
121	Contemporary Trade Directory Entries Name: Renfrew Textiles Ltd Location: Westside Industrial Estate, Jackson Street, St. Helens, Merseyside, WA9 3AT Classification: Clothing & Fabrics - Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A11SE (W)	892	-	352226 394766
121	Contemporary Trade Directory Entries Name: L H M Garage Services Ltd Location: Westside Industrial Estate, Jackson Street, St. Helens, Merseyside, WA9 3AT Classification: Garage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A11SE (W)	892	-	352226 394766
121	Contemporary Trade Directory Entries Name: Glassbond (Nw) Ltd Location: Unit 4, Westside Industrial Estate, Jackson Street, St. Helens, Merseyside, WA9 3AT Classification: Chemicals & Allied Products Status: Active Positional Accuracy: Automatically positioned to the address	A11SE (W)	903	-	352214 394765

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
121	Contemporary Trade Directory Entries Name: L D M Engineering Location: Unit 1B, Westside Ind Est, Jackson St, St. Helens, Merseyside, WA9 3AT Classification: Metal Workers Status: Inactive Positional Accuracy: Manually positioned within the geographical locality	A11SE (W)	904	-	352208 394785
122	Contemporary Trade Directory Entries Name: Prestige & Performance Location: Three Ways Garage, Sulton Road, St. Helens, Merseyside, WA9 3DL Classification: Garage Services Status: Active Positional Accuracy: Automatically positioned to the address	A7SW (SW)	898	-	352498 394316
122	Contemporary Trade Directory Entries Name: Three Way Garage Location: Three Ways Garage, Sulton Road, St. Helens, Merseyside, WA9 3DL Classification: Garage Services Status: Active Positional Accuracy: Manually positioned to the address or location	A7SW (SW)	898	-	352498 394316
123	Contemporary Trade Directory Entries Name: Torrisi Foods Ltd Location: Unit 16F, Westside Industrial Estate, Jackson Street, St. Helens, Merseyside, WA9 3AT Classification: Frozen Food Processors & Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address	A11SE (W)	906	-	352191 394866
123	Contemporary Trade Directory Entries Name: Jamak Ltd Location: Unit 17 F, Westside Ind Est, Jackson St, St. Helens, Merseyside, WA9 3AT Classification: Precision Engineers Status: Active Positional Accuracy: Manually positioned to the address or location	A11SE (W)	936	-	352164 394844
123	Contemporary Trade Directory Entries Name: Screenking Location: Unit 17m, Westside Ind Est, Jackson St, St. Helens, Merseyside, WA9 3AT Classification: T-Shirts Status: Active Positional Accuracy: Manually positioned to the address or location	A11SE (W)	943	-	352157 394842
123	Contemporary Trade Directory Entries Name: Robinson & Lee Location: Unit 17D, Westside Ind Est, Jackson St, St. Helens, Merseyside, WA9 3AT Classification: Gate Manufacturers Status: Active Positional Accuracy: Manually positioned to the address or location	A11SE (W)	943	-	352154 394859
123	Contemporary Trade Directory Entries Name: F P I Northwest Location: Unit 17a, Westside Industrial Estate, Jackson Street, ST. HELENS, Merseyside, WA9 3AT Classification: Hydraulic Engineers Status: Active Positional Accuracy: Automatically positioned to the address	A11SE (W)	946	-	352149 394878
123	Contemporary Trade Directory Entries Name: Peninsula Laboratories Europe Location: 17k Westside Indust Est, Jackson St, St Helens, Merseyside, WA9 3AJ Classification: Chemical Manufacturers Status: Inactive Positional Accuracy: Manually positioned to the address or location	A11SE (W)	952	-	352146 394856
124	Contemporary Trade Directory Entries Name: Airtec Ltd Location: Manor Street, St. Helens, Merseyside, WA9 3AX Classification: Air Compressors Status: Active Positional Accuracy: Automatically positioned to the address	A6NE (SW)	942	-	352215 394640
124	Contemporary Trade Directory Entries Name: Airtec Filtration Ltd Location: Manor Street, St. Helens, Merseyside, WA9 3AX Classification: Filtration Systems & Services Status: Active Positional Accuracy: Automatically positioned to the address	A6NE (SW)	942	-	352215 394640

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
125	Contemporary Trade Directory Entries Name: Middlehurst Garage Location: Jackson Street, St. Helens, Merseyside, WA9 1AW Classification: Car Dealers Status: Active Positional Accuracy: Automatically positioned to the address	A11SE (W)	956	-	352116 395054
126	Contemporary Trade Directory Entries Name: Caldeira Ltd Location: Langtree Street, St. Helens, Merseyside, WA9 1AR Classification: Soft Furnishings - Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A11NE (W)	962	-	352125 395334
127	Contemporary Trade Directory Entries Name: Super Trucks Ltd Location: Beaufort Street, St. Helens, Merseyside, WA9 3BO Classification: Commercial Vehicle Bodybuilders & Repairers Status: Active Positional Accuracy: Automatically positioned to the address	A7SW (SW)	966	-	352375 394342
128	Contemporary Trade Directory Entries Name: The Fireplace Centre Location: Jackson St, St. Helens, Merseyside, WA9 1AN Classification: Fireplaces & Mantelpieces Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A11NE (W)	973	-	352098 395218
128	Contemporary Trade Directory Entries Name: Atlas Salvage Ltd Location: 20, Jackson Street, St. Helens, Merseyside, WA9 1AN Classification: Car Breakers & Dismantlers Status: Active Positional Accuracy: Automatically positioned to the address	A11NE (W)	985	-	352085 395210
129	Contemporary Trade Directory Entries Name: Willow Fabrications Ltd Location: Unit 8, Sutton Oak Drive, St. Helens, Merseyside, WA9 3PH Classification: Sheet Metal Work Status: Inactive Positional Accuracy: Automatically positioned to the address	A7SW (SW)	976	-	352551 394176
130	Contemporary Trade Directory Entries Name: G S W Location: Unit 10, Sutton Oak Drive, St. Helens, Merseyside, WA9 3PH Classification: Fireplaces & Mantelpieces Status: Active Positional Accuracy: Automatically positioned to the address	A7SE (SW)	976	-	352571 394162
130	Contemporary Trade Directory Entries Name: Seabrooke Environmental Services Ltd Location: Unit 20, Sutton Oak Drive, St. Helens, Merseyside, WA9 3PH Classification: Sheet Metal Work Status: Inactive Positional Accuracy: Automatically positioned to the address	A7SE (SW)	984	-	352636 394103
130	Contemporary Trade Directory Entries Name: L J Paint Systems Location: Unit 15, Sutton Oak Drive, St. Helens, Merseyside, WA9 3PH Classification: Paint Spraying Equipment & Accessories Status: Inactive Positional Accuracy: Automatically positioned to the address	A7SE (SW)	986	-	352603 394124
130	Contemporary Trade Directory Entries Name: John Edwards Location: Unit 15, Sutton Oak Dr, St. Helens, Merseyside, WA9 3PH Classification: Wrought Ironwork Status: Active Positional Accuracy: Manually positioned to the address or location	A7SE (SW)	986	-	352603 394124
130	Contemporary Trade Directory Entries Name: Edwards Wrought Iron Ltd Location: Unit 15, Sutton Oak Dr, St. Helens, Merseyside, WA9 3PH Classification: Wrought Ironwork Status: Active Positional Accuracy: Manually positioned to the address or location	A7SE (SW)	986	-	352603 394124
130	Contemporary Trade Directory Entries Name: First Choice For Stationery Location: Unit 16, Sutton Oak Drive, St. Helens, Merseyside, WA9 3PH Classification: Printers Status: Active Positional Accuracy: Automatically positioned to the address	A7SE (SW)	992	-	352600 394119

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
131	Contemporary Trade Directory Entries Name: Travis Perkins Location: 22 Jackson St, St. Helens, Merseyside, WA9 1AN Classification: Builders' Merchants Status: Active Positional Accuracy: Manually positioned to the address or location	A11NE (W)	977	-	352091 395128
132	Contemporary Trade Directory Entries Name: Travis Perkins Location: Jackson St, St. Helens, Merseyside, WA9 1AN Classification: Builders' Merchants Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A11NE (W)	982	-	352091 395245
132	Contemporary Trade Directory Entries Name: Furniture Pro Location: 171 Jackson St, St. Helens, Merseyside, WA9 3BA Classification: Furniture - Repairing & Restoring Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A11NE (W)	996	-	352083 395292
133	Contemporary Trade Directory Entries Name: Willochrome Ltd Location: Unit 13, Westside Industrial Estate, Jackson Street, St. Helens, Merseyside, WA9 3AT Classification: Metal Finishing Services Status: Active Positional Accuracy: Automatically positioned to the address	A11SE (W)	988	-	352096 394966
134	Fuel Station Entries Name: Ashcroft Service Station Location: Ashcroft Street, ST. HELENS, Merseyside, WA9 1BQ Brand: SPOT Premises Type: Petrol Station Status: Open Positional Accuracy: Manually positioned to the address or location	A12NE (W)	458	-	352610 395127
135	Fuel Station Entries Name: Horseshoe Garage Location: Broad Oak Road, Ashtons Green Drive, Ashtons Green, ST. HELENS, Merseyside, WA9 2LH Brand: UNBRANDED Premises Type: Petrol Station Status: Open Positional Accuracy: Automatically positioned to the address	A14NW (E)	525	-	353916 395269
136	Fuel Station Entries Name: St Helens Service Station Location: Park Road, St. Helens, Merseyside, WA9 1HE Brand: Closed Premises Type: Petrol Station Status: Closed Positional Accuracy: Automatically positioned to the address	A17NE (NW)	730	-	352719 395825

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
137	Areas of Adopted Green Belt Authority: St Helens Metropolitan Borough Council Plan Name: St Helens Unitary Development Plan Status: Adopted Plan Date: 2nd July 1998	A19SW (NE)	543	7	353753 395532
138	Areas of Adopted Green Belt Authority: St Helens Metropolitan Borough Council Plan Name: St Helens Unitary Development Plan Status: Adopted Plan Date: 2nd July 1998	A9SW (SE)	761	7	353654 394249
139	Local Nature Reserves Name: Parr Hall Millennium Green Multiple Area: N Area (m2): 37984.24 Source: Natural England Designation Date: 25th April 2003	A18NW (N)	685	9	352947 395915
140	Local Nature Reserves Name: Colliers Moss Common Multiple Area: N Area (m2): 623310.35 Source: Natural England Designation Date: 4th April 2005	A9SW (SE)	803	9	353778 394282

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices St Helens Metropolitan Borough Council - Environmental Protection Department Knowsley Metropolitan Borough Council - Department of Planning and Development Warrington Borough Council - Environmental Health Department Wigan Metropolitan Borough Council - Environmental Health Department Halton Borough Council - Environmental Health Department	December 2007 March 2008 March 2008 May 2007 October 2007	Annual Rolling Update Annual Rolling Update Annual Rolling Update Annual Rolling Update Annual Rolling Update
Discharge Consents Environment Agency - North West Region	July 2008	Quarterly
Enforcement and Prohibition Notices Environment Agency - North West Region	August 2008	As notified
Integrated Pollution Controls Environment Agency - North West Region	July 2008	Quarterly
Integrated Pollution Prevention And Control Environment Agency - North West Region	July 2008	Quarterly
Local Authority Integrated Pollution Prevention And Control Knowsley Metropolitan Borough Council - Environmental Health and Consumer Protection Division St Helens Metropolitan Borough Council - Environmental Health Department Warrington Borough Council - Environmental Health Department Halton Borough Council - Environmental Health Department Wigan Metropolitan Borough Council - Environmental Health Department	April 2008 August 2008 January 2008 March 2008 May 2008	Annual Rolling Update Annual Rolling Update Annual Rolling Update Annual Rolling Update Annual Rolling Update
Local Authority Pollution Prevention and Controls Knowsley Metropolitan Borough Council - Environmental Health and Consumer Protection Division St Helens Metropolitan Borough Council - Environmental Health Department Warrington Borough Council - Environmental Health Department Halton Borough Council - Environmental Health Department Wigan Metropolitan Borough Council - Environmental Health Department	April 2008 August 2008 January 2008 March 2008 May 2007	Annual Rolling Update Annual Rolling Update Annual Rolling Update Annual Rolling Update Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements Knowsley Metropolitan Borough Council - Environmental Health and Consumer Protection Division Halton Borough Council - Environmental Health Department St Helens Metropolitan Borough Council - Environmental Health Department Warrington Borough Council - Environmental Health Department Wigan Metropolitan Borough Council - Environmental Health Department	April 2008 August 2007 August 2008 January 2008 May 2008	Annual Rolling Update Annual Rolling Update Annual Rolling Update Annual Rolling Update Annual Rolling Update
Nearest Surface Water Feature Ordnance Survey	April 2008	Quarterly
Pollution Incidents to Controlled Waters Environment Agency - North West Region	January 2000	Not Applicable
Prosecutions Relating to Authorised Processes Environment Agency - North West Region	August 2008	As notified
Prosecutions Relating to Controlled Waters Environment Agency - North West Region	August 2008	As notified
Registered Radioactive Substances Environment Agency - North West Region	July 2008	Quarterly
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	September 2007	Annually
River Quality Chemistry Sampling Points Environment Agency - Head Office	August 2007	Annually
Substantiated Pollution Incident Register Environment Agency - North West Region - South Area	July 2008	Quarterly

Agency & Hydrological	Version	Update Cycle
Water Abstractions Environment Agency - North West Region	July 2008	Quarterly
Water Industry Act Referrals Environment Agency - North West Region	July 2008	Quarterly
Groundwater Vulnerability Environment Agency - Head Office	January 1999	Not Applicable
Drift Deposits Environment Agency - Head Office	January 1999	Not Applicable
Source Protection Zones Environment Agency - Head Office	April 2008	Variable
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	July 2008	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	July 2008	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	July 2008	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	July 2008	Quarterly
Flood Defences Environment Agency - Head Office	July 2008	Quarterly
Waste	Version	Update Cycle
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites Environment Agency - North West Region - South Area	May 2008	As notified
Integrated Pollution Control Registered Waste Sites Environment Agency - North West Region	July 2008	Quarterly
Licensed Waste Management Facilities (Landfill Boundaries) Environment Agency - North West Region - South Area	May 2008	Quarterly
Licensed Waste Management Facilities (Locations) Environment Agency - North West Region - South Area	May 2008	Quarterly
Local Authority Landfill Coverage Halton Borough Council - Environmental Health Department Knowsley Metropolitan Borough Council Merseyside Waste Disposal Authority St Helens Metropolitan Borough Council Warrington Borough Council - Environmental Health Department Wigan Metropolitan Borough Council - Environmental Health Department	May 2000 May 2000 May 2000 May 2000 May 2000 May 2000	Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable
Local Authority Recorded Landfill Sites Halton Borough Council - Environmental Health Department Knowsley Metropolitan Borough Council Merseyside Waste Disposal Authority St Helens Metropolitan Borough Council Warrington Borough Council - Environmental Health Department Wigan Metropolitan Borough Council - Environmental Health Department	May 2000 May 2000 May 2000 May 2000 May 2000 May 2000	Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable
Registered Landfill Sites Environment Agency - North West Region - South Area	March 2003	Not Applicable
Registered Waste Transfer Sites Environment Agency - North West Region - South Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites Environment Agency - North West Region - South Area	March 2003	Not Applicable

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	 British Geological Survey <small>NATURAL ENVIRONMENT RESEARCH COUNCIL</small>
Centre for Ecology and Hydrology	 Centre for Ecology & Hydrology <small>NATURAL ENVIRONMENT RESEARCH COUNCIL</small>
Countryside Council for Wales	 CYNGOR CEFN GWLAD CYMRU COUNTRYSIDE COUNCIL FOR WALES
Scottish Natural Heritage	
Natural England	
Health Protection Agency	
Ove Arup	
Peter Brett Associates	

Contact	Name and Address	Contact Details
1	Environment Agency - National Customer Contact Centre (NCCC) PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 08708 506 506 Email: enquiries@environment-agency.gov.uk
2	St Helens Metropolitan Borough Council - Environmental Health Department Town Hall, Corporation Street, St Helens, Merseyside, WA10 1HE	Telephone: 01744 456000 Fax: 01744 733337 Website: www.sthelens.gov.uk
3	Merseyside Waste Disposal Authority 2nd Floor, North House, 17 North John Street, Liverpool, Merseyside, L2 5QY	Telephone: 0151 2551444 Fax: 0151 2271848 Email: enquiries@merseysidewda.gov.uk
4	Health and Safety Executive HSE Infoline, Caerphilly Business Park, Caerphilly, CF83 3GG	Telephone: 08701 545500 Fax: 02920 859260 Email: hseinformationservices@natbrit.com Website: www.hse.gov.uk
5	British Geological Survey - Enquiry Service British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
6	The Coal Authority - Mining Report Service 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG	Telephone: 0845 7626848 Email: thecoalauthority@coal.gov.uk
7	St Helens Metropolitan Borough Council Town Hall, Corporation Street, St Helens, Merseyside, WA10 1HP	Telephone: 01744 456000 Fax: 01744 733337 Website: www.sthelens.gov.uk
8	Warrington Borough Council Town Hall, Warrington, Cheshire, WA1 1UH	Telephone: 01925 442140 Fax: 01925 442024 Website: www.warrington.gov.uk
9	Natural England Northminster House, Northminster Road, Peterborough, Cambridgeshire, PE1 1UA	Telephone: 0845 600 3078 Fax: 01733 455103 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
-	Health Protection Agency - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@hpa.org.uk Website: www.hpa.org.uk
-	Landmark Information Group Limited The Smith Centre, Henley On Thames, Oxfordshire, RG9 6AB	Telephone: 0870 850 6670 Fax: 0870 850 6671 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / SEPA have a charging policy in place for enquiries.

Envirocheck[®] Report: Historical Data Report Datasheet

Order Details:

Order Number:

26170275_1_1

Customer Reference:

Former Parr High School

National Grid Reference:

353230, 395090

Slice:

A

Site Area (Ha):

7.46

Search Buffer (m):

1000

Site Details:

Lansbury Bridge School

Lansbury Avenue

ST. HELENS

Merseyside

WA9 1TB

Client Details:

mr M Frackelton

Mott Macdonald

Spring Bank House

33 Stamford Street

Altrincham

Manchester

WA14 1ES

Report Section	Page Number
Summary	-
Historical Building Plans Information	-
Historical Land Use Information	1
Historical Tanks and Energy Facilities	11
Historical Map List	12
Useful Contacts and Further Information	13

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.

For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v36.0

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m
Historical Building Plans Information					
Areas Cleared Due To Enemy Action					
Above Ground Fuel Tanks (100m)				n/a	n/a
Asbestos (100m)				n/a	n/a
Benzene/Benzole/Naphtha, Naphthalene/Kerosene (100m)				n/a	n/a
Electricity Generation (100m)				n/a	n/a
Electricity Sub-Station (100m)				n/a	n/a
Gas Industry (100m)				n/a	n/a
Gas Storage (100m)				n/a	n/a
Gas Use (100m)				n/a	n/a
Oil Industry (100m)				n/a	n/a
Oil Storage (100m)				n/a	n/a
Oil Use (100m)				n/a	n/a
Paint based Oils (100m)				n/a	n/a
Paraffin (100m)				n/a	n/a
Petrol and Diesel Industry (100m)				n/a	n/a
Petrol and Diesel Storage (100m)				n/a	n/a
Petrol and Diesel Use (100m)				n/a	n/a
Potential Fuel Gas (100m)				n/a	n/a
Potential Fuel Oil (100m)				n/a	n/a
Potential Fuel Use (100m)				n/a	n/a
Potential Petrol and Diesel (100m)				n/a	n/a
Potential Tanks (100m)				n/a	n/a
Potentially Fuel-related Tanks (100m)				n/a	n/a
Underground Fuel Tanks (100m)				n/a	n/a
Historical Land Use Information					
Former Marshes					
Historical Flood Liabilities	pg 1				3
Potentially Contaminative Industrial Uses (Past Land Use)	pg 1	13	15	21	55
Potentially Infilled Land (Non-Water)	pg 6	4	4	4	11
Potentially Infilled Land (Water)	pg 7	3	10	16	37

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m
Historical Tanks and Energy Facilities					
Electrical Sub Station Facilities (100m)	pg 11	1		n/a	n/a
Electricity Industry Facilities (100m)				n/a	n/a
Gas Industry Facilities (100m)				n/a	n/a
Gas Monitoring Facilities (100m)				n/a	n/a
Miscellaneous Power Facilities (100m)				n/a	n/a
Oil Industry Facilities (100m)				n/a	n/a
Petroleum Storage Facilities (100m)				n/a	n/a
Potential Tanks (100m)				n/a	n/a
Tanks (100m)				n/a	n/a

Historical Land Use Information

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
1	Historical Flood Liabilities Use: Area liable to flood Date of Mapping: 1849	A18NW (N)	567	1	353021 395816
2	Historical Flood Liabilities Use: Area liable to flood Date of Mapping: 1849	A17NE (NW)	749	1	352855 395942
3	Historical Flood Liabilities Use: Area liable to flood Date of Mapping: 1849	A19NW (NE)	816	1	353717 395913
4	Potentially Contaminative Industrial Uses (Past Land Use) Use: General quarrying Date of Mapping: 1909	A13SW (SW)	0	1	353100 395007
5	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mining of coal & lignite Date of Mapping: 1849	A13SW (S)	0	1	353213 395010
6	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mineral railway Date of Mapping: 1849 - 1928	A13SE (SE)	0	1	353321 394978
7	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mineral railway Date of Mapping: 1849	A13SE (E)	0	1	353269 395081
8	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mineral railway Date of Mapping: 1849	A13SW (W)	0	1	353229 395086
9	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mineral railway Date of Mapping: 1849	A13NE (NE)	0	1	353280 395135
10	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mining & quarrying general Date of Mapping: 1909	A13NE (NE)	0	1	353301 395192
11	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mineral railway Date of Mapping: 1849	A13SW (SW)	0	1	353161 394967
12	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mineral railway Date of Mapping: 1849 - 1956	A13SE (SE)	0	1	353336 395015
13	Potentially Contaminative Industrial Uses (Past Land Use) Use: Clay bricks & tiles [manufacture] Date of Mapping: 1909	A13SW (SW)	0	1	353159 394950
14	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1894 - 1956	A13SE (E)	0	1	353351 395057
15	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1928	A13SW (S)	0	1	353176 394932
16	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1956 - 1982	A13SW (SW)	0	1	353137 394965
17	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1928	A13SW (SW)	21	1	353138 394929
18	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1894	A13SW (S)	21	1	353180 394899
19	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mining & quarrying general Date of Mapping: 1849	A13SE (S)	23	1	353250 394883
20	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mineral railway Date of Mapping: 1849	A13NE (NE)	28	1	353294 395241
21	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mining of coal & lignite Date of Mapping: 1849 - 1928	A13SE (SE)	47	1	353390 394985

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
22	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1894	A13SW (S)	68	1	353159 394854
23	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1894 - 1956	A13SW (S)	87	1	353183 394819
24	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1894	A13SW (S)	89	1	353134 394847
25	Potentially Contaminative Industrial Uses (Past Land Use) Use: Quarrying of sand & clay, operation of sand & gravel pits Date of Mapping: 1894 - 1956	A13NW (W)	120	1	352953 395177
26	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1849 - 1956	A13SW (S)	122	1	353224 394781
27	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mining of coal & lignite Date of Mapping: 1849	A13NW (NW)	143	1	353052 395336
28	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mining of coal & lignite Date of Mapping: 1849	A13SW (W)	179	1	352912 395026
29	Potentially Contaminative Industrial Uses (Past Land Use) Use: Chemical manufacturing general Date of Mapping: 1894	A18SW (N)	214	1	353095 395464
30	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1909 - 1929	A18SW (N)	214	1	353095 395464
31	Potentially Contaminative Industrial Uses (Past Land Use) Use: Refuse disposal Date of Mapping: 1909	A13SW (SW)	222	1	353019 394767
32	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mineral railway Date of Mapping: 1849	A14SW (E)	256	1	353655 395011
33	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1894 - 1928	A8NW (S)	266	1	353176 394639
34	Potentially Contaminative Industrial Uses (Past Land Use) Use: Heap, unknown constituents Date of Mapping: 1894 - 1928	A8NW (SW)	278	1	353012 394695
35	Potentially Contaminative Industrial Uses (Past Land Use) Use: Clay bricks & tiles [manufacture] Date of Mapping: 1929	A18SE (N)	301	1	353307 395562
36	Potentially Contaminative Industrial Uses (Past Land Use) Use: Weapons & ammunition [manufacture and storage] Date of Mapping: 1894	A14SW (E)	320	1	353724 395014
37	Potentially Contaminative Industrial Uses (Past Land Use) Use: Chemical manufacturing general Date of Mapping: 1849	A8NW (S)	322	1	353216 394580
38	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1956	A18SE (N)	327	1	353279 395597
39	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mining & quarrying general Date of Mapping: 1849	A14SW (E)	344	1	353748 395013
40	Potentially Contaminative Industrial Uses (Past Land Use) Use: Chemical manufacturing general Date of Mapping: 1894 - 1909	A18SE (N)	360	1	353297 395627
41	Potentially Contaminative Industrial Uses (Past Land Use) Use: Cemetery or Graveyard Date of Mapping: 1992	A18SE (NE)	365	1	353529 395484
42	Potentially Contaminative Industrial Uses (Past Land Use) Use: Metal casting/foundries Date of Mapping: 1894	A18SE (N)	374	1	353272 395647

Historical Land Use Information

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
43	Potentially Contaminative Industrial Uses (Past Land Use) Use: Chemical manufacturing general Date of Mapping: 1909	A18SE (N)	375	1	353260 395650
44	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mining of coal & lignite Date of Mapping: 1894	A8NW (S)	389	1	353173 394515
45	Potentially Contaminative Industrial Uses (Past Land Use) Use: Chemical manufacturing general Date of Mapping: 1894 - 1928	A7NE (SW)	390	1	352904 394644
46	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1992	A18SE (N)	392	1	353314 395655
47	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mining of coal & lignite Date of Mapping: 1849	A12SE (W)	430	1	352659 394962
48	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1894 - 1956	A8NW (S)	437	1	353143 394470
49	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mineral railway Date of Mapping: 1849	A19SW (NE)	441	1	353699 395444
50	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mining of coal & lignite Date of Mapping: 1849	A19SW (NE)	447	1	353712 395441
51	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mineral railway Date of Mapping: 1894 - 1929	A19SW (NE)	451	1	353698 395458
52	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1982	A8NW (S)	483	1	353179 394420
53	Potentially Contaminative Industrial Uses (Past Land Use) Use: Road haulage Date of Mapping: 1992	A19SW (NE)	501	1	353581 395617
54	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1894 - 1956	A18NE (N)	535	1	353293 395806
55	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mineral railway Date of Mapping: 1849	A19SW (NE)	559	1	353719 395580
56	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1894 - 1909	A18NW (N)	590	1	353183 395869
57	Potentially Contaminative Industrial Uses (Past Land Use) Use: Clay bricks & tiles [manufacture] Date of Mapping: 1894 - 1956	A12SW (W)	595	1	352481 395044
58	Potentially Contaminative Industrial Uses (Past Land Use) Use: Sewage Date of Mapping: 1909 - 1992	A18SE (NE)	601	1	353566 395758
59	Potentially Contaminative Industrial Uses (Past Land Use) Use: General quarrying Date of Mapping: 1849	A18NE (N)	627	1	353467 395848
60	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1982	A7NE (SW)	640	1	352650 394528
61	Potentially Contaminative Industrial Uses (Past Land Use) Use: Clay bricks & tiles [manufacture] Date of Mapping: 1928 - 1956	A7NE (SW)	649	1	352697 394475
62	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mining of coal & lignite Date of Mapping: 1849	A9NE (SE)	659	1	353945 394711
63	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mineral railway Date of Mapping: 1849	A14SE (E)	667	1	354025 394831

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
64	Potentially Contaminative Industrial Uses (Past Land Use) Use: Road haulage Date of Mapping: 1982	A12NW (W)	678	1	352391 395105
65	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1909 - 1956	A18NE (N)	678	1	353389 395931
66	Potentially Contaminative Industrial Uses (Past Land Use) Use: Tableware & other ceramics [manufacture] Date of Mapping: 1894 - 1956	A9SW (SE)	713	1	353603 394276
67	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1982	A7NW (SW)	716	1	352431 394709
68	Potentially Contaminative Industrial Uses (Past Land Use) Use: General quarrying Date of Mapping: 1849	A19NW (NE)	738	1	353687 395836
69	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1909 - 1956	A8SW (S)	747	1	352991 394188
70	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mining of coal & lignite Date of Mapping: 1849	A19NW (NE)	753	1	353704 395842
71	Potentially Contaminative Industrial Uses (Past Land Use) Use: Motor vehicles: maintenance & repair e.g. garages Date of Mapping: 1982	A7NE (SW)	758	1	352574 394438
72	Potentially Contaminative Industrial Uses (Past Land Use) Use: Air Shafts Date of Mapping: 1956	A9NE (SE)	761	1	354030 394656
73	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1982	A18NW (N)	768	1	352996 396019
74	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1909 - 1956	A18NW (N)	782	1	352935 396013
75	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1982	A7SE (SW)	794	1	352712 394283
76	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1894 - 1956	A7SE (SW)	833	1	352802 394176
77	Potentially Contaminative Industrial Uses (Past Land Use) Use: Metal casting/foundries Date of Mapping: 1928	A7NW (W)	861	1	352271 394721
78	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1982	A9SW (SE)	864	1	353651 394131
79	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1894 - 1909	A7NW (W)	866	1	352268 394713
80	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mining of coal & lignite Date of Mapping: 1894 - 1929	A19SE (NE)	875	1	354074 395684
81	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1909 - 1956	A23SE (N)	882	1	353274 396158
82	Potentially Contaminative Industrial Uses (Past Land Use) Use: Road haulage Date of Mapping: 1982	A11SE (W)	883	1	352219 394835
83	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mining of coal & lignite Date of Mapping: 1849	A3NE (S)	885	1	353261 394019
84	Potentially Contaminative Industrial Uses (Past Land Use) Use: Transport support & cargo handling Date of Mapping: 1849	A23SE (N)	897	1	353501 396125

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
85	Potentially Contaminative Industrial Uses (Past Land Use) Use: Quarrying of sand & clay, operation of sand & gravel pits Date of Mapping: 1956	A2NE (S)	902	1	352897 394056
86	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mineral railway Date of Mapping: 1849	A23SE (N)	902	1	353511 396127
87	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1928	A11NE (W)	909	1	352159 395164
88	Potentially Contaminative Industrial Uses (Past Land Use) Use: Heavy product manufacture - rolling and drawing of iron, steel and ferroalloys Date of Mapping: 1909 - 1956	A4NW (S)	911	1	353596 394056
89	Potentially Contaminative Industrial Uses (Past Land Use) Use: Chemical manufacturing general Date of Mapping: 1894 - 1909	A11NE (W)	913	1	352155 395167
90	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mineral railway Date of Mapping: 1909 - 1929	A19SE (NE)	915	1	354122 395688
91	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1982	A4NW (S)	918	1	353597 394049
92	Potentially Contaminative Industrial Uses (Past Land Use) Use: Machinery: engines, building and general industrial [manufacture] Date of Mapping: 1894	A4NW (S)	924	1	353590 394041
93	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1982	A3NW (S)	925	1	352973 394008
94	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1849 - 1982	A7SW (SW)	940	1	352413 394339
95	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1928	A2NE (SW)	942	1	352782 394063
96	Potentially Contaminative Industrial Uses (Past Land Use) Use: Sewage Date of Mapping: 1929 - 1956	A24SW (N)	946	1	353628 396124
97	Potentially Contaminative Industrial Uses (Past Land Use) Use: Clay bricks & tiles [manufacture] Date of Mapping: 1909	A7SW (SW)	958	1	352549 394200
98	Potentially Contaminative Industrial Uses (Past Land Use) Use: Chemical manufacturing general Date of Mapping: 1928	A7SW (SW)	960	1	352538 394206
99	Potentially Contaminative Industrial Uses (Past Land Use) Use: Machinery: engines, building and general industrial [manufacture] Date of Mapping: 1909	A11NE (W)	960	1	352122 395303
100	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1956	A7SW (SW)	960	1	352538 394206
101	Potentially Contaminative Industrial Uses (Past Land Use) Use: Mining & quarrying general Date of Mapping: 1849	A22SE (NW)	968	1	352697 396104
102	Potentially Contaminative Industrial Uses (Past Land Use) Use: Glass & glass products exc. flat glass [manufacture] Date of Mapping: 1894 - 1909	A2NE (SW)	971	1	352730 394058
103	Potentially Contaminative Industrial Uses (Past Land Use) Use: Railways Date of Mapping: 1982	A2NE (SW)	973	1	352773 394032
104	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1982	A7SW (SW)	976	1	352394 394308
105	Potentially Contaminative Industrial Uses (Past Land Use) Use: Factory or works - use not specified Date of Mapping: 1982	A2NE (SW)	983	1	352773 394021

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
106	Potentially Contaminative Industrial Uses (Past Land Use) Use: Quarrying of sand & clay, operation of sand & gravel pits Date of Mapping: 1909	A22SE (N)	988	1	352795 396179
107	Potentially Contaminative Industrial Uses (Past Land Use) Use: Transport support & cargo handling Date of Mapping: 1849	A19NE (NE)	994	1	354015 395900
108	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1982	A13SW (SW)	0	1	353100 395007
109	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A13NE (NE)	0	1	353301 395192
110	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A13SW (S)	0	1	353213 395010
111	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1982	A13SW (SW)	0	1	353159 394950
112	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1982	A13SE (SE)	47	1	353390 394985
113	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A13NW (W)	120	1	352953 395177
114	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A13NW (NW)	143	1	353052 395336
115	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1982	A13SW (W)	179	1	352912 395026
116	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A18SE (N)	301	1	353307 395562
117	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1982	A8NW (S)	389	1	353173 394515
118	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1982	A12SE (W)	430	1	352659 394962
119	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A19SW (NE)	447	1	353712 395441
120	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1982	A12SW (W)	595	1	352481 395044
121	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A18NE (N)	627	1	353467 395848
122	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1982	A7NE (SW)	649	1	352697 394475
123	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A19NW (NE)	738	1	353687 395636
124	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A19NW (NE)	753	1	353704 395842
125	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A19SE (NE)	875	1	354074 395684
126	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1982	A3NE (S)	885	1	353261 394019

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
127	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1982	A2NE (S)	902	1	352897 394056
128	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1982	A7SW (SW)	958	1	352549 394200
129	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A22SE (NW)	968	1	352697 396104
130	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A22SE (N)	988	1	352795 396179
131	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1909	A13SW (SW)	0	1	353183 395035
132	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1909	A13NE (NE)	0	1	353243 395103
133	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1894	A13SW (SW)	0	1	353129 395002
134	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A13NE (NE)	44	1	353394 395181
135	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1849	A13NE (NE)	48	1	353359 395214
136	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1928	A13SE (S)	88	1	353298 394824
137	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A13SE (SE)	124	1	353393 394860
138	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1894	A13NW (N)	139	1	353188 395417
139	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1928	A13SW (W)	147	1	352948 395040
140	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1928	A13SW (SW)	149	1	352956 394924
141	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1849	A13SW (SW)	157	1	352935 394959
142	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1929	A13NW (NW)	204	1	353036 395400
143	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A13SE (SE)	226	1	353491 394821
144	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1849	A12NE (W)	254	1	352814 395136
145	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1849	A12SE (SW)	272	1	352846 394869
146	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1849	A12SE (W)	280	1	352805 395044
147	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A8NE (S)	291	1	353405 394649

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
169	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1929	A17SE (NW)	632	1	352666 395635
170	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1928	A7NE (SW)	637	1	352628 394553
171	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1909	A18NE (N)	642	1	353513 395840
172	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A12NW (NW)	660	1	352470 395422
173	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A18NE (N)	673	1	353268 395949
174	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1909	A9NW (SE)	680	1	353861 394558
175	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1894	A14NE (E)	688	1	354055 395363
176	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1849	A17NE (NW)	736	1	352657 395773
177	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1909	A17NE (NW)	767	1	352742 395892
178	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1929	A17NE (NW)	776	1	352756 395913
179	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1928	A8SE (S)	802	1	353436 394123
180	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A9SW (SE)	809	1	353793 394287
181	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1849	A17SW (NW)	827	1	352423 395661
182	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1849	A17NE (NW)	832	1	352774 395992
183	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A9SW (SE)	846	1	353642 394146
184	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A9SW (SE)	862	1	353678 394147
185	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1928	A8SE (S)	862	1	353551 394093
186	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A9NE (SE)	866	1	354002 394435
187	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1929	A23SW (N)	888	1	352972 396136
188	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1849	A17SW (NW)	892	1	352341 395661
189	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A9SW (SE)	901	1	353658 394093

Historical Land Use Information

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
190	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A3NE (S)	910	1	353502 394028
191	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1956	A9SW (SE)	917	1	353684 394088
192	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1909	A15NW (E)	921	1	354337 395156
193	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1849	A9SW (SE)	921	1	353800 394152
194	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1929	A22SE (N)	948	1	352831 396151
195	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1894	A3NE (S)	962	1	353502 393974
196	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1849	A7NW (SW)	992	1	352242 394475

Historical Tanks and Energy Facilities

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
197	Electrical Sub Station Facilities Scale of Mapping: 1:1,250 Date of Mapping: Not Present	A13SW (W)	0	1	353165 395083

No Historical Building Plans information available.

The following mapping has been analysed for Historical Land Use Information:

1:10,560	Mapsheet	Published Date
Lancashire And Furness	101_00	1849
Lancashire And Furness	108_00	1849
Lancashire And Furness	101_SW	1894
Lancashire And Furness	108_NW	1894
Lancashire And Furness	101_SW	1909
Lancashire And Furness	108_NW	1909
Lancashire And Furness	108_NW	1928
Lancashire And Furness	101_SW	1929
1:10,000	Mapsheet	Published Date
Ordnance Survey Plan	SJ59SW	1982
Ordnance Survey Plan	SJ59NW	1992

The following mapping has been analysed for Historical Tanks and Energy Facilities:

1:2,500	Mapsheet	Published Date
Ordnance Survey Plan	SJ5294	1958
Ordnance Survey Plan	SJ5394	1958
Ordnance Survey Plan	SJ5295	1960
Ordnance Survey Plan	SJ5395	1960
1:1,250	Mapsheet	Published Date
Ordnance Survey Plan	SJ5294NE	1958
Ordnance Survey Plan	SJ5394NE	1958
Ordnance Survey Plan	SJ5394NW	1958
Ordnance Survey Plan	SJ5295SE	1959
Ordnance Survey Plan	SJ5395SE	1959
Ordnance Survey Plan	SJ5395SW	1959
Ordnance Survey Plan	SJ5394NE	1964
Ordnance Survey Plan	SJ5395SW	1970
Ordnance Survey Plan	SJ5294NE	1972
Ordnance Survey Plan	SJ5394NW	1972
Ordnance Survey Plan	SJ5395SE	1972
Ordnance Survey Plan	SJ5295SE	1974

Contact	Name and Address	Contact Details
1	Landmark Information Group Limited 5 - 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Telephone: 01392 441761 Fax: 01392 441709 Email: cssupport@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Historical Building Plans Information

This data set contains potentially contaminative features such as asbestos, petrol, oil and tanks captured from Historical Building Plans. The Historical Building Plans were produced by the London-based firm Charles E. Goad Ltd. as fire insurance plans, dating back to 1885. The firm ceased production of fire insurance plans in 1970. Most of the important towns and cities of the British Isles are covered. Historical Building Plans are usually at the scales of 1:480 (1 inch to 40 feet) for the British Isles. They were updated every 5-6 years by means of revision sheets designed to be pasted on to the original plans.

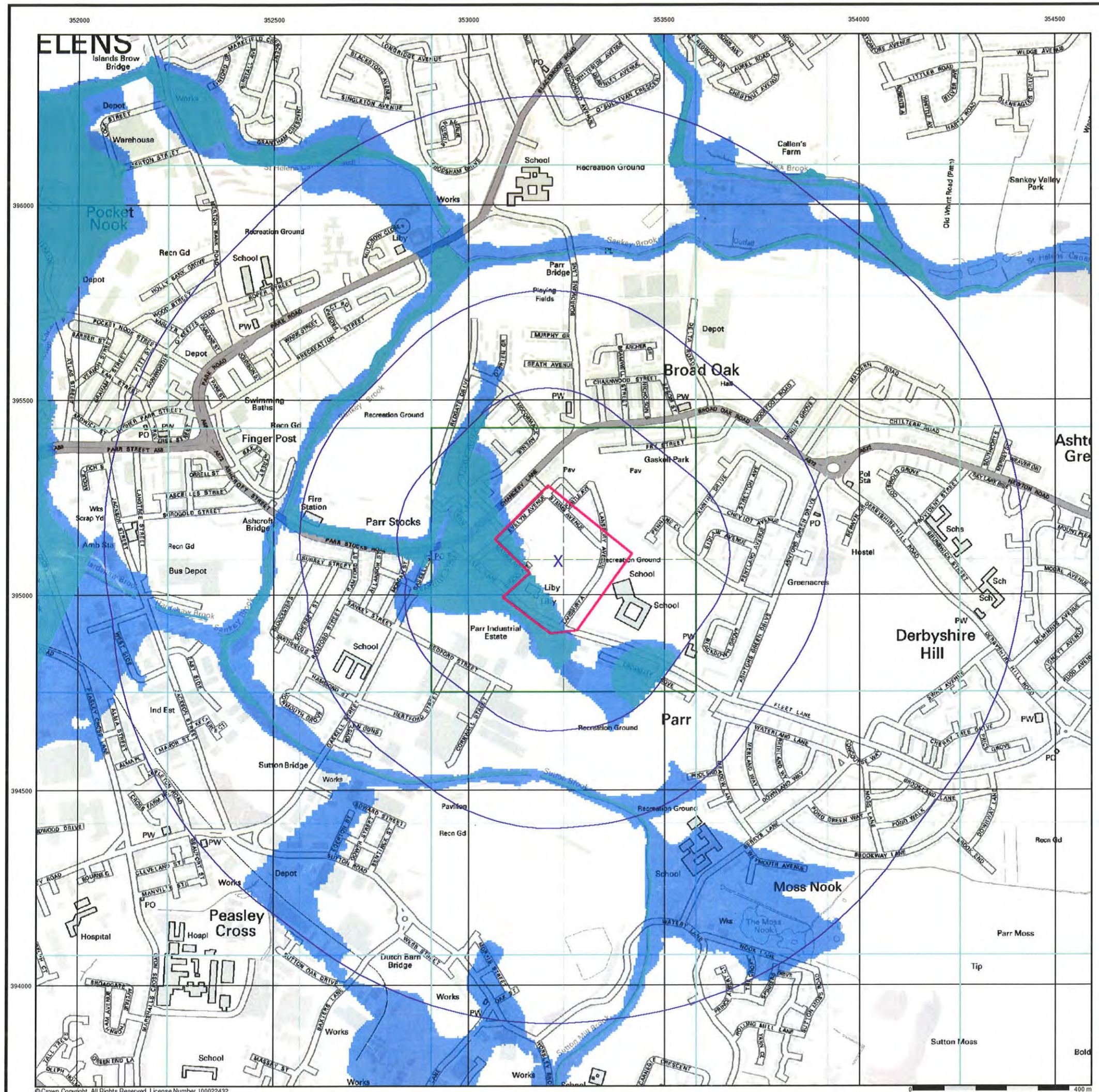
It should be noted that Historical Building Plans are only available for certain major towns and cities and in some cases there may only be partial coverage of the search area. It cannot therefore be assumed that the absence of responses under the Historical Building Plans section of this report indicates that no hazards exist. Please check the Historical Building Plans Map List table in the Historical Map List section of this report to establish if Historical Building Plans are available for this search area.

Historical Land Use Information

Landmark's Historical Land Use Data is the result of combined analysis of historical map data captured at 1:10,560 and 1:10,000. A unique comprehensive database of Historic Land Use from the 1840's to 1996 it includes 67 different types of potentially contaminated past industrial land use. This entailed analysing over 60,000 maps and is drawn from at least four, and up to six historical map editions. In addition a seventh layer was also created, known as the land use layer, containing areas of infilled land which are plotted via comparison between two or more map editions.

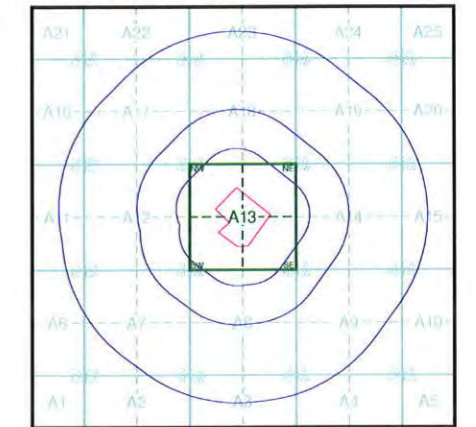
Historical Tanks and Energy Facilities

In addition to HLUD, additional analysis uncovered some of the most dangerous sources of contamination (past and present tanks, petrol storage, oil, gas, electricity, miscellaneous facilities). This data set covers over 390,000 Historical Tanks and Energy facilities in Great Britain and was captured from post war 1:2500 and 1:1250 Ordnance Survey historical mapping covering a period from 1943 to 1996.



- General**
- ◊ Specified Site
 - Specified Buffer(s)
 - X Bearing Reference Point
- Agency and Hydrological (Flood)**
- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
 - Flooding from Rivers or Sea without Defences (Zone 3)
 - ▨ Area Benefiting from Flood Defence
 - ▨ Flood Water Storage Areas
 - Flood Defence

Flood Map - Slice A



Order Details

Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
 National Grid Reference: 353230, 395090
 Slice: A
 Site Area (Ha): 7.46
 Search Buffer (m): 1000

Site Details






Lansbury Bridge School, Lansbury Avenue, ST. HELENS, Merseyside, WA9 1TB

LANDMARK Information Group

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General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Map ID
-  Several of Type at Location






Agency and Hydrological

-  Contaminated Land Register Entry or Notice (Location)
-  Contaminated Land Register Entry or Notice
-  Discharge Consent
-  Enforcement or Prohibition Notice
-  Integrated Pollution Control
-  Integrated Pollution Prevention Control
-  Local Authority Integrated Pollution Prevention and Control
-  Local Authority Pollution Prevention and Control
-  Local Authority Pollution Prevention and Control Enforcement
-  Pollution Incident to Controlled Waters
-  Prosecution Relating to Authorised Processes
-  Prosecution Relating to Controlled Waters
-  Registered Radioactive Substance
-  River Network or Water Feature
-  River Quality Sampling Point
-  Substantiated Pollution Incident Register
-  Water Abstraction
-  Water Industry Act Referral

Waste

-  BGS Recorded Landfill Site (Location)
-  BGS Recorded Landfill Site
-  EA Historic Landfill (Buffered Point)
-  EA Historic Landfill (Polygon)
-  Integrated Pollution Control Registered Waste Site
-  Licensed Waste Management Facility (Landfill Boundary)
-  Licensed Waste Management Facility (Location)
-  Local Authority Recorded Landfill Site (Location)
-  Local Authority Recorded Landfill Site
-  Registered Landfill Site
-  Registered Landfill Site (Location)
-  Registered Landfill Site (Point Buffered to 100m)
-  Registered Landfill Site (Point Buffered to 250m)
-  Registered Waste Transfer Site (Location)
-  Registered Waste Transfer Site
-  Registered Waste Treatment or Disposal Site (Location)
-  Registered Waste Treatment or Disposal Site



Hazardous Substances

-  COMAH Site
-  Explosive Site
-  NIHS Site
-  Planning Hazardous Substance Consent
-  Planning Hazardous Substance Enforcement

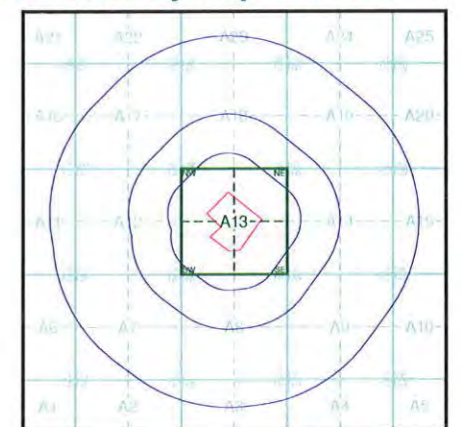
Geological

-  BGS Recorded Mineral Site

Industrial Land Use

-  Contemporary Trade Directory Entry
-  Fuel Station Entry

Site Sensitivity Map - Slice A

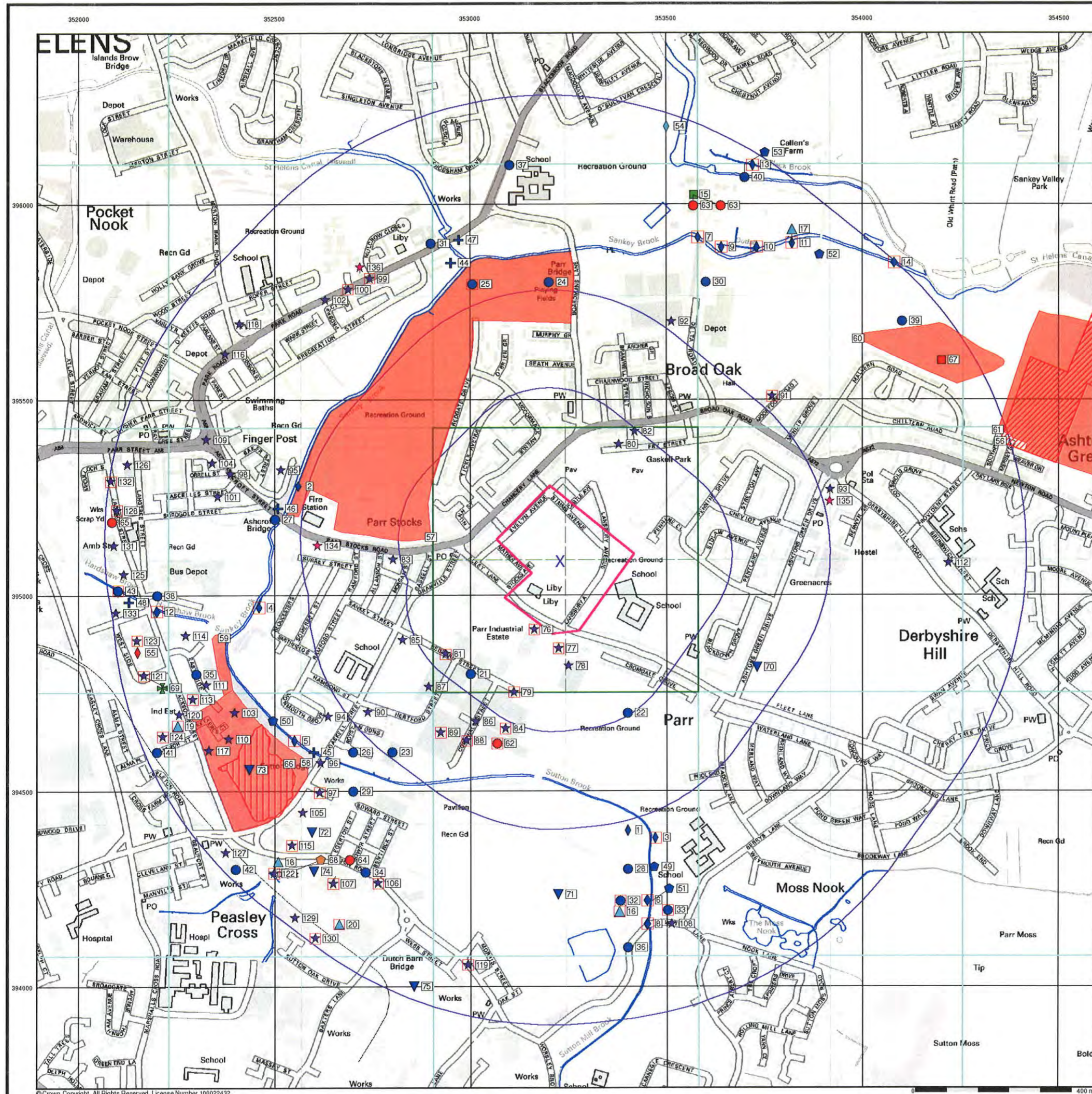


Order Details

Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
 National Grid Reference: 353230, 395090
 Slice: A
 Site Area (Ha): 7.46
 Search Buffer (m): 1000

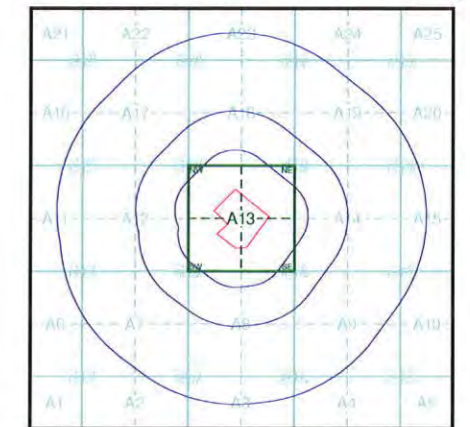
Site Details

Lansbury Bridge School, Lansbury Avenue, ST. HELENS, Merseyside, WA9 1TB



- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
 - Map ID
 - Several of Type at Location
- Historical Building Plans**
- Area Cleared due to Enemy Action
- Historical Land Use**
- Former Marsh
 - Historical Flood Liability
 - Historical Flood Liability (Location)
 - Potentially Contaminative Industrial Use (Past Land Use)
 - Potentially Contaminative Industrial Use (Past Land Use) (Linear)
 - Potentially Contaminative Industrial Use (Past Land Use) (Location)
 - Potentially Infilled Land (Non-Water)
 - Potentially Infilled Land (Non-Water) (Linear)
 - Potentially Infilled Land (Non-Water) (Location)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water) (Linear)
 - Potentially Infilled Land (Water) (Location)

Historical Data Report - Slice Map A

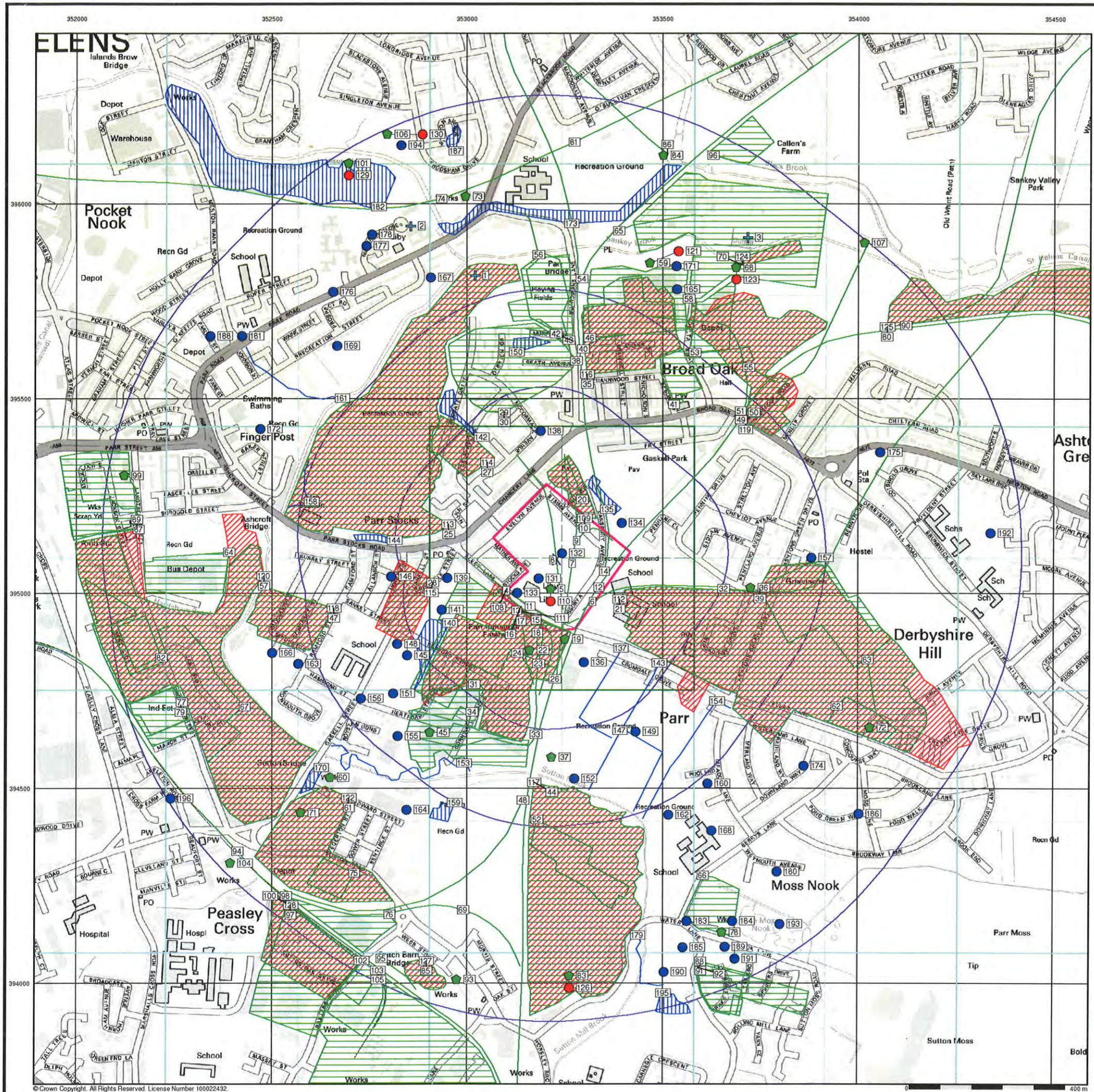


Order Details

Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
 National Grid Reference: 35230, 395090
 Slice: A
 Site Area (Ha): 7.46
 Search Buffer (m): 1000

Site Details

Lansbury Bridge School, Lansbury Avenue, ST. HELENS, Merseyside, WA9 1TB



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General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location
- Pylon
- Overhead Transmission Line

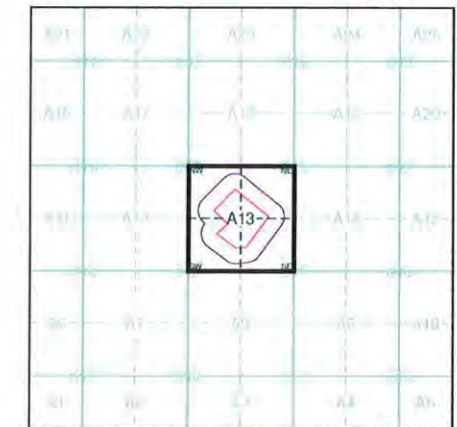
Historical Building Plans

- Area Cleared due to Enemy Action
- Asbestos
- Above Ground Fuel Tanks
- Benzene/Benzole/Naphtha, Naphthalene/Kerosene
- Electricity Generation
- Electricity Sub-Stations
- Gas Industry
- Gas Storage
- Gas Use
- Oil Industry
- Oil Storage
- Oil Use
- Paint based Oils
- Paraffin
- Petrol and Diesel Industry
- Petrol and Diesel Storage
- Petrol and Diesel Use
- Potential Fuel Gas
- Potential Fuel Oil
- Potential Fuel Use
- Potential Petrol and Diesel
- Potential Tanks
- Potentially Fuel-related Tanks
- Underground Fuel Tanks

Historical Tanks and Energy Facilities

- Electrical Sub Station Facility
- Electricity Industry Facility
- Gas Industry Facility
- Gas Monitoring Facility
- Miscellaneous Power Facility
- Oil Industry Facility
- Petroleum Storage Facility
- Potential Tank
- Tank

Historical Data Report - Segment A13

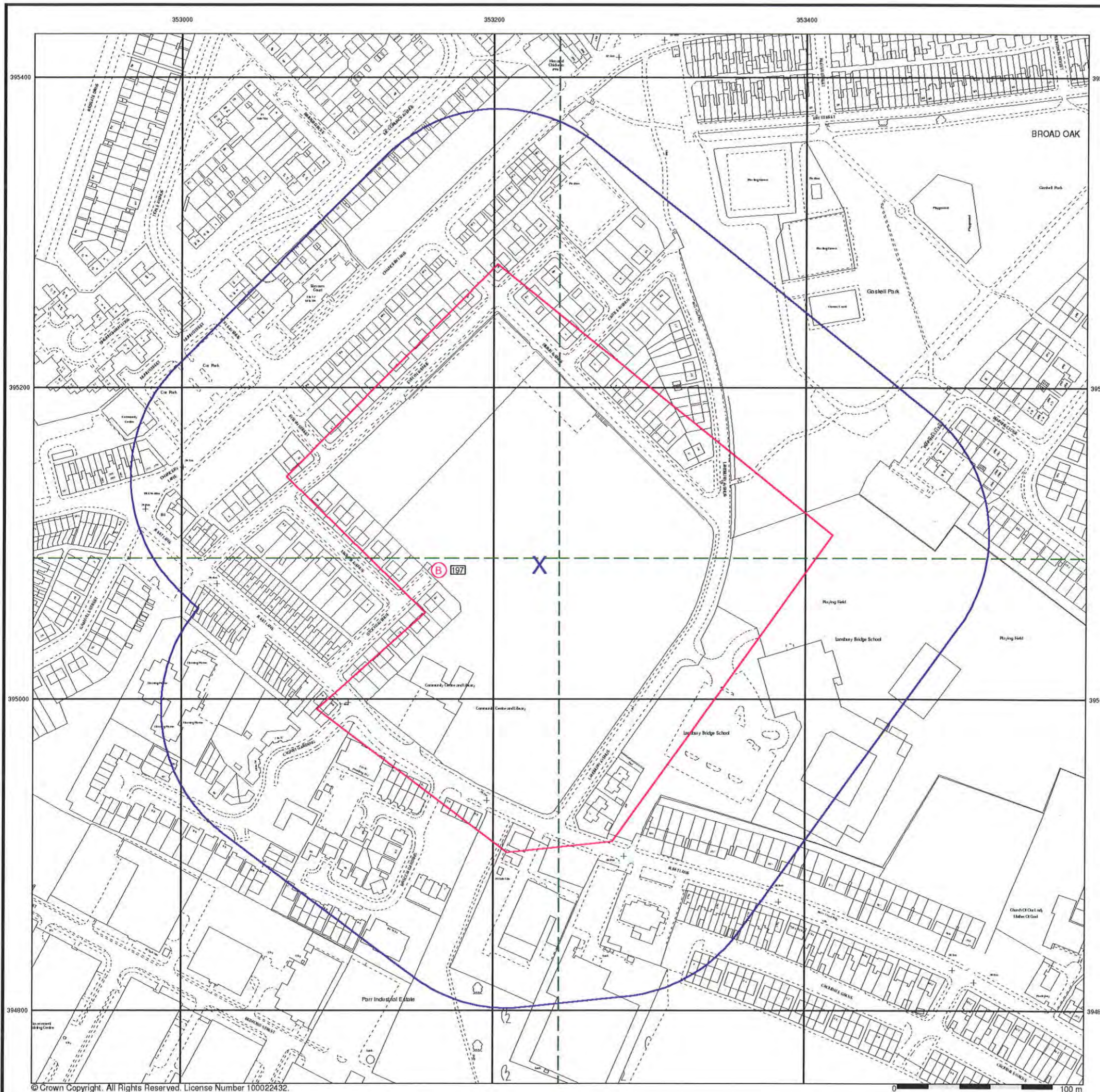


Order Details






Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
 National Grid Reference: 353230, 395090
 Slice: A
 Site Area (Ha): 7.46
 Plot Buffer (m): 100

Site Details






Lansbury Bridge School, Lansbury Avenue, ST. HELENS, Merseyside, WA9 1TB



General

-  Specified Site
-  Specified Buffer(s)
-  Bearing Reference Point
-  Map ID
-  Several of Type at Location

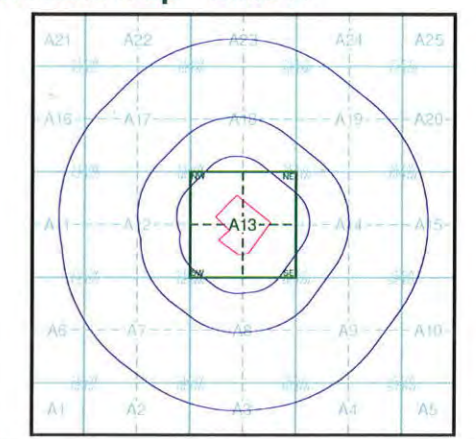
Agency and Hydrological (Boreholes)

-  BGS Borehole Depth 0 - 10m
-  BGS Borehole Depth 10 - 30m
-  BGS Borehole Depth 30m +
-  Confidential
-  Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A

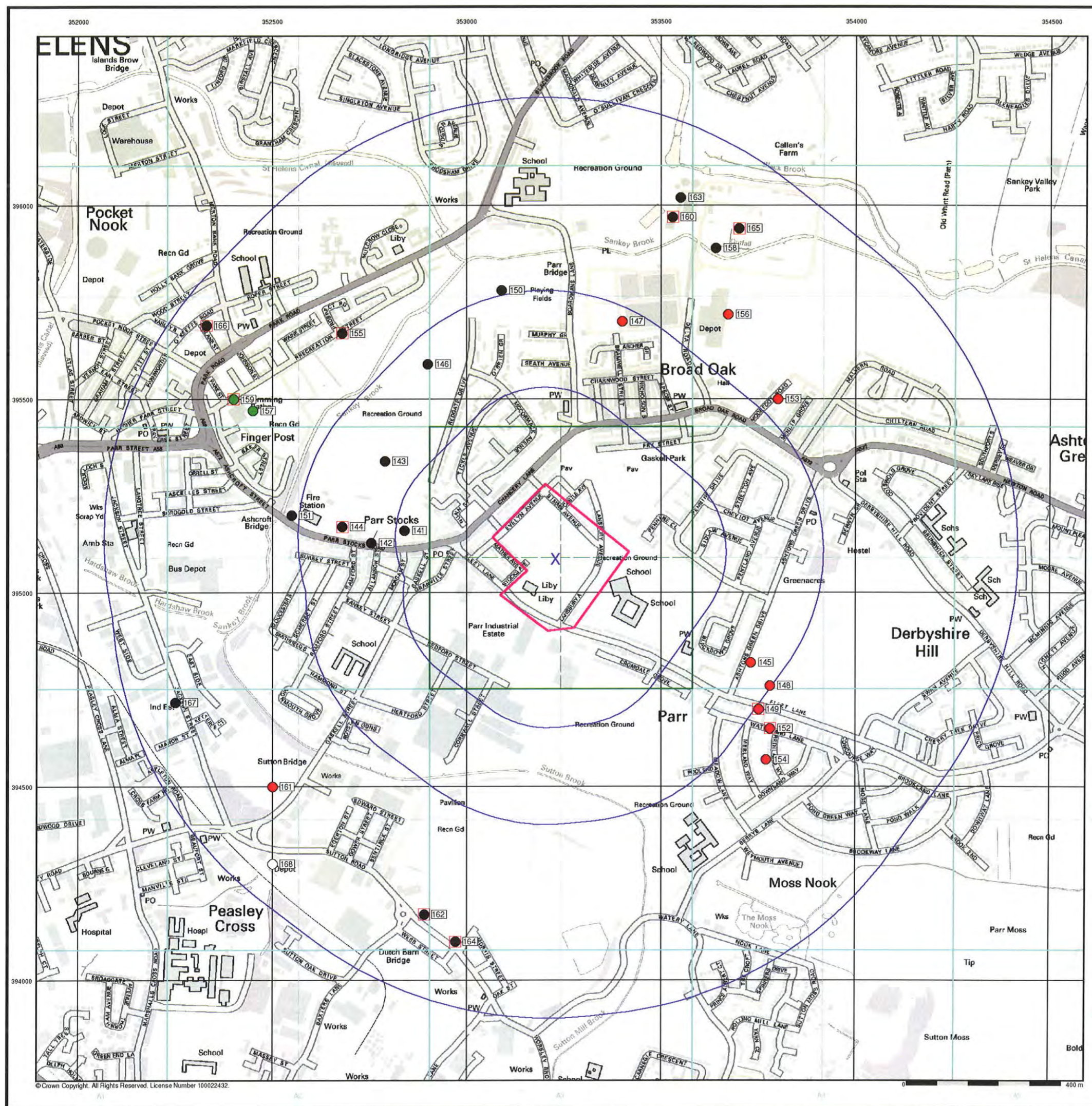


Order Details

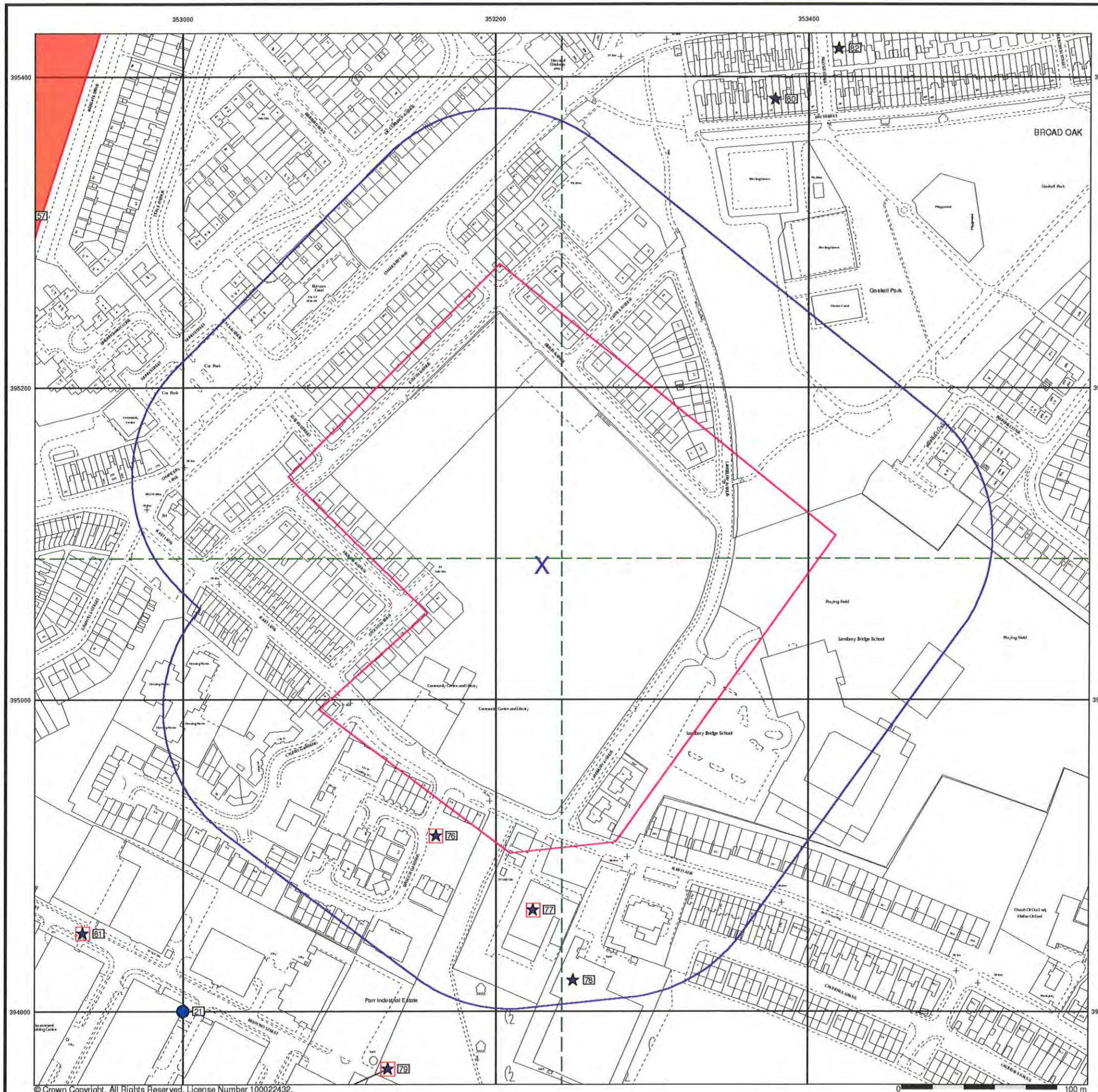
Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
 National Grid Reference: 353230, 395090
 Slice: A
 Site Area (Ha): 7.46
 Search Buffer (m): 1000

Site Details

Lansbury Bridge School, Lansbury Avenue, ST. HELENS, Merseyside, WA9 1TB

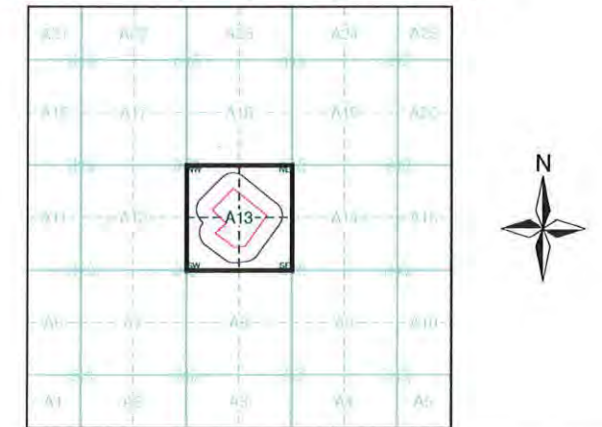


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- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
 - Map ID
 - Several of Type at Location
 - Pylon
 - Overhead Transmission Line
- Agency and Hydrological**
- Contaminated Land Register Entry or Notice (Location)
 - Contaminated Land Register Entry or Notice
 - Discharge Consent
 - Enforcement or Prohibition Notice
 - Integrated Pollution Control
 - Integrated Pollution Prevention Control
 - Local Authority Integrated Pollution Prevention and Control
 - Local Authority Pollution Prevention and Control Enforcement
 - Pollution Incident to Controlled Waters
 - Prosecution Relating to Authorised Processes
 - Prosecution Relating to Controlled Waters
 - Registered Radioactive Substance
 - River Network or Water Feature
 - River Quality Sampling Point
 - Substantiated Pollution Incident Register
 - Water Abstraction
 - Water Industry Act Referral
- Waste**
- BGS Recorded Landfill Site (Location)
 - BGS Recorded Landfill Site
 - EA Historic Landfill (Buffered Point)
 - EA Historic Landfill (Polygon)
 - Integrated Pollution Control Registered Waste Site
 - Licensed Waste Management Facility (Landfill Boundary)
 - Licensed Waste Management Facility (Location)
 - Local Authority Recorded Landfill Site (Location)
 - Local Authority Recorded Landfill Site
 - Registered Landfill Site
 - Registered Landfill Site (Location)
 - Registered Landfill Site (Point Buffered to 100m)
 - Registered Landfill Site (Point Buffered to 250m)
 - Registered Waste Transfer Site (Location)
 - Registered Waste Transfer Site
 - Registered Waste Treatment or Disposal Site (Location)
 - Registered Waste Treatment or Disposal Site
- Hazardous Substances**
- COMAH Site
 - Explosive Site
 - NIHHS Site
 - Planning Hazardous Substance Consent
 - Planning Hazardous Substance Enforcement
- Geological**
- BGS Recorded Mineral Site
- Industrial Land Use**
- Contemporary Trade Directory Entry
 - Fuel Station Entry

Site Sensitivity Map - Segment A13



Order Details

Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
 National Grid Reference: 353230, 395090
 Slice: A
 Site Area (Ha): 7.46
 Plot Buffer (m): 100

Site Details

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Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:10,560

- Gravel Pit
- Sand Pit
- Other Pits
- Quarry
- Shingle
- Orchard
- Osiers
- Reeds
- Marsh
- Mixed Wood
- Deciduous
- Brushwood
- Fir
- Furze
- Rough Pasture
- Arrow denotes flow of water
- Trigonometrical Station
- Site of Antiquities
- Bench Mark
- Pump, Guide Post, Signal Post
- Well, Spring, Boundary Post
- 285** Surface Level
- Sketched Contour
- Instrumental Contour
- Main Roads
- Minor Roads
- Sunken Road
- Raised Road
- Road over Railway
- Railway over River
- Railway over Road
- Level Crossing
- Road over River or Canal
- Road over Stream
- Road over Stream
- County Boundary (Geographical)
- County & Civil Parish Boundary
- Administrative County & Civil Parish Boundary
- County Borough Boundary (England)
- County Burgh Boundary (Scotland)
- Rural District Boundary
- Civil Parish Boundary

Ordnance Survey Plan 1:10,000

- Chalk Pit, Clay Pit or Quarry
- Gravel Pit
- Sand Pit
- Disused Pit or Quarry
- Refuse or Slag Heap
- Lake, Loch or Pond
- Dunes
- Boulders
- Coniferous Trees
- Non-Coniferous Trees
- Orchard
- Scrub
- Coppice
- Bracken
- Heath
- Rough Grassland
- Marsh
- Reeds
- Saltings
- Building
- Glasshouse
- Sloping Masonry
- Pylon
- Electricity Transmission Line
- Pole
- Cutting
- Embankment
- Standard Gauge Multiple Track
- Standard Gauge Single Track
- Siding, Tramway or Mineral Line
- Narrow Gauge
- Geographical County
- Administrative County, County Borough or County of City
- Municipal Borough, Urban or Rural District, Burgh or District Council
- Borough, Burgh or County Constituency
Shown only when not coincident with other boundaries
- Civil Parish
Shown alternately when coincidence of boundaries occurs
- BP, BS Boundary Post or Stone
- Ch Church
- CH Club House
- F E Sta Fire Engine Station
- FB Foot Bridge
- Fn Fountain
- GP Guide Post
- MP Mile Post
- MS Mile Stone
- Pot Sta
- PD Post Office
- PC Public Convenience
- PH Public House
- SB Signal Box
- Spr Spring
- TCB Telephone Call Box
- TCP Telephone Call Post
- W Well
- Police Station
- Post Office
- Public Convenience
- Public House
- Signal Box
- Spring
- Telephone Call Box
- Telephone Call Post
- Well

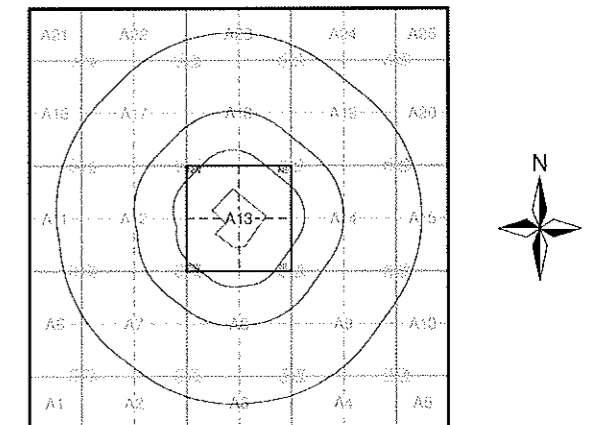
1:10,000 Raster Mapping

- Gravel Pit
- Refuse tip or slag heap
- Rock
- Rock (scattered)
- Boulders
- Boulders (scattered)
- Shingle
- Mud
- Sand
- Sand Pit
- Slopes
- Top of cliff
- General detail
- Underground detail
- Overhead detail
- Narrow gauge railway
- Multi-track railway
- Single track railway
- County boundary (England only)
- Civil, parish or community boundary
- District, Unitary, Metropolitan, London Borough boundary
- Constituency boundary
- Area of wooded vegetation
- Non-coniferous trees
- Non-coniferous trees (scattered)
- Coniferous trees
- Coniferous trees (scattered)
- Orchard
- Positioned tree
- Rough Grassland
- Coppice or Osiers
- Scrub
- Heath
- Water feature
- Marsh, Salt Marsh or Reeds
- Flow arrows
- MHW(S) Mean high water (springs)
- MLW(S) Mean low water (springs)
- Telephone line (where shown)
- Electricity transmission line (with poles)
- BM 123.45 m Bench mark (where shown)
- Point feature (e.g. Guide Post or Mile Stone)
- Triangulation station
- Site of (antiquity)
- Pylon, flare stack or lighting tower
- Glasshouse
- General Building
- Important Building

Ordnance Survey mapping included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:10,560	1849	2
Lancashire And Furness	1:10,560	1894	3
Lancashire And Furness	1:10,560	1909	4
Lancashire And Furness	1:10,560	1928 - 1929	5
Ordnance Survey Plan	1:10,560	1956	6
Ordnance Survey Plan	1:10,560	1965	7
Ordnance Survey Plan	1:10,000	1974 - 1981	8
Ordnance Survey Plan	1:10,000	1982 - 1992	9
10K Raster Mapping	1:10,000	1999	10
10K Raster Mapping	1:10,000	2008	11

