Contaminated Land
Air Quality
Environmental Audit

Partnership No: OC 300776

LAND OFF THE DELL, PRESTATYN

STAGE I & II CONTAMINATED LAND & GEOTECHNICAL ASSESSMENT

For: Denbighshire County Council

January 2018

R2485-R01-v1

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DOCUMENT CONTROL SHEET

Report Title: Land off The Dell, Prestatyn

Stage 1 & 2 Contaminated Land & Geotechnical Assessment

Client: Denbighshire County Council

Report Reference Number: R2485-R01

Issue Final

Version: v1

Report Date: 15th January 2018

Signed for Smith Grant LLP

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Document Revision Record:

Version	Report Status	Date	Details of Revision
v1	Final	15.01.2018	Issue to client

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EXECUTIVE SUMMARY

Current Site Status	The site comprises a single residential property (No.1 The Dell) to the west with the site bisected in two by a public footpath. The north of the site is a vegetated embankment extending onto Ffordd Isa and the south is an area of cleared scrubland.
Proposed Site Use	Residential development.
Scope of Works	SGP has undertaken a Stage 1 and 2 Geo-Environmental Investigation of the site to assess the suitability of the site for the future development and to determine likely further investigation and remedial requirements, if necessary. Works comprised the following: • desk study and background information review; • machine excavation of 6 trial pits; • drilling of 6 cable percussive boreholes; • installation of 3 groundwater and gas monitoring wells; • 2 soakaway tests: • laboratory chemical analysis of representative shallow and deeper soil samples for a range of standard contaminants of concern; • geotechnical laboratory testing; • 1 round of gas monitoring and groundwater sampling, and analysis; • geotechnical assessment.
Site History	The site existed as parcels of open land slightly encroaching onto an adjacent railway and carriageway embankments to the northeast and northwest. The only development that has occurred has been the construction of a pathway that crosses the site from east to west and a derelict residential dwelling in the western corner. The remaining surrounds predominantly comprised open fields with occasional scattered housing. Limited development has occurred in the general vicinity of the site since 1964.
Site Setting	The site is situated within Prestatyn town with a road and public footpath bordering the north and east of the site respectively and residential properties present in all directions.
Ground Conditions	The exploratory work from this investigation has proven the expected general strata sequence comprising a veneer of topsoil over Glacial Till deposits with a made ground locally present in the areas of the embankments only.
Groundwater Conditions	Groundwater is expected to be encountered as inflows or seepages at depths greater than about 1m bgl.
Contamination Assessment	Concentrations of the majority of determinants were below the respective assessment criteria based on residential land use scenario, however generally elevated lead, cadmium and zinc may be anticipated and a single isolated and significant exceedances were detected for these metal sin one sample. Exceedances of the National Environmental Quality Standard for inland surface waters (Annual Average) were reported for some metals, likely to be associated with leaching on the site and the wider area. The ground gas regime is classified as CIRIA – characteristic situation 2- / NHBC Amber 1. Full radon protection measures are also required within new buildings or extensions.

Foundations and Infrastructure	The Glacial Till Deposits, cohesive and granular, are considered to be a suitable bearing stratum for conventional shallow foundations at 0.9m below existing ground level or 0.2m into the top of the formation, whichever is deeper. At this depth a safe bearing capacity of 120kPa may be adopted for foundations not exceeding 1m in width, however the designer must also consider the effects of saturated soils and trees when designing shallow foundations as the site may be seasonally waterlogged and a large number of mature trees have been removed; the potential for volume change in the cohesive soils has been confirmed.
Conclusions and Recommendations	The levels of lead, cadmium and zinc within the soils would require isolation from gardens or areas of public open space and further work to delineate the incidence of very high metal concentrations is required. Further gas monitoring may be undertaken, or precautionary protection measures adopted (which will be required to manage radon risks in any case) A Remediation Strategy to define remediation objectives, identify viable mitigation techniques and confirm environmental controls, an appropriate inspection regime and validation/verification procedures is required.

1. Introduction

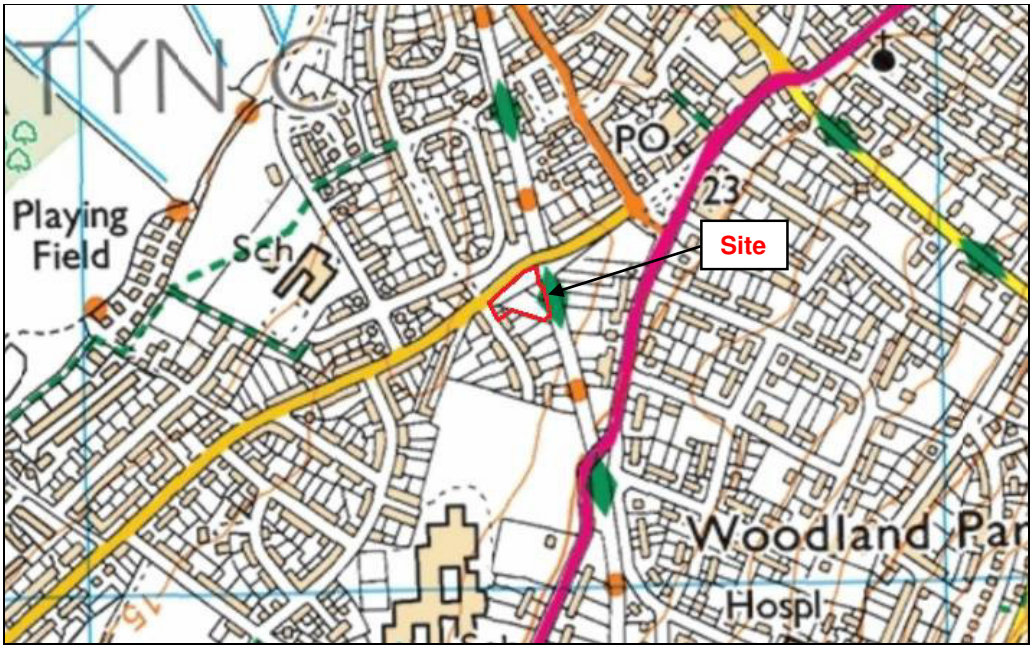
1.1. Denbighshire County Council (DCC) instructed Smith Grant LLP (SGP) to undertake a Stage 1 & 2 Contaminated Land and Geotechnical Assessment on a parcel of land at 'The Dell', off Fford Isa, Prestatyn. SGP understand that the assessment is required in support of proposals to develop the site for residential use.

1.2. Site details are:

Table 1.1: Site Details

Address	Land at The Dell, off Ford Isa, Prestatyn, Denbighshire, LL19 8SS.
National Grid Reference	306517 382345
Local Authority	Denbighshire County Council
Site Area	~0.2 ha
Current Use of Site	The site comprises a single residential property (No.1 The Dell) to the west with the site bisected in two by a public footpath. The north of the site is a vegetated embankment extending onto Ffordd Isa and the south is an area of cleared scrubland.
Proposed Use	Residential development

Figure 1.1: Site Location



1.3. This report describes the Stage 1 (desk study) and Stage 2 (intrusive investigation) work undertaken by SGP in accordance the site investigation requirements. The assessment

methodology was carried out in accordance with the prescribed client brief working to BS10175 and BS5930:2015.

1.4. The study comprises a review of readily available information on the environmental setting of the site and the site's previous and current uses with respect to potential risks to the environment or human health. An intrusive investigation was carried out as specified within the client brief which included trial-pits and borehole entries, collection of soil and groundwater samples for chemical analysis, and a single round of ground gas monitoring. This report contains a qualitative and quantitative risk assessment, a preliminary geotechnical assessment, and where appropriate makes recommendations for further intrusive investigations and remedial actions appropriate to the future use of the site.

2. Information Sources

2.1. The principle sources of information consulted in the preparation of this report include:

Table 2.1: Information Sources

Date and reference	Author and source	Purpose and information content
Topography, geology, hydrogeology and hydrology		
http://mapapps.bgs.ac.uk [Accessed November 2017]	British Geological Survey.	distribution of geological units at surface including drift and artificial deposits, faults and mineral outcrops
https://www.ordnancesurvey.co.uk/osmaps/ [Accessed November 2017]	Ordnance Survey (OS), Explorer Map, 1: 10,000	general mapping information including structures, boundaries, ground features, water features etc.
http://www.ukradon.org [Accessed November 2017]	Public Health England	mapping defining radon affected areas in England & Wales
BRE 211	Radon: Guidance on Protective Measures for New Buildings, 2007	mapping identifying required radon protective measures in England and Wales
Historical data		
Satellite imagery	Various	Recent historical features (>2003)
145587949_1_1; Purchased November 2017	Envirocheck: Landmark Information Group	Historical mapping at 1:2,500, 1:10,000, and 1:10,560 from 1871 onwards.
Information review		
www.naturalresources.wales [Accessed November 2017]	Natural Resources Wales / Environment Agency	general information on source protection zones, flood risk zones, pollution hazards, current and historical landfills, water quality information
www.magic.gov.uk; [Accessed November 2017]	DEFRA	web-based interactive map containing information on nature conservation areas
145587949_1_1; Purchased November 2017	Landmark Information Group: Envirocheck Report	Hydrogeological, waste, geological, industrial, hazardous substances and sensitive land use information
145587949_2 Purchased November 2017	The Coal Authority: Non-Residential Mining Report (CON29M)	information regarding the risks associated with past, present and future mine workings.

2.2. Site Inspection

2.2.1. A site inspection was undertaken C Salwa, Consultant, and D Wayland, Senior Consultant, on 13th November 2017. Photographs were taken of salient features and are provided in Appendix A.

2.3. Previous Investigations

2.3.1. SGP is unaware of any previous investigations having been undertaken at the site.

3. Development History and Current Status

3.1. Historical Development

3.1.1. A summary of significant features, developments and land uses shown on historical Ordnance Survey maps is provided in Table 3.1 below. Copies of selected maps are provided in Drawings D01-D05.

Table 3.1: Summary of Development History

Map	Site	Surrounds (all measurements are approximate)
1871-72 1:2,500 See drawing D01	The site exists as a triangular area incorporating three separate enclosed parcels of land with the north-eastern boundary encroaching onto a railway embankment and the north-western boundary encroaching onto a road embankment. A well is present in the westernmost part of the site and trees are indicated in the centre/southwest.	A road borders the site to the northwest which appears to be raised in relation to the surrounding land and a railway line bounds the site to the east. An open field is present directly to the south and a small area of land, possibly associated with nearby residential properties, is present directly to the west. The railway line traverses the mapping from north to south running parallel with the northeast site boundary and appears to be level with the site directly to the east. Residential properties are located 40m to the west beyond which are farm buildings 210m from the site boundary. The remaining nearby surrounding land is dominated by open fields. A residential area is located in the wider surrounds 300m to the northeast.
1878, 1:10,560 *(Low resolution mapping)*	No significant changes to site.	No significant changes to surrounds.
1899 1:2,500 See drawing D02	The well is no longer indicated, and trees are now shown to occupy the entirety of the site.	A small building/structure is indicated directly to the northeast of the site (likely a railway signal box). Scattered residential development has occurred to the southeast, east, northeast and north as close as 60m from the site boundary.
1900, 1:10,560 *(Low resolution mapping)*	No significant changes to site.	No significant changes to surrounds.

1912, 1:2,500 See drawing D03	No significant changes to site.	Two small structures are indicated to the west and north of the site at distances of 5m and 15m respectively. A pump associated with nearby residential properties is indicated 60m to the southwest. Residential development has occurred 70m to the southeast and at greater distances to the north, east and south.
1914-15, 1:10,560 *(Low resolution mapping)*	No significant changes to site.	No significant changes to surrounds.
1915, 1:10,560 *(Low resolution and partial mapping to east of site only)*	Not covered by mapping.	No significant changes to surrounds.
1938, 1:10,560 *(Low resolution mapping)*	It appears that a small building has been constructed which encroaches the southern boundary in the western part of the site.	Significant residential development has occurred in all directions from the site including directly adjacent to the southern boundary.
1953, 1:10,560 *(Low resolution mapping)*	A large area of the western part of the site now appears to be occupied with small buildings.	Residential development has continued to expand, in particularly to the north of the site.
1962, 1:2,500 See drawing D04	The higher resolution mapping shows that it is one single detached property that occupies the site in the south west corner. Markings indicate a slight embankment along the eastern boundary leading up to the adjacent railway (now annotated as 'Mineral Railway').	Further residential development has occurred in the wider general surrounds.
1964, 1:2,500	No significant changes to site.	No significant changes to surrounds.
1964, 1:10,000 *(Low resolution mapping)*	No significant changes to site.	No significant changes to surrounds.
1969, 1:10,000 *(Low resolution mapping)*	No significant changes to site.	No significant changes to surrounds.

1968-75, 1:1,250 *(partial mapping; obscured to northwest of site)*	No significant changes to site.	No significant changes to surrounds.
1979, 1:10,000 *(Low resolution mapping)*	The Mineral Railway is now annotated as 'Disused'.	
1985-88, 1:1,250 *(partial mapping to north of site only)*	Not covered by mapping.	No significant changes to surrounds.
1962-90, 1:1,250	No significant changes to site.	No significant changes to surrounds.
1989-90, 1:1,250 *(partial mapping to north of site only)*	Not covered by mapping.	No significant changes to surrounds.
1993, 1:1,250 See drawing D05	The boundary for the now disused Mineral Railway has moved eastwards and no longer intrudes onto the site.	No significant changes to surrounds.
2000, 1:10,000 *(Low resolution mapping)*	A path is shown crossing the northern part of the site from east to west.	No significant changes to surrounds.
2001, Satellite Imagery	No significant changes to site.	No significant changes to surrounds.
2006, 1:10,000 *(Low resolution mapping)*	No significant changes to site.	Two buildings have been demolished and replaced by a single larger building 140m to the northeast of the site. Additional buildings / extensions have been constructed to the schools 210m to the south and 240m to the west of the site.
2006, Satellite Imagery	No significant changes to site.	No significant changes to surrounds.
2009, Satellite Imagery	No significant changes to site.	No significant changes to surrounds.
2011, Satellite Imagery	No significant changes to site.	No significant changes to surrounds.
2015, Satellite Imagery	No significant changes to site.	No significant changes to surrounds.
2017, 1:10,000 *(Low resolution mapping)*	No significant changes to site.	No significant changes to surrounds.
2017, Satellite Imagery	No significant changes to site.	No significant changes to surrounds.

3.2. Present Land Condition

Table 3.2: Present Land Condition

Site Description	The site is occupied by a derelict residential property (No.1) off The Dell in the west and an area of undulating scrubland in the east which forms the main site area proposed for redevelopment. The main site area is bisected by a public footpath which separates the north, a densely vegetated embankment extending onto Ffordd Isa, and the south which is an area of vacant vegetated land with a number of felled trees.
Access	The site is accessed on foot by a number of public gateways onto the footpaths, the nearest of which is to the west of the site off The Dell. Vehicular site access at present is through a locked gate approximately 340m to the north off Banastre Avenue.
Boundaries	**North west:** Steep embankment with wire fencing and concrete posts extending onto Ffordd Isa **North east:** Open boundary onto public footpath **South:** Wire fence leading to wooden garden fence of neighbouring residential properties
Services / Wayleaves	A public footpath enters the west of the site and extends easterly along the north of the site. The footpath forms the site's eastern boundary. Information regarding utilities (water, gas and electric) has been provided by the client with plans showing no services to enter or cross the site. It was noted, however, during the site inspection that street lighting is present along the footpath in the north and that CCTV situated on a telegraph pole to the immediate northeast is present
Surfaces / Vegetation / Structures	The main site area of proposed development is an undulating parcel of vegetated land with surface vegetation cover over most parts. It is understood that the site has recently undergone substantial clearance which has included the felling of a number of trees. Tree stumps and wood chippings were widely evident across the site surface. A shallow ditch was observed in the northeast extending along the adjacent footpath. A building (No.1 The Dell) is located in the west corner of the site; however, the building is now vacant and consists of a bungalow and garden area.

3.3. Historical Summary

3.3.1. Since the earliest available mapping (1871-72) the site existed as parcels of open land slightly encroaching onto an adjacent railway line to the northeast; an embankment, which still exists, was shown to be present along the northwest boundary and a well was indicated in the western part of the site but this is not mapped from 1899 onwards. Sometime between 1915 and 1938 the west of the site was partially developed for residential housing; this was shown on later mapping to comprise a single dwelling occupying the southwest corner of the site, which remains but is left vacant. By 1979, the railway to the east is mapped as disused and by 1993 the boundary line for the disused railway moved eastwards forming the eastern site boundary; it is considered likely that some regrading of the ground has occurred in the east of the site associated with its historical use. The only development that has occurred since has been the construction of a pathway that crosses the site from east to west which appears to have occurred between 1993 and 2000.

3.3.2. The remaining surrounds predominantly comprised open fields with occasional scattered housing. Scattered residential development occurred to the north, east and south between 1878 and 1912 with significant residential development occurring in all directions between 1915 and 1964 including

the construction of various schools. Limited development has occurred in the general vicinity of the site since 1964.

3.4. Adequacy of Information

3.4.1. Whilst there are gaps in the historical map coverage, and there is limited information of former activities undertaken at the site, it is considered that the available information provides reasonable coverage of the history of the site and immediate surroundings to inform the assessment.

4. Site Characterisation

4.1. The environmental setting of the site is tabulated below:

Table 4.1: Environmental Setting

Site Setting and Topography	The site is situated within Prestatyn town with a road and public footpath bordering the north and east of the site respectively and residential properties present in all directions. An embankment is present along the inside of the northern boundary leading up to the adjacent road and what appears to be a shallow drainage ditch is located in the northeast of the site. The site topography is shown on Ordnance Survey mapping to slope down from north to south, from between approximately 20m to 15m AOD.
Geology	BGS, historical OS mapping and site observations indicate the potential ground conditions to be: Made Ground: Made ground is anticipated within the embankment along the northern boundary and is also suspected along the eastern boundary; the presence of made ground would also be anticipated in the curtilage of the onsite building. Superficial Deposits: BGS mapping shows the site to be underlain by Devensian Glacial Till – Diamicton which consists of unsorted to poorly sorted sediment containing particles ranging in size from clay to boulders, suspended in a matrix of mud or sand. Bedrock: Underlying the superficial deposits Pennine Coal Measures are shown to be present which consist of alternating sandstone, grey siltstone and grey mudstone, with frequent coal seams and seatearth horizons. Faults: No faults are mapped as crossing the site or within the immediate surrounds. BGS Records No publicly accessible borehole logs in the general vicinity of the site were available via BGS records.
Hydrology / Drainage	No significant surface water courses have been identified in the vicinity of the site. The site appears to be free draining with drainage anticipated to be predominantly via sub-surface flow, however during periods of heavy rainfall surface run-off may occur to the south.
Flooding	Flood Risk Maps show that the site is at very low risk (<0.1% annual chance) of flooding from rivers and sea. The majority of the site is at high risk (>3.3% annual chance) of flooding from surface water, particularly in the west corner; the ground was saturated but not flooded during a period of heavy rain and snowmelt. The eastern part of the site is, however, more varied ranging from a

	very low to high risk (<0.1% - >3.3% annual chance) reflecting the change in local topography. The site is not designated as being at risk of flooding from reservoirs.
Hydrogeology / Groundwater	The underlying superficial deposits are classified by the EA as Unproductive Strata and the underlying Pennine Coal Measures are designated as a Secondary A aquifer meaning it has permeable layers capable of supporting water supplies at a local scale and can be an important source of base flow to rivers. The site is not located within a Source Protection Zone (SPZ) but is classed as being within a Groundwater Vulnerability area of high for the minor aquifer and a Nitrate Vulnerable Zone.
Radon	The site lies within an area where between 10 and 30% of homes are affected by radon gas ingress. Full radon protection measures are therefore required within new buildings or extensions.
Excavation and Landfilling	410m to the west of the site a large area of landfilling has been identified, part of which still appears to be operational as a recycling center. The Envirocheck report details that the landfill has been operational since at least 1936 and has received a range of waste types including: industrial, commercial, municipal, domestic and special. No evidence of historical excavations or extractions have been identified as having taken place on site according to the review of historical mapping and information within the Envirocheck Report.
Mining	The Coal Authority report (Appendix C) should be read in its entirety but in summary the site is not in an area affected by past or present mining activity and future mining work in the area is not anticipated; the site is, however, underlain by coal measures. No evidence of mine entries was indicated on the historical map survey.
Nature Conservation	No statutory nature conservation sites, such as SSSIs, SPAs etc. have been identified within 500m of the site.
Ground Stability	Ground stability information provided within the Envirocheck Report (Appendix B) should be read in its entirety but in summary it indicates no hazard with regards to compressible ground and ground dissolution and a very low hazard with regards to collapsible ground, landslide ground conditions, running sand and shrinking and swelling clays.

5. Preliminary Conceptual Site Model

5.1. Conceptual Site Model

5.1.1. The conceptual model for the site describes the potential contamination sources, pathways and receptors. Development of a conceptual model is required in order to evaluate potential risk to receptors. The plausible sources, pathways and receptors are outlined below.

5.2. Sources of Contamination

5.2.1. The available information indicates that since before 1871 the site existed as parcels of open land slightly encroaching onto an adjacent railway line with an embankment present along the northeast boundary. The site was partially developed between 1915 and 1938 when a residential property, which still exists, was constructed in the southwest corner of the site. The railway line was decommissioned prior to 1979 and now exists as a footpath which forms the northeast boundary. Minor development has occurred since involving the construction of a pathway that crosses the main part of the site which predominantly comprises green open space. The only development that has been identified in the general vicinity of the site is residential.

5.2.2. Made ground is anticipated within the embankments along the northwest and northeast boundaries and is suspected in the area of the vacant building. Made ground can be associated with the presence of typical urban contaminants such as heavy metals and PAHs and can also be a source of ground gas generation, depending on the depth and degradable organic content.

5.2.3. No potentially contaminative materials such as fuels or suspected asbestos containing material (ACM) were identified as being present across the site surface, however the potential for ACM to be present within the fabric of the vacant building exists. If the building is to be demolished as part of the redevelopment of the site, it is recommended that an asbestos survey and removal (if necessary) is carried out prior to its demolition to reduce the potential for asbestos fibre dispersal.

5.2.4. Information contained within the Envirocheck report suggests that the site lies within an area where soils contain naturally elevated lead concentrations (300-600mg/kg).

5.3. Potential Targets

5.3.1. The proposed future of the site is anticipated to be a residential use and would therefore be considered as high sensitivity for ground contamination risks.

5.3.2. The principle receptors to any potential contamination would therefore be future site residents, construction and maintenance workers, adjacent site users and the built development.

5.3.3. The site is in a predominantly residential area with neighbouring properties on all sides (beyond the road and footpath to the northwest and northeast respectively).

5.3.4. No nearby surface watercourses have been identified; the superficial deposits are classed as unproductive strata and the underlying Coal Measures are classed as a Secondary A Aquifer.

5.4. Human Health Risk Assessment

5.4.1. The potential for significant contamination to be present that may pose an acute risk to construction workers during the development is considered minimal. Similarly, future maintenance workers are unlikely to be exposed to materials with the potential to cause health impacts at a high frequency and extended duration.

5.4.2. Made ground is anticipated to be present within the embankment across the northern part of the site although the depth and composition is currently unknown. Made ground is also suspected to be present along the eastern boundary in the position of the former railway line and in the curtilage of the building in the southwest corner. The made ground could contain demolition material (bricks and cobbles) and inclusions of ash, clinker or slag which is common of historical sub-base/fill materials. Such materials may contain moderately elevated metal and PAH concentrations which could pose an unacceptable risk if retained at shallow depth in areas absent from permanent hardstanding such as in garden areas and/or public open space/landscaping.

5.4.3. There is the potential that ACM may be present within the fabric of the onsite building, however, providing a suitable asbestos survey is carried out and subsequent controlled removal is undertaken prior to its demolition (if necessary), the potential for residual / dispersed fibres to be released into surface soils is considered to be low.

5.4.4. The potential for elevated lead within natural soils could be considered to pose some level of risk to future site users if retained at shallow depth within gardens/landscaped areas.

5.4.5. The site lies within an area where between 10 and 30% of homes are affected by radon gas ingress. Full radon protection measures are therefore required within new buildings or extensions.

5.4.6. Made ground is a potential source of ground gas but is not anticipated to be widespread across the site or present to significant depths (with the potential exception of the embankment along the northern boundaries); no other significant sources have been identified within, or in the nearby vicinity of the site. The landfill to the west is at sufficient distance to preclude lateral migration given the nature or the underlying geology.

5.5. Controlled Waters Risk Assessment

5.5.1. The site is in an area of medium environmental sensitivity as far as groundwater is concerned with the underlying bedrock supporting a minor aquifer; the presence of overlying glacial till, however, is likely to significantly inhibit vertical infiltration of any contaminants that may be present onsite.

5.5.2. No nearby surface water courses have been identified that are likely to be significantly impacted by future development of the site

5.5.3. No viable pollution sources have been identified and the site is of low sensitivity with regards to risk to controlled waters.

5.6. Preliminary Conceptual Site Model

5.6.1. A preliminary conceptual site model (CSM) was derived for the site describing the potential contamination sources, pathways and receptors. The CSM was used to provide rationale for the site investigation design and is summarised below in Table 5.1:

Table 5.1: Preliminary Conceptual Site Model

Receptor	Source / Contaminant	Pathway / Exposure	Pollutant Linkage (in absence of mitigation)	Further Investigation
1. humans – construction workers / future maintenance workers	Metals / metalloids / asbestos / PAHs	Dermal contact / ingestion / inhalation – short term exposure	**Unlikely** – made ground is anticipated to be present across the north of the site and is suspected in the southwest and along the eastern boundary. Contaminant concentrations likely to pose acute risks are not expected.	Site investigation to include logging of ground conditions and shallow soil sampling to determine the soil chemistry.
2. humans – adjacent site users	Metals / metalloids / asbestos / PAHs	Wind blow / dermal contact / ingestion / inhalation	**Unlikely** – made ground is anticipated to be present across the north of the site and is suspected in the southwest and along the eastern boundary. Migration of contaminants offsite is likely to be limited.	Site investigation to include logging of ground conditions and shallow soil sampling to determine the soil chemistry.
3. humans – future occupants / site users	Metals / metalloids / asbestos / PAHs	Dermal contact / ingestion / inhalation	**Possible** – made ground is anticipated to be present across the north of the site and is suspected in the southwest and along the eastern boundary. BGS chemistry of natural soils also indicates naturally high lead concentrations within site soils which could pose a risk to human health.	Site investigation including shallow soil sampling to determine the shallow ground conditions and soil chemistry.
	Ground gas (methane, carbon dioxide)	Accumulation within voids, confined spaces and service runs	**Unlikely** – Made ground is not anticipated to be widespread across the site at significant depths and no other onsite/offsite sources have been identified.	Limited ground gas monitoring and investigation to confirm absence / presence of viable sources.
	Radon gas from natural ground	Accumulation within voids, confined spaces and service runs	**Possible** – The site lies within an area where between 10 and 30% of homes are affected by radon gas ingress.	Full radon protection measures are required within new buildings or extensions.
4. property / services	Ground gas (methane)	Accumulation within voids, confined spaces and service runs	**Unlikely** – Made ground is not anticipated to be widespread across the site at significant depths and no other onsite/offsite sources have been identified.	Limited ground gas monitoring and investigation to confirm absence / presence of viable sources.
	pH, sulphate	Chemical attack of buried concrete and plastic materials	**Unlikely** – material with high sulphate concentrations not anticipated to be present on site.	Site investigation including shallow soil sampling to determine the shallow ground conditions and soil chemistry

Receptor	Source / Contaminant	Pathway / Exposure	Pollutant Linkage (in absence of mitigation)	Further Investigation
4. vegetation / landscaping	leachable metals / metalloids may be present within made ground / natural soils	plant uptake	**Possible** – made ground present on site may contain concentrations of contaminants harmful to plant life.	Site investigation including shallow soil sampling to determine the shallow ground conditions and soil chemistry
5. ecosystems / protected species & habitats n/a – no ecosystems / protected habitats in the vicinity of site				
6. surface waters n/a – no significant surface water courses in the vicinity of site				
7. groundwater – Minor aquifer within bedrock	leachable metals / metalloids	migration via saturated zone	**Unlikely** – made ground is likely to be present and may contain elevated concentrations of contaminants, although, due to the limited size of the site, anticipated volume of made ground and presence of overlying glacial till likely to inhibit the vertical migration of contaminants, impacts upon groundwater receptors waters are likely to be negligible.	Site investigation including groundwater sampling to confirm leaching of any potential contaminants is not taking place.