Historical Map - Slice A

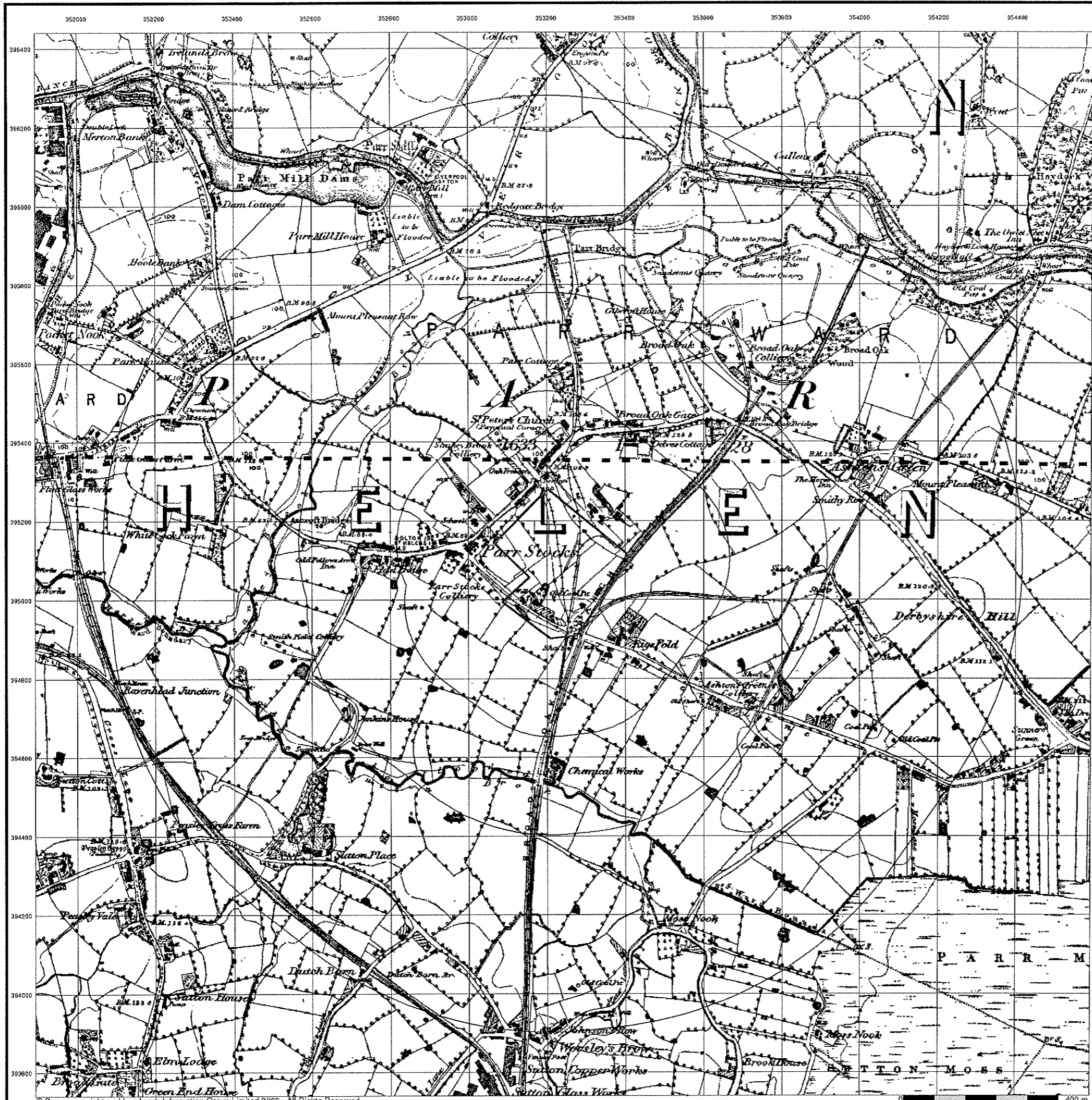


Order Details

Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
 National Grid Reference: 353230, 395090
 Slice: A
 Site Area (Ha): 7.46
 Search Buffer (m): 1000

Site Details

Lansbury Bridge School, Lansbury Avenue, ST. HELENS, Merseyside, WA9 1TB



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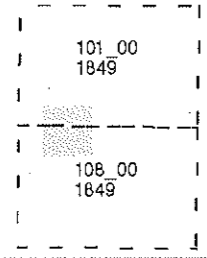
Lancashire And Furness

Published 1849

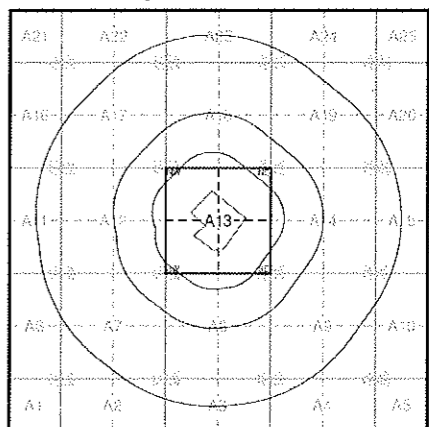
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

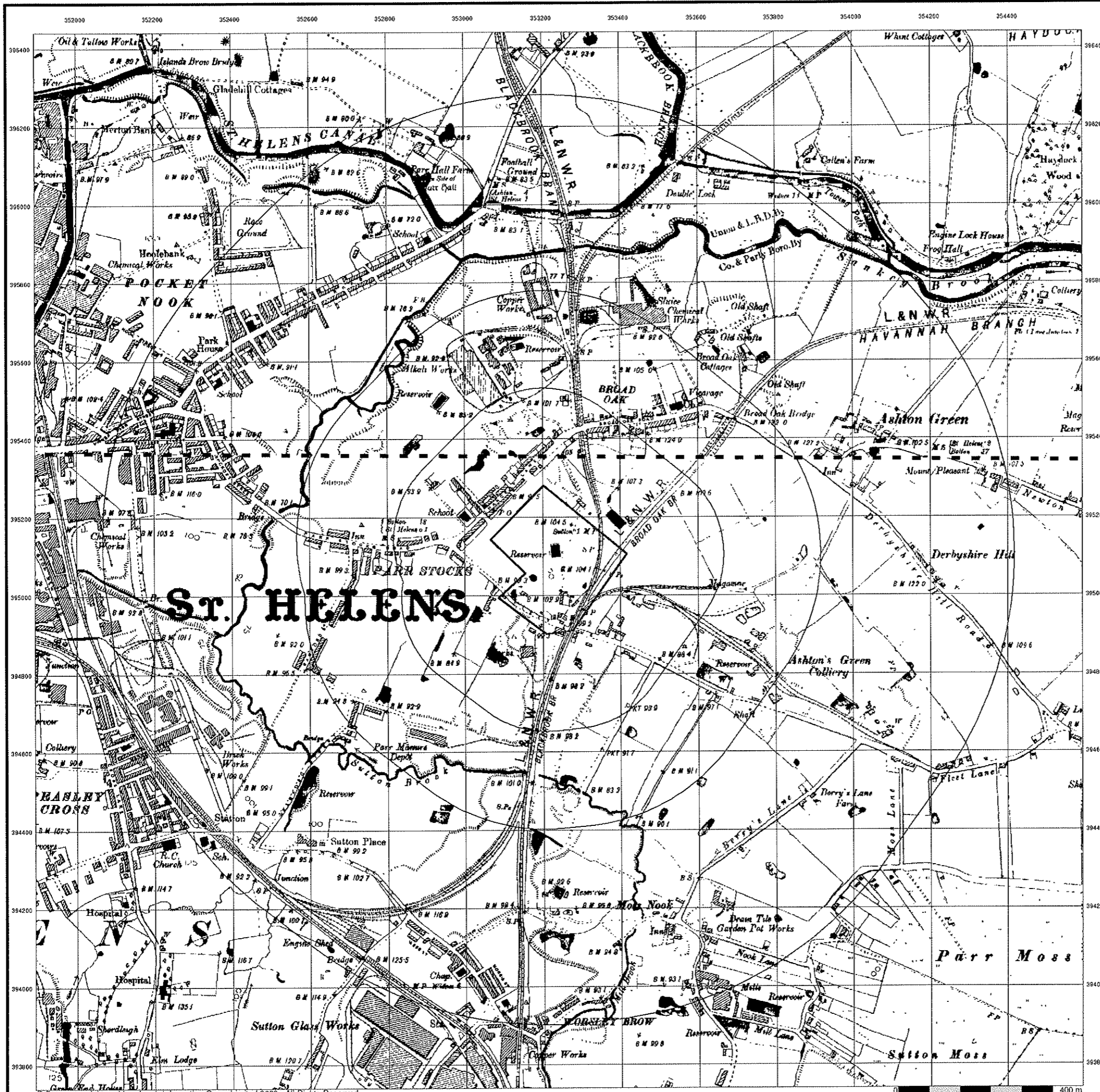
Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
 National Grid Reference: 353230, 395090
 Slice: A
 Site Area (Ha): 7.46
 Search Buffer (m): 1000

Site Details

Lansbury Bridge School, Lansbury Avenue, ST. HELENS, Merseyside, WA9 1TB



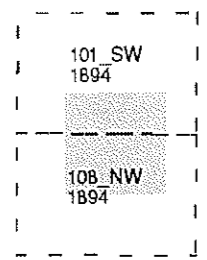
Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



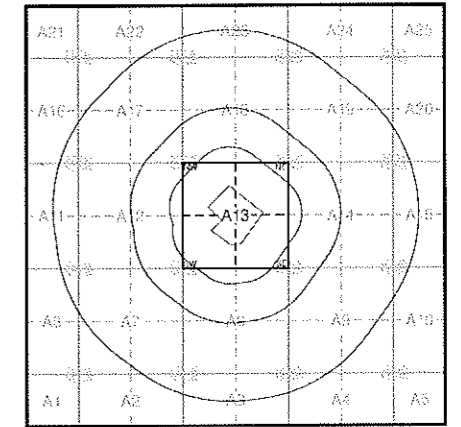
**Lancashire And Furness
Published 1894
Source map scale - 1:10,560**

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
 National Grid Reference: 353230, 395090
 Slice: A
 Site Area (Ha): 7.46
 Search Buffer (m): 1000

Site Details

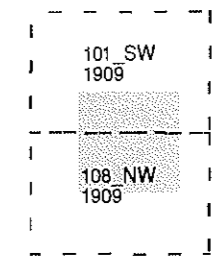
Lansbury Bridge School, Lansbury Avenue, ST. HELENS, Merseyside, WA9 1TB



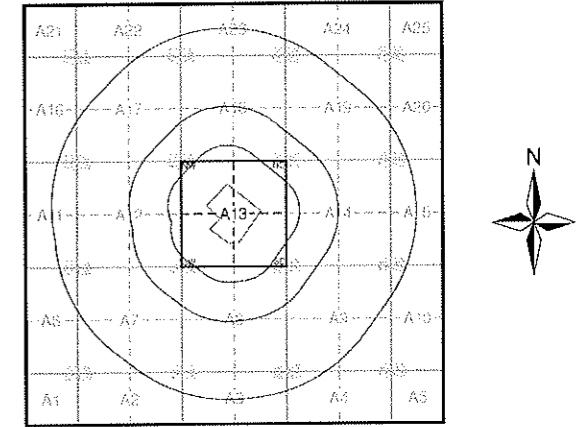
Lancashire And Furness Published 1909 Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
 National Grid Reference: 353230, 395090
 Slice: A
 Site Area (Ha): 7.46
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Site Details

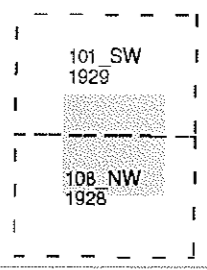
Lansbury Bridge School, Lansbury Avenue, ST. HELENS, Merseyside, WA9 1TB



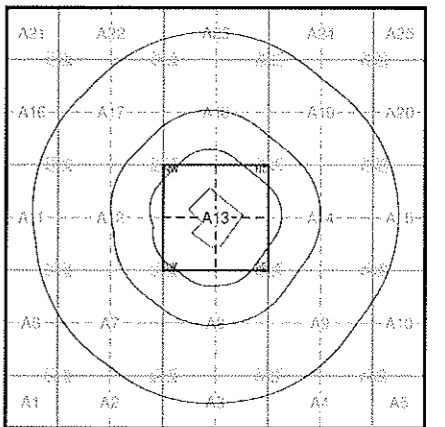
Lancashire And Furness
Published 1928 - 1929
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A

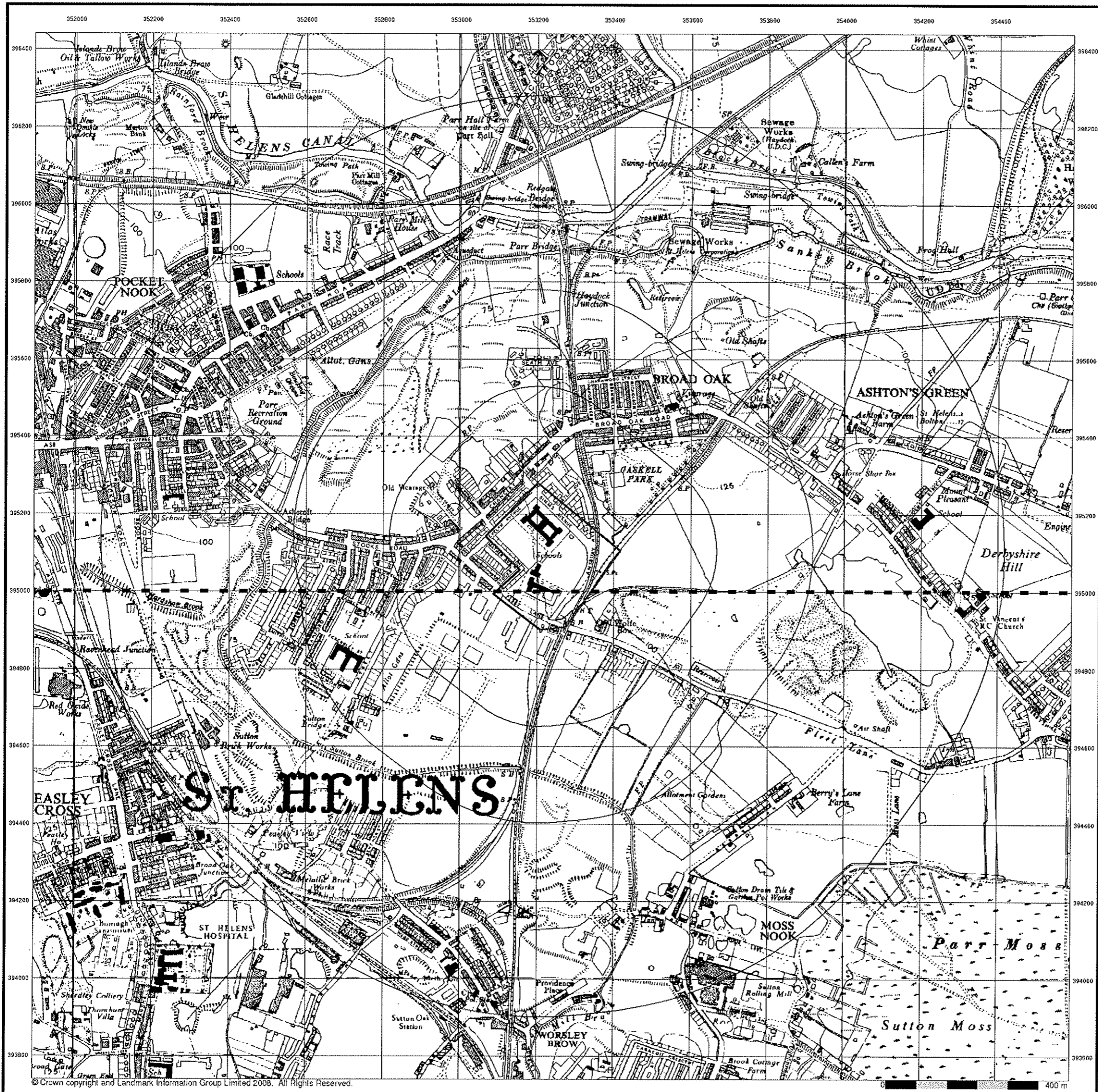


Order Details

Order Number: 26170275_1_1
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 National Grid Reference: 353230, 395090
 Slice: A
 Site Area (Ha): 7.46
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Site Details

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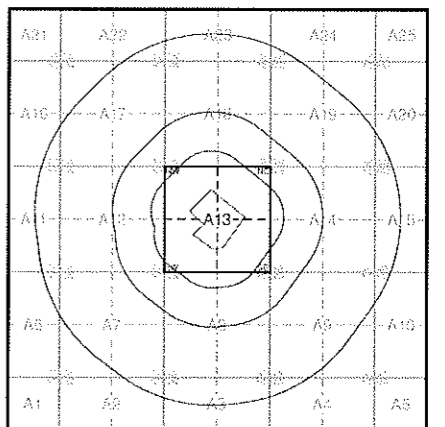
Ordnance Survey Plan
Published 1956
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

- - - - - SJ59NW 1956
- - - - - SJ59SW 1956

Historical Map - Slice A

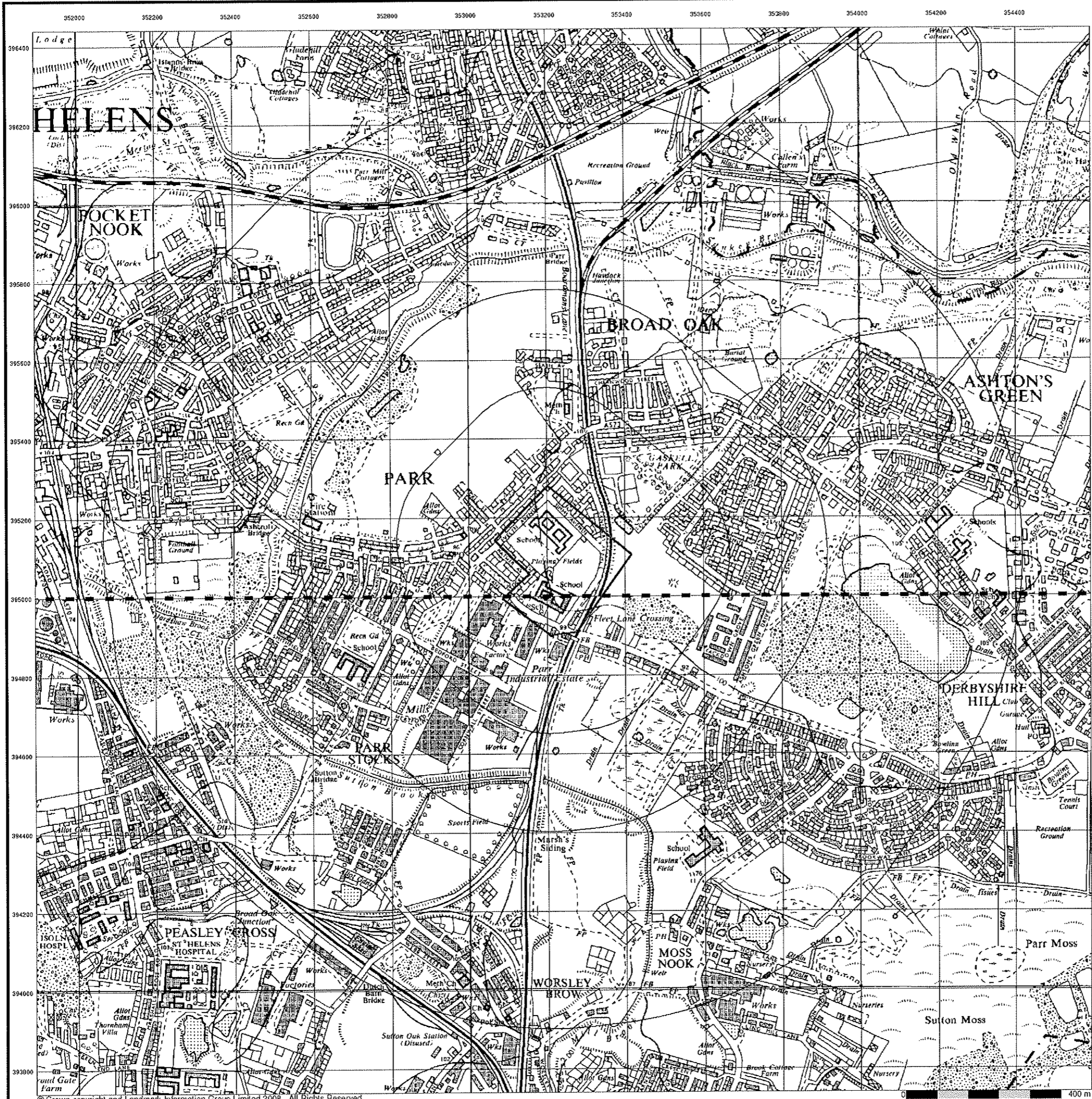


Order Details

Order Number: 26170275_1_1
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 Site Area (Ha): 7.46
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Site Details

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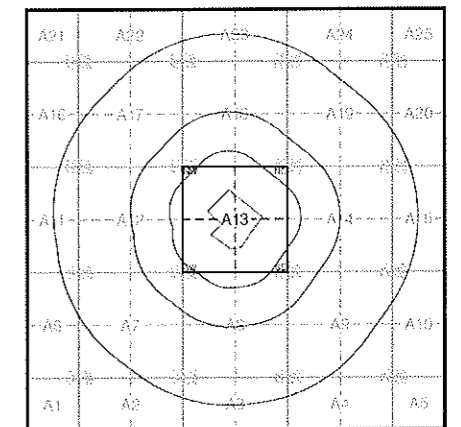
Ordnance Survey Plan
Published 1965
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

- - - - - SJ59NW
1965
- - - - - SJ59SW
1965

Historical Map - Slice A



Order Details

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 Site Area (Ha): 7.46
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 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



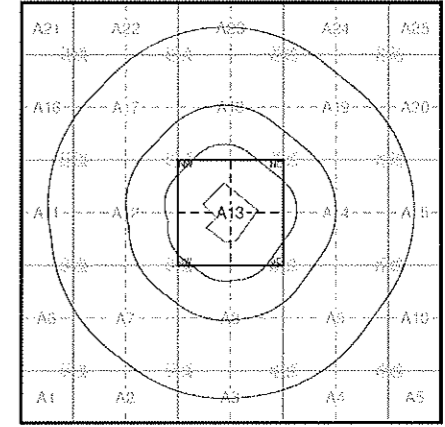
Ordnance Survey Plan
Published 1974 - 1981
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

- - - - - SJ59NW | 1981
- - - - - SJ59SW | 1974

Historical Map - Slice A



Order Details

Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
 National Grid Reference: 353230, 395090
 Slice: A
 Site Area (Ha): 7.46
 Search Buffer (m): 1000

Site Details

Lansbury Bridge School, Lansbury Avenue, ST. HELENS, Merseyside, WA9 1TB

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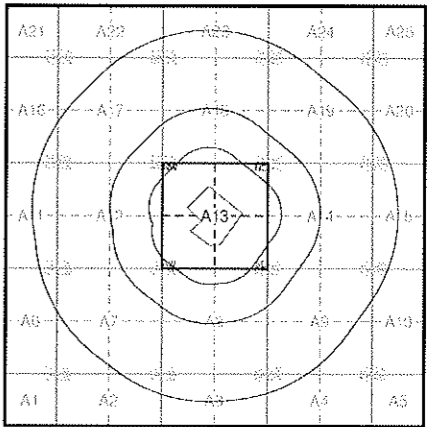
Ordnance Survey Plan
Published 1982 - 1992
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

- - - - - SJ59NW 1992
- - - - - SJ59SW 1982

Historical Map - Slice A



Order Details

Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
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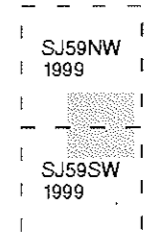
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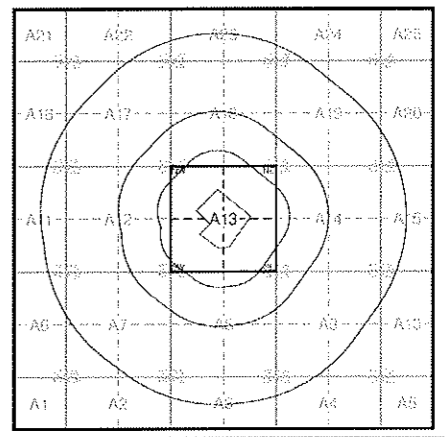
10K Raster Mapping
Published 1999
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
 National Grid Reference: 353230, 395090
 Slice: A
 Site Area (Ha): 7.46
 Search Buffer (m): 1000

Site Details

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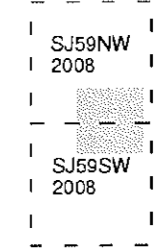


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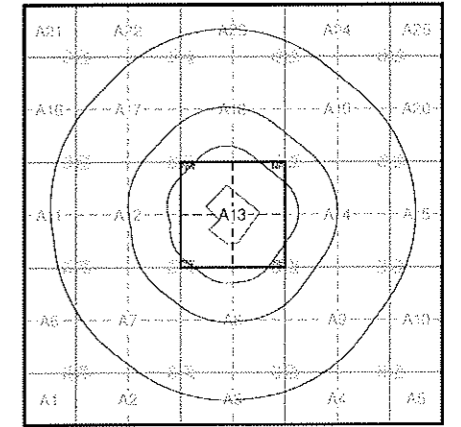
10K Raster Mapping Published 2008 Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
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Site Details

Lansbury Bridge School, Lansbury Avenue, ST. HELENS, Merseyside, WA9 1TB

Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500

Quarry **Gravel Pit** **Sand Pit**
Clay Pit **Shingle** **Refuse Heap**
Sloping Masonry **Flat Rock**
Marsh **Reeds** **Osiers**
Rough Pasture **Furze** **Wood**
Mixed Wood **Brushwood** **Orchard**
Fir **Ford** **Stepping Stones**
Ferry **Waterfall** **Lock**
Trig. Station **Altitude at Trig. Station**
B.M. 325-9 **Bench Mark** **Surface Level**
Arrow denotes flow of water **Antiquities (site of)**
Cutting **Embankment**
Railway crossing Road **Level Crossing** **Road crossing Railway**
Railway crossing River or Canal **Road over single stream** **Road over River or Canal**
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
County Borough Boundary (England)
County Burgh Boundary (Scotland)
Boundary Post or Stone **Police Call Box**
B.R. **Bridle Road** **P** **Pump**
E.P. **Electricity Pylon** **S.P.** **Signal Post**
F.B. **Foot Bridge** **SL** **Sluice**
F.P. **Foot Path** **Sp.** **Spring**
G.P. **Guide Post or Board** **T.C.B.** **Telephone Call Box**
M.S. **Mile Stone** **Tr.** **Trough**
M.P.M.R. **Mooring Post or Ring** **W** **Well**

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250

Inactive Quarry, Chalk Pit or Clay Pit **Active Quarry, Chalk Pit or Clay Pit**
Rock **Boulders**
Cliff **Slopes** **Top**
Roofed Building **Glazed Roof Building**
Sloping Masonry **Archway**
Non-Coniferous Tree (surveyed) **Coniferous Tree (surveyed)**
Non-Coniferous Trees (not surveyed) **Coniferous Trees (not surveyed)**
Orchard Tree **Scrub** **Bracken**
Coppice, Osier **Reeds** **Marsh, Saltings**
Rough Grassland **Heath** **Culvert**
Direction of water flow **Bench Mark** **Antiquity (site of)**
Cave Entrance **Triangulation Station** **Electricity Pylon**
Electricity Transmission Line
County Boundary (Geographical)
County & Civil Parish Boundary
Civil Parish Boundary
Admin. County or County Bor. Boundary
London Borough Boundary
Symbol marking point where boundary mereing changes
BH **Beer House** **P** **Pillar, Pole or Post**
BP, BS **Boundary Post or Stone** **PO** **Post Office**
Cn, C **Capstan, Crane** **PC** **Public Convenience**
Chy **Chimney** **PH** **Public House**
D Fn **Drinking Fountain** **Pp** **Pump**
EI P **Electricity Pillar or Post** **SB, S Br** **Signal Box or Bridge**
FAP **Fire Alarm Pillar** **SP, SL** **Signal Post or Light**
FB **Foot Bridge** **Spr** **Spring**
GP **Guide Post** **Tk** **Tank or Track**
H **Hydrant or Hydraulic** **TCB** **Telephone Call Box**
LC **Level Crossing** **TCP** **Telephone Call Post**
MH **Manhole** **Tr** **Trough**
MP **Mile Post or Mooring Post** **Wr Pt, Wr T** **Water Point, Water Tap**
MS **Mile Stone** **W** **Well**
NTL **Normal Tidal Limit** **Wd Pp** **Wind Pump**

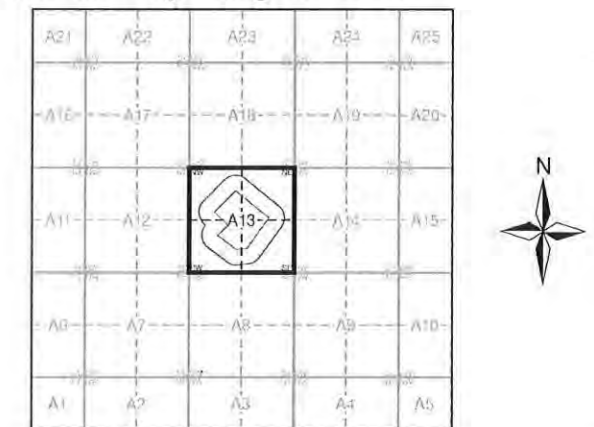
Large-Scale National Grid Data 1:2,500 and 1:1,250

Cliff **Slopes** **Top**
Rock **Rock (scattered)**
Boulders **Boulders (scattered)**
Positioned Boulder **Scree**
Non-Coniferous Tree (surveyed) **Coniferous Tree (surveyed)**
Non-Coniferous Trees (not surveyed) **Coniferous Trees (not surveyed)**
Orchard Tree **Scrub** **Bracken**
Coppice, Osier **Reeds** **Marsh, Saltings**
Rough Grassland **Heath** **Culvert**
Direction of water flow **Triangulation Station** **Antiquity (site of)**
Electricity Transmission Line **Electricity Pylon**
B.M. 231.60m **Bench Mark** **Buildings with Building Seed**
Roofed Building **Glazed Roof Building**
Civil parish/community boundary
District boundary
County boundary
Boundary post/stone
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)
Bks **Barracks** **P** **Pillar, Pole or Post**
Bty **Battery** **PO** **Post Office**
Cemy **Cemetery** **PC** **Public Convenience**
Chy **Chimney** **Pp** **Pump**
Cis **Cistern** **Ppg Sta** **Pumping Station**
Dismtd Rly **Dismantled Railway** **PW** **Place of Worship**
EI Gen Sta **Electricity Generating Station** **Sewage Ppg Sta** **Sewage Pumping Station**
EI P **Electricity Pole, Pillar** **SB, S Br** **Signal Box or Bridge**
EI Sub Sta **Electricity Sub Station** **SP, SL** **Signal Post or Light**
FB **Filter Bed** **Spr** **Spring**
Fn / D Fn **Fountain / Drinking Ftn.** **Tk** **Tank or Track**
Gas Gov **Gas Valve Compound** **Tr** **Trough**
GVC **Gas Governor** **Wd Pp** **Wind Pump**
GP **Guide Post** **Wr Pt, Wr T** **Water Point, Water Tap**
MH **Manhole** **Wks** **Works (building or area)**
MP, MS **Mile Post or Mile Stone** **W** **Well**

Ordnance Survey mapping included:

Mapping Type	Scale	Date	Pg
Lancashire And Furness	1:2,500	1894	2
Lancashire And Furness	1:2,500	1908	3
Lancashire And Furness	1:2,500	1928	4
Ordnance Survey Plan	1:1,250	1958 - 1959	5
Ordnance Survey Plan	1:2,500	1958 - 1960	6
Ordnance Survey Plan	1:1,250	1964 - 1974	7
Additional SIMs	1:1,250	1964 - 1989	8
Supply of Unpublished Survey Information	1:1,250	1974	9
Additional SIMs	1:1,250	1989	10
Large-Scale National Grid Data	1:1,250	1993	11
Large-Scale National Grid Data	1:1,250	1994	12
Large-Scale National Grid Data	1:1,250	1995	13

Historical Map - Segment A13

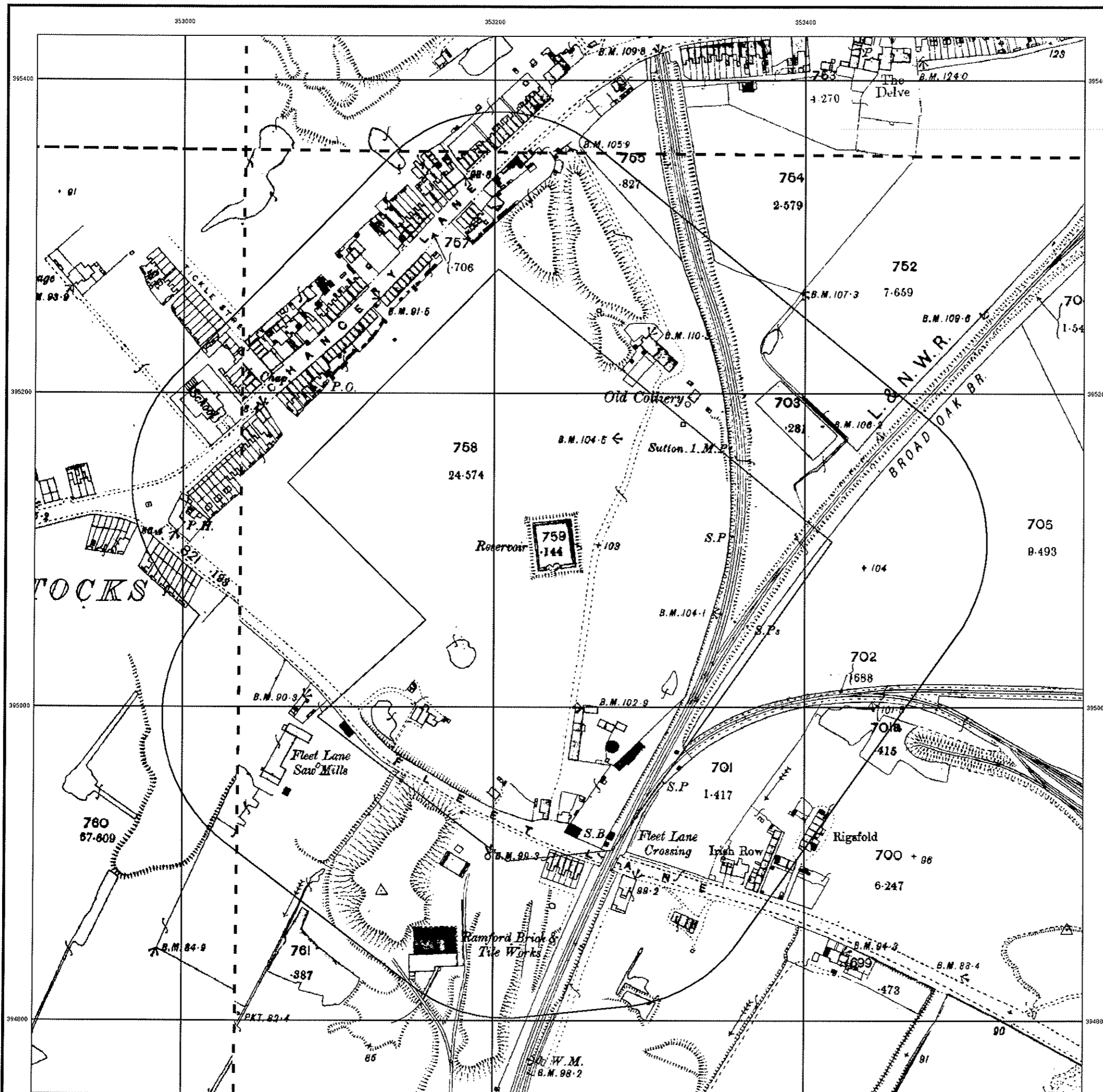


Order Details

Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
 National Grid Reference: 353230, 395090
 Slice: A
 Site Area (Ha): 7.46
 Search Buffer (m): 100

Site Details

Lansbury Bridge School, Lansbury Avenue, ST. HELENS, Merseyside, WA9 1TB



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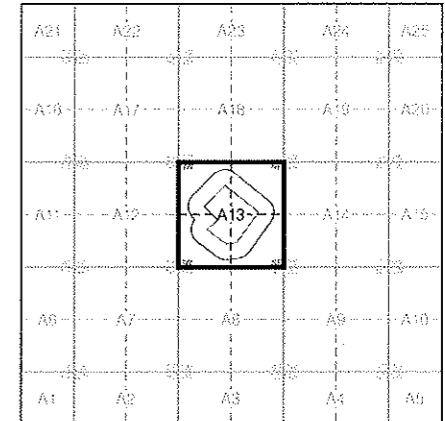
**Lancashire And Furness
Published 1894
Source map scale - 1:2,500**

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

101_13 1894	101_14 1894
108_01 1894	108_02 1894

Historical Map - Segment A13

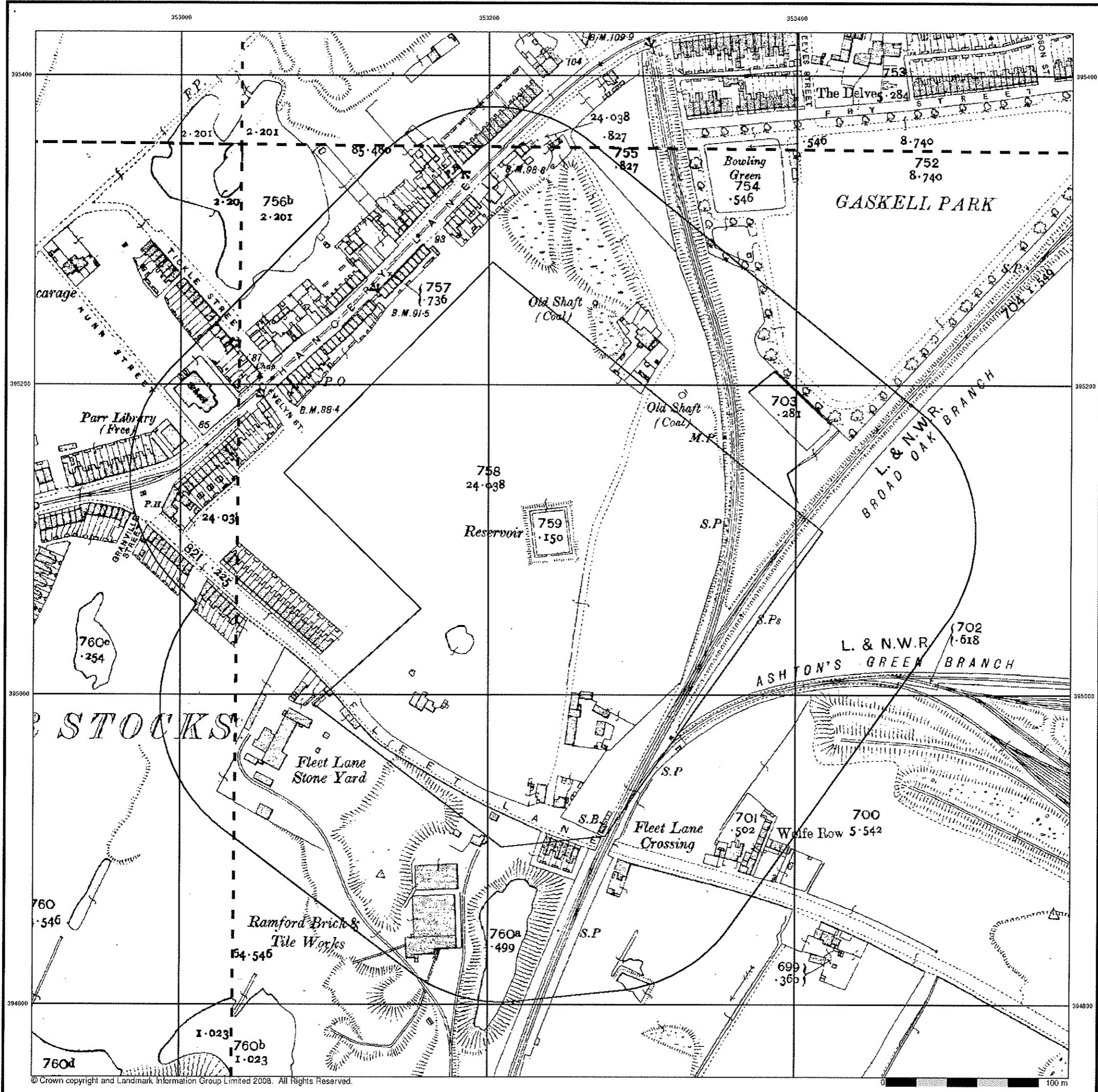


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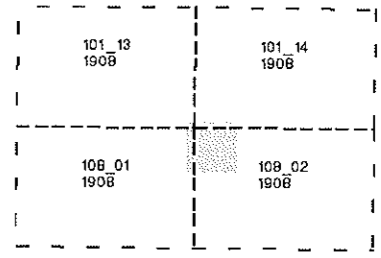
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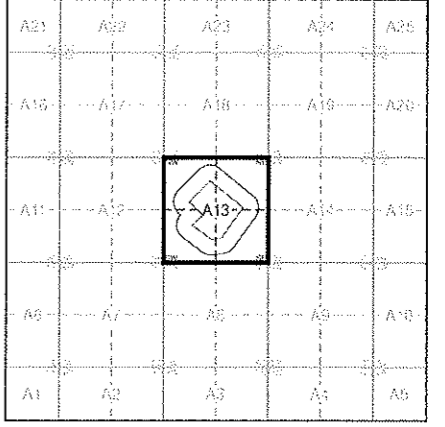
**Lancashire And Furness
Published 1908
Source map scale - 1:2,500**

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



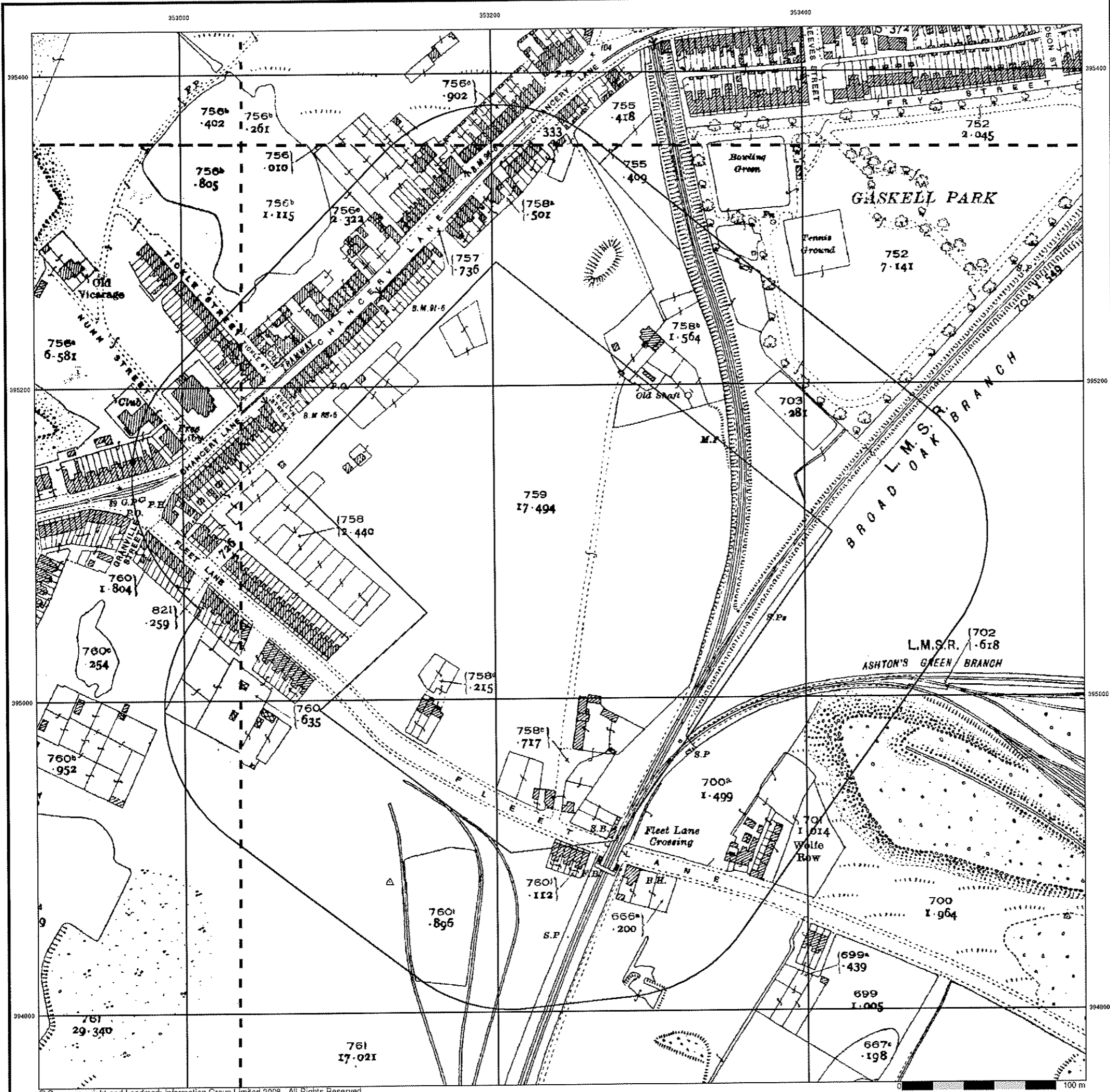
Historical Map - Segment A13



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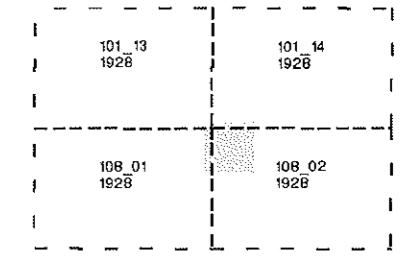


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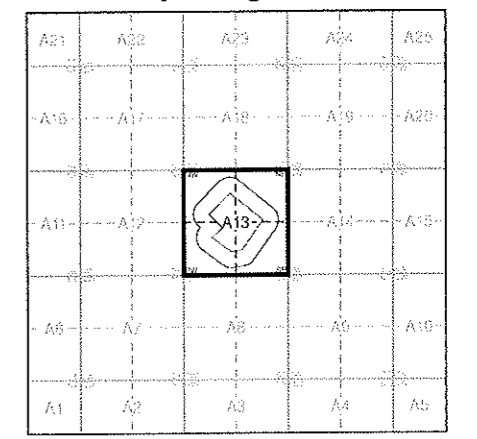
**Lancashire And Furness
Published 1928
Source map scale - 1:2,500**

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13

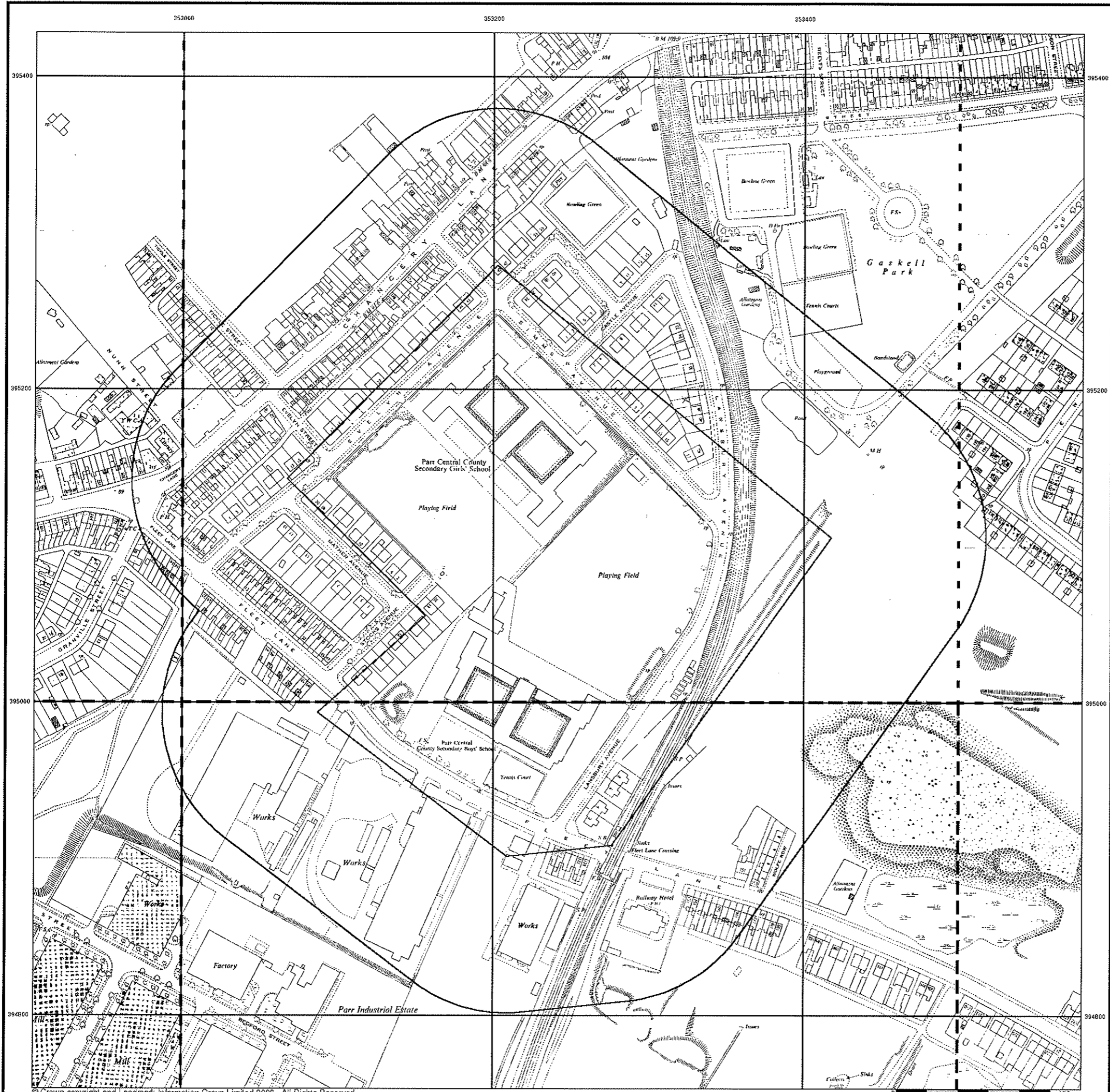


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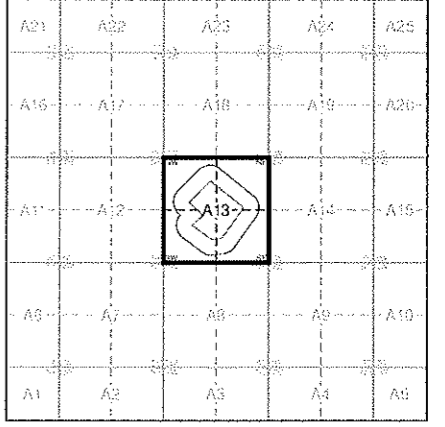
Ordnance Survey Plan
Published 1958 - 1959
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

SJ5295SE 1959	SJ5395SW 1959	SJ5395SE 1959
SJ5294NE 1958	SJ5394NW 1958	SJ5394NE 1958

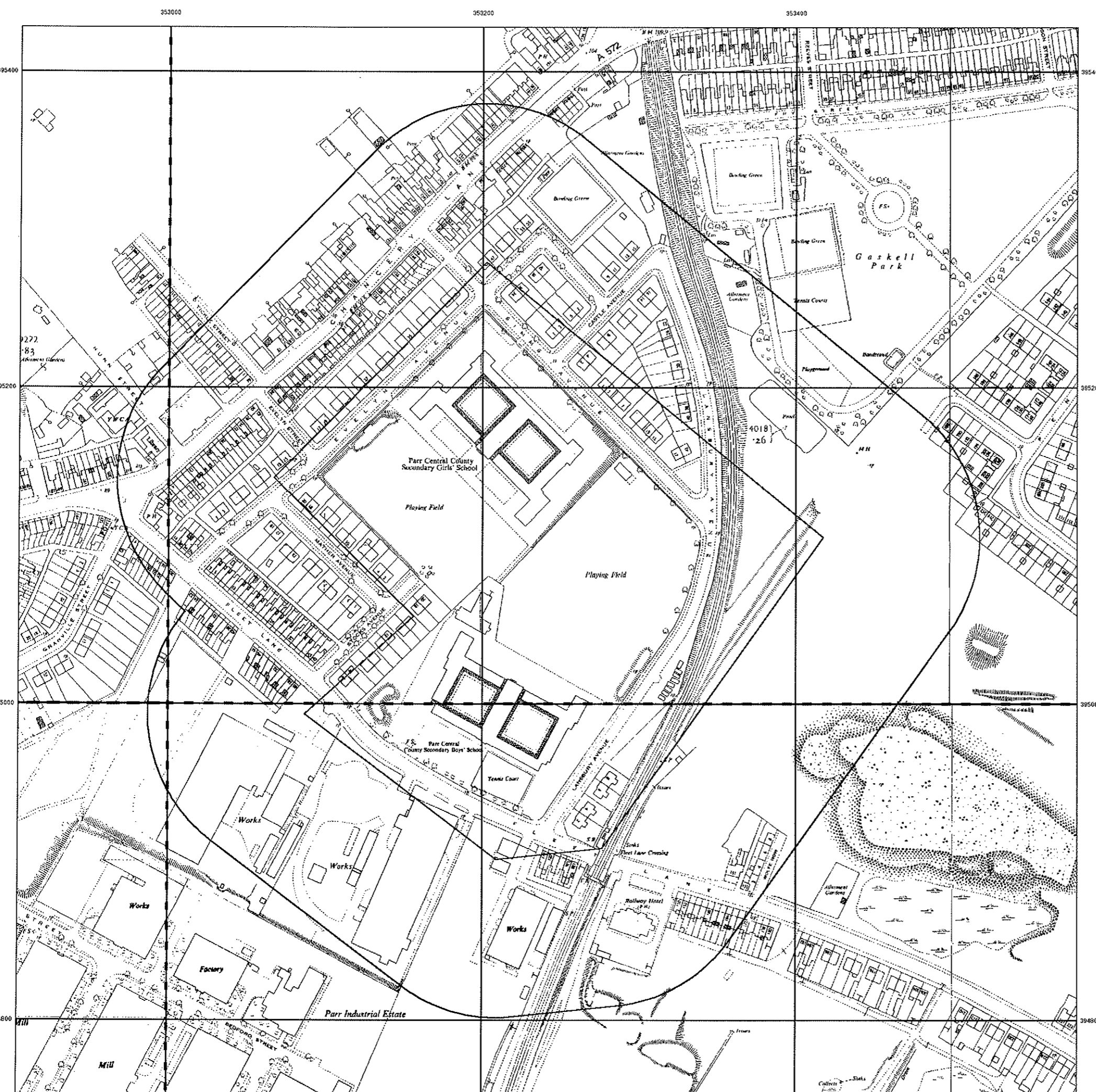
Historical Map - Segment A13



Order Details
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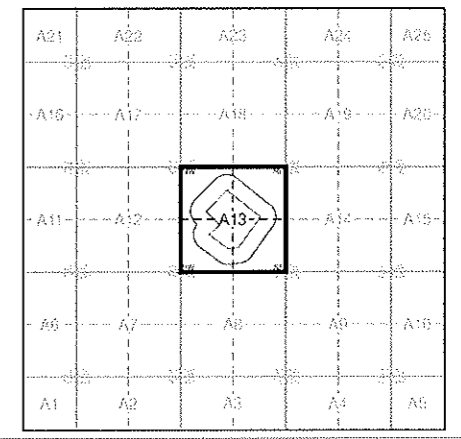
Ordnance Survey Plan
Published 1958 - 1960
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

SJ5295 1960	SJ5395 1960
SJ5294 1958	SJ5394 1958

Historical Map - Segment A13

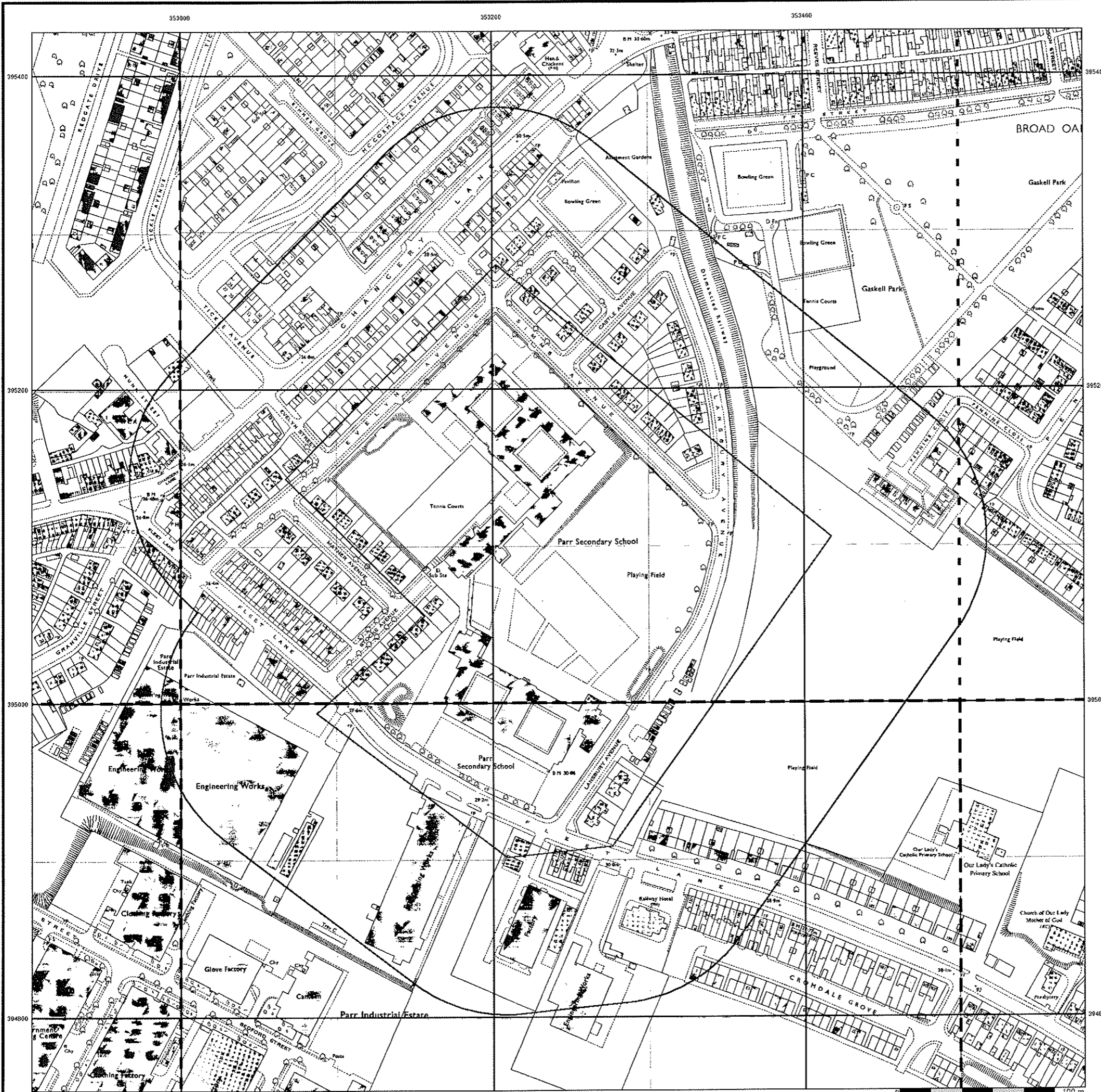


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**Ordnance Survey Plan
Published 1964 - 1974**

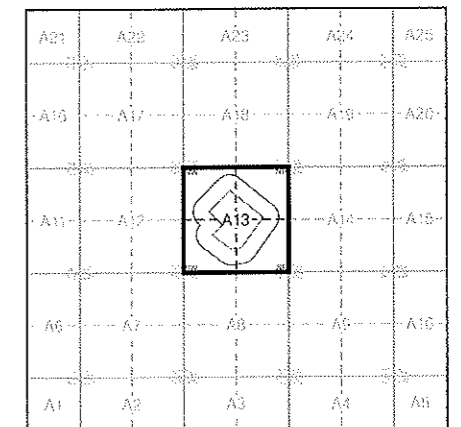
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

SJ5295SE 1974	SJ5395SW 1970	SJ5395SE 1972
SJ5294NE 1972	SJ5394NW 1972	SJ5394NE 1964

Historical Map - Segment A13



Order Details

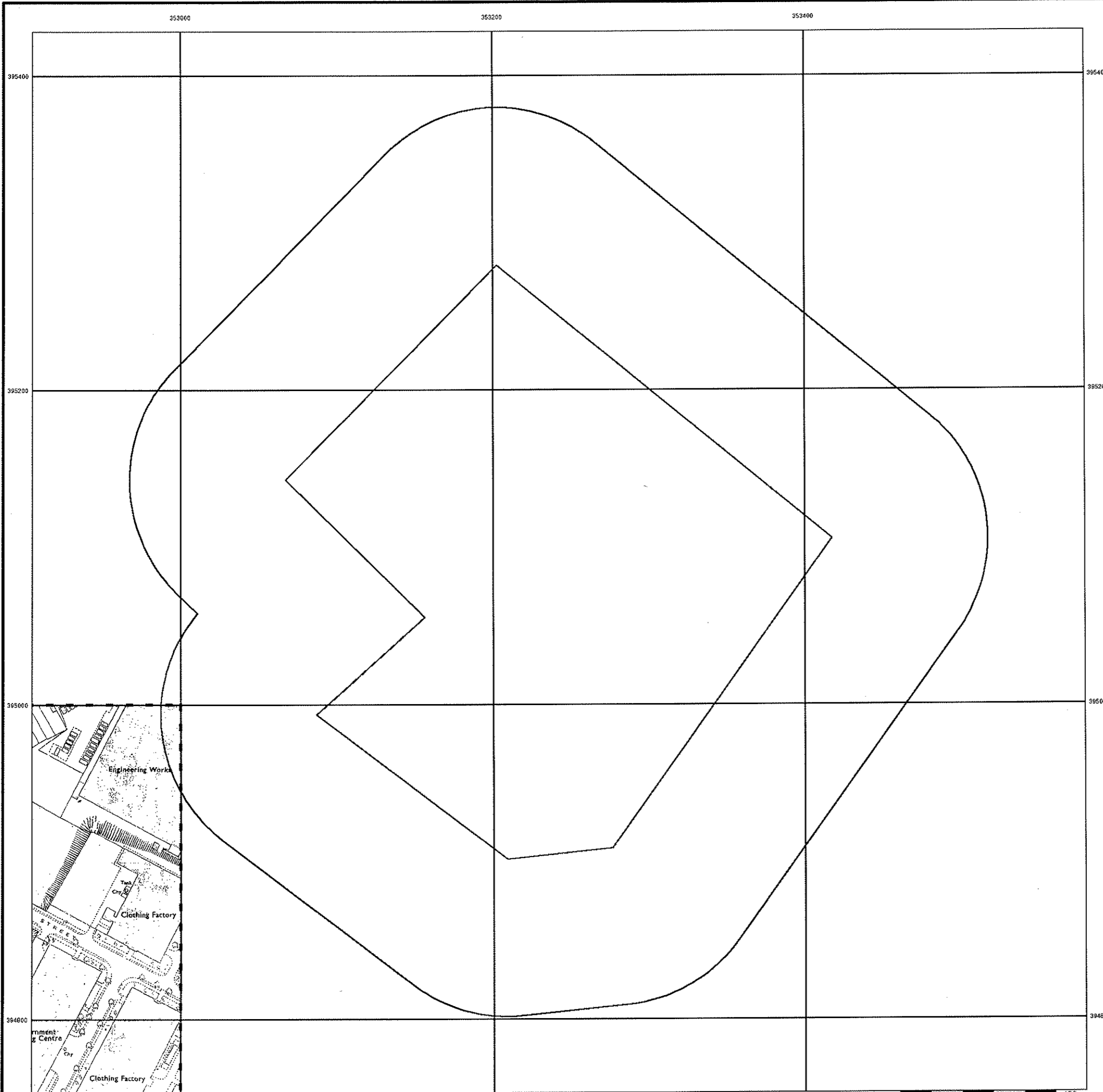
Order Number: 26170275_1_1
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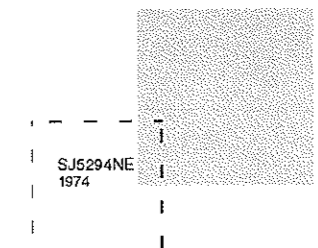
Supply of Unpublished Survey Information

Published 1974

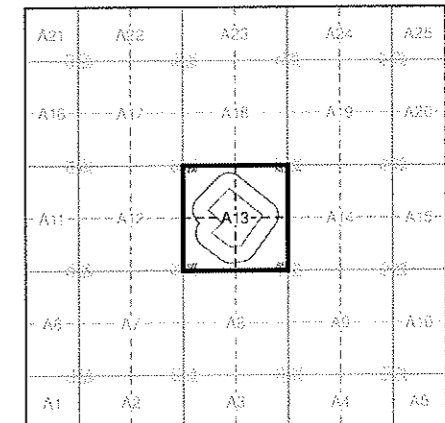
Source map scale - 1:1,250

SUSI maps (Supply of Unpublished Survey Information) were produced between 1972 and 1977, mainly for internal use at Ordnance Survey. These were more of a 'work-in-progress' plan as they showed updates of individual areas on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13

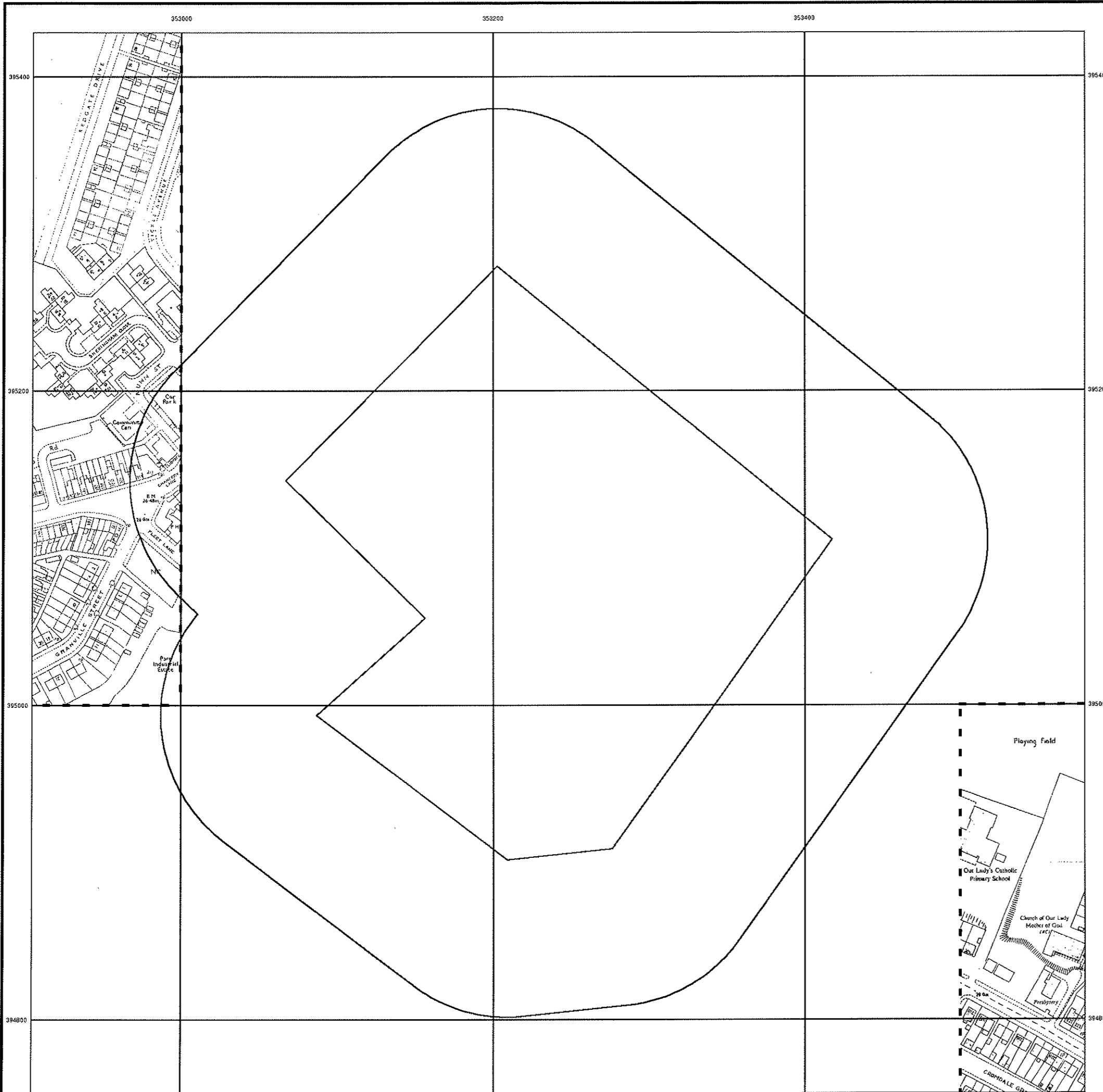


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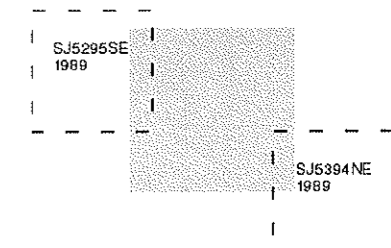
Additional SIMs

Published 1989

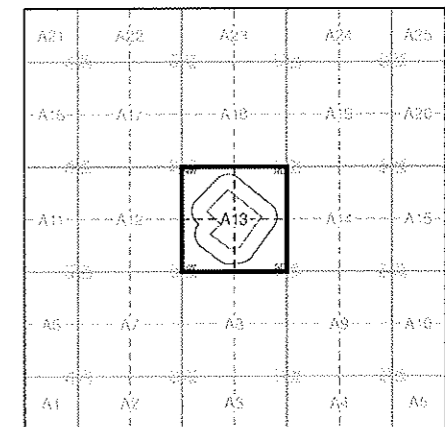
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13

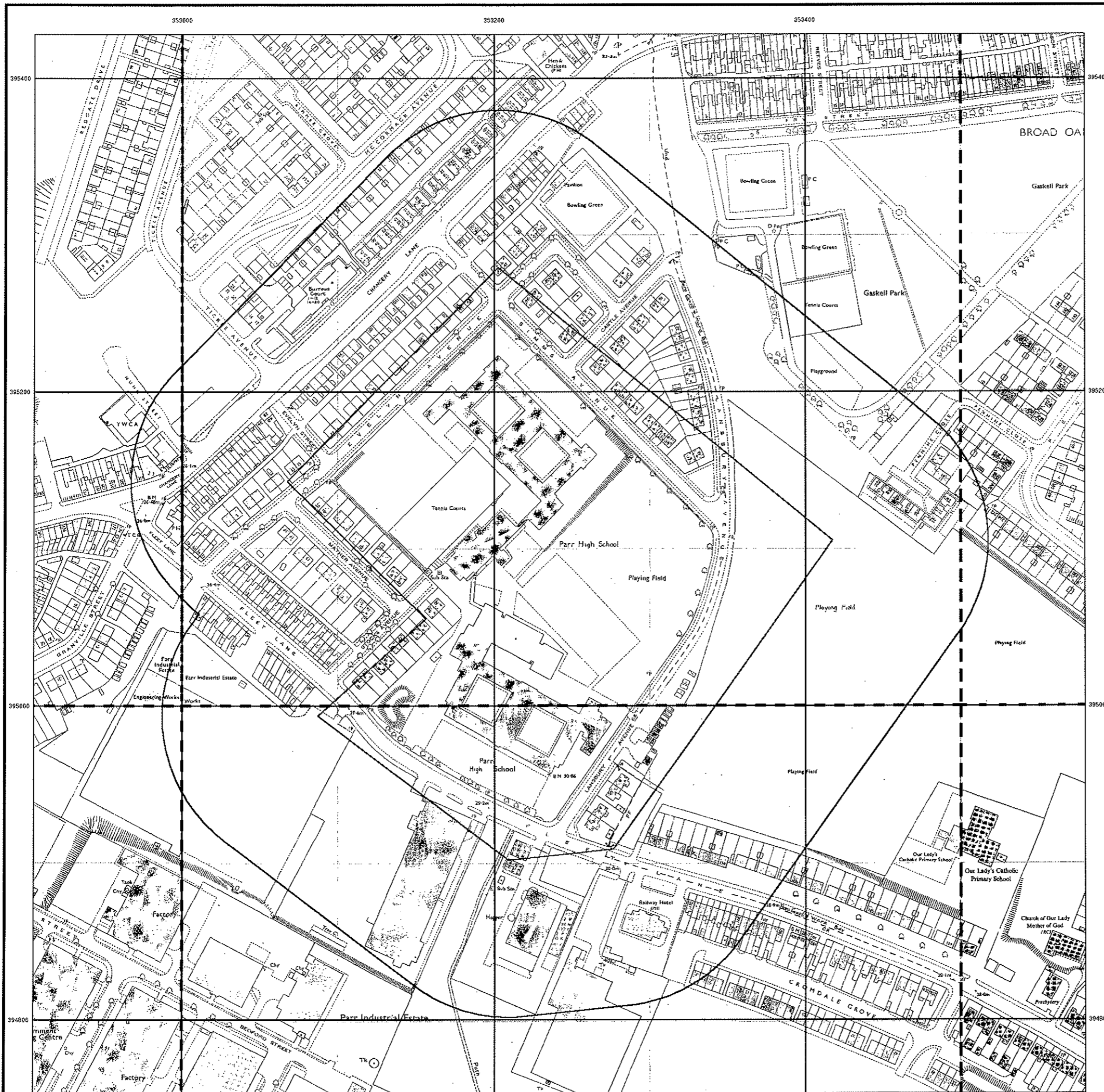


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0 100 m

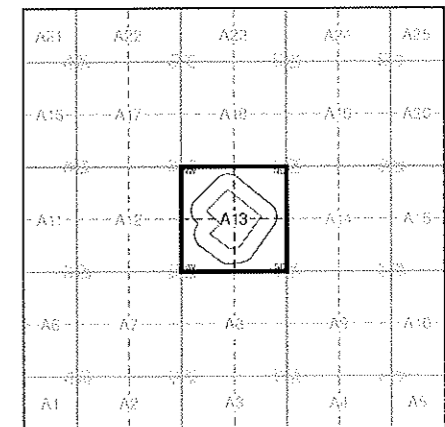
**Additional SIMs
Published 1964 - 1989
Source map scale - 1:1,250**

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

SJ5295SE 1985	SJ5395SW 1984	SJ5395SE 1989
SJ5294NE 1985	SJ5394NW 1989	SJ5394NE 1984

Historical Map - Segment A13

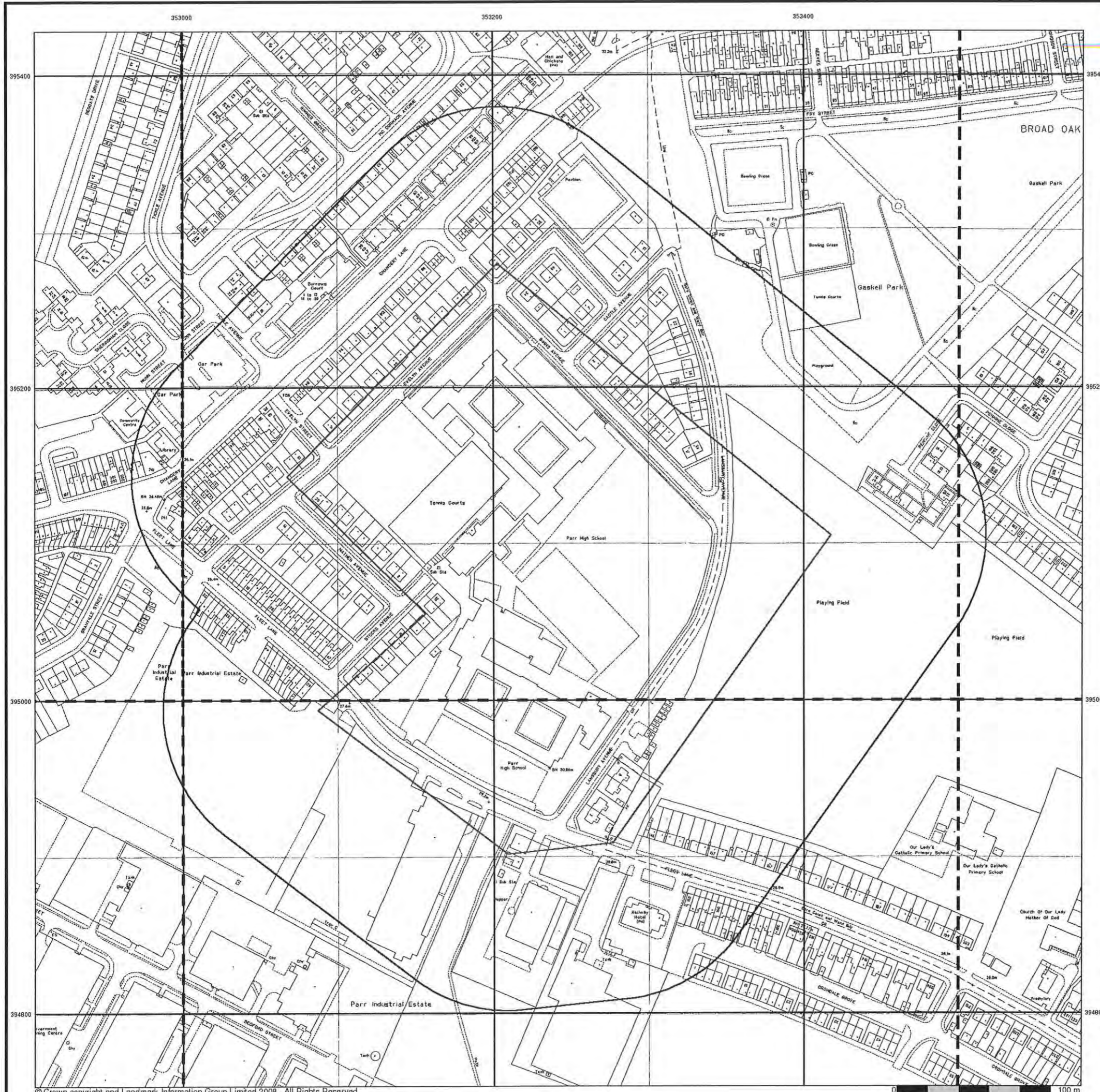


Order Details

Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
 National Grid Reference: 353230, 395090
 Slice: A
 Site Area (Ha): 7.46
 Search Buffer (m): 100

Site Details

Lansbury Bridge School, Lansbury Avenue, ST. HELENS, Merseyside, WA9 1TB



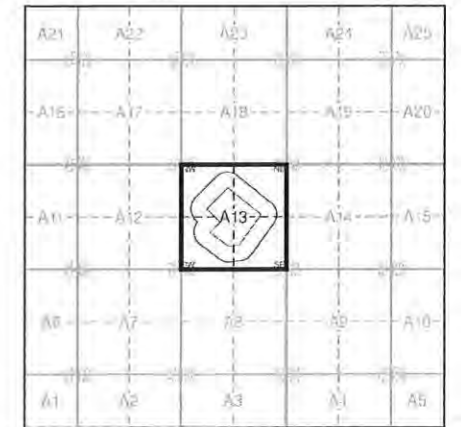
**Large-Scale National Grid Data
Published 1993
Source map scale - 1:1,250**

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

SJ5295SE 1993	SJ5395SW 1993	SJ5395SE 1993
SJ5294NE 1993	SJ5394NW 1993	SJ5394NE 1993

Historical Map - Segment A13

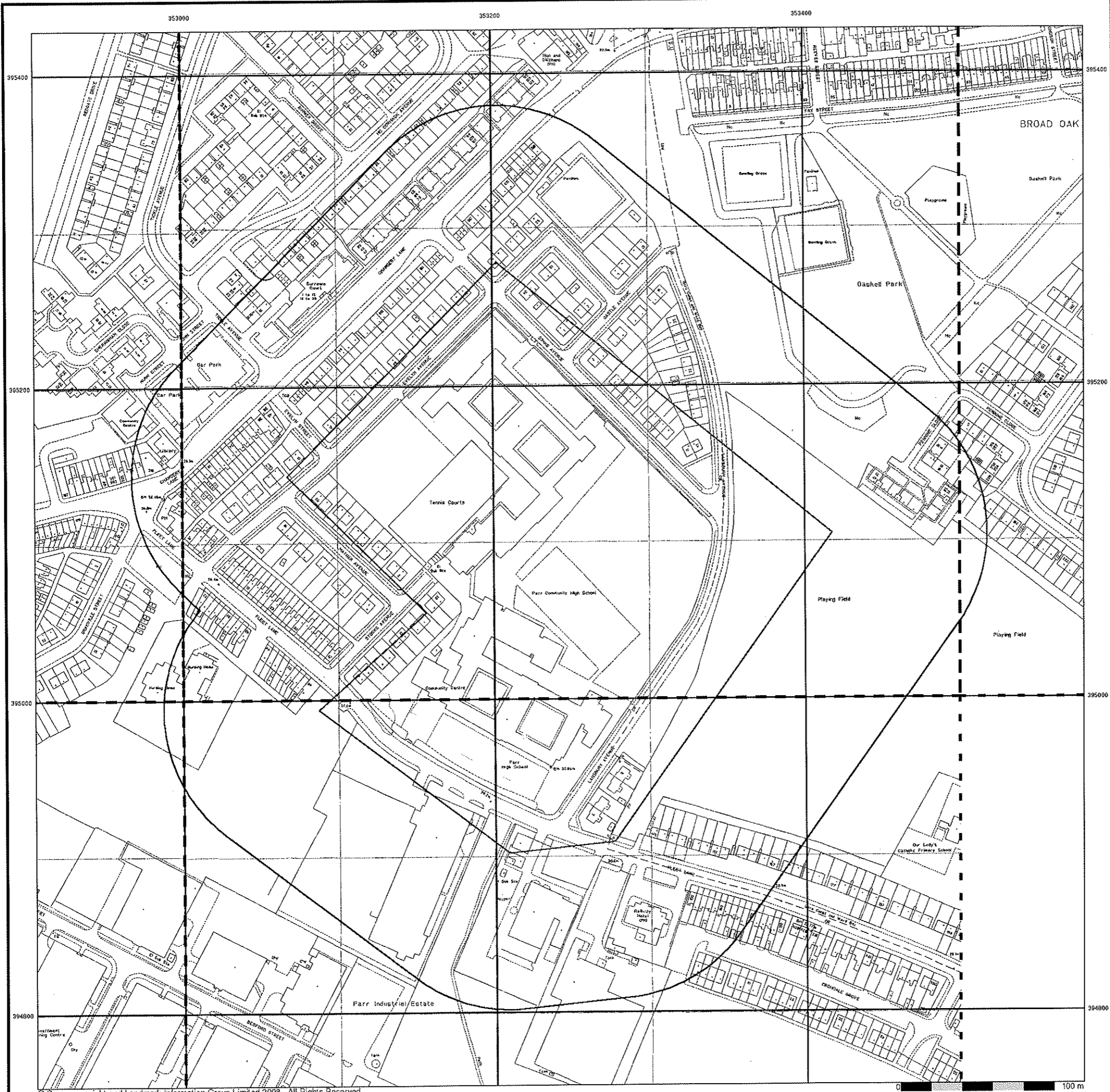


Order Details

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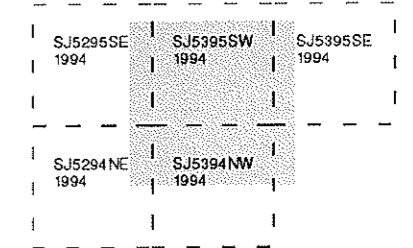
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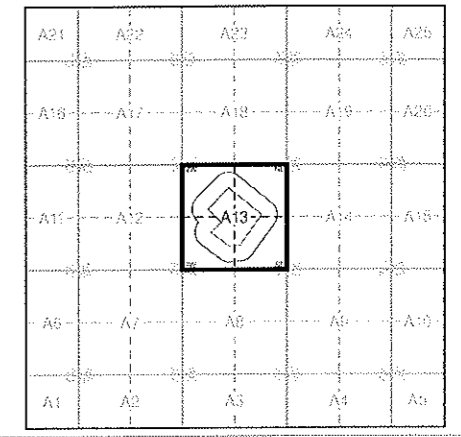
**Large-Scale National Grid Data
Published 1994
Source map scale - 1:1,250**

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13

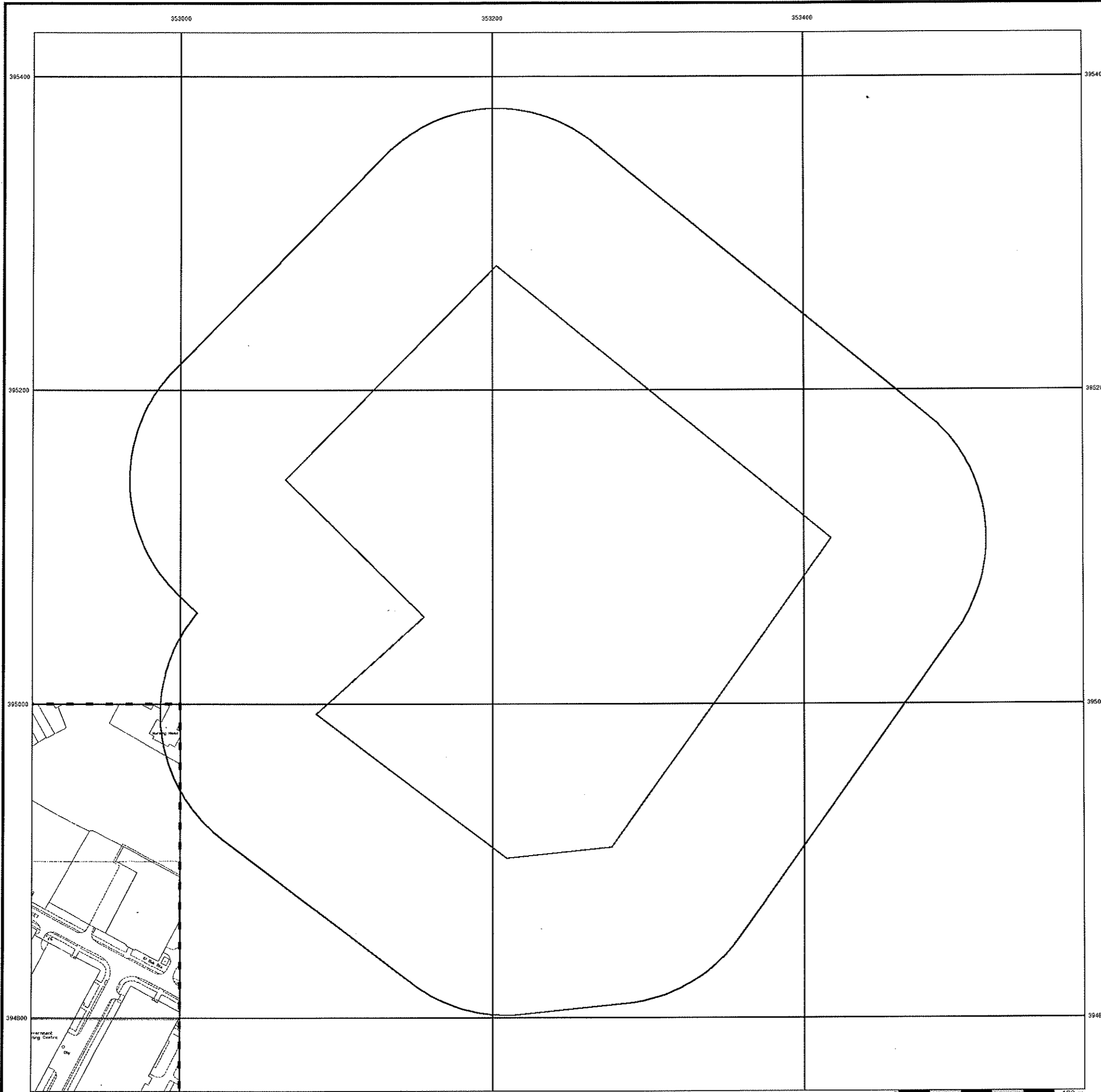


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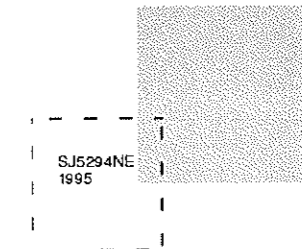


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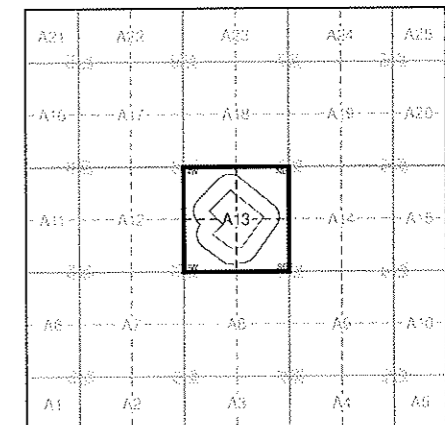
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'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

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 Merseyside, WA9 1TB

Russian Military Mapping Legends

1:5,000 and 1:10,000 mapping

a. Not drawn to scale b. Drawn to scale

28 Government and Administrative Buildings **17** Military and Industrial Buildings

35 Military and Communication Areas

a Fireproof Building **b** Prominent Fireproof Building

a Non-fireproof Building **b** Non-fireproof Building (non-dwelling)

a Factory, mill, and flour mill, with chimneys **b** Factory, mill, and flour mill, without chimneys

a Power Station, drawn to scale **ГЭС** Hydroelectric Power Station

a Radio Station, drawn to scale **a** Telephone Station, drawn to scale

a Abandoned Open-pit Mine or Quarry **a** Open-pit Salt Mine **b**

a Pit **a** Oil Deposit or Well **a** Oil Seepage **b**

a Tailings Pile **СКЛ. ГОР.** Fuel Storage Tanks **газ.** Natural Gas Tank

125.4 **бур.** **+2.0** **+1.2** **67.8**
Bench Mark Drill Hole Burial Mound Triangulation Point on Burial Mound

Раз. **платф.** **СМ.** **Тун.** **Пип.**
Single-track Railroad Small Bridge Double-track Railroad and Station Building (Culvert)

сосна 24 **клен 12** **ель береза 20**
Coniferous Forest Deciduous Forest Mixed Forest

Lawns **Citrus Orchard** **Wet Ground** **Scattered Vegetation**

243,8 Values for prominent elevations

186.0 Numbers for spot elevations, depth soundings, contour lines, etc.

0.2 Velocity of the current, width of river bed, depth of river

180/12 180/12 Fractional terms: length and capacity of bridges; depth of fords and condition of the river bottom; height of forest and the diameter of trees

Russian Alphabet (For reference and phonetic interpretation of map text)

А а (A)	З з (Z)	П п (P)	Ч ч (CH)
Б б (B)	И и (I)	Р р (R)	Ш ш (SH)
В в (V)	Й й (Y)	С с (S)	Щ щ (SHCH)
Г г (G)	К к (K)	Т т (T)	Ъ (-)
Д д (D)	Л л (L)	У у (U)	Ы (Y)
Е е (E)	М м (M)	Ф ф (F)	Ь (')
Ё ё (YO)	Н н (N)	Х х (KH)	Э э (E)
Ж ж (ZH)	О о (O)	Ц ц (TS)	Ю ю (YU or IU)
			Я я (YA or IA)

1:25,000 mapping

a. Not drawn to scale b. Drawn to scale

28 Government and Administrative Buildings **17** Military and Industrial Buildings

35 Military and Communication Areas

Partly Demolished Buildings Demolished Buildings

Built-Up Area with Fireproof Buildings Predominant Built-Up Area with Non-Fireproof Buildings Predominant

a Individual Fireproof Building **b** Prominent Industrial Building

Individual Dwelling, Fireproof Ruins of an Individual Dwelling

а Factory or Mill Chimney **бум.** Factory or Mill with Chimney **скип.** Factory or Mill without Chimney **медн.** Mine or Open Pit Mine

х кам.уз. Operating Shaft or Mine **х** Non-Operating Shaft or Mine **СОЛ.** Salt Mine **▲** Tailings Pile

— 1.7 Pit **2л. пещ. кам.** Stone Quarry **газоп.** Gas Pump or Service Station **●** Fuel Storage or Natural Gas Tank

а Oil or Natural Gas Derrick **х** Small Hydroelectric Power Station **х** Power Station **■ б.тр.** Transformer Station

□ 52.1 Cemetery **○ 0 + 8.1** Burial Mound (height in metres) **▲ 95.7** Triangulation Point on Burial Mound **▲ 92.6** Triangulation Point

□ 52.1 Bench Mark **○ 71.1** Bench Mark (monumented) **х** Telegraph Office **■** Telephone Station

а Radio Station **а** Radio Tower **а** Airfield or Seaplane Base **а** Landing Strip

а Cut **б** Fill **км. пост.** Km Post **а** Plantings **а** Width of Road **а** Steep Grade

а Telegraph/Telephone Lines **а** Main Highway **а** Highway under Construction **а** Improved Dirt Road (former truck road)

а Small Bridge **б** Pipe (Culvert) **а** Tunnel **а** Dismantled Railroad

а Double-track Railroad with First Class Station **а** Railroad Under Construction

а Shore Embankment **а** River or Ditch with Embankment **а** Water Gauge **а** Direction and velocity of current **а** Water Level Mark

а Well **а** Water Reservoir or Rain Water Pit **а** Spring **а** Isobath with value

а Heavy (Index) Contour Line **а** Contour Line and Value **а** Half Contour Line **а** Spot Elevation Value

а Coniferous **а** Deciduous **а** Mixed **а** Scrub

Key to Numbers on Mapping

SJ59NW_St_Helens

No.	Description
55	Sewage Works

SJ59SW_St_Helens

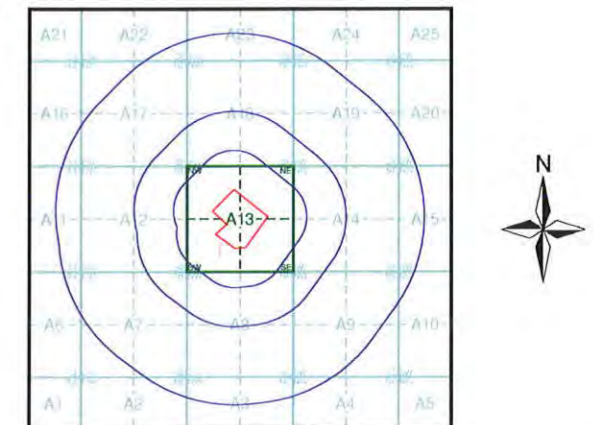
No.	Description
4	Depot (Railway)
8	Factories (Aluminium And Machinery)
19	Factory (Metal Works)
21	Factory (Rollers)



Russian Military Mapping included:

Mapping Type	Scale	Date	Pg
Wigan	1:10,000	1979	2
St Helens	1:10,000	1984	3

Russian Map - Slice A



Order Details

Order Number: 26170275_1_1
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 Site Area (Ha): 7.46
 Search Buffer (m): 1000

Site Details

Lansbury Bridge School, Lansbury Avenue, ST. HELENS, Merseyside, WA9 1TB



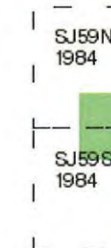
St Helens

Published 1984

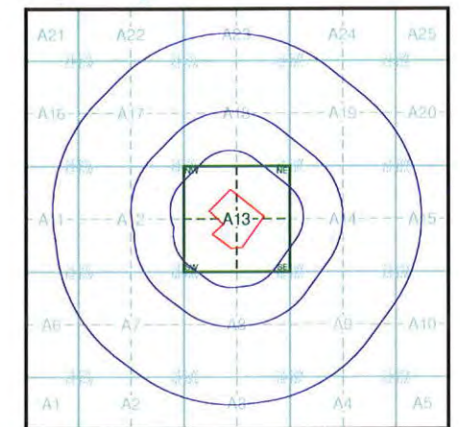
Source map scale - 1:10,000

These maps were produced by the Russian military during the Cold War between 1950 and 1997, and cover 103 towns and cities throughout the U.K. The maps are produced at 1:25,000, 1:10,000 and 1:5,000 scale, and show detailed land use, with colour-coded areas for development, green areas, and non-developed areas. Buildings are coloured black and important building uses (such as hospitals, post offices, factories etc.) are numbered, with a numbered key describing their use. They were produced by the Russians for the benefit of navigation, as well as strategic military sites and transport hubs, for use if they were to have invaded the U.K. The detailed information provided indicates that the areas were surveyed using land-based personnel, on the ground, in the cities that are mapped.

Map Name(s) and Date(s)



Russian Map - Slice A



Order Details

Order Number: 26170275_1_1
 Customer Ref: Former Parr High School
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 Slice: A
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 Search Buffer (m): 1000





Site Details

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Groundwater Vulnerability

General
 Specified Site
 Specified Buffers(s)
 Map ID
 Bearing Reference Point

Agency and Hydrological

Geological Classes

Major Aquifer (Highly Permeable)

High (H) 1, 2, 3, U
 Intermediate (I) 1, 2
 Low

Minor Aquifer (Variably Permeable)

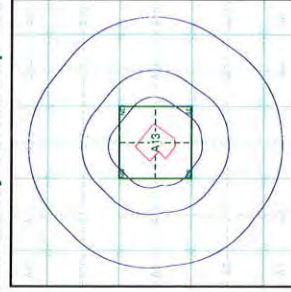
High (H) 1, 2, 3, U
 Intermediate (I) 1, 2
 Low

Non-Aquifer (Negligibly Permeable)

Water or Sea

Drift Deposit

Site Sensitivity Context Map - Slice A

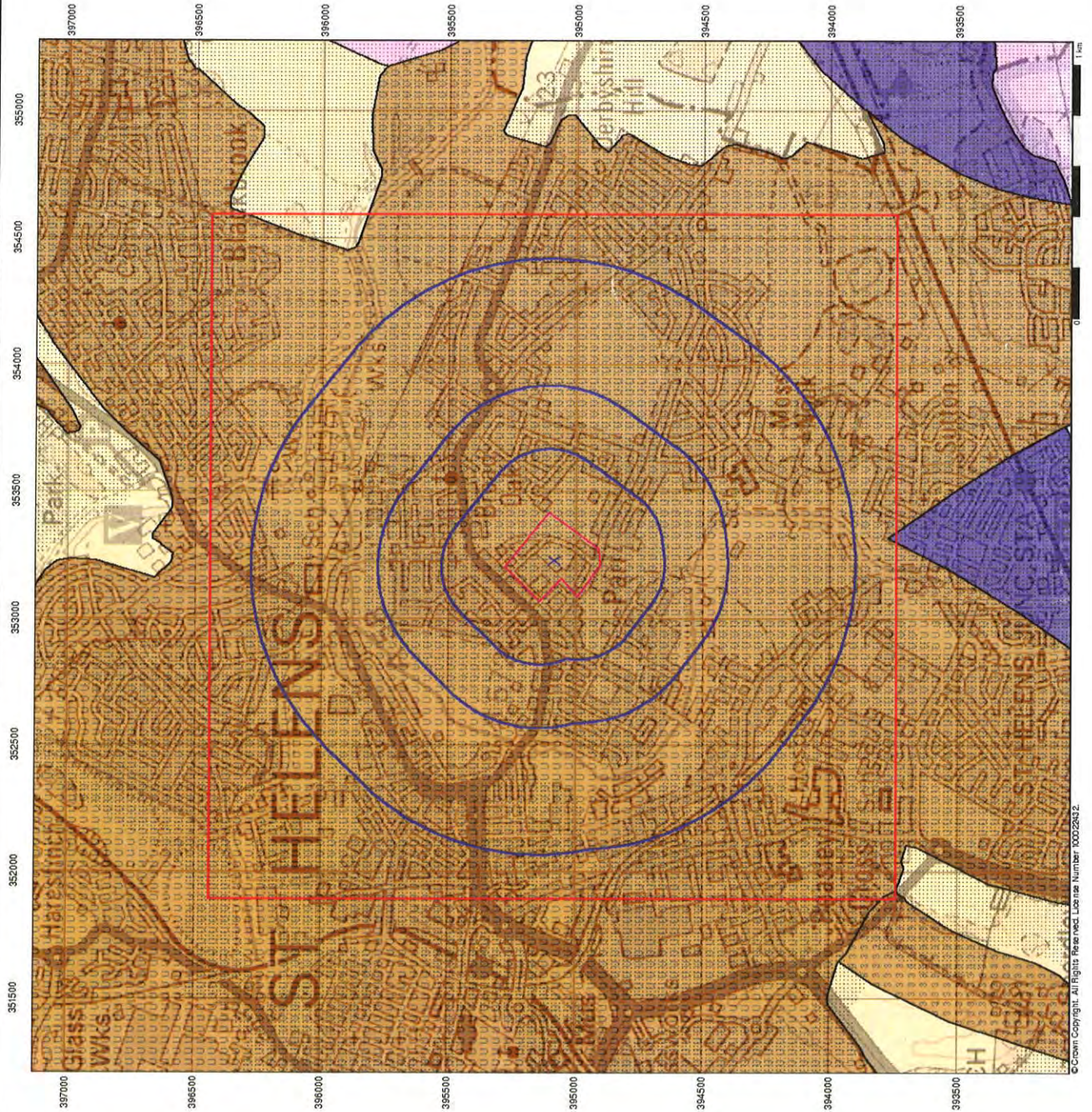


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Site Details

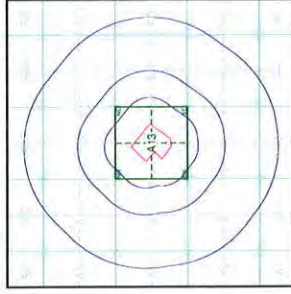
Lansbury Bridge School, Lansbury Avenue, ST. HELENS,
 Merseyside, WA9 1TB



Sensitive Land Uses

- General**
-  Specified Site
 -  Specified Buffer(s)
 -  Map ID
 -  Bearing Reference Point
- Sensitive Land Uses**
-  Area of Adopted Green Belt
 -  Area of Unadopted Green Belt
 -  Area of Outstanding Natural Beauty
 -  Environmentally Sensitive Area
 -  Forest Park
 -  Local Nature Reserve
 -  Marine Nature Reserve
 -  National Nature Reserve
 -  National Park
 -  Nitrate Sensitive Area
 -  Nitrate Vulnerable Zone
 -  Ramsar Site
 -  Site of Special Scientific Interest
 -  Special Area of Conservation
 -  Special Protection Area

Site Sensitivity Context Map - Slice A



Order Details

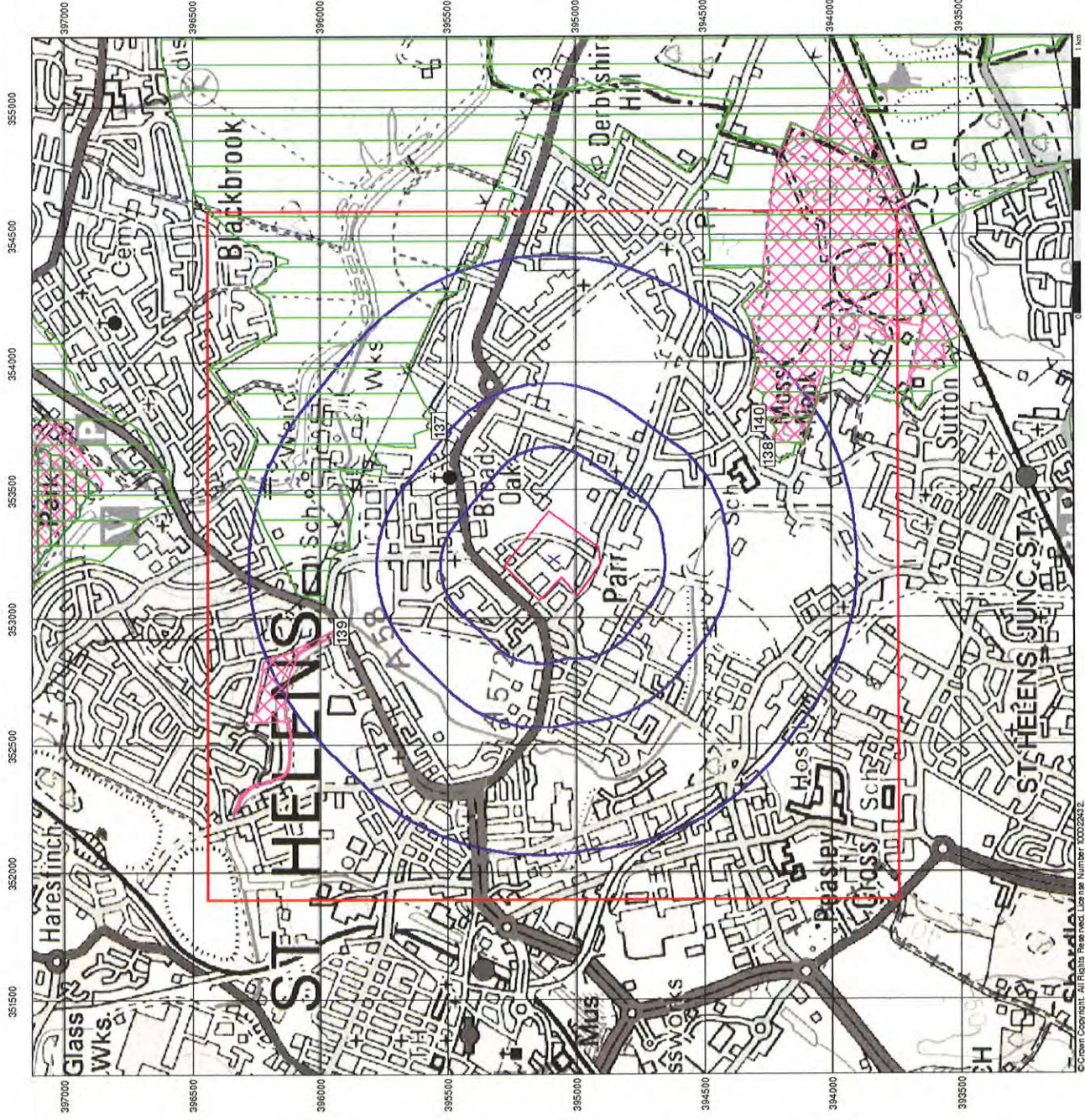
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Site Details

Lansbury Bridge School, Lansbury Avenue, ST. HELENS,
 Merseyside, W49 1TB



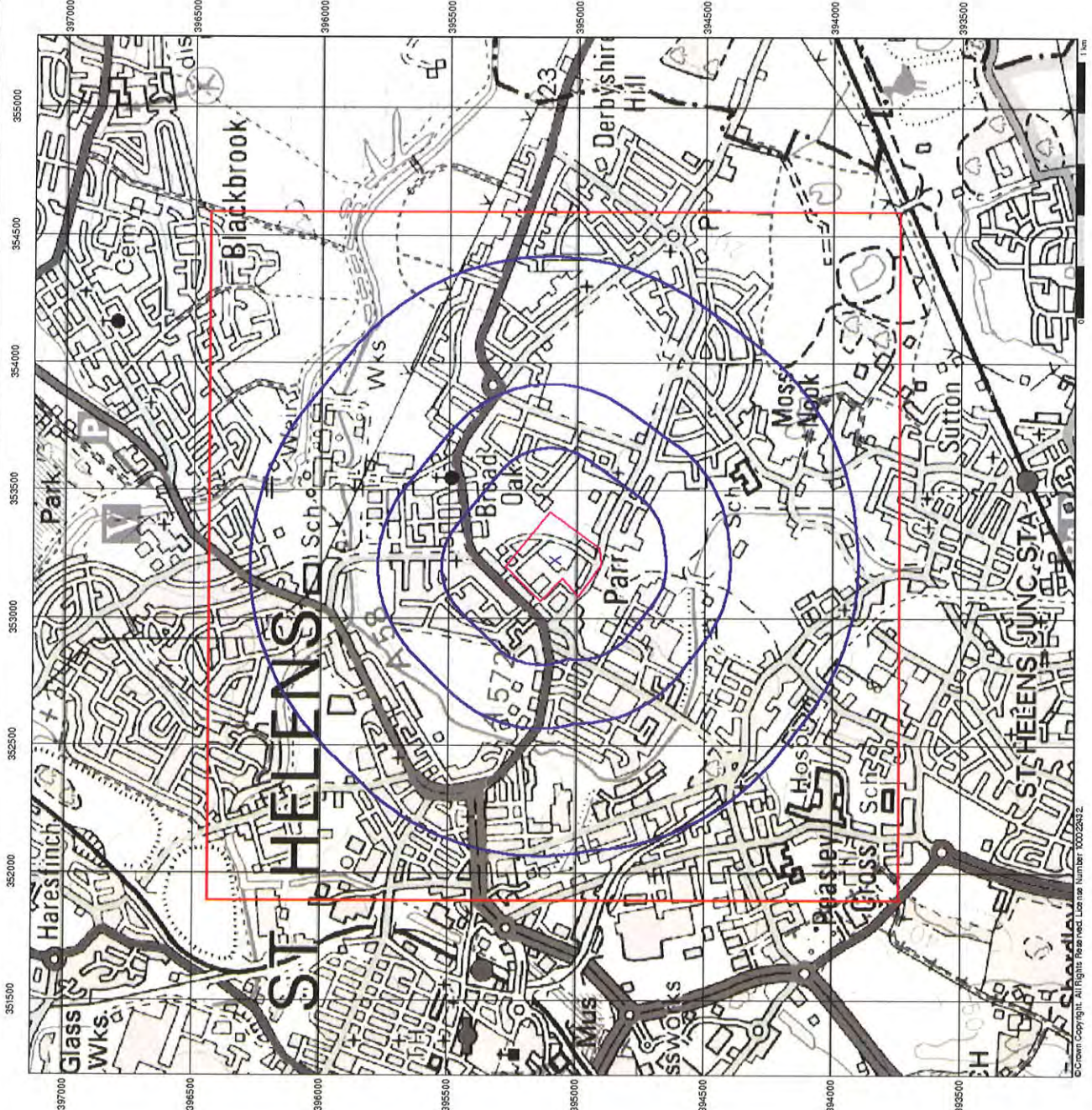
Tel: 0844 844 8652
 Fax: 0844 844 8651
 Web: www.envirocheck.co.uk



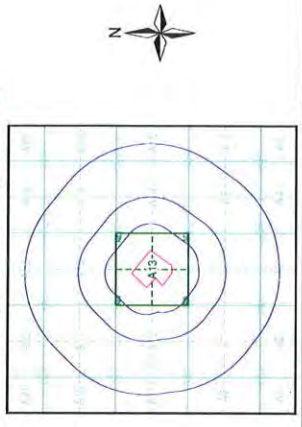
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Source Protection Zones

- General**
-  Specified Site
 -  Slice
 -  Specified Buffer(s)
 -  Map ID
 -  Bearing Reference Point
- Agency and Hydrological**
-  Source Protection Zone I
 -  Source Protection Zone II
 -  Source Protection Zone III
 -  Zone of Special Interest
 -  Source Protection Zone Barehole



Site Sensitivity Context Map - Slice A



Order Details

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 Site Area (Ha): 7.46
 Search Buffer (m): 1000

Site Details

Lansbury Bridge School, Lansbury Avenue, ST. HELENS,
 Merseyside, WA9 1TB

Appendix G. 2008 FES Ground Investigation Report



ST HELENS BOROUGH COUNCIL

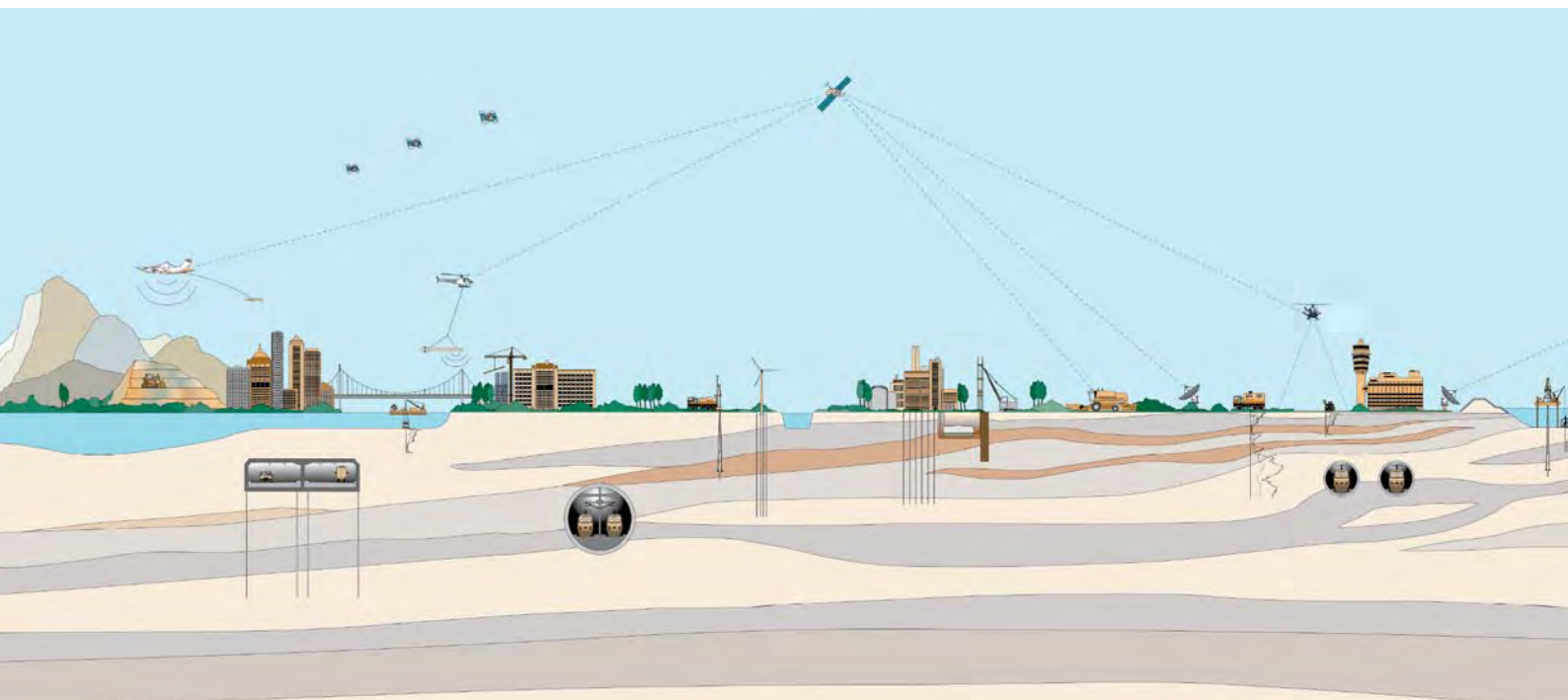
**ST HELENS BSF
MILL GREEN**

**DRAFT FACTUAL REPORT ON
GROUND INVESTIGATION**

CONTRACT NO : CON083065

DATE : NOVEMBER 2008

CONFIDENTIAL





ST HELENS BOROUGH COUNCIL

ST HELENS BSF MILL GREEN


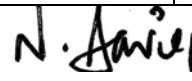
DRAFT FACTUAL REPORT ON GROUND INVESTIGATION

CONTRACT NO : CON083065

DATE : NOVEMBER 2008

CONFIDENTIAL

REPORT ISSUE STATUS

Issue	Date	Description	Prepared	Checked	Approved (Printed)	Approved (Signature)
01	20/11/08	Draft Factual	BC	BC	ND	N. Davies
						
B COOPER			N DAVIES			
PRINCIPAL ENGINEER			ENGINEERING MANAGER			

Fugro Engineering Services Limited
Armstrong House, Unit 43
Number One Industrial Estate
Consett
County Durham, DH8 6TW

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APPENDIX F	Geophysics
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1. INTRODUCTION

On the instructions and under the supervision of Mott MacDonald (the Engineer), acting on behalf of St Helens Borough Council (the Employer), a site investigation has been carried out by Fugro Engineering Services Limited (FES) at the site of the former Parr High School, Mill Green, St Helens.

The objective of the investigation was to determine the ground, groundwater and ground contamination conditions at the site and to provide information that would assist the Engineer in the geotechnical and geoenvironmental appraisal of the site. The scope of the investigation was determined by the Engineer.

A factual report was requested including exploratory hole and field testing records, laboratory test results and a site plan. The exploratory hole and laboratory test data have also been provided as digital data to AGS format. Photographs of the trial pits have been presented in the Addendum.

The site work, which comprised a single light cable tool percussion borehole with rotary cored follow-on to a maximum depth of 30.00 m and ten trial pits, was carried out between the 1st and 19th September 2008. A geophysical survey was carried out on the 8th and 9th September 2008.

2. THE SITE AND GEOLOGY

2.1 SITE LOCATION AND DESCRIPTION

The site is located adjacent to Parr Library on the site of the former Parr High School, approximately 0.25 km south east of Parr Stocks and 0.25 km north of Parr Industrial Estate, St Helens. The approximate National Grid reference of the site is SJ 532 949.

At the time of the investigation the site comprised grassed playing fields, tarmac hardstanding and derelict ground remaining after demolition of the former school. The site was bound to the north by Simms Avenue, to the east by Lansbury Avenue, to the south by Fleet Lane and to the west by Parr Library and residential properties.

2.2 GEOLOGY

The records of the British Geological Survey (GeoIndex digital data) indicate that the site is underlain by Glacial Till over Carboniferous Coal Measures.

Further background research such as a desk study was not required within the terms of reference for the work.

3. METHOD OF INVESTIGATION

3.1 GENERAL

A Cable Avoidance Tool (CAT) survey was undertaken at each of the exploratory hole locations. Prior to the sinking of the boreholes inspection pits were dug by hand at each location in order to identify the presence of any services. Services were not encountered.

Details of the in-situ sampling and testing carried out, together with the descriptions of the strata encountered, are given on the various exploratory hole records. An explanation of the symbols and abbreviations used on all the exploratory hole records, together with the method of strata description utilised, is given in the Notes on Exploratory Hole Records (Figures KS/01 to KS/06) in Appendix A. The investigation was generally carried out in accordance with BS 5930:1999ⁱ, BS EN ISO 14688-1:2002ⁱⁱ and BS EN ISO 14689-1:2003ⁱⁱⁱ as appropriate. The borehole records are given in Figure FR1 and the trial pit records are given in Figures FR2 to FR11 in Appendix A.

All geotechnical samples were transported to the laboratories and offices of FES in Consett for examination and testing as scheduled by the Engineer. Contamination samples taken during the investigation were sent directly to the contamination testing laboratory for testing scheduled by the Engineer.

3.2 CABLE PERCUSSION BORING

A single, 150 mm minimum diameter, borehole (BHM01) was sunk to a depth below ground level (bgl) of 11.00 m using light cable tool percussion boring techniques. The borehole record is given in Figure FR1 in Appendix A.

Disturbed samples were taken at each change in soil type and at regular vertical intervals during boring in order to identify and give a record of the strata encountered.

In cohesive soils nominal 100 mm diameter general purpose driven open tube (U100) samples were taken and subsequently sealed to preserve their natural moisture contents.

Standard penetration tests (SPT) using a split spoon (S) or a solid 60° cone (C) were carried out in the Made Ground, granular deposits and alternating with U100 sampling in the cohesive materials. The results are shown as S(N) and C(N) values on the borehole records at the relevant depths.

During the course of boring attention was given to recording any evidence of water inflow in order that the groundwater level beneath the site could be established. Water levels at breaks in boring were recorded where appropriate. Water samples were taken

where sufficient water was encountered to allow sampling. Where water was added to facilitate penetration of the soil strata this is noted on the borehole records.

3.3 ROTARY DRILLING

The borehole (BHM01) was extended by rotary core drilling techniques to a depth below ground level of 30.00 m using a truck mounted Knebel drill. The coring was carried out using a triple tube core barrel and rigid coreliner with combination bits and air / mist flush.

During the course of drilling attention was given to recording any evidence of water inflow in order that the groundwater level beneath the site could be established. Water levels at breaks in boring were recorded where appropriate.

The cores were logged by a geotechnical engineer from FES and photographed. The Solid Core Recovery (SCR) and Rock Quality Designation (RQD) have been determined using the modified proposal, as given in Norbury et al^{iv}, that a "solid cylinder" should be defined as having a full diameter (but not necessarily a full circumference) without discontinuities and should be measured axially along the core. In a number of instances the logging geologist assessed that some core from one run was recovered with the core from the next run. In these cases the TCR, SCR and RQD have been determined assuming that the core had been recovered from the core run in which it had first been drilled, and details are given in the remarks section of the borehole record.

The borehole record is given in Figure FR1 in Appendix A. The core photographs are given in the Addendum.

3.4 TRIAL PITS

Ten trial pits (TPMG01 to TPMG10) were excavated by machine using a JCB 3CX to a maximum depth of 3.80 m below ground level. The trial pits were logged by a geotechnical engineer from FES who took samples and carried out in-situ testing as shown on the trial pit records (Figures FR2 to FR11 in Appendix A). Notes on excavation stability and any groundwater encountered are also given on the records. Photographs of the trial pits were also taken by the engineer from FES and these are reproduced in the Addendum.

During the course of excavation attention was given to recording any evidence of water inflow in order that the groundwater level beneath the site could be established. The depth at which water seepage or ingress was encountered has been noted on the trial pit records. Water samples were taken where sufficient water was encountered to allow sampling.

3.5 INSTRUMENTATION

On completion of boring, a slotted 50 mm standpipe was installed in the borehole. Details of the installations are given on the borehole record.

Water level and gas readings were made in the gas monitoring standpipe both during and after the fieldwork period. The results of in situ tests on samples of gas withdrawn from the gas and groundwater monitoring standpipe are given in Figure FT1 in Appendix B. The procedures adopted are described in the standard protocols given in Figures PCL/01 to PCL/04 in Appendix B.

3.6 SURVEY

The positions of the exploratory holes were set out by reference to features shown on the site plan by the Engineer.

The ground levels and grid co-ordinates at the exploratory hole positions were determined using the Global Positioning System (GPS) technique by Trimble GPS related to the Ordnance Survey Active Rinex Network with an accuracy of +/-0.05 m. The ground levels have been quoted to the nearest 0.01m and the grid co-ordinates are given to the nearest 1.00 m.

3.7 GEOPHYSICAL SURVEY

Fugro-Aperio Limited was commissioned by Fugro Engineering Services Limited to carry out a geophysical survey to investigate and locate the possible presence of a mineshaft beneath the site.

The following geophysical techniques were utilised to conduct the survey:

- Magnetic Gradiometry, using a Geometrics G-858 gradiometer.
- Electromagnetic inductive ground conductivity, using a Geonics EM31 meter

The results of the survey are given in the report on geophysical survey reproduced in Appendix F.

4. RESULTS OF EXPLORATORY HOLES

4.1 GENERAL

Borehole records (Figure FR1) and trial pit records (Figures FR2 to FR11) giving details of the strata encountered are provided in Appendix A. A site plan showing the approximate positions of the exploratory holes provided by the Engineer is presented in Figure LP1 in Appendix E.

The strata descriptions given in the borehole records, unless otherwise noted, are compiled from an examination of the disturbed samples only, together with the results of any field and laboratory testing. Relative density descriptions are based on the results of the SPT and have not been amended to take into account any overburden effects. The consistency of cohesive strata is based on visual assessment together with any available laboratory test results. Where there is a degree of uncertainty regarding the relative density or consistency of the soil, the terms "probably" or "possibly" have been used and the descriptions should be treated with caution.

4.2 LIMITATIONS AND USE OF DATA

The scope of the investigation was determined by the Engineer for the particular project requirements set out in the Specification for the Contract. A factual report only was required, without interpretation of the data from the present investigation or consideration of data from other sources, except where noted. The data presented in this report reflects the site conditions encountered at the time the investigation was performed. The investigation has disclosed evidence of conditions at point locations across the site which provides information about discrete volumes of soil or rock. Accordingly, there may be ground conditions at the site which may not have been revealed by the investigation, and the passage of time may give rise to changes in the conditions encountered. Any interpolation or extrapolation of strata from the exploratory holes is subject to the interpretation of the reader. *Any cross - sections or plots are generalised by necessity and have been based on information found at the exploratory holes and depths sampled and tested.* The records should be read in conjunction with the Notes on Exploratory Hole Records in Appendix A. ***Particular attention is drawn to the comments made on groundwater and interpretation which are given in these Notes.***

The investigation has been carried out by Fugro Engineering Services Limited and the report has been prepared for the sole internal use of St Helens Borough Council. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Fugro Engineering Services Limited. If an unauthorised third party comes into possession of this report they rely upon it at their peril and the authors owe them no duty of care and skill.

It is Fugro Engineering Services Limited's understanding that this report is to be used for the purposes as described in the Specification for the investigation and as summarised in the text of the report. Should the purpose for which the report is used or the proposed use of the site change, this report may no longer be valid. Any further use or reliance upon the report in these circumstances by St Helens Borough Council without further review by and advice from Fugro Engineering Services Limited shall be at their sole and own risk.

4.3 STRATA ENCOUNTERED

The exploratory holes encountered the following general succession of strata which, apart from the Made Ground, concurs with that anticipated from published geological records.

MADE GROUND / TOPSOIL
Gravelly CLAY
MUDSTONE

5. GEOTECHNICAL LABORATORY TESTING

5.1 INTRODUCTION

The following laboratory tests were scheduled by the Engineer and carried out by FES in accordance with BS1377:1990^v where applicable. The results are given in tabular and graphical form as appropriate in a later section of the report. **Attention is drawn to the comments on interpretation of the results of the investigation on page KS/01 of the Notes on Exploratory Hole Records.** General Notes on Laboratory Test Results (Figure LKS/01) also precede the laboratory test results in Appendix C.

All tests with the exception of the chemical analyses were carried out in the Fugro in-house laboratory at Consett and the tests for which the laboratory have UKAS accreditation are detailed on the Schedules preceding the laboratory test results in Appendix C.

The chemical analyses were undertaken by ALcontrol, whose laboratory is accredited for the tests undertaken.

5.2 INDEX PROPERTIES

Liquid and plastic limit and natural moisture content determinations were made on five samples of the cohesive soils in order to classify the plasticity of the materials and the results are given on the Summary of Classification Tests (Figure LT1/1 in Appendix C). In one case the sample was found to be non plastic and the liquid limit was not determined.

5.3 PARTICLE SIZE ANALYSES

Particle size analyses were undertaken on a total of four samples in order to classify the materials in respect to their grain size. The particle size analyses were carried out by sieving and continued by sedimentation. The results are given as particle size distribution curves (Figures LT2/1 to LT2/4 in Appendix C).

5.4 UNDRAINED (TOTAL STRESS) TRIAXIAL COMPRESSION TESTS

Unconsolidated undrained triaxial compression tests were carried out on a single sample of the cohesive materials to determine its undrained shear strength. The results including undrained shear strength, moisture content and bulk density are given on the Summary of Undrained Triaxial Compression Tests (Figure LT5/1 in Appendix C). The sample descriptions given on these figures are the technician's visual description. The technician's description of undrained shear strength is given in brackets where it is markedly different to that determined by the test.

The test was carried out on a single specimen nominally 200 mm long and 100 mm in diameter as a multistage test at cell pressures ranging from 30 kPa to 120 kPa.

5.5 ROCK TESTS

The point load index using the methods outlined by the ISRM Commission on Testing Methods, 1985, was determined for nineteen specimens taken from samples of rock core. The results are given in Figures LT8/1 and LT8/2 in Appendix C.

The unconfined compressive strength of five samples of rock core was determined using the methods outlined by the ISRM Commission on Testing Methods, 1985. The results are given in Figure FT8/3 in Appendix C.

6. CONTAMINATION TESTING

6.1 INTRODUCTION

The following laboratory tests were scheduled by the Engineer and carried out for FES by ALcontrol Geochem whose laboratory is accredited by UKAS and details of their current accreditation may be obtained from them.

6.2 CHEMICAL ANALYSES ON SOIL SAMPLES

A total of four soil samples from the exploratory holes were analysed for the following suite of determinands:

- Arsenic (total)
- Cadmium (total)
- Chromium (total)
- Copper (total)
- Nickel (total)
- Zinc (total)
- Lead (total)
- Mercury (total)
- Selenium (total)

Boron (water soluble)
Cyanide (total)
Sulphate (total)
Sulphide
Sulphur (total)
pH
Toluene Extractable Material (TEM)
Phenols (total)
Polyaromatic Hydrocarbons

In addition, four samples were analysed to determine their pH values and water soluble sulphate contents.

The results are given in ALcontrol test certificate reference number 08/10646/02/01 in Appendix D.

REFERENCES

- ⁱ BS 5930:1999, Code of practice for site investigations. British Standards Institution.
- ⁱⁱ BS EN ISO 14688-1:2002 Geotechnical investigation and testing – Identification and classification of soil – Part 1 Identification and description. British Standards Institution.
- ⁱⁱⁱ BS EN ISO 14689-1:2003 Geotechnical investigation and testing – Identification and classification of rock – Part 1 Identification and description. British Standards Institution.
- ^{iv} Norbury, D.R., Child, G.H., and Spink, T.W., 'A critical review of Sections 8 (BS 5930:1981), Soil and rock descriptions, Geological Society Engineering Geology Special Publication No 2, Proceedings of 20th Regional Meeting of the Engineering Group, Guildford, 1986.
- ^v BS 1377:1990, Methods of tests for soils for civil engineering purposes. British Standards Institution

APPENDIX A Exploratory Hole Records

General Notes and Key Sheets on Exploratory Hole Records
Borehole Records
Trial Pit Records

Figures KS/01 to KS/06
Figure FR1
Figures FR2 to FR11

NOTES ON EXPLORATORY HOLE RECORDS

GENERAL NOTES

1 OPERATING PROCEDURES

The procedure used for cable percussion boring, rotary drilling, trial pitting, sampling, in situ and laboratory testing and sample descriptions are generally in accordance with BS5930:1999 'Code of practice for site investigations', BS EN ISO 14688-1:2002 'Geotechnical investigation and testing – Identification and classification of soil – Part 1 Identification and description', BS EN ISO 14689-1:2003 'Geotechnical investigation and testing – Identification and classification of rock – Part 1 Identification and description' as appropriate, and BS1377:1990 'Methods of test for soils for civil engineering purposes', unless stated otherwise.

2 GROUNDWATER

Exploratory hole water levels are recorded together with the depths at which seepages or inflows of water are detected. These observations are noted on the Records, but may be misleading for the following reasons:

- a) The exploratory hole is rarely left open at the relevant depth for a sufficient time for the water level to reach equilibrium.
- b) A permeable stratum may have been sealed off by the borehole casing.
- c) Water may have been added to the borehole to facilitate progress.
- d) The permeability may have been altered by the excavation/boring/drilling process.

Standpipes or piezometers should be installed when an accurate record of groundwater level is required, however, it should be noted that groundwater levels may vary significantly due to seasonal, climatic or man made effects. Water levels recorded during the investigation and any advice or comment made accordingly may, therefore, not be appropriate to particular foundation, geotechnical design, or temporary works solutions. Long term monitoring of standpipes or piezometers is always recommended when water levels are likely to have a significant effect on design.

3 CHISELLING

The remarks in the Borehole Records contain information on the time spent advancing the borehole by 'Chiselling Techniques', and the depth of borehole over which it was required. Such information may be affected by a wide range of variable factors, unrelated to the geotechnical properties of the strata. Such factors include, but are not restricted to: plant, equipment and operator. The data should, therefore, only be used subjectively and with extreme caution.

4 IDENTIFICATION AND DESCRIPTION OF SOILS - SEE SEPARATE SHEET

The identification system follows the Company's Engineering: Geotechnical Procedures Manual which is based on BS EN ISO 14688-1:2002 and appropriate clarifications in the National Foreword, BS 5930:1999 and BS EN ISO 14689-1:2003

Relative density terms are given where supported by SPT N values, with the exception of Made Ground. The field assessment of compactness or relative density for coarse grained soils is only given on trial pit records where appropriate assessment of the soils has been undertaken.

Where the terms 'soft to firm', 'firm to stiff' etc. are used they indicate a strength which is close to the borderline between the two terms and cannot be precisely defined by inspection only, and/or which is indicated as borderline or ranging between the two terms after consideration also of in situ and laboratory test results. Consistencies may have been amended in the light of test results

Where 'to' links two terms, as in 'slightly sandy to sandy' this again represents a borderline case or a range, where the precise proportions cannot be determined as outlined previously.

The name of the geological formation is only given where this has been requested and can be determined with confidence (see Clause 41.5 of BS 5930:1999).

5 INTERPRETATION OF THE RESULTS OF THE INVESTIGATION

The description of ground conditions encountered and any engineering interpretation included in the report are based on the results of the boreholes and trial pits and the field and laboratory testing carried out. There may be ground conditions at the site which have not been revealed by the investigation and consequently have not been taken into account.

Any interpolation or extrapolation of strata between exploratory holes shown on any cross sections or site plans is an estimate only of the likely stratification based on general experience of the ground conditions and is subject to the interpretation of the reader.

The term "TOPSOIL" is used in this report to describe the surface, usually organic rich, layer including turf, subsoil and weathered material with roots. The use of this term may not imply that the soil satisfies the requirements of Clause 3 of BS 3882:1994, 'Specification for topsoil', or is suitable for general horticultural and agricultural purposes.

Laboratory test results in this report give the soil properties of individual specimens tested under specified conditions. Individual results or groups of results may not be appropriate for use as design parameters for some geotechnical analyses. The samples may be non-representative, disturbed internally, or prepared and tested under conditions suited for different geotechnical applications. Unless the selection of design parameters is discussed in this report, it is recommended that the advice of a Geotechnical Specialist is sought.

NOTES ON EXPLORATORY HOLE RECORDS

IN SITU TESTING AND SAMPLING

STANDARD PENETRATION TESTS

S() Standard Penetration Test (SPT). A 50mm diameter split barrel sampler is driven 450mm into the soil using a 63.6kg hammer with a 760mm drop. The penetration resistance (also known as the 'N' value) is expressed as the number of blows required to obtain 300mm penetration below an initial seating drive of 150mm which is taken through any ground which may be disturbed at the base of the borehole. The test is usually completed when the number of blows recorded during the test drive only reaches 50 in soils or 100 in weak rock. If a sample is not recovered in the sampler, a disturbed sample is taken on completion of the test and given the same depth as the top of the Standard Penetration Test drive.

C() Standard Penetration Test carried out with a 60 degree cone. The test is usually conducted in coarse granular soils or weak rock using the same procedure as for the SPT, but with a 50mm diameter, 60 degree apex, solid cone fitted to the split barrel. A bulk disturbed sample is taken and given the same depth as the top of the test drive.

The depth on the borehole record at the left hand side of the 'depth' column is that at the start of the normal 450mm penetration. Where the full penetration of 300mm for the test drive is obtained, the penetration resistance ('N' value) is reported in the 'SPT Blows/N' column. If the full penetration of 300mm in the test drive is not obtained, then the length of drive (test length in mm) and the penetration resistance (number of blows) are both reported. Blows through the initial seating drive (normally 150mm) are not reported.

* in the 'Test Length' column denotes that the blows and penetration were all in the initial Seating Drive section.

OTHER IN SITU TESTS

The following in situ tests are reported on the **Exploratory Hole Records**, in the 'Test' or 'Type' and 'Results' columns where appropriate.

k In situ Permeability Test - refer to detailed test results for permeability values

PMT Pressuremeter Test - refer to detailed test results for modulus values, etc.

VN/R() Borehole Shear Vane Test (undrained shear strength - c_u - in kPa) - refer also to detailed test results, N - 'Natural' or peak shear strength, R - Remoulded shear strength

VN/R() Hand Shear Vane Test (Direct reading of undrained shear strength in kPa). 'N' and 'R' as above. The values are indicative and should not be taken as being equivalent to laboratory test results. The Pilcon vane results have a factor varying from about a sixth for the 33mm vane to a third for the 19mm vane which reduces the BS1377 shear vane value. The values presented are therefore approximate and should be treated with great caution if used for design purposes

PP() Pocket Penetrometer. Unconfined Strength (UCS) reported in kg/cm^2 to the nearest 0.25 kg/cm^2 or kPa with the same accuracy. Equivalent c_u in kPa is very approximately $\text{UCS} \times 50$. Pocket Penetrometers are an aid to logging of cohesive soils, the results are indicative and should not be relied upon. The equipment used is not calibrated

CBR() California Bearing Ratio Test (CBR%) - refer also to detailed test results

PID() Photo-Ionisation Detector Readings in headspace of small disturbed chemical samples. Result given in ppm by volume

SAMPLES

U General purpose open tube sample. Sample normally taken with open tube sampler approximately 0.1m diameter and 0.45m long and driven with 80kg sinker bar and 56kg sliding hammer, unless noted otherwise. "XX" in U100 blows column denotes the number of hammer blows. The height of hammer drop can be variable depending on operator technique. Depths are given to the top of the sample if full penetration and recovery are achieved, otherwise actual lengths of penetration and recovery are given in the appropriate columns.

U(X) General purpose open tube sample (X) mm diameter

TW(X) Thin wall (push) sample (X) mm diameter

P(X) Piston sample (X) mm diameter

CBR Sample taken in CBR Mould

D Small disturbed sample (plastic tub or jar with air tight lid)

B Bulk disturbed sample (polythene bag, tied at neck - size dependent on purpose)

W Water sample

Sample not recovered

C Core sample (CS – short core, generally about 100mm; CL – long core, generally 200mm to 300mm)

CD	Sample for chemical analysis in a plastic tub	K	Sample for chemical analysis in an amber glass jar
----	---	---	--

V	Sample for chemical analysis in a glass vial	CDKV	Set of samples for chemical analysis as above
---	--	------	---

WAC Sample for Waste Acceptance Criteria

ES	Environmental Sample	EW	Environmental Water Sample
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NOTES ON EXPLORATORY HOLE RECORDS

KEY TO BOREHOLE AND TRIAL PIT RECORDS

Soil Types

Coarse grained, Non cohesive



Boulders



Cobbles



Gravel



Sand

Fine grained, Cohesive



Silt



Clay

Note: Composite soil types may be signified by combined symbols.

Other Soil Types



Topsoil



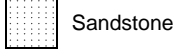
Peat



Made Ground

Rock Types

Sedimentary



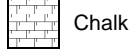
Sandstone



Siltstone



Conglomerate



Chalk



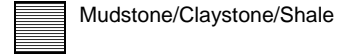
Limestone



Breccia



Coal

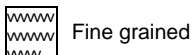


Mudstone/Claystone/Shale

Metamorphic



Coarse/Medium grained



Fine grained

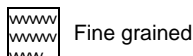
Igneous



Coarse grained

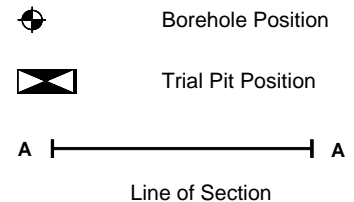
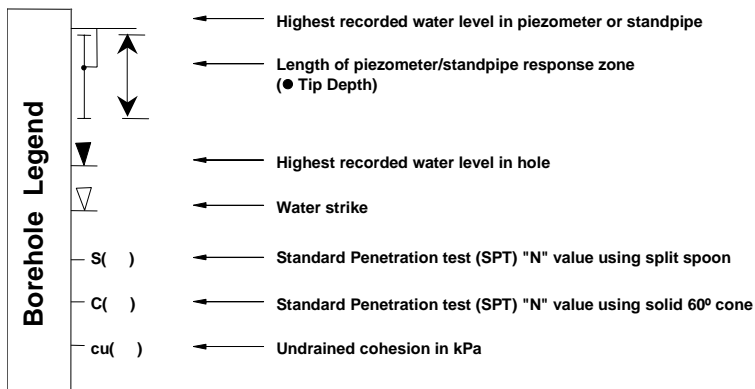


Medium grained



Fine grained

KEY TO SITE PLANS AND CROSS SECTIONS



NOTES ON EXPLORATORY HOLE RECORDS

DESCRIPTION OF ROCK CORES

DESCRIPTIVE ORDER

Strength, Structure, Colour, Texture, Grain Size, ROCK NAME. Minor constituents and additional information. (Geological formation - see comments under identification and description of soils). Mass characteristics - factual description of weathering state (if appropriate) and description of discontinuities and fracture state (if appropriate).

Term	Field identification	Strength (MPa)
Extremely weak	Can be indented by thumbnail. Gravel sized lumps crush between finger and thumb.	<1.0
Very weak	Crumbles under firm blows with point of geological hammer. Can be peeled by a pocket knife.	1 – 5
Weak	Peeled by a pocket knife with difficulty. Shallow indentations made by firm blow with point of geological hammer.	5 – 25
Medium strong	Cannot be scraped with pocket knife. Can be fractured with a single firm blow of geological hammer.	25 – 50
Strong	Requires more than one blow of geological hammer to fracture.	50 – 100
Very strong	Requires many blows of geological hammer to fracture.	100 – 250
Extremely strong	Can only be chipped with geological hammer.	> 250

DISCONTINUITIES

Bedding Spacing & Planar Structures *	Spacing (mm)	Discontinuity Spacing
	>6000	Extremely widely spaced
Very thickly bedded	>2000 2000-6000	Very widely spaced
Thickly bedded	600 - 2000	Widely spaced
Medium bedded	200 - 600	Medium spaced
Thinly bedded	60 - 200	Closely spaced
Very thinly bedded	20 - 60	Very closely spaced
Thickly laminated (Sedimentary) narrow (Metamorphic & Igneous)	6 – 20 <20	Extremely closely spaced
Thinly laminated (Sedimentary) Very narrow (Metamorphic & Igneous)	<6	

* For igneous and metamorphic rocks the appropriate descriptive term for planar structure should be used e.g. medium foliated gneiss, very narrowly cleaved slate, very thickly flow banded diorite.

WEATHERING

Standard descriptions of weathered rocks for engineering purposes should always include comments on the degree, extent and nature of any weathering effects at material or mass scales. This may allow subsequent classification and provide information for separating rock into zones of like character. Indications of weathering include

- changes in colour
- reduction in strength
- changes in fracture state
- presence, character and extent of weathering products

If a systematic classification following the guidelines given in the Standard can be applied unambiguously, this is described in the text of the report. Otherwise, the rocks are not classified in terms of weathering beyond the approach described above.

Weathering terms that may be used for description of rock material and these terms may be qualified or combined.

- Discoloured constituents The degree and type of colour change from original is described, and if for mass or particular mineral
- Disintegrated decomposed Fragmentation by physical weathering, bonding lost but material fabric is intact. Material friable, not
- Decomposed Chemical alteration of mineral grains so material fabric is intact but some or all grains are decomposed

For rock mass weathering the following terms may be used

- Slightly weathered Discolouration on surfaces and / or of material
 - Moderately corestones Less than half of mass decomposed/disintegrated. Fresh/discoloured rock as continuous material or
 - Highly corestones More than half decomposed/disintegrated. Fresh/discoloured rock as discontinuous framework or
 - Completely All rock material decomposed and/or disintegrated. Original mass structure largely intact
 - Residual Soil All material converted to soil, structure and fabric destroyed, may be volume change but material not moved
- The term 'Fresh' is used to indicate that there is no visible weathering or alteration, except possibly slight discolouration on major surfaces.

NOTES ON EXPLORATORY HOLE RECORDS

ROCK CORES

ROCK CORE SIZES

The core barrels commonly used by the Company in site investigations are as follows:

Core Barrel Type	Borehole Diameter (mm)	Standard Core Size (mm)	Core Size using Rigid Plastic Liner (mm)	Casing Size or Type	Casing O.D (mm)	Casing I.D (mm)
STANDARD BRITISH SIZES						
NWM	75.7	54.7	51	NX	88.9	76.2
HWF	98.8	76.2	72	HX	114.3	100.0
HWAF	99.5	70.9	-	HX	114.3	100.0
PWF	120.0	92.1	87	PX	139.7	122.3
SWF	145.4	112.8	107	SX	168.3	147.7
UWF	173.7	139.8	132	UX	193.7	176.2
WIRELINE SIZES						
BQ	59.9	36.4	35			
NQ	75.7	47.6	45			
HQ	96.1	63.5	61			
PQ	122.7	85.0	82			
GEOBORE S	146.0	102.0	102	SX	168.3	147.7
THINWALL SIZES						
TNX	75.7	60.8	-	NX	88.9	76.2
T2 66	66.1	51.9	-	74	74.3	67.3
T2 76	76.1	61.9	-	84	84.3	77.3
T2 86	86.1	71.9	68	98	98.0	89.0
T2 101	101.1	83.9	80	113	113.0	104.0
T6 116	116.1	92.9	89	128	128.0	118.0
T6 131	131.1	107.9	104	143	143.0	133.3
NON STANDARD BARRELS						
4.12F TRIEFUS	105.2	74.7	72	PX	139.7	122.3
5.5x4C	139.7	101.6	-	SX	168.3	147.7
SINGLE TUBE						
B116	116	102	-	PX	139.7	122.3
B146	146	132	-	SX	168.3	147.7

Note: Core diameters may vary when different lining systems are in use.

ROCK CORE CHARACTERISTICS

TCR Total Core Recovery. The length of the total amount of core sample recovered, expressed as a percentage of the length of the core run.

SCR Solid Core Recovery. The length of solid core recovered, expressed as a percentage of the length of the core run.

Solid core is defined as that length of core which has a full diameter, but not necessarily a full circumference. Only natural fractures are considered. Drilling or handling induced fractures are ignored.

RQD Rock Quality Designation. The length of solid core recovered in pieces each more than 100mm long as a percentage of the core run length.

I_f Fracture Index. The number of discontinuities expressed as 'fractures per metre', measured over any convenient length of consistent fracture characteristics.

Zones of atypical fracturing of restricted extent which occur within a rock unit of uniform fracture characteristics are identified within the Description of Strata.

NI - Not Intact

NR - No Recovery

NA - Not Applicable

I_s Corrected Point Load Strength Index I_{s(50)} which is given in MPa

NOTES ON EXPLORATORY HOLE RECORDS

IDENTIFICATION AND DESCRIPTION OF SOILS

	Basic Soil Type	Particle Size (mm)	Visual Identification	Composite Soil Types (Mixtures of basic soil types)			Density / Consistency / Peat Condition					
VERY COARSE SOILS	BOULDERS	200	Large Boulders >630mm. These soils only seen complete in pits or exposures. Often difficult to recover from boreholes.	Scale of secondary constituents with coarse and very coarse soils. Term before, description after principal			For very coarse soils qualitative description by inspection of voids and particle packaging.					
	COBBLES			Term before (term in '[]' may be used for 2 nd ry parts, matrix etc)	Principal Soil Type	Description after	Approx % 2 nd ry soil type	Standard Penetration Test in Boreholes for Coarse Soils				
COARSE SOILS (Typically over 65% Sand and Gravel Sizes)	GRAVEL	coarse	Easily visible to naked eye; particle shape can be described, grading can be described. Well graded: wide range of grain sizes, well distributed. Poorly graded: not well graded. (May be uniform: size of most particles lies between narrow limits; or gap graded; an intermediate size of particle is markedly under represented).	Slightly (sandy*) [occasional / little]	Used to describe components of secondary constituents. e.g. Gravel is fine and medium subangular fine sandstone and mudstone.	<5	No of blows Relative Density					
		medium		--(sandy*) [some]		5 - 20	4-10 Loose					
		fine		Very (sandy*) [much / many]		20 to 40†	10-30 Medium Dense					
	SAND	coarse	Visible to naked eye; no cohesion when dry; grading can be described. Well graded and poorly graded: as above	--	and (sand*) or and (cobbles+)	50†	30-50 Dense					
		medium		* Fine or coarse soil type as appropriate		>50	Very Dense					
		fine		† described as fine soil depending on behaviour		Slightly cemented Visual Examination: pick removes soil in lumps which can be abraded.						
FINE SOILS (Typically over 35% Silt and Clay Sizes)	SILT	coarse	Only coarse silt visible with hand lens; exhibits little plasticity and marked dilatancy; slightly granular or silky to touch. Disintegrates in water; lumps dry quickly; possesses cohesion but powders easily between fingers.	Term before	Principal Soil Type	Description after	Approx % 2 nd ry soil type	Scale of secondary constituents with fine soils. Terms before, description after principal constituent.				
		medium		Slightly (sandy*)				<35	Very soft	Finger easily pushed in up to 25mm. Exudes between fingers		
		fine		-- (sandy*)				35 to 65†	Soft	Finger pushed in up to 10mm. Moulded by fingers		
	CLAY	0.002	Term "SILT" or "CLAY" must be used, "SILT/CLAY" not allowed.		CLAY or SILT	Used to describe components of secondary constituents e.g. gravelly sandy CLAY. Gravel is coarse rounded quartzite	>65†	Firm	Thumb makes impression easily. Rolls to thread			
			Dry lumps can be broken but not powdered between the fingers; they also disintegrate under water but more slowly than silt; smooth to the touch; exhibits plasticity but no dilatancy; sticks to the fingers and dries slowly; shrinks appreciably on drying usually showing cracks. Intermediate and high plasticity clays show these properties to a moderate and high degree, respectively.					* Coarse soil type as appropriate		Stiff	Can be indented slightly by thumb. Crumbles if rolled	
								† or described as coarse soil depending on mass behaviour		Very Stiff	Indented by thumbnail. Cannot be moulded	
				EXAMPLES OF COMPOSITE TYPES (indicating preferred order for description)			Hard		Can be scratched by thumb nail			
				Loose brown very sandy subangular coarse GRAVEL with many pockets (<5mm across) of soft grey clay.			Firm Peat		Fibres compressed together			
				Firm thinly interlaminated brown SILT and CLAY.			Spongy Peat		Very compressible, open			
				Dense light brown clayey fine and medium SAND.			Plastic Peat		Moulded in hand, smears			
ORGANIC SOILS												
	ORGANIC CLAY, SILT or SAND	Varies	Contains varying amounts of organic vegetable matter - defined by colour: grey - slightly organic; dark grey - organic; black - very organic.									
Structure												
Term	Field Identification			Interval Scales			Particle Nature					
Homo-geneous	Deposit consists essentially of one type			Scale of Bedding Spacing	Mean Spacing (mm)	Scale of Spacing of Other Discontinuities / [Blocks]	Particle Shape & Form					
Interbedded or interlaminated	Alternating layers of varying types. Pre-qualified by thickness term if in equal proportions. Otherwise thickness of, and spacing between, subordinate layers defined			Very thickly bedded	over 2000	Very widely spaced / [Very large]	Very angular (Sub) angular (Sub) rounded Well rounded					
Hetero-geneous	A mixture of types			Thickly bedded	2000-600	Widely spaced / [Large]	Low Sphericity Flat or Elongate					
Weathered (granular)	Particles may be weakened and may show concentric layering			Medium bedded	600-200	Medium spaced / [Medium]	High Sphericity Cubic					
Weathered (cohesive)	Usually has crumb or columnar structure			Thinly bedded	200-60	Closely spaced / [Small]	Extremely closely spaced					
Fissured	Breaks into blocks along unpolished discontinuities			Very thinly bedded	60-20	Very closely / [Very small]	Particle Surface Texture					
Sheared	Breaks into blocks along polished discontinuities			Thickly laminated	20-6		Rough					
Intact	No fissures			Thinly laminated	under 6		Smooth					
Fibrous Peat	Plant remains recognisable and retain some strength. When squeezed only water, no solids			Spacing terms may also be used for distance between partings, isolated beds or laminae, desiccation cracks, rootlets etc. Terms such as partings or dustings may be used for laminae less than 2mm and less than 0.6mm respectively.			Polished					
Pseudo-fibrous Peat	Plant remains recognisable, strength lost. Partial decomposition. Turbid water when squeezed, <50% solids											
Amorphous Peat	Recognisable plant remains absent, full decomposition. When squeezed only paste with >50% solids											
Gytja	Decomposed plant & animal remains, maybe inorganic constituents											
Humus	Plant remains, living organisms & inorganic constituents in topsoil											
NOTES Identification and descriptive method, and descriptions, generally in accordance with BS5930:1999 Section 6 clauses 41 and 43 and BS EN ISO 14688-1:2002												
Additional notes relating to BS EN ISO 14688-2:2004 - modified terms for content of secondary fraction given in Annex B Table B1 are not comparable to 5930 and are not to be used.												
Organic Content :- Low - 2 to 6%; Medium - 6 to 20%; High - >20%. Terms not used on borehole records												
Carbonate content :- Only noted if field test with dilute HCl undertaken - Carbonate free if no effervescence; Calcareous if slight effervescence; Highly calcareous if strong reaction												
Undrained shear strength :- terms from laboratory or in situ tests not given on borehole records												
Very Coarse Soils - Described by initially removing very coarse materials and describing residue before adding back the very coarse soils. If residue is cohesive then described as '.....(COBBLES / BOULDERS) with low (cobble / boulder) content with (some / much etc) matrix of'. If residue is granular then described as ' with matrix of ' or as a coarse soil.												
Cobbles :- <10% - low cobble content; 10 to 20% - medium content; >20% - high content; Boulders <5% - low boulder content; 5 to 20% - medium content; >20% - high content												

Drilling Method Cable Percussion & Rotary		Borehole Diameter 150mm to 10.00m 120mm to 30.00m		Casing Diameter 150mm to 9.60m 120mm to 11.00m		BOREHOLE No. BHM01	
Equipment Dando 2000 Knebel		Logged by IW		Compiled by clm		Coordinates (National Grid) 337817 E 459957 N 30.35 m OD	
Drill Crew CH		Start 01/09/2008		Checked by BC			
Dates Drilled Start End		01/09/2008 02/09/2008		01/09/2008 12/09/2008 20/11/2008			

Date & Time	Casing Depth (m)	Depth to Water (m)	Sample Details			SPT Blows/N Drive mm	U100 Blows/Recovery mm	Description of Strata	Depth (Thickness) (m)	Level	Legend			
			Depth (m) From	To	Type							No.		
01/09								Grass over sandy TOPSOIL.	(0.10)	30.25				
			0.50		C	1	MADE GROUND: Composed of clayey gravelly fine to coarse sand with occasional rootlets and occasional brick cobbles. Gravel is angular to subrounded fine to coarse of brick, mudstone, sandstone, concrete, occasional timber and metal fragments.	0.10						
			0.50		C	1		(0.30)						
			0.50		C	1		0.40						
						0.50-1.00		B	2				(1.10)	
				1.50	DRY	1.50-1.95		U	3			Firm brown locally mottled grey slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine to coarse of mixed lithologies.	1.50	28.85
						2.00		D	4			Stiff brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine to coarse of mixed lithologies. Sand is fine to coarse.		
						2.00-2.45		D	5					
						2.00		B	6					
				1.50	DRY	2.50-2.95		U	7				81/450	
						3.00		D	8			S13		
						3.00-3.45		D	9					
						3.00-3.50		B	10					
				3.00	DRY	3.50-3.95		U	11				80/450	
						4.00		D	12			S14		
						4.00		C	13					
						4.00		C	13					
						4.00-4.45		D	14					
				4.50	DRY	4.00-4.50		B	15				81/450	
						4.50-4.95		U	16					
						5.00		D	17			S27		
						5.00-5.45		D	18					
						5.00-5.50		B	19					
						5.50-5.95		U	20				100/450	
						6.00		D	21			S28		
						6.00-6.45		D	22					
						6.00-6.50		B	23					
						6.50		U#B	24					
				7.00	DAMP	7.00-7.50		B	26			S38		
						7.50-7.95		U	27				100/350	
						8.00		D	28			S50/225		
						8.00-8.38		D	29					
						8.00-8.50		B	30					
			9.00-9.29		D	31	S50/135							
			9.00-9.50		B	32								
	9.60	DAMP	10.00-10.05		D	33	S25/							
								Below 8.00m: Very stiff.						
								Probably weak grey siltstone BOULDER.	9.25	21.10				
									(0.75)					
								Firm to stiff brown locally mottled grey	10.00	20.35				

Remarks


- 1 Prior to boring a Cable Avoidance Tool (CAT) survey was carried out. An inspection pit was hand-dug to 1.20m depth and rescanned using the CAT to check for services. Services were not located.
- 2 The borehole was advanced by chiselling methods from 6.70m to 7.10m (1 hour) and 7.25m to 10.00m (2 hours).
- 3 See installation details on final sheet.
- 4 Groundwater was encountered at 18.00m during boring.

	Project ST HELENS BSF PROJECT MOTT MACDONALD	Contract No. CON083065
		Figure No. FR1 (1 of 4)

Drilling Method Cable Percussion & Rotary		Borehole Diameter 150mm to 10.00m 120mm to 30.00m		Casing Diameter 150mm to 9.60m 120mm to 11.00m		BOREHOLE No. BHM01	
Equipment Dando 2000 Knebel		Logged by IW 01/09/2008		Compiled by c1m 12/09/2008		Coordinates (National Grid) 337817 E 459957 N	
Drill Fluid Air/Mist Drill Crew CH		Checked by BC 20/11/2008		Ground Level 30.35 m OD			
Dates Drilled Start 01/09/2008 End 02/09/2008							

Date & Time	Casing Depth (m)	Water Depth (m) (Flush Return %)	Sample/Core Recovery				SPT Blows /N Core Size (mm)	U100 Blows/ Rec. mm	Description of Strata	Depth (Thickness) (m)	Level	Legend	
			Depth (m)		Type	No.							RQD %
			From	To	TCR %	SCR %							
							15	slightly sandy slightly gravelly CLAY with occasional sand pockets and lenses. Gravel is angular to subrounded fine to coarse of mudstone, siltstone and sandstone. Sand is fine to coarse.	10.00 (1.00)	20.35			
		(100)	11.00-12.00		30	25	0	Weak locally thinly laminated highly fractured grey SILTSTONE / MUDSTONE with occasional coal bands.	11.00 (1.00)	19.35			
		(100)	12.00-13.50		100	86	79	Weak grey thinly laminated fine grained SANDSTONE locally grading to SILTSTONE. Moderately weathered. Fractures are closely spaced subhorizontal planer smooth.	12.00 (3.10)	18.35			
		(0)	16.50-11.00										
		(100)	13.50-15.00		95	80	75						
		(100)	15.00-16.50		66	58	43	Very weak dark grey MUDSTONE with occasional thin coal laminae. Highly weathered. Fractures closely to very closely spaced predominantly subhorizontal planar smooth.	15.10 (1.10)	15.25			
01/09	11.00	DRY						Weak light grey fine to coarse grained SANDSTONE. Moderately weathered. Fractures closely spaced subhorizontal planar smooth.	16.20	14.15			
02/09	11.00												
		(100)	16.50-18.00		100	90	90						
		(100)	18.00-19.50		93	88	70						


Remarks
(See notes & keysheets)

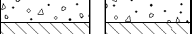
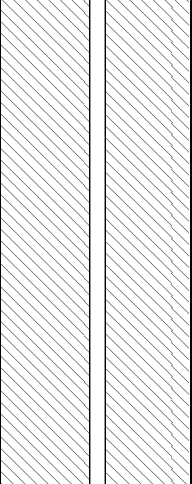
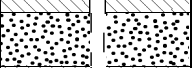

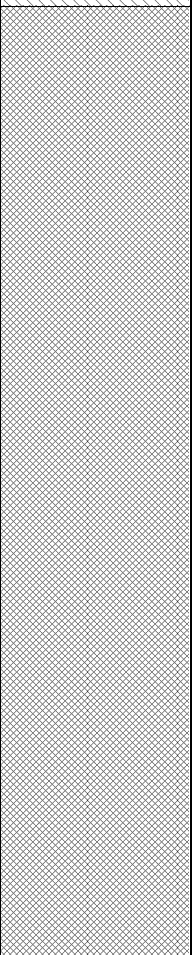

	Project ST HELENS BSF PROJECT MOTT MACDONALD	Contract No. CON083065
		Figure No. FR1 (2 of 4)

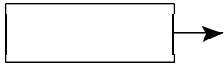
Drilling Method Cable Percussion & Rotary		Borehole Diameter 150mm to 10.00m 120mm to 30.00m		Casing Diameter 150mm to 9.60m 120mm to 11.00m		BOREHOLE No. BHM01	
Equipment Dando 2000 Knebel		Logged by IW		Compiled by c1m		Coordinates (National Grid) 337817 E 459957 N	
Drill Fluid Air/Mist		Start 01/09/2008		Checked by EC		Ground Level 30.35 m OD	
Drill Crew CH		End 02/09/2008		01/09/2008			
Dates Drilled							

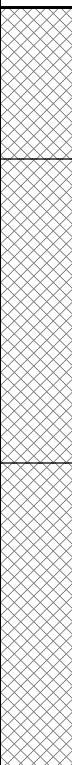
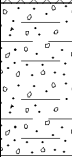
Date & Time	Casing Depth (m)	Water Depth (m) (Flush Return) %	Sample/Core Recovery						SPT Blows /N Core Size (mm)	Description of Strata	Depth (Thickness) (m)	Level	Legend
			Depth (m)		Type		No.						
			From	To	TCR %	SCR %	RQD %						
		(100)	19.50-21.00		65	60	45			(9.20)			
		(100)	21.00-22.50		97	81	74						
		(100)	22.50-24.00		93	89	80						
		(100)	24.00-25.50		96	80	79						
		(100)	25.50-27.00		42	40	20		Weak dark grey locally carbonaceous MUDSTONE with occasional coal laminae. Moderately weathered. Between 25.50m and 26.50m: AZCL. Driller notes coal.	25.40	4.95		
		(100)	27.00-28.50		92	85	80			(3.10)			
		(100)	28.50-30.00		67	60	50		Weak to medium strong grey fine and medium grained SANDSTONE. Moderately weathered. Fractures are closely spaced, subhorizontal planar smooth.	28.50	1.85		
02/09	11.00	DRY								(1.50)			
									End of Borehole	30.00	0.35		

Remarks
(See notes & keysheets)

	Project ST HELENS BSF PROJECT MOTT MACDONALD	Contract No. CON083065
		Figure No. FR1 (3 of 4)

Drilling Method Cable Percussion & Rotary		Borehole Diameter		Casing Diameter		BOREHOLE No. BHM01	
Equipment Dando 2000 Knebel Air/Mist		150mm to 10.00m 120mm to 30.00m		150mm to 9.60m 120mm to 11.00m		Coordinates (National Grid) 337817 E 459957 N Ground Level 30.35 m OD	
Drill Crew CH		Logged by IW		Compiled by c1m		Checked by BC	
Dates Drilled Start 01/09/2008 End 02/09/2008		01/09/2008		12/09/2008		20/11/2008	
Description			Depth (m)	Level m OD			
Concrete			0.50	29.85	Flush stopcock box cover. Pipe diameter 50mm to 11.00m.		
Bentonite Seal							
			10.00	20.35			
Pea Gravel Filter			11.00	19.35			
Bentonite Seal			12.00	18.35			
Bentonite Grout							
			30.00	0.35	Base of Hole		
Remarks (See notes & keysheets)							
Not to Scale							
		Project ST HELENS BSF PROJECT MOTT MACDONALD				Contract No. CON083065	
						Figure No. FR1 (4 of 4)	

Method of Excavation JCB 3CX Surface Dimensions 2.00m x 1.00m Date Excavated Start 17/09/2008 End 17/09/2008	Plan 	TRIAL PIT No. TPMG01 Coordinates (National Grid) 283161 E 560712 N Ground Level 30.14 m OD
Logged by IW 17/09/2008 Compiled by ren 30/09/2008 Checked by BC 20/11/2008		

In-situ Testing			Samples			Description of Strata	Depth (Thickness) (m)	Level	Legend
Depth (m)	Type	Result	Depth (m)	Type	No.				
			0.00-0.50	B	1	MADE GROUND: Composed of tarmacadam over red brown grey gravelly clayey fine to coarse sand with many cobbles of brick. Gravel is angular to subrounded, fine to coarse of brick, sandstone and mudstone.	(0.50)		
			0.50	ES	2	MADE GROUND: Composed of firm grey slightly sandy gravelly clay. Gravel is angular, fine to coarse of mudstone and coal. (Colliery Spoil).	0.50	29.64	
			0.50-1.50	B	3		(1.00)		
			0.50-0.70	ES	4				
			1.50-2.50	B	5	MADE GROUND: Composed of soft to firm light brown sandy slightly gravelly clay. Gravel is subangular to subrounded fine to coarse of mudstone and sandstone. Sand is fine to coarse.	1.50	28.64	
			2.00	ES	6		(1.00)		
			2.00-2.70	B	7				
						Firm, locally soft, red brown locally mottled grey slightly sandy slightly gravelly CLAY. Gravel is rounded to subrounded fine to coarse of mixed lithologies. Sand is fine to coarse.	2.50	27.64	
							(0.50)		
						End of Trial Pit	3.00	27.14	

Remarks
(See notes & keysheets)

- 1 The walls of the pit were stable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Groundwater was not apparent during excavation.