6. Investigation Methodology

6.1. Objectives and Rationale

6.1.1. Proposals for future residential development is anticipated. The site is therefore considered to be of high sensitivity with respect to contamination.

6.1.2. Intrusive investigations have therefore been undertaken to:

- confirm the shallow ground conditions underlying the site and provide information to inform appropriate foundation solutions for the site development;
- obtain information on the presence, depth and quality of groundwater and the permeability of shallow soils;
- determine the presence, extent and nature of any made ground and soil chemistry of representative soils across the site;
- determine the physical suitability of the site for development and inform the remedial requirements necessary.

6.1.3. Soil sample collection was designed to:

- include samples from both the upper 600mm of the soil profile and lower depths, for human health assessment purposes;
- include testing and samples of foundation bearing strata for classification and to determine potential aggressive conditions for concrete;
- include any soils having contamination indicators,
- obtain representative samples of the various principal soil types present,
- determine compaction properties.

6.1.4. The investigation was carried out in accordance with the prescriptive brief provided by the client and completed under the appropriate guidance for site investigations (BS10175 and BS5930).

6.2. Fieldwork

6.2.1. A total of 14 exploratory holes were excavated at site consisting of 6 machine excavated trial pits, 6 cable percussion boreholes and 2 soakaway testing pits. Intrusive works were carried out between the 29th November 2017 and 13th December 2017 under the supervision of SGP Consultant, C Salwa.

6.2.2. The positions of the exploratory holes were selected by the client to provide a wide coverage of information on the site area. The position of all exploratory holes undertaken at the site as part of this investigation can be seen on the Exploratory Hole Location Plan in Drawing D06.

6.2.3. Drilling of boreholes was undertaken by Geo-Ventures (UK) Ltd with subsequent groundwater/gas monitoring undertaken by SGP Consultant C Salwa on 13th December 2017. The cable percussive borehole and the trial pits ground conditions were logged by SGP Consultant, C Salwa.

6.2.4. The trial pits (TP1 to TP6) were excavated with a 3CX JCB wheeled backhoe excavator to maximum depths of between 2.7m and 3.3m bgl. Small, disturbed plastic tub and jar samples and disturbed bulk samples were taken at regular intervals down to the base of the holes for subsequent laboratory testing and inspection.

6.2.5. On completion, all trial pits were carefully backfilled with arisings in thin layers, ensuring that excavated material was replaced in the same order as it had been removed.

6.2.6. The cable percussive boreholes (BH1-BH6) were drilled utilising a standard cable percussion rig at a diameter of 150mm down to a maximum depth of 6.45m below ground level (BH1, BH3, BH4, BH5 and BH6) and down to 10m bgl at BH2. Small disturbed plastic tub samples were collected from the borehole for future inspection. Standard Penetration Tests (SPTs) were carried out at 1.5m intervals down to the base of the boreholes.

6.2.7. On completion of the cable percussive boring, the boreholes BH1, BH5 and BH6 were partially backfilled with the arisings and were then utilised for the installation of a 50mm diameter slotted PVC standpipe from a depth of 6m to 1m below existing ground level. From between 1m up to ground level a plain pipe was added. The slotted section of the standpipe was surrounded with a filter sock and gravel, while expansive bentonite clay was added around the plain pipe. The standpipe was finished with a flush cover and concrete.

6.2.8. Representative jar samples were collected from the trial pits, 2 samples from the topsoil and 3 samples from natural subsoils, to determine any potential soil contamination. Samples were submitted to Exova Jones Environmental Laboratory (EJEL) for a typical suite of urban contaminants which included asbestos, heavy metals, speciated PAHs and fractionated hydrocarbons. 3 samples were also collected from natural soils from foundation bearing strata which were then submitted to EJEL for sulphate and pH analysis to assess the potential for aggressive conditions to concrete. 4 samples were also tested for soil organic matter (SOM) analysis.

6.2.9. Geotechnical samples were collected mainly from trial pits (disturbed bulk samples and small disturbed samples) and from borehole BH1 (small disturbed sample) and were submitted to Professional Soil Laboratory (PSL) for classification testing which included Atterberg limits, moisture content and particle size distribution, and compaction testing comprising Laboratory California Bearing Ratio test (CBR) on recompacted samples.

6.2.10. A single round of ground gas / vapour monitoring and groundwater sampling was carried out on boreholes BH1, BH5 and BH6 on the 13th December 2017. Monitoring was conducted using a GFM430 infra-red gas analyser and a MiniRAE 3000 Photo-ionization detector (PID). Groundwater sampling was carried out following gas monitoring and the boreholes were purged before sampling. The groundwater samples were submitted for a typical suite of urban contaminants which included pH, heavy metals, speciated PAHs and fractionated hydrocarbons. Copies of the gas and groundwater monitoring records are provided in Appendixes G and H.

6.2.11. Conclusions relating to ground conditions made within this report are based on data obtained from the site investigation, however it should be noted that variations which affect these conclusions may occur between and beyond the test locations. Also, water levels may vary with time due to season variation and/or tidal influence.

6.3. Chemical Analysis

6.3.1. All chemical analysis of soils and waters was carried out by Jones Environmental Laboratories, Queensferry, working where possible to MCERTS and / or ISO 17025 accreditation. Soil and water samples were stored in appropriate containers as advised by the laboratory, placed in a chilled cool box, and delivered to Jones Environmental within 12 hours of collection. Chain of custody documentation was completed and is retained by SGP. A summary of locations, strata and scheduling for soil and groundwater chemical analyses is provided below:

Table 6.1: Summary of Soil Chemical Analysis

Strata	Description	Sample ref	depth (m bgl)	analytical suite
Topsoil	Slightly clayey, silty sandy topsoil	TP1	0.2	SGP Suite+SOM
		TP2	0.3	SGP Suite+SOM
Natural	Glacial Till	TP2	0.6	BRE Suite
	Glacial Till	TP3	1.0	BRE Suite
	Glacial Till	TP4	0.6	BRE Suite
	Glacial Till	TP4	1.9	BRE Suite
	Glacial Till	TP5	0.4	SGP Suite+SOM
	Glacial Till	TP6	1.9	SGP Suite+SOM

SGP Suite = pH, metals / metalloids, PAHs (16 speciated), TPH CWG + BTEX, asbestos
BRE Suite = soluble sulphate (2:1 extraction), pH
SOM = Soil organic matter

Table 6.2 Summary of Groundwater Analysis

Entry	Response Zone Depth (m bgl)	Response Zone Strata	Analytical Suite
BH1	5	Glacial Till	Metals (arsenic, boron, cadmium, copper, lead, nickel, selenium, zinc, mercury,

BH5	3	Glacial Till	chromium III and chromium VI), PAHs, TPHCWG and pH.
BH6	2	Glacial Till	

7. Investigation Observations

7.1. Summary of Ground Conditions

7.1.1. The following information summarises the findings of the site investigation carried out by SGP between the 29th November and 13th December. The investigation confirmed the expected general strata sequence comprising Glacial Till deposits with a veneer of topsoil and local made ground deepening substantially within the areas where embankments are present.

7.1.2. Bedrock was not proved during the site investigation.

7.1.3. Topsoil was encountered at 8 of the 12 test locations, TP1, TP2, TP3, TP4, TP5, BH3, BH5 and BH6, from ground level down to depths of between 0.3m and 0.5m bgl. Topsoil is represented by dark brown slightly clayey silty sand with roots and rootlets.

7.1.4. Made ground was encountered at 4 of the 12 test locations, TP6, BH1, BH2 and BH4, from ground level down to depths of between 1.3m and ca.3m bgl. The shallow made ground is represented by blackish dark grey slightly clayey gravelly sand with roots, wood and concrete (sleepers); gravel is angular brick. The deeper made ground limited to the areas where embankments extend onto the site and is represented by reworked slightly gravelly slightly sandy clay

7.1.5. Glacial Till deposits were encountered in each test location from between 0.3m and 3m down to the base of trial pits and boreholes at between 2.7m to 10m bgl.

7.1.6. Glacial Till deposits are represented in general by deposits of varying proportions of sand and clay i.e. firm reddish brown slightly sandy slightly gravelly clay with lenses and partings of sand or reddish brown slightly gravelly slightly clayey sand with lenses of clay; very stiff clay was encountered in TP6.

7.1.7. Obstructions

7.1.8. Occasional concrete sleepers were exposed in trial pit TP6. The site has been de-vegetated before the site investigation; roots of mature trees are widespread on site.

7.2. Contamination Indicators

7.2.1. There were no visual or olfactory contamination indicators described within the intrusive entry logs. Waste materials including brick, wood and concrete sleepers were encountered in TP6.

7.3. Groundwater Conditions

7.3.1. Groundwater inflow / seepage was recorded in all trial pits between the depths 2.1m and 3.2m bgl. Shallow groundwater levels between the depths of 1m to 1.7m were recorded during the

groundwater / gas monitoring and soakaway testing on 13th December 2017, during a period of constant rain and after snow meltdown.

7.3.2. The groundwater levels recorded during the site investigation are summarised in the table 7.2, and the groundwater levels during groundwater/gas monitoring are summarised in the table 7.3.

Table 7.2: Summary of groundwater levels during site investigation (29th November 2017)

Exploratory hole	GW level (m bgl)	Depth to Base (m bgl)
TP1	Water inflow at 2.4m	2.70
TP2	Water seepage at 2.4m Water inflow at 2.8m	3.10
TP3	Water seepage at 3m	3.10
TP4	Water inflow at 3.1m	3.20
TP5	Water seepage at 3.2m	3.30
TP6	Water seepage at 2.1m	3.30

7.3.3. During the groundwater sampling and soakaway testing on 13th December 2017, during a period of constant rain and after snow meltdown, the following groundwater levels were recorded:

Table 7.3: Summary of groundwater levels during groundwater monitoring and soakaway testing (13th December 2017)

Exploratory hole	GW level (m bgl)	Depth to Base (m bgl)
BH1	1.53	5.86
BH5	1.59	5.52
BH6	1.0	5.82
SA2	Water seepage at 1.7m	2.00

8. Investigation Results

8.1. Results of Soil Chemical Analysis

8.1.1. The complete soil analytical data are presented in Appendix E.

8.1.2. The results of the soil analyses are compared to human health critical values (CVs) for initial screening purposes. Given the unknown proposed future use of the site, a conservative approach has been adopted and CVs devised for a residential scenario, primarily from the LQM / CIEH Suitable for Use Levels (S4ULs)[1] have been utilised. These are derived for a sandy loam soil and reference is initially made to the S4ULs for a soil with 1% soil organic matter (residential with garden-grown produce land-use) as a conservative assumption for screening purposes as this land-use assumes potential exposure to soils for young children.

8.1.3. The DEFRA published Category 4 Screening Level (C4SL) for lead in soils under residential land-use (the most conservative criteria available, deemed suitable for use given the vulnerability of the potential site users) has been utilised to allow an initial screening for risk to human health. This is intended to demonstrate that land is not Contaminated Land as defined under Part IIA of the Environmental Protection Act. The adoption of the C4SL in a planning scenario has not been universally accepted, however in the absence of other generic screening criteria for lead following the withdrawal of the SGV by the EA, it is considered appropriate to utilise the screening criterion.

8.1.4. Where published human health critical values are unavailable or inappropriate (because the substance does not significantly affect human health, but might influence other receptors), then other commonly used screening values are referred to, as noted below.

8.1.5. Given the moderate/high sensitivity of any future development, the presence of any detectable asbestos in garden soils is unlikely to be acceptable so the limit of detection has been adopted as a screening value.

8.1.6. The assessment criteria are intended for use for screening purposes only. Exceedances indicate that either more specific detailed site-specific risk assessment is required to better quantify risks to human health, or that remediation or mitigation is required to reduce risks by breaking the source-pathway-target relationship between soil contaminants and residents. The results are summarised below:

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Table 8.1: Summary of Soils Analysis

Contaminant	Number of Samples	Range of Concentrations (mg/kg or indicated)	Soil Standard Adopted and Concentration (mg/kg or indicated)	Exceedances
Arsenic	4	4.3-11.3	37 S4UL	None
Cadmium	4	0.7-**53.8**	11 S4UL	**53.8 TP5 (0.4m)**
Chromium (total)	4	73.7-92.5	910 S4UL	None
Chromium (VI)	4	<0.3	6 S4UL	None
Copper	4	10-85	2,400 S4UL	None
			200 Defra Plant	None
Lead	4	48-**4,768**	200 C4SL	**240 TP2 (0.3m)** **243 TP1 (0.2m)** **4,768 TP5 (0.4m)**
Mercury (inorganic)	4	<0.1-0.2	40 S4UL	None
Nickel	4	18.6-34.8	180 S4UL	None
Selenium	4	<1	250 S4UL	None
Zinc	4	132-**9,584**	3,700 S4UL	**9,584 TP5 (0.4m)**
			300 Defra Plant	**349 TP1 (0.3m)** **391 TP1 (0.2m)**
Asbestos screen	4	NAD - <0.001%	NAD	None
Naphthalene	4	<0.04-0.1	2.3 S4UL	None
Acenaphthylene	4	<0.03-0.5	170 S4UL	None
Acenaphthene	4	<0.05	210 S4UL	None
Fluorene	4	<0.04	170 S4UL	None
Phenanthrene	4	<0.03-0.21	95 S4UL	None
Anthracene	4	<0.04-0.21	2400 S4UL	None
Fluoranthene	4	<0.03-0.57	280 S4UL	None
Pyrene	4	<0.03-0.55	620 S4UL	None
Benz(a)anthracene	4	<0.06-0.23	7.2 S4UL	None
Chrysene	4	<0.02-0.35	15 S4UL	None
Benzo(a)pyrene	4	<0.04-0.20	2.2 S4UL	None
Indeno(123-cd)pyrene	4	<0.04-0.14	27 S4UL	None
Dibenzo(ah)anthracene	4	<0.04	0.24 S4UL	None
Benzo(ghi)perylene	4	<0.04-0.17	320 S4UL	None
Benzo(b,k)fluoranthene	4	<0.07-0.47	2.6 S4UL	None
Benzene	4	<0.005	0.087 S4UL	None
Toluene	4	<0.005	130 S4UL	None
Ethylbenzene	4	<0.005	47 S4UL	None
m/p-xylene	4	<0.005	59 S4UL	None
o-xylene	4	<0.005	56 S4UL	None
Aliphatic >C5-C6	4	<0.1	42 S4UL	None
Aliphatic >C6-C8	4	<0.1	100 S4UL	None

Contaminant	Number of Samples	Range of Concentrations (mg/kg or indicated)	Soil Standard Adopted and Concentration (mg/kg or indicated)	Exceedances
Aliphatic >C8-C10	4	<0.1	27 S4UL	None
Aliphatic >C10-C12	4	<0.2	130 S4UL (48 vap)	None
Aliphatic >C12-C16	4	<4	1,100 S4UL (24 sol)	None
Aliphatic >C16-C21	4	<7	65,000 S4UL (8.48 sol)	None
Aliphatic >C21-C35	4	<7	65,000 S4UL	None
Aromatic >C5-C7	4	<0.1	70 S4UL	None
Aromatic >C7-C8	4	<0.1	130 S4UL	None
Aromatic >C8-C10	4	<0.1	34 S4UL	None
Aromatic >C10-C12	4	<0.2	74 S4UL	None
Aromatic >C12-C16	4	<4	140 S4UL	None
Aromatic >C16-C21	4	<7	260 S4UL	None
Aromatic >C21-C35	4	<7-51	1,100 S4UL	None

Notes to table:

NAD:	No asbestos detected
S4UL:	LQM/CIEH Suitable for Use Levels (S4ULs), residential with homegrown produce landuse, (at 1% SOM, 6% SOM for metals). Copyright Land Quality Management Ltd. Reproduced with permission publication number S4UL 3102. All rights reserved.
C4SL:	Category 4 Screening Levels published by CL:AIRE (C4SLs); 'residential with homegrown produce land use' (at 1% SOM)
DEFRA plant	Threshold guideline for the protection of sensitive plant species used by MAFF
vap:	CV exceeds vapour saturation limit provided in ()
sol:	CV exceeds solubility saturation limit provided in (); i.e. probability of free product at this level

8.1.7. Concentrations of the majority of determinants were below the respective assessment criteria based on a residential land use scenario, however, isolated exceedances were detected for lead, cadmium and zinc. Cadmium was detected within sample TP5-0.4m at a concentration of 53.8.5 mg/kg, above the S4UL screening criteria of 11mg/kg. Slightly elevated lead was reported in TP2 at 0.3m and TP1 at 0.2m, and highly elevated lead content of 4,768mg/kg in TP5 - 04m in comparison to the S4UL criteria of 200mg/kg. Minor exceedances of zinc were detected in TP1 at 0.3m and TP4 at 0.2m above the DEFRA Plant criteria of 300mg/kg, however below the S4UL criteria for residential soils, and a significant exceedance of 9,584mg/kg was detected in TP5 at 0.4m, above the aforementioned S4UL screening criteria of 3,700mg/kg.

8.1.8. The elevated concentrations of cadmium, zinc and lead in TP5 might indicate the presence of a hotspot which would require further assessment. The other recorded exceedances in some metals are less significant and may be managed more readily by precautionary mitigation measures.

8.1.9. No asbestos fibres were detected over the limit of quantification (<0.001%).

8.2. Results of Groundwater Analysis

8.2.1. There are no existing water quality standards for groundwater. Groundwater results are compared against Environmental Quality Standards (EQSs) provided for surface waters[2]. Where an EQS has not been published under the WFD, reference has been made to the EQSs referred to under the EC Dangerous Substances Directive 76/464/EEC. Maximum allowable concentrations are used for "priority substances" and annual average (AA) for" Specific Pollutants". Due to the potential for the underlying groundwater to be tidally influenced, where transitional and coastal annual average criteria are published for "Specific Pollutants" these are included for comparison.

8.2.2. In the absence of an EQS, reference has been made to the standards provided for drinking water or in the Water Supply (Water Quality) Regulations 2000, (typically referred to as the UK Drinking Water Standards or UK DWS). It should be noted that these are particularly stringent as they are used to protect drinking water consumers and hence, although they provide an indication of the presence of any contamination, they are not necessarily directly applicable to risks posed to receptors associated with the site itself. Results are summarised below and provided in detail in Appendix E.

Table 8.2: Summary of Groundwater Results

Determinant	Number of samples	Range of Concentrations (µg/l)	Quality standard adopted and concentration (µg/l)	Exceedances
EPH (C5-35)	3	<10	10 DWS	None
Arsenic	3	<0.9-3.2	50 EQS WFD	None
			25 EQS WFD (transitional)	None
Cadmium	3	<0.03-0.**56**	**0.08 EQS WFD**[1]	**0.56 BH1**
Copper	3	<3-**3**	1 EQS WFD[1]	LOD > EQS*
			5 EQS WFD (transitional)	None
Lead	3	<0.4	7.2 EQS WFD[1]	None
Nickel	3	1.7-7.3	20 EQS WFD[1]	None
Chromium (total)	3	<0.2-0.5	4.7 EQS WFD (Cr III)	None
Zinc	**3**	3.7**-265.5**	**125 EQS WFD**[1]	**265.5 BH1**
Mercury	3	<0.01	0.05 EQS WFD[1]	None
Hexavalent Chromium	3	<2-4	3.4 EQS WFD	**4 µg/l BH6**
			0.6 EQS WFD (transitional)	LOD > EQS*
Naphthalene	3	<0.1	130 EQS WFD	None
Acenaphthylene	3	<0.01	No EQS	N/A
Acenaphthene	3	<0.01	No EQS	N/A
Fluorene	3	<0.01	No EQS	N/A
Phenanthrene	3	<0.01	No EQS	N/A
Anthracene	3	<0.01	0.1 EQS WFD	None

[2] Water Framework Directive (Standards & Classification) Directions (England & Wales) 2015

Determinant	Number of samples	Range of Concentrations (µg/l)	Quality standard adopted and concentration (µg/l)	Exceedances
Fluoranthene	3	<0.01	0.12 EQS WFD	None
Pyrene	3	<0.01	No EQS	N/A
Benzo(a)anthracene	3	<0.01	No EQS	N/A
Chrysene	3	<0.01	No EQS	N/A
Benzo(bk)fluoranthene	3	<0.01	0.0017 EQS WFD	LOD > EQS*
Benzo(a)pyrene	3	<0.01	0.27 EQS WFD	None*
Indeno(123cd)pyrene	3	<0.01	No EQS	LOD > EQS *
Dibenzo(ah)anthracene	3	<0.01	0.002 EQS WFD	LOD > EQS *
Benzo(ghi)perylene	3	<0.01	0.002 EQS WFD	LOD > EQS*
MTBE	3	<5	No EQS	N/A
Benzene	3	<5	8 EQS WFD	N/A
Toluene	3	<5	50 EQS WFD	None
			40 EQS WFD (transitional)	None
Ethylbenzene	3	<5	No EQS	N/A
m/p-Xylene	3	<5	No EQS	N/A
o-Xylene	3	<5	No EQS	N/A

Notes to table:
EQS: National Environmental Quality Standard for inland surface waters Annual Average (AA)
EQS (transitional): National Environmental Quality Standard for transitional and coastal waters Annual Average (AA)
UK DWS: Water Supply (Water Quality) Regulations 2000
LOD limit of detection; variable for individual VOCs and SVOCs
[1.] Hardness related; reference made to hardness band 50 Ca mg/l
* For this group of priority substances benzo(a)pyrene is considered a marker
GW Groundwater Threshold Values for UK River Basin Criteria

8.2.3. Exceedances of the National Environmental Quality Standard for inland surface waters (Annual Average) were reported for some metals; cadmium and zinc, as well as slightly elevated hexavalent chromium. Elevated cadmium and zinc might indicate leaching from soils where elevated metal concentrations have been confirmed.

8.3. Results of Soluble Sulphate Analysis and pH

8.3.1. Soluble sulphate tests carried out on samples recovered from exploratory holes recorded values ranging from below LOD of 1.5mg/l to 23.9mg/l, in conjunction with pH values ranging from 6.56 to 8.01.

8.3.2. Groundwater pH results varied from 6.97 to 7.26.

8.4. Results of Ground Gas Monitoring

8.4.1. Guidance published by CIRIA ("Assessing risk posed by hazardous ground gases to buildings", CIRIA C665, 2007), CIEH (“The Local Authority Guide to Ground Gas”, CIEH, 2008) and BS8485:2007 ("Code of Practice for the Characterisation and Remediation of Ground Gas in Affected Developments") has been referred to in determining potential risks posed by ground gases. Screening assessment criteria of 1% methane (CH_4), 5% carbon dioxide (CO_2) and 0.07 l/hr gas flow have been referred to initially. The gas screening value (GSV) is the product of gas concentration and flow. The results of the ground gas monitoring are summarised below and presented in detail in Appendix G.

Table 8.4: Summary of Gas Monitoring Results

borehole	no. visits	max steady flow (l/hr)	max CH_4 (%)	CH_4 GSV (l/hr)	max CO_2 (%)	CO_2 GSV (l/hr)	min O_2 (%)
BH1	1	<0.1	2.4	<0.002	9.5	<0.01	1.7
BH5	1	<0.1	<0.1	<0.0001	1.7	<002	17
BH6	1	<0.1	<0.1	<0.0001	4.6	<0.005	12.2

GSV – Gas Screening Value (=maximum gas concentration x maximum gas flow in the borehole over the monitoring period)
Atmospheric pressure during single monitoring visit recorded at 990 mb.

8.4.2. During the single round of gas monitoring the maximum concentration of methane was recorded in BH1; 2.4% v/v, and undetected (<0.1% v/v) in other boreholes. The concentrations of carbon dioxide varied between 1.7% and 9.5% v/v. Significant depletion of oxygen was recorded within BH1 and typical concentrations for natural soil conditions were recorded in BH2 and BH3.

8.4.3. The sustained gas flow rate was negligible (<0.1 l/hr) resulting in gas screening values of <0.002 l/hr for methane and carbon dioxide. The results would classify of the site as CIRIA Characteristic Situation 2 / CS2 (low risk) based on the gas flows below the initial screening gas flow values of 0.07l/hr but elevated carbon dioxide. In accordance to NHBC classification for low rise housing the results indicate *traffic light classification* – Amber 1, with methane concentrations below 5% v/v, carbon dioxide concentrations below 10% v/v, and negligible flow values.

8.4.4. There are no identified viable ground gas sources within the site or in the surrounding area, and ground conditions are generally not conducive to the migration of ground gases, so the preliminary monitoring data supports the previous assessment that viable sources of ground gas are absent.

8.4.5. It should be noted that typically a six-week monitoring program is required for sites of high sensitivity for a gas risk assessment.

9. Geotechnical Assessment

9.1. General

9.1.1. We understand the anticipated re-development will potentially comprise the construction of residential buildings, no proposed design has been specified at the time of writing.

9.1.2. The exploratory work from this investigation has proven the expected general strata sequence comprising Glacial Till deposits locally overlain by variable thickness of made ground associated with the peripheral embankments, and, where this is absent, a veneer of topsoil.

9.1.3. Groundwater was encountered as inflows and seepages in the trial pits, initially, between 2.1m and 3.2m bgl, with longer term monitoring recording standing water levels between 1m and 1.53m bgl after snow meltdown followed by period of constant rain.

Topsoil

9.1.4. Topsoil was encountered at 8 of the 12 test locations, TP1, TP2, TP3, TP4, TP5, BH3, BH5 and BH6, from ground level down to depths of between 0.3m and 0.5m bgl. Topsoil is represented by dark brown slightly clayey silty sand with roots and rootlets.

Made Ground

9.1.5. Made ground was encountered at 4 of the 12 test locations, TP6, BH1, BH2 and BH4, from ground level down to depths of between 1.3m and ca.3m bgl. The shallow made ground is represented by blackish dark grey slightly clayey gravelly sand with roots, wood and concrete (sleepers); gravel is angular brick. The deeper made ground is represented by reworked slightly gravelly slightly sandy clay.

9.1.6. N_{SPT} values derived from standard penetration tests within made ground ranged from 6 to 11, generally indicating loose deposits.

Glacial Till

9.1.7. Glacial Till deposits were encountered in each test location from between 0.3m and 3m bgl down to the base of trial pits and boreholes at between 2.7m to 10m bgl.

9.1.8. Glacial Till deposits are represented in general by deposits of varying proportions of reddish brown sand and clay i.e. from slightly sandy clay to clay or slightly clayey to very clayey sand; with lenses and partings of sand or clay.

9.1.9. Restricted sieve analysis on selected samples indicated granular soils with the fraction of sand of between 66% and 86%, and cohesive soils with the content of fines of between 63% and 99%. Generally, the percentage of fines varied between 14% and 99% within the samples collected across the site.

9.1.10. Classification tests on two samples of the cohesive layers revealed moisture contents of 22% and 26% with the modified plasticity values of 30% and 31% classifying the soils as of medium volume change potential. See NHBC Building Standards, Chapter 4.2.

9.1.11. N_{SPT} values derived from standard penetration tests in boreholes ranged from 11 to more than 50 (refusal) with a general increase in strength with depth.

9.1.12. CBR tests were undertaken in the Glacial Till bulk samples at 0.7m and 0.8m depth. The results vary significantly between two samples tested; with values of 1.5% and 1.6% in TP2 and 21% and 36% inTP1.