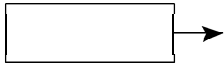
Scale 1:25

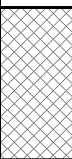

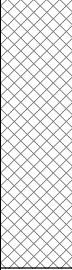




Project
ST HELENS BSF PROJECT
MOTT MACDONALD

Contract No. CON083065

Figure No. FR2 (1 of 1)


Method of Excavation JCB 3CX Surface Dimensions 2.00m x 1.00m Date Excavated Start 17/09/2008 End 17/09/2008	Plan 	TRIAL PIT No. TPMG02 Coordinates (National Grid) 312869 E 503037 N Ground Level 30.10 m OD
Logged by IW 30/09/2008 Compiled by ren 30/09/2008 Checked by BC 20/11/2008		

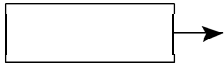
In-situ Testing			Samples			Description of Strata	Depth (Thickness) (m)	Level	Legend
Depth (m)	Type	Result	Depth (m)	Type	No.				
			0.00-0.50	B	1	MADE GROUND: Composed of tarmacadam over dark grey very gravelly fine to coarse sand with many brick cobbles. Gravel is angular to subangular fine to coarse of brick, flint, coal and mudstone.	(0.50)		
			0.00-0.20	ES	2				
			0.50	B	3	MADE GROUND: Composed of soft to firm grey sandy slightly gravelly clay. Gravel is angular fine to coarse of coal and mudstone. Sand is fine to coarse.	0.50 (0.20)	29.60	
			0.50-0.70	B	4				
			0.80-1.00	ES	5	MADE GROUND: Composed of firm to stiff orange brown slightly sandy slightly gravelly clay. Gravel is rounded to subrounded fine to coarse of mixed lithologies. Between 1.10m and 1.50m: Ash pocket with sandstone cobbles.	(0.90)		
			1.80-2.00	B	6	Stiff becoming very stiff red brown locally mottled grey slightly sandy slightly gravelly CLAY. Gravel is rounded to subrounded fine to coarse of mixed lithologies.	1.60 (1.60)	28.50	
			2.80-3.00	B	7	End of Trial Pit	3.20	26.90	

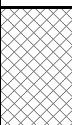
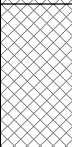

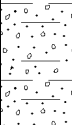
Remarks
(See notes & keysheets)

- 1 The walls of the pit were stable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Groundwater was encountered at 2.80m during excavation as a seepage.

Scale 1:25


	Project ST HELENS BSF PROJECT MOTT MACDONALD	Contract No. CON083065 Figure No. FR3 (1 of 1)
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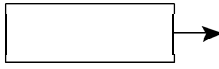
Method of Excavation JCB 3CX Surface Dimensions 2.00m x 1.00m Date Excavated Start 17/09/2008 End 17/09/2008	Plan 	TRIAL PIT No. TPMG03 Coordinates (National Grid) 375713 E 449929 N Ground Level 30.23 m OD
Logged by IW 17/09/2008 Compiled by ren 30/09/2008 Checked by BC 20/11/2008		




In-situ Testing			Samples			Description of Strata	Depth (Thickness) (m)	Level	Legend
Depth (m)	Type	Result	Depth (m)	Type	No.				
			0.00-0.12	B	1	MADE GROUND: Composed of tarmacadam over dark grey fine to coarse sand of ash. Between 0.30m and 0.40m: With brick fragments.	(0.40)	29.83	
			0.30-0.40 0.30	B ES	2 3				
			0.50-0.70	B	4	MADE GROUND: Composed of soft to firm grey sandy slightly gravelly clay. Gravel is subangular fine to coarse of coal and mudstone.	0.40	29.33	
			0.70	ES	5				
			1.00-1.10	B	6	Firm orange brown mottled grey slightly sandy slightly gravelly CLAY with occasional partings of sand. Gravel is rounded fine to coarse of mixed lithologies.	0.90	29.33	
			1.50	ES	7				
			2.00-2.10	B	8	Below 2.50m: Very stiff.	(2.10)	27.23	
						End of Trial Pit	3.00		

Remarks
(See notes & keysheets)

- 1 The walls of the pit were stable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Groundwater was not apparent during excavation.


	Project ST HELENS BSF PROJECT MOTT MACDONALD	Contract No. CON083065 Figure No. FR4 (1 of 1)
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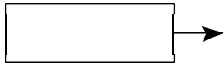
Method of Excavation JCB 3CX Surface Dimensions 2.00m x 5.50m Date Excavated 17/09/2008 Start End 17/09/2008	Plan 	TRIAL PIT No. TPMG04 Coordinates (National Grid) 340439 E Ground Level 407123 N 29.70 m OD
Logged by IW 17/09/2008	Compiled by ren 30/09/2008	Checked by BC 20/11/2008

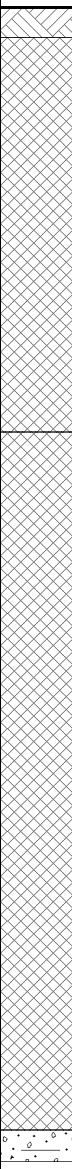
In-situ Testing			Samples			Description of Strata	Depth (Thickness) (m)	Level	Legend
Depth (m)	Type	Result	Depth (m)	Type	No.				
			0.00-0.20	B	1	Grass over TOPSOIL.	(0.20)	29.50	
			0.20-0.40	B	2	MADE GROUND: Composed of dark grey black gravelly fine to coarse sand of ash. Gravel is subangular fine to coarse of clinker and brick.	0.20		
			0.50	ES	3			(0.60)	28.90
			1.00	ES	4	Firm becoming stiff red brown locally mottled grey slightly sandy slightly gravelly CLAY. Gravel is rounded to subrounded fine to coarse of mixed lithologies.	0.80		
			1.00-1.20	B	5				
			2.00	ES	6		(2.30)		
			2.00-2.20	B	7				
			3.10	B	8	End of Trial Pit	3.10	26.60	

Remarks
 (See notes & keysheets)

- 1 The walls of the pit were stable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Groundwater was not apparent during excavation.


	Project ST HELENS BSF PROJECT MOTT MACDONALD	Contract No. CON083065 Figure No. FR5 (1 of 1)
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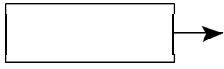
Method of Excavation JCB 3CX Surface Dimensions 2.00m x 1.00m Date Excavated Start 19/09/2008 End 19/09/2008	Plan 	TRIAL PIT No. TPMG05 Coordinates (National Grid) 316204 E 394116 N Ground Level 29.65 m OD
Logged by IW 19/09/2008 Compiled by md 30/09/2008 Checked by BC 20/11/2008		

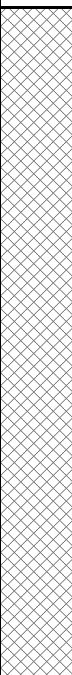
In-situ Testing			Samples			Description of Strata	Depth (Thickness) (m)	Level	Legend
Depth (m)	Type	Result	Depth (m)	Type	No.				
			0.00-0.10	B	1	Grass over TOPSOIL.	(0.10) 0.10	29.55	
						MADE GROUND: Composed of dark grey very gravelly fine to coarse sand of ash. Gravel is subangular to subrounded fine to coarse of clinker and brick.	(1.30)		
			1.10-1.30	B	2				
			1.50-1.70	B	3	MADE GROUND: Composed of firm dark grey sandy gravelly clay. Gravel is angular to subangular fine to coarse of mudstone and coal.	1.40	28.25	
			2.50-2.70	B	4		(2.30)		
			3.70-3.80	B	5	Stiff fissured brown slightly sandy slightly gravelly CLAY. Gravel is rounded fine to coarse of mixed lithologies. Sand is fine to coarse.	3.70 (0.10) 3.80	25.95 25.85	
						End of Trial Pit			

Remarks
(See notes & keysheets)

- 1 The walls of the pit were stable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Groundwater was encountered at 3.00m during excavation as a seepage.


	Project ST HELENS BSF PROJECT MOTT MACDONALD	Contract No. CON083065 Figure No. FR6 (1 of 1)
		302/03

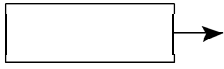
Method of Excavation JCB 3CX Surface Dimensions 2.00m x 4.50m Date Excavated 19/09/2008 Start End 19/09/2008	Plan 	TRIAL PIT No. TPMG06 Coordinates (National Grid) 300496 E 432694 N Ground Level 29.82 m OD
Logged by IW 19/09/2008	Compiled by ren 30/09/2008	Checked by BC 20/11/2008

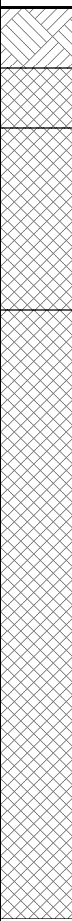
In-situ Testing			Samples			Description of Strata	Depth (Thickness) (m)	Level	Legend
Depth (m)	Type	Result	Depth (m)	Type	No.				
			0.00-0.30	B	1	MADE GROUND: Composed of grey sandy gravelly brick and concrete cobbles. Gravel is angular to subangular fine to coarse of brick, sandstone, concrete, timber, metal and coal. Large segments of intact brick wall. At 2.20m: Concrete boulders. End of Trial Pit			
			1.00-1.20	B	2		(2.20)		
			2.00-2.20	B	3		2.20	27.62	

Remarks
(See notes & keysheets)

- 1 The walls of the pit were unstable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 The trial pit was terminated at 2.20m due to side wall instability and concrete boulder obstructions.
- 5 Groundwater was not apparent during excavation.

	Project ST HELENS BSF PROJECT MOTT MACDONALD	Contract No. CON083065 Figure No. FR7 (1 of 1)
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Method of Excavation JCB 3CX Surface Dimensions 6.00m x 3.00m Date Excavated Start 19/09/2008 End 19/09/2008	Plan 	TRIAL PIT No. TPMG07 Coordinates (National Grid) 280749 E 412956 N Ground Level 29.71 m OD
Logged by IW 19/09/2008 Compiled by ren 30/09/2008 Checked by BC 20/11/2008		

In-situ Testing			Samples			Description of Strata	Depth (Thickness) (m)	Level	Legend
Depth (m)	Type	Result	Depth (m)	Type	No.				
			0.00-0.20	B	1	MADE GROUND: Composed of grass over brown grey sandy TOPSOIL	(0.20)	29.51	
			0.20-0.40	B	2	MADE GROUND: Composed of dark grey brown silty clayey fine to coarse sand.	(0.20)	29.31	
			0.50-0.70	B	3	MADE GROUND: Composed of firm to stiff orange brown mottled grey slightly sandy slightly gravelly clay with sand partings. Gravel is rounded to subrounded, fine to coarse of mixed lithologies. Sand is fine to coarse.	(0.60)	28.71	
			1.00-1.20	B	4	MADE GROUND: Composed of firm grey sandy gravelly clay. Gravel is angular medium to coarse of mudstone and coal. (Colliery spoil).	1.00	26.71	
			2.00-2.20	B	5		(2.00)		
			2.90-3.10	B	6	End of Trial Pit	3.00		

Remarks
(See notes & keysheets)

- 1 The walls of the pit were stable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Groundwater was encountered at 2.50m during excavation and rose to 2.60m after 20 mins.

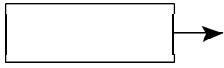
Scale 1:25



Project
ST HELENS BSF PROJECT
MOTT MACDONALD

Contract No. CON083065


Figure No. FR8 (1 of 1)

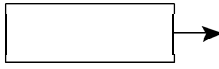
Method of Excavation JCB 3CX Surface Dimensions 6.00m x 3.00m Date Excavated Start 19/09/2008 End 19/09/2008	Plan 	TRIAL PIT No. TPMG08 Coordinates (National Grid) 278057 E 420582 N Ground Level 29.75 m OD
Logged by IW 19/09/2008 Compiled by ren 30/09/2008 Checked by BC 20/11/2008		



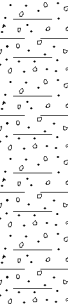
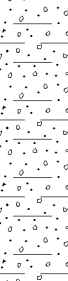
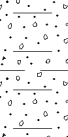

In-situ Testing			Samples			Description of Strata	Depth (Thickness) (m)	Level	Legend
Depth (m)	Type	Result	Depth (m)	Type	No.				
			0.10-0.30	B	1	Grass over MADE GROUND: Composed of firm grey sandy gravelly clay with frequent brick and concrete cobbles. Gravel is angular to subrounded, fine to coarse of brick, sandstone, coal and concrete. Sand is fine to coarse.			[Cross-hatched pattern]
			1.10-1.30	B	2		(3.00)		
			2.10-2.30	B	3				
			2.90-3.00	B	4		3.00	26.75	
						End of Trial Pit			

Remarks
(See notes & keysheets)

- 1 The walls of the pit were unstable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 Trial pit terminated at 3.00m due to side wall instability.
- 4 Groundwater was encountered at 3.00m during excavation and rose to 2.30m after 20 mins.


	Project ST HELENS BSF PROJECT MOTT MACDONALD	Contract No. CON083065 Figure No. FR9 (1 of 1)
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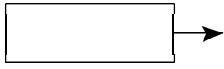
Method of Excavation JCB 3CX Surface Dimensions 2.00m x 1.00m Date Excavated Start 19/09/2008 End 19/09/2008	Plan 	TRIAL PIT No. TPMG09 Coordinates (National Grid) 284340 E 469478 N Ground Level 29.94 m OD
Logged by IW 19/09/2008 Compiled by ren 30/09/2008 Checked by BC 20/11/2008		


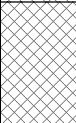
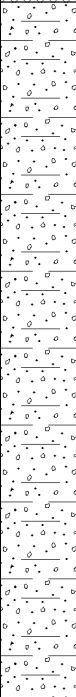
In-situ Testing			Samples			Description of Strata	Depth (Thickness) (m)	Level	Legend
Depth (m)	Type	Result	Depth (m)	Type	No.				
			0.00-0.30	B	1	MADE GROUND: Composed of grey very gravelly fine to coarse sand with many brick and concrete cobbles. Gravel is angular to subrounded, fine to coarse of brick, concrete, sandstone and clinker.	(0.50)		
			0.50-0.70	B	2	MADE GROUND: Composed of firm dark grey slightly sandy slightly gravelly clay. Gravel is subangular to subrounded fine to coarse of brick, sandstone, mudstone and coal. (Colliery spoil).	0.50 (0.40)	29.44	
			1.00-1.20	B	3	Firm becoming stiff fissured thickly laminated orange brown slightly sandy, slightly gravelly CLAY with rare rootlets. Gravel is rounded to subrounded, fine to coarse of mixed lithologies. Sand is fine to coarse.	0.90	29.04	
			2.00-2.20	B	4		(2.40)		
			3.00-3.20	B	5				
						End of Trial Pit	3.30	26.64	

Remarks
(See notes & keysheets)

- 1 The walls of the pit were stable during excavation.
- 2 The borehole was backfilled on completion with compacted arisings.
- 3 Groundwater was not apparent during excavation.


	Project ST HELENS BSF PROJECT MOTT MACDONALD	Contract No. CON083065 Figure No. FR10 (1 of 1)
		302/03

Method of Excavation JCB 3CX Surface Dimensions 2.00m x 1.00m Date Excavated Start 18/09/2008 End 18/09/2008	Plan 	TRIAL PIT No. TPMG10 Coordinates (National Grid) 328089 E 536187 N Ground Level 30.16 m OD
Logged by IW 18/09/2008 Compiled by md 30/09/2008 Checked by BC 20/11/2008		

In-situ Testing			Samples			Description of Strata	Depth (Thickness) (m)	Level	Legend
Depth (m)	Type	Result	Depth (m)	Type	No.				
			0.00-0.30	B	1	Grass over TOPSOIL.	(0.30)		
			0.30-0.50	B	2	MADE GROUND: Composed of soft to firm grey sandy slightly gravelly clay with occasional brick cobbles. Gravel is subangular fine to coarse of mudstone and coal. (Colliery spoil).	0.30 (0.40)	29.86	
			1.80-2.10	B	3	Stiff orange brown slightly sandy slightly gravelly CLAY. Gravel is rounded to subrounded fine to coarse of mixed lithologies. Sand is fine to coarse.	0.70	29.46	
			2.80-3.00	B	4				
						End of Trial Pit	3.00	27.16	

Remarks
(See notes & keysheets)

- 1 The walls of the pit were stable during excavation.
- 2 Prior to excavation a Cable Avoidance Tool (CAT) survey was carried out.
- 3 On completion the trial pit was backfilled with compacted arisings.
- 4 Groundwater was not apparent during excavation.

	Project ST HELENS BSF PROJECT MOTT MACDONALD	Contract No. CON083065 Figure No. FR11 (1 of 1)
		302/03

APPENDIX B Field Test Results

Standard Protocols for Water/Gas Sampling and Gas Monitoring
Results of In-Situ Measurements in Gas Monitoring Standpipes

Figures PCL/01 to PCL/04
Figure FT1

**STANDARD PROTOCOLS FOR WATER AND GAS SAMPLING
AND GAS MONITORING**

PROCEDURES FOR WATER SAMPLING, GAS MONITORING AND GAS SAMPLING

This key sheet sets out in-house procedures for sampling groundwaters from monitoring wells and for gas monitoring and sampling gases from monitoring standpipes. Any deviations from these procedures (Client specified procedures) or additional steps are set out in the report text or on the monitoring data sheets. Results and details of equipment used are presented on the relevant datasheets in the appropriate appendix for field test results. Unless detailed below equipment is calibrated at regular intervals as specified by the manufacturer and calibration certificates can be supplied on request. Instrument limits of detection and reading accuracy are presented in the attached table and the reading presented on the data sheets should be read in conjunction with this information.

GAS MONITORING

In-situ measurements of gas concentrations, gas emission rate and in-situ differential pressure in the standpipes are made when gas monitoring is required. The first reading is the in-situ differential pressure and air flow velocities in the standpipe using a Gas Data GF60P or attachment to GA2000. Soil gas concentrations are measured immediately following the measurements of in-situ differential pressure. Concentrations of methane (CH₄), carbon dioxide (CO₂) and oxygen (O₂) are measured as standard using the GA2000. Where required, concentrations of hydrogen sulphide and carbon monoxide can also be measured using the GA2000. Concentrations of volatile gases (VOC) are then measured, when required, using a photo-ionisation detector calibrated on site against a standard reference gas (100 ppm iso-butylene in air). The in-situ differential pressure and air flow velocities are again measured following the measurement of soil gas concentrations if required. The groundwater level in the gas standpipes is measured following soil gas concentration monitoring. The recorded groundwater levels are given on the same summary tables as the gas monitoring results.

GAS SAMPLING

Samples of soil gas are collected from the gas standpipes immediately following the measurement of soil gas concentrations. The soil gas samples are collected using a Gresham hand pump. Reusable carbon coated sampling tubes are purged prior to sampling by half filling and discharging three times with air.

WATER SAMPLING

Each monitoring well is purged prior to water sampling by the removal of three well volumes (V multiplied by 3). A well volume is calculated from the height of the column of water in the standpipe (or for a sealed installation the thickness of the saturated zone surrounding the installation), the borehole diameter and the pipe diameter, taking account of the porosity of the gravel pack:

$$V = \pi \times H \times [rp^2 + \frac{1}{4}(rb^2 - rp^2)] \times 1000$$

where: H = length or height of water column, rp = radius of pipe rb = radius of borehole
All dimensions are in metres and the volume (V) is given in litres.

Field measurements of pH, electrical conductivity and temperature are made during purging if required.

Unless specified on the data sheets groundwater samples are collected immediately after purging. Field measurements of pH, electrical conductivity, temperature, redox potential and dissolved oxygen can be carried out on a sub sample if required. The instruments are calibrated prior to each use or each day, whichever is the lesser, against standard reference solutions.

**STANDARD PROTOCOLS FOR WATER AND GAS SAMPLING
AND GAS MONITORING**

The sample handling (filtration and preservation), storage and transportation arrangements are detailed on the data sheets. In general, samples will be stored in insulated boxes and transported to the designated laboratory for filtering and preservation as deemed appropriate by the laboratory and necessary to comply with their in-house procedures/methodologies or according to Client specifications if instructed prior to sampling.

**STANDARD PROTOCOLS FOR WATER AND GAS SAMPLING
AND GAS MONITORING**

ENVIRONMENTAL MONITORING AND ON SITE TESTING EQUIPMENT

Instrument	Parameter	Range	Accuracy
Infra-red Gas Analyser GA2000 Geotechnical Instruments	Methane	0 - 5 % (LEL) 5 - 15% (UEL) >15%	±0.5 % ±1.0 % ±3.0 %
	Carbon Dioxide	0 - 5 % 5 - 15% >15%	±0.5 % ±1.0 % ±3.0 %
	Oxygen	0 - 5 % 5 - 15% 15 - 25%	±1.0 % ±1.0 % ±1.0 %
	Hydrogen Sulphide	0 - 200 ppm	±10 %
	Carbon Monoxide	0 - 500 ppm	±10 %
Flow Pod	Gas flow	0.1 to 12 litres/hour	±0.1litres/hour
Landfill Gas Flow Meter GF60P Gas Data	Gas flow Gas pressure	+60/-6 l/hr +300/-30 Pa	±2% full scale ±2% full scale
Thermal Anemometer TA-5 Airflow	Gas flow	0 - 30 m/s	0 - 2 m/s ±2% reading ±0.005m/s, 2 -30 m/s ±2% reading ±0.2m/s
Micro-manometer P200UL Digitron	Gas pressure	0-199.9, 0-500 mbar 0-19.9, 0-50.0 kPa 0-1.999,0-5.10 mH ₂ O	0.15% of reading+0.15% full scale +1 digit
Gas/Water Temperature Meter TES	Temperature	-50 to 1300 °C	At 0.1 °C resolution: ±(0.3% + 1 °C)
Gas Sampling Pump Draeger			
Gas Sampling Pump Gresham			
Photo-Ionization Detector MiniRAE2000 (Intrinsically Safe)	Volatile organic compounds	0-10,000 ppm	<2000 ppm ±2 ppm or <10%, >2000 ppm ±20%

**STANDARD PROTOCOLS FOR WATER AND GAS SAMPLING
AND GAS MONITORING**

ENVIRONMENTAL MONITORING AND ON SITE TESTING EQUIPMENT

Instrument	Parameter	Range	Accuracy
Scintillation Mini Monitor Series 900-Gamma Sources Mini-Instruments	Gamma Radiation	1-5000 c/s	±10%
Scintillation Mini Monitor Series 900-Beta Sources Mini-Instruments	Beta Radiation	0.5-2000 c/s	±10%
Air Sampling Pump AS408 Casella	Air sampling for acid mists & vapours, toxic dusts & fumes, & fibres	0.5 – 5 l/min	Not provided
Personal Air Sampling Pump AFC 123 Casella	Air sampling for acid mists & vapours, toxic dusts & fumes, & fibres	1 - 2.3 l/min	±5% for pressure drop of up to 40 cm H ₂ O
Electrochemical On Site Water Meter Hanna Water Test	pH Redox Potential Conductivity Temperature	0 to 14 ±1000 mV 0 to 1999 µ S/cm 0 – 60 °C	to 0.1±0.2 to 1 mV ±5 to 1 µ S/cm ±2% fs to 0.1 °C ±1°C
Dissolved Oxygen Meter M0128 Jenway	Dissolved Oxygen	0 to 20 mg/l	±0.5%
Dissolved Oxygen Meter Model 9071 (serial 1754) Jenway	Dissolved Oxygen Temperature	0 to 200% 0 to 19.99 mg/l (ppm) -30 to +150 °C	±2% full scale within ±10 °C calibration temperature ±0.5 °C
Groundwater Pump WX10 Honda	Development and purging of wells	5 to 25 l/minute depending on ground conditions	Not Applicable
Groundwater Pump MP1 Grundfoss	Development and purging of wells		Not Applicable
Electronic Dipmeter BGS & GMI	Water & Leachate Levels	0 – 50 m	±1 cm operator reading off tape
Oil/Water Interface Meter GMI	Depths/Thickness of Floating & Sinking product (LNAPL & DNAPL)	0 – 30 m	±1 mm operator reading off tape

**RESULTS OF IN-SITU TESTS ON SAMPLES OF GAS WITHDRAWN FROM
GAS MONITORING STANDPIPES**

Hole Number	BHMG01
Date Installed	03/09/2008
Depth of Installation (mbgl)	11.00

Date		08/10/2008	13/10/2008	28/10/2008			
Instrument Type		GA2000	GA2000	GA2000			
Instrument Number		GA10611	GA10611	GA10611			
Atmospheric Pressure (millibars)		1001	1008	1002			
Depth to Sampling Point (m)		TAP	TAP	TAP			
Depth to Water (m)		0.92	1.90	1.26			
Flow Rate (l/hr)		0.1	0.1	<0.01			
Insitu Differential Pressure (Pa)							
Flammable Gas as Methane (CH ₄) - LEL-Lower Explosive Limit	% LEL	<1.00	<1.00	<1.00			
		<1.00	<1.00	<1.00			
	% VOL	<0.10	<0.10	<0.10			
		<0.10	<0.10	<0.10			
Oxygen (O ₂)	% VOL	20.1	20.4	20.5			
		20.1	20.6	20.4			
Carbon Dioxide (CO ₂)	% VOL	<0.10	0.1	0.2			
		<0.10	<0.10	<0.10			
Hydrogen Sulphide (H ₂ S)	ppm	<1	<1	<1			
Carbon Monoxide (CO)	ppm	<1	7	3			
Gas Sample Taken		No	No	No			
Operator		CH	CH	CH			
Weather / Surface Conditions		Dry, sunny	Dry, sunny	Overcast			
Remarks							

Input By	CH	Date	13/10/2008	Checked By	BC	Date	21/11/2008
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CH₄, O₂ and CO₂ gas readings: Top = peak reading, Bottom = Steady state, Brackets = time to steady state (sec).

Form Q88 - Iss 08 - 25 January 2008

APPENDIX C Geotechnical Laboratory Test Results

Geotechnical Testing Schedules of UKAS Accreditation

General Notes on Laboratory Test Results

Summary of Classification Tests

Particle Size Distribution Curves

Summary of Undrained Triaxial Compression Test Results

Rock Test Results

Descriptions of U100 Samples

Figure LKS/01

Figure LT1/1

Figures LT2/1 to LT2/4

Figure LT5/1

Figures LT8/1 to LT8/3

Figure LT10/1

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

 <p>Accredited to ISO/IEC 17025:2005</p>	<h3>Fugro Engineering Services Limited</h3>		
	<p>Issue No: 016 Issue date: 15 November 2006</p>		
	<p>Armstrong House Unit 43 Number One Industrial Estate Medomsley Road Consett Co Durham DH8 6TW</p>	<p>Contact: Mr J D Ashworth Tel: +44 (0)1207-581120 Fax: +44 (0)1207-581609 E-Mail: j.ashworth@fes.co.uk Website: www.fes.co.uk</p>	
<p>Testing performed at the above address only</p>			

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
ROCK	Point load strength and anisotropy indices	ISRM Commission on Testing Methods. Suggested Method for Determining Point Load Strength 1985
	Water content	ISRM Suggested Methods - Rock Characterisation Testing and Monitoring. Ed E T Brown 1981
	Porosity and density - by saturation and calliper techniques	ISRM Suggested Methods - Rock Characterisation Testing and Monitoring. Ed E T Brown 1981
	Porosity and density - by saturation and buoyancy techniques	ISRM Suggested Methods - Rock Characterisation Testing and Monitoring. Ed E T Brown 1981
	Slake-durability index	ISRM Suggested Methods - Rock Characterisation Testing and Monitoring. Ed E T Brown 1981
SOILS for civil engineering purposes	California Bearing Ratio (CBR)	BS 1377:Part 4:1990
	Unconfined compressive strength - load frame method	BS 1377:Part 7:1990
	Undrained shear strength - triaxial compression without measurement of pore pressure	BS 1377:Part 7:1990



1483
Accredited to
ISO/IEC 17025:2005

Schedule of Accreditation
issued by
United Kingdom Accreditation Service
21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

Fugro Engineering Services Limited
Issue No: 016 Issue date: 15 November 2006

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
SOILS for civil engineering purposes (Cont'd)	Undrained shear strength - triaxial compression with multistage loading and without measurement of pore pressure	BS 1377:Part 7:1990
	Moisture content - oven drying method	BS 1377:Part 2:1990
	Saturation moisture content of chalk	BS 1377:Part 2:1990
	Liquid limit - cone penetrometer	BS 1377:Part 2:1990
	Liquid limit - cone penetrometer - one point	BS 1377:Part 2:1990
	Plastic limit	BS 1377:Part 2:1990
	Plasticity index and liquidity index	BS 1377:Part 2:1990
	Density - linear measurement	BS 1377:Part 2:1990
	Density - immersion in water	BS 1377:Part 2:1990
	Density - water displacement	BS 1377:Part 2:1990
	Particle density - gas jar	BS 1377:Part 2:1990
	Particle size distribution - wet sieving	BS 1377:Part 2:1990
	Particle size distribution - dry sieving	BS 1377:Part 2:1990
	Particle size distribution - sedimentation - pipette method	BS 1377:Part 2:1990
	Dry density/moisture content relationship (2.5 kg rammer)	BS 1377:Part 4:1990
Dry density/moisture content relationship (4.5 kg rammer)	BS 1377:Part 4:1990	
Dry density/moisture content relationship (vibrating hammer)	BS 1377:Part 4:1990	



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Fugro Engineering Services Limited
Issue No: 016 Issue date: 15 November 2006

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
SOILS for civil engineering purposes (Cont'd)	Moisture condition value (MCV)	BS 1377:Part 4:1990
	Chalk crushing value	BS 1377:Part 4:1990
	One-dimensional consolidation properties	BS 1377:Part 5:1990
END		

GENERAL NOTES ON LABORATORY TEST RESULTS

1. TEST METHODS

The tests reported on the following sheets have been carried out in accordance with the methods given in BS 1377:1990 'Methods of test for soils for civil engineering purposes', subject to a small number of variances as described below under the respective headings. These notes also serve as keysheets to any notation used in reporting the laboratory tests.

2. KEY TO NOTATION OF SAMPLE TYPE

D	Small disturbed sample
B	Bulk disturbed sample
U	General purpose open drive tube sample
P	Piston sample
TW	Thin wall sample
C	Rotary core sample

3. CLASSIFICATION TESTS

% passing 425µm: this figure is only correctly reported when 'WS' is shown in the 'Method of preparation' column. For 'HP' and 'AR', the reported figure is an estimate only.

WS	sample prepared by Wet Sieving
HP	sample prepared by Hand Picking (removal) of gravel sized fragments
AR	sample tested "As Received"
NP:	non-plastic

4. COMPACTION RELATED TESTS

Sample preparation: **Individual** indicates test carried out on individual sub-samples
Single indicates test carried out on a single sample

Assumed values of particle density are reported in brackets e.g. (2.67)

5. SAMPLE DESCRIPTIONS

The sample descriptions shown on the test report sheets are the technician's visual descriptions of the test samples, in accordance with Clause 9.1 of Part 1 of BS 1377:1990 and do not necessarily comply with the requirements of BS 5930:1999 or BS EN ISO 14688-1:2002. For a more comprehensive description of the soil samples to these standards, reference should be made to the exploratory hole records, or an engineering description can be provided on request.

6. INTERPRETATION OF TEST RESULTS

Laboratory test results in this report give the soil properties of individual specimens tested under specified conditions. Individual results or groups of results may not be appropriate for use as design parameters for some geotechnical analyses. The samples may be non-representative, disturbed internally, or prepared and tested under conditions suited for different geotechnical applications. Unless the selection of design parameters is discussed in this report, it is recommended that the advice of an appropriately qualified and experienced specialist is sought.

7. U100 DRIVEN OPEN TUBE SAMPLES

It should be noted that the sampling method generally gives Class 2 samples, ie for use for laboratory classification, moisture content and density testing. BS5930 states that the U100 sampling procedure may sometimes give Class 1 samples (strength, deformation and consolidation testing as well as Class 2 type testing) in non sensitive fine cohesive soils of stiff or lower consistency, but more often provides Class 2 samples. In brittle or closely fissured materials such as hard clays, the sampling method gives Class 3 samples, ie for use for laboratory classification and moisture content testing.

SUMMARY OF SOIL CLASSIFICATION TESTS
BS : 1377 Part 2 : 1990

Hole	Sample No	Type	Depth	Bulk Density (Mg/m ³)	Moisture Content (%)	Dry Density (Mg/m ³)	Particle Density (Mg/m ³)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index	% passing 425 μ m	Method	Description
BHMG 01	3	U	1.50		15			30	14	16	88	HP	Brown CLAY with a little sand and a little gravel
TPMG 02	6	B	1.80		18			32	16	16	89	HP	Brown CLAY with a little sand and a little gravel
TPMG 03	6	B	1.00		21			36	17	19	87	HP	Brown CLAY with a little sand and a little gravel
TPMG 09	3	B	1.00		19			35	16	19	90	HP	Brown CLAY with a little sand and a little gravel
TPMG 10	3	B	1.80		13			29	15	14	90	HP	Brown CLAY with a little sand and a little gravel

Prepared By	<i>AKL</i>	Checked By	<i>CEL</i>	Date	20/11/2008	Project No	CON083065
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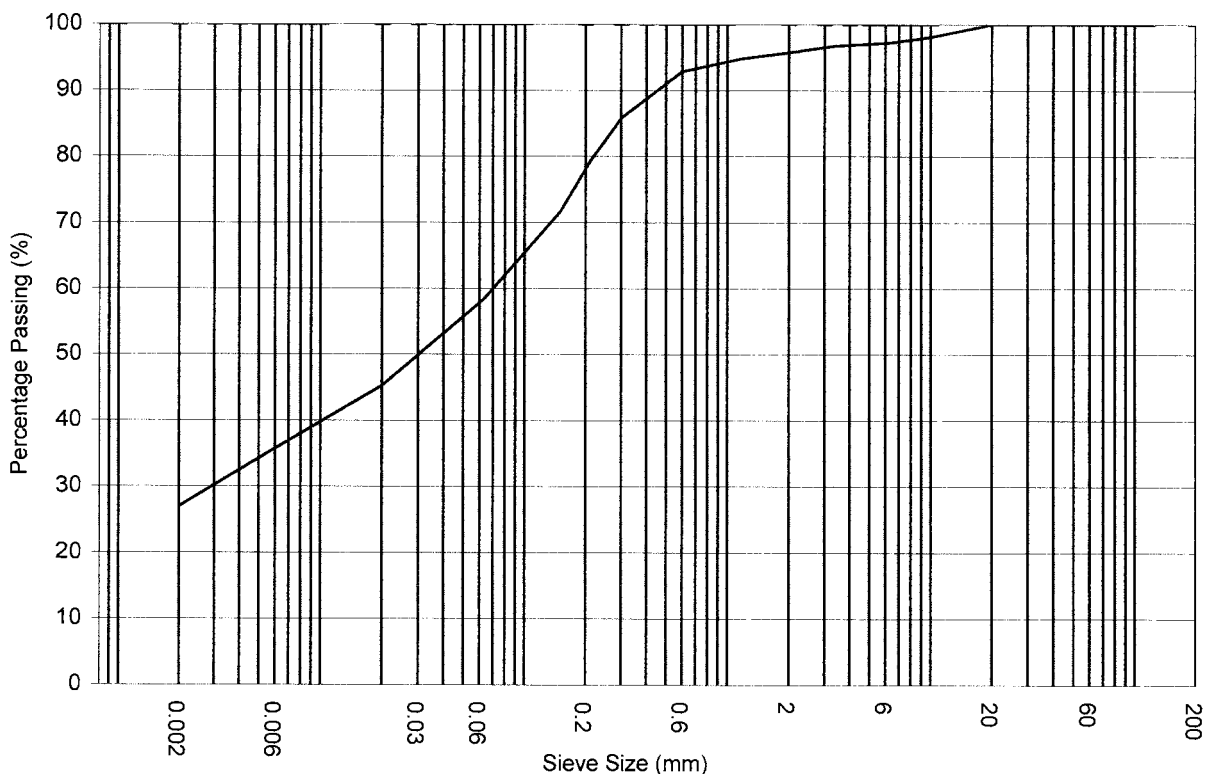
PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 & 9.4

Hole No. : BHM01 Sample No. : 2 Sample Type : B Depth (m) : 0.50

Specimen Details

Test Date : 15/10/2008
Loss on Pretreatment : Not applicable

Soil Description : Brown CLAY with some sand and a little gravel



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
27	31	38	4	0
Uniformity Coefficient :		Not Applicable		
Remarks :				
Notes : If no value given for percentage clay, all fines included in percentage silt				

Prepared By	<i>AMH</i>	Checked By	<i>CEL</i>	Date	20/11/2008	Project No	CON083065
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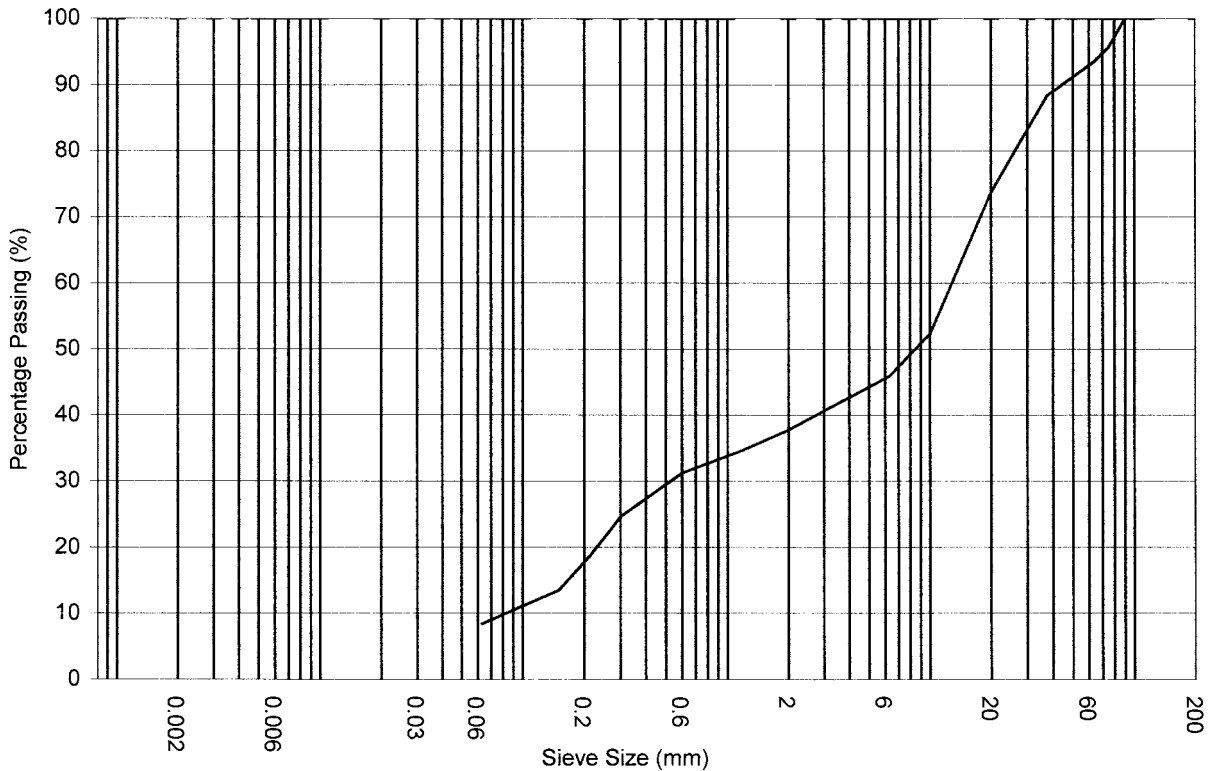
PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 & 9.4

Hole No. : TPMG01 Sample No. : 3 Sample Type : B Depth (m) : 0.50

Specimen Details

Test Date : 13/10/2008
Loss on Pretreatment : Not applicable

Soil Description : Brown GRAVEL with much sand some clay and some cobbles



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
	8	30	55	7
Uniformity Coefficient :		149.1		
Remarks : Insufficient material to comply with BS1377. Treat results with caution.				
Notes : If no value given for percentage clay, all fines included in percentage silt				

Prepared By	<i>AS</i>	Checked By	<i>CR</i>	Date	20/11/2008	Project No	CON083065
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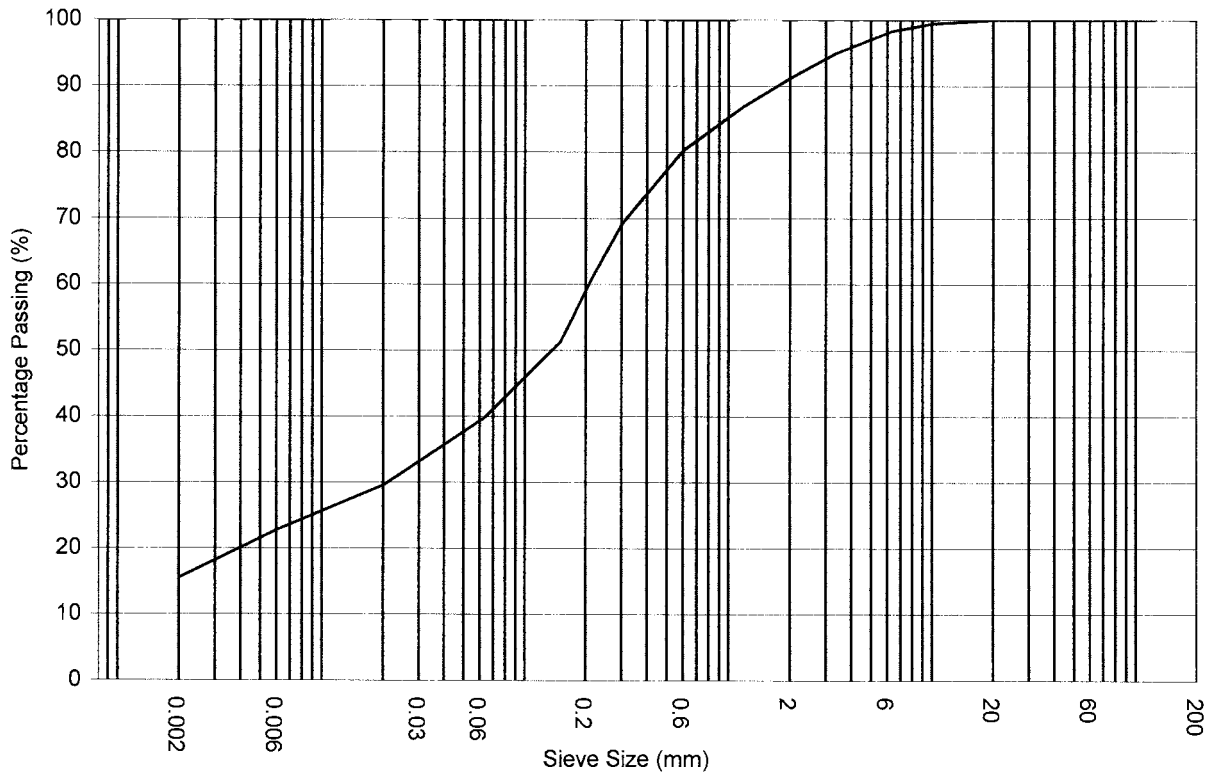
PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 & 9.4

Hole No. : TPMG02 Sample No. : 3 Sample Type : B Depth (m) : 0.50

Specimen Details

Test Date : 10/10/2008
Loss on Pretreatment : Not applicable

Soil Description : Brown CLAY with some sand and a little gravel



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
15	25	51	9	0
Uniformity Coefficient : Not Applicable				
Remarks :				
Notes : If no value given for percentage clay, all fines included in percentage silt				

Prepared By	<i>ANL</i>	Checked By	<i>CR</i>	Date	20/11/2008	Project No	CON083065
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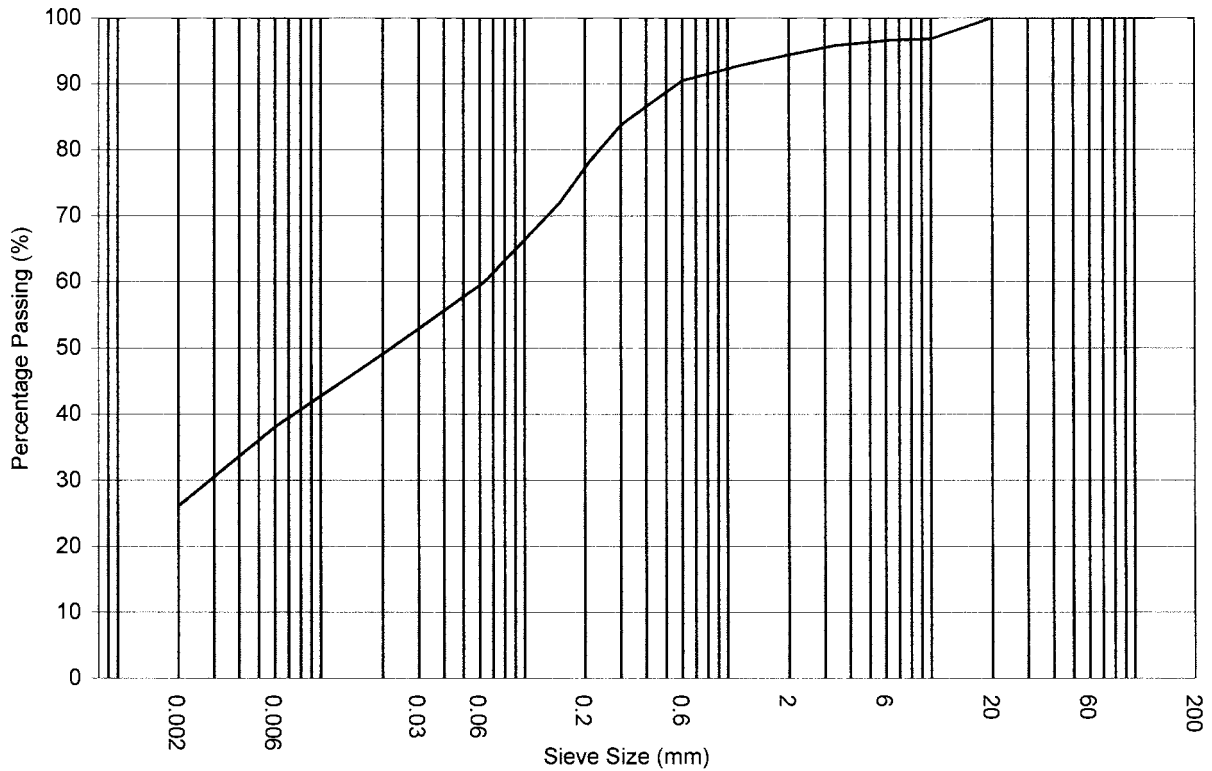
PARTICLE SIZE DISTRIBUTION
BS 1377 : Part 2 : 1990 : Test 9.2 & 9.4

Hole No. : TPMG02 Sample No. : 6 Sample Type : B Depth (m) : 1.80

Specimen Details

Test Date : 10/10/2008
Loss on Pretreatment : Not applicable

Soil Description : Brown CLAY with a little sand and a little gravel



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	COBBLES
	SILT			SAND			GRAVEL			

SUMMARY

CLAY (%)	SILT (%)	SAND (%)	GRAVEL (%)	COBBLES (%)
26	34	34	6	0
Uniformity Coefficient : Not Applicable				
Remarks :				
Notes : If no value given for percentage clay, all fines included in percentage silt				

Prepared By	<i>Analy</i>	Checked By	<i>CEL</i>	Date	20/11/2008	Project No	CON083065
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**SUMMARY OF UNDRAINED SHEAR STRENGTH TESTS IN TRIAXIAL COMPRESSION
WITHOUT MEASUREMENT OF POREWATER PRESSURE**

BS : 1377 Part 7 : 1990 : Test 8 and 9

Hole	Sample No	Type	Depth (m)	Specimen Depth (mm)	Bulk Density (Mg/m ³)	Moisture Content (%)	Dry Density (Mg/m ³)	Diameter (mm)	Preparation	Cell Pressure (kPa)	Failure Strain (%)	Mode of Failure	Cohesion (kPa)	Average Cohesion (kPa)	Description
BHMG01	3	U	1.50	100	2.21	15	1.93	102.0	U	30 60 120	10.4 13.9 17.4	C	118 120 117	118	Stiff brown CLAY with a little sand and a little gravel

Key : Preparation : REM - remoulded		Test type : UU - unconsolidated undrained		Mode of Failure : B - Brittle C - Compound			
U - undisturbed		UUM - unconsolidated undrained multistage		P - Plastic			
Prepared By	<i>MSH</i>	Checked By	<i>CR</i>	Date	<i>20/11/2008</i>	Project No	CON083065

SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 1985

Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm ²)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BHMG01		C	11.00		i	AR	PD	58	50	30	10.91	1910	44	5.71	0.94	5.38	Grey SILTSTONE
BHMG01		C	12.00		a	AR	PD		82	46	3.56	4803	69	0.74	1.16	0.86	Grey SILTSTONE
BHMG01		C	13.00		i	AR	PL	80	48	52	1.11	3178	56	0.35	1.06	0.37	Grey SILTSTONE
BHMG01		C	14.20		i	AR	PL	92	82	48	3.97	5011	71	0.79	1.17	0.93	Grey SILTSTONE
BHMG01		C	15.10		d	AR	PL	98		86	0.91	7396	86	0.12	1.28	0.16	Grey MUDSTONE
BHMG01		C	16.30		d	AR	PL	100		86	0.3	7396	86	0.04	1.28	0.05	Grey MUDSTONE
BHMG01		C	17.00		d	AR	PL	104		82	2.95	6724	82	0.44	1.25	0.55	Grey MUDSTONE
BHMG01		C	18.00		a	AR	PD		82	72	3.56	7517	87	0.47	1.28	0.61	Grey MUDSTONE
BHMG01		C	19.00		a	AR	PD		84	80	1.32	8556	92	0.15	1.32	0.20	Grey MUDSTONE
BHMG01		C	20.00		i	AR	PD	74	56	35	6.83	2496	50	2.74	1.00	2.74	Grey MUDSTONE

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
 Moisture Condition: A - air dried, S - saturated, AR - as received
 Direction: PL - parallel, PD - Perpendicular, R - Random

Prepared By	<i>AKL</i>	Checked By	<i>DAB</i>	Date	<i>25/9/08</i>	Project No	CON083065
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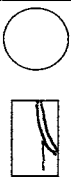
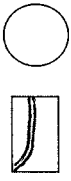
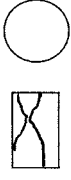
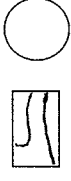
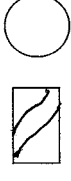
SUMMARY OF POINT LOAD STRENGTH TESTS
ISRM 1985


Hole	Sample no	Type	Depth	Specimen No	Test Type	Condition	Direction	Length (mm)	Width (mm)	Platen Separation at failure (mm)	Load P (kN)	D_e^2 (mm ²)	D_e (mm)	Point Load I_s (MPa)	Correction Factor F	Point Load $I_{s(50)}$ (MPa)	Lithology
BHMG01		C	21.00		a	AR	PD		83	42	1.73	4439	67	0.39	1.14	0.44	Grey MUDSTONE
BHMG01		C	22.00		a	AR	PD		82	48	2.34	5011	71	0.47	1.17	0.55	Grey MUDSTONE
BHMG01		C	23.00		a	AR	PD		82	40	2.54	4176	65	0.61	1.12	0.68	Grey MUDSTONE
BHMG01		C	24.00		a	AR	PD		84	75	2.75	8021	90	0.34	1.30	0.45	Grey MUDSTONE
BHMG01		C	25.10		d	AR	PL	118		88	1.11	7744	88	0.14	1.29	0.18	Grey MUDSTONE
BHMG01		C	26.00		d	AR	PL	84		82	0.5	6724	82	0.07	1.25	0.09	Grey MUDSTONE
BHMG01		C	27.00		d	AR	PL	120		86	2.75	7396	86	0.37	1.28	0.47	Grey MUDSTONE
BHMG01		C	28.10		a	AR	PD		82	62	1.11	6473	80	0.17	1.24	0.21	Grey MUDSTONE
BHMG01		C	29.00		a	AR	PD		82	62	0.39	6473	80	0.06	1.24	0.07	Grey MUDSTONE

Type of Test: d - diametral, a - axial, b - block, i - irregular lump
 Moisture Condition: A - air dried, S - saturated, AR - as received
 Direction: PL - parallel, PD - Perpendicular, R - Random

Prepared By	<i>AML</i>	Checked By	<i>DNS</i>	Date	<i>25/9/08</i>	Project No	CON083065
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SUMMARY OF ROCK STRENGTH TESTS
ISRM 1981 Part 2

Hole	Sample no	Type	Depth (m)	Bulk Density (Mg/m ³)	Water Content (%)	Dry Density (Mg/m ³)	Diameter (mm)	Length (mm)	Stress Rate (MPa/min)	Load at failure (kN)	Tensile Strength (MPa)	Uniaxial Compressive Strength (MPa)	Mode of Failure	Lithology
BHMG01		C	11.00	2.55	3.2	2.47	87	193	4	225		38.3		Grey SILTSTONE, medium strong
BHMG01		C	13.20	2.51	3.6	2.42	86	149	5.05	269		45.5		Grey SILTSTONE, medium strong
BHMG01		C	14.70	2.50	4.4	2.39	86	145	1.03	44.3		7.5		Grey MUDSTONE, weak
BHMG01		C	17.20	2.53	3.7	2.44	86	185	0.82	38.2		6.5		Grey MUDSTONE, weak
BHMG01		C	28.70	2.42	4.9	2.30	87	153	0.45	16.1		2.7		Grey MUDSTONE, very weak

Prepared By		Checked By	DAB	Date	25/9/08	Project No	CON083065
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APPENDIX D Contamination Test Results



Fugro Engineering Services Ltd
Armstrong House
Unit 43
Number One Ind. Est..
Medomsley Road
Consett, Co. Durham
DH8 6TW
ATTN: Chris Hunt

CERTIFICATE OF ANALYSIS

Date: 04 November, 2008
Our Reference: 08/17122/02/01
Your Reference: CON083065
Location: MILL GREEN SCHOOL

A total of 13 samples was received for analysis on Wednesday, 15 October 2008 and completed on Tuesday, 28 October 2008. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials- whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Signed

Diane Whittlestone **David O'Hare**
Tech. Support Manager Project Manager

Kim Harrison
Project Coordinator
Team Leader

Byron Hagan
Project Coordinator
Team Leader

Valid if signed by any of the above signatories.

Compiled By

Hayley Parr



Alcontrol Laboratories TEST SCHEDULE

JOB NUMBER : 08/17122/02

BATCH NUMBER : 1
CLIENT REF/CODE : CON083065

Numeric values indicate
additional scheduling

CLIENT : Fugro Engineering Services Ltd

CONTACT : Chris Hunt

ORDER NUMBER : WG58428

* indicates test subcontracted

DATE OF RECEIPT : 15/10/08

TURNAROUND : 7 days

LOCATION : MILL GREEN SCHOOL

Sample Number	Sample Identity	P / V	Depth	UKAS Accredited ?	Sample Type	Tests																			
						pH (S)	Sulphate Soluble Kone BFE 2-1 (S)	Metals ICP. 9 (S)	Boron Water Soluble (S)	Cyanide Total (S)	Sulphate Total (S)	Sulphide Easily Liberated (S)	Sulphur Total (S)	pH (S)	Solvent Extract (S)	Phenols HPLC (S)	PAH 16 EPA GC-FID (S)								
1	BHMG01	1KGTub	2.00		SOLID	X	X		X																
2	TPMG01 ES2	1 kg Glass	0.50		SOLID		X	X	X		X			X											
3	TPMG01 ES2	1KGTub	0.50		SOLID				X				X												
4	TPMG01 ES2	Vial	0.50		SOLID			Sample on Hold																	
5	TPMG02 ES5	1KGTub	0.80		SOLID		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	TPMG03 ES7	1 kg Glass	1.50		SOLID		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7	TPMG03 ES7	Vial	1.50		SOLID			Sample on Hold																	
8	TPMG04 ES3	1 kg Glass	0.50		SOLID		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
9	TPMG04 ES3	1KGTub	0.50		SOLID				X				X									X			
10	TPMG04 ES3	Vial	0.50		SOLID			Sample on Hold																	
11	TPMG02/3	BAG	0.50		SOLID		X	X																	
12	TPMG03/6	BAG	1.00		SOLID		X	X																	
13	TPMG10/3	BAG	1.80		SOLID		X	X																	
					Total Number of Tests	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

ALcontrol Laboratories Analytical Services

Sample Descriptions

Job Number: 08/17122/02/01
Client: Fugro Engineering Services Ltd
Client Ref : CON083065

Grain sizes
 <0.063mm Very Fine
 0.1mm - 0.063mm Fine
 0.1mm - 2mm Medium
 2mm - 10mm Coarse
 >10mm Very Coarse

Sample Identity	Depth (m)	Colour	Grain Size	Description	Batch
BHMG01	2.00	Brown	<0.063mm	Clay with some Stones	1
TPMG01 ES2	0.50	Dark Brown	0.1mm - 0.063mm	Silty Clay with some Stones	1
TPMG02 ES5	0.80	Brown	<0.063mm	Clay with some Stones	1
TPMG02/3	0.50	Dark Brown	0.1mm - 0.063mm	Silty Clay with some Stones	1
TPMG03 ES7	1.50	Brown	0.1mm - 0.063mm	Silty Clay with some Stones	1
TPMG03/6	1.00	Brown	<0.063mm	Clay	1
TPMG04 ES3	0.50	Dark Brown	0.1mm - 0.063mm	Silty Clay Loam with some Stones	1
TPMG10/3	1.80	Brown	<0.063mm	Clay	1

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials-whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

¹ Sample Description supplied by client

Validated
 Preliminary

ALcontrol Laboratories Analytical Services

Table Of Results

ISO 17025 accredited
 M MCERTS accredited
 * Subcontracted test
 » Shown on prev. report

Job Number: 08/17122/02/01 **Matrix:** SOLID
Client: Fugro Engineering Services Ltd **Location:** MILL GREEN SCHOOL
Client Ref. No.: CON083065 **Client Contact:** Chris Hunt

Sample Identity	BHMG01	TPMG01 ES2	TPMG02 ES5	TPMG02/3	TPMG03 ES7	TPMG03/6	TPMG04 ES3	TPMG10/3		Method Code	LoD/Units
Depth (m)	2.00	0.50	0.80	0.50	1.50	1.00	0.50	1.80			
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID			
Sampled Date	17.09.08	17.09.08	17.09.08	17.09.08	17.09.08	17.09.08	17.09.08	17.09.08			
Sample Received Date	15.10.08	15.10.08	15.10.08	15.10.08	15.10.08	15.10.08	15.10.08	15.10.08			
Batch	1	1	1	1	1	1	1	1			
Sample Number(s)	1	2-4	5	11	6-7	12	8-10	13			
Total Sulphate	-	5900	240	-	120	-	650	-		TM129 [#] _M	<100 mg/kg
Boron Water Soluble	-	<3.5	<3.5	-	<3.5	-	<3.5	-		TM129 [#] _M	<3.5 mg/kg
Arsenic	-	42	4	-	<3	-	14	-		TM129 [#] _M	<3.0 mg/kg
Cadmium	-	0.4	<0.2	-	<0.2	-	0.8	-		TM129	<0.2 mg/kg
Chromium	-	9.9	33	-	31	-	11	-		TM129 [#] _M	<4.5 mg/kg
Copper	-	62	20	-	17	-	120	-		TM129 [#] _M	<6 mg/kg
Lead	-	52	8	-	5	-	100	-		TM129 [#] _M	<2 mg/kg
Mercury	-	<0.4	<0.4	-	<0.4	-	<0.4	-		TM129 [#] _M	<0.4 mg/kg
Nickel	-	44	39	-	35	-	41	-		TM129 [#] _M	<0.9 mg/kg
Selenium	-	4	<3	-	<3	-	<3	-		TM129 [#] _M	<3 mg/kg
Zinc	-	44	52	-	45	-	220	-		TM129 [#] _M	<2.5 mg/kg
Easily Liberated Sulphide	-	<15	<15	-	<15	-	<15	-		TM180 [#]	<15 mg/kg
Phenols Monohydric	-	<0.15	<0.15	-	<0.15	-	<0.15	-		TM062 [#] _M	<0.15 mg/kg
Total Cyanide	-	<1	<1	-	<1	-	<1	-		TM153 [#] _M	<1 mg/kg
pH Value	8.44	4.84	8.43	5.31	8.61	7.49	6.61	8.47		TM133 [#] _M	<1.00 pH Units
Soluble Sulphate 2:1 Extract as SO4 BRE	0.020	-	-	0.18	-	0.019	-	0.018		TM098 [#]	<0.003 g/l
Solvent Extract	-	510	790	-	130	-	1400	-		TM004 [#]	<100 mg/kg
Total Sulphur	-	3.6	0.02	-	0.02	-	0.30	-		TM068 [#]	<0.01 %
PAH by GC-FID											
Naphthalene	-	0.44	2.4	-	<0.05	-	0.38	-		TM142	<0.05 mg/kg
Acenaphthylene	-	0.40	0.24	-	<0.05	-	0.77	-		TM142	<0.05 mg/kg
Acenaphthene	-	0.22	0.29	-	<0.05	-	0.37	-		TM142	<0.05 mg/kg
Fluorene	-	0.34	<0.05	-	<0.05	-	0.74	-		TM142	<0.05 mg/kg
Phenanthrene	-	0.41	<0.05	-	<0.05	-	1.2	-		TM142	<0.05 mg/kg
Anthracene	-	<0.05	<0.05	-	<0.05	-	0.16	-		TM142	<0.05 mg/kg
Fluoranthene	-	0.54	<0.05	-	<0.05	-	0.69	-		TM142	<0.05 mg/kg
Pyrene	-	0.38	<0.05	-	<0.05	-	0.39	-		TM142	<0.05 mg/kg
Benz(a)anthracene	-	0.21	<0.05	-	<0.05	-	0.30	-		TM142	<0.05 mg/kg
Chrysene	-	0.25	<0.05	-	<0.05	-	0.05	-		TM142	<0.05 mg/kg
Benzo(b)fluoranthene	-	0.60	<0.05	-	<0.05	-	0.84	-		TM142	<0.05 mg/kg

All results expressed on a dry weight basis.

Date 20.11.2008

Validated
Preliminary

ALcontrol Laboratories Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 08/17122/02/01

Matrix: SOLID

Client: Fugro Engineering Services Ltd

Location: MILL GREEN SCHOOL

Client Ref. No.: CON083065

Client Contact: Chris Hunt

Sample Identity	BHMG01	TPMG01 ES2	TPMG02 ES5	TPMG02/3	TPMG03 ES7	TPMG03/6	TPMG04 ES3	TPMG10/3	Method Code	LoD/Units
Depth (m)	2.00	0.50	0.80	0.50	1.50	1.00	0.50	1.80		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	17.09.08	17.09.08	17.09.08	17.09.08	17.09.08	17.09.08	17.09.08	17.09.08		
Sample Received Date	15.10.08	15.10.08	15.10.08	15.10.08	15.10.08	15.10.08	15.10.08	15.10.08		
Batch	1	1	1	1	1	1	1	1		
Sample Number(s)	1	2-4	5	11	6-7	12	8-10	13		
PAH by GC-FID (cont)										
Benzo(k)fluoranthene	-	<0.05	<0.05	-	<0.05	-	0.34	-	TM142	<0.05 mg/kg
Benzo(a)pyrene	-	0.45	<0.05	-	<0.05	-	0.80	-	TM142	<0.05 mg/kg
Indeno(123cd)pyrene	-	0.35	<0.05	-	<0.05	-	1.0	-	TM142	<0.05 mg/kg
Dibenzo(ah)anthracene	-	0.25	<0.05	-	<0.05	-	0.33	-	TM142	<0.05 mg/kg
Benzo(ghi)perylene	-	0.28	<0.05	-	<0.05	-	1.1	-	TM142	<0.05 mg/kg
PAH 16 Total	-	5.1	2.9	-	<0.05	-	9.4	-	TM142	<0.05 mg/kg

All results expressed on a dry weight basis.

Date 20.11.2008

ALcontrol Laboratories Analytical Services

Table Of Results - Appendix

Job Number: 08/17122/02/01
Client: Fugro Engineering Services Ltd
Client Ref. No.: CON083065

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10⁻⁷

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM004	Modified: US EPA Method 8321A	Solvent extraction of soil	✓		DRY	
TM062	MEWAM BOOK 124 1988.HMSO/ Method 17.7, Second Site property, March 2003	Determination of Phenolic compounds by HPLC with electro-chemical detection	✓	✓	WET	
TM068	ASTM D-1552	Total sulphur determination by combustion method	✓		DRY	
TM098	Method 4500E, AWWA/APHA, 20th Ed., 1999	Determination of Sulphate using the Kone Analyser	✓		DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer			DRY	
TM129	Method 3120B, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 3050B	Determination of Metal Cations by IRIS Emission Spectrometer	✓	✓	DRY	
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter	✓	✓	WET	
TM142	In - house method	Analysis of Polynuclear Aromatic Hydrocarbons (PAH) by GC-FID			DRY	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	✓	✓	WET	
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique	✓		WET	

¹ Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

**ALcontrol Laboratories Analytical Services
Table Of Results - Appendix**

Job Number: 08/17122/02/01
Client: Fugro Engineering Services Ltd
Client Ref. No.: CON083065

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
1	11.8

APPENDIX

APPENDIX

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH₄ by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during a fibre screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, the soil sample will be screened for the presence of fibres in-house and if no fibres are found will be reported as NFD – no fibres detected. If fibres are detected, they will be removed and analysed by our documented in house method based on HSG 248(2005). If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.
8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.
9. NDP – No determination possible due to insufficient/unsuitable sample.
10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
11. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
12. **Surrogate recoveries** – Currently the only analysis, which is surrogate corrected, is PAHs on soils. For EPH on soils the result is not surrogate corrected, but a percentage recovery is quoted.
13. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
14. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
15. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 14).
16. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
17. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.
19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.
21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.
22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials – whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

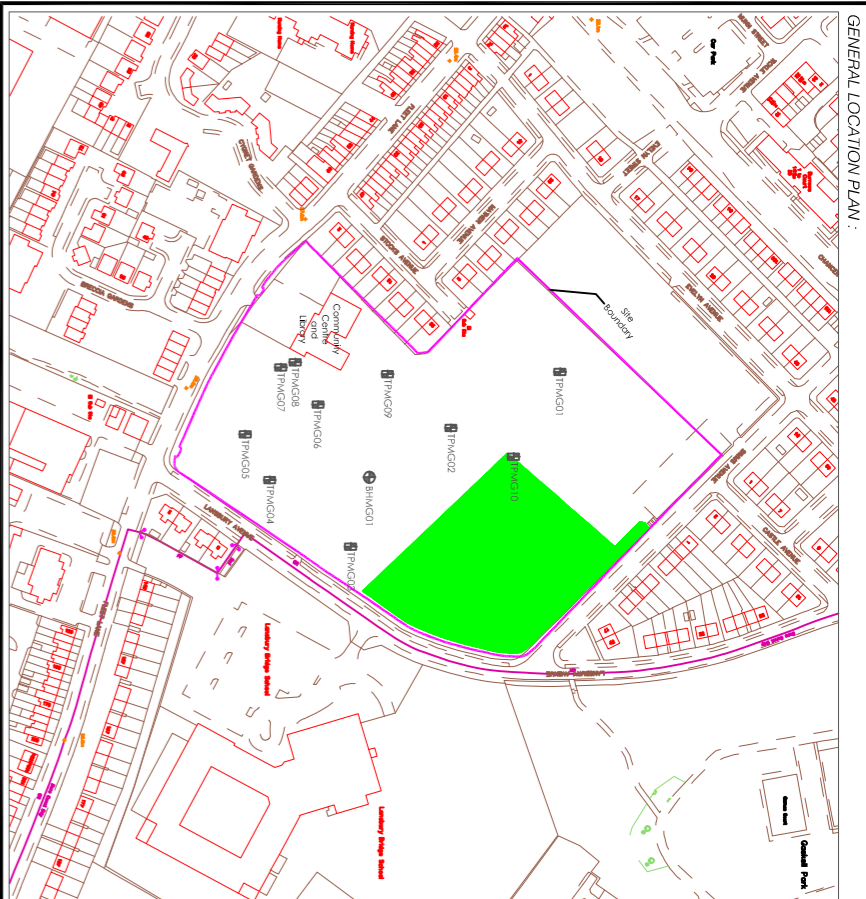
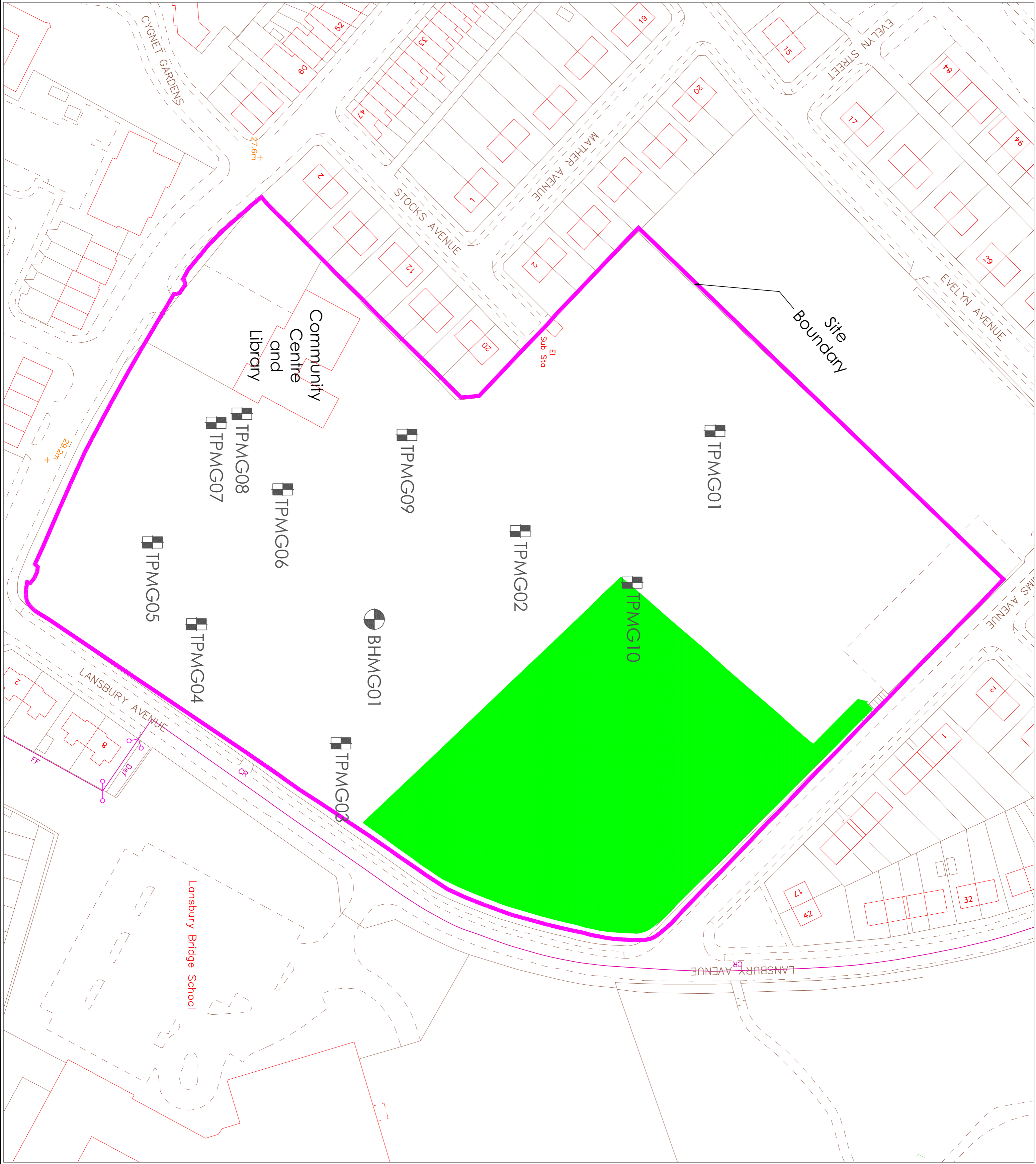
LIQUID MATRICES EXTRACTION SUMMARY			
ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GS MS
SVOC	DCM	LIQUID/LIQUID SHAKEN SVOC	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DCM/EA	SOLID PHASE EXTRACTION	GC MS
TRIAZINE HERBS	DCM/EA	SOLID PHASE EXTRACTION	GC MS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GC MS
TPH by INFRA RED (IR)	TCE	LIQUID/LIQUID EXTRACTION	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID EXTRACTION	HPLC
SAPONIFIABLE	TCE	LIQUID/LIQUID EXTRACTION	HPLC
UNSAAPONIFIABLE	TCE	LIQUID/LIQUID EXTRACTION	HPLC
GLYCOLS	DCM	LIQUID/LIQUID EXTRACTION	EZ FLASH

SOLID MATRICES EXTRACTION SUMMARY				
ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
Solvent Extractable Matter	D&C	DCM	SOX THERM	GRAVIMETRIC
Cyclohexanes Ext. Matter	D&C	CYCLOHEXANE	SOX THERM	GRAVIMETRIC
Thin Layer Chromatography	D&C	DCM	SOX THERM	IATROSCAN
Elemental Sulphur	D&C	DCM	SOX THERM	HPLC
Phenols by GCMS	WET	DCM	SOX THERM	GC-MS
Herbicides	D&C	HEXANE:ACETONE	SOX THERM	GC-MS
Pesticides	D&C	HEXANE:ACETONE	SOX THERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Min oil)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (Cleaned up)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG by GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB tot / PCB con	D&C	HEXANE:ACETONE	END OVER END	GC-MS
Polyaromatic Hydrocarbons (MS)	D&C	HEXANE:ACETONE	END OVER END	GC-MS
Polyaromatic Hydrocarbons (FID)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
C8-C40 (C6-C40)EZ Flash	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Polyaromatic Hydrocarbons Rapid GC	WET	HEXANE:ACETONE	SHAKER	GC-EZ
Semi Volatile Organic compounds	WET	DCM:ACETONE	SONICATE	GC-MS

APPENDIX E Drawings

Exploratory Hole Location Plan

Figure LP1



NOTES:
Survey Control supplied by Moit McDonald

- GEODETIC NOTES:
1. UTM Grid Co-ordinates
 2. Zone 31
 3. Central Meridian 3° East
 4. European Datum 1950

CLIENT:
ST HELENS BOROUGH COUNCIL

PROJECT:
ST HELENS BSF
MILL GREEN

TITLE:
EXPLORATORY HOLE LOCATION PLAN

INTERP. BY: BC	DATE: 21/11/08	DRAWN BY: BC	DATE: 21/11/08
CHECKED BY: ND	DATE: 21/11/08	APPROVED BY: ND	DATE: 21/11/08
REPORT No.: CON083065	FIGURE: LP1		

CAD FILE NAME:
PLOTTED DRAWING SIZE: A2 (994 x 420)

FUGRO ENGINEERING SERVICES LIMITED
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Number One Ind Est, Consett, DH8 6TW
Tel: +44 (0)1207 581120 Fax: +44 (0)1207 581609
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APPENDIX F Geophysics

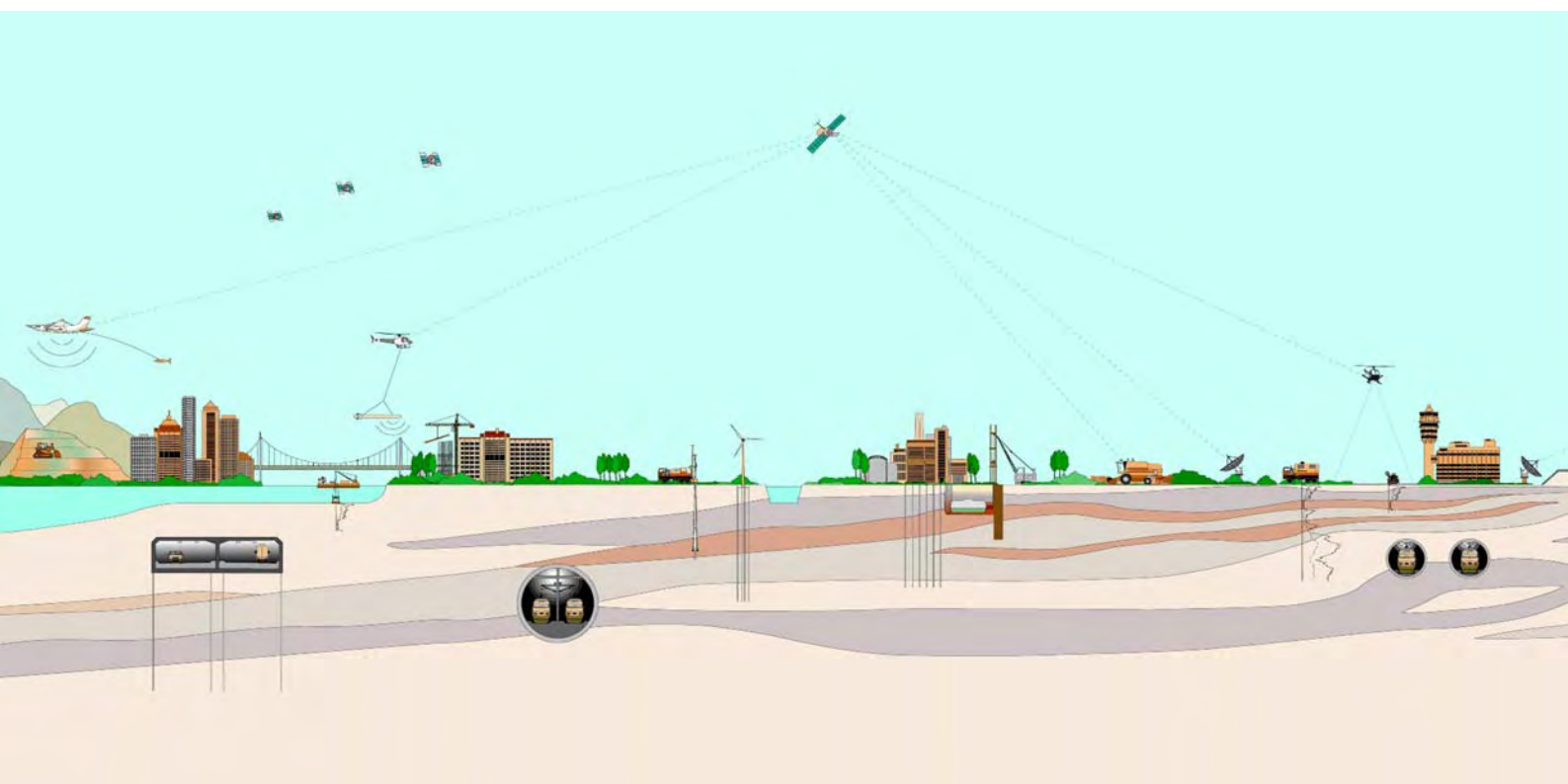
Fugro-Aperio Report on Geophysical Survey

MOTT MACDONALD LTD
ST HELENS
FORMER PARR HIGH SCHOOL

GEOPHYSICAL SURVEY

CONTRACT NO : J3291
REPORT NO : J3291-01(F01)

CONFIDENTIAL



MOTT MACDONALD LTD
ST HELENS
FORMER PARR HIGH SCHOOL

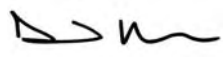

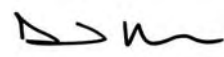
GEOPHYSICAL SURVEY

CONTRACT NO : J3291

CLIENT : MOTT MACDONALD LTD

CONFIDENTIAL

REPORT ISSUE STATUS

Issue	Date	Description	Prepared	Checked	Approved (Printed)	Approved (Signature)
01	27/09/08	Final	WLC	DK	D KILCOYNE	
						
W. Caffeekey			D. Kilcoyne			
SENIOR TECHNICIAN			DIVISION HEAD			

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Amendment record

Date	Page no.	Para. no.	Change description	Doc. change request ID	Authorising signature

Date: 27th September 2008

Our Ref: J3291-01(D01)

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Attention: Mr. Nick Haynes

Dear Sirs

GEOPHYSICAL SURVEY – FORMER PARR HIGH SCHOOL, ST. HELENS

We have pleasure in submitting our report for the above project. Mr D. Kilcoyne was the project manager. Mr A. Farahani supervised the fieldwork and Mr W. Caffeky prepared this report.

We trust that the contents of this report are to your satisfaction, but should you require any further information please do not hesitate to contact us.

We thank you for the opportunity of working with you on this project and look forward to being of further assistance in the future.

Yours faithfully

FUGRO APERIO LIMITED



W. Caffeky
Senior Technician



D. Kilcoyne
Division Head



Contents	Page
1. INTRODUCTION	1
1.1 GENERAL	1
1.2 SERVICE CONSTRAINTS	1
2. DESCRIPTION OF THE SITE	2
3. SITE WORK	3
3.1 GENERAL	3
3.2 ELECTROMAGNETIC INDUCTIVE GROUND CONDUCTIVITY – FREQUENCY DOMAIN	3
3.3 MAGNETIC GRADIOMETRY	4
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4.1 ELECTROMAGNETIC INDUCTIVE GROUND CONDUCTIVITY – FREQUENCY DOMAIN	6
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LIST OF PLATES

APPENDIX A Service Constraints

1. INTRODUCTION

1.1 GENERAL

Fugro Aperio Limited was commissioned by Fugro Engineering Services Limited on behalf of Mott Macdonald Ltd to carry out a geophysical survey on a site at the former Parr High School in St Helens

The aim of the survey was to investigate and locate the position of mineshafts beneath the site to provide locations for intrusive investigation.

The following geophysical techniques were utilised to conduct the survey:

- Magnetic Gradiometry, using a Geometrics G-858 gradiometer.
- Electromagnetic inductive ground conductivity, using a Geonics EM31 meter

Geophysical site works were undertaken between 08^{sh} and 09th September 2008.

1.2 SERVICE CONSTRAINTS

Appendix A “Service Constraints”, outlines the limitations of this report, in terms of a range of considerations including, but not limited to, its purpose, its scope, the data on which it is based, its use by Third Parties, possible future changes in design procedures and possible changes in the conditions at the site with time. The Appendix represents a clear exposition of the constraints, which apply to all reports issued by Fugro Aperio Limited. It should be noted that the Service Constraints do not in any way supersede the terms and conditions of the contract between Fugro Aperio Limited and the Client.

2. DESCRIPTION OF THE SITE

The aim of the survey was to investigate and locate the possible presence of two numbered mineshafts beneath the site (353395-045 and 353394-045). The geophysical survey was located within the grounds of the former Parr High School in St Helens. The survey area was approximately a 70m x 70m grid. The ground surface consisted of tarmac covered areas, areas of vegetation, in places dense, and areas containing building rubble, presumed to remain following demolition of the former school buildings.

It is important to note that the site was bounded on 3 sides by metallic fencing.

A general location plan showing the survey areas is presented on Plate 1.

3. SITE WORK

3.1 GENERAL

To attempt to highlight possible mine workings, electromagnetic ground conductivity and vertical magnetic gradient methods were employed using a Geonics EM31 and a Geometrics G858 respectively.

Vertical Magnetic gradiometry was carried out on 1m line spacing and electromagnetic ground conductivity was carried out on a 2m line spacing, using a DGPS system to locate the survey. It should be noted that all the coordinates have been converted into OSG 1936/ British National Grid system.

3.2 ELECTROMAGNETIC INDUCTIVE GROUND CONDUCTIVITY – FREQUENCY DOMAIN

Using this technique an alternating voltage is produced at the surface of the ground, via a magnetic dipole transmitter unit operating at a specific frequency. This induces circular eddy current loops in the earth, which give rise to a primary electromagnetic field. A secondary electromagnetic field will be induced in the subsurface associated with the primary field. A magnetic dipole receiver unit at the ground surface detects a resultant electromagnetic field, which is the vector sum of both the primary and secondary electromagnetic fields.

To best illustrate the theory behind the technique, coupling between AC circuits may be considered. Plate 2A shows a trio of coils having inductance and resistance. Coil 1 represents the transmitter unit, Coil 2 is equivalent to a subsurface conductor and Coil 3 represents the receiver unit. The primary electromagnetic field associated with Coil 1 (transmitter), will induce a secondary electromagnetic field in Coil 2 (subsurface conductor). Coil 3 (receiver) will detect the effect of both the primary and secondary fields, i.e. the resultant field. In general, the resultant field will differ from the primary field in both intensity and phase.

Changes in the electrical properties of the subsurface mass, e.g. presence of man-made structures or geological features, would generally give rise to a contrast in the ground electrical conductivity which could be detected by the electromagnetic meters.

Most electromagnetic meters can be used in two modes of operation, based on the orientation of the transmitter and receiver coil axes. These are Vertical Magnetic Dipole Mode (VMD) and Horizontal Magnetic Dipole Mode (HMD). The maximum depth penetration for the VMD operation is 1.5 times the Transmitter-Receiver separation and 0.75 times the separation for the HMD operation.

A Geonics EM-31 meter, deployed in the Vertical Magnetic Dipole mode of operation, was utilised to carry out the investigation to provide subsurface information to an approximate depth of 5m. The EM-31 is a non-contacting terrain conductivity meter. The apparatus consists of a battery operated central console with a 2m boom protruding from either side. The transmitter and receiver units are housed in the booms on either side of the console, separated by 3.66m. The operating frequency of the apparatus is 9.8 kHz.

The operator wears the apparatus around his shoulder with the aid of a strap and adjusts the height to approximately 1m above the ground level, as the meter has been calibrated to take readings at this height. Plate 2B is a schematic illustration of the EM-31 meter.

Two components are measured by the EM-31; the In-phase and Quadrature responses of the electromagnetic field. The In-phase response, measured in parts per thousand (ppt), represents the ratio of the secondary electromagnetic field relative to the primary field. The Quadrature response is directly related to the apparent conductivity of the ground and is measured in milli-Siemens per metre (mS/m).

Electromagnetic measurements were taken along adjacent lines at 2m spacing and were localised with the help of a DGPS system.

3.3 MAGNETIC GRADIOMETRY

The magnetic gradiometer measures both the total magnetic field of the earth i.e. the geomagnetic field, and its vertical gradient. The intensity of the geomagnetic field varies between 25000nanoTesla (nT) at the magnetic equator to approximately 65000nT at the magnetic poles, with an ambient field of approximately 48000nT prevailing in the UK.

The operation of the magnetometer is based on a principle known as optical pumping. This involves irradiating an alkali metal, in this case caesium, with beams of spectral light. The precession of these charged vapours under the influence of the geomagnetic field can then be measured. This method has the advantage of being more sensitive than a proton-precession magnetometer.

To measure the magnetic gradient two sensors are installed on an extended shaft separated by a fixed distance, which is small in relation to the distance to the subsurface sources whose gradients are to be measured. The instrument takes measurements from the two sensors simultaneously, calculates the magnetic gradient and stores it in its internal memory together with the time, line and station numbers. The maximum depth achieved with the magnetometer is approximately 5m below ground level, dependent on site conditions. Plate 2C is a schematic illustration of the magnetic gradiometer.



By taking magnetic gradient measurements on a grid basis, an area was mapped out to detect local variations in the magnetic gradient. Anomalous areas are indicative of a variation in the magnetic properties of the ground resulting from the presence of ferrous material associated with buried foundations, services or other subsurface obstructions.

A Geometrics G-858 gradiometer was utilised for the survey with data collected in one direction across the survey area with a 1m separation between adjacent lines and were located using a DGPS system.

4. INTERPRETATION

4.1 ELECTROMAGNETIC INDUCTIVE GROUND CONDUCTIVITY – FREQUENCY DOMAIN

The electromagnetic (EM) results obtained from this investigation were processed and contoured, and are presented as plots of the EM ground conductivity and in-phase response. The expected response from a concealed mine shaft would be highlighted as a localised change in the measured values of both electromagnetic responses, forming a geometric outline about the surface location of the shaft. The contour plots of the Apparent Conductivity and In Phase components are presented on Plates 3A and 3B.

The average apparent conductivity across the site varies between 10 mS/m and +45 mS/m, and the average In-Phase component across the site varies from between -4 ppt and +1 ppt. A particularly high amplitude response is noted around the west, south and east perimeters. This is likely to be a direct effect of the presence of a metallic boundary fence. This cultural noise effectively masks the response from the subsurface.

Inspection of the contour plots for both conductivity and in phase response would show many high frequency (short wavelength) variations across the site. This is indicative of highly variable near surface material. It is considered likely that the remains of the foundations and demolition of the former buildings has contributed to this highly variable material. As a consequence it is difficult to identify discrete, anomalous areas which may relate to the presence of buried mineshafts.

However, an analysis of the data has been undertaken and, in conjunction with correlations made to features marked on the base drawing and notes taken by the Fugro site engineer, a number of anomalous areas thought to be of significance have been identified. For example the high in-phase values located at coordinates 353210,395960.

4.2 VERTICAL MAGNETIC GRADIENT

As mentioned in Section 3.3 above, the G-858 magnetometer measures the vertical gradient of the magnetic field of the Earth and the total magnetic field. Processing the data recorded at each survey station and presenting it as a contour plot, will assist in the analysis of the results, and subsequently in detecting any localised variations in the measured geophysical values which could be attributed to the presence of a concealed mine shaft. The expected response from a concealed mine shaft would be an area of high gradient, either negative or positive or both, forming a geometric outline about the surface location of the shaft.

The magnetic results obtained from this investigation were processed and contoured, and are presented as a plot of the Vertical Magnetic Gradient (VMG) on Plate 4. As for the electromagnetic survey, the results of the VMG are highly variable. Magnetic

gradient values vary between -4000 and +3500 nT/m. It is clear that the highly variable nature of the near surface material has resulted in a series of high frequency (short wavelength) anomalies. Again, with this in mind it is difficult to identify discrete, anomalous areas which may relate to the presence of buried mineshafts.

However, an analysis of the data has been undertaken and, in conjunction with correlations made to features marked on the base drawing and notes taken by the Fugro site engineer, a number of anomalous areas thought to be of significance have been identified. For example the high amplitude dipolar magnetic gradient anomaly located at coordinates 353238, 394973.

4.3 SUMMARY

The anomalies from both datasets that are considered to be of potential significance have been traced, correlated and combined and placed onto a separate baseplan of the site to aid identification. This is presented on Plate 5. Two anomaly types have been classified (possible mineshaft and possible mineshaft – less certain) based upon their geophysical signatures. However, it should be considered that due to the highly variable nature of the datasets, though to be a result of demolition/foundation remains, a low confidence may be attributed to all anomalies identified.

5. SUMMARY AND CONCLUSIONS

Fugro Aperio Limited was commissioned by Fugro Engineering Services Limited on behalf of Mott Macdonald Ltd to carry out a geophysical survey on a site at the former Parr High School in St Helens

The aim of the survey was to investigate and locate the position of mineshafts beneath the site to provide locations for intrusive investigation.

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- Electromagnetic inductive ground conductivity, using a Geonics EM31 meter

Geophysical site works were undertaken between 08^{sh} and 09th September 2008.

The data were processed and analysed in detailed. In general both electromagnetic and magnetic datasets exhibited highly variable characteristics. This signature is likely to be a result of highly variable near surface material, possibly related to remaining demolition rubble and/or foundations from previous buildings.

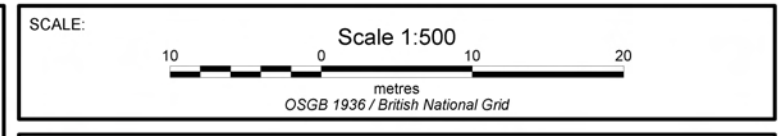
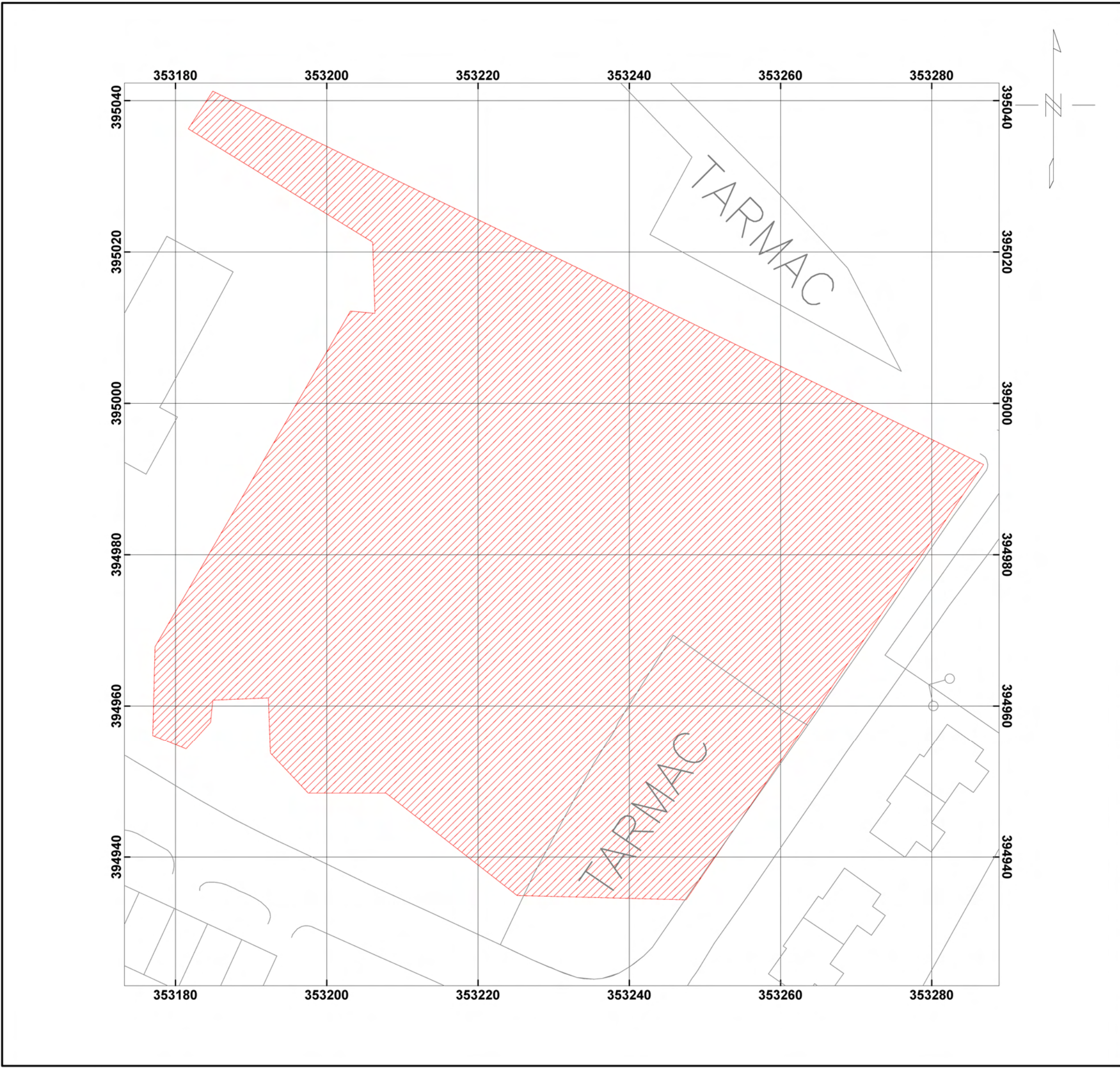
However, a number of anomalies of interest have been identified which may be related to the possible presence of a buried structure or mineshaft.

The anomalies from both datasets that are considered to be of potential significance have been traced, correlated and combined and placed onto a separate base plan (Plate 5) of the site to aid identification. Two anomaly types have been classified (possible mineshaft and possible mineshaft – less certain) based upon their geophysical signatures. However, it should be considered that due to the highly variable nature of the datasets, though to be a result of demolition/foundation remains, a low confidence may be attributed to all anomalies identified.


It must be emphasised that geophysical methods can only identify areas yielding results that are different, i.e. anomalous to the site norm. The interpretation of the cause of such anomalies is inevitably based on assumptions utilising the best information available on the historic use of the site. Positive identification of these anomalies can only be made through using visual or intrusive investigation techniques.

LIST OF PLATES

- PLATE 1 - GENERAL LOCATION PLAN SHOWING SURVEY AREAS**
- PLATE 2A - ELECTRICAL CIRCUIT ANALOGY FOR ELECTROMAGNETIC SYSTEM**
- PLATE 2B - SCHEMATIC ARRANGEMENT OF THE EM31 CONDUCTIVITY METER**
- PLATE 2C - SCHEMATIC ILLUSTRATION OF THE MAGNETIC GRADIOMETER**
- PLATE 3A - EM GROUND CONDUCTIVITY**
- PLATE 3B - EM IN-PHASE RESPONSE**
- PLATE 4 - VERTICAL MAGNETIC GRADIENT**
- PLATE 5 - FINAL ANOMALY PLAN**



LEGEND:

 Fugro Survey Area

NOTES:

1. Reproduced from file 'Parr High-Library Site Plan.dwg' provided by the client.
2. All coordinates relative to OSGB 1936 British National Grid

CLIENT: MOTT MACDONALD LTD

PROJECT: GEOPHYSICAL SURVEY
FORMER PARR HIGH SCHOOL


TITLE: GENERAL LOCATION PLAN

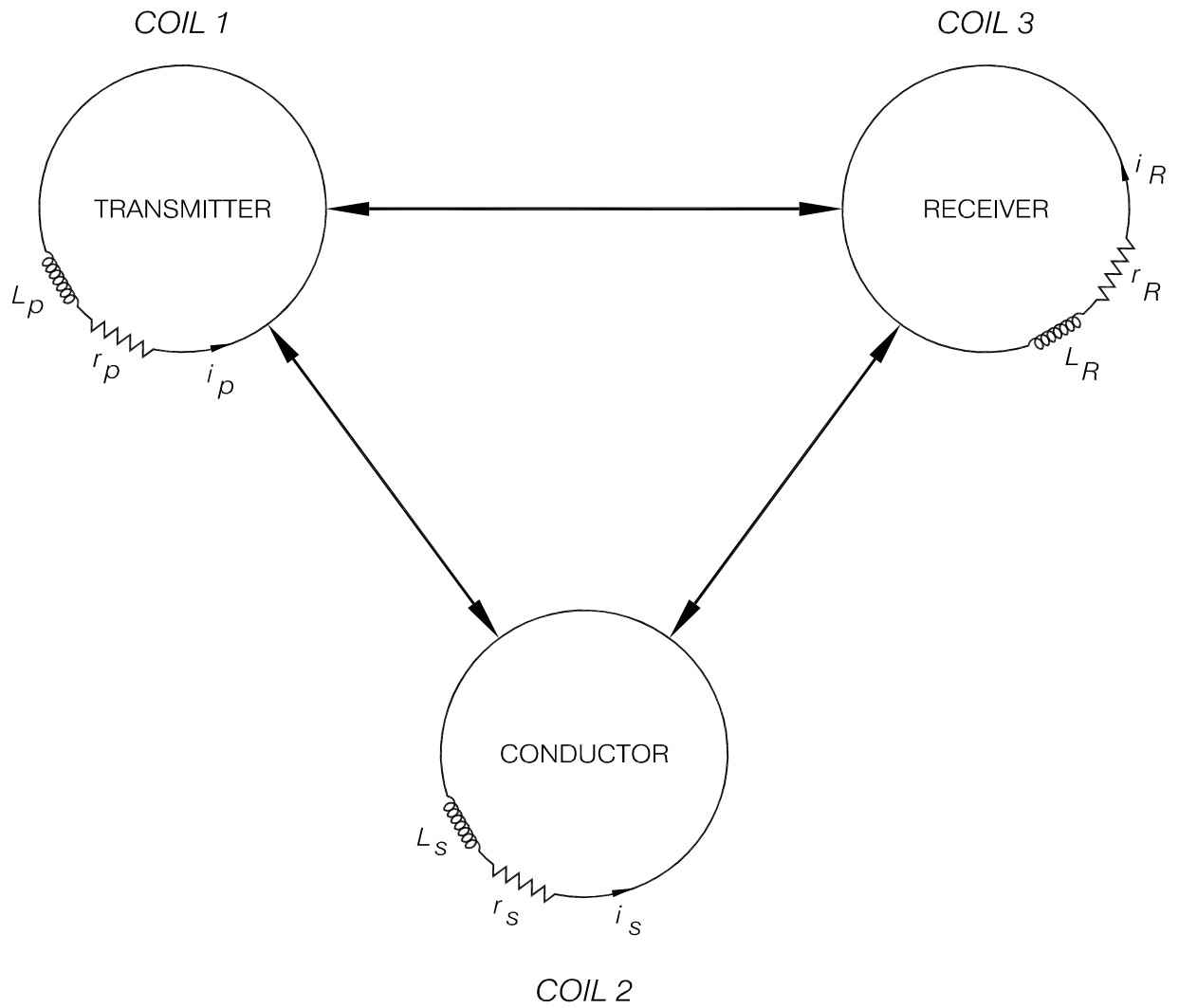
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CHECKED BY: DK	DATE: 26/09/2008	APPROVED BY: DK	DATE: 26/09/2008

CONTRACT No.: J3291 PLATE 1

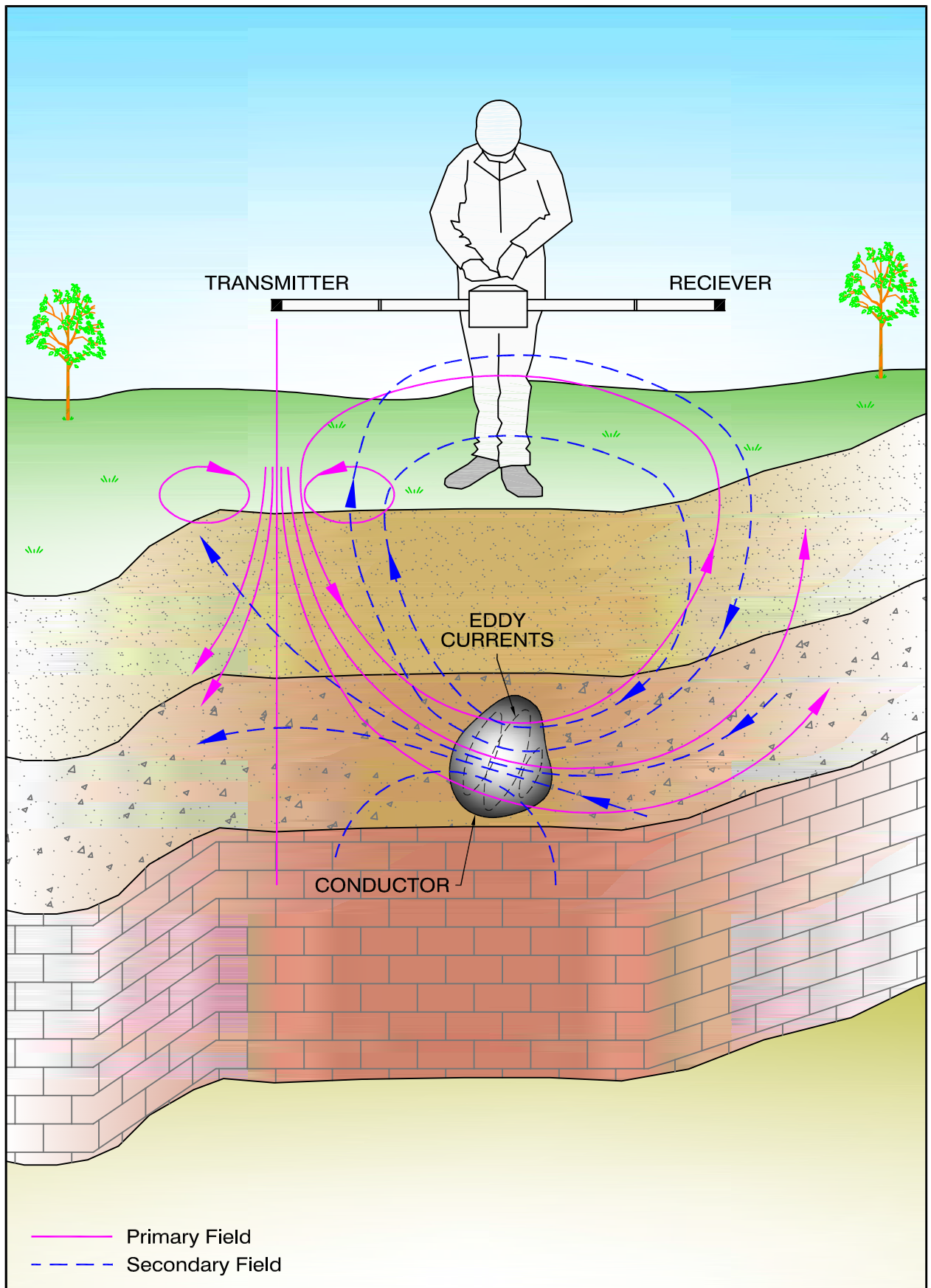
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PLOTTED DRAWING SIZE: A3 (420 x 297)

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Fugro House, Hithercroft Road
Wallingford, Oxfordshire, OX10 9RB
Tel: +44 (0)870 4021 400 Fax: +44 (0)870 4021 492
Email: info@fes.co.uk www.fes.co.uk

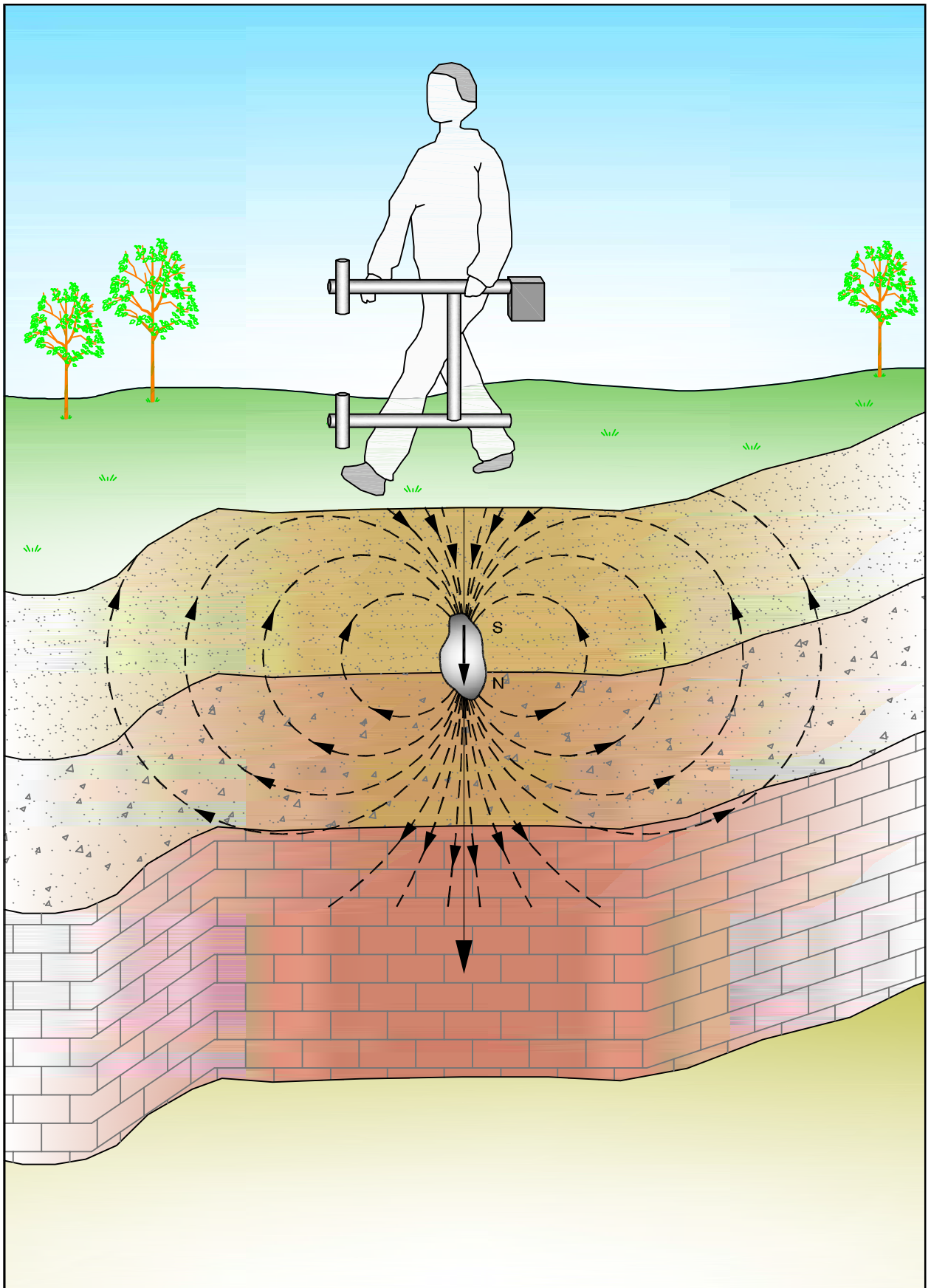




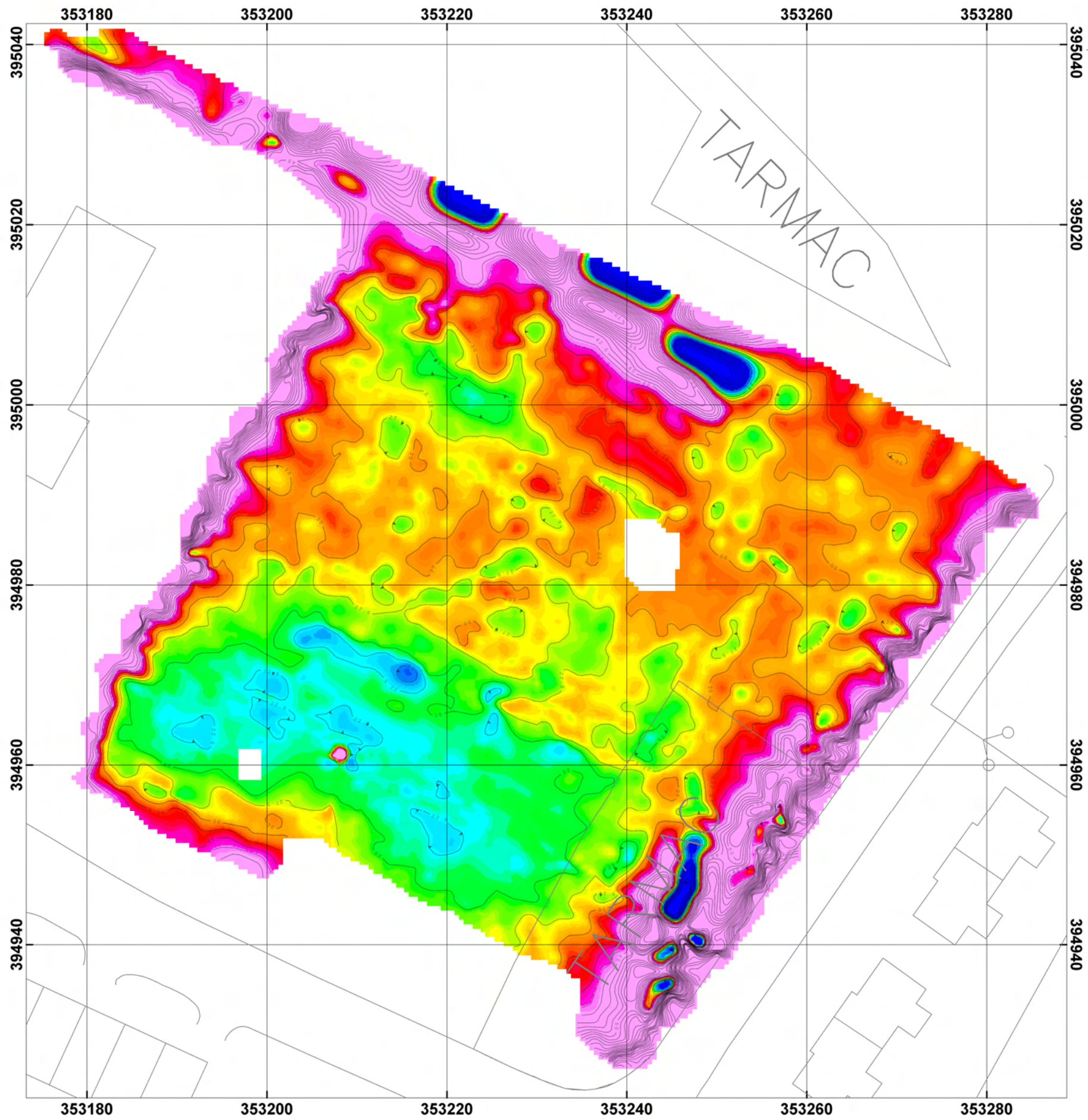
ELECTRIC CIRCUIT ANALOGY FOR ELECTROMAGNETIC SYSTEM



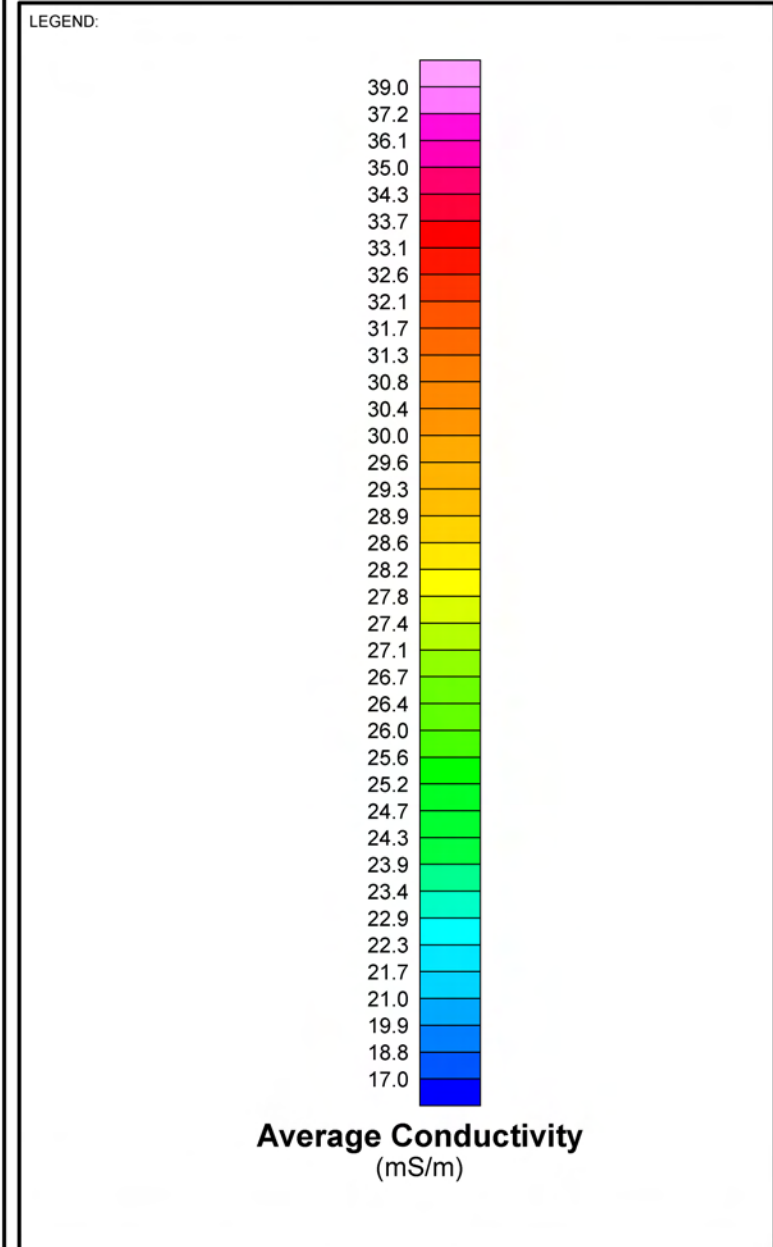
SCHEMATIC ARRANGEMENT OF THE EM-31 CONDUCTIVITY METER



SCHEMATIC ARRANGEMENT OF THE MAGNETIC GRADIOMETER



SCALE: Scale 1:500
 10 0 10 20 metres
 OSGB 1936 / British National Grid



NOTES:
 1. Basemap provided by the client.
 2. All coordinates relative to OSGB National Grid

CLIENT: **MOTT MACDONALD LTD**

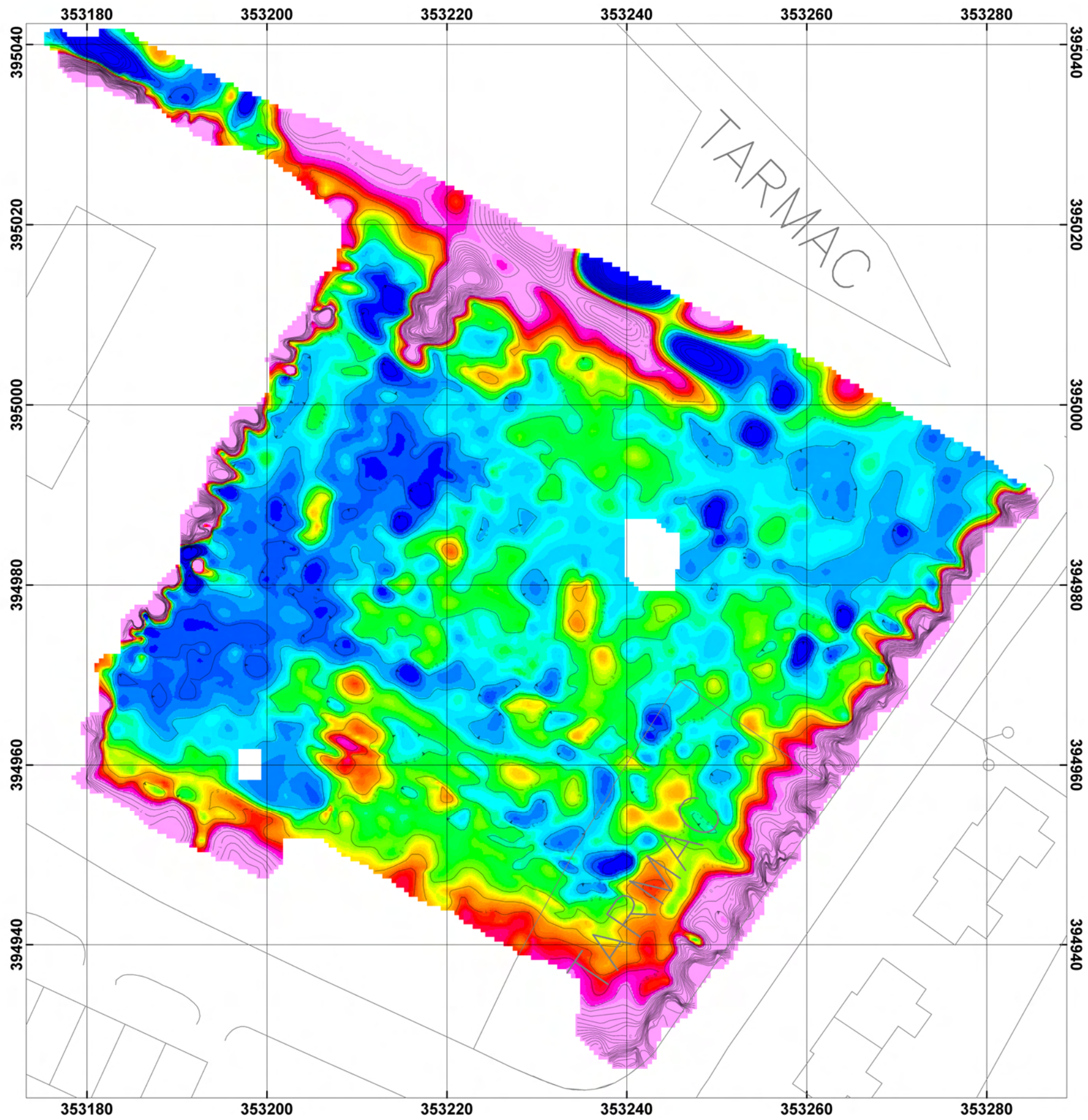
PROJECT: **GEOPHYSICAL SURVEY
 FORMER PARR HIGH SCHOOL**

TITLE: **CONTOUR PLOT OF
 ELECTROMAGNETIC CONDUCTIVITY**

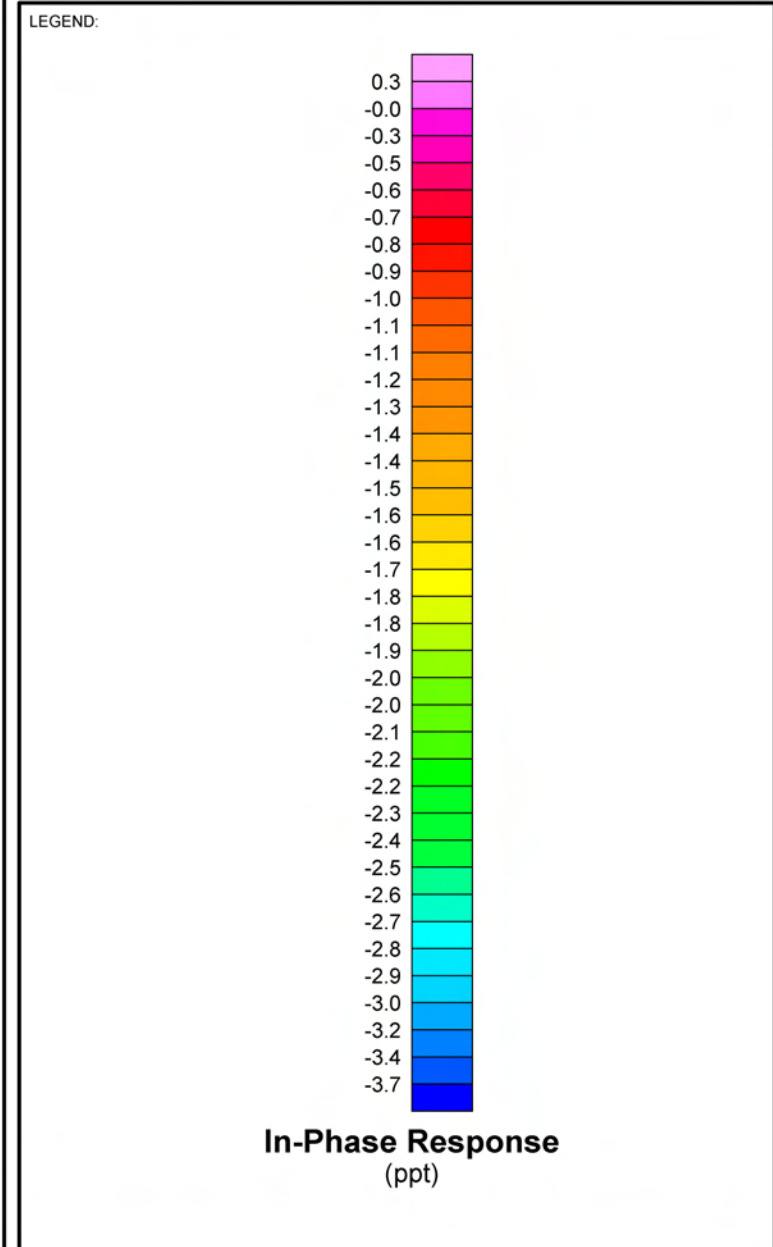
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CHECKED BY: DK	DATE: 26/09/2008	APPROVED BY: DK	DATE: 26/09/2008

CONTRACT No.: J3291 PLATE 3A
 FILE NAME: J3291_P03A
 PLOTTED DRAWING SIZE: A3 (420 x 297)

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 Email: info@fes.co.uk www.fes.co.uk



SCALE: Scale 1:500
metres
OSGB 1936 / British National Grid



NOTES:

1. Basemap provided by the client.
2. All coordinates relative to OSGB National Grid

CLIENT: MOTT MACDONALD LTD

PROJECT: GEOPHYSICAL SURVEY
FORMER PARR HIGH SCHOOL

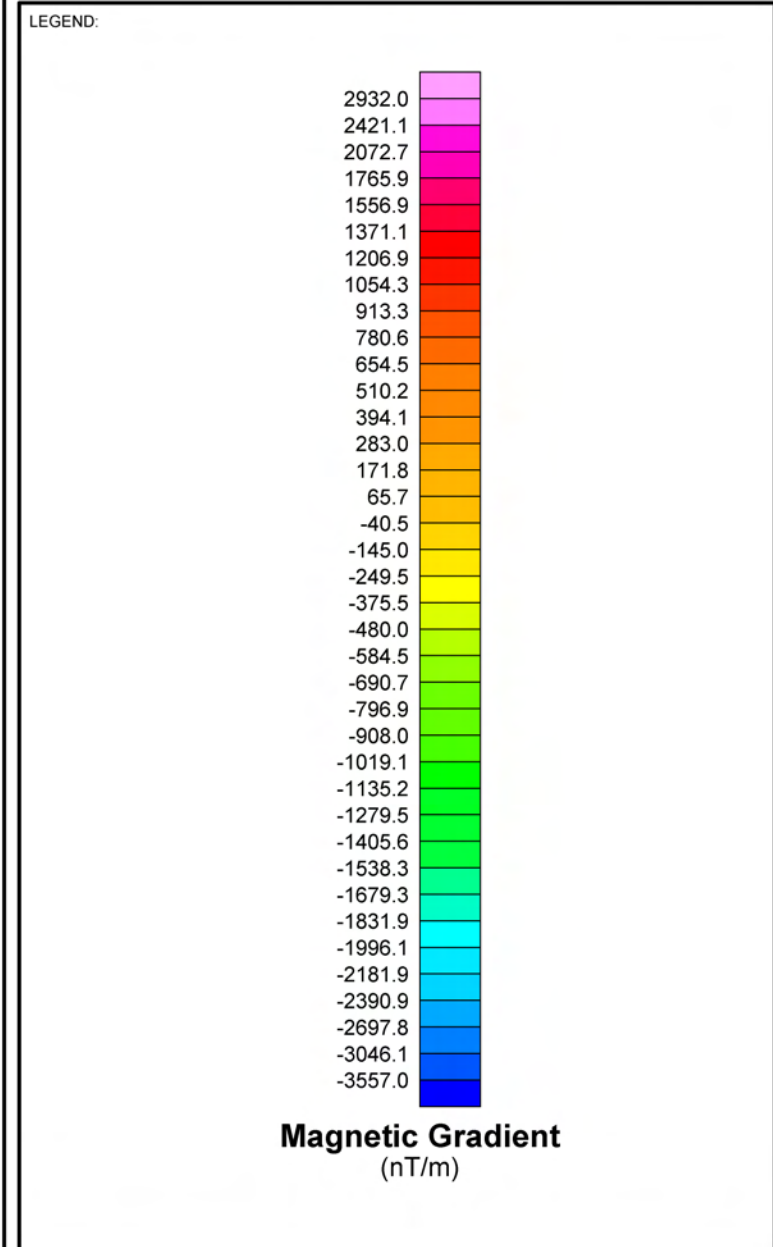
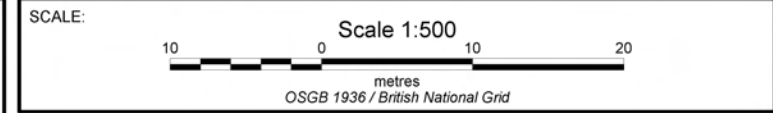
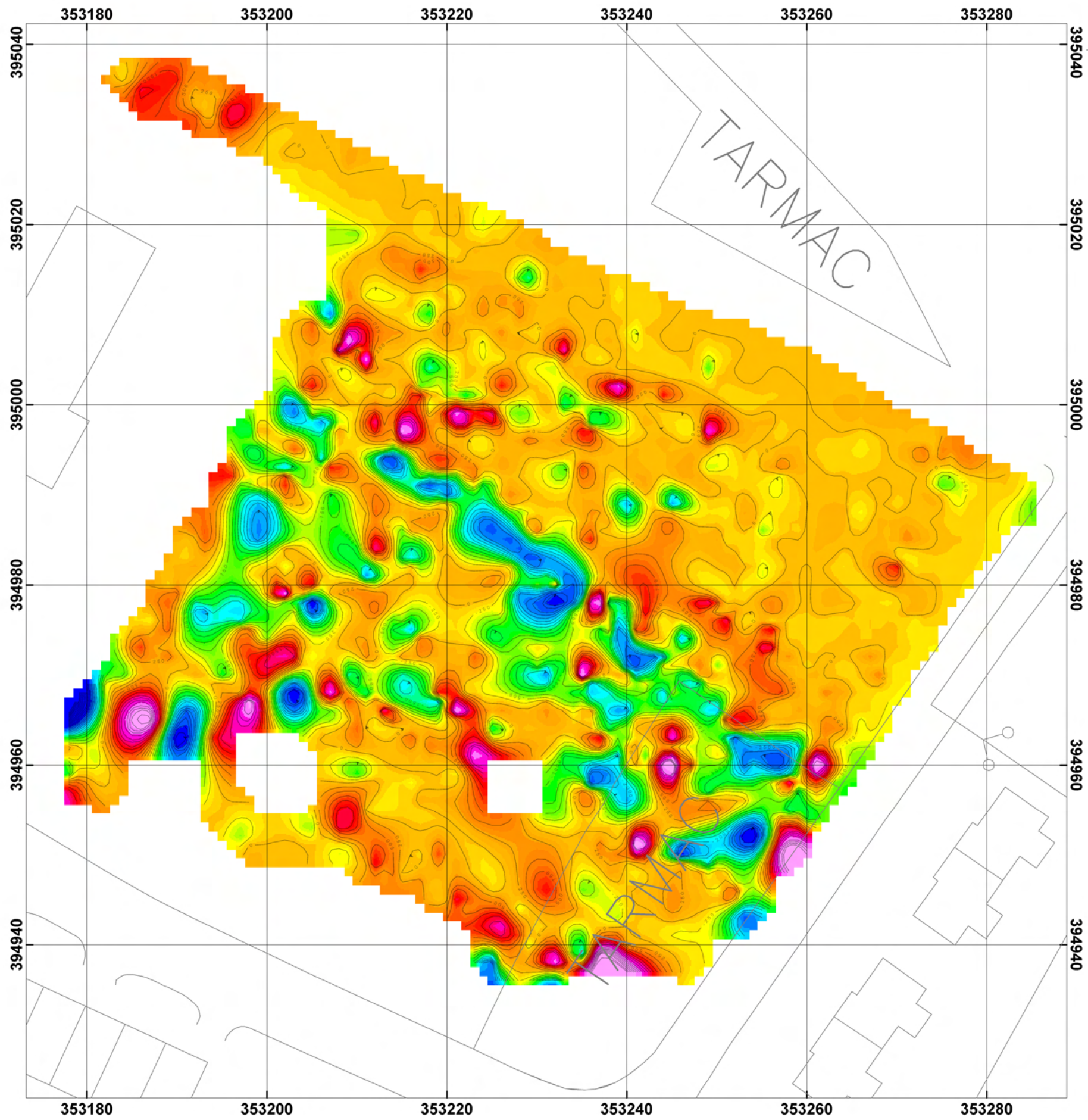
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ELECTROMAGNETIC INPHASE RESPONSE

INTERP. BY: WLC	DATE: 26/09/2008	DRAWN BY: WLC	DATE: 26/09/2008
CHECKED BY: DK	DATE: 26/09/2008	APPROVED BY: DK	DATE: 26/09/2008

CONTRACT No.: J3291 PLATE 3B

FILE NAME: J3291_P03B_AVINP
PLOTTED DRAWING SIZE: A3 (420 x 297)

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NOTES:

1. Basemap provided by the client.
2. All coordinates relative to OSGB National Grid

CLIENT: MOTT MACDONALD LTD

PROJECT: GEOPHYSICAL SURVEY
FORMER PARR HIGH SCHOOL

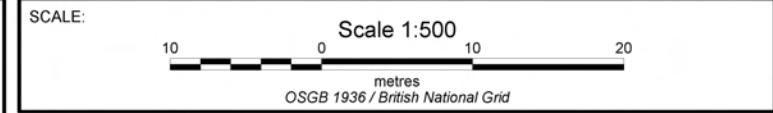
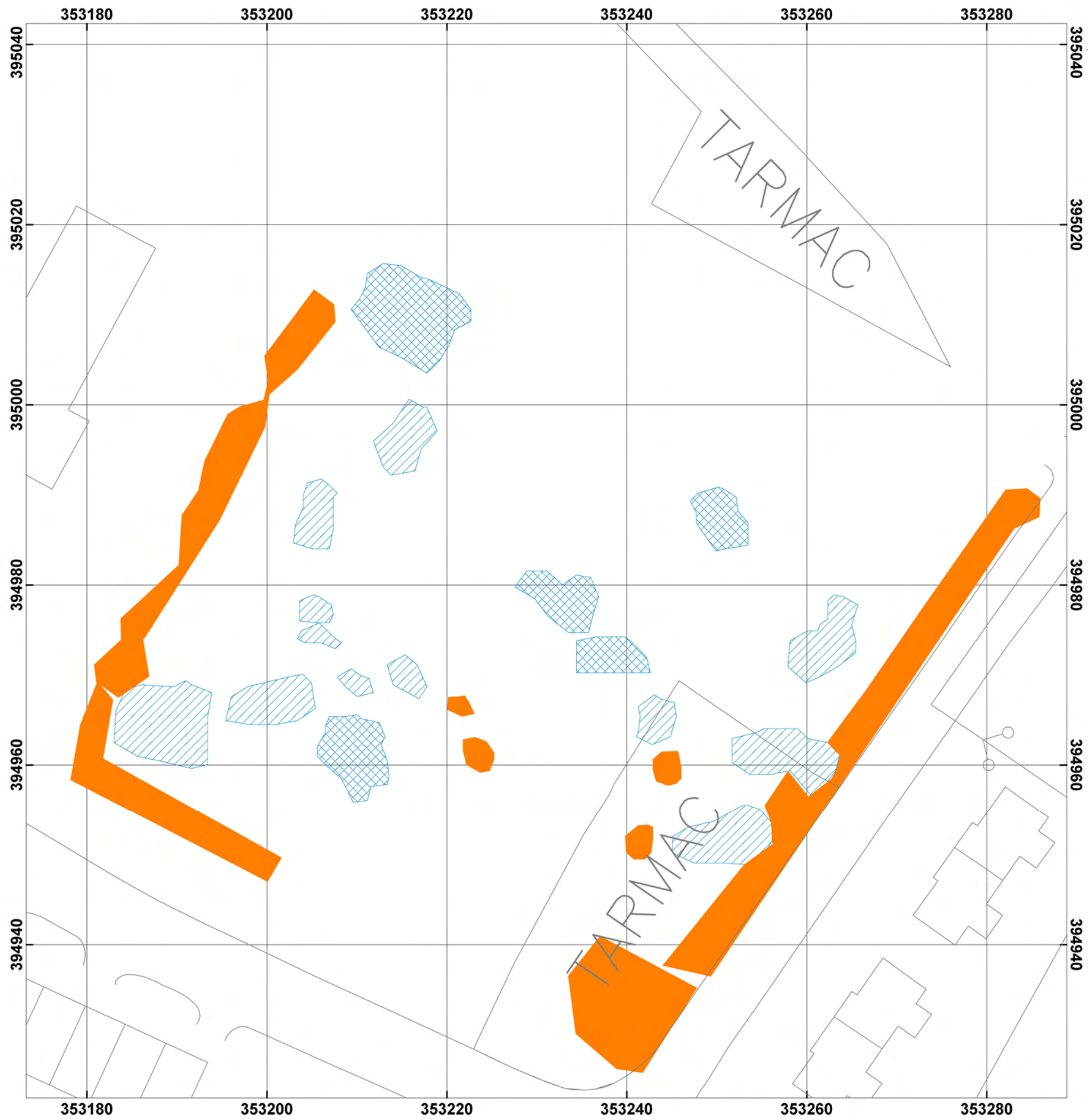
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MAGNETIC GRADIENT

INTERP. BY: WLC	DATE: 26/09/2008	DRAWN BY: WLC	DATE: 26/09/2008
CHECKED BY: DK	DATE: 26/09/2008	APPROVED BY: DK	DATE: 26/09/2008

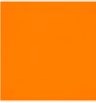


CONTRACT No.: J3291 PLATE 4

FILE NAME: J3291_P03B
PLOTTED DRAWING SIZE: A3 (420 x 297)

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Email: info@fes.co.uk www.fes.co.uk



LEGEND:

-  Cultural Noise
-  Anomaly Type 1 (possible mineshaft)
-  Anomaly Type 2 (possible mineshaft - less certain)

NOTES:

1. Reproduced from file 'Parr High-Library Site Plan.dwg' provided by the client.
2. All coordinates relative to OSGB 1936 British National Grid

CLIENT: MOTT MACDONALD LTD

PROJECT: GEOPHYSICAL SURVEY
FORMER PARR HIGH SCHOOL


TITLE: FINAL ANOMALY PLAN

INTERP. BY: WLC	DATE: 26/09/2008	DRAWN BY: WLC	DATE: 26/09/2008
CHECKED BY: DK	DATE: 26/09/2008	APPROVED BY: DK	DATE: 26/09/2008

CONTRACT No.: J3291 PLATE 5

FILE NAME: J3291_P05_FINAL_ANOM
 PLOTTED DRAWING SIZE: A3 (420 x 297)

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 Email: info@fes.co.uk www.fes.co.uk





APPENDIX A Service Constraints

APPENDIX A

SERVICE CONSTRAINTS

1. This report and the assessment carried out in connection with the report (together the "Services") were compiled and carried out by Fugro Aperio Limited ("FAPL") for Mott MacDonald (the "Client") in accordance with the terms of a contract between FAPL the client dated September 2008. The Services were performed by FAPL with the skill and care ordinarily exercised by a reasonable geotechnical specialist at the time the Services were performed. Further, and in particular, the Services were performed by FAPL taking into account the limits of the scope of works required by the Client, the time scale involved and the resources, including financial and manpower resources, agreed between FAPL and the Client.
2. Other than that expressly contained in paragraph 1 above, FAPL provides no other representation or warranty whether express or implied, in relation to the Services.
3. The Services were performed by FAPL exclusively for the purposes of the Client. FAPL is not aware of any interest of or reliance by any party other than the Client in or on the Services. Unless expressly provided in writing, FAPL does not authorise, consent or condone any party other than the Client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and FAPL disclaims any liability to such party. Any such party would be well advised to seek independent advice from a competent geotechnical specialist and / or lawyer.
4. It is FAPL's understanding that this report is to be used for the purpose described in Section 1 - "Introduction" of this report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, and/or should the Client's proposed development or use of the site change (including in particular any change in any design and/or specification relating to the proposed use or development of the site), this report may no longer be valid or appropriate and any further use of or reliance upon the report in those circumstances by the Client without FAPL's review and advice shall be at the Client's sole and own risk. Should FAPL be requested, and FAPL agree, to review the report after the date hereof, FAPL shall be entitled to additional payment at the then existing rates or such other terms as may be agreed between FAPL and the Client.
5. The passage of time may result in changes (whether man-made or otherwise) in site conditions and changes in regulatory or other legal provisions, technology, methods of analysis, or economic conditions which could render the report inaccurate or unreliable. The information, recommendations and conclusions contained in this report should not be

relied upon if any such changes have taken place or after a period of 2 years from the date of this report or such other period as maybe expressly stated in the report, without the written agreement of FAPL. In the absence of such written agreement of FAPL, reliance on the report after any such changes have occurred or after the period of 2 years has expired shall be at the Client's own and sole risk. Should FAPL agree to review the report after the period of 2 years has expired, FAPL shall be entitled to additional payment at the then existing rates or such other terms as may be agreed between FAPL and the Client.

6. The observations, recommendations and conclusions in this report are based solely upon the Services, which were provided pursuant to the contract between the Client and FAPL. FAPL has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the Client and FAPL. FAPL is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services.
7. Where the Services have involved FAPL's interpretation and/or other use of any information (including documentation or materials, analysis, recommendations and conclusions) provided by third parties (including independent testing and/or information services or laboratories) or the Client and upon which FAPL was reasonably entitled to rely or involved FAPL's observations of existing physical conditions of any site involved in the Services, then the Services clearly are limited by the accuracy of such information and the observations which were reasonably possible of the said site. Unless otherwise stated, FAPL was not authorised and did not attempt to independently verify the accuracy or completeness of such information, received from the Client or third parties during the performance of the Services. FAPL is not liable for any inaccuracies (including any incompleteness) in the said information, the discovery of which inaccuracies required the doing of any act including the gathering of any information which it was not reasonably possible for FAPL to do including the doing of any independent investigation of the information provided to FAPL save as otherwise provided in the terms of the contract between the Client and FAPL.
8. The soil and ground conditions information provided in the Services are based solely on evaluations of soil and ground condition samples and in-situ tests at determined sample test locations and elevations. That information cannot be extrapolated to any area or elevation outside those locations and elevations unless specifically so stated in the report. In the light of the information available to FAPL, the soil and ground conditions information are considered appropriate for use in relation to the geotechnical design and installation aspects of the structures addressed in the report, but they may not be appropriate for the design of other structures.


ADDENDUM Photographs



TPMG01



TPMG02


		Input by IU	Date 29/09/08	Checked by BC	Date 21/11/08		
		ST HELENS BSF				Contract No CON083065	



TPMG02 SPOIL



TPMG03


		Input by IU	Date 29/09/08	Checked by BC	Date 21/11/08		
		ST HELENS BSF				Contract No CON083065	



TPMG03 SPOIL



TPMG04


		Input by IU	Date 29/09/08	Checked by BC	Date 21/11/08		
		ST HELENS BSF				Contract No CON083065	



TPMG04 SPOIL



TPMG05


		Input by IU	Date 29/09/08	Checked by BC	Date 21/11/08		
		ST HELENS BSF				Contract No CON083065	



TPMG05 SPOIL



TPMG06


		Input by IU	Date 29/09/08	Checked by BC	Date 21/11/08		
		ST HELENS BSF				Contract No CON083065	



TPMG06 SPOIL



TPMG07


		Input by IU	Date 29/09/08	Checked by BC	Date 21/11/08		
		ST HELENS BSF				Contract No CON083065	



TPMG07 SPOIL



TPMG08


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		ST HELENS BSF				Contract No CON083065	



TPMG08 SPOIL



TPMG09


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TPMG09 SPOIL




TPMG10

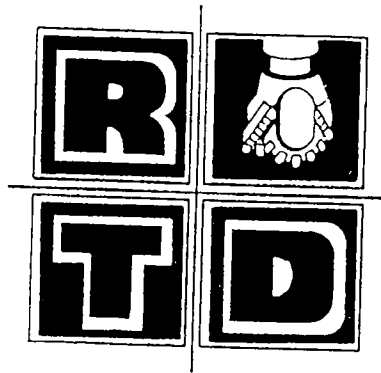
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TPMG10 SPOIL

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	ST HELENS BSF					Contract No CON083065	

Appendix H. 2003 RTD Site Investigation Report



SITE INVESTIGATION

REPORT

CLIENT
ST. HELENS METROPOLITAN BOROUGH COUNCIL
ENVIRONMENTAL PROTECTION DEPARTMENT
WESLEY HOUSE, CORPORATION STREET
ST. HELENS, MERSEYSIDE. WA10 1HF.

INTERPRETIVE REPORT
ON GROUND INVESTIGATIONS
AT SITE OF FORMER
PARR HIGH SCHOOL
ST. HELENS

RTD Ref :- 30/03

March-April 2003

CONTENTS

Interpretive Report on Ground Investigations.

Trial-pit Excavation Records & Trail-pit Photographs

Shell and Auger Borehole Record Sheets.

Open Hole Rotary Borehole Record Sheets

Mine Shaft Search Grid & Corresponding Borehole Record Sheets

FIG.1. Site Location Plan.

FIG.2. Location of Investigation Points.

FIG.3. Geological Survey Map.

FIG.4. Vertical Section of Strata to Geological Survey Map.

FIG.5. Local Enlargement of Geological Survey Map.

FIG.6. Recorded Shaft Locations from The Coal Authority.

FIG.7. Longitudinal Section Through Shell and Auger Boreholes.

Appendix 'A'. Method Statement for Borehole investigations of Superficial Deposits.

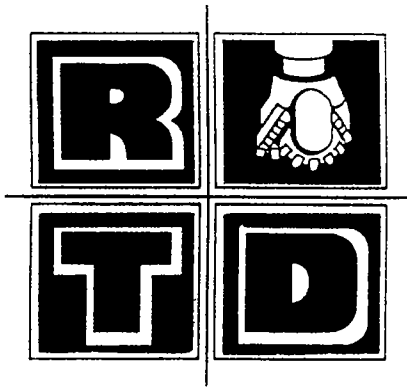
Appendix 'B' Results of Laboratory Testing to BS.1377.

Appendix 'C' Results of Chemical Analysis For Contamination.

Appendix 'D' Mining Report from The Coal Authority.

Appendix 'E' Gas Well Monitoring Results

Appendix 'F' Topographical Site Survey



ROTARY TEST DRILLING LTD

Marshes Farm Coach Road Off Wigan Road Hart Common Westhoughton Bolton BL5 2BT TEL: 01942 810348 FAX: 01942 840543

GEOTECHNICAL, MINING AND ENVIRONMENTAL INVESTIGATIONS. LABORATORY TESTING AND ANALYSIS.
DRILLING AND GROUTING, GROUND STABILISATION. PILE DESIGN AND CONSTRUCTION.
FACTUAL, INTERPRETIVE, COMPREHENSIVE AND DESK TOP STUDY REPORTS.

INTERPRETIVE REPORT ON GROUND INVESTIGATIONS AT SITE OF FORMER PARR HIGH SCHOOL, ST. HELENS.

Introduction

At the request of the Building Structures Section of St. Helens Environmental Protection Department, ground investigations have been carried out at the above site for which details, findings and observations are reported as follows.

The site is situated at Parr Common approximately 2km ESE of St. Helens town-centre, and in particular lies at the junction of Chancery Lane A572 and Fleet Lane, at national grid reference SJ.5323.9506. See also Site Location Plan FIG.1.

The site has been occupied for many years by Parr High School but which has recently been demolished, and the site is now understood to be under consideration for re-development.

Details of Investigation

All field-work has been carried out within the operational and safety guidelines of the British Drilling Association, of which this Company is an active Member, and in accordance with the procedures and recommendations contained within BS.5930 'The Civil Engineering Code of Practice for Site Investigations', and the DOE/CIRIA Special Publication 32 entitled 'Construction Over Abandoned Mine Workings'.

In particular the investigations carried out at the site in question consisted of 10No mechanically excavated trial-pits to 4.00 metres, 8No Shell and auger boreholes to 10 metres, but with five extended by open-hole rotary drilling to depths of 35 metres below ground level.

Detailed record sheets for all trial-pits and boreholes are enclosed immediately following this report.

Soil Profile and Ground Conditions

Extracts of the 2nd Edition (circa 1930's) Geological Survey Map are enclosed as FIG's 3 to 5 and show the site to lie in an area where superficial cover is predominantly boulder clay overlying bedrock generally at depths in excess of 10.00 metres.

However, the lower zones of the clay, contain zones of water bearing, very sandy/clayey sand with gravel and there are also zones of very sandy clay at the surface of the deposit

Never-the-less, a uniform horizon in the clay lies 2.00-2.50 meters below ground level and shear strength values of $CU=34-148 \text{ kN/m}^2$ indicate maximum safe net bearing capacities for spread foundations of

75 kN/m² for strip footings

100kN/m² for pad footings

Oedometer consolidation tests on four samples of the clay recorded low compressibility, while tests for Atterberg consistency limits recorded low plasticity and reference to the NHBC and BRE correlations confirm 'low' shrinkage potential.

Sulphate and pH Conditions

Chemical tests have been carried out to determine the sulphate (SO₄) concentrations and pH conditions in the made ground, natural clay and ground water for which detailed results are enclosed in Appendix 'B' and 'C' and summarized as follows.

Made ground	pH = 5.80 – 7.4 SO₄ = 0.02 – 0.04 g/l
Natural clay	pH = 7.4 – 8.4 SO₄ = 0.02 – 0.09 g/l
Ground water	pH = 5.7 – 8.0 SO₄ = 0.098 – 3.22 g/l

With only one exception all results show near neutral pH conditions and low sulphate concentrations corresponding to Class 1 Conditions as defined in Building Research Establishment Digest 363 entitled "Sulphate and Acid Resistance of Concrete in the Ground".

Geology and Mining

Extracts of the 2nd Edition (circa 1930's) Geological Survey map are enclosed as FIG's 3 to 5 and show the site to lie in an area where superficial cover is predominantly boulder clay overlying bedrock generally at depths in excess of 10.00 metres.

However, The Geological Survey Map also shows the site to have been occupied by Parr Stocks Colliery with one mine-shaft within the site, but the Mining Report from the Coal Authority shows two mine-shafts within the site and although a grid search of boreholes at each recorded location have failed to locate them.

The surface deposits on site do contain colliery waste, it is not unusual for early man-operated collieries to have more than one shaft, and this situation should be taken seriously and further investigated.

Further-more the rotary boreholes R2, R3 and R4 sunk to depths of 35 metres below ground level recorded workable thicknesses of coal, and although the coal was intact it could be in pillars of coal left to support the roof during pillar-and-stall workings.

The criteria for accepted cover to pillar and stall workings are 10 times the seam/workings thickness of rock cover, or 30 metres of total cover, with which the conditions in borehole R4 conform, in borehole R2 are border-line, and in borehole R3 are inadequate.

Further investigations are therefore also considered necessary in this respect.

Contamination Analysis

Contamination analysis has been carried out on both the ground water and the made ground/surface deposits overlying the site and extending to an average depth of 1.50 metres but upto 3.40 metres in BH.2. which is situated on locally elevated ground.

The made ground is predominantly a mixture of clay and ashes and occasional soil and stones, but there is also a noticeable presence of colliery waste in the area of BH's 4 and 7, and some of the trial-pits.

The Contamination analysis has been carried out on eight soil samples and seven ground water samples, for which detailed results are enclosed in Appendix 'C' and compared with the DOE/ICRCL 59/93, and Environment Agency Guidelines for Disposal, in the following Tables 1 and 2.

The range of contamination is fairly limited but does include a general/wide-spread presence of arsenic, with PAH and mineral oil, and occasional inclusions of metals and sulphate.

Overall the contamination is of limited extent but arsenic, PAH and mineral oil, are toxic and their potential side effects are such that the Health and Safety Executive Guidance Note entitled "Protection of Workers and the General Public During the Development of Contaminated Land", is applicable, and the following measures and general safety precautions should therefore also be adopted.

- (i) the creation of dust from the disturbance and/or excavation of the surface materials (which contains the arsenic, PAH and the mineral oil) should be avoided by water spraying. Spraying is recommended as opposed to 'hosing' to minimise the volume of water and avoid a run-off which could transfer the water and contamination elsewhere.
- (ii) ground workers should wear gloves which must be removed during meal periods, and not taken into canteens or site offices. Suitable working facilities should also be provided.
- (iii) all service installation contractors should be informed of these conditions.
- (iv) all garden and landscape areas within the proposed development should be surfaced with not less than 600mm of clean sub-base material and top-soil.

The nature of the contamination is also such that special consideration should be given in the selection or acquisition of a suitable site for disposal of surplus material.

Land-fill Gas

Four site visits to monitor land-fill gas in stand-pipes installed in BH's 1, 2, 6 and 8 recorded normal atmospheric oxygen levels throughout, but a presence of CO₂ at each location with levels of CO₂ = 0.2 –0.4% in BH's 1 and 2, but 0.60-2.80% in BH's 6 and 8.

Boreholes 6 and 8 both adjacent to Lansbury Avenue and it is recommended that monitoring be continued and investigations be carried out to determine the source of the gas.

Signed.

A handwritten signature in black ink, appearing to read 'T. H. Lloyd', with a horizontal line underneath the name.