9.2. Site Excavation

9.2.1. Conventional hydraulic plant should be satisfactory for excavating service trenches within the natural soils.

9.2.2. In line with HSE guidelines, all excavations requiring personnel access should be adequately supported to avoid the risk of collapse. It has been proven during the ground investigation that excavations are unstable and collapsing between the depths 1.1m and 3.1m bgl, typically below groundwater levels, however, excavations may collapse at shallower depths due to high degrees of saturation.

9.2.3. Groundwater is expected to be encountered as inflows or seepages at depths greater than about 1m bgl which will further destabilise excavations. If dewatering is required, conventional pumping from sumps should be satisfactory to maintain a dry excavation at shallow depths, however it was confirmed during the site investigation and subsequent groundwater monitoring that due to seasonal variations groundwater levels vary, particularly during wetter months and after periods of inclement weather.

9.3. Foundation Solutions - Shallow Foundations

9.3.1. The made ground is considered unsuitable as a bearing stratum due to its variability, and potential for unacceptable total and differential settlement under applied foundation loadings.

9.3.2. The Glacial Till Deposits, cohesive and granular, are considered to be a suitable bearing stratum for conventional shallow foundations at 0.9m below existing ground level or 0.2m into the top of the formation, whichever is deeper.

9.3.3. At this depth a safe bearing capacity of 120kPa may be adopted for foundations not exceeding 1m in width. This allows for the factor of safety of three against shear failure and for settlements generally not to exceed 25mm taking place..

9.3.4. However, shallow groundwater levels during the periods of inclement weather should be considered. The position of the groundwater level, relative to a foundation, has an important effect on the ultimate bearing capacity of foundations on non-cohesive soils. With high groundwater levels, the effective stresses in the ground are lower than when the soils immediately below the foundations are dry, and the ultimate bearing capacity is reduced. In extreme cases, the ultimate bearing capacity of a flooded foundation may be only one-half of that in a dry condition.

9.3.5. The site has recently been cleared of a large number of mature trees of unknown species. Given the medium volume change potential within the clay layers, consideration must be given to risks from swelling clay and reference should be made to NHBC guidelines relating to heave protection when designing shallow foundations. As the types of tree formerly present on the site are unknown, a degree of precaution over deepening of the foundations maybe considered by the designer.

9.4. Ground Floor Slabs

9.4.1. In accord with NHBC guidelines a suspended floor slab will be required in soils with a volume change potential. Two of the four samples tested revealed medium volume change potential and it should be noted that the site was previously overgrown, still with mature trees on site and along the site boundaries, with frequent roots on site after recent de-vegetation.

9.5. Sub-Surface Concrete

9.5.1. Chemical tests on selected samples have recorded soluble sulphate concentrations ranging from below LOD (limit of detection) of 1.5mg/l to 23.9mg/l and pH values ranging from 6.56 to 8.01. This would correspond to a Design Sulphate Class of DS-1.

9.5.2. In terms of BRE Special Digest 1, the central parts have never been developed and may be considered to be natural ground. Groundwater beneath the site should be considered as mobile. The results correspond to Aggressive Chemical Environment for concrete (ACEC) class AC-1.

9.6. Access Roads and Parking

9.6.1. The structural design of a road or hard standing is based on the strength of the subgrade, which is assessed on the California Bearing Ratio (CBR) scale. CBR test results vary significantly between two samples tested; with values of 1.5% and 1.6% in TP2 and 21% and 36% inTP1. The minimum acceptable design CBR is 2.5% CBR.

9.6.2. If any deleterious material encountered at the surface it can be removed and replaced by a more suitable material. If the depth of relatively soft material is small, it can be replaced in its entirety, although it may only be necessary to replace the top layer. The thickness removed will typically be between 0.5 and 1.0m.

9.6.3. Although the new material may be of better quality, the new Design CBR should be assumed to be equivalent to 2.5%, in order to allow for effects of any potentially softer underlying material and the potential reduction in the strength of the replacement material to its long-term CBR value.

9.6.4. The following measures will be required to prepare an adequate formation for pavement construction: removal of any potential surface areas of soft, organic or other unsuitable materials, proof rolling of the resultant formation (to compact loose granular materials and locate any soft spots or obstructions at shallow depth beneath the formation for subsequent removal), and removal of deleterious or unstable/soft materials to a depth of at least 600mm beneath the formation to prevent the creation of hard spots or voiding, and backfilling of any excavation with well-compacted inert granular material.

9.7. Soakaway Testing

9.7.1. Soakaway testing was carried out in the Glacial Till Deposits encountered at the site in accord with BRE Digest 365 “Soakaway Design”. Results were as follows:

Table 8.4: Summary of Soakaway Results

Location	Depth of trial pit (m)	Soil infiltration rate (m/s)
SA1	1.7	8.88×10^{-7}
SA2	2.0	2.06×10^{-6}

9.7.2. Soil infiltration rates are classed as ‘poor drainage’ which is typical for very fine sands, silts and clay silt laminate as were recorded during the trial-pit excavation. See letter report and results attached in Appendix I.

10. Revised Conceptual Model and Risk Assessment

10.1. Methodology

10.1.1. Information from the current site investigation has been used to refine the likely source-pathway-target relationships identified in the preliminary Conceptual Site Model (CSM). Tier 1 risk assessment has been undertaken by comparison of contaminant concentrations in various media (soil and groundwater) to generic screening criteria. These are values appropriate to residential end-use of the site with gardens and are possibly overly conservative for other end-uses. Exceedances therefore indicate the requirement for either more detailed site-specific risk assessment or remediation to break the potential contaminant linkage.

10.2. Sources

10.2.1. The overall history of the site does not indicate a high potential for soil contamination, however made ground has been confirmed and exceedances of a number of metals above the respective assessment criteria for a residential land use have been detected (cadmium, lead and zinc), including highly elevated concentrations in one sample.

10.2.2. Exceedances of the National Environmental Quality Standard for inland surface waters (Annual Average) were reported for some metals; cadmium and zinc, as well as slightly elevated hexavalent chromium.

10.2.3. No high-generation potential sources were identified on or near the site. No sustained gas flows or concentrations of potentially hazardous gases were recorded during the single round of gas monitoring, the site has been classified as CIRIA characteristic situation 2 – low risk, and amber 1 traffic light in accord to NHBC. The site lies within an area where between 10 and 30% of homes are affected by radon gas ingress.

10.3. Targets

10.3.1. We assume residential use of the site. The principal vulnerable receptors, assuming this type of development will be:

- construction workforce;
- future site residents;
- on-site building structures and infrastructure (houses; roadways; services);
- plants within soft landscaping areas;
- shallow groundwater in underlying sand and clay;

10.3.2. Potential risks associated with neighbouring land uses are not considered significant and are not therefore considered further.

10.4. Human Health Risk Assessment

10.4.1. Concentrations of several determinants within the natural soils were reported above the human health assessment criteria for a residential land use, specifically cadmium, lead and zinc. The risk from ground contamination to human health is therefore considered possible where private garden areas will exist following any redevelopment, particularly if the conditions confirmed at TP5 are widespread in shallow soils on the site.

10.5. Ground Gas / Vapour Risk Assessment

10.5.1. No viable sources of significant ground gas or viable migration pathways have been identified. The ground gases methane and carbon dioxide were detected on site pose a low risk to either human health or property. Results from one preliminary round of gas monitoring indicate gas protection measures are required. Typically, a six- round monitoring programme is required for a future residential developments. The site lies within an area where between 10 and 30% of homes are affected by radon gas ingress. Full radon protection measures are therefore required within new buildings or extensions, although this risk would be mitigated if precautionary gas protection measures for the other gasses are adopted.

10.6. Property Risk Assessment

10.6.1. The proposed redevelopment of the site is anticipated to include residential/commercial buildings, an access road, car parking, drainage infrastructure, utility services, and areas of soft landscaping. Concrete classification risk assessment based on concentrations of soluble sulphate within the natural soils indicate a design sulphate class (DC) of DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) classification of AC-1. No other specific risks of chemical attack on other construction materials or pipeline materials have been identified.

10.7. Controlled Waters Risk Assessment

10.7.1. Some diffuse sources of soil contamination were identified and the elevated metals detected in the groundwater correspond to the soil conditions on the site and in the wider area. If highly elevated metal concentrations are widespread on the site, these could be considered a point-source which could be remediated to improve groundwater quality. The lower concentrations are representative of the regional conditions and are not considered significant in the context of the wider area.

10.7.2. The potentially significant pollution linkages are summarised in Table 10.1 below:

Table 10.1: Updated Conceptual Site Model

Receptor	Source / Contaminant	Pathway / Exposure	Pollutant Linkage (in absence of mitigation)	Further Investigation / Remediation
1. Humans – construction workers / future maintenance engineers	Lead, cadmium, zinc	Dermal contact / ingestion / inhalation – short term exposure	**Unlikely** – Exceedances of cadmium, lead and zinc	Good occupational hygiene, correct PPE and mitigation measures to reduce soil disturbance and dust generation (dampening down in dry conditions) and track out of mud should be implemented during construction
2. Humans – future site residents / visitors / workers	Lead, cadmium, zinc	Dermal contact / ingestion / inhalation	**Likely** – Exceedances of cadmium, lead and zinc, particularly in one location, although the extent of this is unconfirmed	Moderately elated metal concentrations can be mitigated through retention below areas of permanent hard-standing. Gardens or landscaping areas will require a clean soil cover system, less sensitive areas require reassessment of results once the end-use of the site is confirmed. The extent of the area of higher metal concentrations should be confirmed.
	Ground gases CH_4, CO_2 and radon	seepage into building via foundations, indoor inhalation	**Possible –**concentrations requiring mitigation have been confirmed during a limited monitoring programme	Complete gas monitoring programme or adopt precautionary protection measures
3. Property / services	pH, sulphate and organic contaminants	Chemical attack of buried concrete and plastic materials	**Very Unlikely** – no significant concentrations of substances which could attack concrete have been recorded or which would require the use of protective water pipes	Design Sulphate (DS) – DS1 Aggressive Chemical Environment for Concrete (ACEC) classification – AC1
4. Vegetation / landscaping	exceedances of zinc	plant uptake	**Possible –**– three exceedances of the Defra MAFF criteria for the phytotoxic metal zinc were reported, one being significantly above the screening value.	Imported topsoil will be required to provide a growing medium within garden/landscaped areas This should be tested to determine the suitability for use within the site.
5. Ecosystems / protected species & habitats n/a – no ecosystems / protected habitats in immediate vicinity				
6. surface waters n/a – no significant surface water courses in the vicinity of site				

Receptor	Source / Contaminant	Pathway / Exposure	Pollutant Linkage (in absence of mitigation)	Further Investigation / Remediation
7. groundwater – Principal Aquifer within bedrock	Cadmium, copper and zinc	migration via granular horizons	**Possible –**significant concentrations of some metals within the soils and evidence of probable migration/leaching from soils into groundwater	If the lower concentrations recorded are generally representative of site conditions no further action is required, however the extent of the area of higher metal concentrations should be confirmed.

11. Conclusions and Recommendations

11.1. Ground Contamination

11.1.1. The site existed as parcels of open land slightly bounded by roadway and railway embankments which partially extend onto the site (to the northeast and northwest). The only development that has occurred has been the construction of a pathway that crosses the site from east to west and a single residential dwelling in the western corner. The remaining surrounds predominantly comprised open fields with occasional scattered housing. Limited development has occurred in the general vicinity of the site since 1964.

11.1.2. Concentrations of lead, cadmium and zinc are considered to require further assessment to determine the appropriate measures to protect future residents. The area of high metal concentrations should be confirmed, and delineated. Other areas of more moderate metal concentrations can be isolated by a physical barrier where the soil could be retained below permanent hard-standing (buildings/roadways/car parks) or a clean soil cover system within private gardens/landscape areas or public open space.

11.1.3. No other risks of pollution have been identified. Asbestos containing materials were not identified on site; however, a survey of the existing building structure has not been carried out and must be completed before demolition.

11.1.4. No potential sources of ground gases were found either within the site or in the neighbourhood; preliminary characterisation of the ground gas regime after a single monitoring round indicated a low but not negligible risk and some uncertainty remains due to the short monitoring programme. However, full radon protection measures are required within new buildings or extensions and precautionary measures could be adopted.

11.1.5. The site appears to present no risk of contamination of drinking water supplies, and normal PE water main pipe materials should be appropriate.

11.1.6. Results of chemical tests on selected samples correspond to Design Sulphate Class of DS-1 and Aggressive Chemical Environment for Concrete (ACEC) class AC-1.

11.1.7. A further phase of investigation to better characterise the contamination status of the shallow soils with respect to lead, cadmium and zinc is required and consideration should be given to extending the gas monitoring programme.

11.1.8. A Remediation Strategy will be required to define remediation objectives, identify viable mitigation techniques and confirm environmental controls, an appropriate inspection regime and validation/verification procedures. This should be proportional to the overall low-moderate risks

presented by the site on the basis of the assessment completed to date, but sufficiently flexible to respond to unexpected conditions, if encountered.

11.2. Recommendations for Foundations and Site Engineering

11.2.1. The exploratory work from this investigation has proven the expected general strata sequence to comprise Glacial Till deposits locally with a veneer of topsoil; significant made ground appears to be restricted to the northern peripheral areas where the surrounding embankments encroach onto the site.

11.2.2. Conventional hydraulic plant should be satisfactory for excavating service trenches within the natural soils; all excavations requiring personnel access should be adequately supported to avoid the risk of collapse which occurred between the depths 1.1m and 3.1m bgl during the site investigations.

11.2.3. Groundwater is expected to be encountered as inflows or seepages at depths greater than about 1m bgl which will further destabilise excavations. If dewatering is required, conventional pumping from sumps should be satisfactory to maintain a dry excavation at shallow depths.

11.2.4. The made ground is considered unsuitable as a bearing stratum due to its variability, and potential for unacceptable total and differential settlement under applied foundation loadings.

11.2.5. The Glacial Till Deposits, cohesive and granular, are considered to be a suitable bearing stratum for conventional shallow foundations at a minimum of 0.9m below existing ground level or 0.2m into the top of the formation, whichever is deeper. This does not consider any reduction in bearing capacity due to saturated conditions or the effects of changes in the moisture content due to the recent tree clearance; it may be appropriate to deepen the shallow foundations and provide heave protection measures in accordance with NHBC guidance. In accordance with NHBC guidelines a suspended floor slab will also be required in soils with a volume change potential.

11.2.6. The structural design of a road or hard standing is based on the strength of the subgrade, which is assessed on the California Bearing Ratio (CBR) scale. CBR test results vary significantly between two samples tested; with values of 1.5% and 1.6% in TP2 and 21% and 36% inTP1. The minimum acceptable design CBR is 2.5% CBR. If any deleterious material encountered at the surface it can be removed and replaced by a more suitable material. Although the new material may be of better quality, the new Design CBR should be assumed to be equivalent to 2.5%.

11.3. Limitations

S*tratigraphy*

11.3.1. The evidence of stratigraphy is taken from discrete borehole and trial pit locations, and from information provided by other parties. Whilst it is usually reasonable to infer that similar conditions may extend between these locations; caution should be exercised.

Contamination

11.3.2. The site investigation involved sampling at discrete locations, and it should be recognised that further areas or types of contamination may exist between investigation positions. The analyses performed are drawn from a typical suite of tests used to screen potentially contaminated land, and specified to fall within the available budget. It is always possible that other substances may be present that have not been included within the standard range of tests.

11.4. Soil gas and groundwater

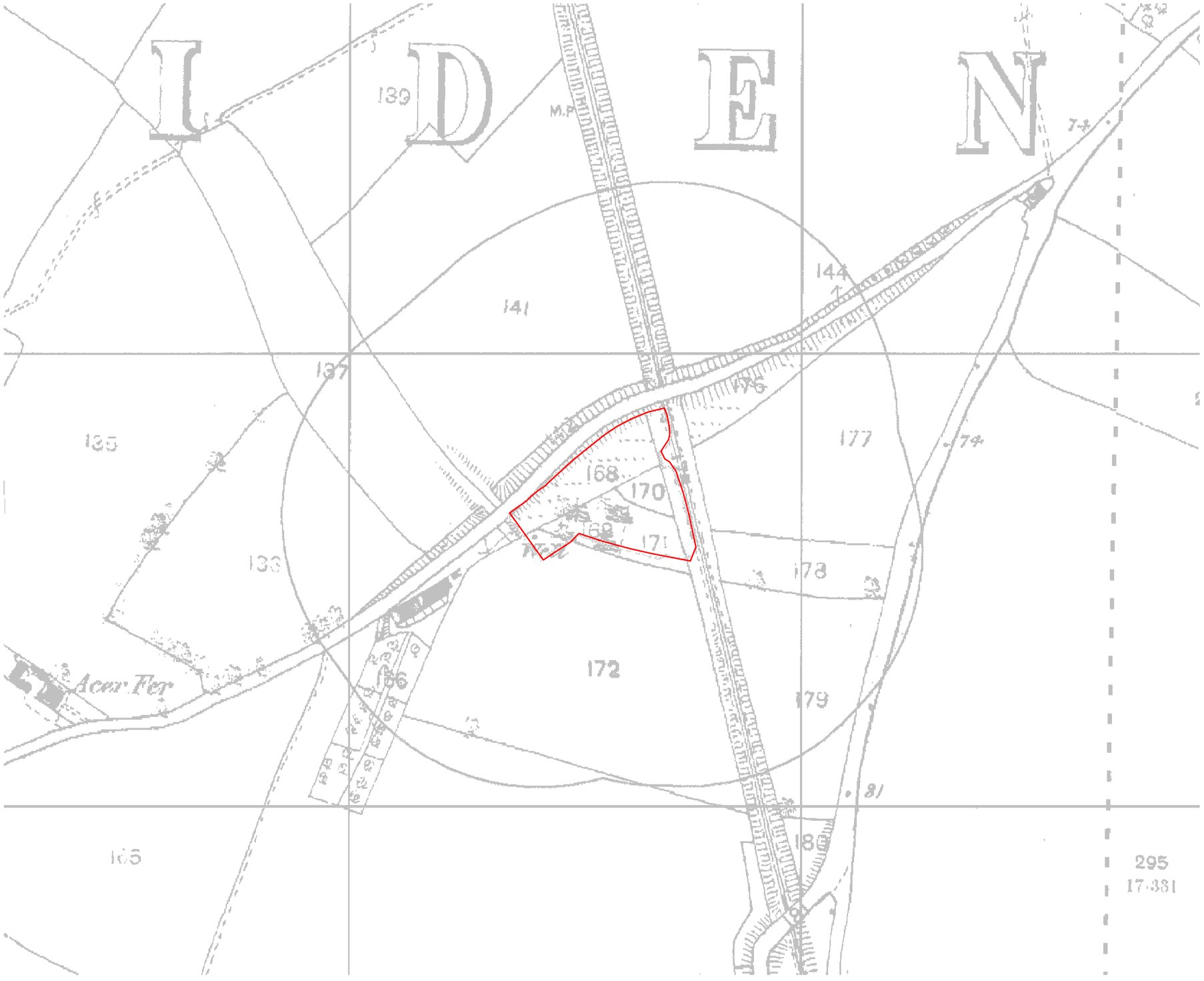
11.4.1. Comments made on gas and/or groundwater conditions are based on observations or tests made at the time that the work was carried out. It should be noted that gas concentrations and pressures and groundwater levels and concentrations of substances may vary according to seasonal or weather-related effects, sometimes in an unpredictable fashion.

General

11.4.2. This report has been prepared by SGP for the sole and exclusive use of the Denbighshire County Council. Reasonable skill, care and diligence has been exercised within the budget available, and in accordance with the technical requirements of the brief. Notwithstanding the efforts made by the professional team in undertaking the assessment and preparing this report, it is possible that other ground conditions and contamination as yet undetected may exist. Reliance on the findings of this report must therefore be limited accordingly. Such reliance must be based on the whole report and not on extracts which may lead to incomplete or incorrect conclusions when taken out of context

11.4.3. SGP reserves the right to alter any of the foregoing information in the event of new information being disclosed or provided and in the light of changes to legislation, guidelines and responses by the statutory and regulatory authorities.

DRAWINGS



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Project:
The Dell, Prestatyn

Drawing:
Historical Map 1871-72

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SM	DW
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Job No: R2485	Drg No: D01

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Project:
The Dell, Prestatyn

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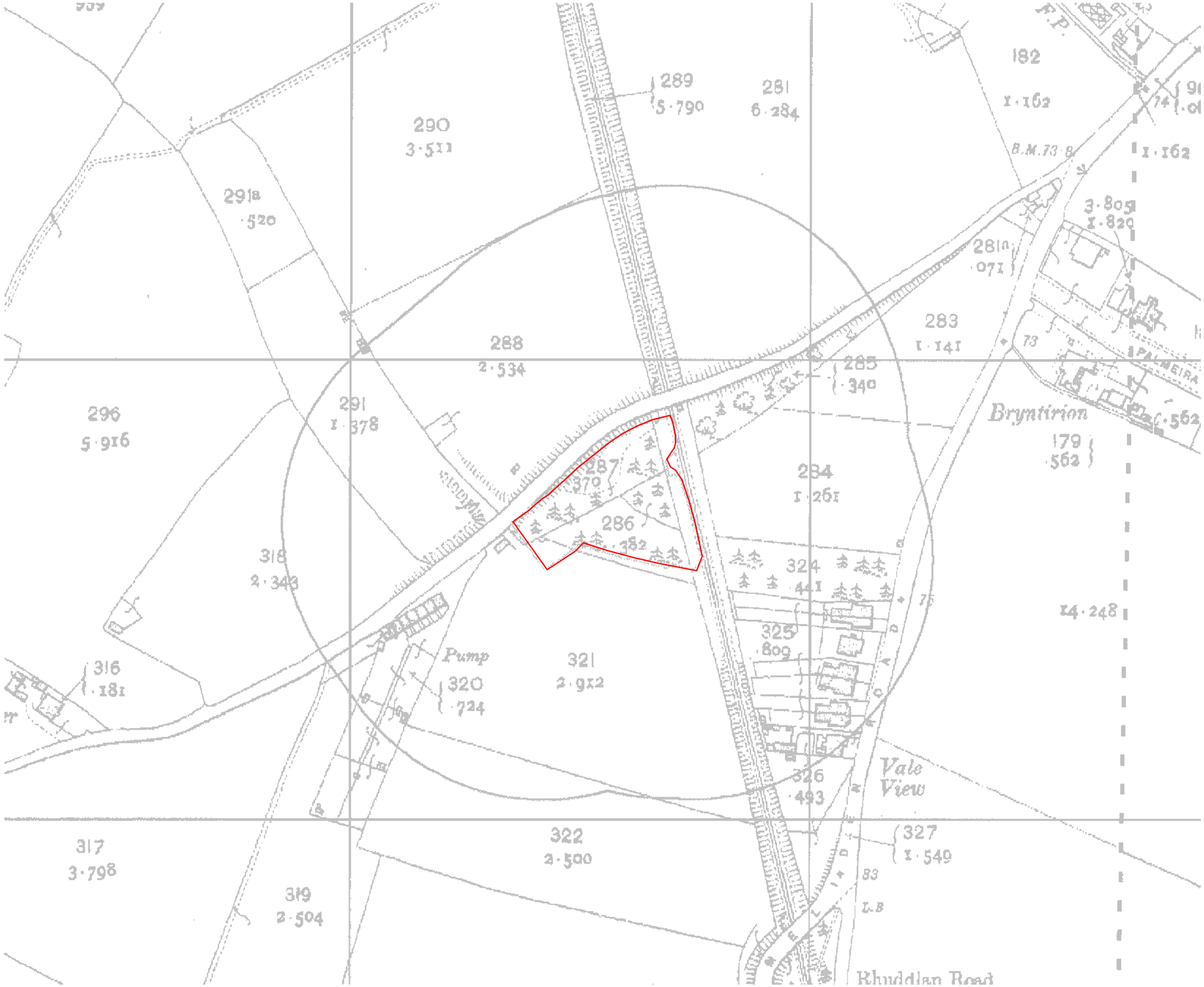

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Project:
The Dell, Prestatyn

Drawing:
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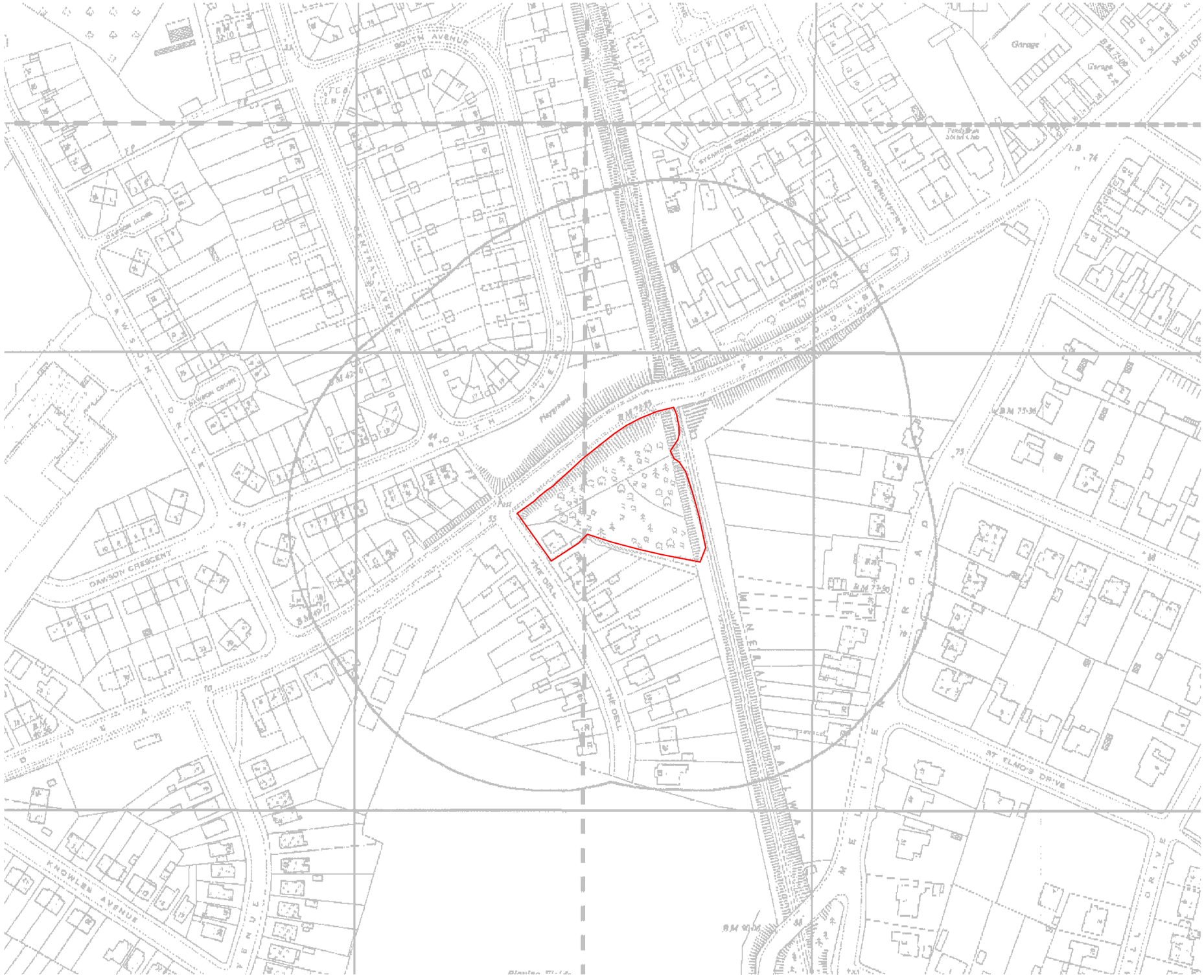

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Project:
The Dell, Prestatyn

Drawing:
Historical Map 1962

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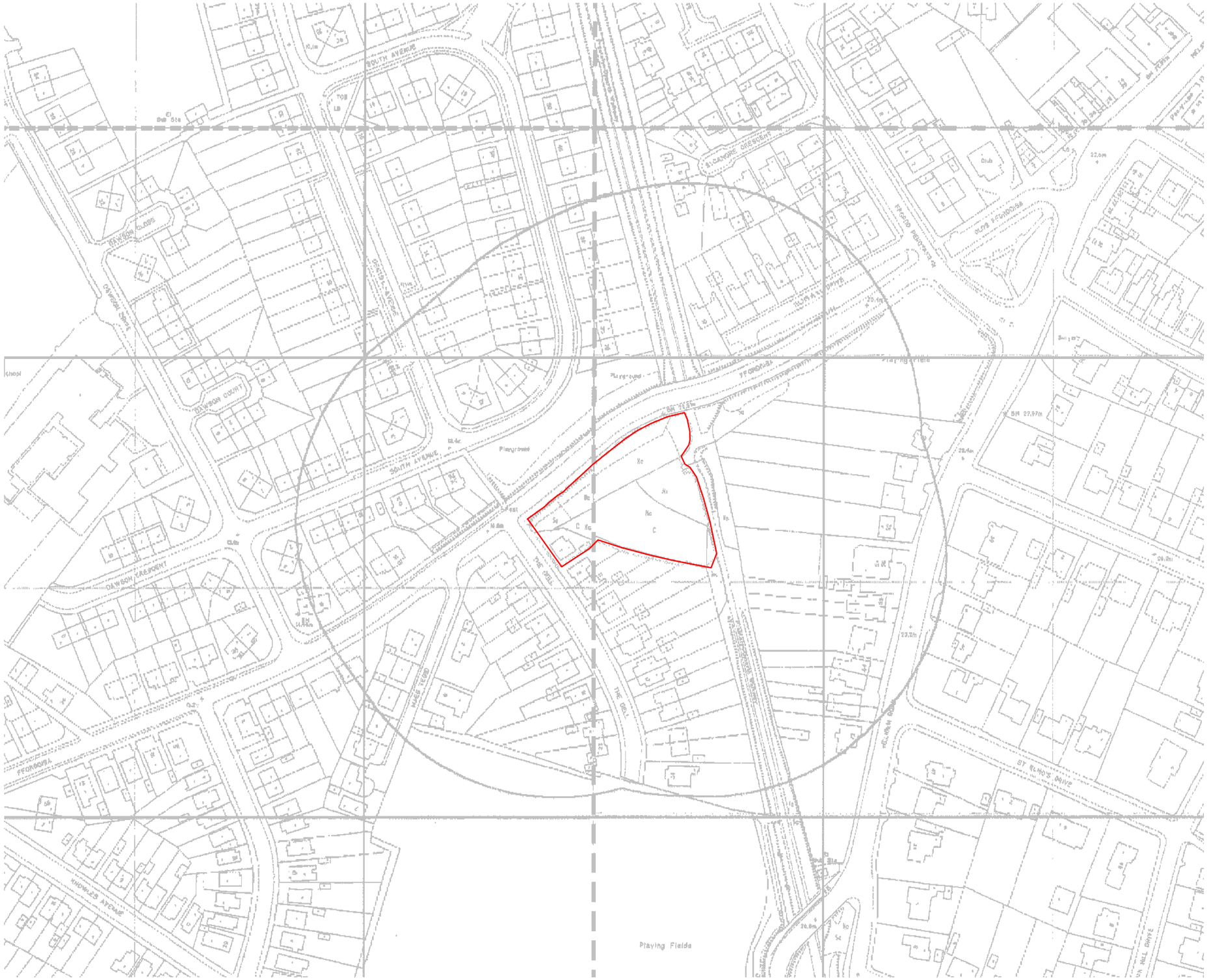

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Project: The Dell, Prestatyn	
Drawing: Historical Map 1993	
Drawn: SM	Checked: DW
Date: 30.11.17	Scale: 1:2,500 @ A4
Job No: R2485	Drg No: D05

- TP - Trial-Pit
- BH - Cable Percussive Borehole
- SA - Soakaway Test

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Project:
The Dell, Prestatyn

Drawing:
Test locations Plan

Drawn:	Checked:
SM	DW
Date:	Scale:
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Job No:	Drg No:
R2485	D06

APPENDIX A

Site Inspection Photographs

1.