T. H. Lloyd. C Eng. MICE

ROTARY TEST DRILLING

Marshes Farm, Coach Road, off Wigan Road,
Hart Common, West Houghton, Bolton BL5 2BT
Tel: 01942 - 810348 Fax: 01942 - 840543

Site Former Parr High School, St Helens

Job No.
30/03

Client St Helens MBC



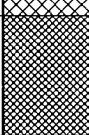



Trial Pit

Date
11/04/03

O.D. Level

TP1

Page 1 of 1

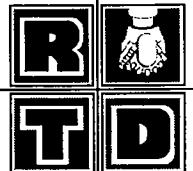
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								Type	Depth	
			G.L.	Grass covered topsoil (0.15)						
			0.15	Black and red ash clayey in parts (0.35)				J1	0.30	
			0.50	Colliery waste infill (grey clay with coal traces) (0.40)				J2	0.70	
			0.90	Firm light brown clay with occ pockets of brown sand, frequent damp grey fissures (1.50)				B3	1.20	V=66KPa
			2.40	As above stiff - very stiff (0.90)				B4	2.50	V=90KPa
			3.30	As above very stiff - hard (0.70)				B5	3.50	
			4.00	Base of Trial Pit						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

Sides of pit stable
Dry
V = Shear vane test result



ROTARY TEST DRILLING

Marshes Farm, Coach Road, off Wigan Road,
Hart Common, West Houghton, Bolton BL5 2BT
Tel: 01942 - 810348 Fax: 01942 - 840543

Site Former Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

Trial Pit
TP2
Page 1 of 1

Date
11/04/03

O.D. Level

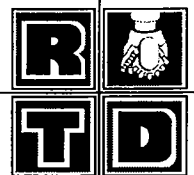
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample		'N' Value
								Type	Depth	
			G.L.	Grass covered topsoil (0.20)						
			0.20	Brown clay and colliery waste infill (0.40)				J1	0.30	
			0.60	Brown clay with occ pockets of colliery waste infill (0.40)						
			1.00	Colliery waste infill, grey and black mudstone, with coal and ash (0.90)				J2	1.00	
			1.90	Black ash with occ brick pieces (0.30)				J4	2.00	
			2.20	Dark grey soft silty clay (0.40)				J5	2.40	
			2.60	Firm to stiff light brown clay with occ pockets of of sand, damp silty fissures (1.40)				B6	3.00	V=69KPa
			4.00	Base of Trial Pit				B7	3.80	V=69KPa

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

Pit stable, slight run into pit from occ damp pockets
Dry
V = Shear vane test result



ROTARY TEST DRILLING

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Site Former Parr High School, St Helens

Job No.
30/03

Client St Helens

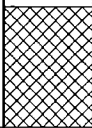






Trial Pit

Date
10/04/03

O.D. Level

TP3

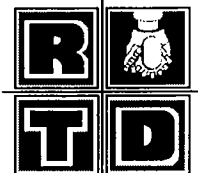
Page 1 of 1

Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample		'N' Value
								Type	Depth	
			G.L.	Black, red ash with pieces of tarmac (0.40)				J1	0.30	
			0.40	Stiff to very stiff light brown clay with occ pockets of brown sand (0.70)				J2	0.50	
								B3	0.70	V=110kPa
			1.10	Very stiff light brown clay with silty fissures (2.90)				B4	1.20	V=142kPa
								B5	2.50	V=97kPa
								B6	3.50	V=138kPa
			4.00	Base of Trial Pit						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks
Pit stable
Dry
V = Shear vane test result



ROTARY TEST DRILLING

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Job No.
30/03

Client St Helens MBC



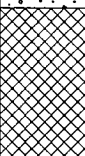



Trial Pit

Date
10/04/03

O.D. Level

TP4

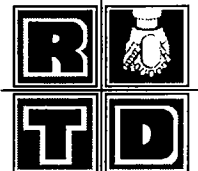
Page 1 of 1

Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Sample		'N' Value
								Type	Depth	
			G.L.	Brick broken concrete sandy soil (0.30)				J1	0.20	
			0.30	Limestone roadstone 25mm - 50mm (0.20)						
			0.50	Mudstone and coal (colliery waste) (0.50)				J2	0.60	
			1.00	Firm to stiff light brown clay with occ pockets of brown sand and rounded stones/cobbles (1.60)				B3	1.00	V=52KPa
								B4	2.00	V=38KPa
			2.60	stiff to very stiff light brown clay occ silty fissures (0.40)						
			3.00	Base of Trial Pit				B5	3.00	V=66KPa

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks
Pit stable
Dry
V = Shear vane test result



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Job No.
30/03

Client St Helens MBC

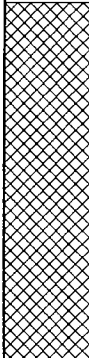

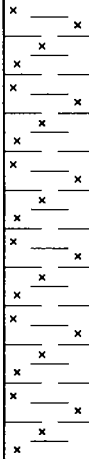
Trial Pit

Date
11/04/03

O.D. Level

TP5

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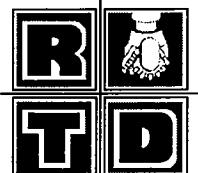
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
			G.L.	Brick, wire, Large concrete pieces, colliery waste (1.20)				J1	0.50	
									J2	1.00
			1.20	Firm light brown clay with occ pockets of brown sand (1.20)				B3	2.00	V64KPa
			2.40	Stiff to very stiff light brown clay occ damp silty fissures (1.60)				B4	3.50	V71KPa
			4.00	Base of Trial Pit						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

Sides of pit unstable GL - 1.20m
Dry
V = Shear vane test result



ROTARY TEST DRILLING

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Job No.
30/03

Client St Helens MBC

Trial Pit

Date
10/04/03

O.D. Level

TP6

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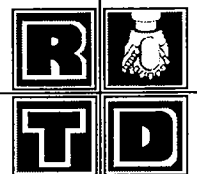
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample		'N' Value
								Type	Depth	
			G.L.	Tarmac(old play area) (0.10)						
			0.10	Ash and brick (0.20)				J1	0.25	
			0.30	Stiff dark brown sandy clay with occ sand pockets (0.40)				J2	0.50	V82KPa
			0.70	Light brown stiff clay with occ grey sand fissures (1.10)				B3 J4	1.00 1.00	V70KPa
			1.80	As above but firm to stiff (0.50)				B5	2.00	V44KPa
			2.30	As above very stiff - hard, silty in parts (0.80)				B6	3.00	V89KPa
			3.10	Base of Trial Pit						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks

Sides of pit stable
Dry
V = Shear vane test result



ROTARY TEST DRILLING

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Job No.
30/03

Client St Helens MBC

Trial Pit

Date
10/04/03

O.D. Level

TP7

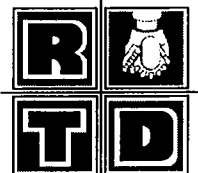
Page 1 of 1

Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
			G.L.	Grass covered topsoil (0.20)						
			0.20	Red ash with occ broken brick (0.20)				J1	0.30	
			0.40	Stiff light brown clay with occ pockets of brown sand (1.90)				J2 B3	1.10 1.10	V93KPa
			2.30	Very stiff to hard (as above) with silty fissures (1.70)				B4	2.50	V135KPa
			4.00	Base of Trial Pit				B5	3.50	V109KPa

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks
Pit stable
Dry
V = Shear vane test result



ROTARY TEST DRILLING

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Job No.
30/03

Client St Helens MBC


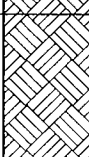


Trial Pit

Date
10/04/03

O.D. Level

TP8

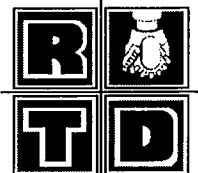
Page 1 of 1

Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample		'N' Value
								Type	Depth	
			G.L.	Grass covered topsoil (0.30)						
			0.30	Soily clay with roots (0.50)				J1	0.40	
			0.80	Stiff light brown clay with occ pockets of brown sand (1.45)				J2 B3	1.10 1.10	V85KPa
			2.25	Very stiff to hard light brown clay with occ damp fissures (1.75)				B4	2.00	V95KPa
			4.00	Base of Trial Pit				B5	3.50	V111KPa

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks
Pit stable
Dry
V = Shear vane test result



ROTARY TEST DRILLING

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Site Former Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

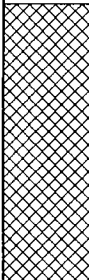
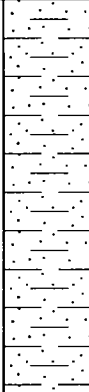
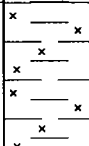
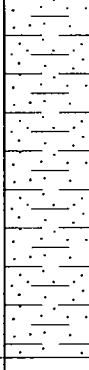
Trial Pit

Date
11/04/03

O.D. Level

TP9

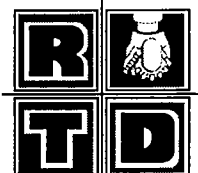
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Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Sample		'N' Value
								Type	Depth	
			G.L.	Brick ash concrete fill (0.95)				J1	0.50	
			0.95	Firm to stiff light brown clay with occ pockets of brown sand (1.35)				J2	1.00	
			2.30	Soft to firm very silty clay (0.50)				B3	1.30	V40KPa
			2.80	Very stiff light brown clay with occ pockets of brown sand (1.20)				B4	2.50	V26KPa
			4.00	Base of Trial Pit				B5	3.50	V98KPa

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks
Pit stable
Dry
V = Shear vane test result



ROTARY TEST DRILLING

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Site Former Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

Trial Pit
TP10

Date
11/04/03

O.D. Level

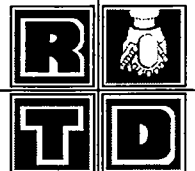
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Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample		'N' Value
								Type	Depth	
			G.L.	Grass covered topsoil (0.20)						
			0.20	Black soily ash (0.60)				J1	0.50	
			0.80	Soft brown clay (1.10)				J2	0.80	
								B3	1.00	V20KPa
			1.90	Light brown firm - stiff clay with pockets of silty sand (0.40)				B4	2.00	V71KPa
			2.30	Stiff light brown clay (0.60)						
			2.90	Very stiff light brown clay (1.10)				B5	3.50	V101KPa
			4.00	Base of Trial Pit						

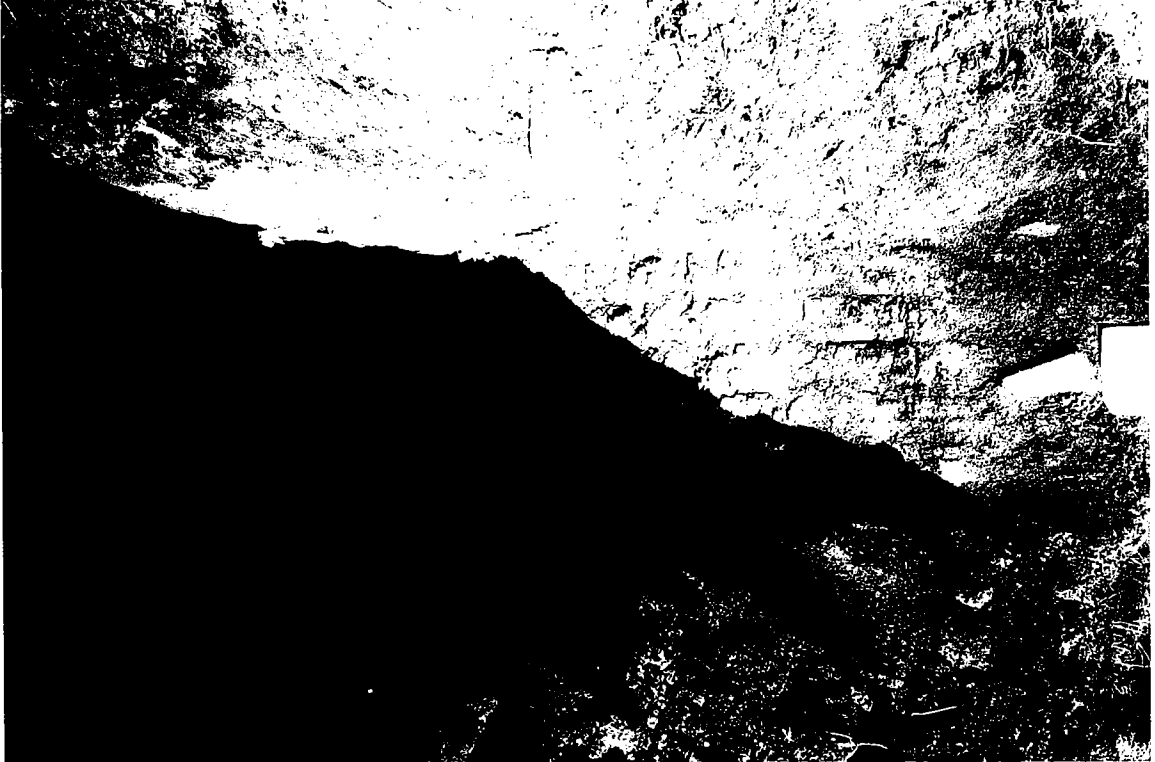
Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks
Pit stable
Dry
V = Shear vane test result



Trial-Pit No 1



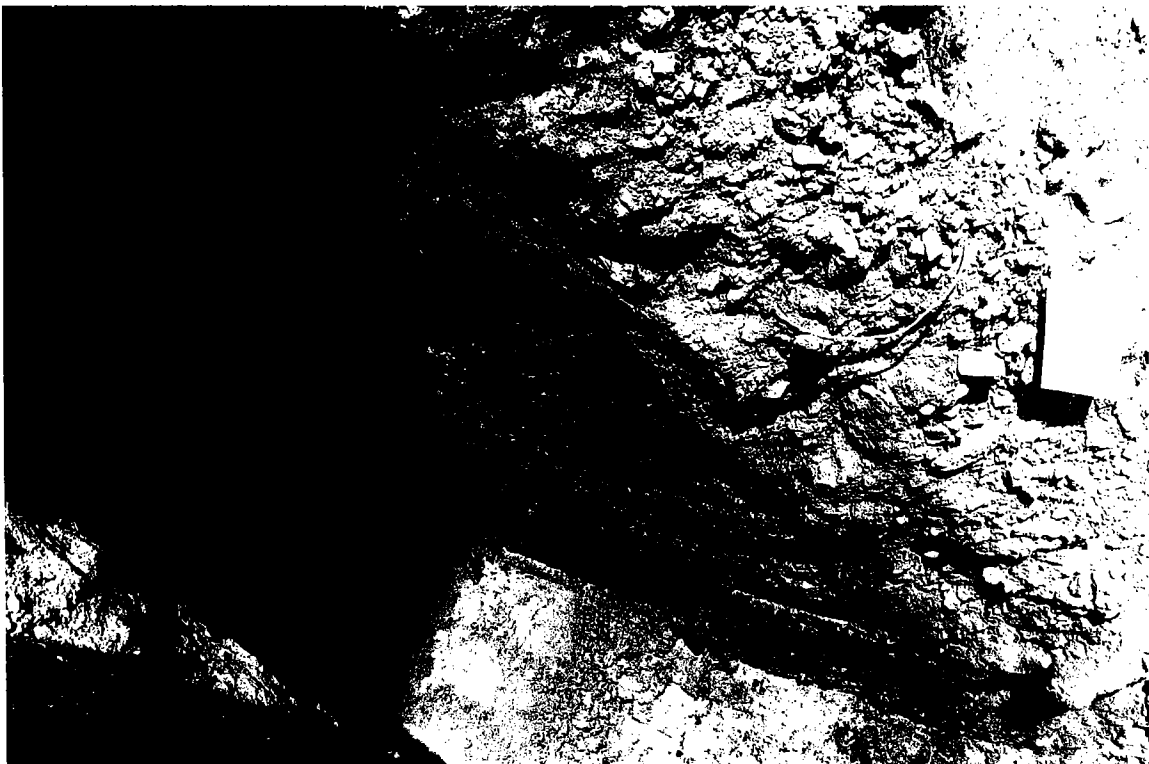
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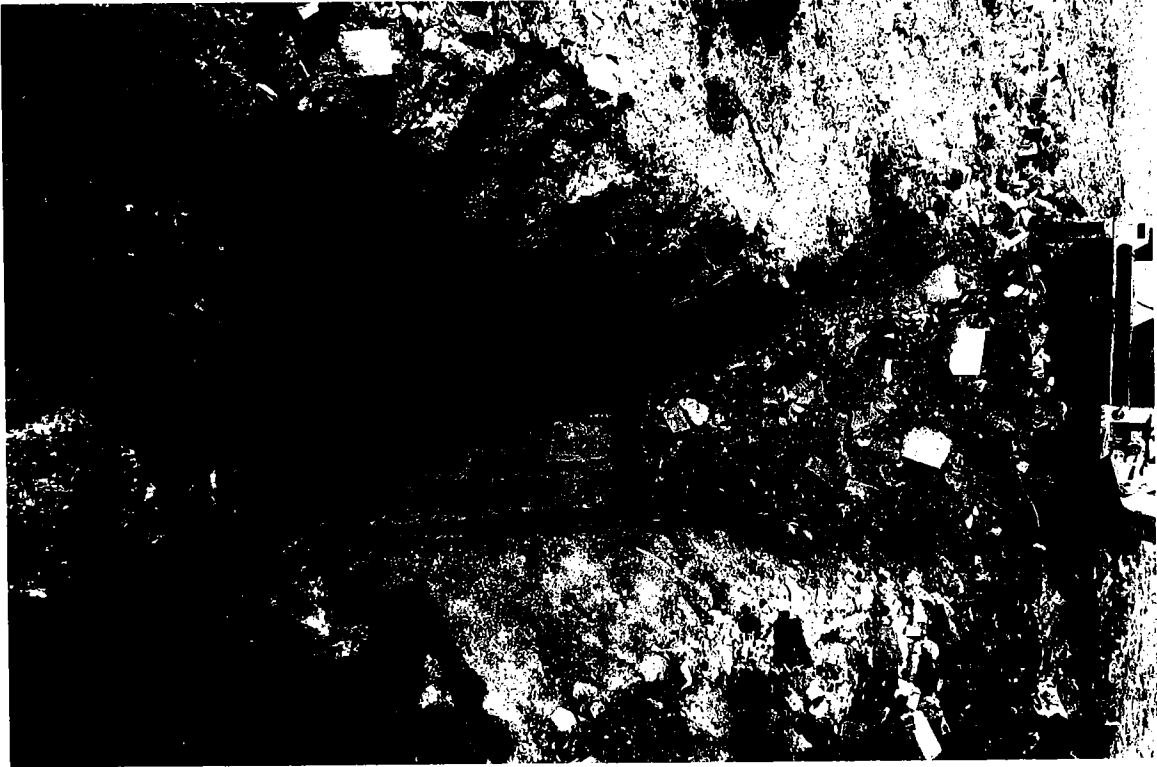
Trial-Pit No 3



Trial-Pit No 4



Trial-Pit No 5



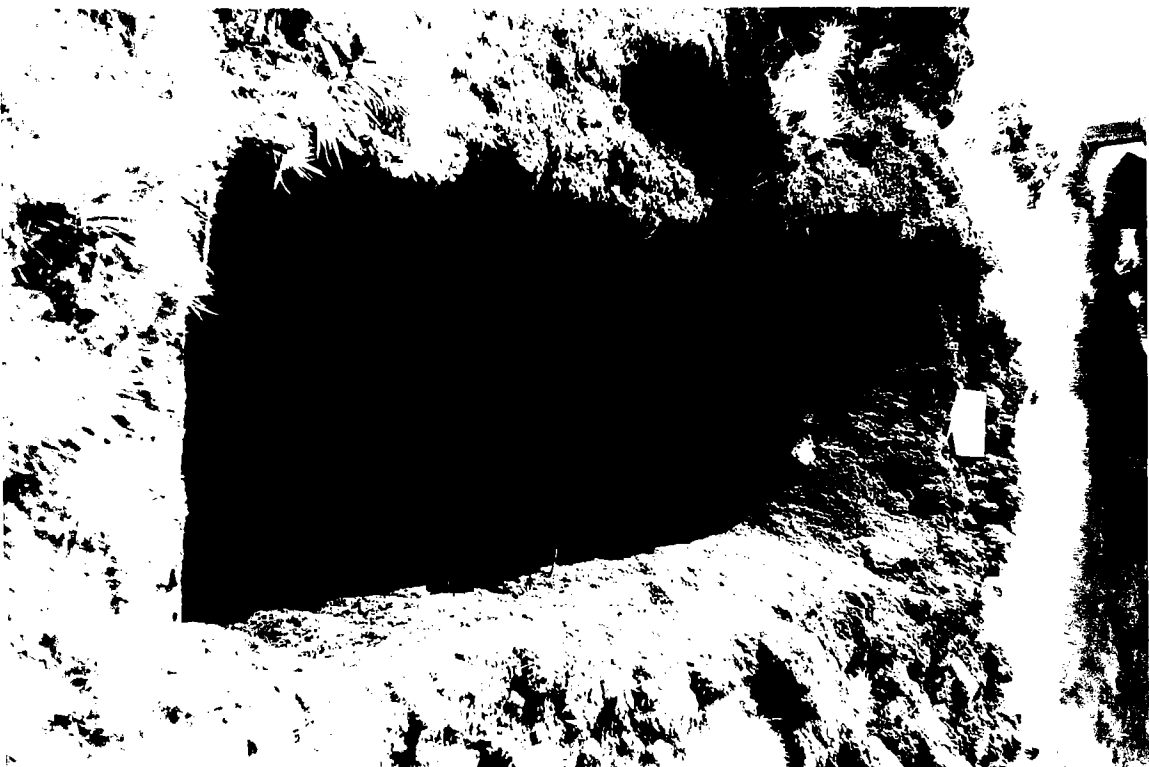
Trial-Pit No 6



Trial-Pit No 9



Trial-Pit No 10



ROTARY TEST DRILLING

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Site Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

Borehole

Date
16/04/03

O.D. Level

1

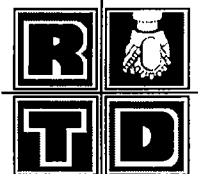
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Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample		'N' Value
								Type	Depth	
			G.L.	Tarmac (0.10)						
			0.10	Ash and tarmac fill (0.20)						
			0.30	Soft brick ash and clay fill (1.30)				1B	0.60 - 0.80	
								2N	1.20 - 1.60	12
			1.60	Soft sandy clay and ash fill (0.80)				3B	1.60 - 2.00	
								4N	2.00 - 2.40	8
			2.40	Firm brown mottled clay (1.10)				5B	2.40 - 2.70	
								6U	3.00 - 3.40	17
			3.50	Stiff brown sandy laminated clay (1.50)				7J	3.40	
								8U	4.30 - 4.70	20
			5.00	Very hard dry boulder clay (2.30)				9J	4.70	
								10B	5.00 - 5.40	
								11N	6.00 - 6.40	43
		7M	7.30	Very hard grey mudstone (0.30)				12B	7.30 - 7.50	
			7.60	Base of Borehole				13N	7.60 - 7.80	nr

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks
Hand excavate to clear services



ROTARY TEST DRILLING

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Site Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

Borehole

Date
16/04/03

O.D. Level

2

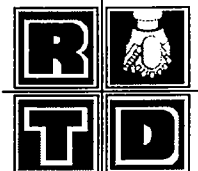
Page 1 of 2

Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
			G.L.	Topsoil (0.30)						
			0.30	Firm brown mottled clay (1.30)				1B	0.30 - 0.60	
								2U	1.00 - 1.40	7
			1.60	Soft black ash and clay fill (2.10)				3J 4B	1.40 1.60 - 1.90	
								5N	2.20 - 2.60	9
								6B	2.70 - 3.00	
								7N	3.00 - 3.40	nr
			3.70	Stiff brown boulder clay (3.30)				8B	3.70 - 4.00	
								9U	4.00 - 4.40	17
								10J	4.40	
								11U	5.50 - 5.90	21
								12J	5.90	
								13B	6.50 - 6.70	
			7.00	Stiff brown sandy laminated clay (0.40)				14N	7.00 - 7.40	29
			7.40	Compact fine sand with clay bands (1.60)				15W 16B	7.40 7.60 - 8.00	
								17N	8.00 - 8.40	31

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open
7.40	Medium	15	6.40					

Remarks
Hand excavate to clear services



ROTARY TEST DRILLING

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Site Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

Borehole

Date
16/04/03

O.D. Level

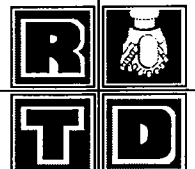
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Page 2 of 2

Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
			8.00	(Continued) Compact fine sand with clay bands (1.60)						
		9M	9.00	Hard brown boulder clay (1.00)				18B	9.00 - 9.50	
			10.00	Base of Borehole				19N	9.50 - 9.90	39

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks
Hand excavate to clear services



ROTARY TEST DRILLING

Marshes Farm, Coach Road, off Wigan Road,
Hart Common, West Houghton, Bolton BL5 2BT
Tel: 01942 - 810348 Fax: 01942 - 840543

Site Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

Borehole

Date
07/04/03

O.D. Level

3

Page 1 of 1

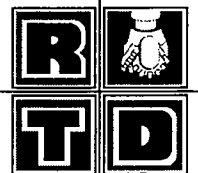
Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample		'N' Value
								Type	Depth	
			G.L.	Tarmac (0.03)						
			0.03	Ash fill (0.17)						
			0.20	Soft brown sandy clay (0.30)						
			0.50	Stiff brown boulder clay (3.50)				1B	0.50 - 0.90	
								2U	1.20 - 1.60	21
								3J	1.60	
								4U	2.00 - 2.40	
								5J	2.40	
								6N	3.00 - 3.40	29
	▲							7W	4.00	
			4.00	Dense fine sand traces of gravel (0.50)				8N	4.50 - 4.90	25
	Δ		4.50	Dense fine sand with clay bands (0.80)				9B	5.00 - 5.30	
								10N	5.30	ref
			5.30	Hard grey sandstone (0.10)						
			5.40	Base of Borehole						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open
4.00	Medium	15	3.00					

Remarks

Hand excavate to clear services
8.30 - 9.10am awaiting keys to site from client



ROTARY TEST DRILLING

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Site Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

Borehole

Date
08/04/03

O.D. Level

4

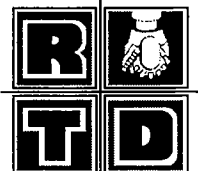
Page 1 of 2

Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample		'N' Value
								Type	Depth	
			G.L.	Tarmac (0.10)						
			0.10	Ash and stone fill (0.20)						
			0.30	Soft grey colliery waste (1.30)				1B	0.30 - 0.50	
								2N	1.00 - 1.40	14
			1.60	Soft brown boulder clay (0.40)				3B	1.60 - 2.00	
			2.00	Stiff brown boulder clay (5.00)				4U	2.00 - 2.40	12
								5J	2.40	
								6U	3.00 - 3.40	16
								7J	3.40	
								8U	4.50 - 4.90	21
								9J	4.90	
								10U	6.00 - 6.40	29
								11J	6.40	
			7.00	Loose fine brown sand with clay bands (0.60)				12W 13B	6.80 7.00 - 7.30	
			7.60	Clay bands and gravel (1.30)				14N	7.50 - 7.90	11

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open
6.80	Fast	5	6.00					

Remarks
Hand excavate to clear services



ROTARY TEST DRILLING

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Site Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

Borehole

Date
08/04/03

O.D. Level

4

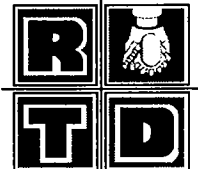
Page 2 of 2

Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample		'N' Value
								Type	Depth	
		10M	8.00	(Continued) Clay bands and gravel (1.30)						
			8.90	Stiff dark brown boulder clay (1.60)				15B	8.90 - 9.30	
			10.50	Base of Borehole				16N	9.50 - 9.90	50

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks
Hand excavate to clear services



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Site Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

Borehole

Date
11/04/03

O.D. Level

5

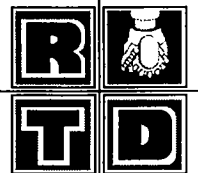
Page 1 of 2

Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample		'N' Value
								Type	Depth	
			G.L.	Topsoil (grassed area) (0.20)						
			0.20	Soft brown sandy mottled clay (0.30)				1B	0.50 - 0.70	
			0.50	Stiff brown sandy mottled clay (2.50)				2U	1.00 - 1.40	15
								3J	1.40	
								4U	2.00 - 2.40	15
								5J	2.40	
			3.00	Stiff brown boulder clay (3.50)				6U	3.00 - 3.40	18
								7J	3.40	
								8U	4.40 - 4.90	23
								9J	4.90	
	▲							10U	6.00 - 6.40	12
	Δ		6.50	Soft brown sandy boulder clay (0.50)				11J 12W	6.40 6.50	
			7.00	Hard brown boulder clay (3.00)				13N	7.50 - 7.90	19
								14B	8.00 - 8.40	

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open
6.50	Slow	10	6.00		7.50			

Remarks
Hand excavate to clear services



ROTARY TEST DRILLING

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Site Parr High School, St Helens

Job No.
30/03

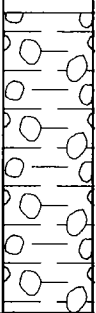
Client St Helens MBC

Borehole

Date
11/04/03

O.D. Level

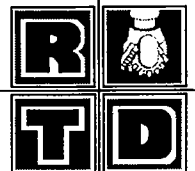
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Page 2 of 2

Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
		9M	8.00	(Continued) Hard brown boulder clay (3.00)				15N	9.00 - 9.40	47
			10.00	Base of Borehole						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks
Hand excavate to clear services



ROTARY TEST DRILLING

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Site Parr High School, St Helens

Job No.
30/03

Client St Helens MBC



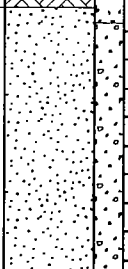
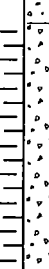
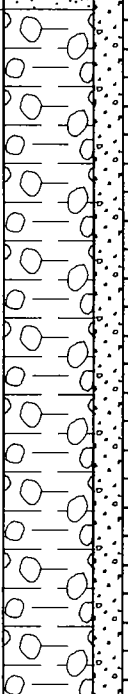
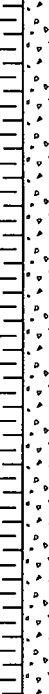
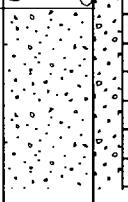

Borehole

Date
14/04/03

O.D. Level

6

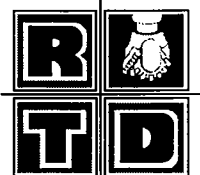
Page 1 of 2

Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample		'N' Value
								Type	Depth	
			G.L.	Sandy topsoil (0.40)						
			0.40	Soft light brown sand with clay bands (1.80)				1B	0.50 - 0.80	
								2N	1.00 - 1.40	12
								3B	1.70 - 2.00	
								4N	2.00 - 2.40	26
			2.20	Firm brown boulder clay (4.60)				5U	3.00 - 3.40	12
								6J	3.40	
								7U	4.50 - 4.90	18
								8J	4.90	
								9U	6.00 - 6.40	24
								10J	6.40	
			6.80	Soft clay bound sand and gravel (2.20)				11W	6.80	
								12N	7.50 - 7.90	22
								13B	8.00 - 8.40	

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open
6.80	Fast	10	5.20		9.00			

Remarks
Hand excavate to clear services



ROTARY TEST DRILLING

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Site Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

Borehole

Date
14/04/03

O.D. Level

6

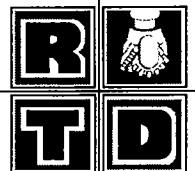
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Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
			8.00	(Continued) Soft clay bound sand and gravel (2.20)						
		9M	9.00	Hard brown sandy boulder clay (1.00)				14N	9.00 - 9.40	37
			10.00	Base of Borehole						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks
Hand excavate to clear services



ROTARY TEST DRILLING

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Site Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

Borehole

Date
09/04/03

O.D. Level

7

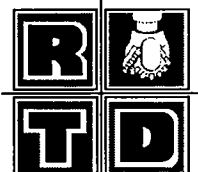
Page 1 of 2

Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample		'N' Value
								Type	Depth	
			G.L.	Topsoil (0.30)						
			0.30	Ash and clay fill (0.20)				1B	0.30 - 0.60	
			0.50	Ash, colliery waste and clay (1.20)				2N	1.00 - 1.40	9
			1.70	Soft light brown sandy boulder clay (0.30)				3U	2.00 - 2.40	
			2.00	Firm to stiff brown boulder clay (5.20)				4J	2.40	
								5U	3.00 - 3.40	20
								6J	3.40	
								7U	4.50 - 4.90	23
								8J	4.90	
								9U	6.00 - 6.40	27
								10J	6.40	
			7.20	Loose fine brown sand (0.30)				11W	7.20	
			7.50	Loose fine gravel (1.50)				12N	7.50 - 7.90	18
								13B	8.00 - 8.40	

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open
7.20	Fast	10	6.00					

Remarks
Hand excavate to clear services



ROTARY TEST DRILLING

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Site Parr High School, St Helens

Job No.
30/03

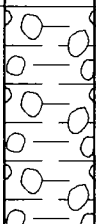
Client St Helens MBC

Borehole

Date
09/04/03

O.D. Level

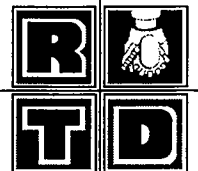
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Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
			8.00	(Continued) Loose fine gravel (1.50)						
			9.00	Stiff dark brown boulder clay (1.50)				14N	9.00 - 9.40	42
		10.5M	10.50	Base of Borehole						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks
Hand excavate to clear services



ROTARY TEST DRILLING

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Site Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

Borehole

Date
10/04/03

O.D. Level

8

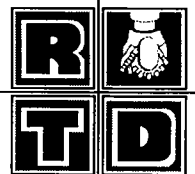
Page 1 of 2

Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Sample Type	Sample Depth	'N' Value
			G.L.	Tarmac (0.10)						
			0.10	Stone fill (0.10)						
			0.20	Soft ash fill (1.20)				1B	0.30 - 0.60	
								2N	1.00 - 1.40	11
			1.40	Soft brown sandy clay (0.30)				3B	1.40 - 1.70	
			1.70	Firm brown mottled clay (1.70)				4U	2.00 - 2.40	12
								5J	2.40	
								6U	3.00 - 3.40	20
			3.40	Soft brown sandy clay (1.70)				7J	3.40	
								8B	4.00 - 4.50	
								9U	4.50 - 4.90	nr
			5.10	Firm brown boulder clay (0.90)				10U	5.10 - 5.50	
								11J	5.50	
			6.00	Soft to firm brown sandy boulder clay (1.00)				12B	6.50 - 7.00	
			7.00	Soft brown sandy silty clay (2.80)				13N	7.00 - 7.40	29
								14B	8.00 - 8.50	

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open

Remarks
Hand excavate to clear services



ROTARY TEST DRILLING

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Site Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

Borehole

Date
10/04/03

O.D. Level

8

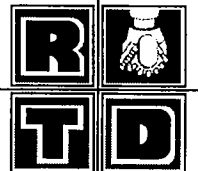
Page 2 of 2

Day	Water Level	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Sample		'N' Value
								Type	Depth	
	▲		8.00	(Continued) Soft brown sandy silty clay (2.80)						
	Δ							15W	8.50	
								16N	8.50 - 8.90	30
								17B	9.50 - 9.80	
		10M	9.80	Hard brown boulder clay (0.70)				18N	10.00-10.40	48
			10.50	Base of Borehole						

Symbols U - undisturbed sample J - jar sample B - bulk sample W - water sample
N - Standard Penetration Test Δ - Water entry ▲ - Water level

Ground Water Entry	Estimated Rate of Entry	Observation Time (mins)	Water Level Rising to	Depth of Casing at Entry	Depth of Casing to Seal	Date	Standing Water Level	Condition of Borehole Cased / Open
8.50	Slow	10	8.00					

Remarks
Hand excavate to clear services



ROTARY TEST DRILLING

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Site Former Parr High School

Job No.
30/03

Client St Helens

Borehole

Date
15/04/03 - 15/04/03

O.D. Level

R1

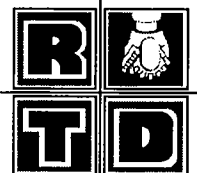
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Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.	Tarmac/ash infill (0.30)								
		0.30	Light grey clay infill (0.50)								
		0.80	Light brown very sandy clay with frequent gravel bands (7.40)								
	6M										
		8.20	Light grey siltstone (4.20)								
		12.40	Dark grey mudstone (0.50)								
		12.90	Light grey siltstone with occ dark grey mudstone bands (6.30)								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water Flush

Remarks
 Full Returns
 Hand excavate to clear services



ROTARY TEST DRILLING

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Site Former Parr High School

Job No.
30/03

Client St Helens

Borehole

Date
15/04/03 - 15/04/03

O.D. Level

R1

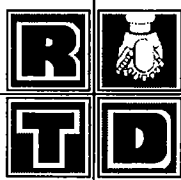
Page 2 of 3

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		16.00	(Continued) Light grey siltsone with occ dark grey mudtone bands (6.30)	xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx							
		19.20	Light grey mudstone with dark grey bands (15.80)								

- Symbols
- TCR - TOTAL ROCK RECOVERY
 - SCR - SOLID ROCK RECOVERY
 - RQD - ROCK QUALITY DESIGNATION

Drilling Methods
Water Flush

Remarks
Full Returns
Hand excavate to clear services



ROTARY TEST DRILLING

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Site Former Parr High School

Job No.
30/03

Client St Helens

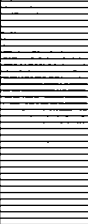
Borehole

Date
15/04/03 - 15/04/03

O.D. Level

R1

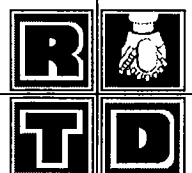
Page 3 of 3

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		32.00	(Continued) Light grey mudstone with dark grey bands (15.80)								
		35.00	Base of Drillhole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water Flush

Remarks
 Full Returns
 Hand excavate to clear services



ROTARY TEST DRILLING

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30/03

Client St Helens

Borehole

Date
16/04/03 - 16/04/03

O.D. Level

R2

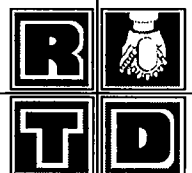
Page 1 of 3

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.	Tarmac/ash infill (0.40)								
		0.40	Black colliery waste (1.10)								
		1.50	Light brown sandy clay with frequent gravel bands (4.60)								
	6M	6.10	Light grey mudstone (0.80)								
		6.90	Coal seam (0.70)								
		7.60	Dark grey mudstone (1.10)								
		8.70	Light grey siltstone (3.30)								
		12.00	Dark grey mudstone (0.50)								
		12.50	Coal seam (0.20)								
		12.70	Light grey siltstone (0.10)								
		12.80	Coal seam (0.10)								
		12.90	Light grey siltstone with occ dark grey mudstone bands (22.10)								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water Flush

Remarks
 Secure rig in compound
 Hand excavate to clear services



ROTARY TEST DRILLING

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Job No.
30/03

Client St Helens

Borehole

Date
23/04/03 - 23/04/03

O.D. Level

R3

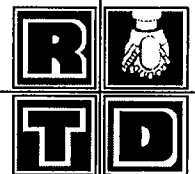
Page 2 of 3

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		16.00	(Continued)								
		16.20	Shaley coal seam (0.40)								
		16.60	Dark grey mudstone with coal deposits (0.40)								
			Coal seam (1.20)								
		17.80	Dark grey mudstone with coal deposits (0.70)								
		18.50	Light grey mudstone (2.30)								
		20.80	Black mudstone (0.20)								
		21.00	Dark grey mudstone with coal deposits (1.50)								
		22.50									
		22.70	Coal seam (0.20)								
			Dark grey mudstone (1.10)								
		23.80	Light grey siltstone (11.20)	xxxxxxx							







Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water Flush

Remarks
 Full flush returns
 secure rig in compound
 Hand excavate to clear services



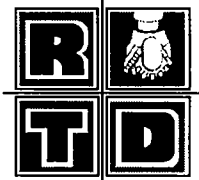
<h2 style="margin: 0;">ROTARY TEST DRILLING</h2> <p style="margin: 0;">Marshes Farm, Coach Road, off Wigan Road, Hart Common, West Houghton, Bolton BL5 2BT Tel: 01942 - 810348 Fax: 01942 - 840543</p>	Site Former Parr High School		Job No. 30/03	
	Client St Helens		Borehole	
	Date 24/04/03 - 24/04/03	O.D. Level	R4	

Day	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.	Tarmac/ash infill (0.90)								
		0.90	Light brown clay with frequent gravel bands (9.10)								
	9M	10.00	Light grey mudstone (0.90)								
		10.90	Shaley coal seam (0.10)								
		11.00	Dark grey mudstone (1.00)								
		12.00	Light grey siltstone with dark grey mudstone bands (12.50)								

Symbols TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods

Remarks
 Hand excavate to clear services



ROTARY TEST DRILLING

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Job No.
30/03

Client St Helens





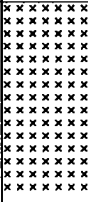
Borehole

Date
17/04/03 - 22/04/03

O.D. Level

R5

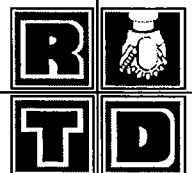
Page 1 of 3

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L. 0.20	Grass covered topsoil (0.20) Colliery waste some clay infill (2.90)								
		3.10	Light brown clay with frequent gravel bands (8.40)								
	9M										
		11.50	Light grey mudstone (0.50)								
		12.00	Very hard light brown siltstone (1.50)								
		13.50	Hard light grey siltstone (4.50)								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water flush

Remarks
 Rig removed from site for bank holiday
 Hand excavate to clear services
 On return from weekend BH full of Sand, re drill to 18m

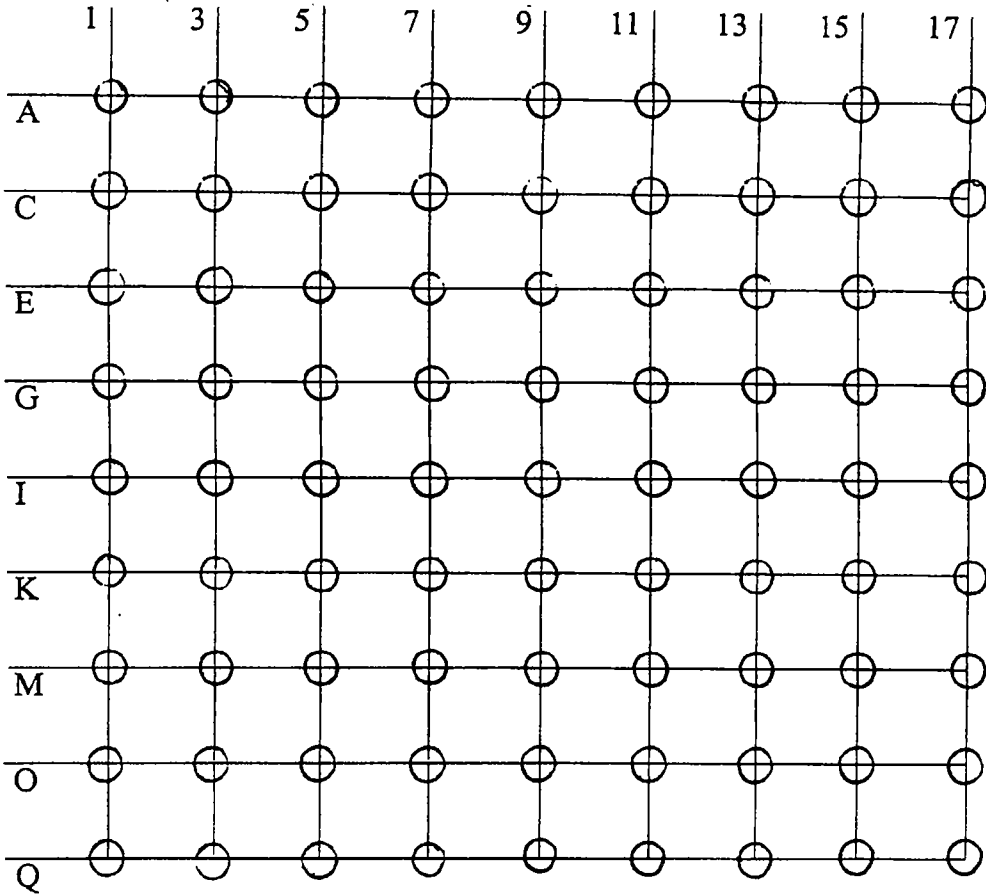


MINE SHAFT SEARCH grid

Boreholes set to 1.50m on a 12m x 12m grid

Shaft search A and Shaft B

Not to scale



Logs corresponding to the mine shaft searches A and B

Boreholes have been grouped and share the same Log/s BH IDs are listed in the 'Remarks' box at the bottom of the following Log sheets.

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Site Former Parr High School, St Helens

Job No.
30/03

Client St Helens MBC



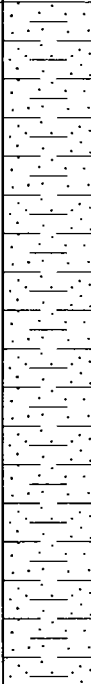

Borehole

Date
06/05/03

O.D. Level

SHAFT A

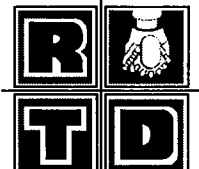
Page 1 of 1

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.	Rubble/ashes (0.30)								
		0.30	Light grey clays and colliery waste (0.90)								
		1.20	Light brown sandy clay (9.30)								
		10.50	Light grey mudstone (0.50)								
		11.00	Base of Drillhole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water flush

Remarks
 Strata description for BH I9



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Site Former Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

Borehole

Date
07/05/03

O.D. Level

SHAFT A2

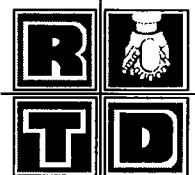
Page 1 of 1

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.	Rubble/ashes (0.30)								
		0.30	Light grey clays with colliery waste (0.90)								
		1.20	Light brown sandy clay (9.30)								
		10.50	Light grey mudstone (0.50)								
		11.00	Base of Drillhole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water flush

Remarks
 Strata description for the following BH's I1, I3, I5, I11, G1, G3
 G5, G7, G9, G11, E1, E3, E5, E7, E9, E11, C1, C3, C5, C7, C9, C11
 A1, A3, A5, A7, A9, A11



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Job No.
30/03

Client St Helens MBC













Borehole

Date
07/05/03

O.D. Level

SHAFT A3

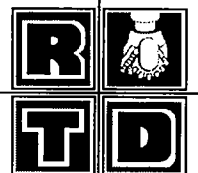
Page 1 of 1

Day	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.									
		0.30	Rubble/ashes (0.30)								
		1.00	Colliery waste and some clays (0.70)								
		1.00	Soft drilling (2.00)								
		3.00									
		3.30	Sandy clay (0.30)								
		3.30	Soft drilling poss very sandy clay (2.70)								
		6.00									
		6.20	Light brown sandy clay (0.20)								
		6.20	Soft drilling poss sandy clay (2.80)								
		9.00	soft drilling poss sandy clay (1.50)								
		10.50	Probe - no returns 10.5 - 12 Very hard drilling poss mudstone (1.50)								
		12.00	Base of Drillhole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water Flush

Remarks
 Strata description for BH's K9, M9, O9, Q9, K7, K11 and M7
 Continuous loss of flush in sand



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Job No.
30/03

Client St Helens MBC

Borehole

Date
30/04/03

O.D. Level

SHAFT B

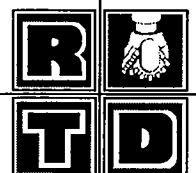
Page 1 of 1

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	ROD %
		G.L.	Hardcore/ash (0.50)								
		0.50	Brick wall (0.30)								
		0.80	Fast drilling(poss infilled basement) (2.20)								
		3.00	Light grey clay(poss fill) (1.50)								
		4.50	Hard light brown clay (7.00)								
		11.50	Light grey mudstone (0.50)								
		12.00	Base of Drillhole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 ROD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water flush

Remarks
 Strata description for BH's 19 and K9
 Loss of flush at 0.8m



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


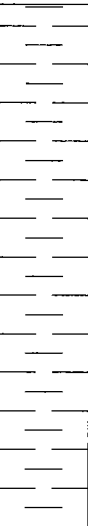

Borehole

Date
30/04/03

O.D. Level

SHAFT B2

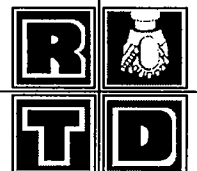
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Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.	Rubble/ash (0.40)								
		0.40	Claybound infill (0.80)								
		1.20	Light gray clay with coal deposits(poss infill) (3.30)								
		4.50	Light brown clay (hard) (7.10)								
		11.60	Light grey mudstone (0.40)								
		12.00	Base of Drillhole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water flush

Remarks
 Strata description for BH,s 17, K7, I11, I13, I15, I17, K11, K13, K15, and K17



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Borehole

Date
30/04/03

O.D. Level

SHAFT B3

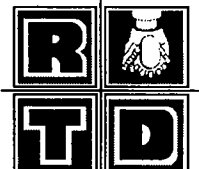
Page 1 of 1

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.	Grass/ash (0.40)								
		0.40	Light brown clay (0.80)								
		1.20	Light grey clay (poss infill) (1.80)								
		3.00	Light brown clay (8.40)								
		11.40	Light grey mudstone (0.60)								
		12.00	Base of Drillhole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water flush

Remarks
 Strata description for BH's 11, 13, K1 and K3



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



Borehole

Date
30/04/03

O.D. Level

SHAFT B4

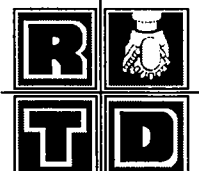
Page 1 of 1

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.	Tarmac/ash (0.40)								
		0.40	Light brown clay (0.80)								
		1.20	Very soft light grey clay (2.60)								
		3.80	Light brown clay (hard) (7.60)								
		11.40	Light grey mudstone (0.60)								
		12.00	Base of Drillhole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water flush

Remarks
 Strata description for BH's 15 and K5



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30/03

Client St Helens MBC






Borehole

Date
01/05/03

O.D. Level

SHAFT B5

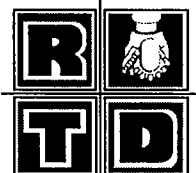
Page 1 of 1

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.									
		0.40	Rubble/ash (0.40)								
		1.00	Light brown clay (0.60)								
		1.00	Light grey clay with bands of coal (poss infill) (2.20)								
		3.20	Hard light brown clay (8.30)								
		11.50	Light grey mudstone (0.50)								
		12.00	Base of Drillhole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water flush

Remarks
 Strata description for BH's M7, M9, M11, M13, M15, M17, 07, 09, 011, 013, 015, 017, 07, 09, Q11, Q13, Q15 and Q17



ROTARY TEST DRILLING

Marshes Farm, Coach Road, off Wigan Road,
Hart Common, West Houghton, Bolton BL5 2BT
Tel: 01942 - 810348 Fax: 01942 - 840543

Site Former Parr High School, St Helens

Job No.
30/03

Client St Helens MBC






Borehole

Date
01/05/03

O.D. Level

SHAFT B6

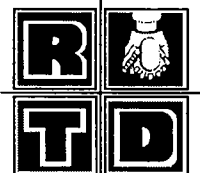
Page 1 of 1

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.	Tarmac/ashes (0.40)								
		0.40	Light brown clay (0.60)								
		1.00	Light grey clays with coal (poss infill) (2.20)								
		3.20	Light brown clay(hard) (8.40)								
		11.60	Light grey mudstone (0.40)								
		12.00	Base of Drillhole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water flush

Remarks
 Strata description for BH's M5, 05 and 05



ROTARY TEST DRILLING

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Site Former Parr High School, St Helens

Job No.
30/03

Client St Helens MBC






Borehole

Date
01/05/03

O.D. Level

SHAFT B7

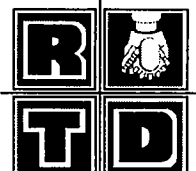
Page 1 of 1

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.	Grass/ashes (0.40)								
		0.40	Light brown clay (0.60)								
		1.00	Light grey clay(poss infill) (2.30)								
		3.30	Hard light brown clay (8.30)								
		11.60	Light grey mudstone (0.40)								
		12.00	Base of Drillhole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water Flush

Remarks
 Strata description for BH's M1, M3, 03, Q1 and Q3



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Tel: 01942 - 810348 Fax: 01942 - 840543

Site Former Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

Borehole

Date
02/05/03

O.D. Level

SHAFT B8

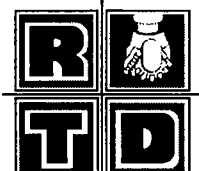
Page 1 of 1

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.	Grass/ashes (0.30)								
		0.30	Light brown clay (0.70)								
		1.00	Light grey clays with coal deposits(poss infill) (2.20)								
		3.20	Hard light brown clay (8.50)								
		11.70	Light grey mudstone (0.30)								
		12.00	Base of Drillhole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water flush

Remarks
 Strata description for BH's A1, A3, C1, C3, E1, E3, G1 and G3



ROTARY TEST DRILLING

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Site Former Parr High School, St Helens

Job No.
30/03

Client St Helens MBC






Borehole

Date
02/05/03

O.D. Level

SHAFT B9

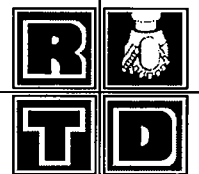
Page 1 of 1

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.	Tarmac/ashes (0.40)								
		0.40	Light brown clay (0.60)								
		1.00	Light gray clays (poss infill) (2.20)								
		3.20	Hard light brown clay (8.40)								
		11.60	Light grey mudstone (0.40)								
		12.00	Base of Drillhole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water flush

Remarks
 Strata description for BH's A5, C5, E5 and G5



ROTARY TEST DRILLING

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Site Former Parr High School, St Helens

Job No.
30/03

Client St Helens MBC






Borehole

Date
02/05/03

O.D. Level

SHAFT B10

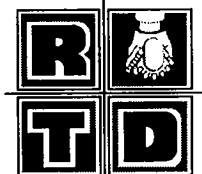
Page 1 of 1

Day	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.									
		0.40	Rubble/ash (0.40)								
		1.00	Light gray clays (0.60)								
		1.00	Light grey Clays(poss infill) (2.50)								
		3.50	Hard light brown clay (8.00)								
		11.50	Light grey mudstone (0.50)								
		12.00	Base of Drift hole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water flush

Remarks
 Strata description for BH's G7, G9, G11, G13, G15 and G17



ROTARY TEST DRILLING

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Tel: 01942 - 810348 Fax: 01942 - 840543

Site Former Parr High School, St Helens

Job No.
30/03

Client St Helens MBC






Borehole

Date
02/05/03

O.D. Level

SHAFT B11

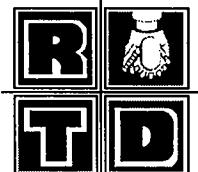
Page 1 of 1

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.	Rubble/ash (0.40)								
		0.40	Light brown clay (0.60)								
		1.00	Light grey clays with coal deposits (2.50)								
		3.50	Hard light brown clay (8.00)								
		11.50	Light grey mudstone (0.50)								
		12.00	Base of Drillhole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water flush

Remarks
 Strata description for BH,s G7, G9, G11, G13, G15 and G17



ROTARY TEST DRILLING

Marshes Farm, Coach Road, off Wigan Road,
Hart Common, West Houghton, Bolton BL5 2BT
Tel: 01942 - 810348 Fax: 01942 - 840543

Site Former Parr High School, St Helens

Job No.
30/03

Client St Helens MBC






Borehole

Date
06/05/03

O.D. Level

SHAFT B12

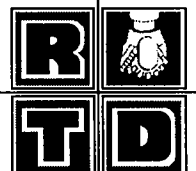
Page 1 of 1

Day	Casing Depth	Strata Depth	Description of Strata	Legend	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.									
		0.40	Rubble/ash (0.40)								
		1.00	Light brown Clay (0.60)								
		1.00	Light grey clays (2.50)								
		3.50	Hard light brown clay (8.00)								
		11.50	Light grey mudstone (0.50)								
		12.00	Base of Drillhole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water flush

Remarks
 Strata description for BH's A7, C7, C9, C11, C13, C15, C17, E7, E9
 E11, E13, E15, and E17



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Site Former Parr High School, St Helens

Job No.
30/03

Client St Helens MBC

Borehole

Date
06/05/03

O.D. Level

SHAFT B13

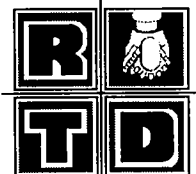
Page 1 of 1

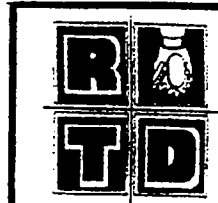
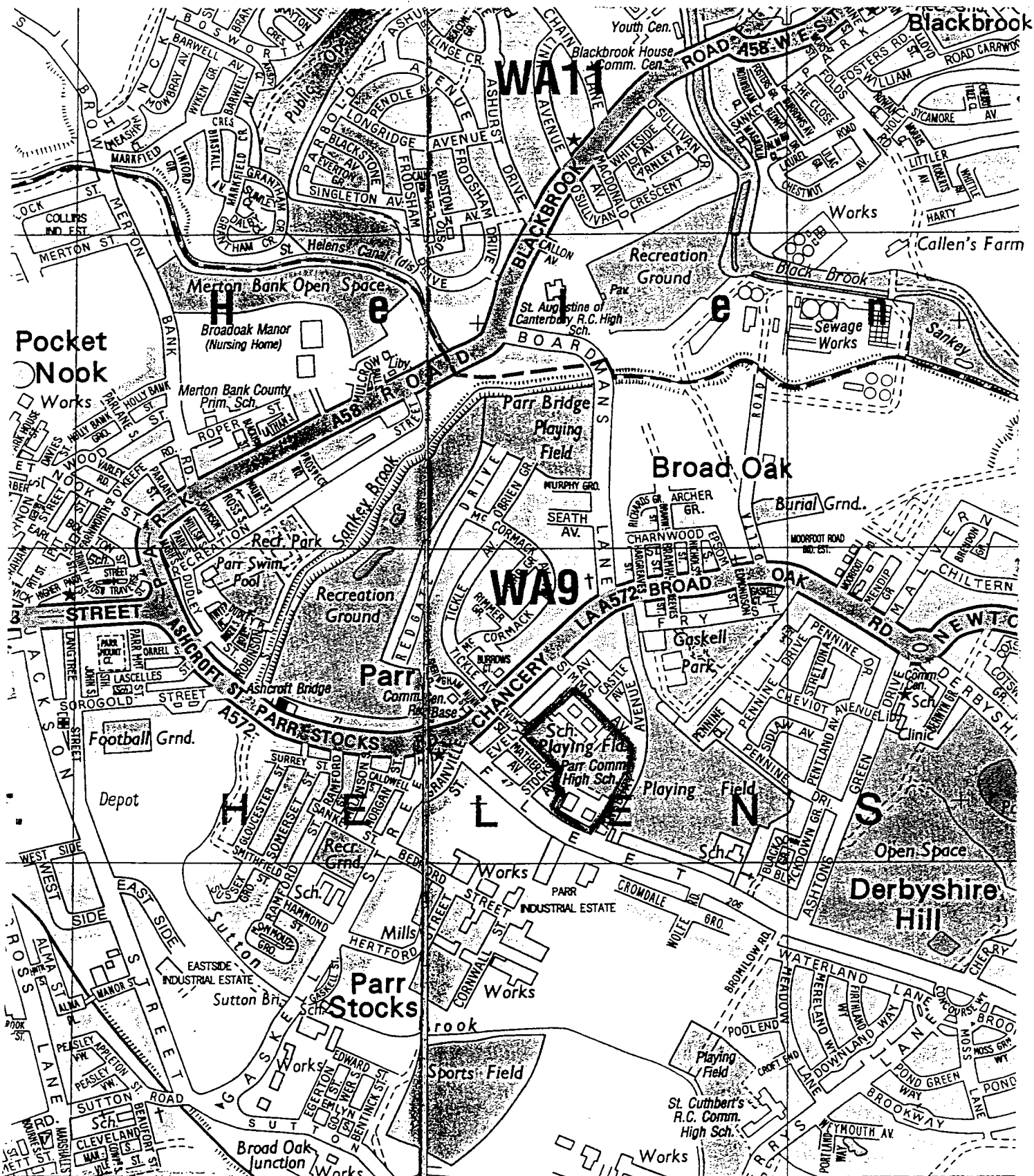
Day	Casing Depth	Strata Depth	Description of Strata	Leg-end	Inst.	Reduced Level	Flush Returns	Core Depths	TCR %	SCR %	RQD %
		G.L.									
		0.50	Concrete/hardcore (0.50)								
			Light brown clay (0.70)								
		1.20	Light grey clays (2.90)								
		4.10	Hard light brown clay (7.80)								
		11.90	Light grey mudstone (0.10)								
		12.00	Base of Drillhole								

Symbols
 TCR - TOTAL ROCK RECOVERY
 SCR - SOLID ROCK RECOVERY
 RQD - ROCK QUALITY DESIGNATION

Drilling Methods
 Water flush

Remarks
 Strata description for BH's A9, A11, A13, A15, and A17
 Ground level higher than rest of grid





ROTARY TEST DRILLING LTD
 Marshes Farm, Coach Road
 off Wigan Road, Westhoughton
 Bolton BL5 2BT
 Tel: 01942 810348.

SITE:

FORMER PARR HIGH SCHOOL.

TITLE:

SITE LOCATION PLAN.

CLIENT:

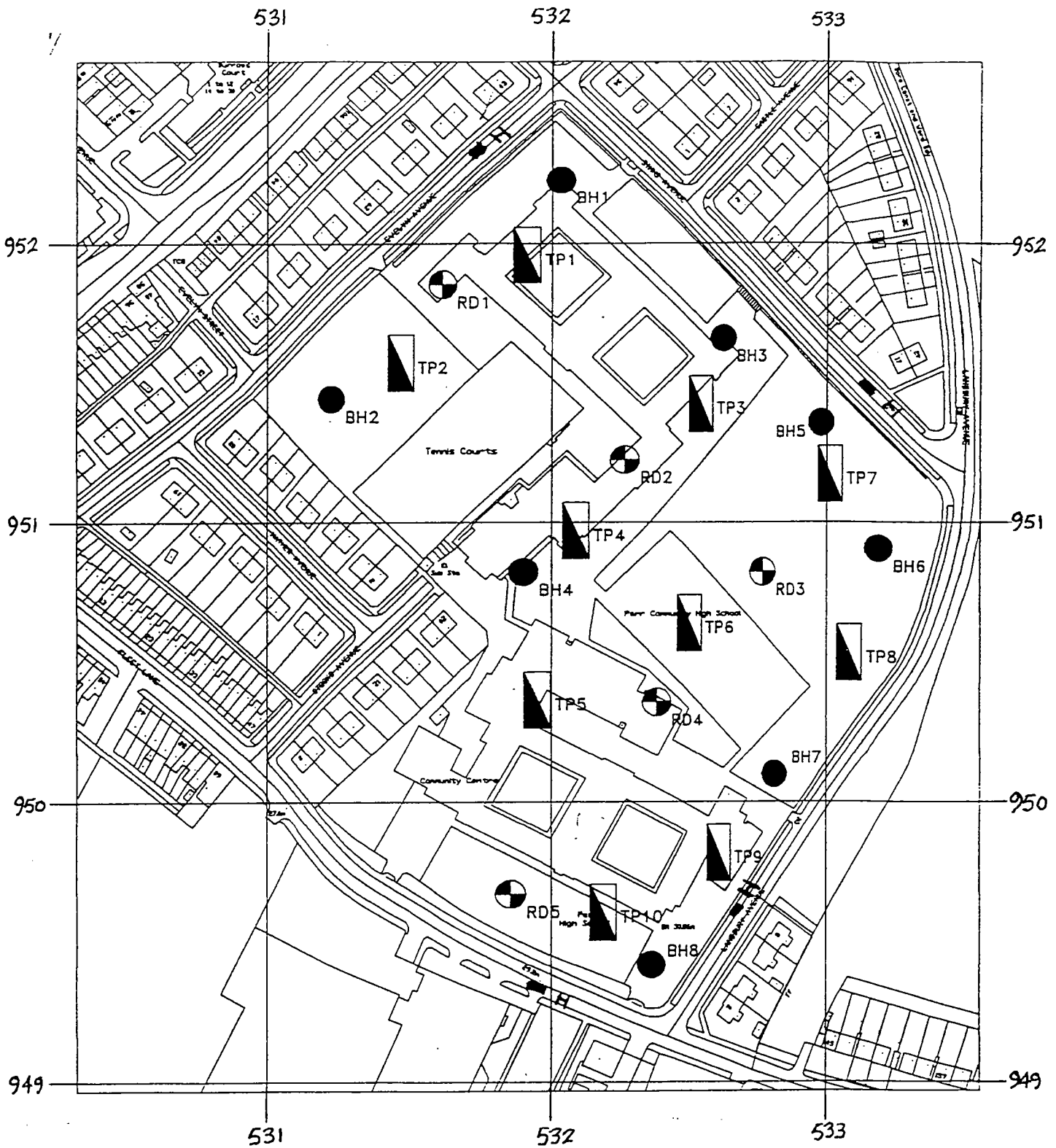
ST. HELENS M. B. C.

SCALE: 1 IN 10,775.

APPROX. 6 INS TO 1 MILE

FIG:

1.



DENOTES TRIAL PITS

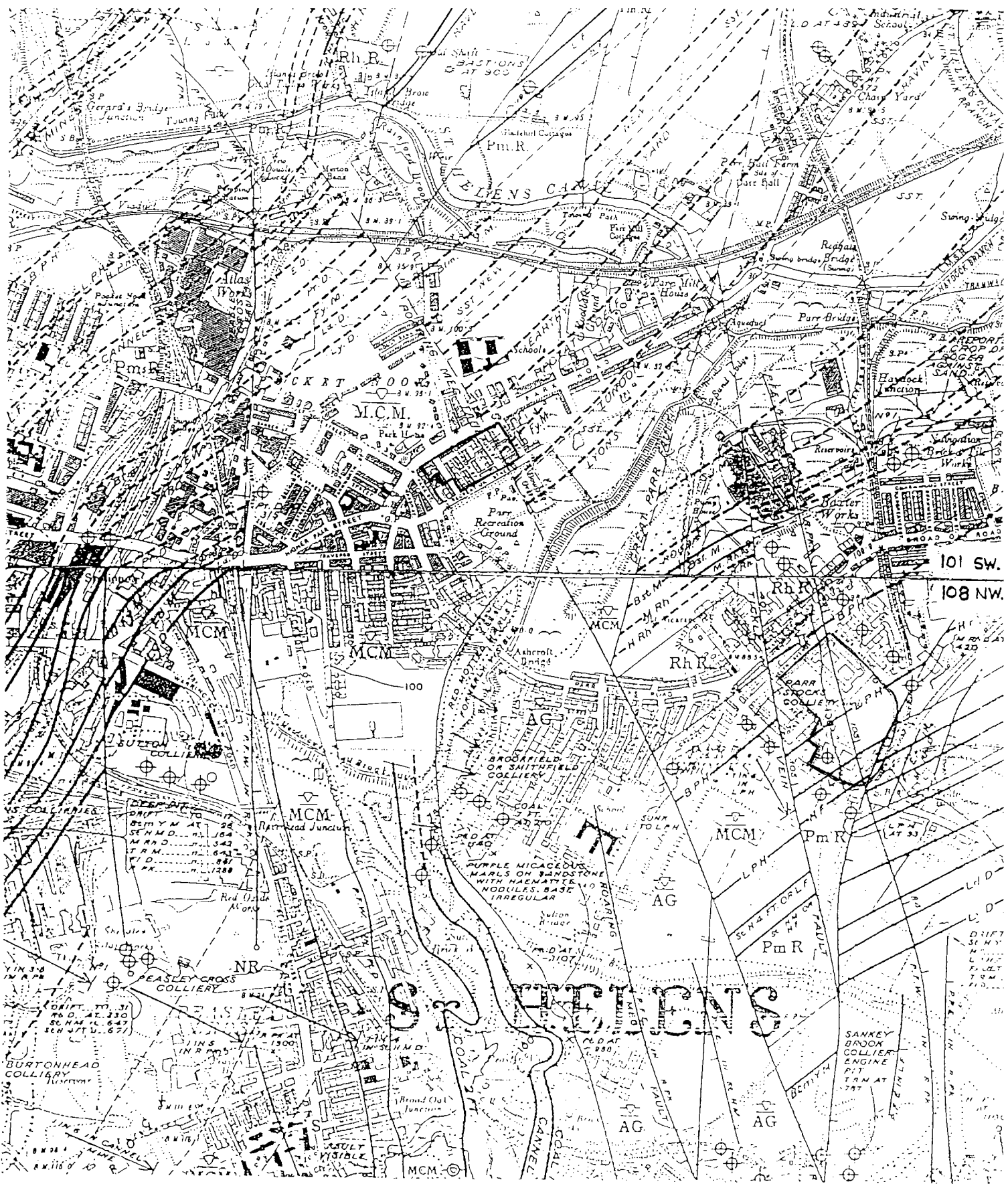


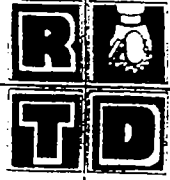
DENOTES BOREHOLE



DENOTES ROTARY DRILLING

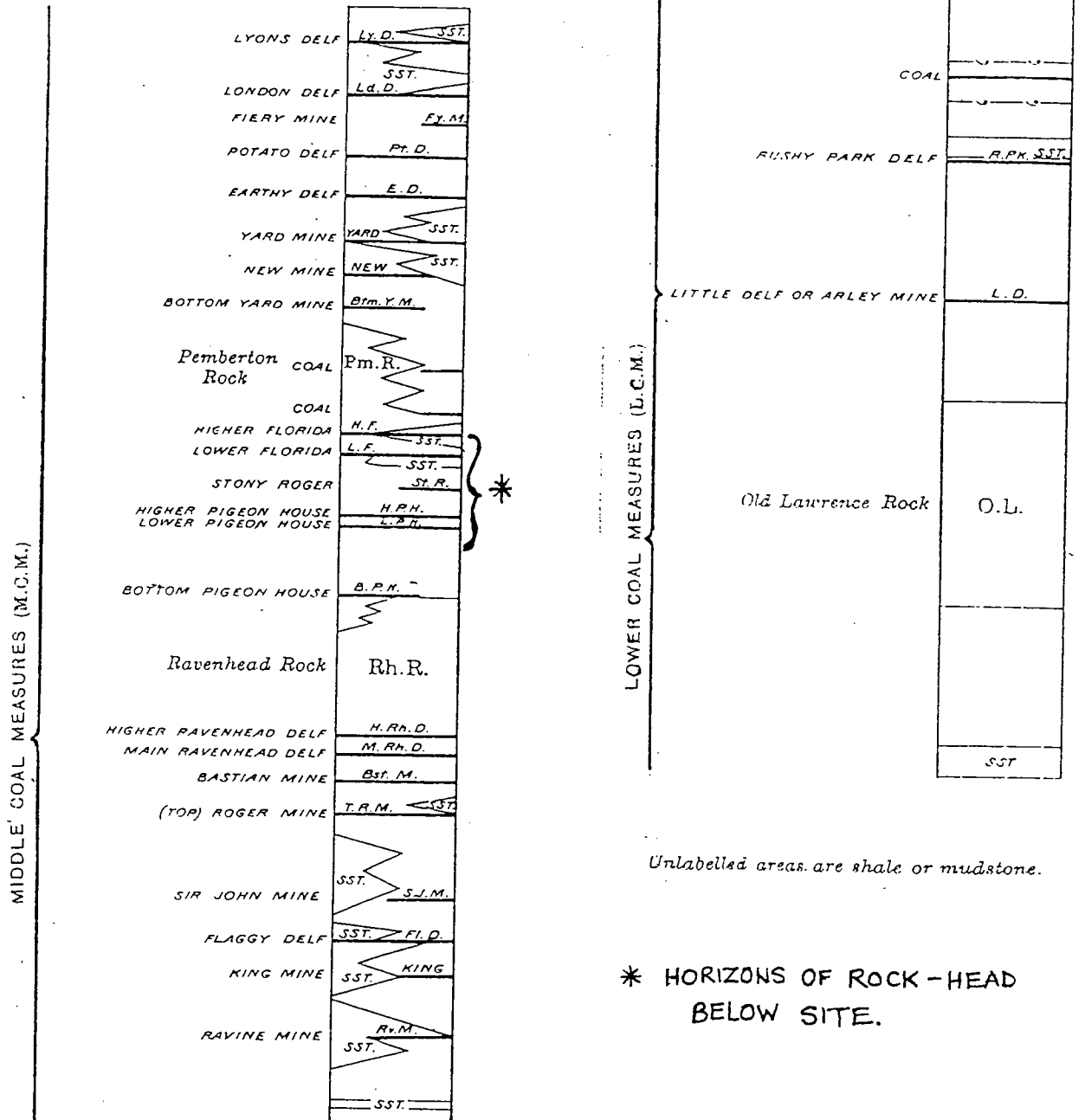
	ROTARY TEST DRILLING LTD Marshes Farm, Coach Road off Wigan Road, Westhoughton Bolton BL5 2BT Tel: 01942 810348.	SITE: FORMER PARR HIGH SCHOOL.
	CLIENT: ST. HELENS M.B.C.	TITLE: LOCATIONS OF INVESTIGATION POINTS.
SCALE: 1 IN 2000.		FIG: 2.



	ROTARY TEST DRILLING LTD Marshes Farm, Coach Road off Wigan Road, Westthoughton Bolton BL5 2BT Tel: 01942 810348.	SITE: FORMER PARR HIGH SCHOOL.
	CLIENT: ST. HELENS M. B. C.	TITLE: GEOLOGICAL SURVEY MAP.
		FIG: 3.

101 SW./108 NW


GENERALIZED
VERTICAL SECTION
OF THE
CARBONIFEROUS
Scale 1 Inch = 200 Feet.

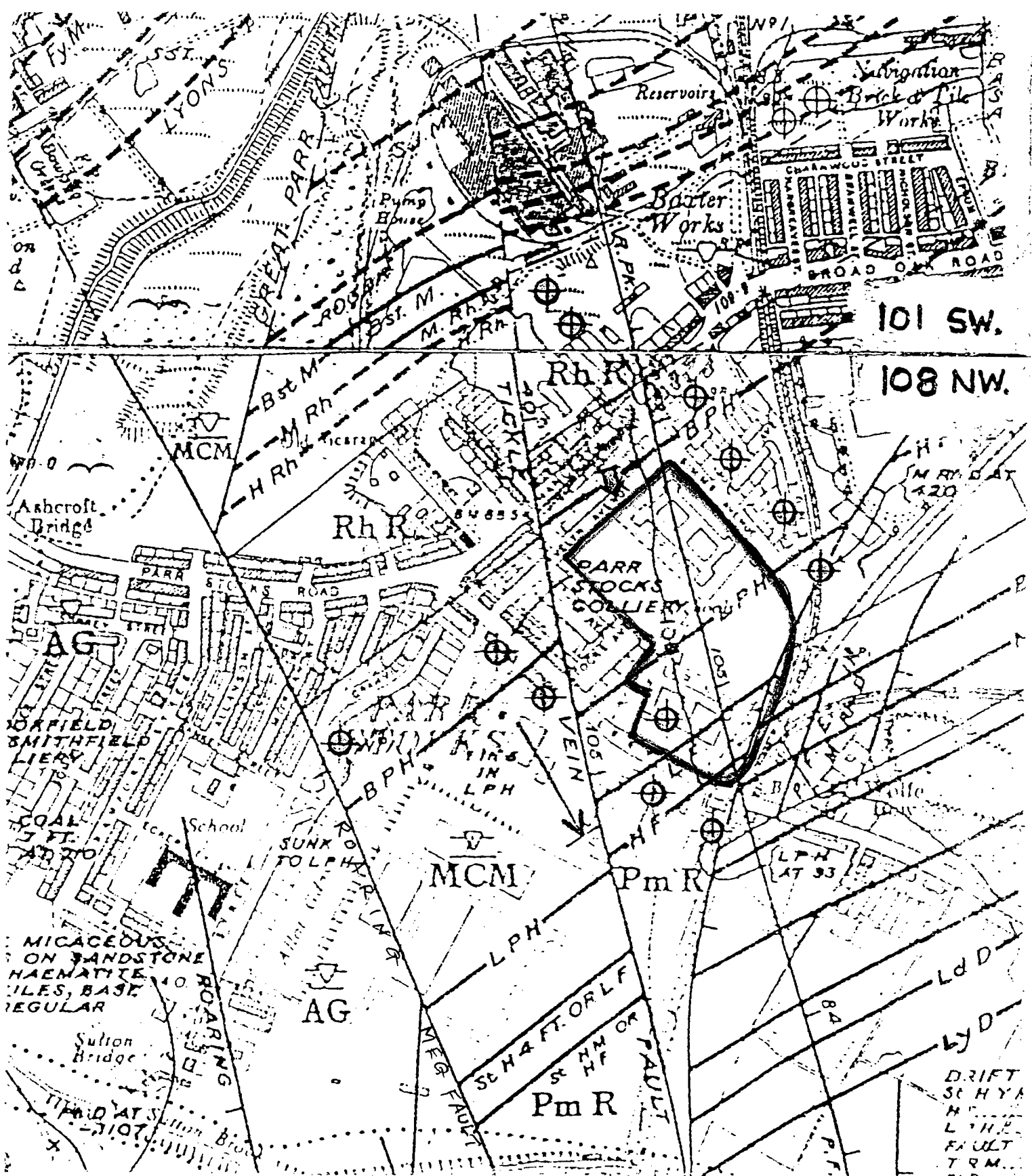


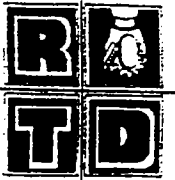
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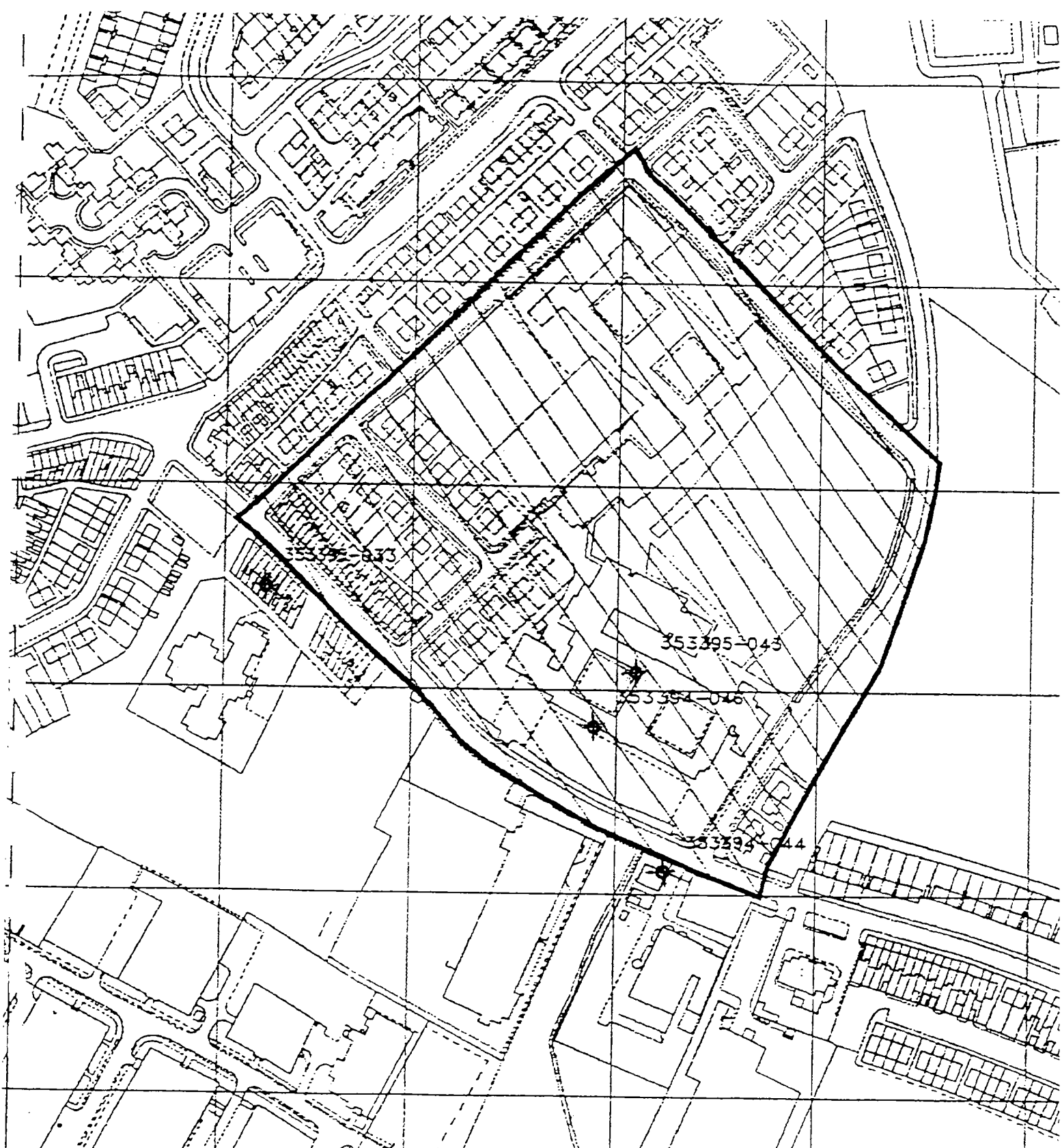
Unlabelled areas are shale or mudstone.


* HORIZONS OF ROCK-HEAD
BELOW SITE.

	ROTARY TEST DRILLING LTD Marshes Farm, Coach Road off Wigan Road, Westhoughton Bolton BL5 2BT Tel: 01942 810348.	SITE: FORMER PARR HIGH SCHOOL.	
		TITLE: VERTICAL SECTION OF STRATA TO GEOLOGICAL MAP.	
CLIENT: ST. HELENS M.B.C.	SCALE: 1 IN 2400 1 INCH TO 200 FT.	FIG: 4.	

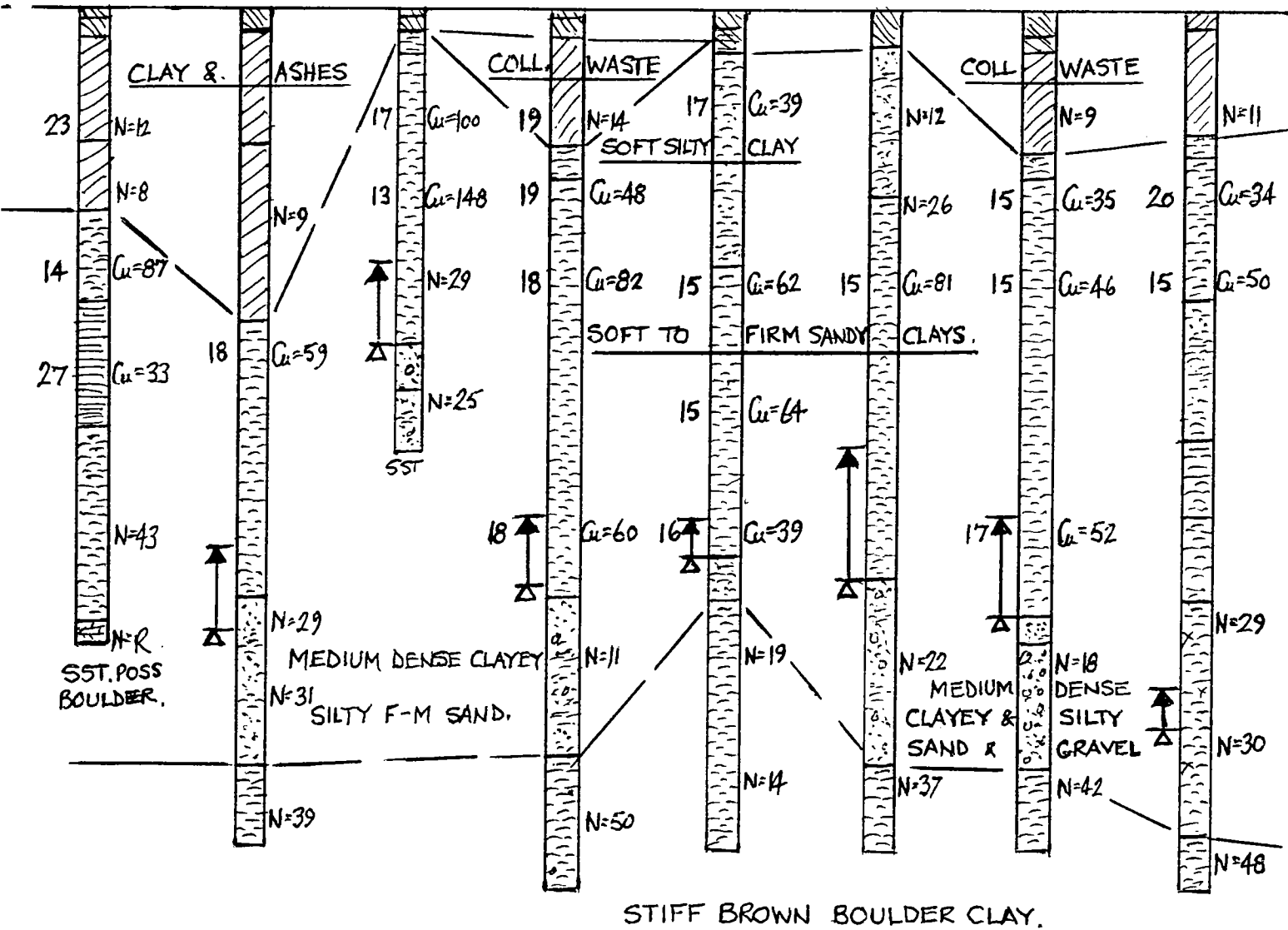


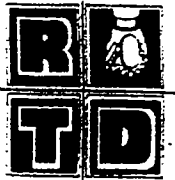
	ROTARY TEST DRILLING LTD Marshes Farm, Coach Road off Wigan Road, Westhoughton Bolton BL5 2BT Tel: 01942 810348.		SITE: FORMER PARR HIGH SCHOOL.
			TITLE: ENLARGEMENT OF G.S. MAP.
CLIENT: ST. HELENS M.B.C.	SCALE: 1 IN 5280 12 INS TO 1 MILE.	FIG: 5.	



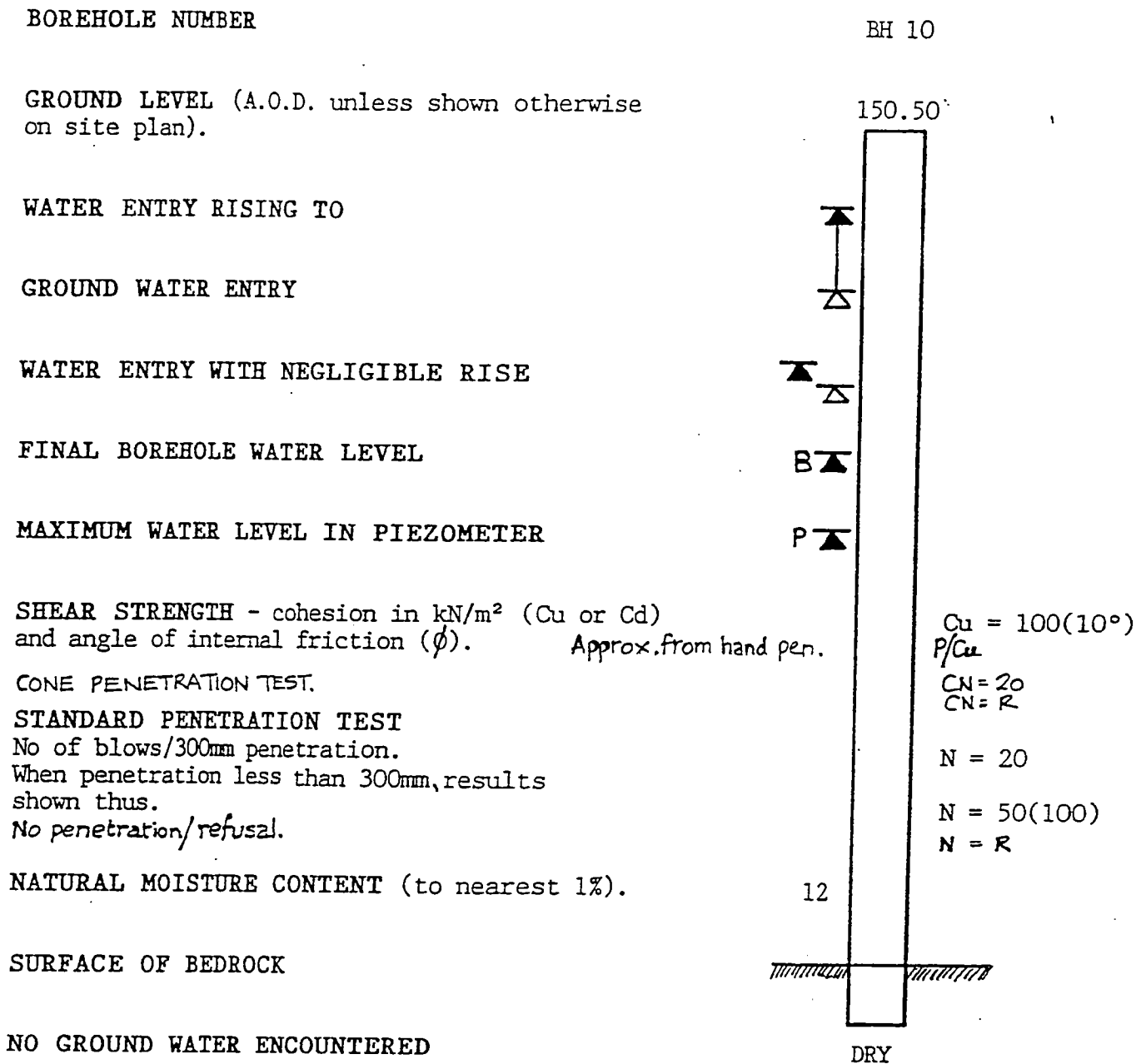
	<p>ROTARY TEST DRILLING LTD Marshes Farm, Coach Road off Wigan Road, Westthoughton Bolton BL5 2BT Tel: 01942 810348.</p>		<p>SITE: FORMER PARR HIGH SCHOOL.</p>
	<p>CLIENT: ST. HELENS M.B.C.</p>		<p>TITLE: RECORDED SHAFT LOCATIONS FROM THE COAL AUTHORITY.</p>
		<p>SCALE: 1 IN 2500.</p>	<p>FIG: 6.</p>

BH.1. BH.2 BH.3 BH.4 BH.5 BH.6. BH.7. BH.8.