13.11.17 – Panoramic view of the site

2.

13.11.17 – Footpath which bisects the main body of the site (south) and overgrown vegetation (north)

3.

13.11.17 – South-westerly view across the main site area

4.

13.11.17 – Site's eastern boundary (open) extending onto footpath

5.

13.11.17 – Ditch located in the northeast corner

6.

13.11.17 - Southern view of the site's south-eastern corner

7.

13.11.17 – Western view across the southern end of the site

8.

13.11.17 – Site cleared of vegetation and trees felled

9.

13.11.17 – Easterly view, two oak trees remain in the main site area

10.

13.11.17 – Southern boundary of wire fence onto wooden garden fences of neighbouring properties

11

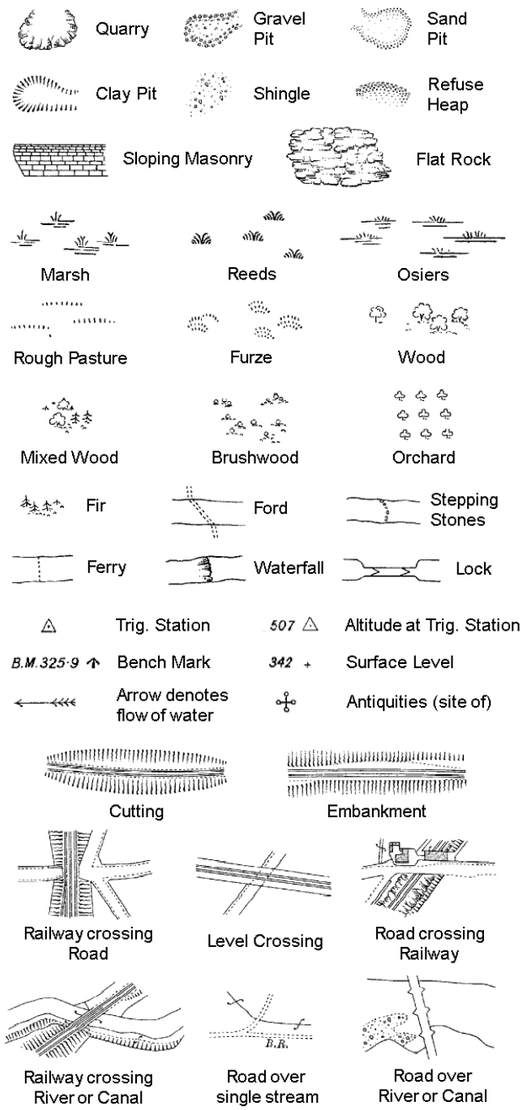
13.11.17 – Area of fly-tipped waste in the eastern corner

APPENDIX B

Envirocheck Report

Historical Mapping Legends

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



County Boundary (Geographical)

County & Civil Parish Boundary

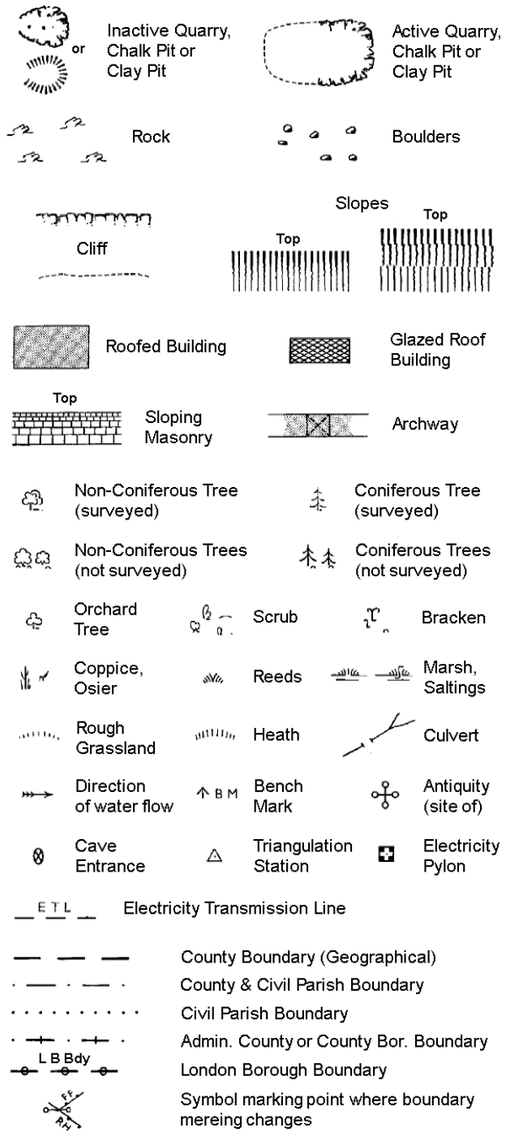
Administrative County & Civil Parish Boundary

Co. Boro. Bdy. County Borough Boundary (England)

Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	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



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

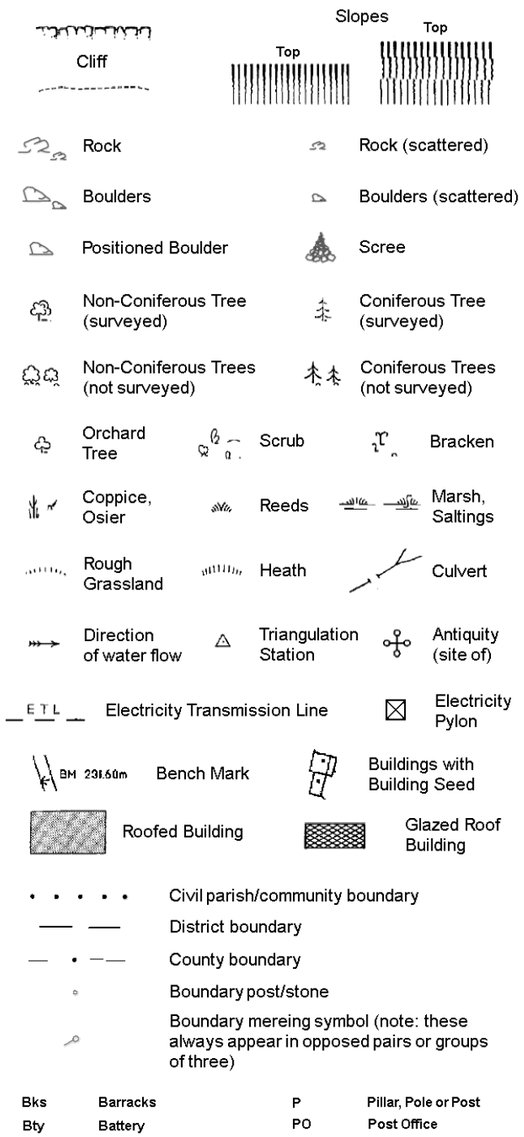
Admin. County or County Bor. Boundary

L B Bdy 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
El 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



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
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El 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 Governer	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

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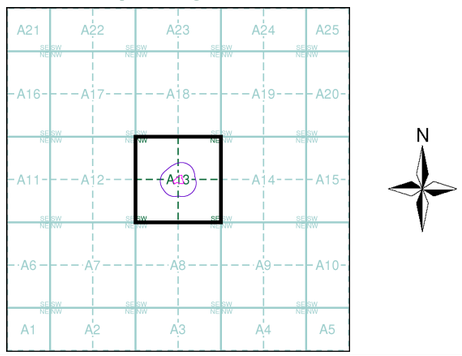
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Flintshire	1:2,500	1871 - 1872	2
Flintshire	1:2,500	1899	3
Flintshire	1:2,500	1912	4
Ordnance Survey Plan	1:1,250	1962	5
Additional SIMs	1:1,250	1962 - 1990	6
Ordnance Survey Plan	1:2,500	1964	7
Ordnance Survey Plan	1:1,250	1968 - 1975	8
Additional SIMs	1:1,250	1985 - 1988	9
Additional SIMs	1:1,250	1989 - 1990	10
Large-Scale National Grid Data	1:1,250	1993	11
Historical Aerial Photography	1:2,500	2001	12

Historical Map - Segment A13



Order Details

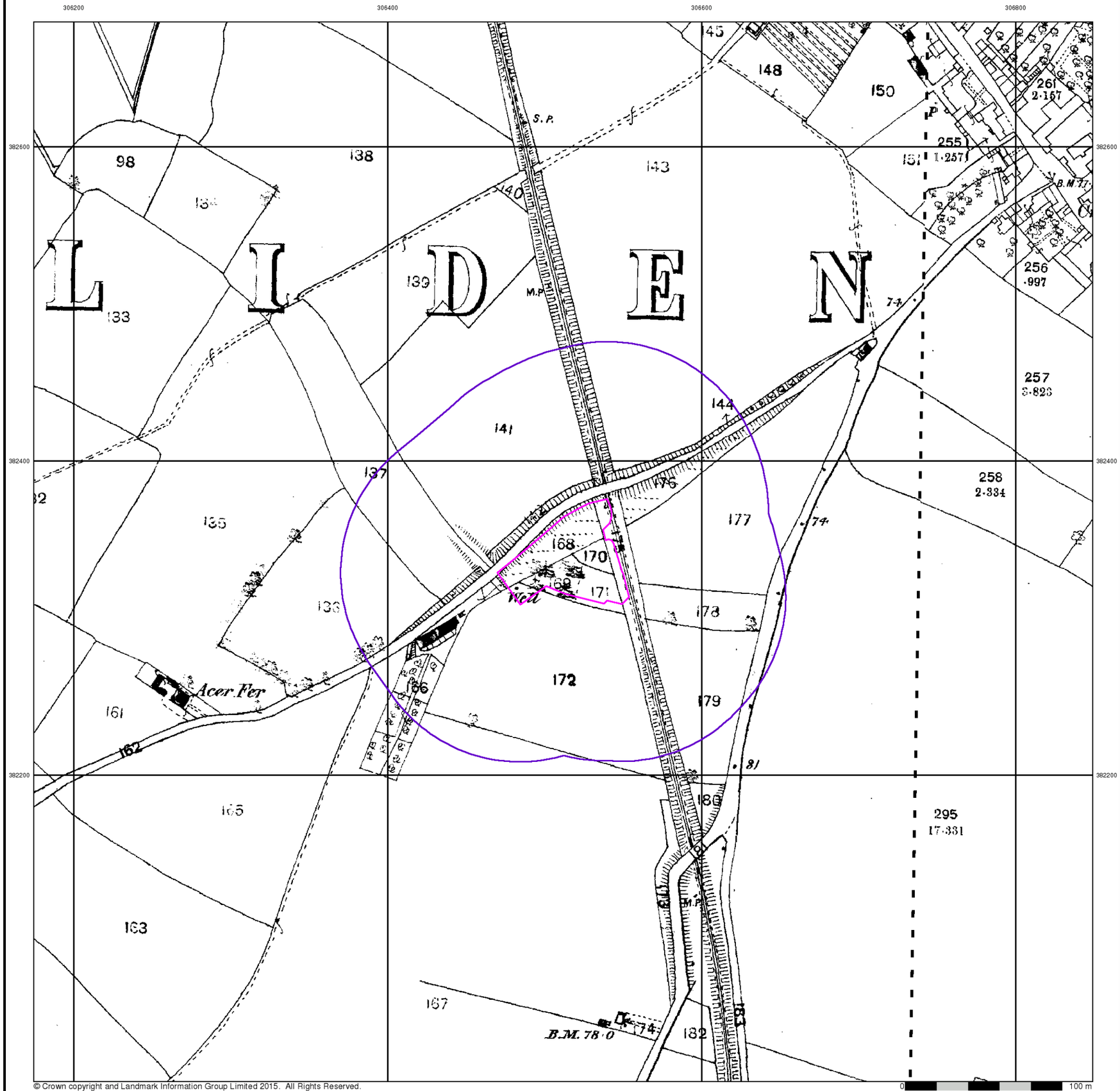
Order Number:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	100

Site Details

Site at 306520, 382340

Landmark® INFORMATION GROUP

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



Envirocheck®

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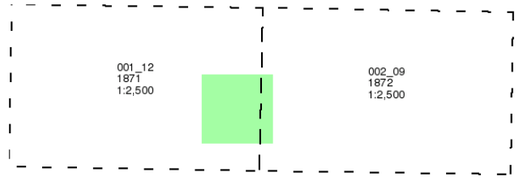
Flintshire

Published 1871 - 1872

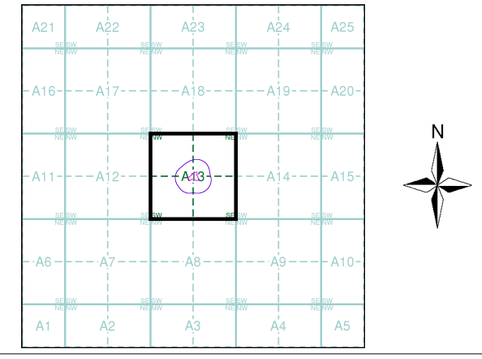
Source map scale - 1:2,500

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



Order Details

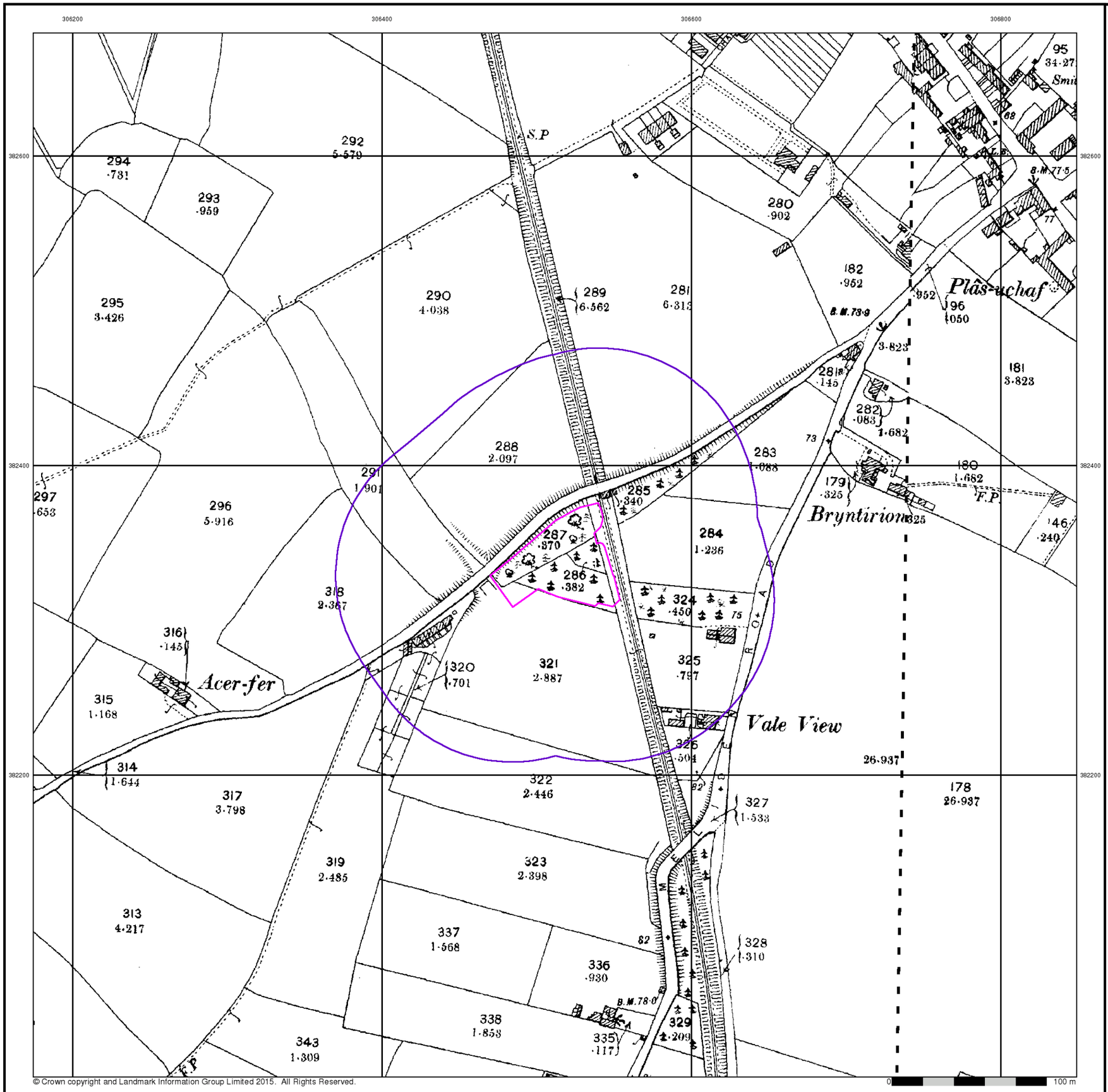
Order Number:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	100

Site Details

Site at 306520, 382340

Landmark INFORMATION GROUP

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



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LANDMARK INFORMATION GROUP®

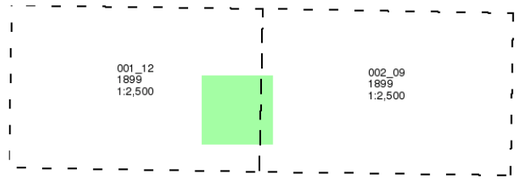
Flintshire

Published 1899

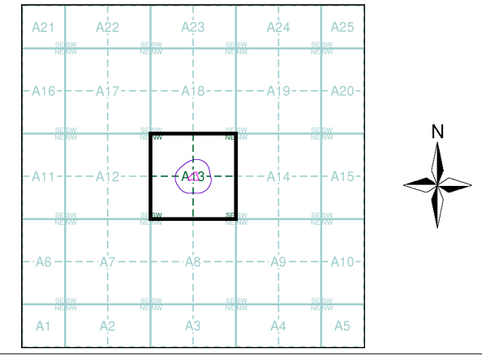
Source map scale - 1:2,500

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



Order Details

Order Number:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	100

Site Details

Site at 306520, 382340

Landmark INFORMATION GROUP
Tel: 0844 844 9952
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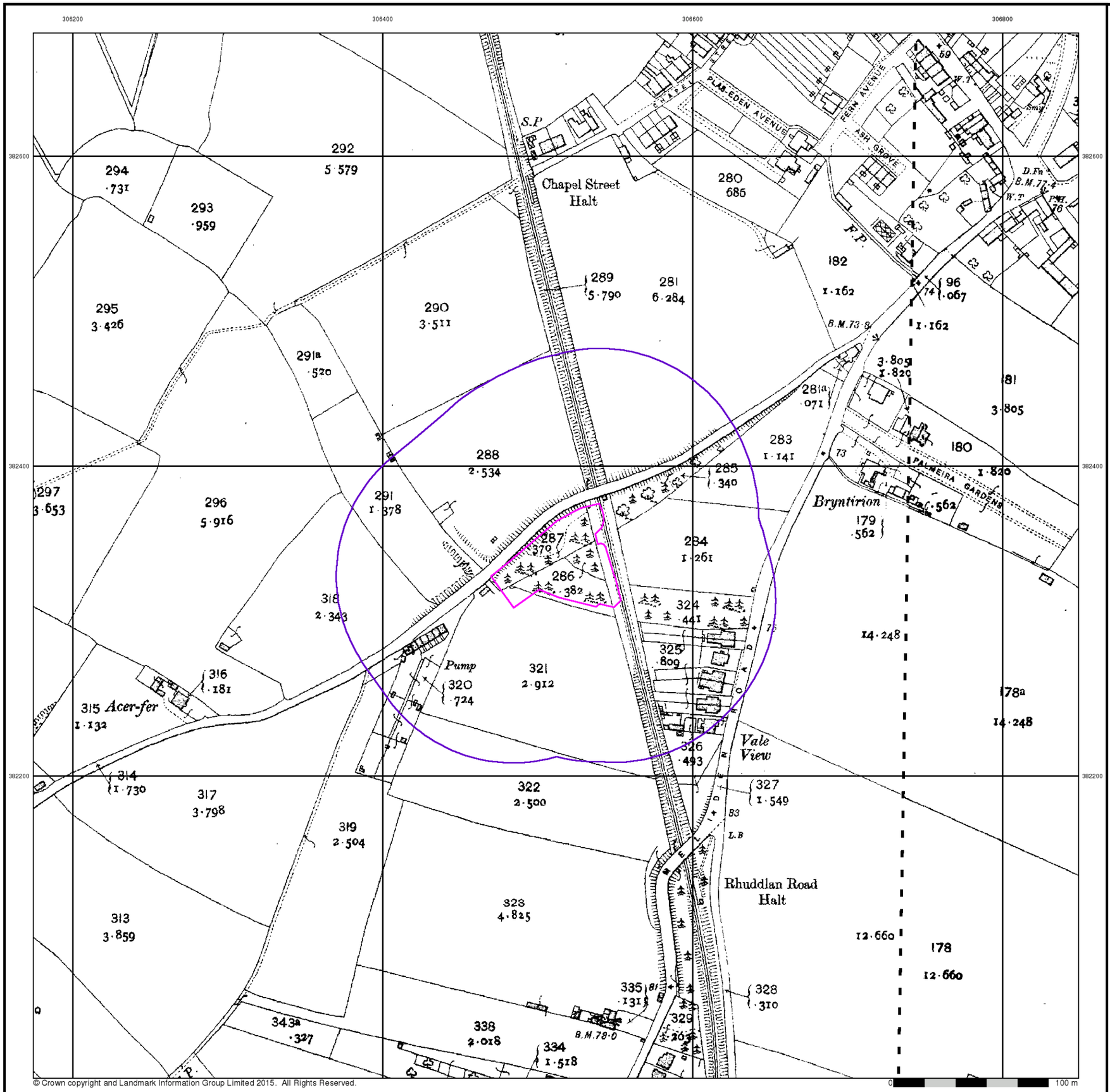

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LANDMARK INFORMATION GROUP®

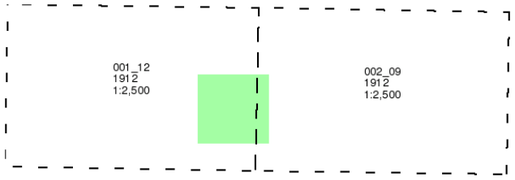
Flintshire

Published 1912

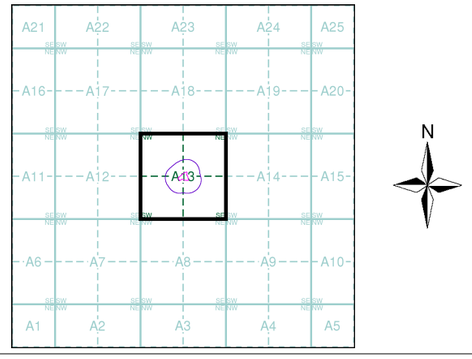
Source map scale - 1:2,500

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



Order Details

Order Number:	145587949_1_1
Customer Ref:	R2485
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Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	100