	ROTARY TEST DRILLING LTD Marshes Farm, Coach Road off Wigan Road, Westhoughton Bolton BL5 2BT Tel: 01942 810348.	SITE: FORMER PARR HIGH SCHOOL
	CLIENT: ST. HELENS M.B.C.	TITLE: LONGITUDINAL SECTION THRO' BH'S.
		FIG: 7

STANDARD DETAILS - LEGENDS AND SYMBOLS USED ON SOIL SECTIONS.



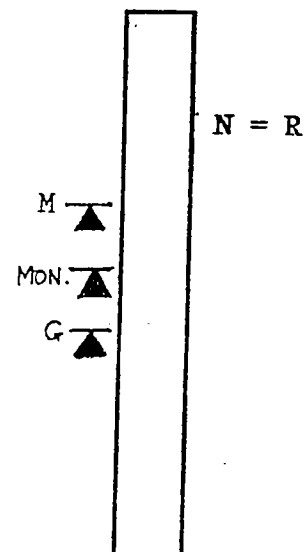
ADDITIONAL DETAILS AND INFORMATION:-

STANDARD PENETRATION TEST - REFUSAL. $N = R$

MORNING/OVERNIGHT WATER LEVEL. M

STAND-PIPE MONITORING. MON.

WATER LEVEL RECORDED IN GAS WELL. G



Appendix 'A'

**“Method Statement For Borehole Investigations
Of Superficial Deposits”.**

Method Statement for Borehole Investigations of Superficial Deposits.

Field Work and Investigations.

All field work is carried out within the operational and safety guidelines of the British Drilling Association, of which this Company is an active Member, and in accordance with the procedures and recommendations contained in BS. 5930 (1981) the “Civil Engineering Code of Practice for Site Investigations”.

Where filled and/or contaminated land is present or suspected, reference is also made to the DOE/ICRCL Paper 17/78 (1990) entitled “Notes on the Redevelopment of Landfill Sites”, and the BSI. publication DD 175 (1998) – the “Draft Code of Practice for the Identification of Potentially Contaminated Land and its Investigation”.

Boreholes of 150 – 250mm diameter are excavated by standard light cable/shell and auger percussive boring techniques, and sampling and insitu testing is carried out at regular intervals of depth and/or at changes of strata. In general, 100mm diameter undisturbed (U100) samples are taken in the cohesive deposits for laboratory testing, whilst standard penetration tests are conducted insitu in the granular or non-cohesive deposits to provide empirical/relative density values. Representative disturbed bulk and jar samples are also taken throughout and returned to the laboratories for purposes of examination, identification, correlation and possible testing. Instrumentation is installed if and when required and as appropriate to the ground conditions and proposed development.

When landfill gas is present or suspected, either from on-site sources or by migration from other sites, 50mm diameter gas wells/stand-pipes are normally installed in selected boreholes for subsequent monitoring over an appropriate period of time, and in accordance with the recommendations of the Department of the Environment as set-out in Waste Management Paper 27 entitled “Landfill Gas”.

Analysis and Assessment.

Where applicable, all normal insitu and laboratory strength and classification testing is carried out in accordance with the methods and procedures set out in BS.1377 (1990) entitled “Methods of Testing Soils for Civil Engineering Purposes”.

Where contamination is present or suspected, detailed chemical analysis is carried out at specialist environmental laboratories, and in accordance with the guidelines and recommendations contained in the DOE/ICRCL Paper 59/83 (1987) entitled “Guidelines on the Assessment and Redevelopment of Contaminated Land”.

All subsequent report descriptions and interpretations of the site investigations and laboratory testing are compatible with the standard formats set-out in Codes of Practice BS.5930 for Site Investigations and BS.8004 for Foundations, the DOE/ICRCL Paper 59/83 for Contamination, and the DOE Waste Management Paper 27 for Landfill Gas.

Appendix 'B'

"Results Of Laboratory Testing To BS 1377".


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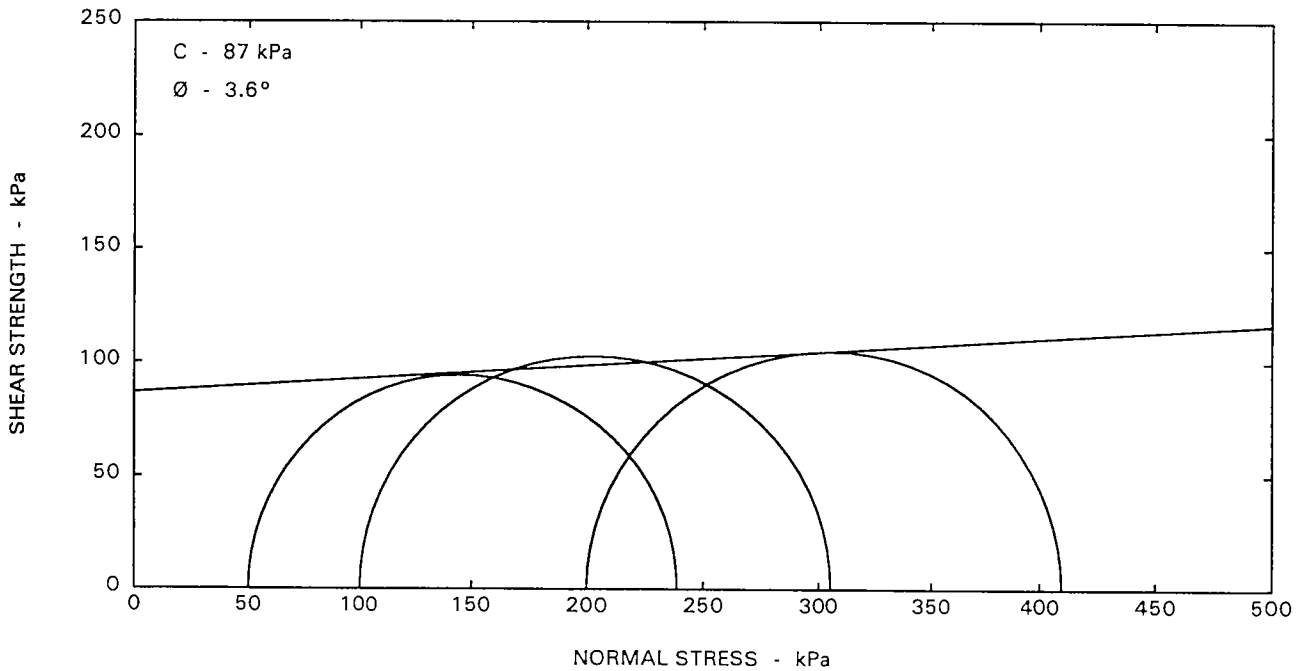
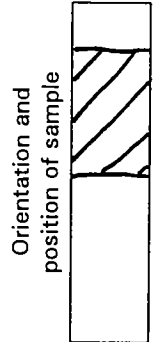
Project
Parr High School

Client
Testconsult Limited

Lab Ref No **B8216**

Borehole No 1
Sample
Depth 3.00
Our Sample Ref 1

Description		Red brown silty CLAY			
Sample Details					
Specimen Conditions		Undisturbed			
Height	mm	198.6			
Diameter	mm	102.0			
Moisture Content	%	14			
Bulk Density	Mg/m ³	2.08			
Dry Density	Mg/m ³	1.82			
Test Details		Stage No	1	2	3
Latex Membrane Thickness	mm		1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa		0.5	0.6	0.7
Rate of Axial Displacement	%/min		2.04	2.04	2.04
Cell Pressure	kPa		50	100	200
Strain at Failure	%		10.6	14.6	20.1
Maximum Deviator Stress	kPa		189	205	210
Shear Strength	kPa		94	103	105
Mode of Failure					



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Appendix 1
Figure 1

Sheet 1 of 1

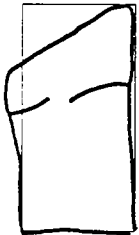
TERRA TEK
Site Investigation & Laboratory Services

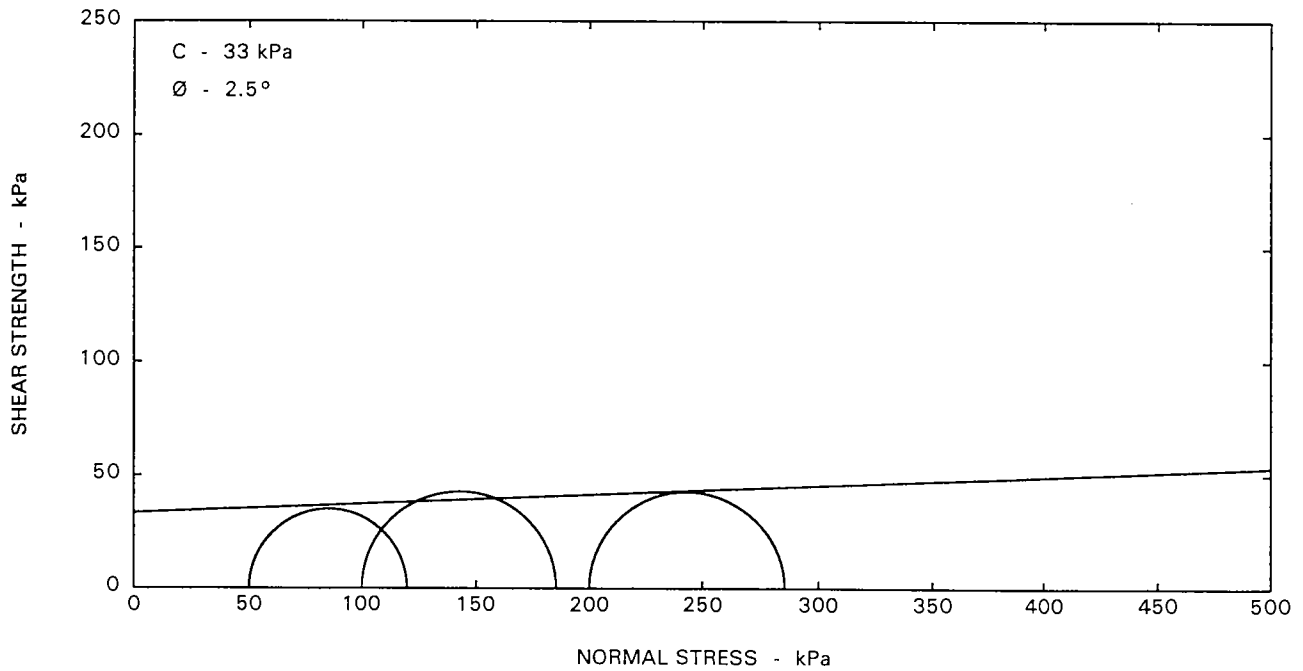
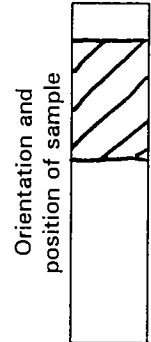
Project
Parr High School

Client
Testconsult Limited

Lab Ref No **B8216**

Borehole No 1
Sample
Depth 4.30
Our Sample Ref 2

Description		Red brown silty CLAY			
Sample Details					
Specimen Conditions		Undisturbed			
Height	mm	198.4			
Diameter	mm	103.0			
Moisture Content	%	27			
Bulk Density	Mg/m ³	1.97			
Dry Density	Mg/m ³	1.55			
Test Details		Stage No	1	2	3
Latex Membrane Thickness	mm		1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa		0.3	0.4	0.7
Rate of Axial Displacement	%/min		2.05	2.05	2.05
Cell Pressure	kPa		50	100	200
Strain at Failure	%		5.0	8.6	20.2
Maximum Deviator Stress	kPa		70	85	86
Shear Strength	kPa		35	43	43
Mode of Failure					



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Appendix 1
Figure 2

Sheet 1 of 1


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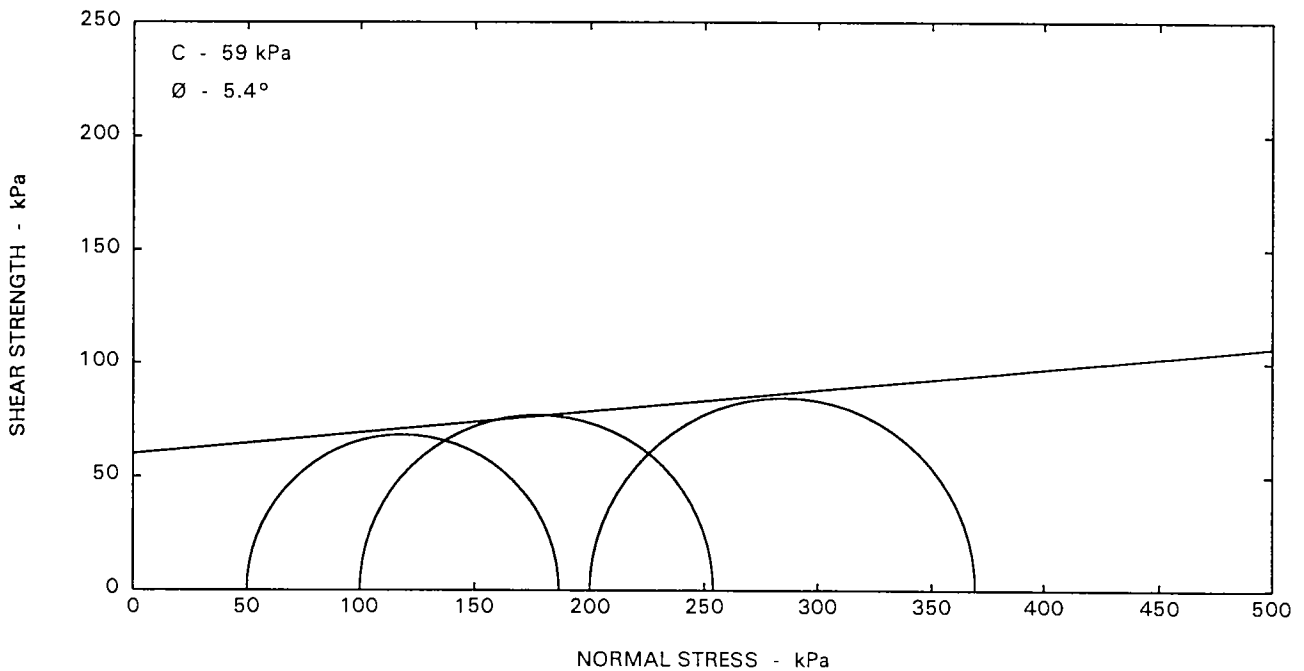
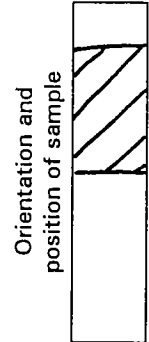
Project
Parr High School

Client
Testconsult Limited

Lab Ref No **B8216**

Borehole No 2
Sample
Depth 4.00
Our Sample Ref 3

Description		Red brown silty CLAY			
Sample Details					
Specimen Conditions		Undisturbed			
Height	mm	198.4			
Diameter	mm	102.9			
Moisture Content	%	18			
Bulk Density	Mg/m ³	2.12			
Dry Density	Mg/m ³	1.79			
Test Details		Stage No	1	2	3
Latex Membrane Thickness	mm		1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa		0.4	0.5	0.7
Rate of Axial Displacement	%/min		2.05	2.05	2.05
Cell Pressure	kPa		50	100	200
Strain at Failure	%		8.1	11.6	20.2
Maximum Deviator Stress	kPa		136	154	169
Shear Strength	kPa		68	77	85
Mode of Failure					



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Appendix 1
Figure 3

Sheet 1 of 1

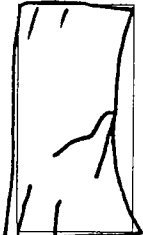
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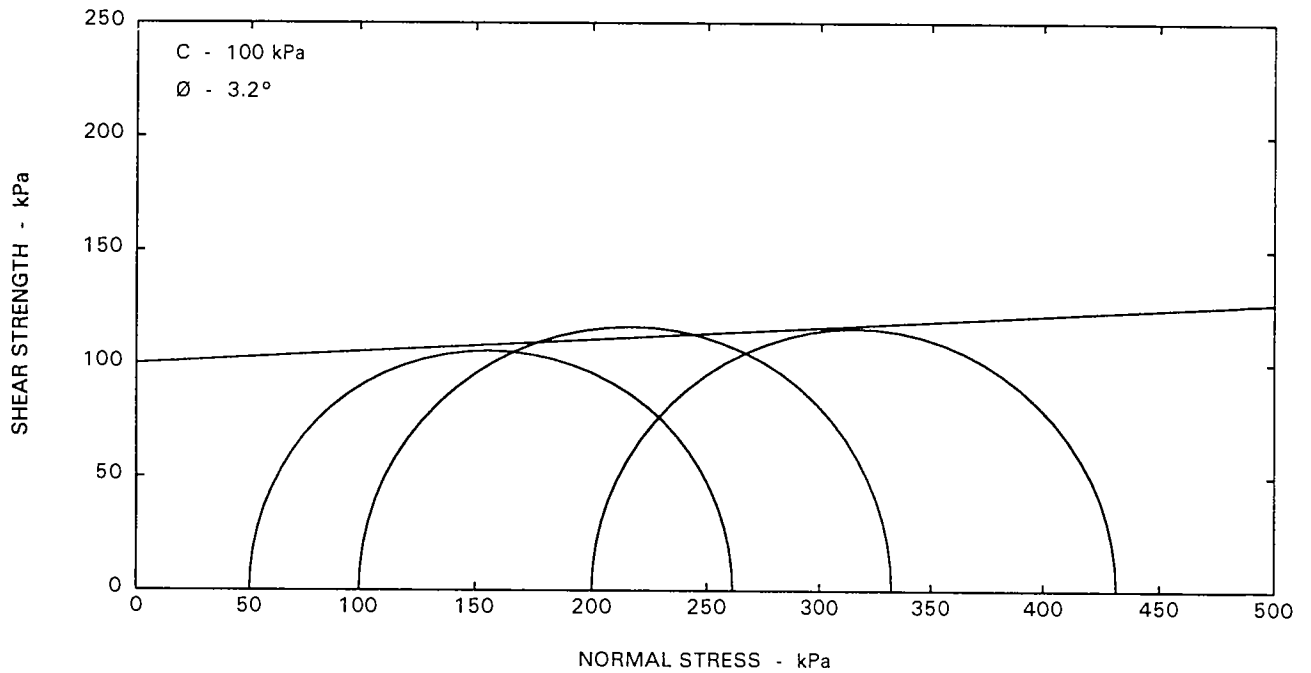
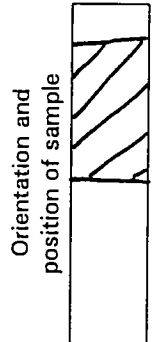
Project
Parr High School

Client
Testconsult Limited

Lab Ref No **B8216**

Borehole No 3
Sample
Depth 1.20
Our Sample Ref 4

Description		Brown silty CLAY with occasional partings of fine grey sand and medium gravel			
Sample Details					
Specimen Conditions		Undisturbed			
Height	mm	198.7			
Diameter	mm	103.3			
Moisture Content	%	17			
Bulk Density	Mg/m ³	2.07			
Dry Density	Mg/m ³	1.77			
Test Details		Stage No	1	2	3
Latex Membrane Thickness	mm		1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa		0.3	0.5	0.7
Rate of Axial Displacement	%/min		2.04	2.04	2.04
Cell Pressure	kPa		50	100	200
Strain at Failure	%		6.5	12.6	17.1
Maximum Deviator Stress	kPa		211	233	231
Shear Strength	kPa		106	116	116
Mode of Failure					



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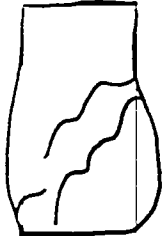
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Figure 4

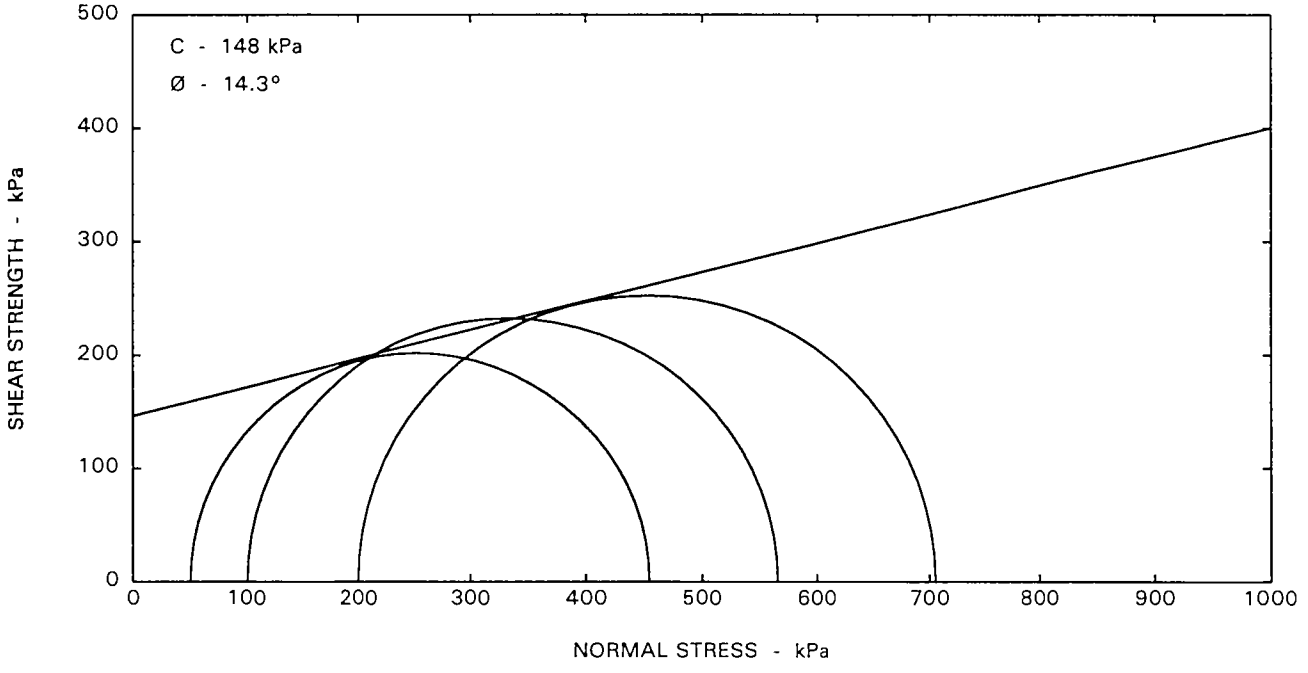
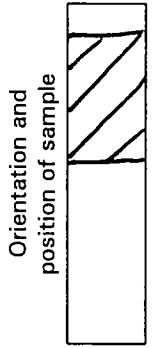
Sheet 1 of 1

TERRA TEK
Site Investigation & Laboratory Services

Project	Parr High School
Client	Testconsult Limited

Lab Ref No	B8216
Borehole No	No 3
Sample Depth	2.00
Our Sample Ref	5

Description	Medium brown CLAY with occasional fine to medium gravel			
Sample Details				
Specimen Conditions	Undisturbed			
Height	mm	198.2		
Diameter	mm	103.7		
Moisture Content	%	13		
Bulk Density	Mg/m ³	2.13		
Dry Density	Mg/m ³	1.88		
Test Details	Stage No	1	2	3
Latex Membrane Thickness	mm	1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa	0.5	0.6	0.7
Rate of Axial Displacement	%/min	2.05	2.05	2.05
Cell Pressure	kPa	50	100	200
Strain at Failure	%	10.6	15.6	20.2
Maximum Deviator Stress	kPa	404	465	506
Shear Strength	kPa	202	233	253
Mode of Failure				



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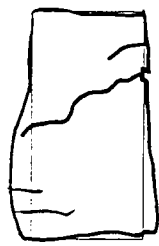
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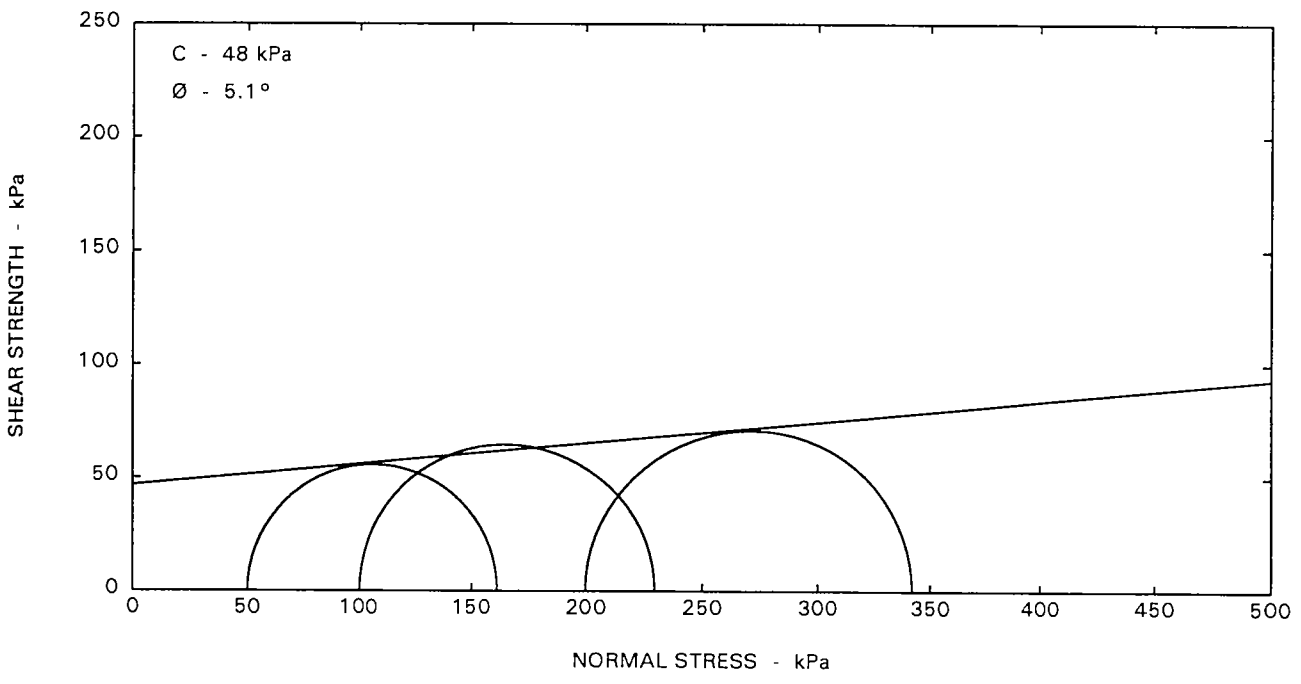
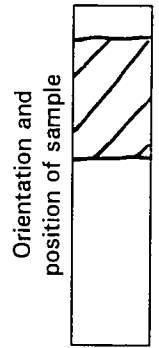
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Site Investigation & Laboratory Services

Project	Parr High School
Client	Testconsult Limited

Lab Ref No	B8216
Borehole No	No 4
Sample Depth	2.00
Our Sample Ref	6

Description	Medium brown slightly sandy silty CLAY with occasional fine to coarse gravel			
Sample Details				
Specimen Conditions	Undisturbed			
Height	mm	198.2		
Diameter	mm	103.8		
Moisture Content	%	19		
Bulk Density	Mg/m ³	2.08		
Dry Density	Mg/m ³	1.74		
Test Details	Stage No	1	2	3
Latex Membrane Thickness	mm	1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa	0.3	0.5	0.7
Rate of Axial Displacement	%/min	2.05	2.05	2.05
Cell Pressure	kPa	50	100	200
Strain at Failure	%	7.1	13.1	20.2
Maximum Deviator Stress	kPa	111	130	142
Shear Strength	kPa	56	65	71
Mode of Failure				



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Appendix 1
Figure 6
Sheet 1 of 1

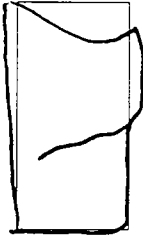
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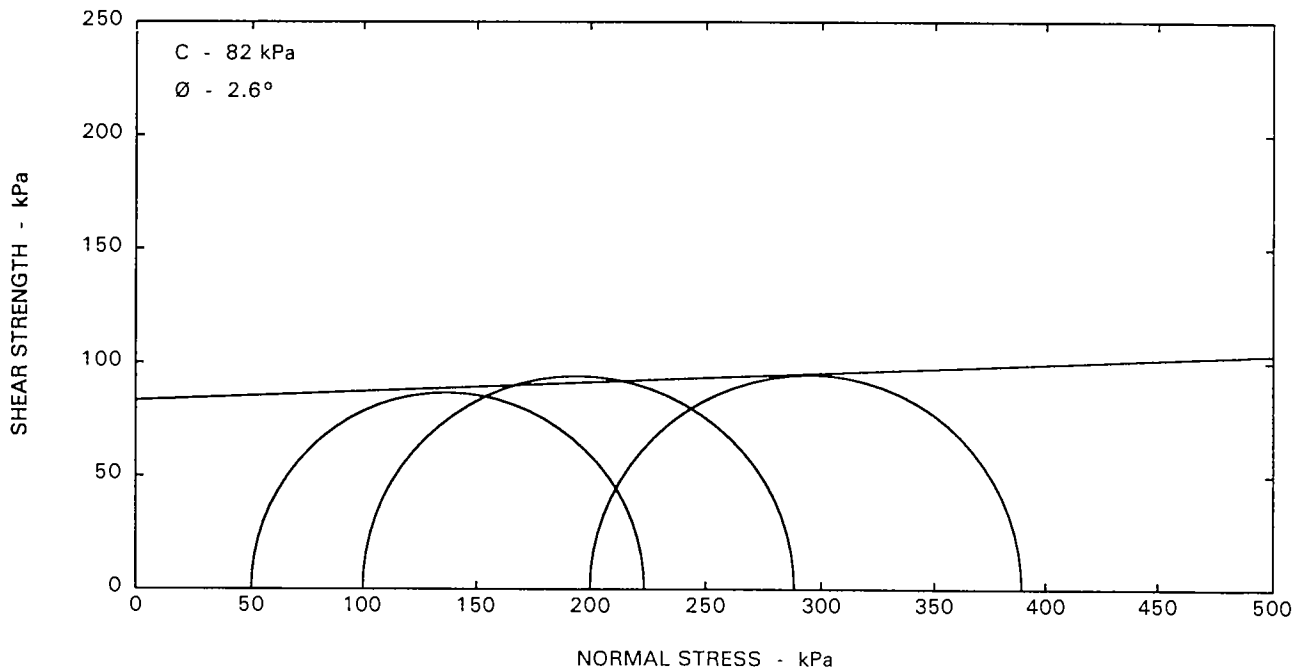
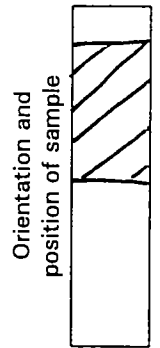
Project
Parr High School

Client
Testconsult Limited

Lab Ref No **B8216**

Borehole No 4
Sample
Depth 3.00
Our Sample Ref 7

Description		Medium brown slightly sandy silty CLAY with occasional fine to medium gravel			
Sample Details					
Specimen Conditions		Undisturbed			
Height	mm	198.3			
Diameter	mm	103.5			
Moisture Content	%	18			
Bulk Density	Mg/m ³	2.08			
Dry Density	Mg/m ³	1.77			
Test Details		Stage No	1	2	3
Latex Membrane Thickness	mm		1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa		0.4	0.6	0.7
Rate of Axial Displacement	%/min		2.05	2.05	2.05
Cell Pressure	kPa		50	100	200
Strain at Failure	%		8.6	14.6	20.2
Maximum Deviator Stress	kPa		174	188	189
Shear Strength	kPa		87	94	95
Mode of Failure					



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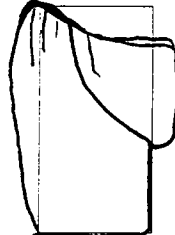
Appendix 1
Figure 7

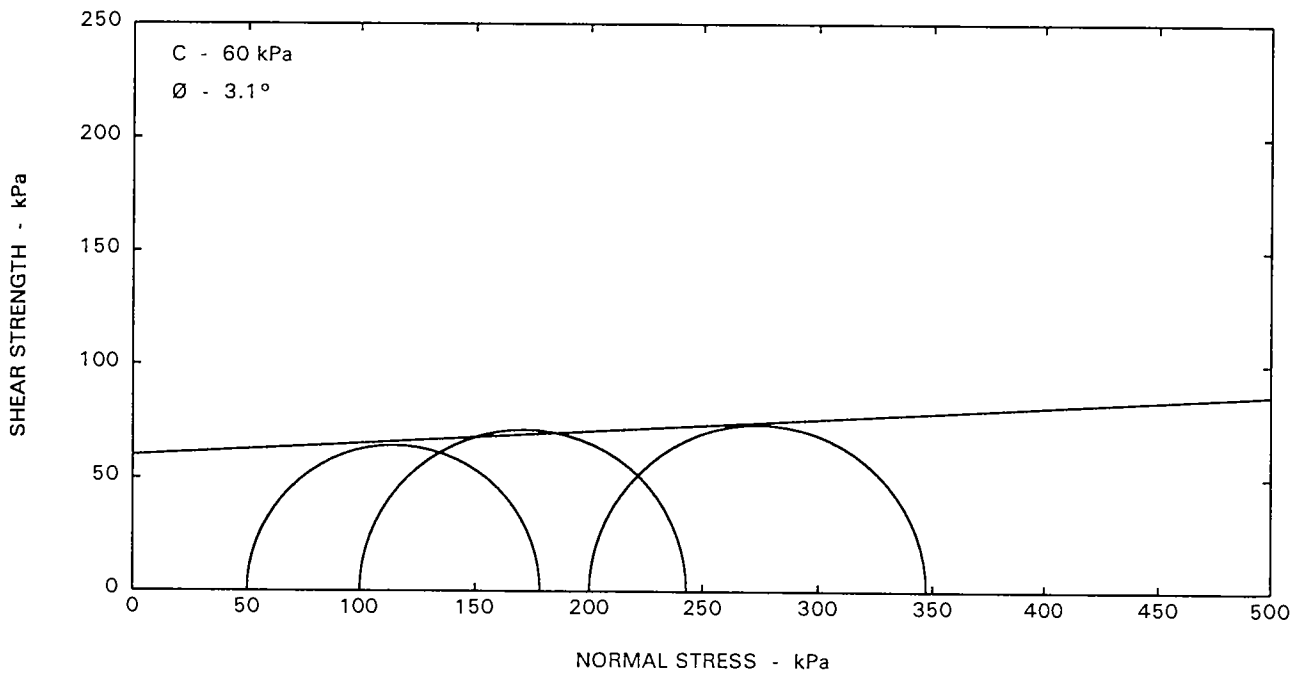
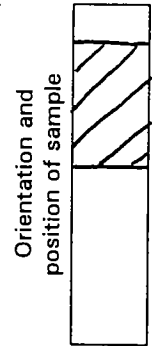
Sheet 1 of 1

TERRA TEK
Site Investigation & Laboratory Services

Project	Parr High School
Client	Testconsult Limited

Lab Ref No	B8216
Borehole No	No 4
Sample Depth	6.00
Our Sample Ref	8

Description		Medium brown silty CLAY with occasional fine gravel			
Sample Details					
Specimen Conditions		Undisturbed			
Height	mm	198.8			
Diameter	mm	101.5			
Moisture Content	%	18			
Bulk Density	Mg/m ³	2.09			
Dry Density	Mg/m ³	1.77			
Test Details		Stage No	1	2	3
Latex Membrane Thickness	mm		1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa		0.4	0.6	0.8
Rate of Axial Displacement	%/min		2.04	2.04	2.04
Cell Pressure	kPa		50	100	200
Strain at Failure	%		9.6	14.6	20.1
Maximum Deviator Stress	kPa		129	143	147
Shear Strength	kPa		64	71	74
Mode of Failure					



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Appendix 1
Figure 8

Sheet 1 of 1

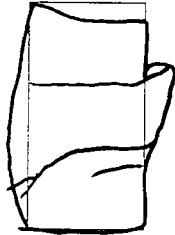
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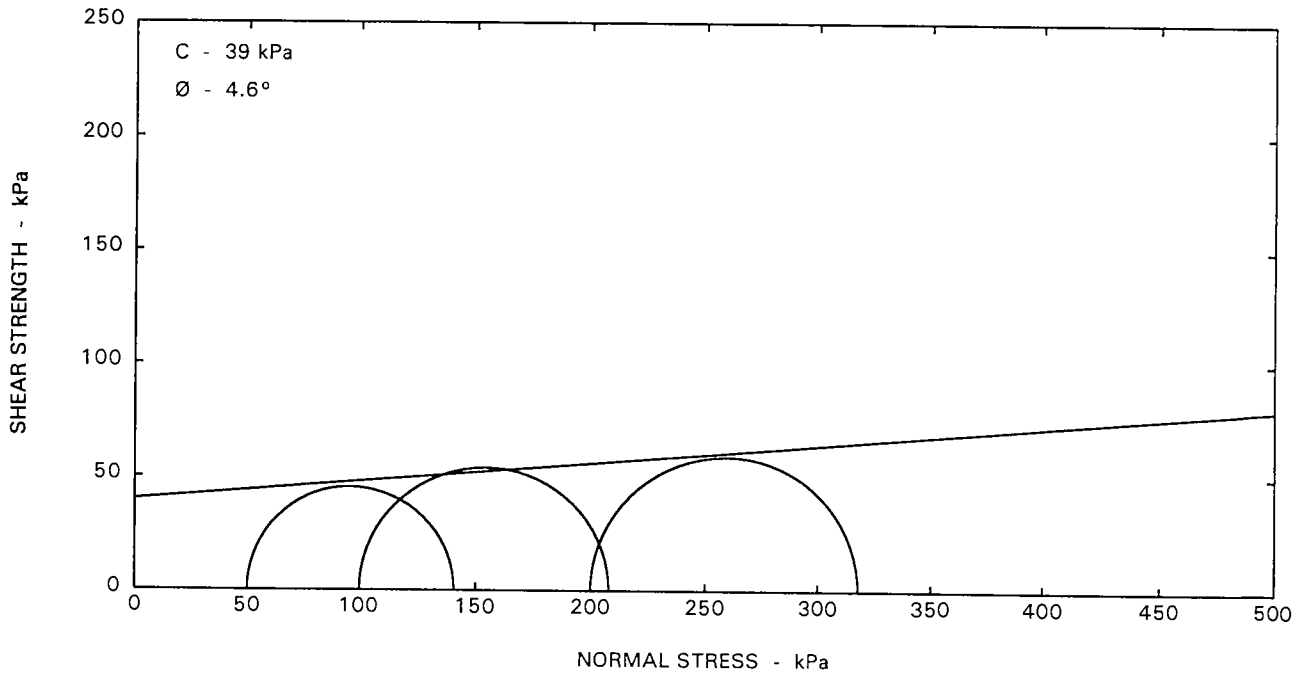
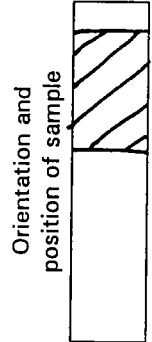
Project
Parr High School

Client
Testconsult Limited

Lab Ref No **B8216**

Borehole No 5
Sample
Depth 1.00
Our Sample Ref 9

Description		Medium brown slightly friable silty CLAY with occasional siltstone and fine angular grey rock			
Sample Details					
Specimen Conditions		Undisturbed			
Height	mm	198.2			
Diameter	mm	103.2			
Moisture Content	%	17			
Bulk Density	Mg/m ³	2.08			
Dry Density	Mg/m ³	1.78			
Test Details		Stage No	1	2	3
Latex Membrane Thickness	mm		1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa		0.4	0.6	0.7
Rate of Axial Displacement	%/min		2.05	2.05	2.05
Cell Pressure	kPa		50	100	200
Strain at Failure	%		9.6	15.1	20.2
Maximum Deviator Stress	kPa		90	108	118
Shear Strength	kPa		45	54	59
Mode of Failure					
					



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Appendix 1
Figure 9
Sheet 1 of 1

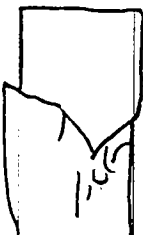
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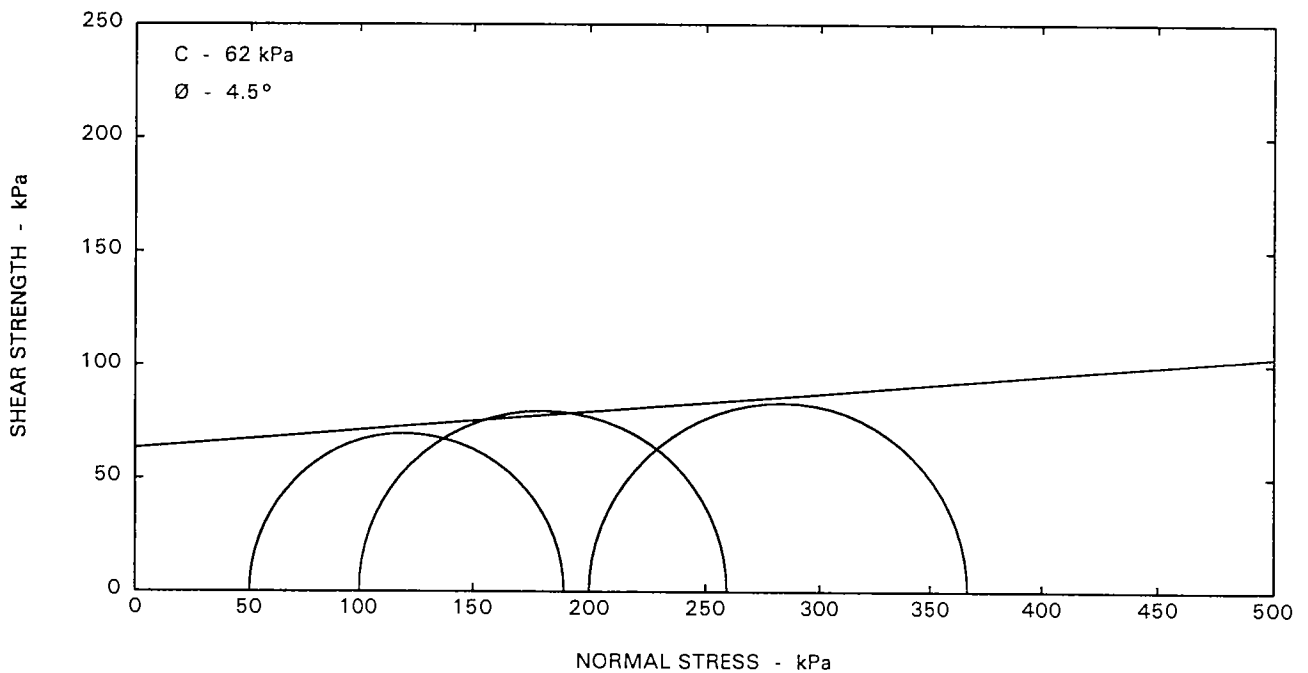
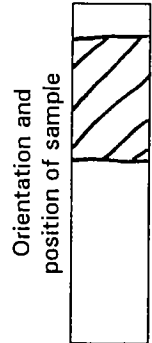
Project
Parr High School

Client
Testconsult Limited

Lab Ref No **B8216**

Borehole No 5
Sample
Depth 3.00
Our Sample Ref 10

Description		Medium brown silty CLAY with occasional fine to medium gravel			
Sample Details					
Specimen Conditions		Undisturbed			
Height	mm	198.2			
Diameter	mm	103.2			
Moisture Content	%	15			
Bulk Density	Mg/m ³	2.14			
Dry Density	Mg/m ³	1.86			
Test Details		Stage No	1	2	3
Latex Membrane Thickness	mm		1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa		0.4	0.6	0.7
Rate of Axial Displacement	%/min		2.05	2.05	2.05
Cell Pressure	kPa		50	100	200
Strain at Failure	%		9.6	15.6	20.2
Maximum Deviator Stress	kPa		139	160	167
Shear Strength	kPa		70	80	83
Mode of Failure					
					



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Appendix 1
Figure 10

Sheet 1 of 1

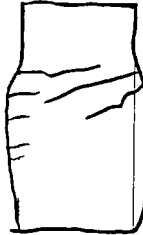
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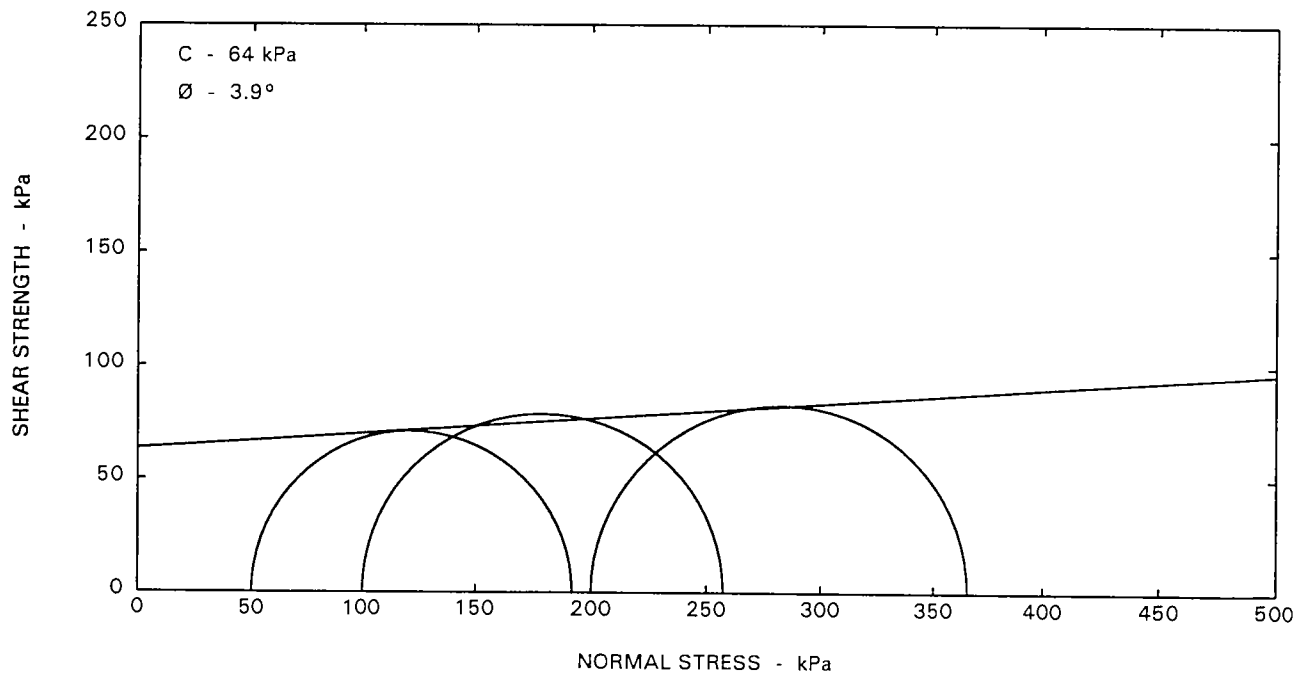
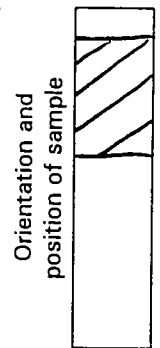
Project
Parr High School

Client
Testconsult Limited

Lab Ref No **B8216**

Borehole No 5
Sample
Depth 4.50
Our Sample Ref 11

Description		Medium brown silty CLAY with occasional fine to medium gravel			
Sample Details					
Specimen Conditions		Undisturbed			
Height	mm	198.3			
Diameter	mm	103.3			
Moisture Content	%	15			
Bulk Density	Mg/m ³	2.18			
Dry Density	Mg/m ³	1.90			
Test Details		Stage No	1	2	3
Latex Membrane Thickness	mm		1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa		0.4	0.6	0.7
Rate of Axial Displacement	%/min		2.05	2.05	2.05
Cell Pressure	kPa		50	100	200
Strain at Failure	%		9.6	14.6	20.2
Maximum Deviator Stress	kPa		142	158	165
Shear Strength	kPa		71	79	83
Mode of Failure					
					



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Appendix 1
Figure 11

Sheet 1 of 1

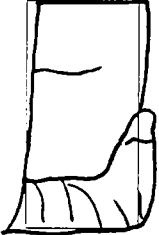
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Site Investigation & Laboratory Services

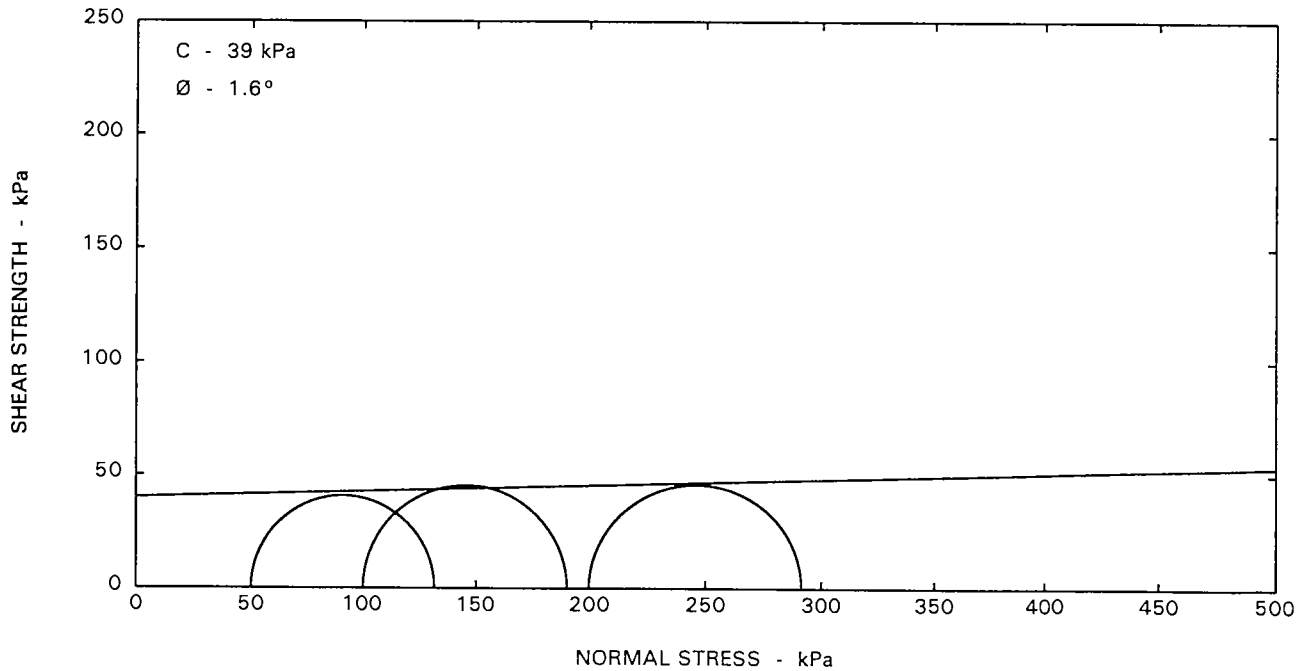
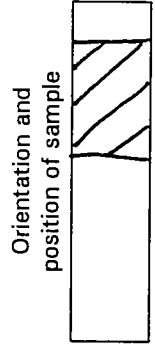
Project
Parr High School

Client
Testconsult Limited

Lab Ref No **B8216**

Borehole No 5
Sample
Depth 6.00
Our Sample Ref 12

Description		Medium brown silty CLAY with occasional fine gravel			
Sample Details					
Specimen Conditions		Undisturbed			
Height	mm	198.8			
Diameter	mm	103.8			
Moisture Content	%	16			
Bulk Density	Mg/m ³	1.98			
Dry Density	Mg/m ³	1.70			
Test Details		Stage No	1	2	3
Latex Membrane Thickness	mm		1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa		0.4	0.5	0.7
Rate of Axial Displacement	%/min		2.04	2.04	2.04
Cell Pressure	kPa		50	100	200
Strain at Failure	%		9.6	13.6	17.6
Maximum Deviator Stress	kPa		81	90	91
Shear Strength	kPa		41	45	46
Mode of Failure					
					



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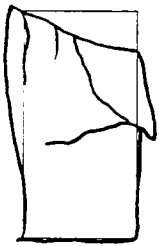
Appendix 1
Figure 12

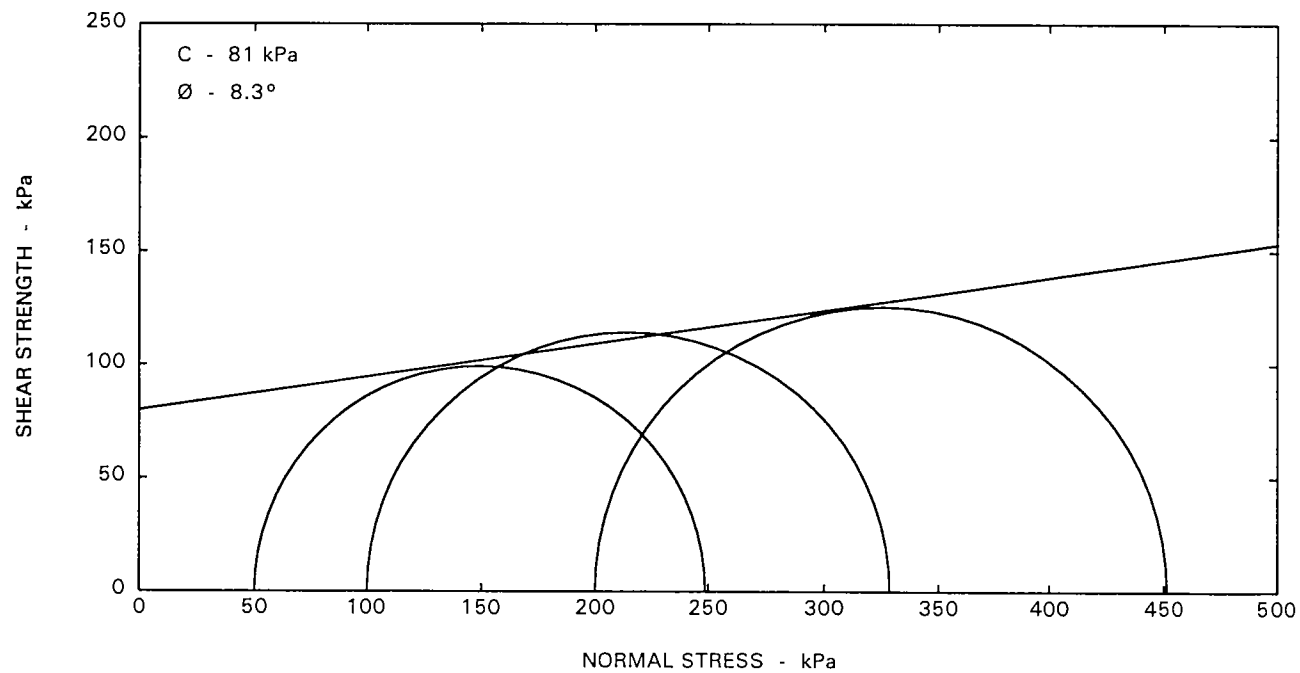
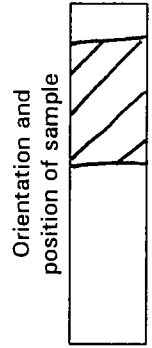
Sheet 1 of 1

TERRA TEK
Site Investigation & Laboratory Services

Project	Parr High School
Client	Testconsult Limited

Lab Ref No	B8216
Borehole No	6
Sample Depth	3.00
Our Sample Ref	13

Description	Medium brown silty CLAY with occasional fine to medium gravel			
Sample Details				
Specimen Conditions	Undisturbed			
Height	mm	198.2		
Diameter	mm	103.0		
Moisture Content	%	15		
Bulk Density	Mg/m ³	2.20		
Dry Density	Mg/m ³	1.92		
Test Details	Stage No	1	2	3
Latex Membrane Thickness	mm	1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa	0.4	0.6	0.7
Rate of Axial Displacement	%/min	2.05	2.05	2.05
Cell Pressure	kPa	50	100	200
Strain at Failure	%	10.1	15.1	20.2
Maximum Deviator Stress	kPa	198	229	251
Shear Strength	kPa	99	114	126
Mode of Failure				



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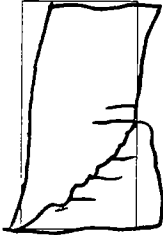

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 BS1377:Part 7:1990 Clause 9

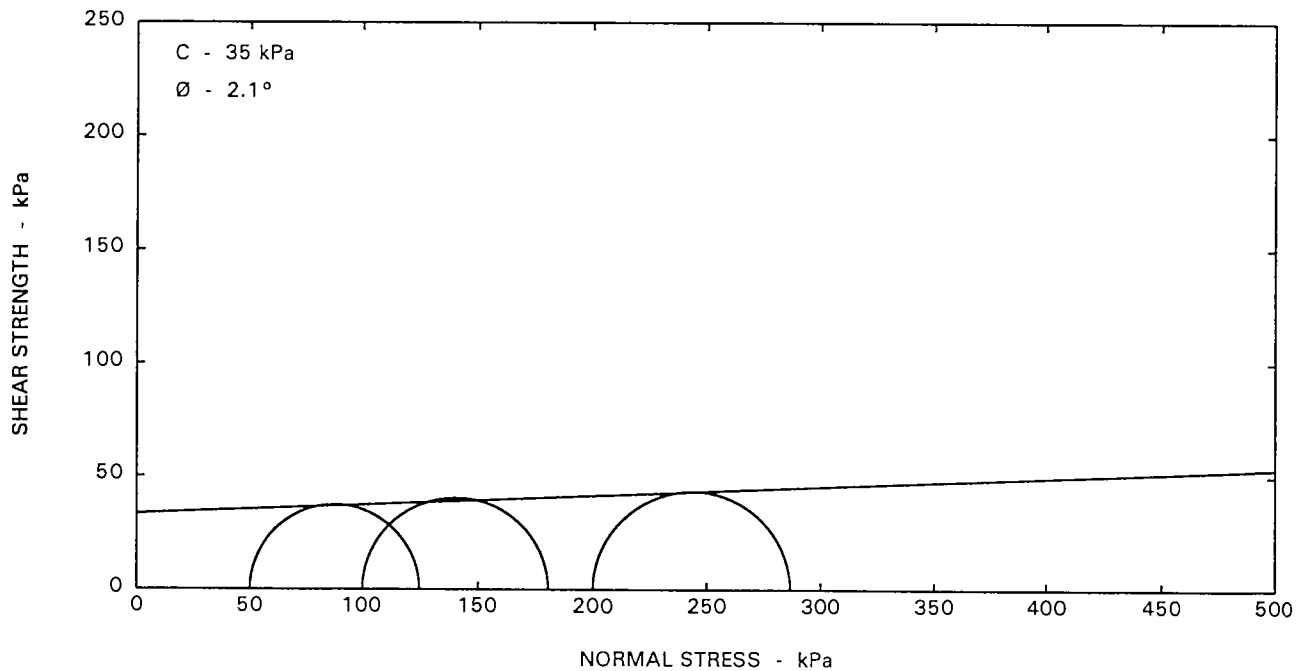
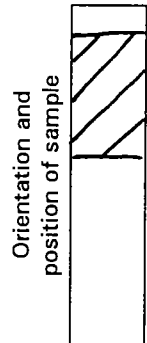
Appendix 1
 Figure 13
 Sheet 1 of 1

TERRA TEK
Site Investigation & Laboratory Services

Project	Parr High School
Client	Testconsult Limited

Lab Ref No	B8216
Borehole No	7
Sample Depth	2.00
Our Sample Ref	14

Description	Medium brown silty CLAY with occasional pockets of fine grey sand and sandstone			
Sample Details				
Specimen Conditions	Undisturbed			
Height	mm	198.2		
Diameter	mm	102.8		
Moisture Content	%	15		
Bulk Density	Mg/m ³	2.12		
Dry Density	Mg/m ³	1.84		
Test Details	Stage No	1	2	3
Latex Membrane Thickness	mm	1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa	0.4	0.6	0.7
Rate of Axial Displacement	%/min	2.05	2.05	2.05
Cell Pressure	kPa	50	100	200
Strain at Failure	%	9.6	14.1	20.2
Maximum Deviator Stress	kPa	75	81	87
Shear Strength	kPa	37	40	43
Mode of Failure				



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BS1377:Part 7:1990 Clause 9


Appendix 1
Figure 14

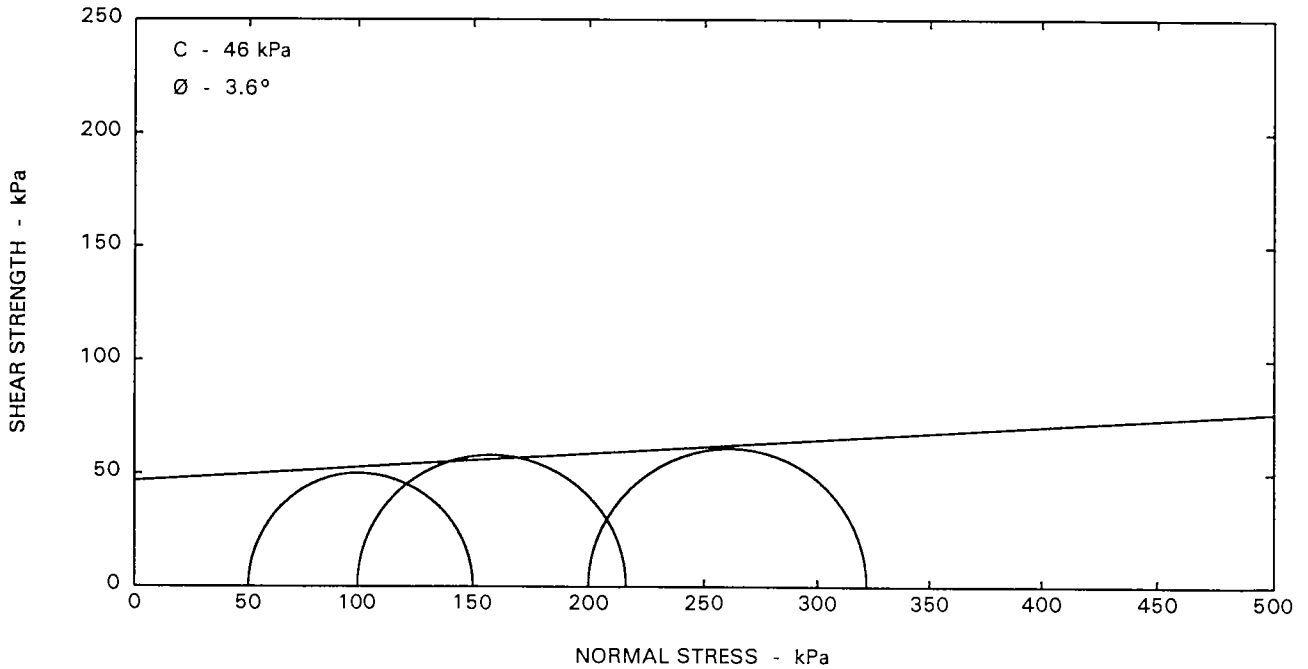
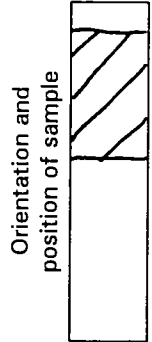
Sheet 1 of 1

TERRA TEK
Site Investigation & Laboratory Services

Project	Parr High School
Client	Testconsult Limited

Lab Ref No **B8216**
Borehole No 7
Sample
Depth 3.00
Our Sample Ref 15

Description		Medium brown CLAY with occasional pockets of fine sand and some fine to medium gravel			
Sample Details					
Specimen Conditions		Undisturbed			
Height	mm	198.7			
Diameter	mm	102.8			
Moisture Content	%	15			
Bulk Density	Mg/m ³	2.15			
Dry Density	Mg/m ³	1.87			
Test Details		Stage No	1	2	3
Latex Membrane Thickness	mm		1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa		0.4	0.6	0.7
Rate of Axial Displacement	%/min		2.04	2.04	2.04
Cell Pressure	kPa		50	100	200
Strain at Failure	%		8.1	14.1	20.1
Maximum Deviator Stress	kPa		100	116	122
Shear Strength	kPa		50	58	61
Mode of Failure					



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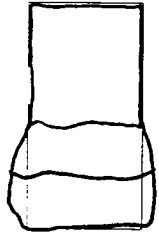
Appendix 1
Figure 15

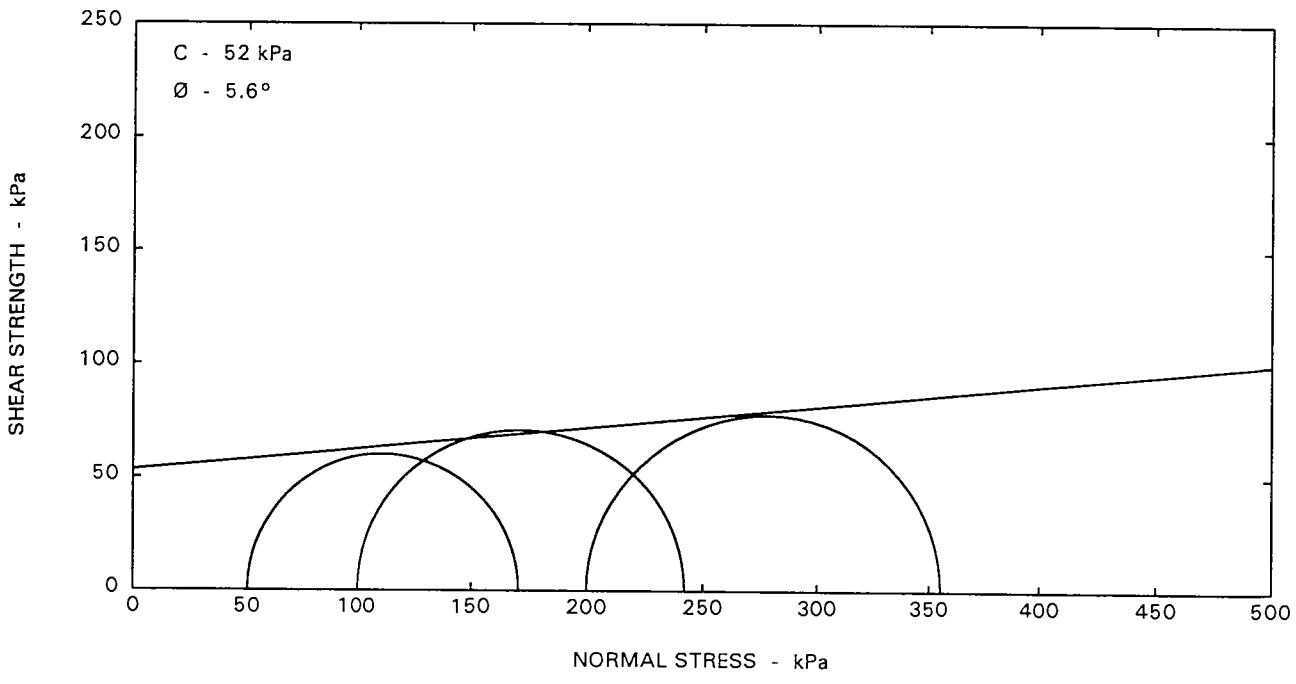
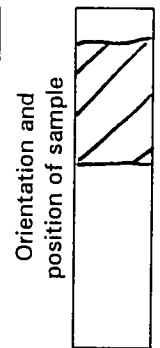
Sheet 1 of 1

TERRA TEK
Site Investigation & Laboratory Services

Project	Parr High School
Client	Testconsult Limited

Lab Ref No	B8216
Borehole No	No 7
Sample	Depth 6.00
Our Sample Ref	16

Description	Medium brown silty CLAY with some fine gravel			
Sample Details				
Specimen Conditions	Undisturbed			
Height	mm	198.0		
Diameter	mm	103.8		
Moisture Content	%	17		
Bulk Density	Mg/m ³	2.14		
Dry Density	Mg/m ³	1.84		
Test Details	Stage No	1	2	3
Latex Membrane Thickness	mm	1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa	0.5	0.6	0.7
Rate of Axial Displacement	%/min	2.05	2.05	2.05
Cell Pressure	kPa	50	100	200
Strain at Failure	%	10.6	15.7	20.2
Maximum Deviator Stress	kPa	121	142	155
Shear Strength	kPa	60	71	78
Mode of Failure				



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 TRIAXIAL COMPRESSION
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Appendix 1
 Figure 16
 Sheet 1 of 1


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Site Investigation & Laboratory Services

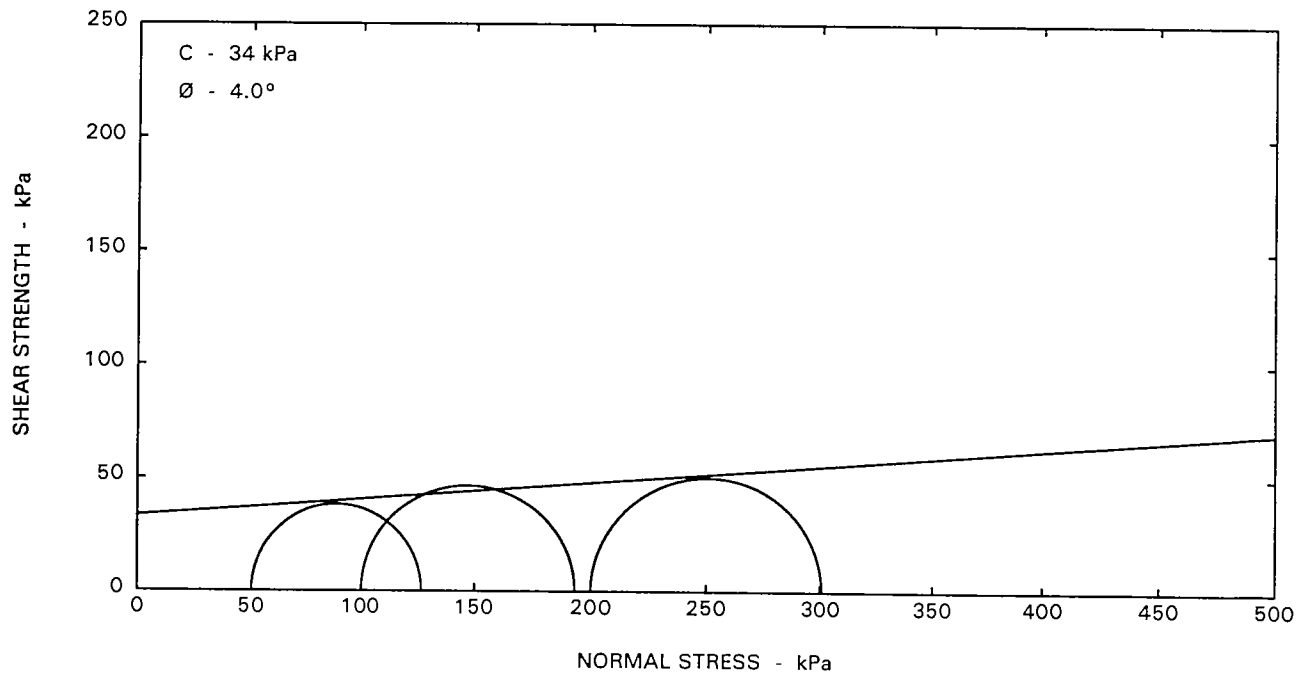
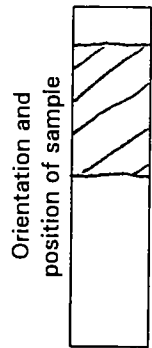
Project
Parr High School

Client
Testconsult Limited

Lab Ref No **B8216**

Borehole No 8
Sample
Depth 2.00
Our Sample Ref 17

Description		Light grey mottled medium brown silty CLAY with occasional fine gravel			
Sample Details					
Specimen Conditions		Undisturbed			
Height	mm	198.8			
Diameter	mm	102.7			
Moisture Content	%	20			
Bulk Density	Mg/m ³	2.00			
Dry Density	Mg/m ³	1.67			
Test Details		Stage No	1	2	3
Latex Membrane Thickness	mm		1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa		0.4	0.6	0.7
Rate of Axial Displacement	%/min		2.04	2.04	2.04
Cell Pressure	kPa		50	100	200
Strain at Failure	%		8.0	14.6	20.1
Maximum Deviator Stress	kPa		77	93	101
Shear Strength	kPa		38	47	50
Mode of Failure					



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Appendix 1
Figure 17

Sheet 1 of 1

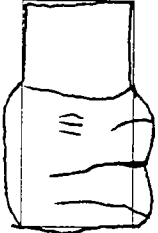
TERRA TEK
Site Investigation & Laboratory Services

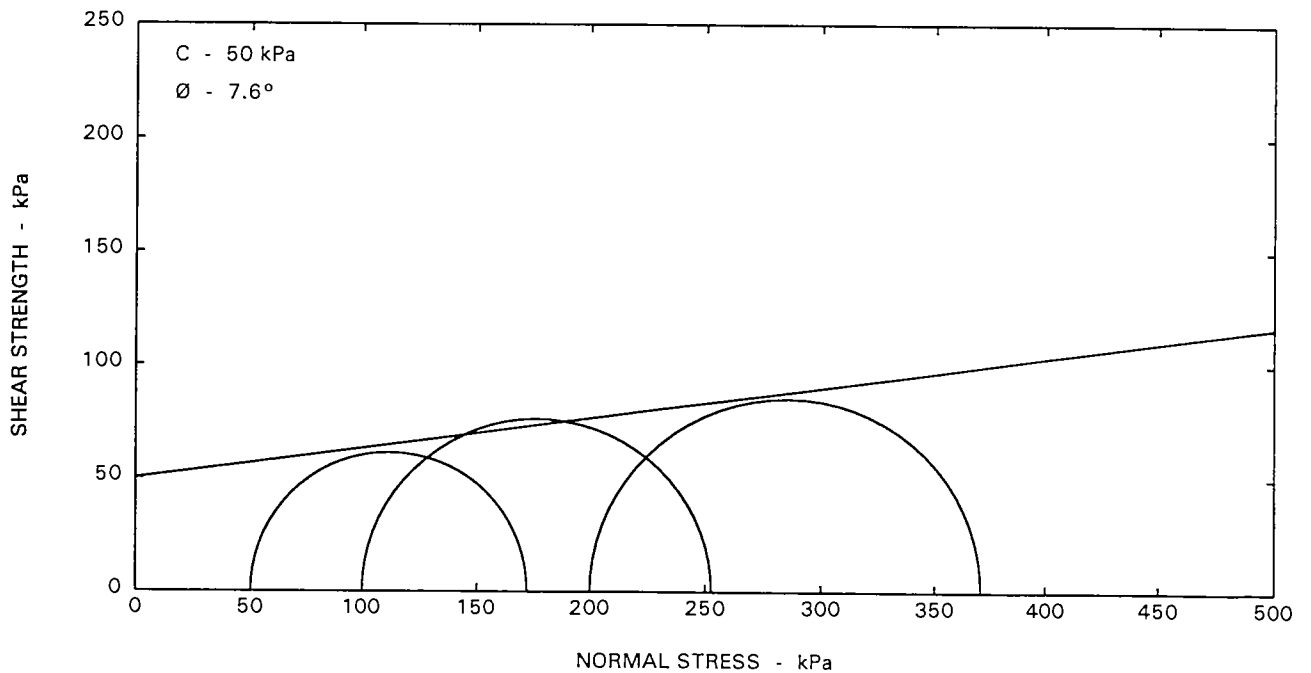
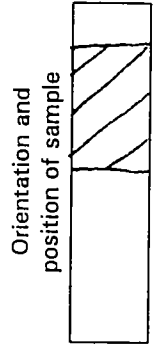
Project
Parr High School

Client
Testconsult Limited

Lab Ref No **B8216**

Borehole No 8
Sample
Depth 3.00
Our Sample Ref 18

Description		Medium brown slightly sandy silty CLAY with occasional pockets of silty sand and fine gravel			
Sample Details					
Specimen Conditions		Undisturbed			
Height	mm	165.6			
Diameter	mm	102.8			
Moisture Content	%	15			
Bulk Density	Mg/m ³	2.15			
Dry Density	Mg/m ³	1.87			
Test Details		Stage No	1	2	3
Latex Membrane Thickness	mm		1 x 0.2	1 x 0.2	1 x 0.2
Membrane Correction	kPa		0.4	0.6	0.7
Rate of Axial Displacement	%/min		2.45	2.45	2.45
Cell Pressure	kPa		50	100	200
Strain at Failure	%		9.7	15.7	20.5
Maximum Deviator Stress	kPa		122	153	170
Shear Strength	kPa		61	76	85
Mode of Failure					



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TRIAXIAL COMPRESSION
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Appendix 1
Figure 18

Sheet 1 of 1

Contract Name **Parr High School**

Number **B8216**

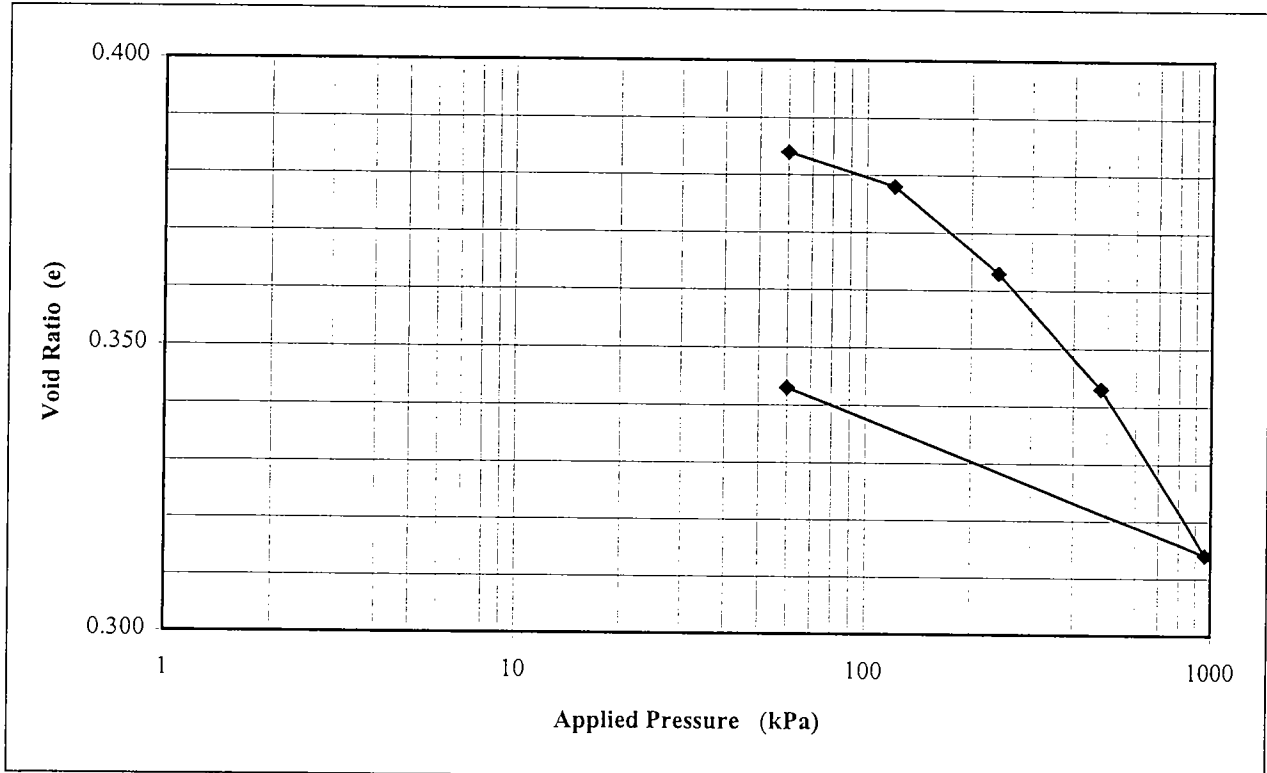
Sample Details **BH 1**

Type **U100**

Start Depth (m) **3.00**

Sample Number **1**

Test Specimen **Specimen taken 50 mm below the top of the U100 tube by vertical extrusion with horizontal orientation.**



Sample and Test Details					Laboratory Coefficients Sq. Root Time Method	
Laboratory Temperature	(°C)	20 ± 2	Pressure	Void Ratio	M _v	C _v
Initial Height	(mm)	19.2	(kPa)		(m ² /MN)	(m ² /year)
Area	(mm ²)	4383	2		0.139	25.53
Particle Density	(Assumed)	2.68	60	0.384	0.08	4.04
			120	0.378	0.088	5.38
			240	0.363	0.061	4.02
			480	0.343	0.044	2.50
			960	0.314	~	~
Moisture Content	(%)	14	14	60	0.343	
Bulk Density	(Mg/m ³)	2.19	2.27			
Dry Density	(Mg/m ³)	1.92	2.00			
Void Ratio	(e)	0.396	0.343			
Saturation	(%)	95	108.4			

Contract Name **Parr High School**

Number **B8216**

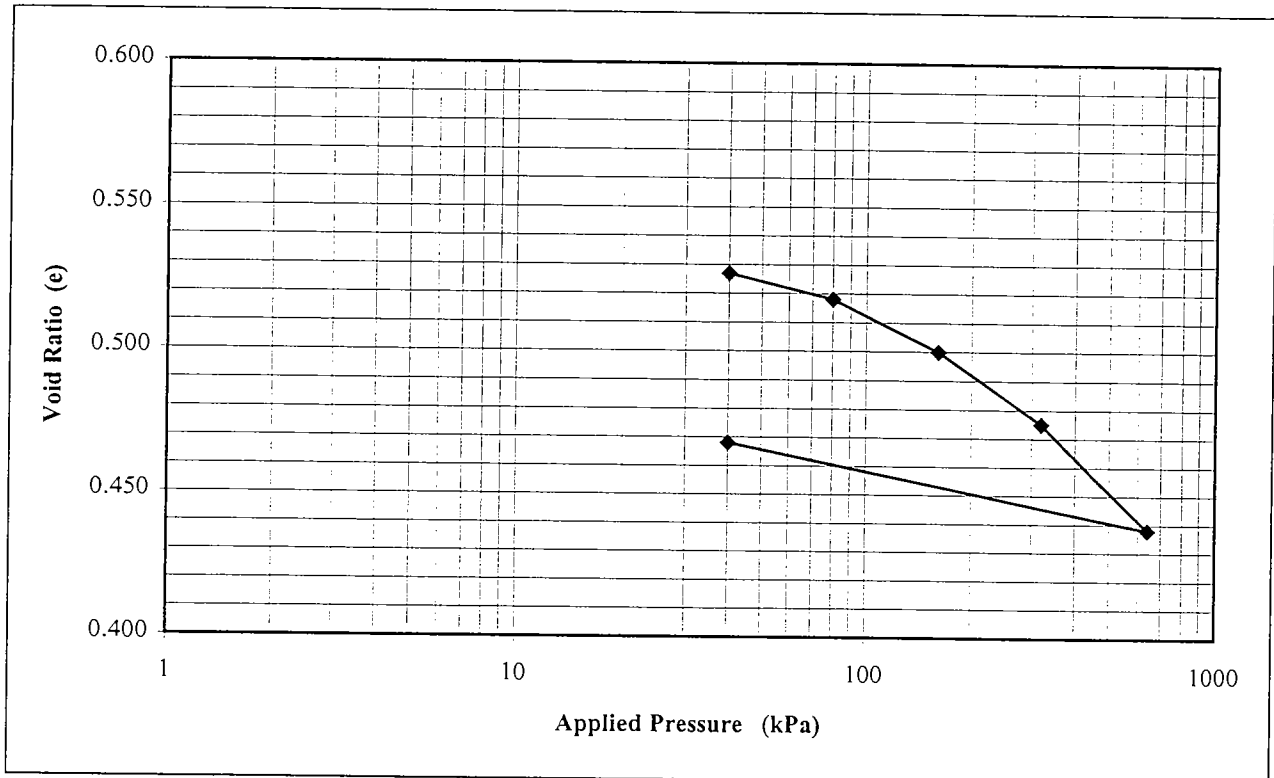
Sample Details **BH 4**

Type **U10**

Start Depth (m) **2.00**

Sample Number **6**

Test Specimen **Specimen taken 50 mm below the top of the U100 tube by vertical extrusion with horizontal orientation.**



Sample and Test Details					Laboratory Coefficients Sq. Root Time Method	
Laboratory Temperature	(°C)	20 ± 2	Pressure	Void	M _v	C _v
Initial Height	(mm)	19.4	(kPa)	Ratio	(m ² /MN)	(m ² /year)
Area	(mm ²)	4383	2		0.187	8.63
Particle Density	(Assumed)	2.68	40	0.527	0.155	2.38
			80	0.518	0.147	1.25
			160	0.5	0.104	1.65
			320	0.475	0.077	1.17
			640	0.438	~	~
Moisture Content	(%)	19	18			
Bulk Density	(Mg/m ³)	2.07	2.15	40	0.468	
Dry Density	(Mg/m ³)	1.74	1.82			
Void Ratio	(e)	0.538	0.468			
Saturation	(%)	95	102.5			

Contract Name **Parr High School**

Number **B8216**

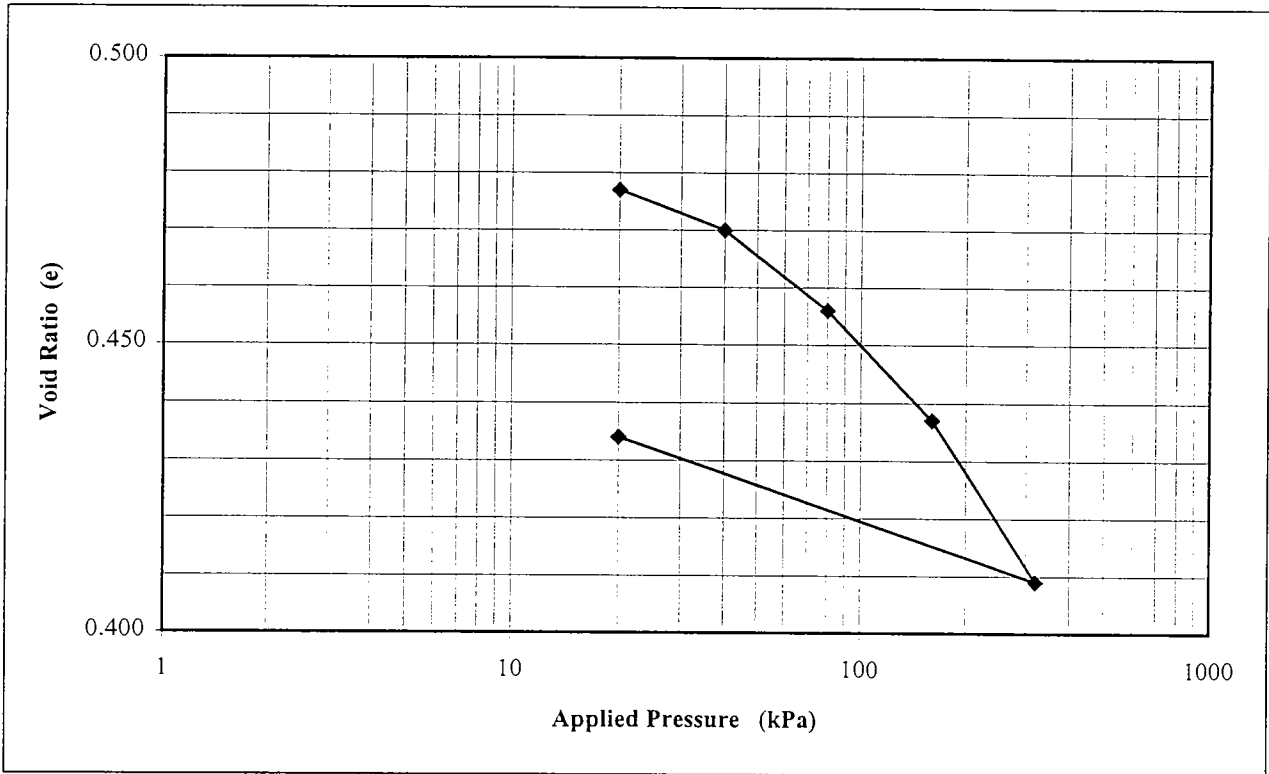
Sample Details **BH 5**

Type **U100**

Start Depth (m) **1.00**

Sample Number **9**

Test Specimen **Specimen taken 50 mm below the top of the U100 tube by vertical extrusion with horizontal orientation.**



Sample and Test Details

					Laboratory Coefficients Sq. Root Time Method	
					M_v (m^2/MN)	C_v ($m^2/year$)
Laboratory Temperature	(°C)	20 ± 2	Pressure	Void Ratio		
Initial Height	(mm)	19.3	(kPa)			
Area	(mm^2)	4414	2		0.296	10.64
Particle Density	(Assumed)	2.68	20	0.477	0.238	3.07
			40	0.470	0.232	1.77
			80	0.456	0.167	3.20
			160	0.437	0.122	2.42
			320	0.409	~	~
Moisture Content	(%)	17	17			
Bulk Density	(Mg/m^3)	2.11	2.17	20	0.434	
Dry Density	(Mg/m^3)	1.80	1.85			
Void Ratio	(e)	0.485	0.434			
Saturation	(%)	94	101.3			

Contract Name **Parr High School**

Number **B8216**

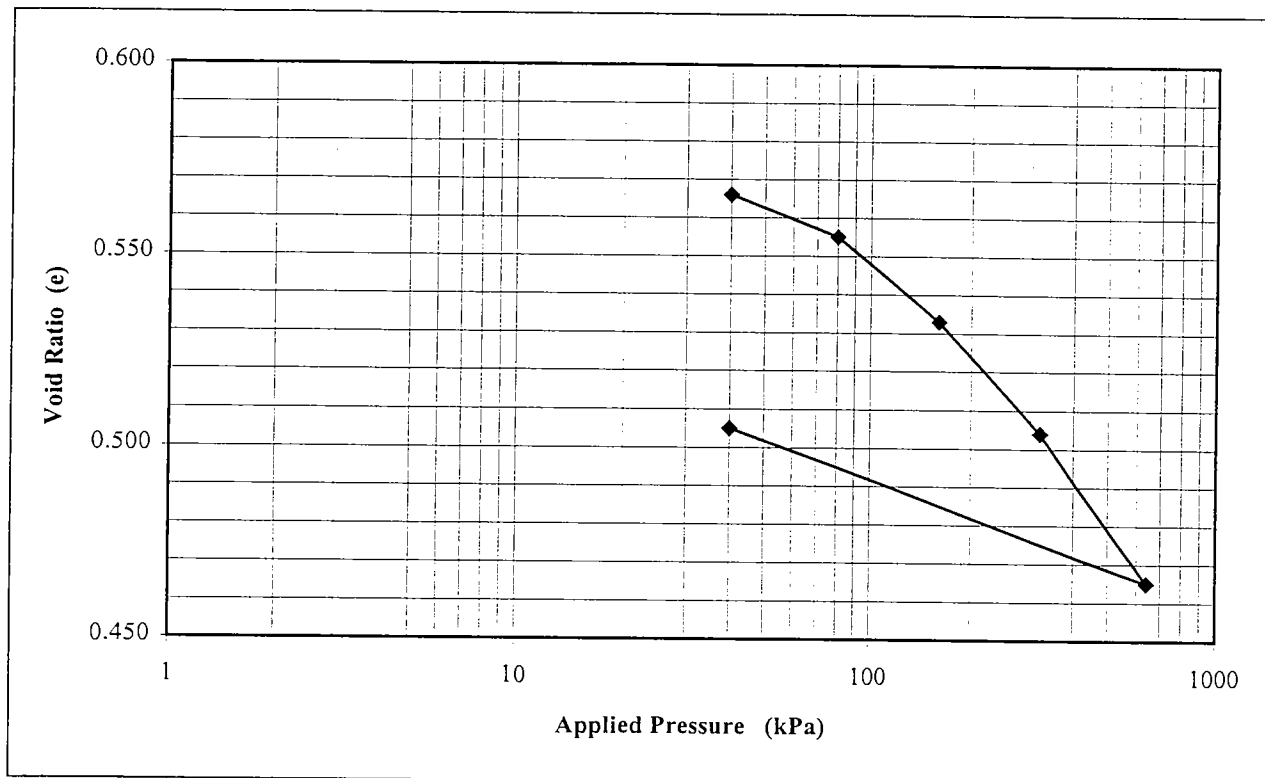
Sample Details **BH 8**

Type **U100**

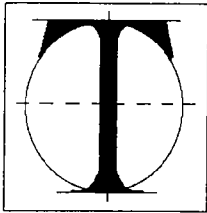
Start Depth (m) **2.00**

Sample Number **17**

Test Specimen **Specimen taken 50 mm below the top of the U100 tube by vertical extrusion with horizontal orientation.**



Sample and Test Details				Laboratory Coefficients Sq. Root Time Method		
Laboratory Temperature	(°C)	20 ± 2	Pressure	Void	M _v	C _v
Initial Height	(mm)	19.5	(kPa)	Ratio	(m ² /MN)	(m ² /year)
Area	(mm ²)	4411	2		0.183	3.93
Particle Density	(Assumed)	2.68	40	0.566	0.18	0.86
			80	0.555	0.171	0.91
			160	0.533	0.118	1.12
			320	0.504	0.080	1.08
			640	0.465	~	~
Moisture Content	(%)	20	21	40	0.505	
Bulk Density	(Mg/m ³)	2.04	2.10			
Dry Density	(Mg/m ³)	1.70	1.74			
Void Ratio	(e)	0.577	0.505			
Saturation	(%)	93	103			



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LABORATORY TEST REPORT

MOISTURE CONTENT BS 1377 : Part 2 : 1990 Oven Drying Method cl 3.2

Site:	Parr High School, St Helens	Job No.:	L5118
Client:	Rotary Test Drilling Limited	Lab Ref No.:	SA9827
	Marshes Farm	Sample Ref.:	n/a
	Westhoughton	Date Reported:	12/05/2003
	Bolton. BL5 2BT	Date Received:	28/04/2003
		Date Tested:	29/04/03
Originator:	P Dainton		

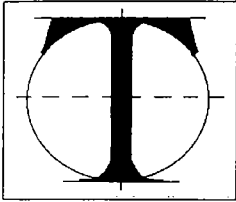
Sampled By: Client *Sample Type:* Disturbed

Sampling Cert.: No *Description:* Soil

<i>Sample Ref</i>	<i>Moisture Content (%)</i>	<i>Sample No</i>	<i>Moisture Content (%)</i>
BH 4 @ 1.00m	19	BH1 @ 1.20m	23

Tested in accordance with BS 1377: Part 2: 1990


 Mark R Dawkins
 Laboratory Manager
 TESTCONSULT LIMITED



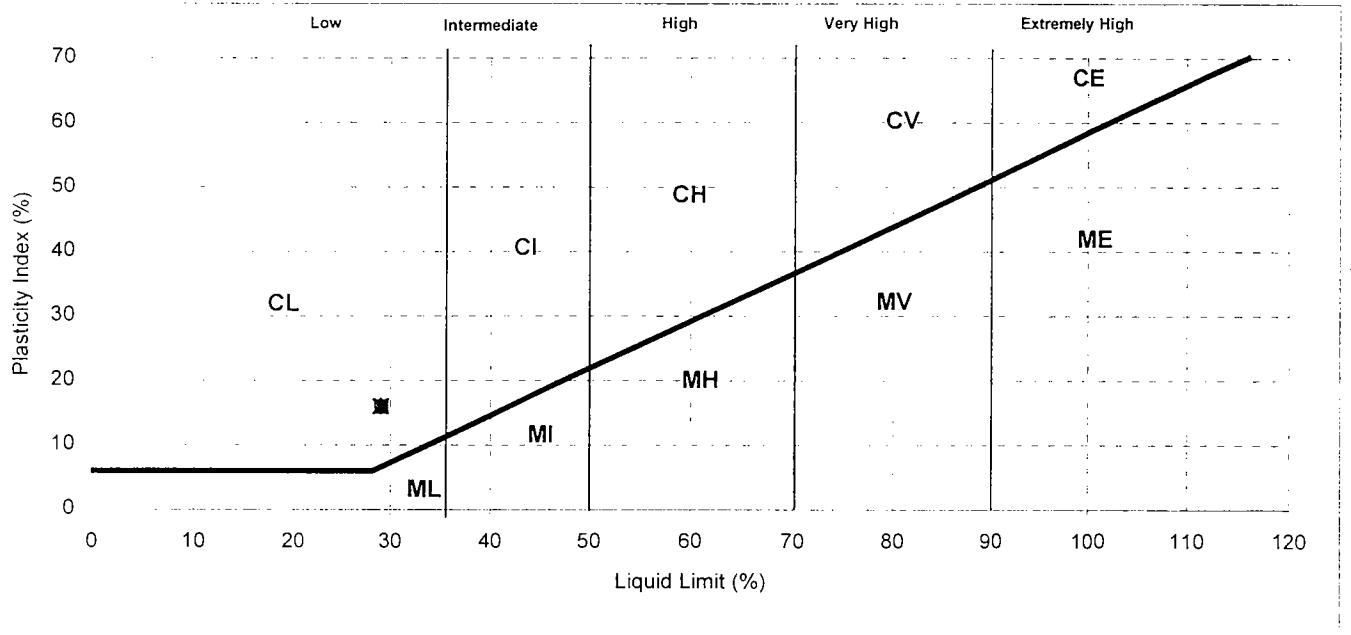
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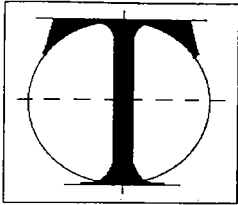
LABORATORY TEST REPORT
LIQUID & PLASTIC LIMIT TESTS BS 1377: Part 2: 1990 CI 4.4

Site:	Parr High School, St Helens	Job No.:	L5118
Client:	Rotary Test Drilling Limited	Lab Ref No.:	SA9827
	Marshes Farm	Sample Ref.:	BH 1 @ 3.00-3.40m
	Westhoughton	Date Reported:	12/05/2003
	Bolton. BL5 2BT	Date Received:	28/04/2003
Originator:	P Dainton	Date Tested:	11/05/2003

Sampling Certificate	No
Sampled By	Client
Sample Type	Undisturbed
Sample Preparation Method	As Received
MATERIAL	Brown sandy CLAY
Retained 425 micron (%)	0
Natural Moisture Content (%)	14
Liquid Limit (single point)(%)	29
Plastic Limit (%)	13
Plasticity Index (%)	16




Mark R Dawkins
Laboratory Manager
Testconsult Limited



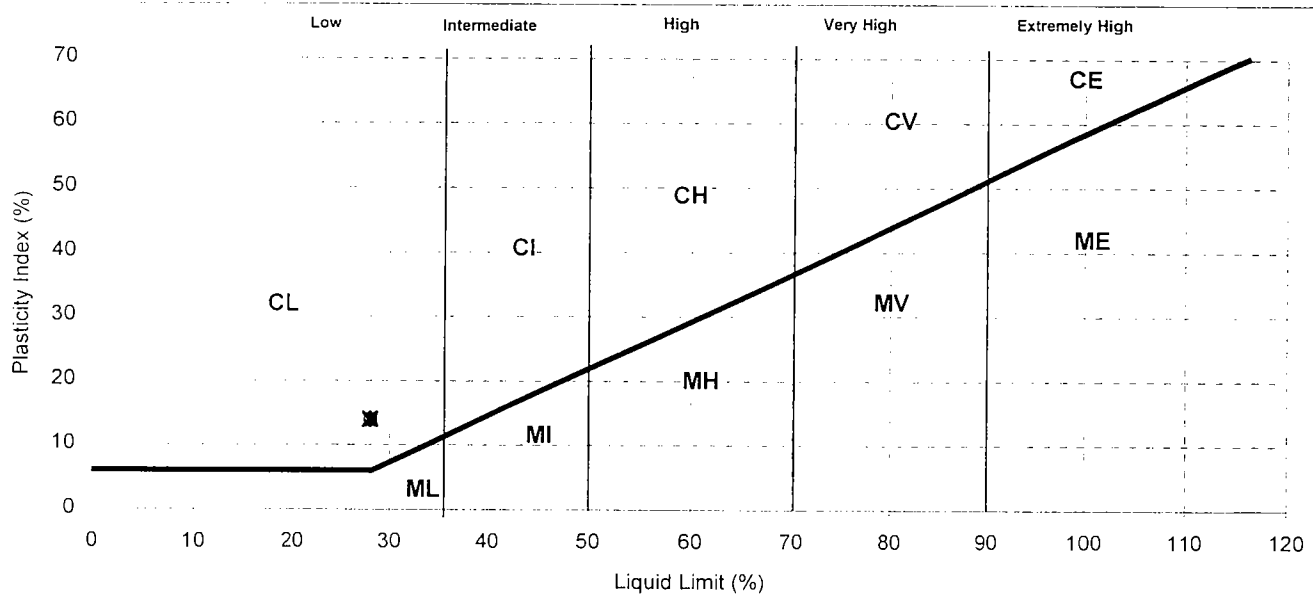
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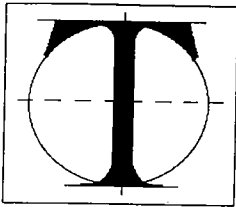
LABORATORY TEST REPORT
LIQUID & PLASTIC LIMIT TESTS BS 1377: Part 2: 1990 Cl 4.4

Site:	Parr High School, St Helens	Job No.:	L5118
Client:	Rotary Test Drilling Limited	Lab Ref No.:	SA9827
	Marshes Farm	Sample Ref.:	BH 4 @ 2.00-2.40m
	Westhoughton	Date Reported:	12/05/2003
	Bolton. BL5 2BT	Date Received:	28/04/2003
Originator:	P Dainton	Date Tested:	11/05/2003

Sampling Certificate	No
Sampled By	Client
Sample Type	Undisturbed
Sample Preparation Method	As Received
MATERIAL	Brown sandy CLAY
Retained 425 micron (%)	0
Natural Moisture Content (%)	14
Liquid Limit (single point)(%)	28
Plastic Limit (%)	14
Plasticity Index (%)	14




Mark R Dawkins
Laboratory Manager
Testconsult Limited



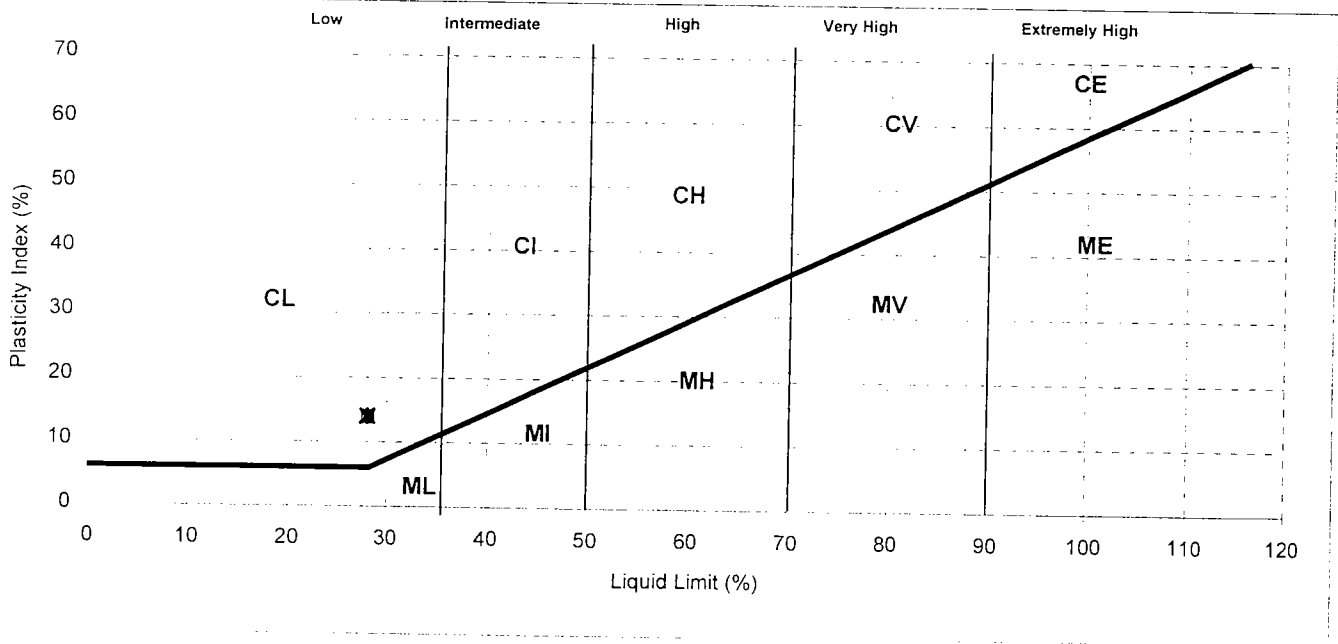
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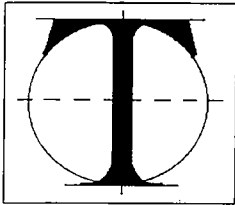
LABORATORY TEST REPORT
LIQUID & PLASTIC LIMIT TESTS BS 1377: Part 2: 1990 CI 4.4

Site:	Parr High School, St Helens	Job No.:	L5118
Client:	Rotary Test Drilling Limited Marshes Farm Westhoughton Bolton. BL5 2BT	Lab Ref No.:	SA9827
Originator:	P Dainton	Sample Ref.:	BH 5 @ 1.00-1.40m
		Date Reported:	12/05/2003
		Date Received:	28/04/2003
		Date Tested:	11/05/2003

Sampling Certificate	No
Sampled By	Client
Sample Type	Undisturbed
Sample Preparation Method	As Received
MATERIAL	Brown sandy CLAY
Retained 425 micron (%)	0
Natural Moisture Content (%)	16
Liquid Limit (single point)(%)	28
Plastic Limit (%)	14
Plasticity Index (%)	14




Mark R Dawkins
Laboratory Manager
Testconsult Limited



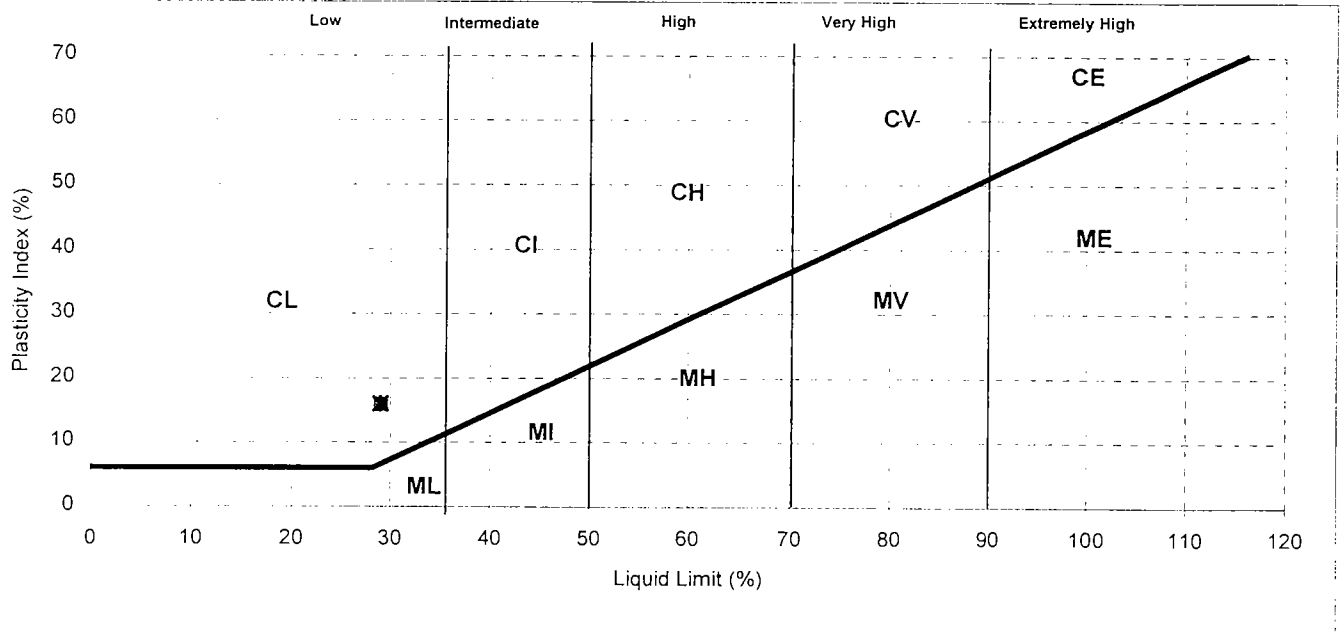
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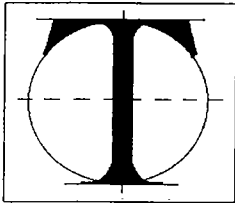
LABORATORY TEST REPORT
LIQUID & PLASTIC LIMIT TESTS BS 1377: Part 2: 1990 Cl 4.4

Site:	Parr High School, St Helens	Job No.:	L5118
Client:	Rotary Test Drilling Limited	Lab Ref No.:	SA9827
	Marshes Farm	Sample Ref.:	BH 7 @ 2.00-2.40m
	Westhoughton	Date Reported:	12/05/2003
	Bolton. BL5 2BT	Date Received:	28/04/2003
Originator:	P Dainton	Date Tested:	11/05/2003

Sampling Certificate	No
Sampled By	Client
Sample Type	Undisturbed
Sample Preparation Method	As Received
MATERIAL	Brown sandy CLAY
Retained 425 micron (%)	0
Natural Moisture Content (%)	19
Liquid Limit (single point)(%)	29
Plastic Limit (%)	13
Plasticity Index (%)	16




Mark R Dawkins
Laboratory Manager
Testconsult Limited



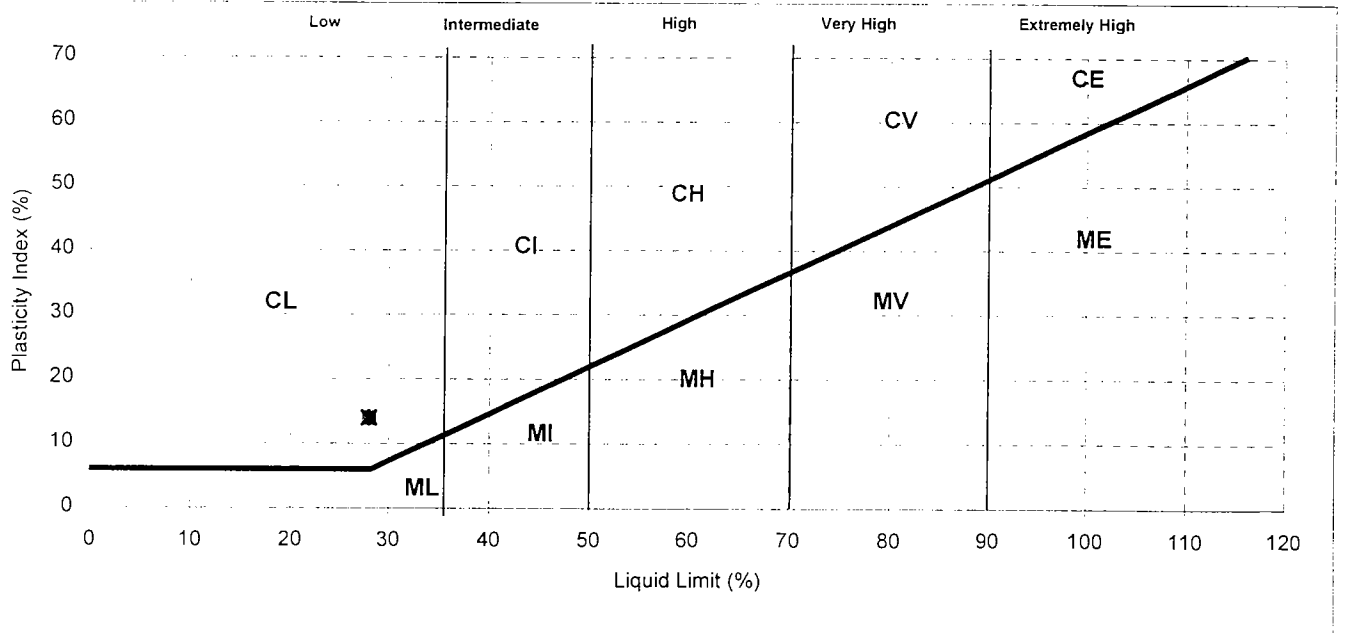
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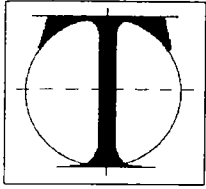
LABORATORY TEST REPORT
LIQUID & PLASTIC LIMIT TESTS BS 1377: Part 2: 1990 Cl 4.4

Site:	Parr High School, St Helens	Job No.:	L5118
Client:	Rotary Test Drilling Limited	Lab Ref No.:	SA9827
	Marshes Farm	Sample Ref.:	BH87 @ 2.00-2.40m
	Westhoughton	Date Reported:	12/05/2003
	Bolton. BL5 2BT	Date Received:	28/04/2003
Originator:	P Dainton	Date Tested:	11/05/2003

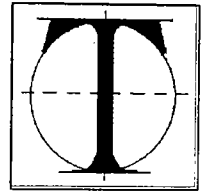
Sampling Certificate	No
Sampled By	Client
Sample Type	Undisturbed
Sample Preparation Method	As Received
MATERIAL	Brown sandy CLAY
Retained 425 micron (%)	0
Natural Moisture Content (%)	22
Liquid Limit (single point)(%)	28
Plastic Limit (%)	14
Plasticity Index (%)	14




Mark R Dawkins
Laboratory Manager
Testconsult Limited



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LABORATORY TEST CERTIFICATE
DETERMINATION OF SULPHATE CONTENT, pH VALUE

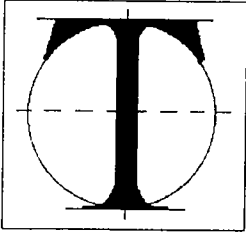
Site:	Parr High School, St Helens	Job No	L5118
Client:	Rotary Test Drilling Limited	Lab Ref No	SA9827
	Marshes Farm	Date Reported	12/05/2003
	Westhoughton	Date Received	28/04/2003
	Bolton. BL5 2BT	Date Tested	02/05/2003
Originator:	P Dainton		

Sample Ref. / Location	pH Value	Water Soluble Sulphate Content (g/l)	
BH 1 @ 3.00-3.40m	8.4	0.09	
BH 4 @ 2.00-2.40m	8	0.03	
BH 5 @ 1.00-1.40m	8.3	0.02	
BH8 @ 2.00-2.40m	7.4	0.02	
BH 1 @ 1.20m	7	0.04	
BH 4 @ 1.00m	5.8	0.02	
BH 7 @ 1.00m	6.4	0.02	
BH 8 @ 1.00m	7.4	0.02	

Tested in accordance with BS 1377


Mark Dawkins

Laboratory Manager
TESTCONSULT LIMITED



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LABORATORY TEST REPORT

Determination of Particle Size Distribution - BS 1377 : Part 2 : 1990

Site: Parr High School, St Helens	Job No.: L5118
Client: Rotary Test Drilling Limited Marshes Farm Westhoughton Bolton. BL5 2BT	Lab Ref No.: SA9827 Date Tested: 08/05/03 Date Reported: 12/05/03 Date Received: 28/04/03
Originator P Dainton	

Client Ref. BH 2 @ 7.60-8.00m

Specification: n/a

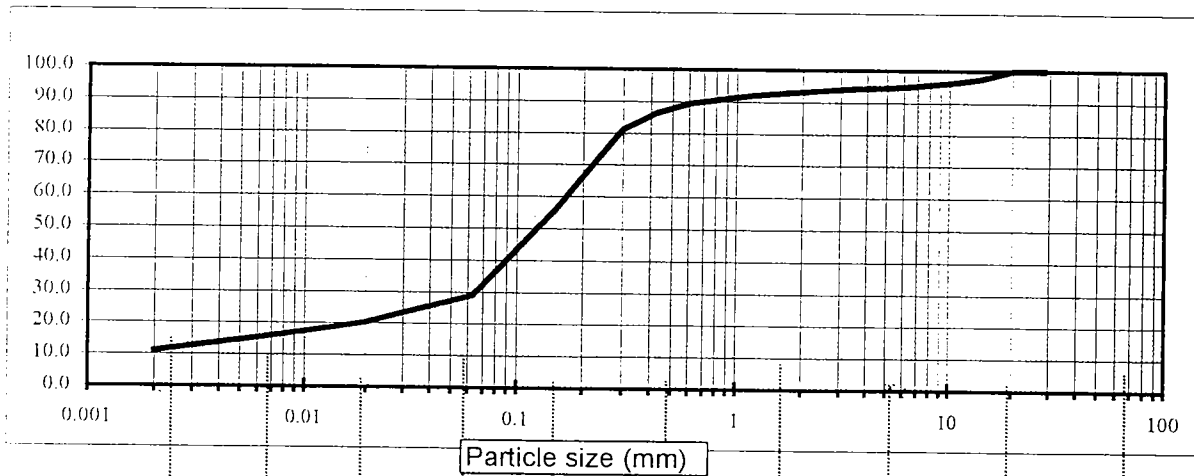
Date Sampled: unknown

Sampled By: Client

Supplier: n/a


Source: n/a

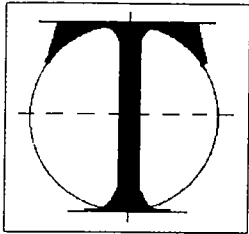
BS Sieve Size	% Passing	Specification
37.5mm	100.0	
28.0mm	100.0	
20.0mm	100.0	
14.0mm	97.4	
10.0mm	96.1	
6.3mm	94.9	
5.00mm	94.6	
3.35mm	94.2	
2.00mm	93.1	
1.18mm	92.0	
0.600mm	89.3	
0.425mm	86.4	
0.300mm	81.2	
0.150mm	56.0	
0.063mm	28.9	
0.02mm	20.2	
0.006mm	15.2	
0.002mm	11.1	



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

Tested in accordance with BS 1377: Part 2 : 1990 Clause 9.2 and 9.5


MARK R DAWKINS
 Laboratory Manager
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LABORATORY TEST REPORT

Determination of Particle Size Distribution - BS 1377 : Part 2 : 1990

Site: Parr High School, St Helens	Job No.: L5118
Client: Rotary Test Drilling Limited Marshes Farm Westhoughton Bolton. BL5 2BT	Lab Ref No.: SA9827 Date Tested: 08/05/03 Date Reported: 12/05/03 Date Received: 28/04/03
Originator P Dainton	

Client Ref. BH 3 @ 5.00-5.30m

Specification: n/a

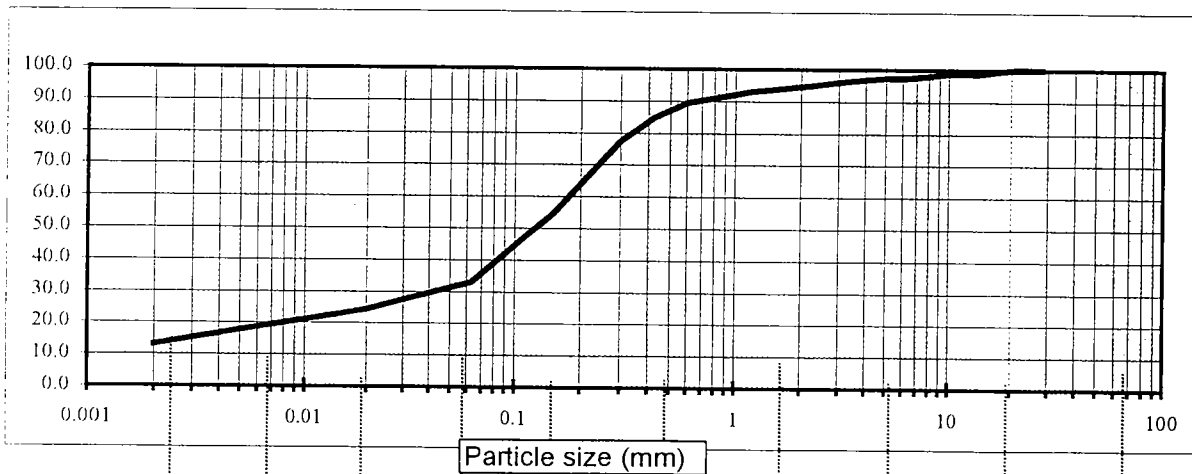
Date Sampled: unknown

Sampled By: Client

Supplier: n/a

Source: n/a

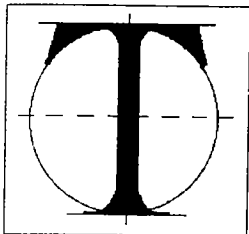
BS Sieve Size	% Passing	Specification
37.5mm	100.0	
28.0mm	100.0	
20.0mm	100.0	
14.0mm	98.7	
10.0mm	98.7	
6.3mm	97.4	
5.00mm	97.4	
3.35mm	96.3	
2.00mm	94.5	
1.18mm	92.9	
0.600mm	89.4	
0.425mm	84.8	
0.300mm	77.4	
0.150mm	54.6	
0.063mm	33.0	
0.02mm	24.3	
0.006mm	18.6	
0.002mm	13.1	



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

Tested in accordance with BS 1377: Part 2 : 1990 Clause 9.2 and 9.5

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LABORATORY TEST REPORT

Determination of Particle Size Distribution - BS 1377 : Part 2 : 1990

Site:	Parr High School, St Helens	Job No.:	L5118
Client:	Rotary Test Drilling Limited Marshes Farm Westhoughton Bolton. BL5 2BT	Lab Ref No.:	SA9827
		Date Tested:	08/05/03
		Date Reported:	12/05/03
		Date Received:	28/04/03
Originator	P Dainton		

Client Ref. BH 4 @ 7.00-7.30m

Specification: n/a

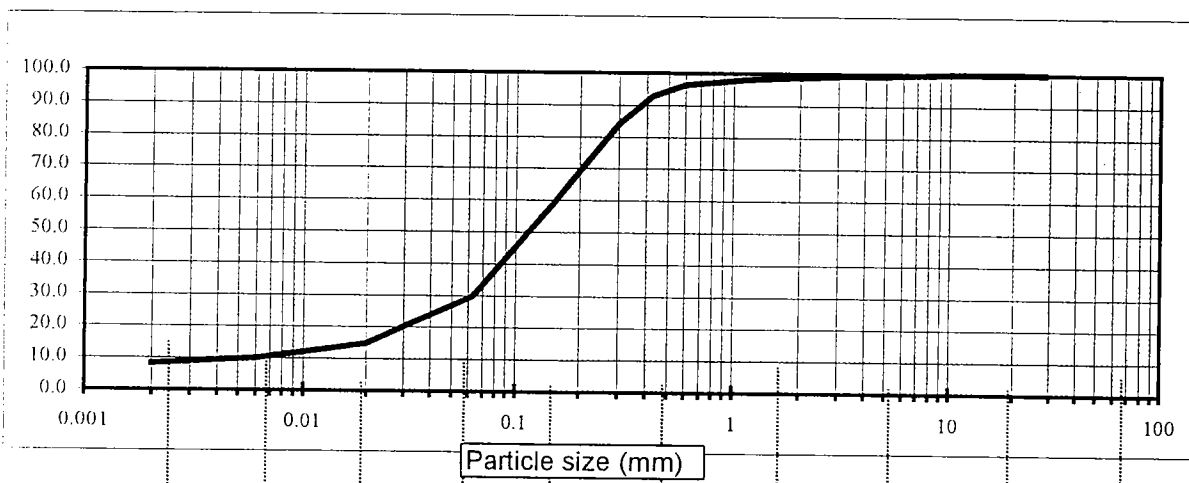
Date Sampled: unknown

Sampled By: Client

Supplier: n/a

Source: n/a

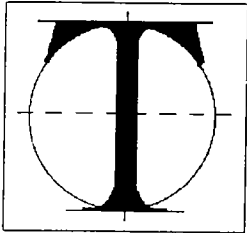
BS Sieve Size	% Passing	Specification
37.5mm	100.0	
28.0mm	100.0	
20.0mm	100.0	
14.0mm	100.0	
10.0mm	100.0	
6.3mm	99.6	
5.00mm	99.4	
3.35mm	99.3	
2.00mm	98.8	
1.18mm	98.1	
0.600mm	96.3	
0.425mm	92.7	
0.300mm	83.9	
0.150mm	58.9	
0.063mm	29.7	
0.02mm	14.9	
0.006mm	10.1	
0.002mm	8.3	



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

Tested in accordance with BS 1377: Part 2 : 1990 Clause 9.2 and 9.5


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LABORATORY TEST REPORT

Determination of Particle Size Distribution - BS 1377 : Part 2 : 1990

Site: Parr High School, St Helens	Job No.: L5118
Client: Rotary Test Drilling Limited Marshes Farm Westhoughton Bolton. BL5 2BT	Lab Ref No.: SA9827 Date Tested: 08/05/03 Date Reported: 12/05/03 Date Received: 28/04/03
Originator P Dainton	

Client Ref. BH 7 @ 8.00-8.40m

Specification: n/a

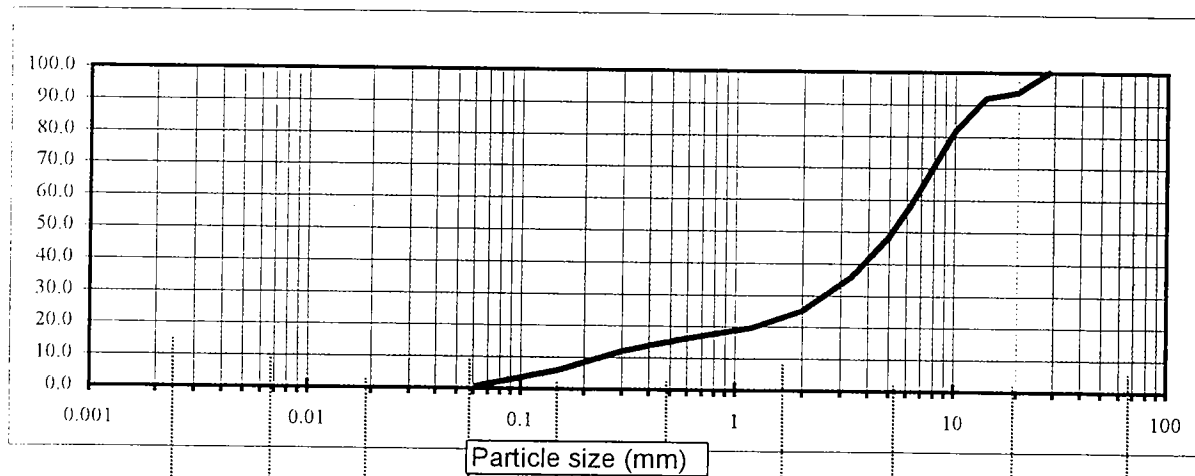
Date Sampled: unknown

Sampled By: Client

Supplier: n/a

Source: n/a

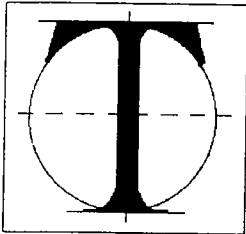
BS Sieve Size	% Passing	Specification
37.5mm	100.0	
28.0mm	100.0	
20.0mm	93.8	
14.0mm	92.0	
10.0mm	81.6	
6.3mm	58.6	
5.00mm	48.3	
3.35mm	35.7	
2.00mm	25.0	
1.18mm	19.7	
0.600mm	16.2	
0.425mm	14.3	
0.300mm	12.0	
0.150mm	6.0	
0.063mm	0.8	
0.02mm	14.9	
0.006mm	10.1	
0.002mm	8.3	



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

Tested in accordance with BS 1377: Part 2 : 1990 Clause 9.2 and 9.5


MARK R DAWKINS
 Laboratory Manager
 Testconsult Limited



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LABORATORY TEST REPORT

Determination of Particle Size Distribution - BS 1377 : Part 2 : 1990

Site: Parr High School, St Helens	Job No.: L5118
Client: Rotary Test Drilling Limited Marshes Farm Westhoughton Bolton. BL5 2BT	Lab Ref No.: SA9827
	Date Tested: 08/05/03
	Date Reported: 12/05/03
Originator: P Dainton	Date Received: 28/04/03

Client Ref. BH 8 @ 9.50-9.80m

Specification: n/a

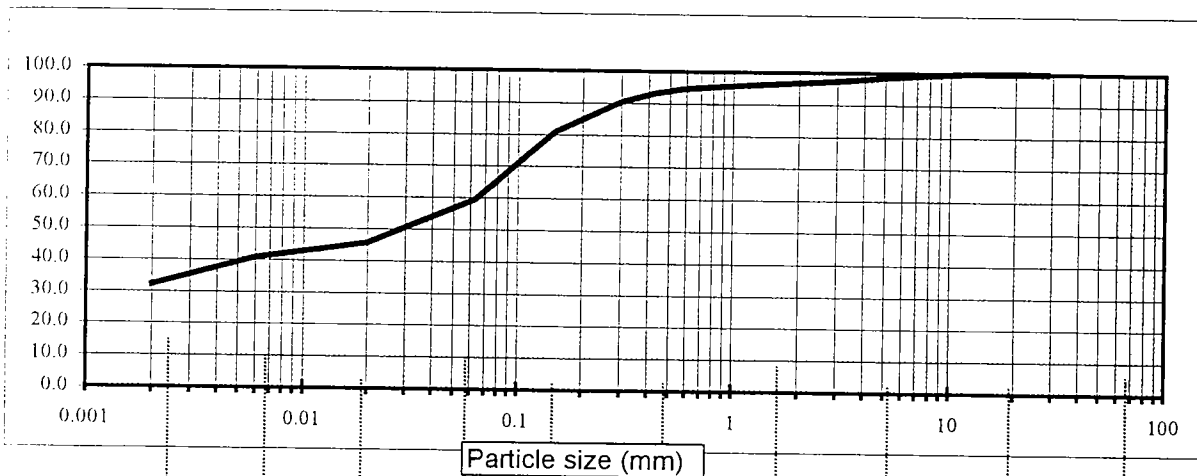
Date Sampled: unknown

Sampled By: Client

Supplier: n/a

Source: n/a

BS Sieve Size	% Passing	Specification
37.5mm	100.0	
28.0mm	100.0	
20.0mm	100.0	
14.0mm	100.0	
10.0mm	99.7	
6.3mm	98.9	
5.00mm	98.5	
3.35mm	97.6	
2.00mm	96.7	
1.18mm	95.9	
0.600mm	94.7	
0.425mm	93.1	
0.300mm	90.4	
0.150mm	81.0	
0.063mm	59.4	
0.02mm	45.5	
0.006mm	40.8	
0.002mm	32.1	



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	SILT			SAND			GRAVEL			

Tested in accordance with BS 1377: Part 2 : 1990 Clause 9.2 and 9.5



MARK R DAWKINS
 Laboratory Manager
 Testconsult Limited

APPENDIX 'C'

"Results of Chemical Analysis for Contamination"

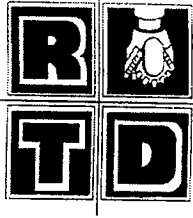


TABLE: 1

SOIL ANALYSIS
COMPARISON OF RECORDED CONTAMINATION LEVELS
WITH DOE / ICRCCL 59/83

SITE: Parr High School, St Helens

REF: 30/03

UNLESS OTHERWISE STATED ALL CONCENTRATION LEVELS
ARE EXPRESSED IN mg/kg. NR:- not recorded.

SYM BOL	CONTAMINANT DETERMINAND	ICRCL TRIGGER CONCENTRATIONS		TEST RESULTS	NO IN EXCESS OF THSH'D	ACTION REQUIRED
		THRESHOLD	ACTION			
As	ARSENIC	10/40	-	18 – 217	8	✓
Cd	CADMIUM	3/15	-	<1 – 6	1	NONE
Cr	CHROMIUM. HEX	25	-	<5	NIL	NONE
Cr	CHROMIUM TOT	600/1000	-	8 – 32	NIL	NONE
Pb	LEAD	500/2000	-	50 – 277	NIL	NONE
Hg	MERCURY	1/20	-	<0.1 – 0.6	NIL	NONE
Se	SELENIUM	3/6	-	<1 – 2	NIL	NONE
B	BORON	3	-	<0.1 – 1.1	NIL	NONE
Cu	COPPER	130	-	48 – 393	4	✓
Ni	NICKEL	70	-	17 – 154	2	✓
Zn	ZINC	300	-	37 – 666	1	✓
PHE	PHENOLS	5	1000	<1 – 2	NIL	NONE
FCN	CYANIDE FREE	25/100	500	<2	NIL	NONE
FFCN	CYANIDE COMP'	250	NIL	<10	NIL	NONE
CNS	THIOCYANATE	50	NL	<20	NIL	NONE
SO4	SULPHATE TOT	2000	NL	884 – 21325	2	✓
SO4	Sulphate wat/sol g/l					
SD	SULPHIDE	250	1000	<2 – 20	NIL	NONE
S	SULPHUR	5000	20,000	<20	NIL	NONE
pH	ACID/ALKALINE	5/NL	NL	5.7 – 8.0	NIL	NONE
PAH	Polyaromatics total	50/1000	10,000	<10 – 364	NIL	NONE
	MINERAL OIL			<10 – 2070		✓

Threshold levels A/B are domestic gardens and allotments – A Parks , playing fields, open spaces and buildings

Comparison of soil and ground water contamination
Environmental Agency – Interim guidance and the disposal of contaminated soil
ENVIRONMENT AGENCY
CONTAMINATION CLASSIFICATION THRESHOLDS FOR DISPOSAL

DETERMINAND	WATER			TOTAL CONCENTRATIONS		
	LEACHATE QUAL THRESHOLD 7No ug/l unless stated.			LOWER THRESHOLD 8No CONCENTRATION mg/kg air dried sample	UPPER THRESHOLD CONCENTRATION mg/kg air dried sample	
pH	5.5 - 9.5	7.2 - 7.8	✓	6-8	5.7 - 8.0 (1)	5 - 9
Toluene Extract	-			5,000 subject	To sp waste	10,000 (sub to sp waste)
Cyclohexane Extract	-			2,000 subject	To sp waste	5,000 (sub to sp waste)
Conductivity	1000 us/			-		-
COD	30 mg			-		-
Ammonia	0.5 mg/l			-		-
Arsenic	10	<10	✓	10	18 - 217 (8)	40
Cadmium	1	2 - 74 (7)		3	<1 - 6 (1)	15
Chromium (total)	50	<30	✓	600	8 - 32 ✓	1,000
Lead (total)	50	<50	✓	500	50 - 277 ✓	2,000
Mercury	1	<1	✓	1	<0.1 - 0.6 ✓	20
Selenium	10	<10	✓	3	<1 - 2 ✓	6
Boron	2,000	10 - 60	✓	3	<0.1 - 1.1 ✓	-
Copper	20	<20 - 76 (6)		130	48 - 393 (4)	-
Nickel	50	<50	✓	70	17 - 154 (2)	-
Zinc	500	<50	✓	300	37 - 666 (1)	-
Cyanide (complex)	-	<20	?	250	<10 ✓	250
Cyanide	50	<10	✓	25	<2 ✓	25
Sulphate (SO4)	150 mg/l	98 - 322(4)		2,000	<884 - 21325 (2)	2,000
Sulphide	150 mg/l	<0.2	✓	250	<2 - 20 ✓	250
Sulphur (free)	150 mg/l	<0.1	✓	5,000	<20 ✓	5,000
Phenol	0.5	<10		5	<1 - 2 ✓	5
Polyaromatic Hydro's	0.2	<10 (7)		50	<10 - 364 (1)	1000
Thiocyanate	?	<80	?	?	<20 ?	
Chromium (VI)	?	<10	?	?	<5 ?	
Mineral Oil	?			?	<10 - 2070 ?	

(-) DENOTES NUMBER IN EXCESS OF THRESHOLD CONCENTRATION.

Chemistry Laboratory Certificate

Client Rotary Test Drilling
 Marshes Farm, Coach Road off Wigan Road, Hart Common, Bolton, Lancashire, BL5 2BT
Site Parr High School, St Helens
Date Tested 30/04/03, 06/05/03, 07/05/03, 08/05/03, 12/05/03
Methodology 06, 131, 14, CTP07, CTP11(1mg/kg), CTP11(5mg/kg), CTP12, CTP14, CTP16, CTP20, SOP02 GC-MS, TP15e, TP18, TP18f
Sample Type Solid
Date Reported 12 May, 2003
Date Received 28 April, 2003
Certificate No. 03/1781/50/C2
File No. 03/1781/50
Client Ref.

Results

Sample Ref	Lab Ref.	Chromium (VI) mg/kg #	Lead mg/kg	Mercury mg/kg	Selenium mg/kg	Boron (water soluble) mg/kg	Copper mg/kg	Nickel mg/kg	Zinc mg/kg
TP2 0.30 0.30m	N174845	<5	53	0.2	<1	0.6	53	29	69
TP2 2.00 2.00m	N174846	<5	152	0.4	2	0.4	393	154	184
TP3 0.30 0.30m	N174847	<5	50	0.6	<1	<0.1	63	38	37
TP4 0.60 0.60m	N174848	<5	55	<0.1	<1	0.3	51	36	82
TP5 0.50 0.50m	N174849	<5	81	0.3	<1	1.1	48	17	122
TP6 0.25 0.25m	N174850	<5	102	0.2	<1	0.2	203	29	129
TP7 0.30 0.30m	N174851	<5	277	0.5	2	<0.1	257	77	666
TP10 0.50 0.50m	N174852	<5	175	0.4	1	<0.1	172	29	252

Tests marked # are not UKAS accredited in this certificate and are not included in the UKAS Accreditation Schedule for our laboratory.
 Any information relating to the sample received for testing has been supplied by the client unless otherwise specified

Prepared by:



C Tarbuck
 Account Manager

Approved by:



J Gustafson
 Laboratory Manager



Chemistry Laboratory Certificate

Client Rotary Test Drilling
 Marshes Farm, Coach Road off Wigan Road, Hart Common, Bolton, Lancashire, BL5 2BT
Date Reported 12 May, 2003

Site Parr High School, St Helens
Date Received 28 April, 2003

Date Tested 30/04/03, 06/05/03, 07/05/03, 08/05/03, 12/05/03
Certificate No. 03/1781/50/C2

Methodology 06, 13i, 14, CTP07, CTP11(1mg/kg), CTP11(5mg/kg), CTP12, CTP14, CTP16, CTP20, SOP02 GC-MS, TP15c, TP18, TP18f
File No. 03/1781/50

Sample Type Solid
Client Ref.

Results

Sample Ref	Lab Ref.	Sulphate (total) mg/kg #	pH	PAH (total) mg/kg #	Mineral Oil mg/kg #	Sulphide mg/kg #	Sulphur (elemental) mg/kg #	Cyanide (free) mg/kg	Cyanide (complex) mg/kg	Thiocyanate mg/kg #	Phenols (screen) mg/kg #	Arsenic mg/kg	Cadmium mg/kg	Chromium (total) mg/kg
TP2 0.30 0.30m	N174845	1522	6.6	<10	60	<2	<20	<2	<10	<20	<1	18	<1	20
TP2 2.00 2.00m	N174846	1415	6.4	<10	180	3	<20	<2	<10	<20	<1	217	3	22
TP3 0.30 0.30m	N174847	1449	8.0	364	720	2	<20	<2	<10	<20	<1	33	<1	14
TP4 0.60 0.60m	N174848	5810	5.7	<10	<10	<2	<20	<2	<10	<20	<1	18	<1	8
TP5 0.50 0.50m	N174849	21325	7.7	<10	2070	20	<20	<2	<10	<20	<1	26	<1	10
TP6 0.25 0.25m	N174850	884	7.5	<10	250	8	<20	<2	<10	<20	2	33	<1	13
TP7 0.30 0.30m	N174851	1528	7.4	<10	60	3	<20	<2	<10	<20	<1	100	6	32
TP10 0.50 0.50m	N174852	1157	6.2	<10	140	4	<20	<2	<10	<20	<1	47	1	11

Tests marked # are not UKAS accredited in this certificate and are not included in the UKAS Accreditation Schedule for our laboratory.
 Any information relating to the sample received for testing has been supplied by the client unless otherwise specified

Prepared by:



C Tarbuck
 Account Manager

Approved by:



J Gustafson
 Laboratory Manager



Chemistry Laboratory Certificate

Client Rotary Test Drilling
 Marshes Farm, Coach Road off Wigan Road, Hart Common, Bolton, Lancashire, BL5 2BT
Site Parr High School, St Helens
Date Tested 29/04/03, 30/04/03, 01/05/03, 02/05/03, 06/05/03, 08/05/03, 12/05/03
Methodology 061, 131, 26, CTP07, CTP10, CTP10.1mg/l, CTP10a, CTP10b, CTP10c, CTP10d, CTP16, CTP20, TP17sw
Sample Type Liquid

Date Reported 12 May, 2003
Date Received 28 April, 2003
Certificate No. 03/1780/50/C1
File No. 03/1780/50
Client Ref.

Results

Sample Ref	Lab Ref.	pH (w)	Sulphate (w) mg/l	Sulphide (w) mg/l #	Sulphur (Elemental) (w) mg/l #	Cyanide (free) (w) mg/l	Cyanide (complex) (w) mg/l	Thiocyanate (w) mg/l #	PAH (total) (w) mg/l #	Phenols (screen) (w) mg/l #	Arsenic (w) µg/l #	Cadmium (w) µg/l #	Chromium (w) µg/l	Chromium (VI) (w) mg/l
BH2 7.40M	N174838	7.6	100	<0.2	<0.1	<0.1	<0.2	<0.8	<0.1	<0.1	<10	17	<30	<0.1
BH3 4.00M	N174839	7.7	198	<0.2	<0.1	<0.1	<0.2	<0.8	<0.1	<0.1	<10	9	<30	<0.1
BH4 6.80M	N174840	7.2	160	<0.2	<0.1	<0.1	<0.2	<0.8	<0.1	<0.1	<10	74	<30	<0.1
BH5 6.50M	N174841	7.5	295	<0.2	<0.1	<0.1	<0.2	<0.8	<0.1	<0.1	<10	36	<30	<0.1
BH6 6.80M	N174842	7.6	140	<0.2	<0.1	<0.1	<0.2	<0.8	<0.1	<0.1	<10	2	<30	<0.1
BH7 7.20M	N174843	7.7	98	<0.2	<0.1	<0.1	<0.2	<0.8	<0.1	<0.1	<10	3	<30	<0.1
BH8 8.50M	N174844	7.8	322	<0.2	<0.1	<0.1	<0.2	<0.8	<0.1	<0.1	<10	3	<30	<0.1

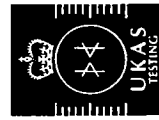
Tests marked # are not UKAS accredited in this certificate and are not included in the UKAS Accreditation Schedule for our laboratory.
 Any information relating to the sample received for testing has been supplied by the client unless otherwise specified

Prepared by:

S Johnson
 S Johnson
 Account Manager

Approved by:

J Gustafson
 J Gustafson
 Laboratory Manager



Chemistry Laboratory Certificate

Client	Rotary Test Drilling	Date Reported	12 May, 2003
Site	Marshes Farm, Coach Road off Wigan Road, Hart Common, Bolton, Lancashire, BL5 2BT	Date Received	28 April, 2003
Date Tested	Parr High School, St Helens	Certificate No.	03/1780/50/C1
Methodology	29/04/03, 30/04/03, 01/05/03, 02/05/03, 06/05/03, 08/05/03, 12/05/03	File No.	03/1780/50
Sample Type	061, 131, 26, CTP07, CTP10, CTP10a, CTP10b, CTP10c, CTP10d, CTP16, CTP20, TP17sw	Client Ref.	
Results	Liquid		

Sample Ref	Lab Ref.	Lead (w) µg/l	Mercury (w) µg/l #	Selenium (w) µg/l #	Boron (w) mg/l	Copper (w) µg/l	Nickel (w) µg/l	Zinc (w) µg/l
BH2 7.40M	N174838	<50	<1	<10	0.2	76	<50	<50
BH3 4.00M	N174839	<50	<1	<10	0.2	37	<50	<50
BH4 6.80M	N174840	<50	<1	<10	0.1	21	<50	<50
BH5 6.50M	N174841	<50	<1	<10	0.1	37	<50	<50
BH6 6.80M	N174842	<50	<1	<10	0.1	24	<50	<50
BH7 7.20M	N174843	<50	<1	<10	0.1	29	<50	<50
BH8 8.50M	N174844	<50	<1	<10	0.6	<20	<50	<50

Tests marked # are not UKAS accredited in this certificate and are not included in the UKAS Accreditation Schedule for our laboratory.
 Any information relating to the sample received for testing has been supplied by the client unless otherwise specified

Prepared by:

S Johnson

S Johnson
Account Manager

Approved by:

J Gustafson

J Gustafson
Laboratory Manager



APPENDIX 'D'

"Mining Report from The Coal Authority"

ROTARY TEST DRILLING LTD.
ROTARY TEST DRILLING LTD.,
MARSHES FARM,
COACH ROAD OFF WIGAN ROAD. HART COMMON,
WESTHOUGHTON,
BOLTON,
LANCASHIRE,
BL5 2BT

This matter is being dealt with by Louise Tipper

Our Ref: 149940-03

Your Ref: TOM LLOYD

Electronic Ref:

Date: 10 April 2003

Dear Sir,

Coal Mining Report
FORMER PARR HIGH SCHOOL, EVELYN AVE/SIMMS AVE/LANSBURY
AVE/FLEET LN, ST. HELENS, MERSEYSIDE

I refer to the enquiry dated 07th April 2003, received 09th April 2003, in connection with the above.

This report is based on and limited to the records in the possession of The Coal Authority at the time the search is answered.

Past Underground Mining

The property is within the likely zone of influence on the surface from workings in 8 seams of coal at shallow to 550m depth, the last date of working being 1930.

Present Underground Mining

The property is not within the zone of likely physical influence on the surface from any present underground coal workings.

Future Underground Mining

The property is not within a geographical area for which a licence to extract coal by underground methods is awaiting determination by the Coal Authority.

The property is not within a geographical area for which a licence to extract coal by underground methods has been granted.

The property is not within the zone of likely physical influence at the surface from plans of future workings in our possession.

However reserves of coal exist in the locality which could be worked at some time in the future subject to feasibility, licences, and planning consents.

We have no record of any notice of the risk of the land being affected by subsidence being given under S.46 of the Coal Mining Subsidence Act 1991.

Payments to Owners of Former Copyhold Land

The property is not within an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Additional Remarks

In view of the mining circumstances a prudent developer would seek appropriate technical advice before works are undertaken on site. All proposals should have regard to good engineering practice in mining areas as identified in authoritative publications on mining stability problems. In any event, no activities should be undertaken that intersect, disturb, or interfere with any coal or mines of coal without permission of the Coal Authority.

These replies are prepared in accordance with the Law Society's Guidance Notes 1998.

We acknowledge the receipt of your remittance in payment of our fee.

Yours faithfully



Albert Schofield

Director of Mining Records and Services

— —
— —



Crown Copyright. Quoted scale is approximate.

SCALE: 1:5000

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This is a plan of the boundaries of the property in respect of which this report has been prepared. It is the responsibility of the user to ensure that the boundaries shown correspond with those of the property.

APPROXIMATE POSITION OF ENQUIRY BOUNDARY SHOWN



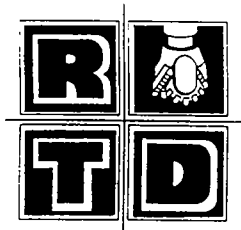
APPROXIMATE POSITION OF DISUSED MINE SHAFTS SHOWN



This plan shows the approximate location of the disused mine entry/entries referred to in the attached mining report. For reasons of clarity, mine entry symbols may not be drawn to the same scale as the plan. Property owners have the benefit of statutory protection (under the Coal Mining Subsidence Act 1991). This contains provision for the making good, to the reasonable satisfaction of the owner, of physical damage from disused coal mine workings including disused coal mine entries. A DTI leaflet setting out the rights and the obligations of either the Coal Authority or other responsible persons under the 1991 Act can be obtained by telephoning 0845 762 6848. If you wish to discuss the relevance of any of the information contained in the attached report you should seek the advice of a qualified mining engineer or surveyor. If you or your adviser wish to examine the source plans from which the information has been taken these are available at our Mansfield office, free of charge, by prior appointment, telephone 01623 638233. Should you or your adviser wish to carry out any physical investigations that may enter, disturb or interfere with any disused mine entry the prior permission of the owner must be sought. For coal mine entries the owner will normally be the Coal Authority. The Coal Authority, regardless of responsibility and in conjunction with other public bodies, provide an emergency call out facility in coalfield areas to assess the public safety implications of mining features (including disused mine entries). Our emergency telephone number at all times is 01623 646333.

APPENDIX 'E'

"Gas Well Monitoring Results"



ROTARY TEST DRILLING MONITORING FOR LANDFILL GAS.

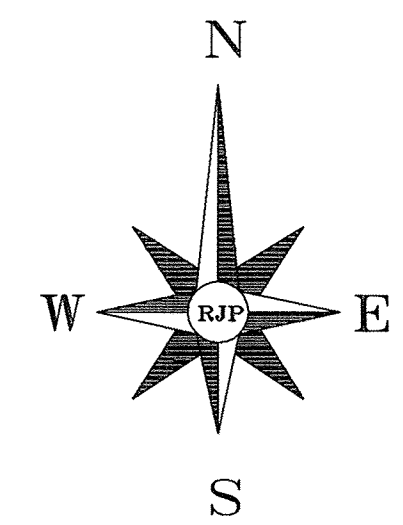
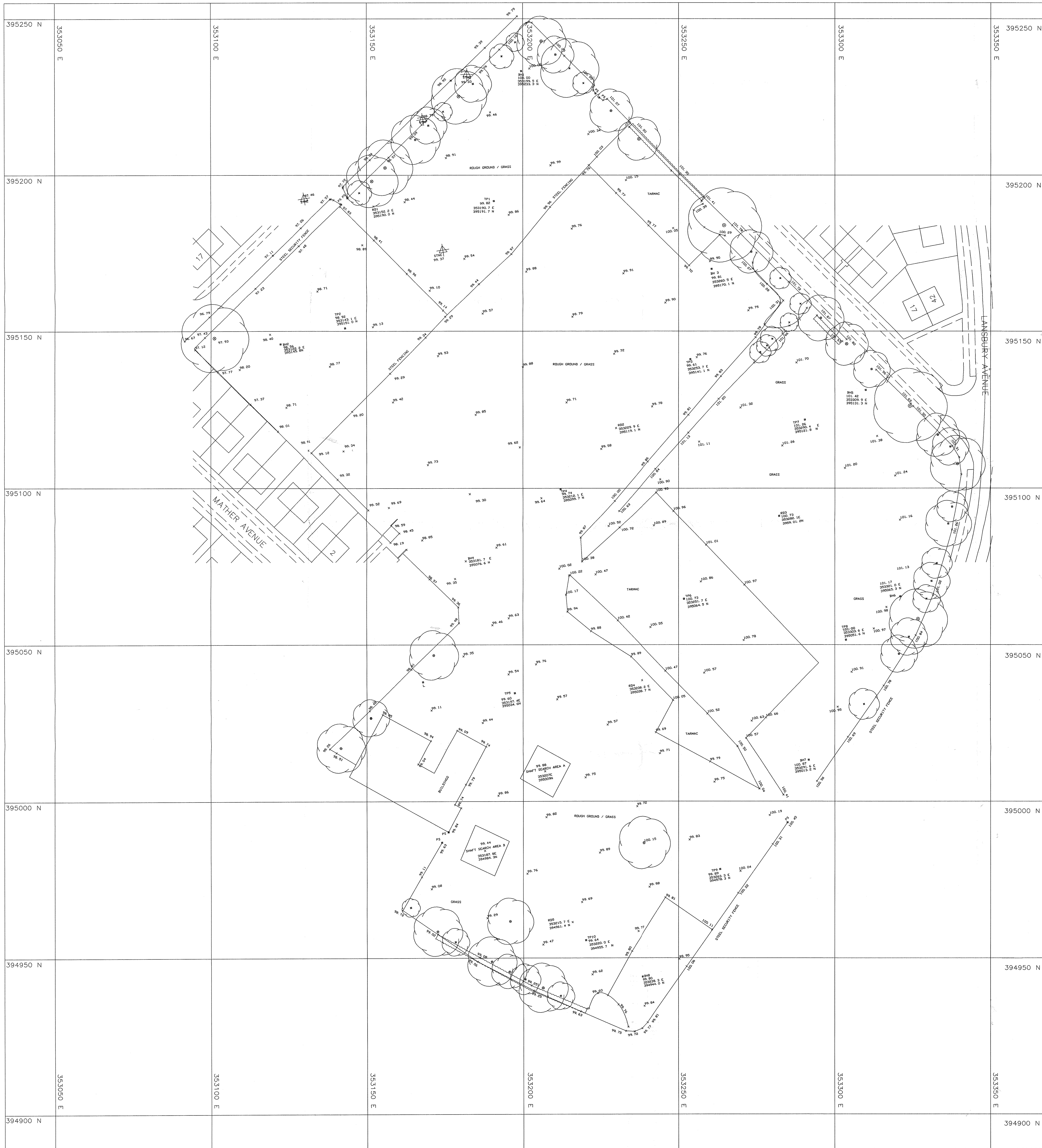
Units 1% Gas volume = 10,000PPM
 Sample types A = Accumulated SS = Steady State
 Site: Former Parr High School, St Helens

All Samples Type A
 No Flow

Date & TEST POINT/s	METHANE CH4			CARBON DIOXIDE %CO2	OXYGEN %O2	BAROM PRESSURE mb	HYDROGEN SULPHIDE H2S	H2O LEVEL M
	PPM	%LEL	%VOL					
25/4/03								
8	/	0	0	0.60	19.90	1009	0	3.30
6	/	0	0	2.10	19.10	1009	0	4.20
1	/	0	0	0.30	20.10	1009	0	4.40
2	/	0	0	0.20	20.30	1009	0	3.70
02/5/03								
8	/	0	0	0.70	19.80	1011	0	3.20
6	/	0	0	2.30	18.70	1011	0	4.30
1	/	0	0	0.30	20.10	1011	0	4.50
2	/	0	0	0.30	20.10	1011	0	3.80
09/05/03								
8	/	0	0	0.90	19.90	1016	0	3.20
6	/	0	0	2.80	18.60	1016	0	4.30
1	/	0	0	0.30	20.00	1016	0	4.50
2	/	0	0	0.40	19.90	1016	0	3.80
16/5/03								
8	/	0	0	0.90	19.90	1003	0	3.20
6	/	0	0	2.80	18.60	1003	0	4.30
1	/	0	0	0.40	20.30	1003	0	4.50
2	/	0	0	0.40	20.00	1003	0	3.80

APPENDIX 'F'

"Topographical Site Survey"



CO-ORDINATED STATIONS

STATION	EASTING	NORTHING	LEVEL (m)
E	353129.8	395192.5	97.460
C	353174.4	395176.1	99.37

ABBREVIATIONS

AV	AIR VALVE/VENT	FR	FIRE HYDRANT	PS	POST BOX
BOL	BOLLARD	FP	FLAG POLE	PK	UNKNOWN SERVICE
BR	BELUM BEACON	C	CALLY	RE	ROOFTOP DYE
BL	BED LEVEL	GM	GAS METER	RS	ROAD SIGN
BS	BASE STOP	GV	GAS VALVE	ST	STOP SIGN
BT	BRITISH TELECOM	IC	INSPECT CHAMBER	TH	TRAIL HOLE
CL	COVER LEVEL	L	LEVEL	TL	TRAFFIC LIGHT
CU	CULVERT	LP	LAMP POST	TR	TELEGRAPH POLE
DI	DILAPIDATED	LP	LAMP POST	TY	CABLE TV BOX
DN	DOWN	LP	LAMP POST	UY	CABLE TO LIFT
EL	ELEC. JUNCT. BOX	MAN	MANHOLE	WM	METER WATER
EP	ELECTRICITY POLE	PS	POST/SIGN POST		

SYMBOLS

▲	SURVEY STATION	⊗	TREE
—E—	OVN ELEC. CABLE	✕	BENCH MARK
—T—	OVN PHONE LINE	⊕	TRIAL PIT
TT	GANGWAY/HEDGE	⊞	BORDICULE

- NOTES:-
- ONLY MANHOLES AND SERVICES VISIBLE AT TIME OF SURVEY SHOWN
 - LOCAL GRID USED AND ORIENTATED TO MAGNETIC NORTH
 - LEVELS IN METRES RELATED TO STATION A AT A PUBLISHED VALUE OF 100,000m DATUM.
 - DRAINAGE INFORMATION TAKEN FROM LOCAL AUTHORITY RECORDS. INFORMATION MUST BE CHECKED PRIOR TO WORK COMMENCING

Rev	Description	Date
	PROPOSED DEVELOPMENT AT FLEET LANE, ST HELENS	
	ROTARY TEST DRILLING	
	TOPOGRAPHICAL SURVEY	

RT001 / T00

Drawn	S. FAIRHURST
Date	MAY 2003
Scale	1:500

R.J.P. SURVEYS LIMITED
 LAND SURVEYORS & SITE ENGINEERS

MILLSTONE HOUSE
 35, BERRY MILL
 UPHOLLAND
 LANCS
 WN8 0QF

TEL/FAX: 01695 625164
 MOBILE: 07710 308709

Appendix I. Coal Authority Report

The COAL AUTHORITY

Issued by:

The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG

Website: www.groundstability.com Phone: 0845 762 6848 DX 716176 MANSFIELD 5

**LANDMARK INFORMATION GROUP
LIMITED
SOWTON INDUSTRIAL ESTATE
ABBAY COURT
UNIT 5/7 EAGLE WAY
EXETER
DEVON
EX2 7HY**

Our reference: **51000220856004**
Your reference: **43765746**
Date of your enquiry: **24 January 2013**
Date we received your enquiry: **24 January 2013**
Date of issue: **24 January 2013**

This report is for the property described in the address below and the attached plan.

Non-Residential Coal Authority Mining Report

SITE AT LANSBURY BRIDGE SCHOOL, LANSBURY AVENUE, ST HELENS, MERSEYSIDE,

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Coal mining	See comments below
Brine Compensation District	No

Information from the Coal Authority

Underground coal mining

Past

The property is in the likely zone of influence from workings in 8 seams of coal at shallow to 580m depth, and last worked in 1930.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

Within, or within 20 metres of, the boundary of the property there are 3 mine entries, the approximate positions of which are shown on the attached plan.

There is no record of what steps, if any, have been taken to treat the mine entries.

Records may be incomplete. Consequently, there may exist in the local area mine entries of which the Coal Authority has no knowledge.

For an additional fee, the Coal Authority will provide a supplementary Mine Entry Interpretive Report. The report will provide a separate assessment for the mine entry (entries) referred to in this report. It will give details based on information in the Coal Authority's possession, together with an opinion on the likelihood of mining subsidence damage arising from ground movement as a consequence of the existence of the mine entry/entries. It will also give details of the remedies available for subsidence damage where the mine entry was sunk in connection with coal mining. Please note that it may not be possible to produce a report if the main building to the property cannot be identified from Coal Authority plans (ie. for development sites and new build).

For further advice on how to order this additional information visit www.groundstability.com or telephone 0845 7626 848.

Coal mining geology

The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

Opencast coal mining

Past

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal mining subsidence

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

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

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

Mine gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of support

The property is not in an area for which a notice of entitlement to withdraw support has been published.

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

Working facilities orders

The property is not in an area for which an Order has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

Payments to owners of former copyhold land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Comments on Coal Authority information

The attached plan shows the approximate location of the disused mine entry/entries referred to in this report. For reasons of clarity, mine entry symbols may not be drawn to the same scale as the plan.

Property owners have the benefit of statutory protection (under the Coal Mining Subsidence act 1991*). This contains provision for the making good, to the reasonable satisfaction of the owner, of physical damage from disused coal mine workings including disused coal mine entries. A leaflet setting out the rights and the obligations of either the Coal Authority or other responsible persons under the 1991 Act can be obtained by telephoning 0845 762 6848 or online at www.coal.decc.gov.uk/en/coal/cms/services/claims.

If you wish to discuss the relevance of any of the information contained in this report you should seek the advice of a qualified mining engineer or surveyor. If you or your adviser wish to examine the source plans from which the information has been taken these are normally available at our Mansfield office, free of charge, by prior appointment, telephone 01623 637235. Should you or your adviser wish to carry out any physical investigations that may enter, disturb or interfere with any disused mine entry the prior permission of the owner must be sought. For coal mine entries the owner will normally be the Coal Authority.

The Coal Authority, regardless of responsibility and in conjunction with other public bodies, provide an emergency call out facility in coalfield areas to assess the public safety implications of mining features (including disused mine entries). Our emergency telephone number at all times is 01623 646333.

*Note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore if development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

A site investigation was carried out in September 2008 by Fugro Engineering Services Ltd. Armstrong House, Unit 43, Number One Industrial Estate, Consett, DH8 6TW for Mott MacDonald on behalf of St Helens Borough Council.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Additional Remarks

This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions 2006. The Coal Authority owns the copyright in this report. The information we have used to write this report is protected by our database right. All rights are reserved and unauthorised use is prohibited. If we provide a report for you, this does not mean that copyright and any other rights will pass to you. However, you can use the report for your own purposes.

Location map



Approximate position of property



Enquiry boundary

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Key

Approximate position of enquiry boundary shown



Disused Adit or Mineshaft