Site Details

Site at 306520, 382340

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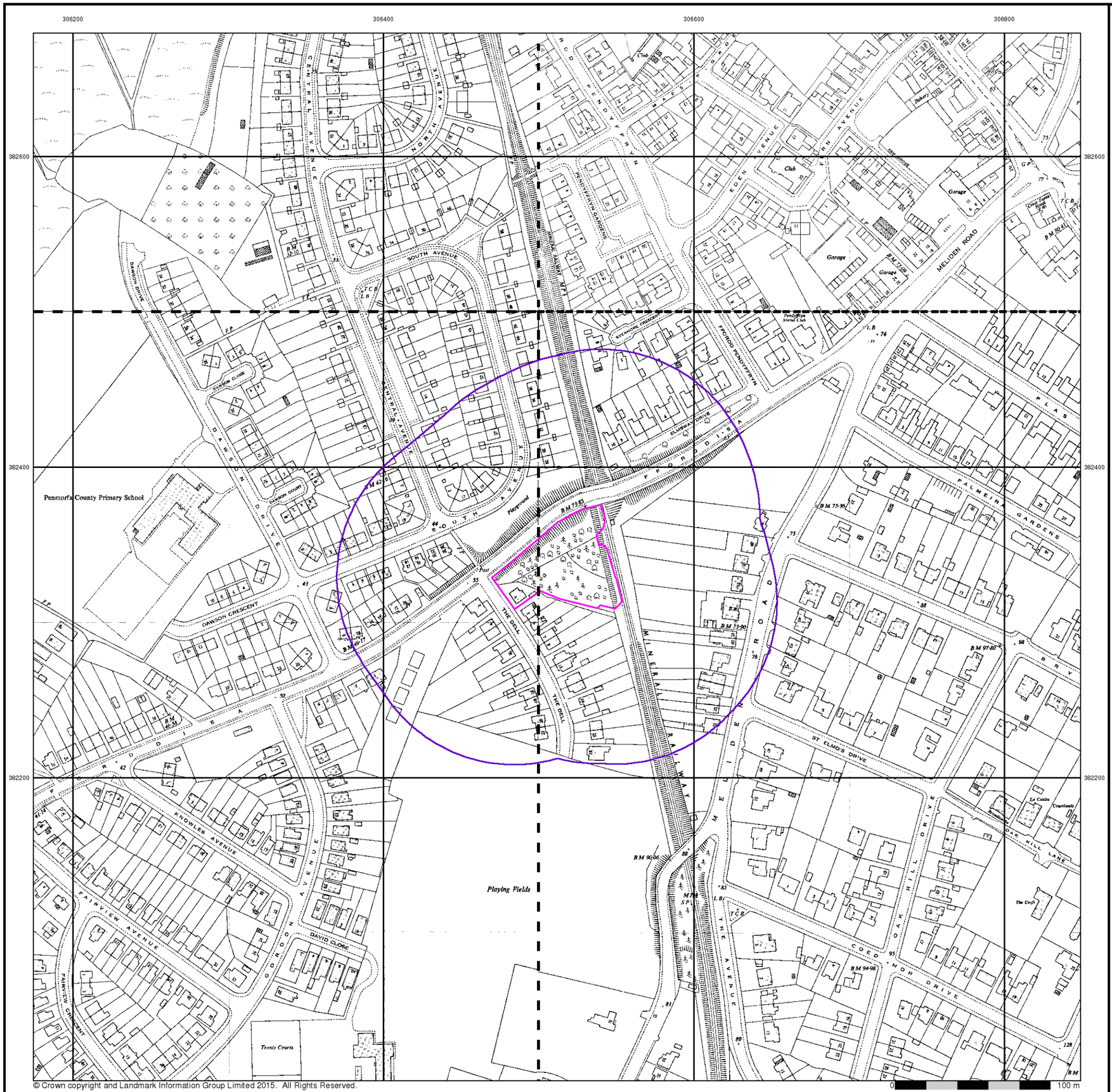

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LANDMARK INFORMATION GROUP®

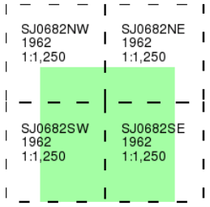
Ordnance Survey Plan

Published 1962

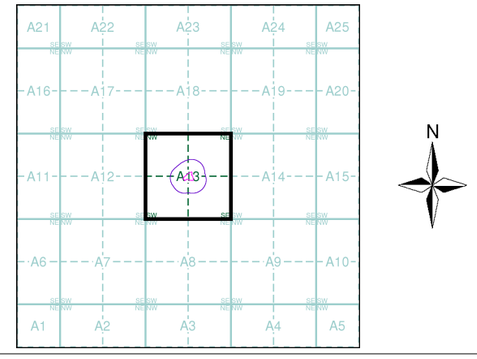
Source map scale - 1:1,250

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)



Historical Map - Segment A13



Order Details

Order Number:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	100

Site Details

Site at 306520, 382340

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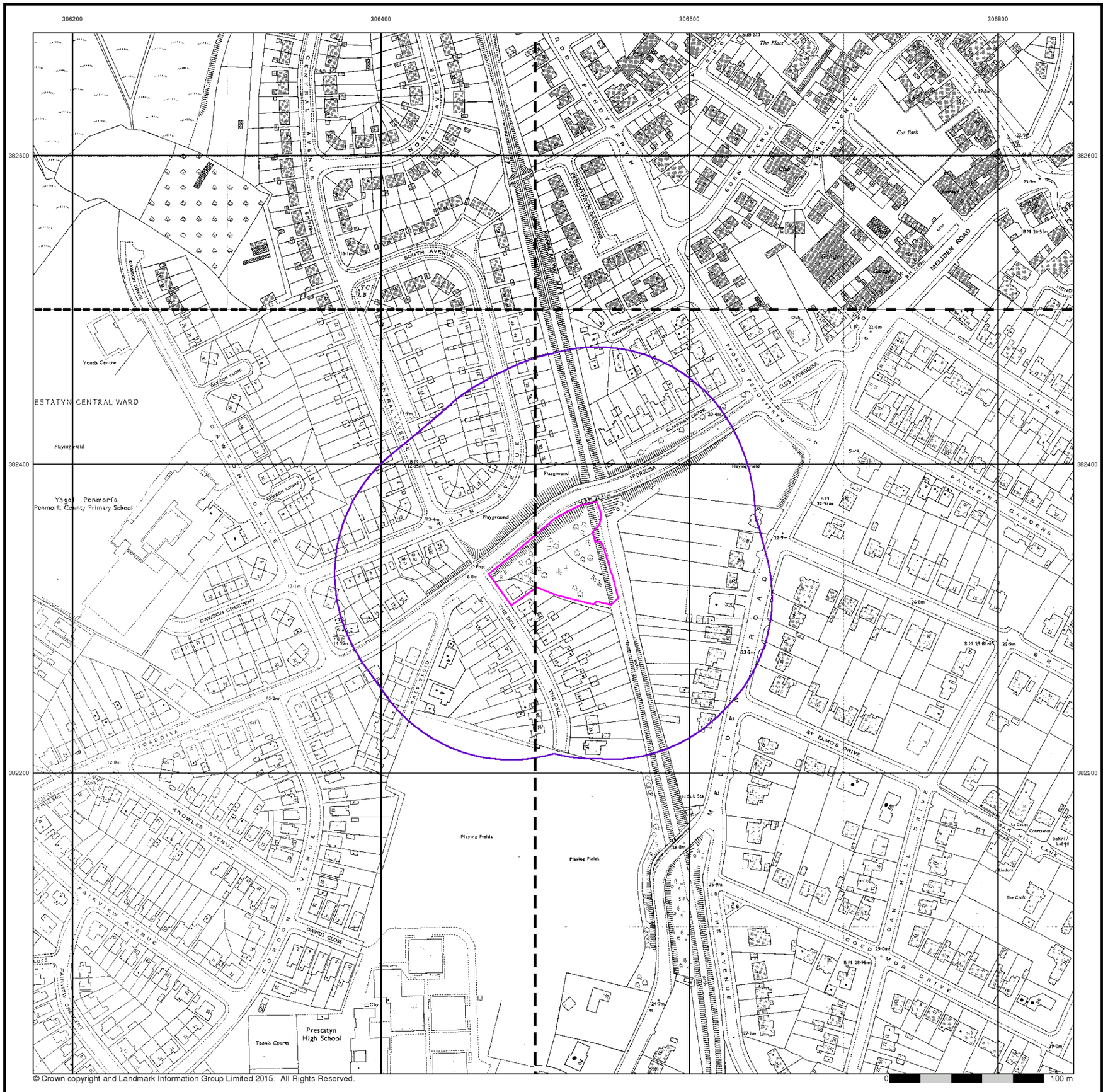

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LANDMARK INFORMATION GROUP®

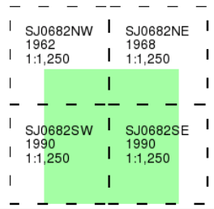
Additional SIMs

Published 1962 - 1990

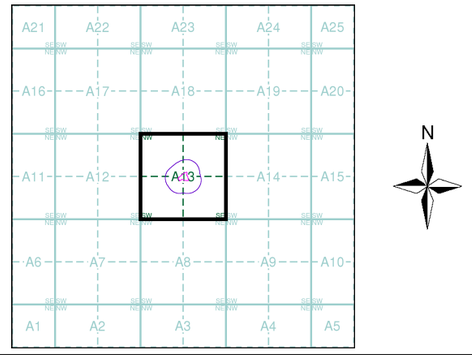
Source map scale - 1:1,250

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



Order Details

Order Number:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	100

Site Details

Site at 306520, 382340

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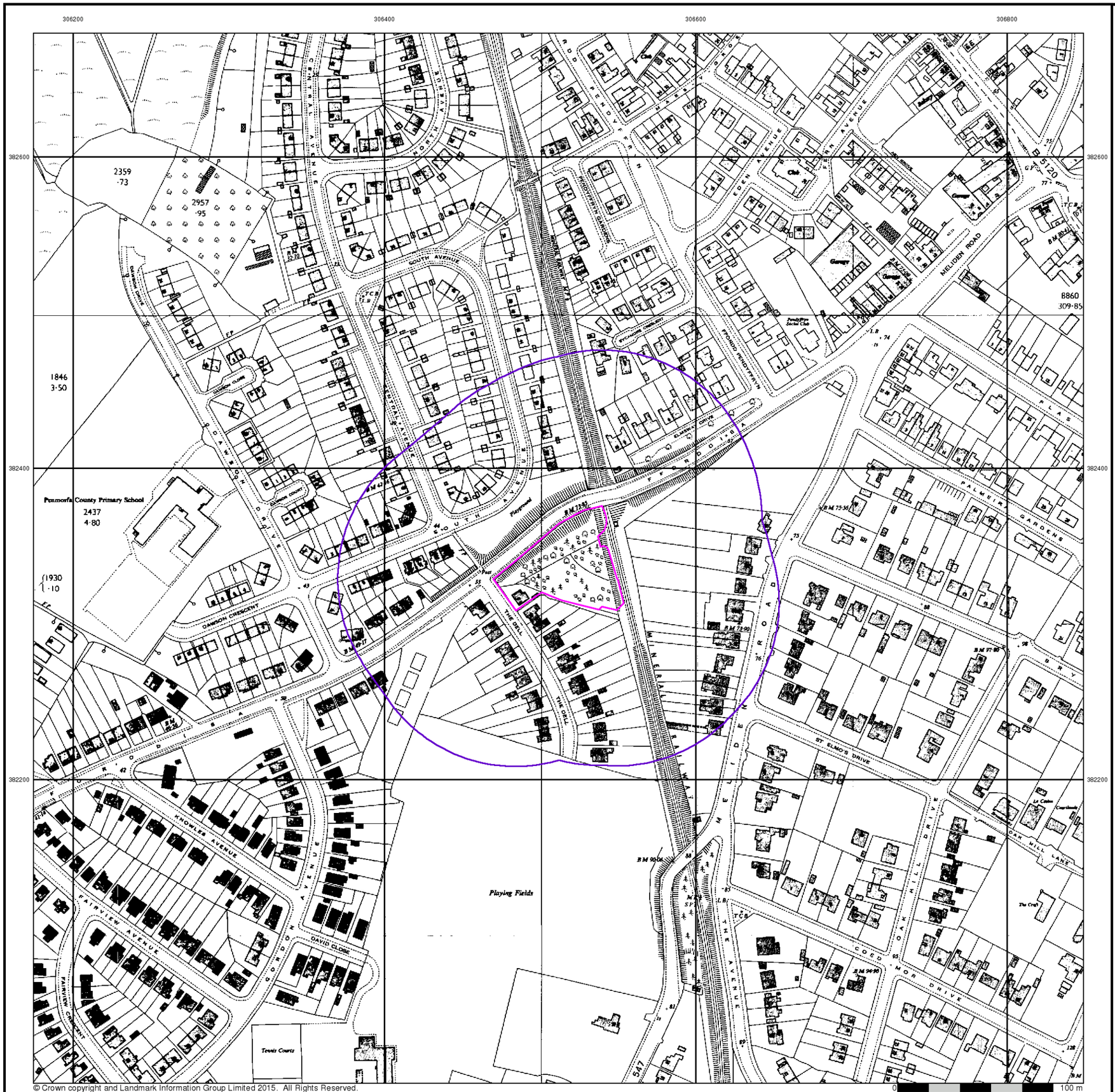

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LANDMARK INFORMATION GROUP®

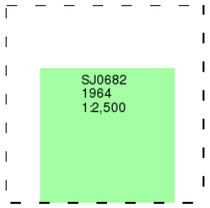
Ordnance Survey Plan

Published 1964

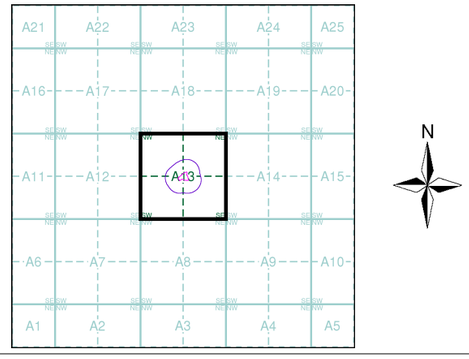
Source map scale - 1:2,500

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



Order Details

Order Number:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
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Site Details

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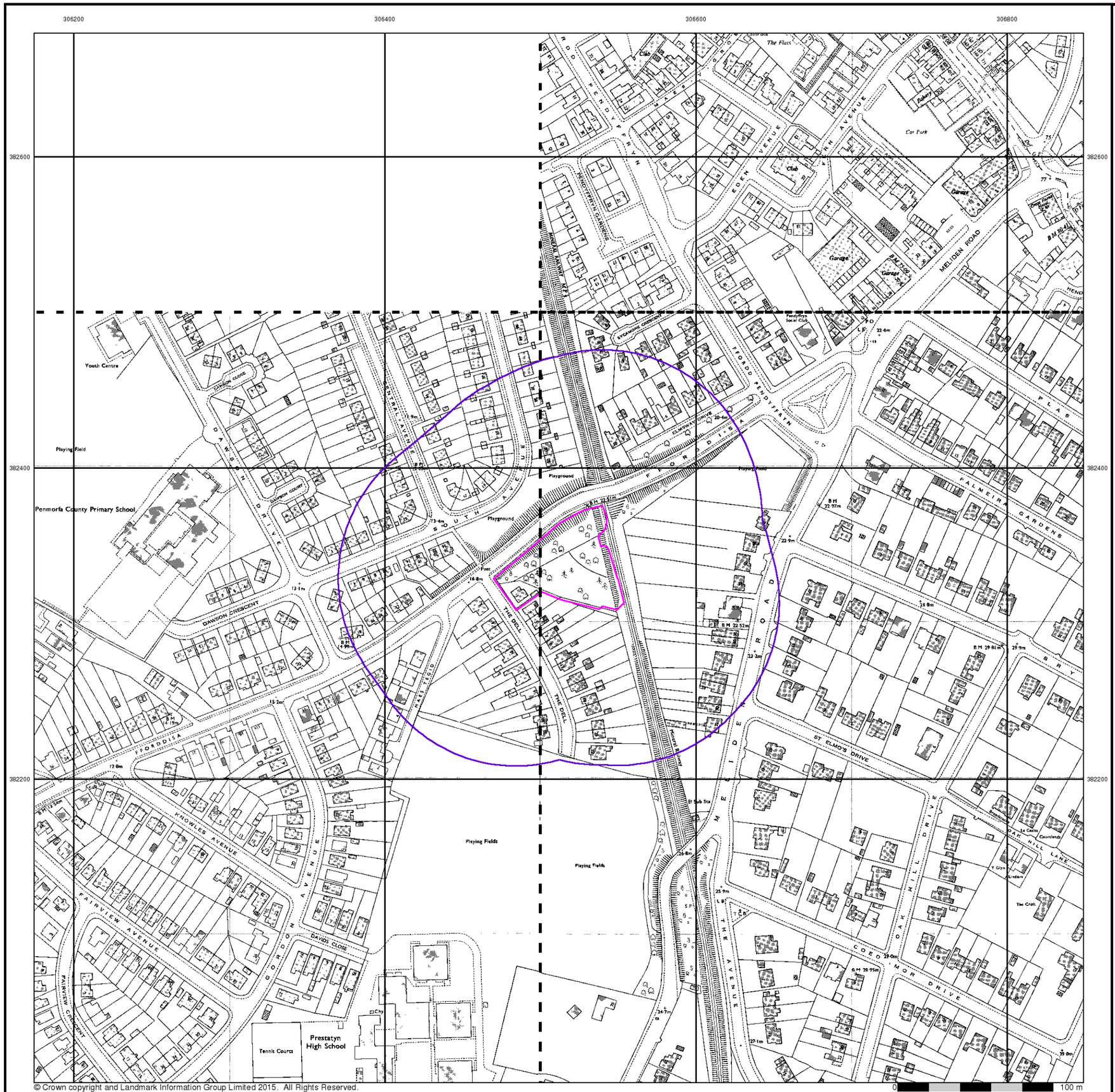

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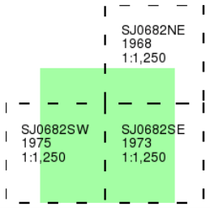
Ordnance Survey Plan

Published 1968 - 1975

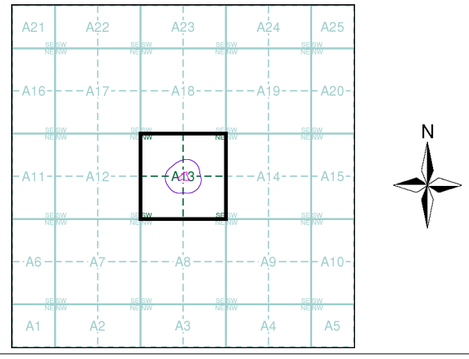
Source map scale - 1:1,250

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)



Historical Map - Segment A13



Order Details

Order Number:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	100

Site Details

Site at 306520, 382340

Landmark INFORMATION GROUP

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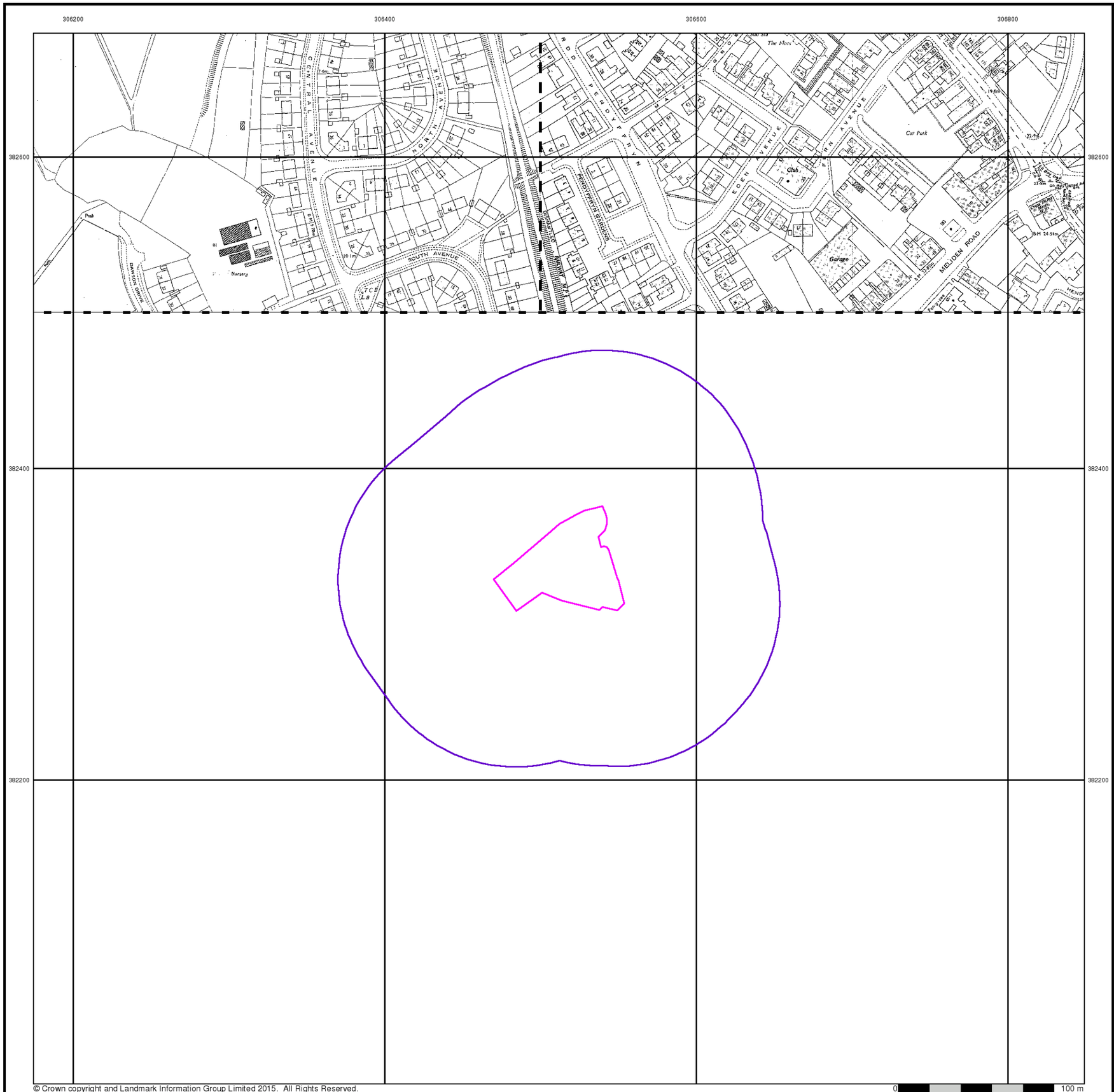
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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LANDMARK INFORMATION GROUP®

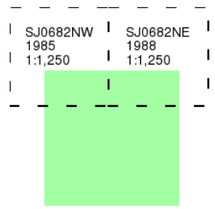
Additional SIMs

Published 1985 - 1988

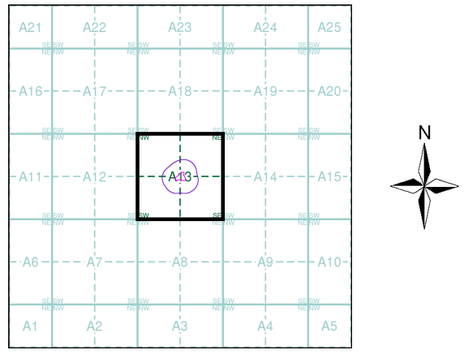
Source map scale - 1:1,250

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



Order Details

Order Number:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	100

Site Details

Site at 306520, 382340

Landmark INFORMATION GROUP®

Tel: 0844 844 9952
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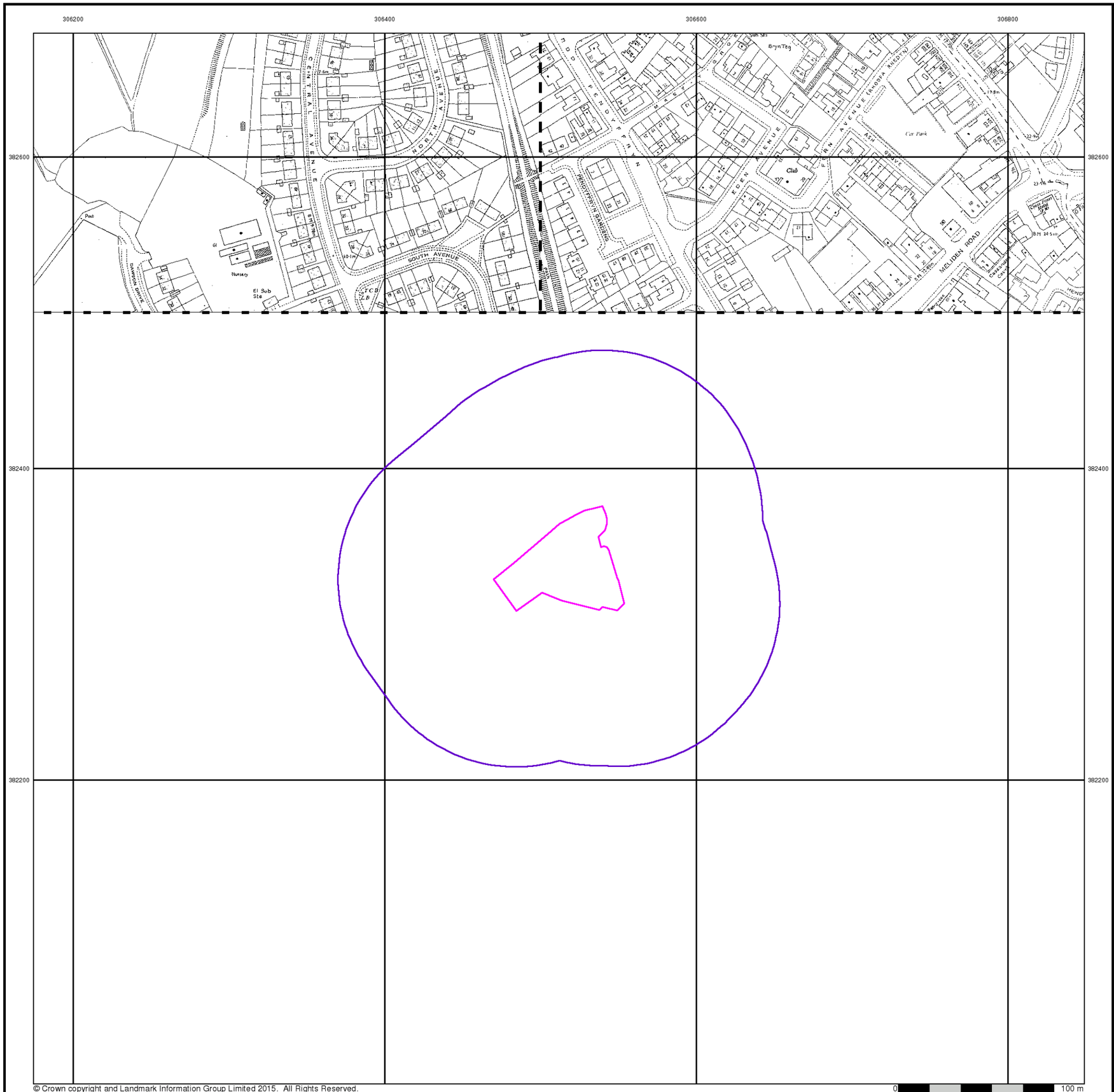

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LANDMARK INFORMATION GROUP®

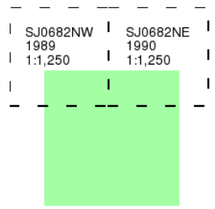
Additional SIMs

Published 1989 - 1990

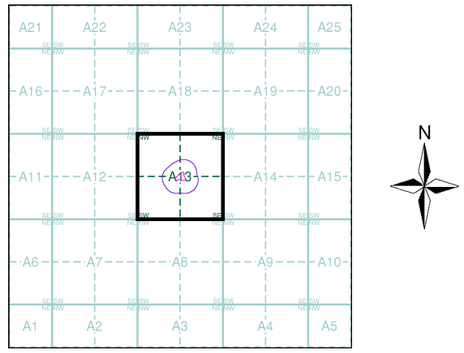
Source map scale - 1:1,250

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



Order Details

Order Number:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	100

Site Details

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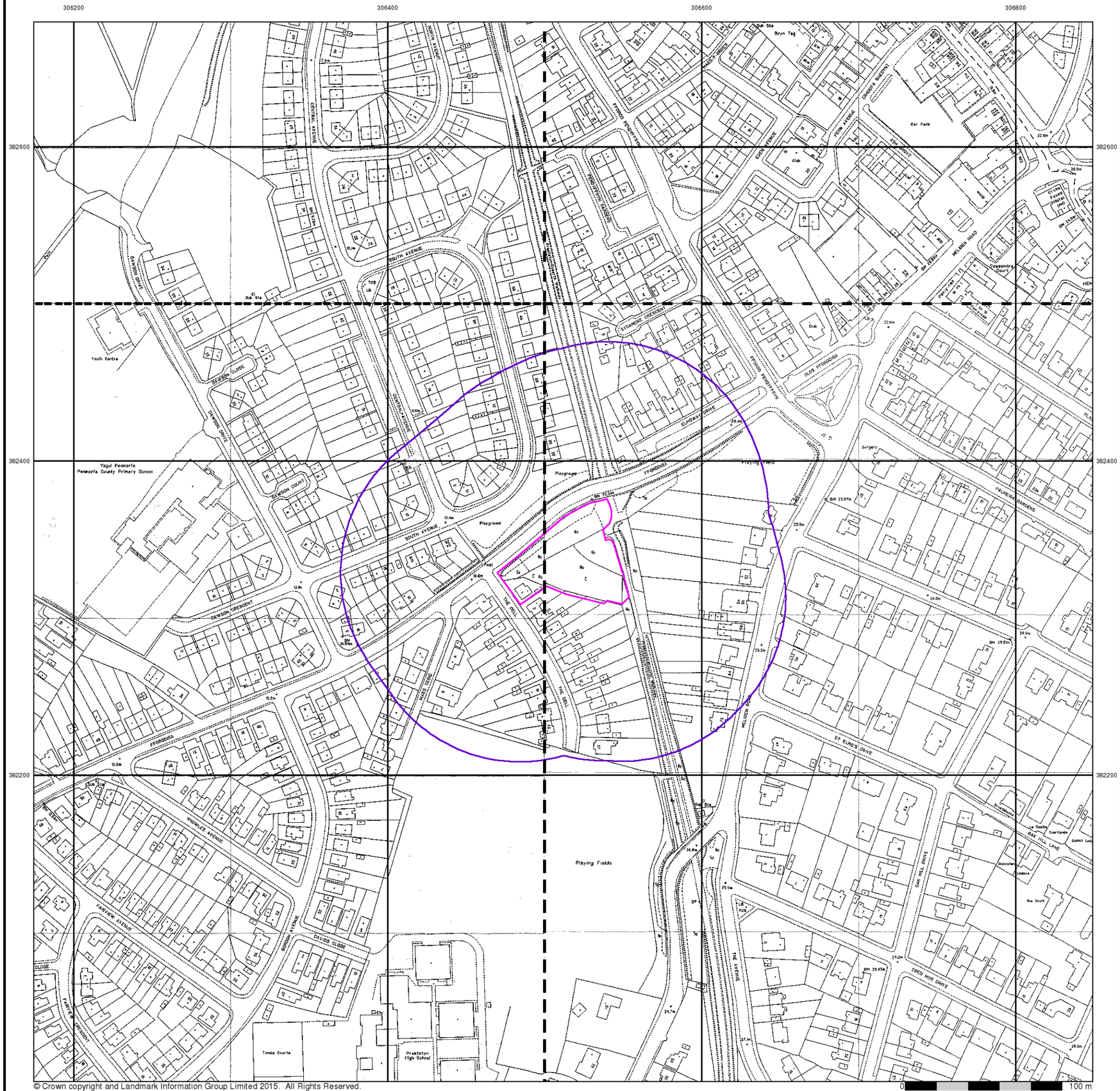

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LANDMARK INFORMATION GROUP®

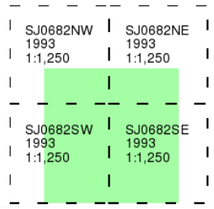
Large-Scale National Grid Data

Published 1993

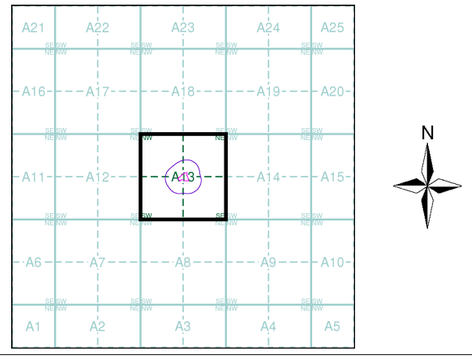
Source map scale - 1:1,250

'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)



Historical Map - Segment A13



Order Details

Order Number:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	100

Site Details

Site at 306520, 382340

Landmark INFORMATION GROUP

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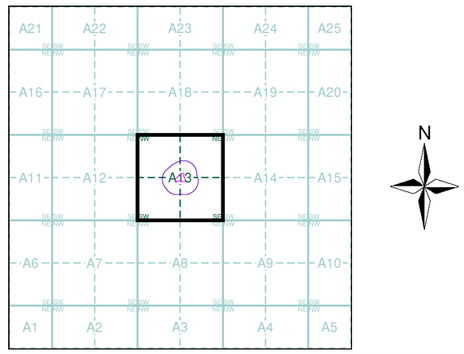
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Historical Aerial Photography

Published 2001

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A13



Order Details

Order Number:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	100

Site Details

Site at 306520, 382340

Historical Mapping Legends

Ordnance Survey County Series 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
Fenced
Un-Fenced
Minor Roads
Fenced
Un-Fenced
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
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)
R.D. Bdy. 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
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Electricity Transmission Line
Pole
Sloping Masonry
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
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	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	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)
Positioned tree
Orchard
Coppice or Osiers
Rough Grassland
Heath
Scrub
Marsh, Salt Marsh or Reeds
Water feature
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)
Triangulation station
Point feature (e.g. Guide Post or Mile Stone)
Pylon, flare stack or lighting tower
Site of (antiquity)
Glasshouse
General Building
Important Building

Envirocheck®
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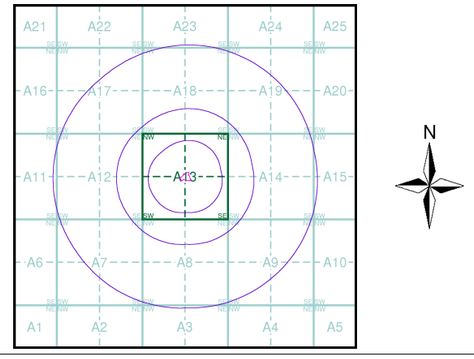
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Flintshire	1:10,560	1878	2
Flintshire	1:10,560	1900	3
Flintshire	1:10,560	1914 - 1915	4
Flintshire	1:10,560	1915	5
Flintshire	1:10,560	1938	6
Flintshire	1:10,560	1953	7
Ordnance Survey Plan	1:10,000	1964	8
Ordnance Survey Plan	1:10,000	1969	9
Ordnance Survey Plan	1:10,000	1979	10
10K Raster Mapping	1:10,000	2000	11
10K Raster Mapping	1:10,000	2006	12
VectorMap Local	1:10,000	2017	13

Historical Map - Slice A



Order Details

Order Number:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	1000

Site Details

Site at 306520, 382340

Landmark® INFORMATION GROUP
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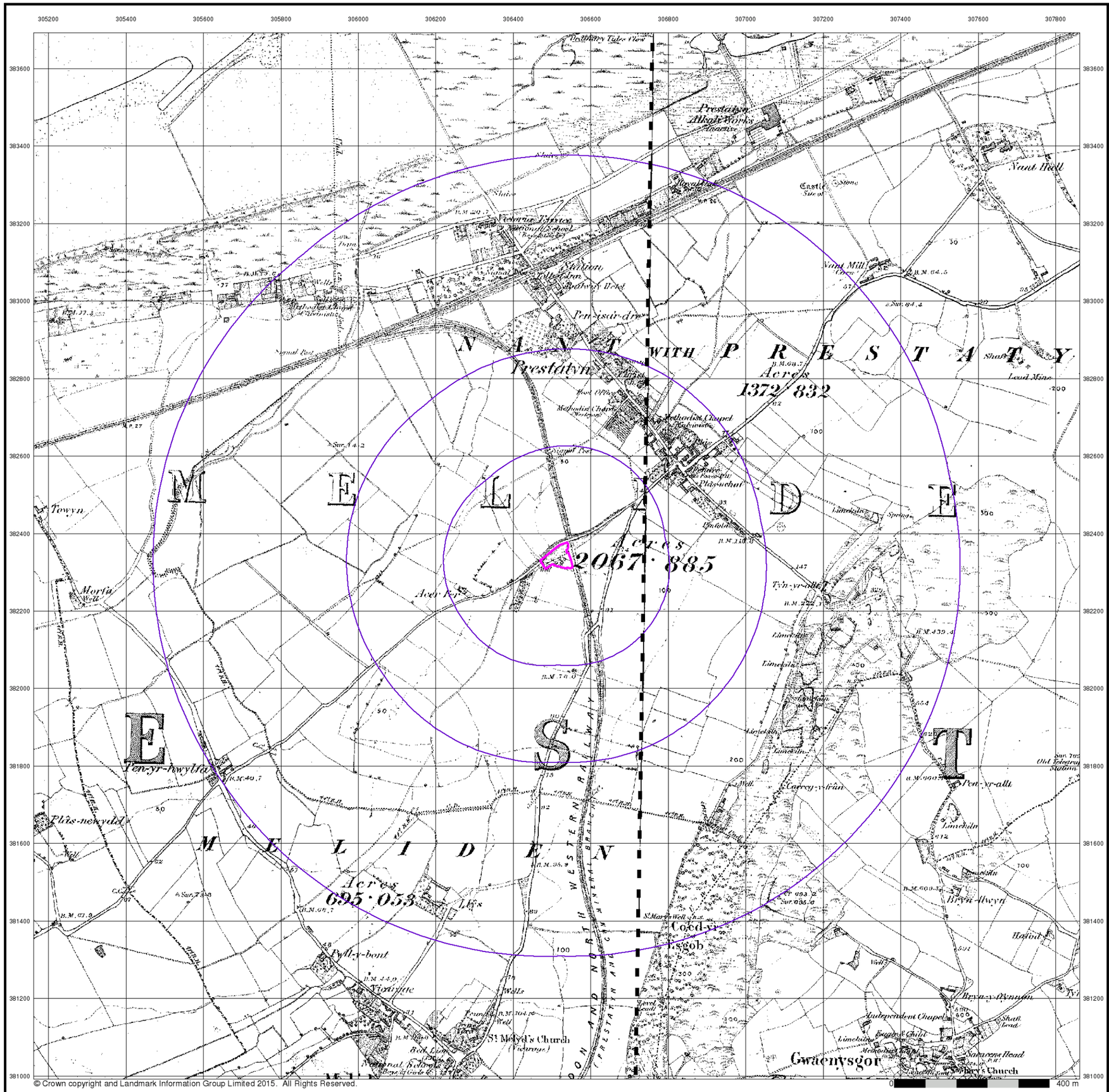


Envirocheck®

LANDMARK INFORMATION GROUP®

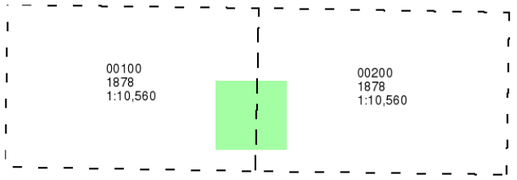
Flintshire

Published 1878

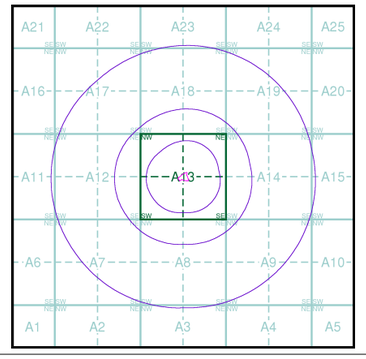
Source map scale - 1:10,560

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



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National Grid Reference:	306520, 382340
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Search Buffer (m):	1000

Site Details

Site at 306520, 382340

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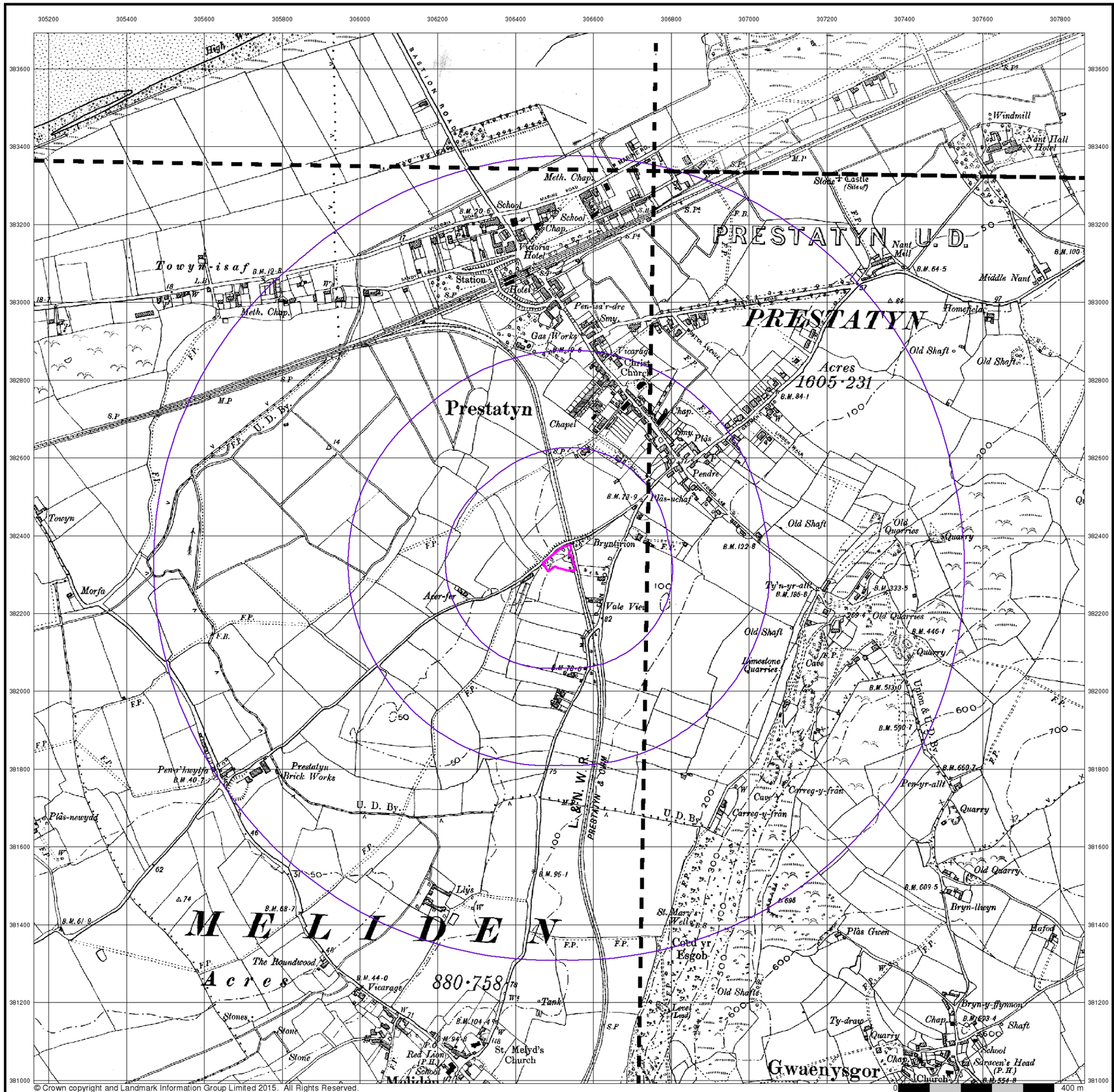

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Flintshire

Published 1900

Source map scale - 1:10,560

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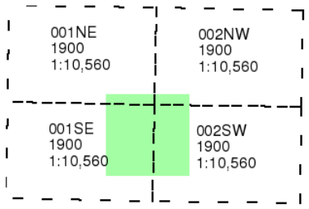
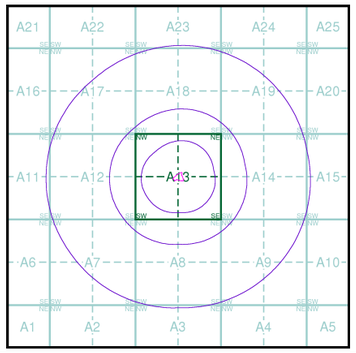


Historical Map - Slice A



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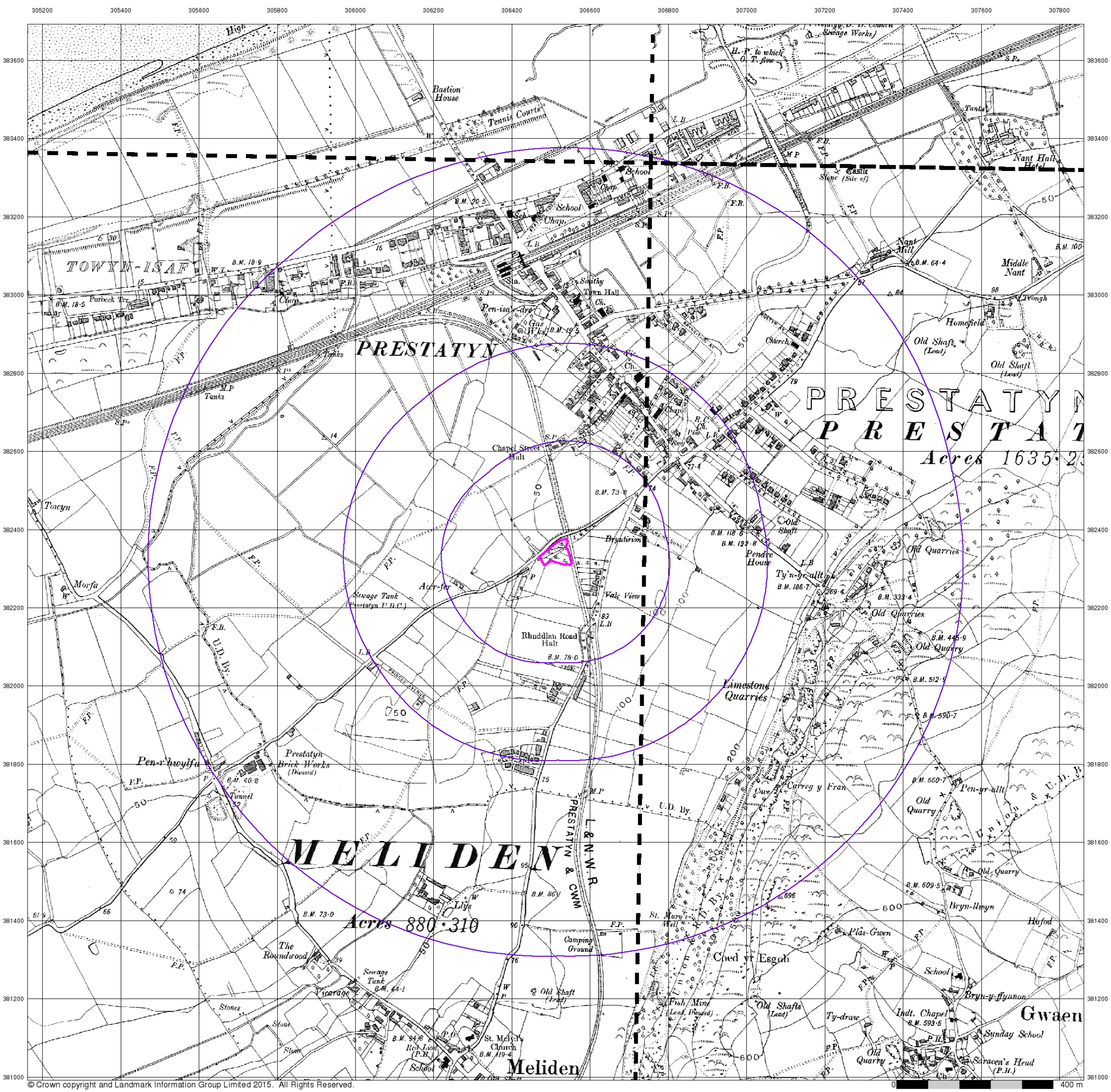

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Flintshire

Published 1914 - 1915

Source map scale - 1:10,560

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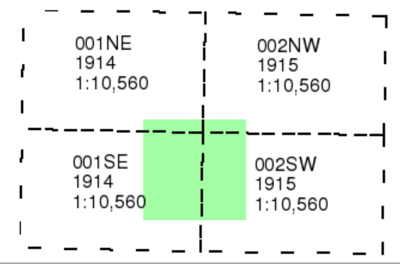

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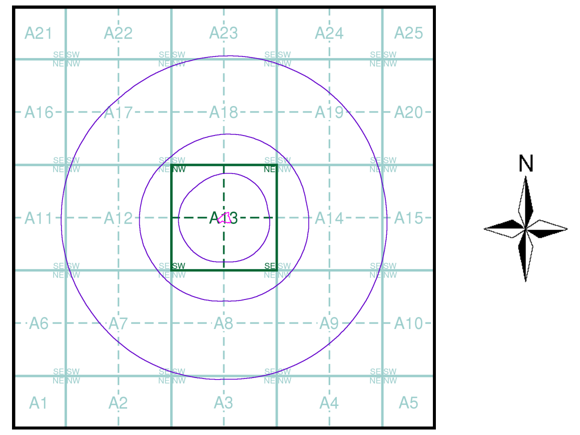

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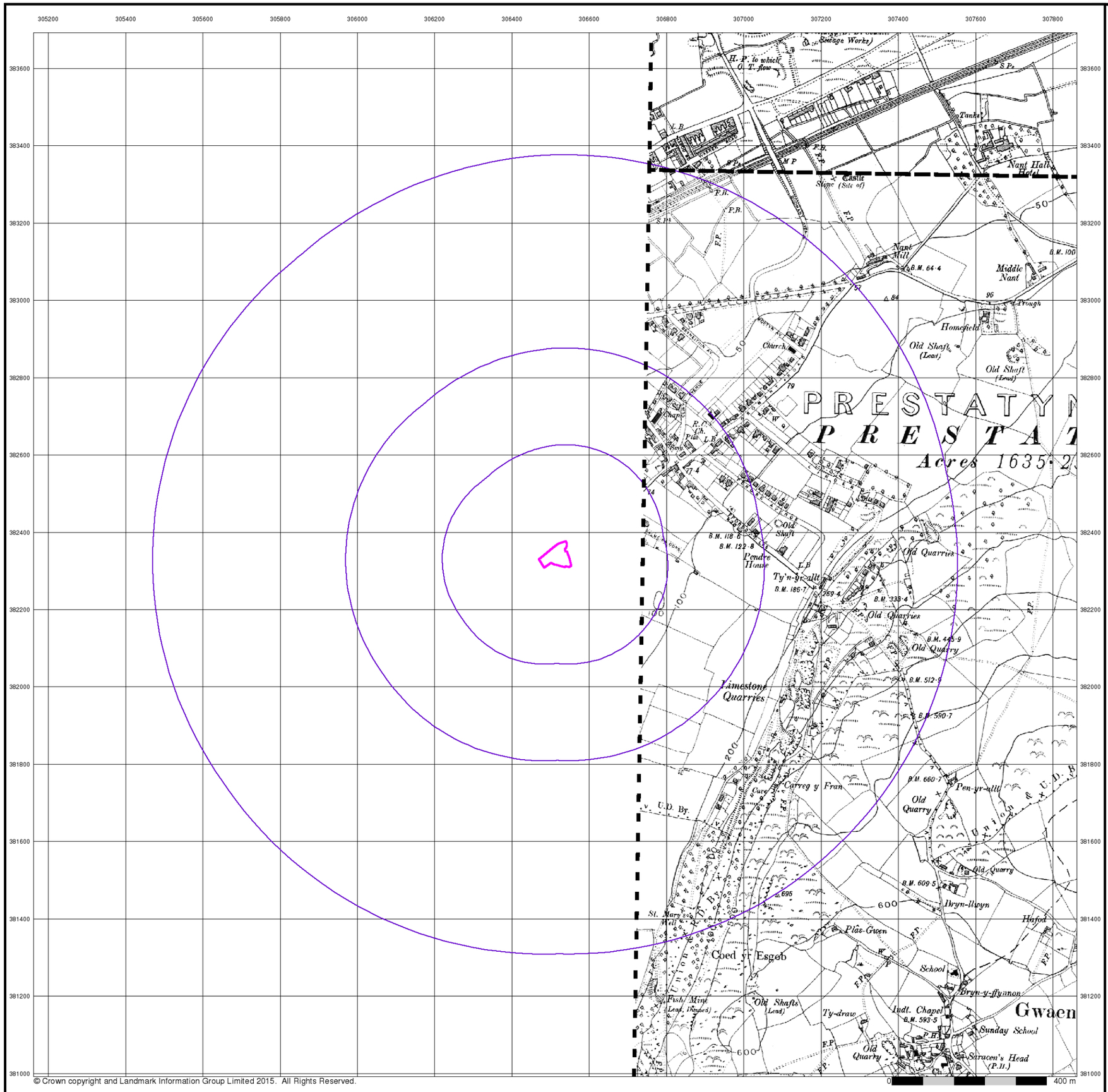

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Flintshire

Published 1915

Source map scale - 1:10,560

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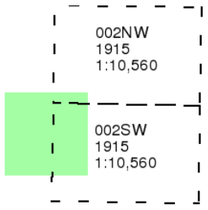
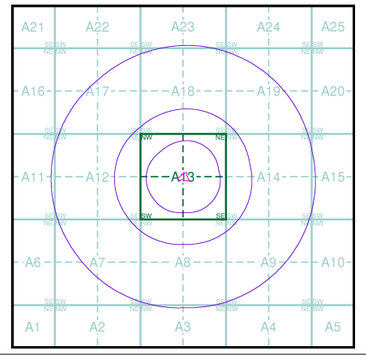


Historical Map - Slice A



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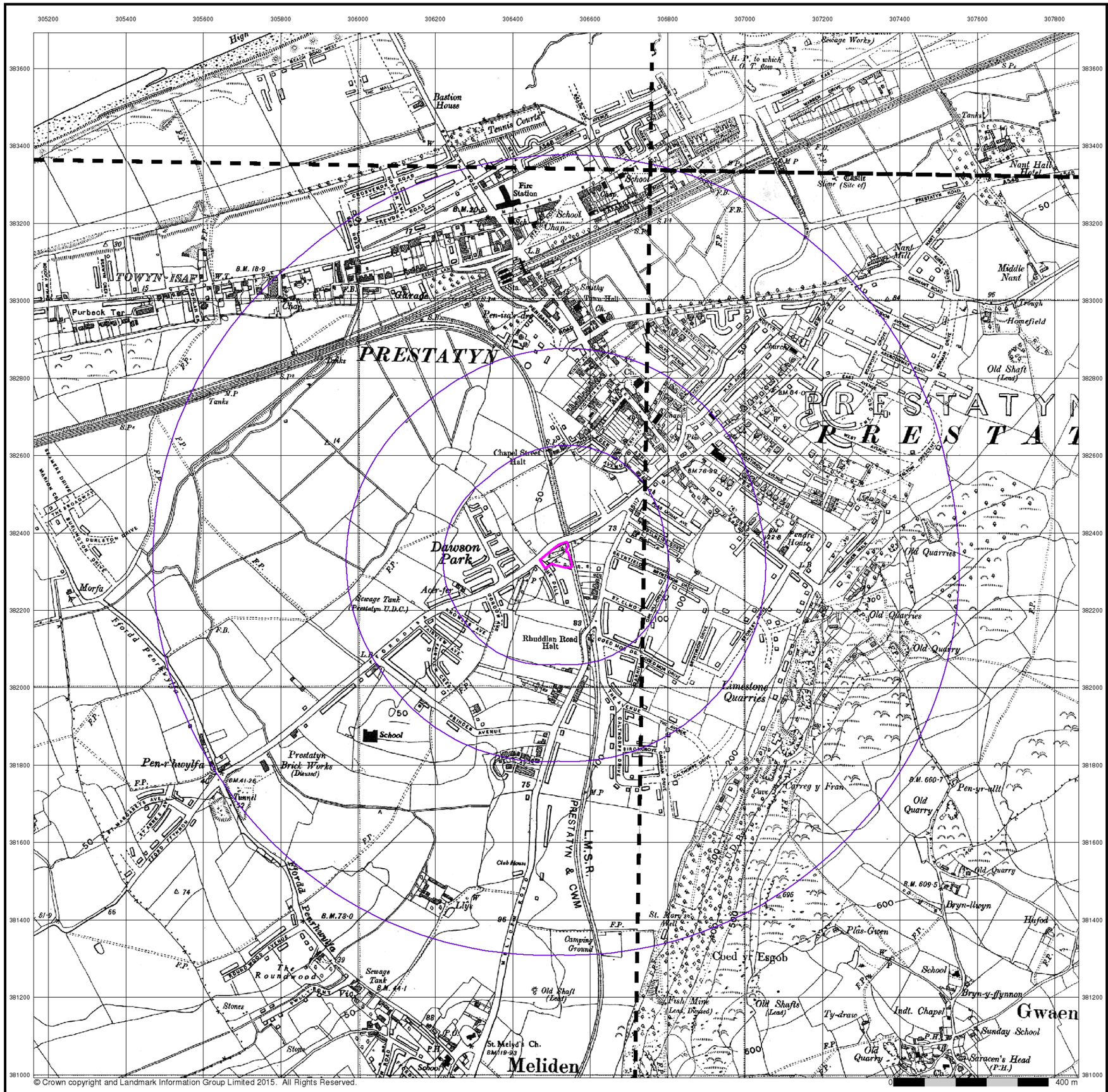

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Flintshire

Published 1938

Source map scale - 1:10,560

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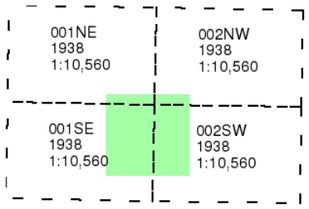
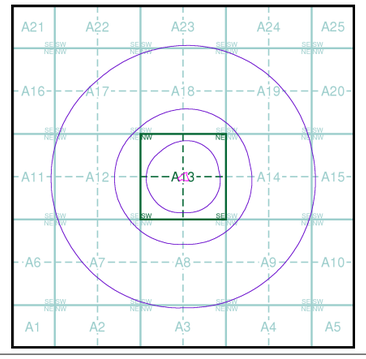


Historical Map - Slice A



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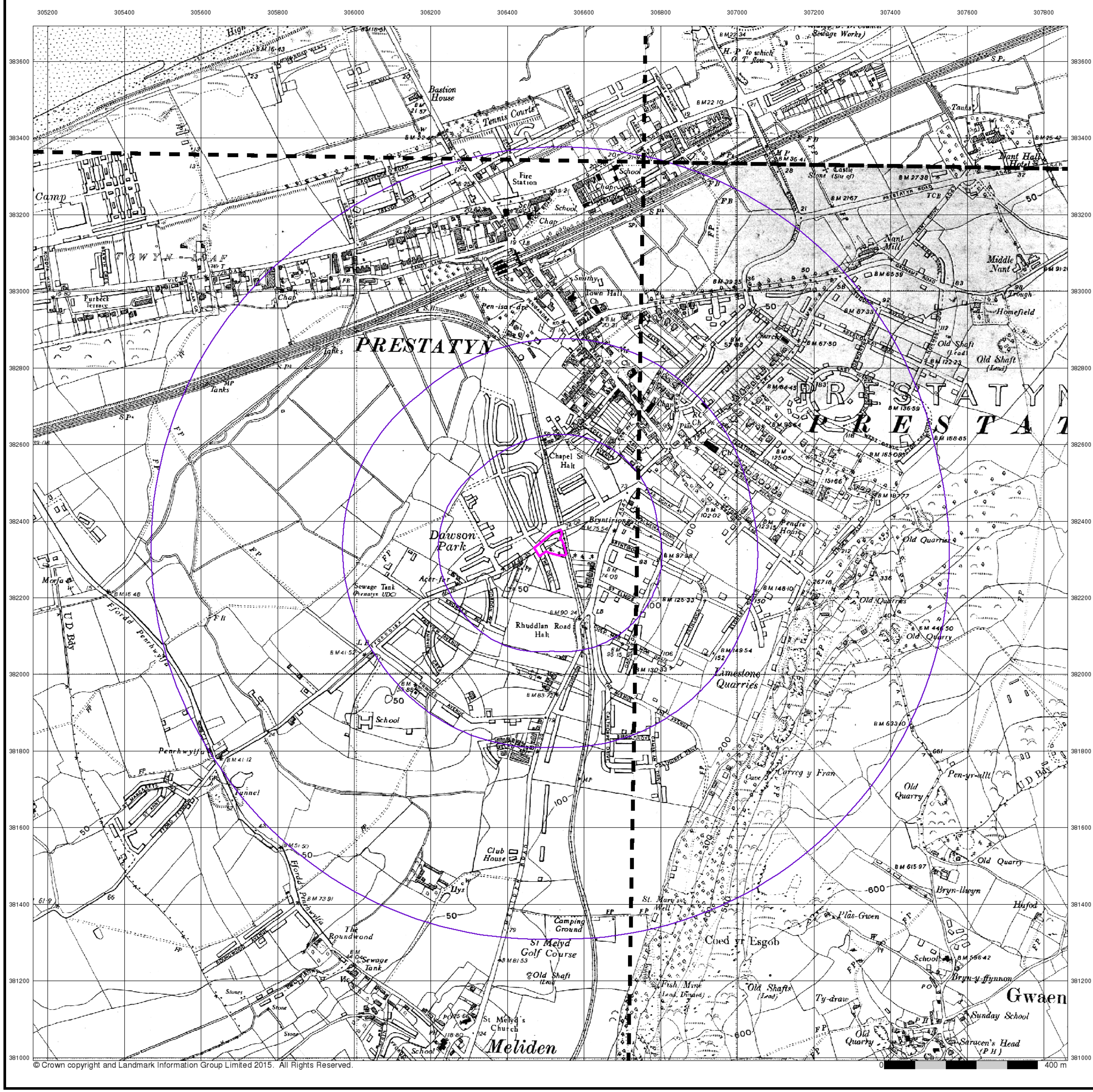

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Flintshire

Published 1953

Source map scale - 1:10,560

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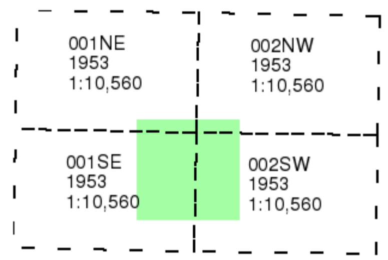
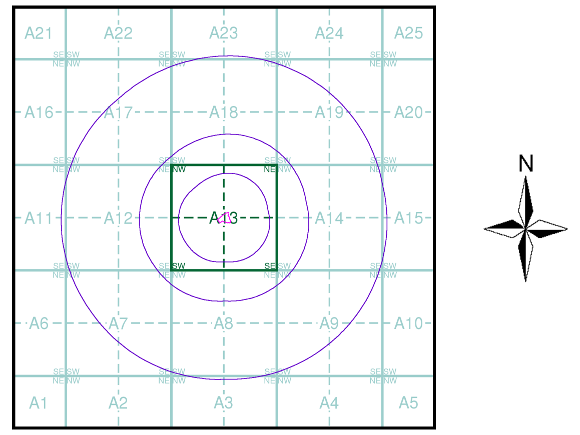


Historical Map - Slice A



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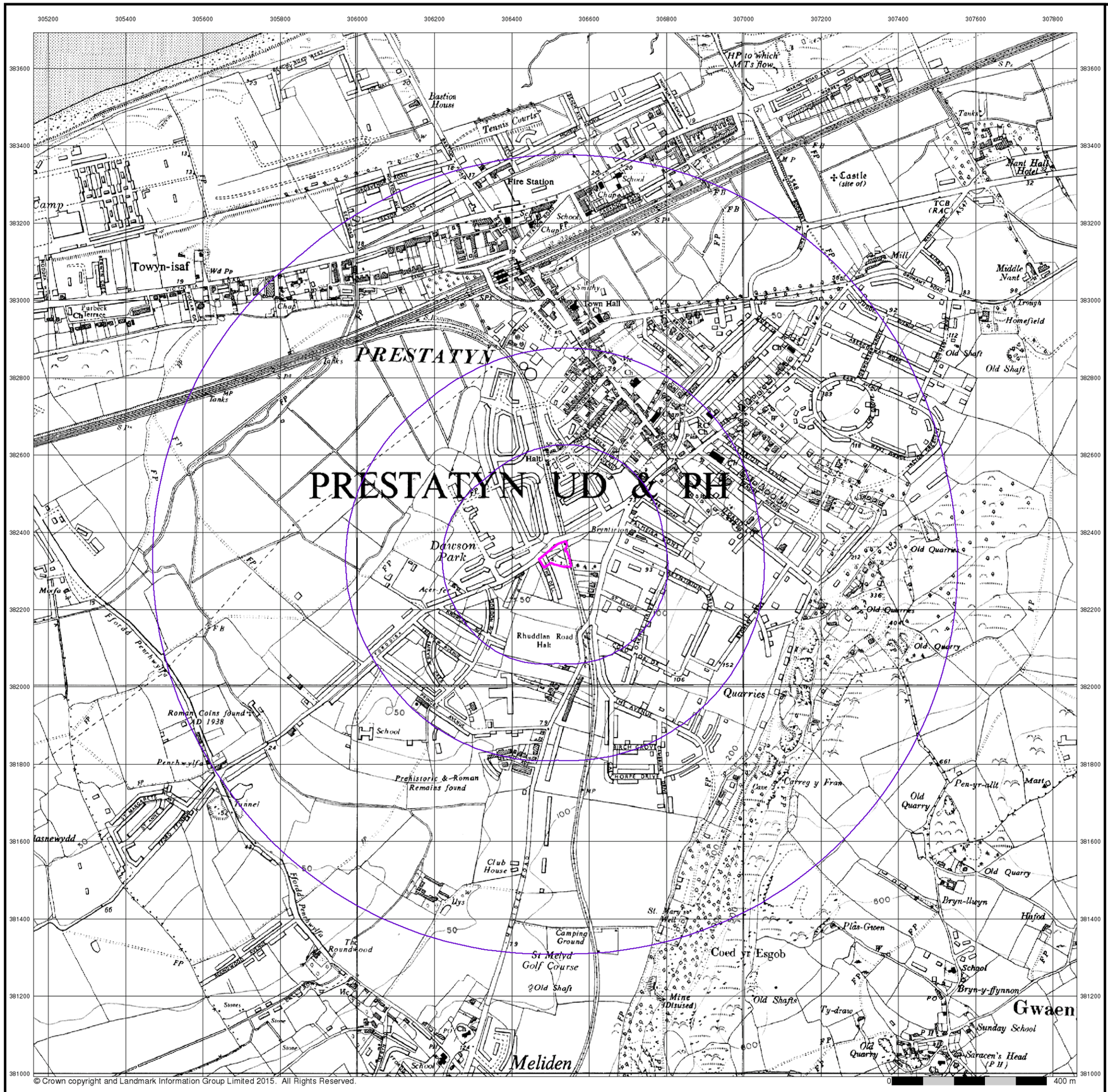

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Ordnance Survey Plan

Published 1964

Source map scale - 1:10,000

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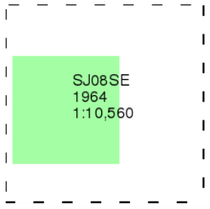
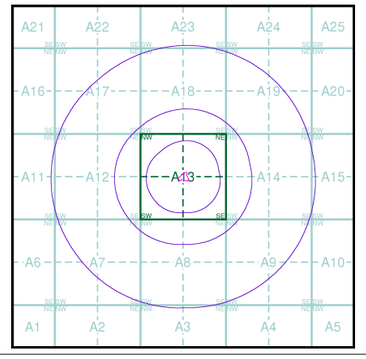


Historical Map - Slice A



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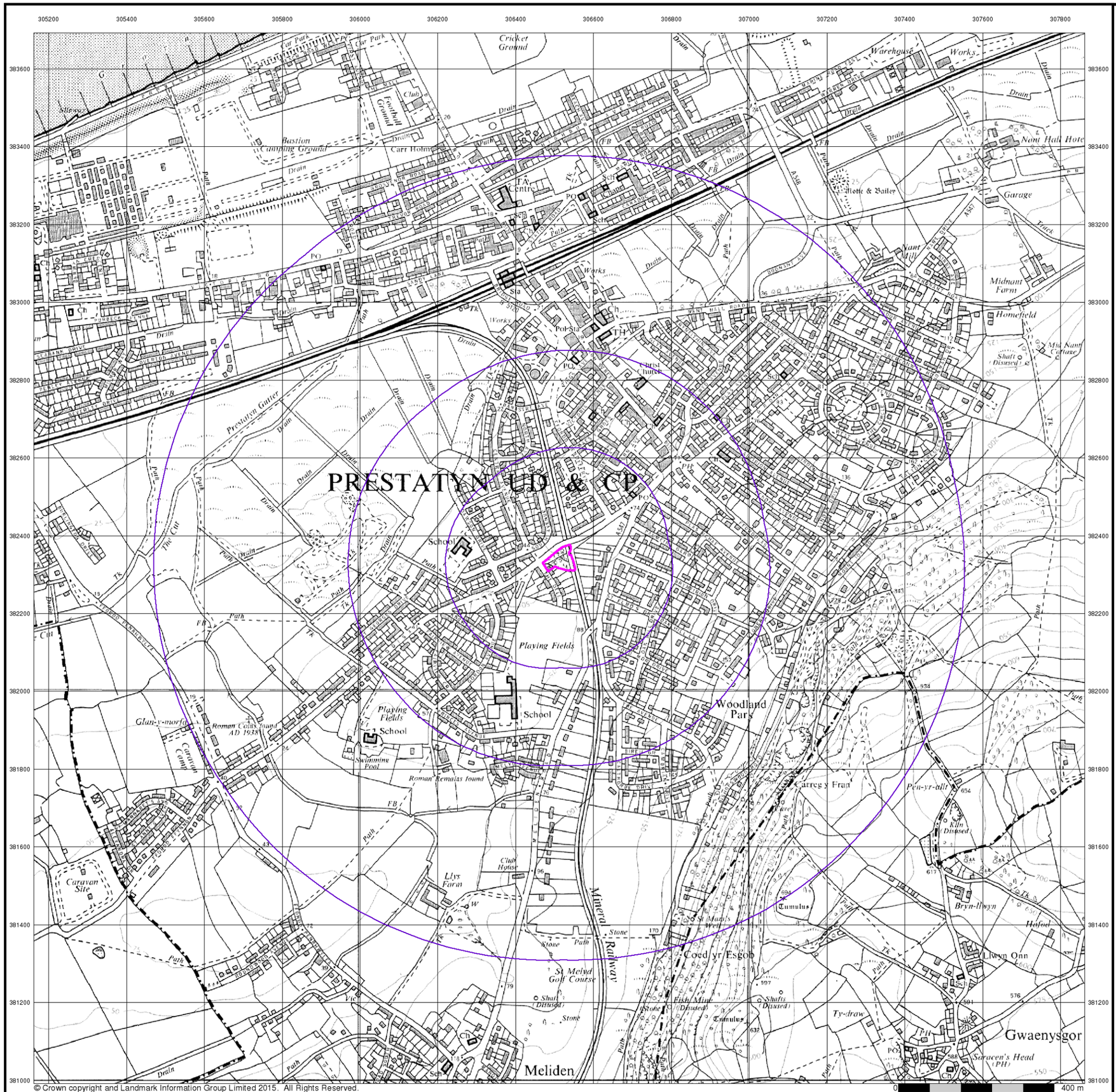

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Ordnance Survey Plan

Published 1969

Source map scale - 1:10,000

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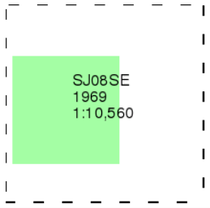

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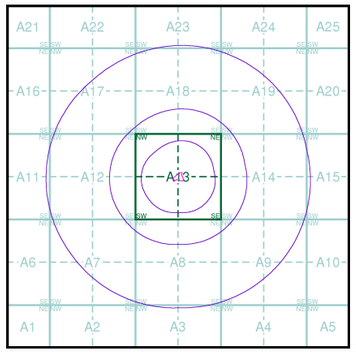

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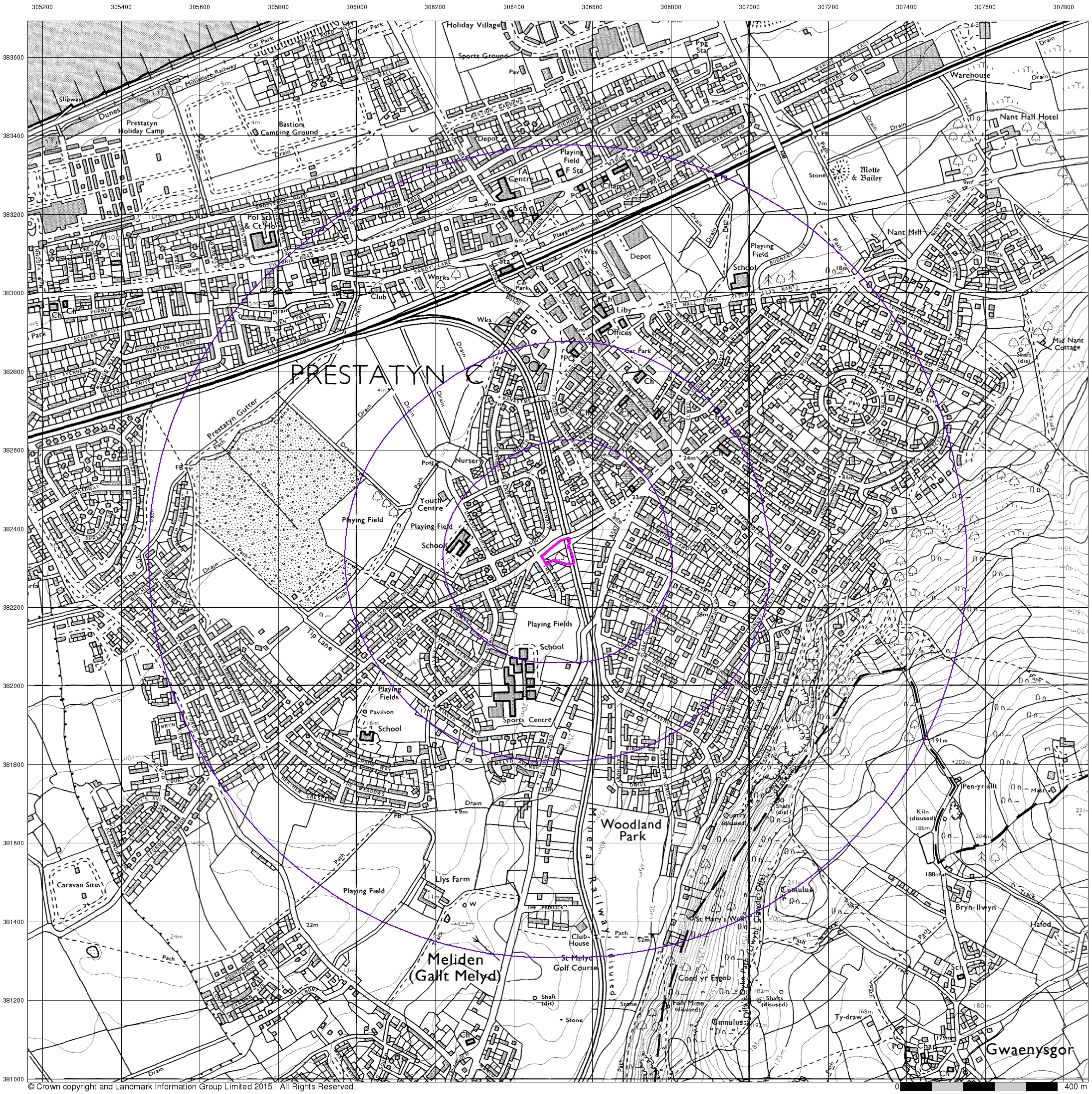

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Ordnance Survey Plan

Published 1979

Source map scale - 1:10,000

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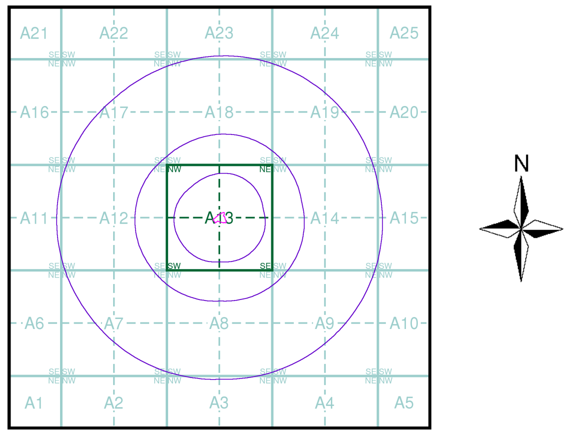
Map Name(s) and Date(s)

SJ08SE
1979
1:10,000

Historical Map - Slice A



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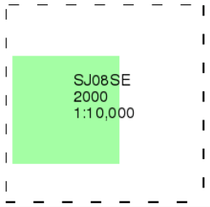
10k Raster Mapping

Published 2000

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)



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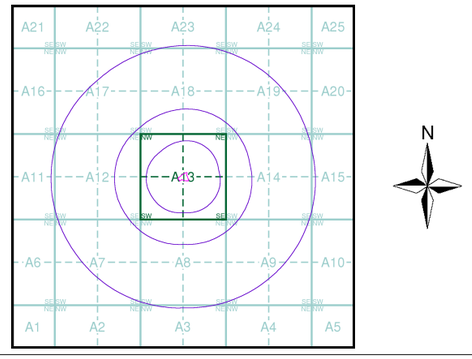

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10k Raster Mapping

Published 2006

Source map scale - 1:10,000

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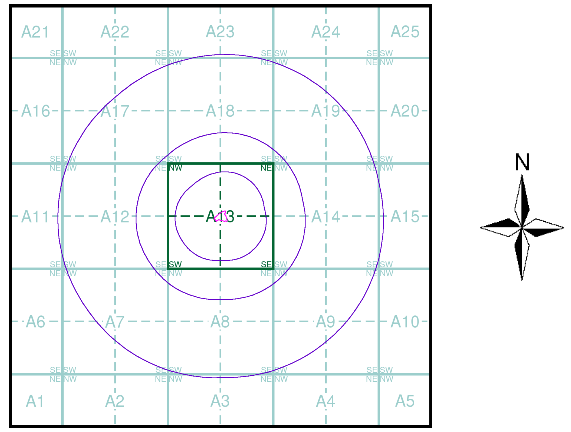
Map Name(s) and Date(s)

SJ08SE
2006
1:10,000

Historical Map - Slice A



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Site Details

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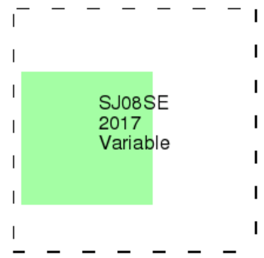
VectorMap Local

Published 2017

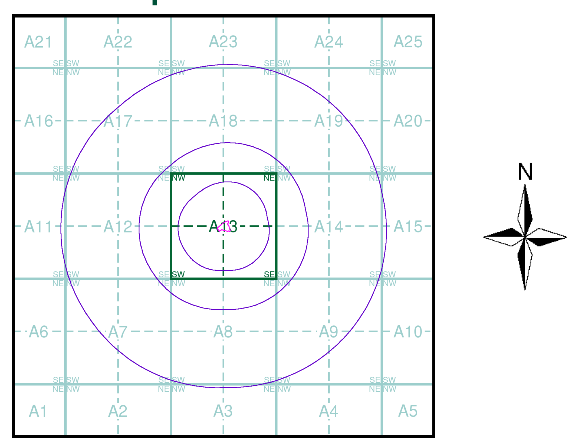
Source map scale - 1:10,000

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities),1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

Map Name(s) and Date(s)



Historical Map - Slice A



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Envirocheck® Report:

Datasheet

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145587949_1_1

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National Grid Reference:
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Search Buffer (m):
1000

Site Details:

Site at 306520, 382340

Client Details:

Mr S Miller
Smith Grant Partnership
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

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Contents

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/Natural Resources Wales 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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Peter Brett Associates Copyright Notice

Radon Potential dataset Copyright Notice

Report Version v53.0

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1			3	14
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 5		1	1	3
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 6			Yes	
Pollution Incidents to Controlled Waters	pg 6			2	10
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register	pg 8				1
Water Abstractions	pg 8				(*1)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 8	Yes	n/a	n/a	n/a
Drift Deposits	pg 8	1	n/a	n/a	n/a
Bedrock Aquifer Designations	pg 9	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 9	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 9			6	53

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Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites	pg 16			1	
Historical Landfill Sites	pg 16			1	
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)	pg 16				1
Local Authority Landfill Coverage	pg 16	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites	pg 16			1	
Potentially Infilled Land (Non-Water)	pg 16				9
Potentially Infilled Land (Water)	pg 17				24
Registered Landfill Sites	pg 18				1
Registered Waste Transfer Sites	pg 19				3
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

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Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 20	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 20	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 23				10
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities	pg 25				1
Natural Cavities	pg 25				1
Non Coal Mining Areas of Great Britain	pg 25	Yes		n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 25	Yes		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	pg 25	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 25	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 25	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
Industrial Land Use					
Contemporary Trade Directory Entries	pg 26		8	11	40
Fuel Station Entries	pg 31			1	3
Points of Interest - Commercial Services	pg 31		1	6	11
Points of Interest - Education and Health	pg 33			5	
Points of Interest - Manufacturing and Production	pg 33			4	12
Points of Interest - Public Infrastructure	pg 34				15
Points of Interest - Recreational and Environmental	pg 36		2		5
Gas Pipelines					
Underground Electrical Cables					

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Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
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Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty	pg 37				1
Environmentally Sensitive Areas	pg 37				1
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 37	1			
Ramsar Sites					
Sites of Special Scientific Interest	pg 37				1
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (SW)	0	1	306517 382336
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (N)	0	1	306517 382350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (N)	75	1	306550 382450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (SW)	138	1	306400 382200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (S)	215	1	306600 382100
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	320	1	306200 382500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (SW)	349	1	306250 382050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	421	1	306050 382350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (N)	434	1	306450 382800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A12SE (W)	488	1	306000 382200
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A7NE (SW)	493	1	306100 382000
1	**Discharge Consents** Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Prestatyn Meliden Road - Sso, Ll19 9nj Authority: Natural Resources Wales Catchment Area: Prestatyn Gutter (Mouth) Reference: Cm0173101 Permit Version: 2 Effective Date: 8th September 2010 Issued Date: 8th September 2010 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: Prestatyn Gutter **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	344	2	306800 382600
1	**Discharge Consents** Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Prestatyn Meliden Road - Sso, Ll19 9nj Authority: Natural Resources Wales Catchment Area: Prestatyn Gutter (Mouth) Reference: CM0173101 Permit Version: 1 Effective Date: 20th October 1989 Issued Date: 20th October 1989 Revocation Date: 7th September 2010 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: Prestatyn Gutter **Status: New Consent, by Application (Water Resources Act 1991, Section 88)** Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	344	2	306800 382600

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
2	**Discharge Consents** Operator: Rhuddlan Borough Council Property Type: Undefined Or Other Location: Prestatyn St.George'S Drive Authority: Natural Resources Wales Catchment Area: Prestatyn Gutter (Mouth) Reference: Cm0056601 Permit Version: 1 Effective Date: 17th April 1969 Issued Date: 17th April 1969 Revocation Date: 18th February 1993 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Un-Named Trib. Of Prestatyn Cu **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A12NE (W)	396	2	306100 382470
3	**Discharge Consents** Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Prestatyn Beverley Drive Authority: Natural Resources Wales Catchment Area: Unknown Reference: CM0058101 Permit Version: 1 Effective Date: 23rd July 1969 Issued Date: 23rd July 1969 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Pumping Station - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Purbeck Drain **Status: New Consent, by Application (Water Resources Act 1991, Section 88)** Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	574	2	306000 382000
4	**Discharge Consents** Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Prestatyn Morley Road Ps Authority: Natural Resources Wales Catchment Area: Prestatyn Gutter (Mouth) Reference: CM0193401 Permit Version: 1 Effective Date: 19th October 1989 Issued Date: 19th October 1989 Revocation Date: 31st March 2005 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Prestatyn Gutter **Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A18NE (N)	727	2	306600 383100
5	**Discharge Consents** Operator: Kwik Save Group Ltd. Property Type: Retail Distribution Location: Prestatyn Warren Drive - Kwik Save Authority: Natural Resources Wales Catchment Area: Prestatyn Gutter (Mouth) Reference: Cm0084301 Permit Version: 1 Effective Date: 21st November 1978 Issued Date: 21st November 1978 Revocation Date: 6th June 1994 Discharge Type: Trade Effluent Discharge Environment: Not Supplied Receiving Water: Prestatyn Drain **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A18NE (N)	795	2	306670 383160

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
6	**Discharge Consents** Operator: Rhuddlan Borough Council Property Type: Undefined Or Other Location: Prestatyn Victoria Avenue & Sandy L, Victoria Avenue & Sandy Lane R Authority: Natural Resources Wales Catchment Area: Prestatyn Gutter (Mouth) Reference: Cm0056201 Permit Version: 1 Effective Date: 17th April 1969 Issued Date: 17th April 1969 Revocation Date: 18th February 1993 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Prestatyn Gutter **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	853	2	305980 383030
7	**Discharge Consents** Operator: Rhuddlan Borough Council Property Type: Undefined Or Other Location: Prestatyn Glan-Y-Gors Adjacent Purb, Glan-Y-Gors Adjacent Purbeck Dit, Adjacent Purbeck Ditch Authority: Natural Resources Wales Catchment Area: Prestatyn Gutter (Mouth) Reference: Cm0146602 Permit Version: 1 Effective Date: 7th January 1986 Issued Date: 7th January 1986 Revocation Date: 18th February 1993 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Purbeck Ditch(Culverted Sectio **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	867	2	305910 382990
7	**Discharge Consents** Operator: Rhuddlan Borough Council Property Type: Undefined Or Other Location: Prestatyn (Glan Y Gors Housing Dev) Authority: Natural Resources Wales Catchment Area: Prestatyn Gutter (Mouth) Reference: Cm0146601 Permit Version: 1 Effective Date: 7th January 1986 Issued Date: 7th January 1986 Revocation Date: 18th February 1993 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Purbeck Ditch **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	879	2	305880 382980
8	**Discharge Consents** Operator: Dwr Cymru Cyfyngedig Property Type: Water Treatment Works Location: Prestatyn Hillside - Chlorinat Authority: Natural Resources Wales Catchment Area: Prestatyn Gutter (Mouth) Reference: Cm0206101 Permit Version: 1 Effective Date: 2nd October 1989 Issued Date: 2nd October 1989 Revocation Date: 17th March 1994 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Ground **Status: Consent expired** Positional Accuracy: Located by supplier to within 100m	A14SE (E)	873	2	307400 382100

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
9	**Discharge Consents** Operator: Rhuddlan Borough Council Property Type: Undefined Or Other Location: Prestatyn Penrhywylfa Estate Authority: Natural Resources Wales Catchment Area: Prestatyn Gutter (Mouth) Reference: Cm0034301 Permit Version: 1 Effective Date: 22nd June 1966 Issued Date: 22nd June 1966 Revocation Date: 18th February 1993 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Prestatyn Gutter **Status: Consent expired** Positional Accuracy: Located by supplier to within 100m	A7NW (SW)	882	2	305700 381900
10	**Discharge Consents** Operator: Mr B H Nant Property Type: Other Transport Location: Prestatyn Fire Station Authority: Natural Resources Wales Catchment Area: Prestatyn Gutter (Mouth) Reference: Cm0065601 Permit Version: 1 Effective Date: 16th June 1971 Issued Date: 16th June 1971 Revocation Date: 5th April 1995 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Prestatyn Cut **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	910	2	306150 383200
11	**Discharge Consents** Operator: T.& A.Forces Assoc.Denbigh/Flint Property Type: Undefined Or Other Location: Prestatyn Marine Road T.A. Centre Authority: Natural Resources Wales Catchment Area: Prestatyn Gutter (Mouth) Reference: Cm0047501 Permit Version: 1 Effective Date: 14th February 1968 Issued Date: 14th February 1968 Revocation Date: 10th August 1995 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Prestatyn Gutter **Status: Consent expired** Positional Accuracy: Located by supplier to within 100m	A18NW (N)	935	2	306400 383300
11	**Discharge Consents** Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Pumping Station - Water Company Location: Prestatyn Seven Sisters Road Sps Authority: Natural Resources Wales Catchment Area: Prestatyn Gutter (Mouth) Reference: CM0148301 Permit Version: 1 Effective Date: 4th July 1986 Issued Date: 4th July 1986 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge Environment: Freshwater Stream/River Receiving Water: Prestatyn Gutter **Status: New Consent, by Application (Water Resources Act 1991, Section 88)** Positional Accuracy: Located by supplier to within 10m	A18NW (N)	953	2	306410 383320

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	**Discharge Consents** Operator: Price Bros (Rode Heath) Ltd Property Type: Undefined Or Other Location: Prestatyn Marine Park Estate Authority: Natural Resources Wales Catchment Area: Prestatyn Gutter (Mouth) Reference: Cm0054601 Permit Version: 1 Effective Date: 25th February 1969 Issued Date: 25th February 1969 Revocation Date: 2nd February 1994 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Prestatyn Cut **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A12NW (W)	938	2	305550 382510
12	**Discharge Consents** Operator: Rhuddlan Borough Council Property Type: Undefined Or Other Location: Prestatyn Marine Park Housing Estat, Marine Park Housing Estate Authority: Natural Resources Wales Catchment Area: Prestatyn Gutter (Mouth) Reference: Cm0150101 Permit Version: 1 Effective Date: 10th March 1987 Issued Date: 10th March 1987 Revocation Date: 18th February 1993 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Rhyl Cut **Status: Consent expired** Positional Accuracy: Located by supplier to within 10m	A12NW (W)	941	2	305540 382470
13	**Discharge Consents** Operator: Allitt G & F Ltd Property Type: Retail Filling Stations Location: Marine Road Marine Garage Authority: Natural Resources Wales Catchment Area: Prestatyn Gutter (Mouth) Reference: Cm0051001 Permit Version: 1 Effective Date: 16th July 1968 Issued Date: 16th July 1968 Revocation Date: 21st November 1994 Discharge Type: Unspecified Discharge Environment: Not Supplied Receiving Water: Jubilee Drain **Status: Consent expired** Positional Accuracy: Located by supplier to within 100m	A18NW (N)	955	2	306300 383300
14	**Local Authority Pollution Prevention and Controls** Name: Monarch Cleaners Ltd Location: 31-33 Meliden Road, Prestatyn, Ll19 9sd Authority: Denbighshire County Council, Environmental Health Department Permit Reference: DCC/PPC/7.0/044.0 Dated: 11th February 2008 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 100m	A13NE (E)	161	3	306700 382400
15	**Local Authority Pollution Prevention and Controls** Name: Celtic Cars Ltd Location: 6-8 Meliden Road, Prestatyn, Denbighshire, Ll19 9rt Authority: Denbighshire County Council, Environmental Health Department Permit Reference: DCC/PPC/1.1/062.0 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: Manually positioned to the address or location	A13NE (NE)	307	3	306768 382580

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	**Local Authority Pollution Prevention and Controls** Name: Mostyn Rees & Sons Location: Central Garage, Nant Hall Road, Prestatyn, LL19 9LR Authority: Denbighshire County Council, Environmental Health Department Permit Reference: DCC/PPC/1.1/050.0 Dated: 13th March 2009 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: Manually positioned to the address or location	A18SE (N)	601	3	306630 382970
17	**Local Authority Pollution Prevention and Controls** Name: Tesco Prestatyn Location: Prestatyn Shopping Park, Nant Hall Road, Prestatyn, Denbighshire, Ll19 9lr Authority: Denbighshire County Council, Environmental Health Department Permit Reference: DCC/PPC/1.2/061.0 Dated: 14th March 2013 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status:** **Permitted** Positional Accuracy: Manually positioned to the road within the address or location	A18SE (NE)	663	3	306822 382976
18	**Local Authority Pollution Prevention and Controls** Name: Prestatyn Service Station Location: 2 Marine Road, Prestatyn, Clwyd, LL19 7HD Authority: Denbighshire County Council, Environmental Health Department Permit Reference: DCC/PPC/1.2/009.1 Dated: 29th January 1999 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status:** **Permitted** Positional Accuracy: Automatically positioned to the address	A18NW (N)	851	3	306417 383218
	Nearest Surface Water Feature	A13NW (NW)	370	-	306239 382617
19	**Pollution Incidents to Controlled Waters** Property Type: Domestic/Residential Location: Bishops Wood Road, PRESTATYN Authority: Environment Agency, Welsh Region Pollutant: Algae Note: Vandalism Incident Date: 16th October 1995 Incident Reference: 26189 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Runoff Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18SW (N)	327	4	306500 382700
20	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Winchester Drive, PRESTATYN Authority: Environment Agency, Welsh Region Pollutant: Stagnant Water Note: Not Supplied Incident Date: 2nd May 1995 Incident Reference: 23930 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18SE (NE)	407	4	306700 382750
21	**Pollution Incidents to Controlled Waters** Property Type: Domestic/Residential Location: Footbridge, White Rose Authority: Environment Agency, Welsh Region Pollutant: Crude Sewage Note: Deliberate Act Incident Date: 3rd June 1995 Incident Reference: 24237 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Direct Discharge Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NE (W)	501	4	306000 382500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
22	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Surface Water Outfall Location: 15 Maes, Frynderyn Authority: Environment Agency, Welsh Region Pollutant: Farm Effluent/Slurry Note: Accidental Spillage/Leakage Incident Date: 28th March 1995 Incident Reference: 23173 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Runoff Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18SE (N)	528	4	306600 382900
23	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Bodnant School, Nant Hall Road, PRESTATYN Authority: Environment Agency, Welsh Region Pollutant: Road Run-Off Note: River Clwyd Incident Date: 25th October 1997 Incident Reference: 34008 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9NW (SE)	546	4	307000 382000
23	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Ffordd Ty Newydd, Melidon, PRESTATYN Authority: Environment Agency, Welsh Region Pollutant: Road Run-Off Note: River Clwyd (Mouth) Incident Date: 27th October 1997 Incident Reference: 34012 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9NW (SE)	549	4	307000 381995
24	**Pollution Incidents to Controlled Waters** Property Type: Waste Handling Facilities Location: Up Stream Of Prestatyn, Gutter Authority: Environment Agency, Welsh Region Pollutant: Agricultural: Silage Liquor Note: Neglect Incident Date: 18th July 1991 Incident Reference: 3099 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Direct Discharge Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	817	4	306000 383000
25	**Pollution Incidents to Controlled Waters** Property Type: Council Premises Location: Morley Road, Pumping Station, PRESTATYN Authority: Environment Agency, Welsh Region Pollutant: Algae Note: Not Supplied Incident Date: 17th July 1995 Incident Reference: 24980 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18NW (N)	858	4	306300 383200
26	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Winchester Drive, PRESTATYN Authority: Environment Agency, Welsh Region Pollutant: Farm Effluent/Slurry Note: Not Supplied Incident Date: 8th February 1995 Incident Reference: 22558 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NW (SW)	896	4	305740 381810

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
27	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: The Rear Of, White Rose Close Authority: Environment Agency, Welsh Region Pollutant: Chemicals - Other Organic Note: Not Supplied Incident Date: 27th June 1995 Incident Reference: 24487 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A18NW (N)	935	4	306400 383300
28	**Pollution Incidents to Controlled Waters** Property Type: Land Location: Behind Territorial Army Centre, PRESTATYN Authority: Environment Agency, Welsh Region Pollutant: Crude Sewage Note: Not Supplied Incident Date: 9th October 1995 Incident Reference: 26133 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18NW (N)	975	4	306500 383350
29	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Canterbury Road Authority: Environment Agency, Welsh Region Pollutant: Oils - Other Oil Note: Not Supplied Incident Date: 30th August 1991 Incident Reference: 3203 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A12NW (W)	995	4	305500 382550
30	**Substantiated Pollution Incident Register** Authority: Natural Resources Wales Incident Date: 26th April 2006 Incident Reference: 393885 Water Impact: Category 4 - No Impact Air Impact: Category 4 - No Impact Land Impact: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 10m Pollutant: Specific Waste Materials: Commercial Waste	A18NE (N)	910	2	306622 383282
	Water Abstractions Operator: Dwr Cymru Cyf Licence Number: 24/66/7/0003 Permit Version: 100 Location: Mineshaft Authority: Environment Agency, Welsh Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Mineshaft Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st December 1978 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A20NW (NE)	1363	4	307700 383090
	Groundwater Vulnerability 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 15 North Wales Coast Scale: 1:100,000	A13SE (SW)	0	4	306517 382336
	Drift Deposits Drift Deposit: Low permeability drift deposits occuring 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 15 North Wales Coast Scale: 1:100,000	A13SE (SW)	0	4	306517 382336

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SE (SW)	0	1	306517 382336
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A13SE (SW)	0	1	306517 382336
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
31	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A13NW (NW)	370	5	306239 382617
32	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 199.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A13NW (NW)	383	5	306189 382587
33	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 223.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A12NE (W)	384	5	306110 382461
34	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 303.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A13NW (NW)	385	5	306237 382636
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 145.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A13NW (NW)	385	5	306237 382636
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 155.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A18SW (NW)	464	5	306289 382770

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
37	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 233.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A18SW (N)	536	5	306346 382876
38	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 207.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A17SE (NW)	573	5	306086 382755
39	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 146.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A17SE (NW)	575	5	306090 382760
40	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 153.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A12NE (NW)	596	5	305946 382612
41	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A17SE (NW)	675	5	306123 382916
42	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A17SE (NW)	675	5	306123 382916
43	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 95.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A17SE (NW)	677	5	306115 382913
44	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 42.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A18NE (N)	678	5	306661 383043
45	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 27.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A8NW (SW)	684	5	306206 381684

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
46	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 27.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A8NW (SW)	686	5	306206 381682
47	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 40.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A8NW (SW)	699	5	306179 381680
48	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 143.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A18SW (NW)	707	5	306200 382999
49	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 60.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A18NE (N)	712	5	306641 383080
50	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 25.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A18NW (N)	712	5	306332 383057
51	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 598.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A18NW (N)	715	5	306355 383067
52	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 24.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A17SE (NW)	718	5	306023 382889
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 265.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A7NE (SW)	722	5	306139 381675
54	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 438.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A7NE (SW)	722	5	306139 381675

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
55	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 53.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A17SE (NW)	728	5	305999 382883
56	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 181.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A17SE (NW)	733	5	305931 382825
57	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 47.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A18NE (N)	736	5	306570 383111
58	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A17SE (NW)	742	5	305947 382854
59	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 494.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Prestatyn Gutter Catchment Name: Clwyd Primacy: 1	A17SE (NW)	750	5	305946 382865
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Prestatyn Gutter Catchment Name: Clwyd Primacy: 1	A17SE (NW)	750	5	305949 382867
61	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 36.4 Watercourse Level: Underground Permanent: True Watercourse Name: Prestatyn Gutter Catchment Name: Clwyd Primacy: 1	A17SE (NW)	750	5	305949 382867
62	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 125.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A18NE (N)	761	5	306613 383133
63	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 411.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A17SE (NW)	763	5	305964 382899

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
64	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 137.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Prestatyn Gutter Catchment Name: Clwyd Primacy: 1	A17SE (NW)	763	5	305964 382899
65	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 178.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A18NE (N)	832	5	306726 383187
66	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 212.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 2	A18NE (N)	832	5	306726 383187
67	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 111.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Prestatyn Gutter Catchment Name: Clwyd Primacy: 1	A17NE (NW)	842	5	305995 383029
68	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 340.5 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A7NW (SW)	847	5	305718 381940
69	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 434.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A12SW (W)	865	5	305622 382162
70	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 37.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A8SW (S)	902	5	306241 381441
71	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 319.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Prestatyn Gutter Catchment Name: Clwyd Primacy: 1	A17NE (NW)	909	5	306115 383183
72	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 2	A12NW (W)	929	5	305569 382556

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
73	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 103.4 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A7SE (SW)	930	5	306124 381452
74	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 17.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A7SE (SW)	930	5	306124 381452
75	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 327.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Prestatyn Gutter Catchment Name: Clwyd Primacy: 1	A18NW (N)	930	5	306308 383276
76	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 772.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: The Cut Catchment Name: Clwyd Primacy: 2	A12NW (W)	934	5	305563 382551
77	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 89.3 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A8SW (S)	938	5	306224 381408
78	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 8.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A8SW (S)	938	5	306224 381408
79	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.2 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A7SE (SW)	946	5	306112 381439
80	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 17.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A12NW (W)	947	5	305554 382566
81	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 253.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A7SE (SW)	949	5	306110 381437

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
82	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A12NW (W)	950	5	305555 382583
83	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 141.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A12NW (W)	951	5	305556 382589
84	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 87.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A8SW (S)	964	5	306298 381363
85	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 84.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A18NE (N)	974	5	306644 383344
86	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 251.6 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 2	A19NW (NE)	978	5	306917 383278
87	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 36.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A17SW (NW)	986	5	305570 382730
88	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 83.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A17SW (NW)	997	5	305574 382766
89	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 225.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Clwyd Primacy: 1	A19NW (N)	999	5	306900 383308

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
90	**BGS Recorded Landfill Sites** Site Name: Tiphane Location: Fforddisa, PRESTATYN, Clwyd Authority: British Geological Survey, National Geoscience Information Service Ground Water: No threat to ground water Surface Water: No threat to surface water Geology: N/A Positional Accuracy: Positioned by the supplier Boundary Accuracy: Good	A12NE (W)	370	-	306117 382436
91	**Historical Landfill Sites** Licence Holder: Not Supplied Location: Fforddisa, Prestatyn, Clwyd Name: Council Tip Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD14204 First Input Date: 31st December 1936 Last Input Date: 31st December 1975 Specified Waste Type: Deposited Waste included Inert, Industrial, Commercial, Household and Special Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 6830/0029 BGS Ref: 337 Other Ref: Not Supplied	A12NE (W)	371	2	306120 382450
92	**Licensed Waste Management Facilities (Locations)** Licence Number: 37062 Location: Tip Lane, Off St Georges Drive, Prestatyn, Denbighshire, LL18 8EJ Operator Name: C A D Recycling Ltd Operator Location: Not Supplied Authority: Natural Resources Wales Site Category: Household Waste Amenity Sites **Licence Status: Surrendered** Issued: 1st March 1993 Last Modified: 24th December 2007 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: 11th May 2011 IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12SE (W)	601	2	305876 382244
	Local Authority Landfill Coverage Name: Denbighshire County Council - Has supplied landfill data		0	3	306517 382336
	Local Authority Landfill Coverage Name: Flintshire Council - Has supplied landfill data		787	6	307236 381923
93	**Local Authority Recorded Landfill Sites** Location: Tip Lane, Prestatyn Reference: Not Supplied Authority: Denbighshire County Council, Environmental Health Department **Last Reported Status: Closed** Types of Waste: Municipal, Inert, Commercial Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A12SE (W)	473	3	305998 382309
94	**Potentially Infilled Land (Non-Water)** Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1994	A14NW (E)	528	-	307071 382418
95	**Potentially Infilled Land (Non-Water)** Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1994	A14SW (E)	581	-	307114 382164
96	**Potentially Infilled Land (Non-Water)** Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1994	A14SE (E)	763	-	307310 382216
97	**Potentially Infilled Land (Non-Water)** Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1994	A14SE (E)	774	-	307315 382181

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
98	**Potentially Infilled Land (Non-Water)** Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1994	A14NE (E)	788	-	307329 382448
99	**Potentially Infilled Land (Non-Water)** Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1994	A14NE (E)	828	-	307379 382367
100	**Potentially Infilled Land (Non-Water)** Bearing Ref: SW Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1994	A7NW (SW)	862	-	305763 381837
101	**Potentially Infilled Land (Non-Water)** Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1994	A14SE (E)	878	-	307406 382105
102	**Potentially Infilled Land (Non-Water)** Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1994	A14NE (E)	923	-	307473 382399
103	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A18SE (N)	586	-	306610 382957
104	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A12NE (NW)	608	-	305927 382602
105	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A18SE (N)	616	-	306714 382967
106	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A8NW (S)	637	-	306330 381691
107	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A18NE (N)	675	-	306748 383018
108	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A18NE (N)	726	-	306726 383077
109	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A17SE (NW)	748	-	305919 382835
110	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A17SW (NW)	763	-	305816 382722
111	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A17SE (NW)	764	-	305963 382899
112	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A12NW (W)	773	-	305727 382539
113	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A17SW (NW)	794	-	305792 382742
114	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A17SE (NW)	795	-	305988 382961
115	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A18NE (N)	816	-	306752 383163
116	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A7NW (SW)	838	-	305748 381904

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
117	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A12NW (W)	865	-	305655 382617
118	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A7NW (SW)	867	-	305763 381829
119	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A12NW (W)	893	-	305583 382425
120	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A17NE (NW)	913	-	306106 383182
121	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A18NW (N)	934	-	306324 383284
122	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A12SW (W)	934	-	305537 382291
123	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1878	A17NE (NW)	936	-	305995 383144
124	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A18NW (N)	972	-	306445 383342
125	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A18NE (N)	976	-	306654 383345
126	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1964	A7NW (SW)	984	-	305692 381726
127	**Registered Landfill Sites** Licence Holder: Rhuddlan B.C. Licence Reference: . Site Location: The Morfas, Prestatyn, Clwyd Licence Easting: 305800 Licence Northing: 382400 Operator Location: Municipal Offices, PRESTATYN, Clwyd, LL19 9LL Authority: Environment Agency Wales, North Area Site Category: Landfill Max Input Rate: Undefined Waste Source Restrictions: No known restriction on source of waste Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st May 1977 Preceded By Licence: Not Given Superseded By Licence: 2 R Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Builders Waste Com. + Ind. Non-Haz. Waste Domestic Waste	A12NW (W)	674	4	305800 382400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
128	**Registered Waste Transfer Sites** Licence Holder: Sita Wastecare Ltd Licence Reference: RHU/001/93 Site Location: Civic Amenity At Tip Lane, St George'S Drive, Prestatyn, Clwyd Operator Location: The Pickeridge, Stoke Common Road, FULMER, Buckinghamshire, SL3 6HA Authority: Environment Agency Wales, North Area Site Category: Civic Amenity Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Operational as far as is knownOperational Dated: 9th March 2000 Preceded By Licence: NOW-305-L (RHU/001/93 Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Commercial Waste Construction & Demolition Wastes Household Waste Prohibited Waste: Agricultural Wastes Clinical - As In Control.Led Waste Regs 1992 Industrial Wastes Other Waste/Waste Not Otherwise Specified	A12SE (W)	576	4	305900 382250
128	**Registered Waste Transfer Sites** Licence Holder: Mr & Mrs A Hughes t/a Waste Eater Licence Reference: NOW-305-L (RHU/001/93 Site Location: Civic Amenity At Tip Lane, St George'S Drive, Prestatyn, Clwyd Operator Location: 61 Highbury Avenue, PRESTATYN, Clwyd, LL19 7ND Authority: Environment Agency Wales, North Area Site Category: Civic Amenity Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Record supersededSuperseded Dated: 2nd April 1993 Preceded By Licence: 2 R Superseded By Licence: RHU/001/93 Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Car Batteries From H'Hold Premises Cemented Asbestos Sheets Construction And Demolition Wastes Household & Commercial Waste Max.Waste Permitted By Licence Waste Oil Prohibited Waste: Agricultural Wastes Clinical Wastes Contaminated Soil Flammable Waste Fl.Pt < 40 C Industrial Wastes Liquid Waste/Sludge Other Than Above Other Asbestos Waste Sewage/Sewage Sludge Spec.Waste (Epa'90:S62/1996 Regs)N.O.S Waste Cont. Highly Putresc.Mat'L/Food Waste N.O.S, Whether Pretreated Or Not	A12SE (W)	576	4	305900 382250
128	**Registered Waste Transfer Sites** Licence Holder: Rhuddlan B.C. Licence Reference: 2 R Site Location: Civic Amenity At Tip Lane, St George'S Drive, Prestatyn, Clwyd Operator Location: Municipal Offices, PRESTATYN, Clwyd, LL19 9LL Authority: Environment Agency Wales, North Area Site Category: Civic Amenity Max Input Rate: Undefined Waste Source Restrictions: No known restriction on source of waste Licence Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st May 1977 Preceded By Licence: . Superseded By Licence: NOW-305-L (RHU/001/93 Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Civic Amenity Waste	A12SE (W)	576	4	305900 382250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Warwickshire Group	A13SE (SW)	0	1	306517 382336
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 300 - 600 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (SW)	0	1	306517 382336
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: 300 - 600 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (N)	176	1	306519 382550
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 200 - 300 mg/kg Nickel Concentration: 15 - 30 mg/kg	A14SW (E)	447	1	307000 382336
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: 1.8 - 2.2 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: 600 - 1200 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12SE (W)	470	1	306000 382336
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: 1.8 - 2.2 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 600 - 1200 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12SE (W)	479	1	306000 382237
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: 300 - 600 mg/kg Nickel Concentration: 15 - 30 mg/kg	A8NW (S)	522	1	306329 381811

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: 200 - 300 mg/kg Nickel Concentration: 15 - 30 mg/kg	A14SW (E)	600	1	307136 382171
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: 1.8 - 2.2 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 300 - 600 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18SE (N)	624	1	306517 383000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 300 - 600 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18SW (N)	626	1	306500 383000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: 300 - 600 mg/kg Nickel Concentration: 15 - 30 mg/kg	A9NW (SE)	677	1	307000 381804
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: 200 - 300 mg/kg Nickel Concentration: 15 - 30 mg/kg	A14NE (NE)	754	1	307245 382641
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 300 - 600 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7SE (SW)	763	1	306165 381616

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: 1.8 - 2.2 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 600 - 1200 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7SE (SW)	823	1	306000 381644
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: 200 - 300 mg/kg Nickel Concentration: 15 - 30 mg/kg	A14SE (E)	844	1	307352 382042
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: 200 - 300 mg/kg Nickel Concentration: 15 - 30 mg/kg	A9SW (SE)	929	1	307109 381568
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 100 - 200 mg/kg Nickel Concentration: 15 - 30 mg/kg	A14SE (E)	947	1	307500 382336
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 200 - 300 mg/kg Nickel Concentration: 15 - 30 mg/kg	A9SW (SE)	954	1	307114 381541
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A14NE (E)	965	1	307500 382500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: 2.2 - 3.0 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: 600 - 1200 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12SW (W)	970	1	305500 382336
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: 1.8 - 2.2 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: 600 - 1200 mg/kg Nickel Concentration: 15 - 30 mg/kg	A17SW (NW)	991	1	305600 382801
129	**BGS Recorded Mineral Sites** Site Name: Ty'N-Yr-Allt Location: Prestatyn, Flintshire Source: British Geological Survey, National Geoscience Information Service Reference: 134332 Type: Underground **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Not Available Geology: ! Commodity: Lead Positional Accuracy: Located by supplier to within 10m	A14NW (E)	551	1	307093 382423
130	**BGS Recorded Mineral Sites** Site Name: Ty'N-Yr-Allt Location: Prestatyn, Flintshire Source: British Geological Survey, National Geoscience Information Service Reference: 134333 Type: Underground **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Not Available Geology: ! Commodity: Lead Positional Accuracy: Located by supplier to within 10m	A14SW (E)	578	1	307111 382162
131	**BGS Recorded Mineral Sites** Site Name: Manor Hill Location: Bishopswood Road, Prestatyn, Denbighshire Source: British Geological Survey, National Geoscience Information Service Reference: 17104 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Llanarmon Limestone Formation Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A14SW (SE)	673	1	307170 382045
132	**BGS Recorded Mineral Sites** Site Name: Manor Hill Location: Bishopswood Road, Prestatyn, Denbighshire Source: British Geological Survey, National Geoscience Information Service Reference: 17103 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Llanarmon Limestone Formation Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	720	1	307120 381870

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
133	**BGS Recorded Mineral Sites** Site Name: Bishop'S Wood Location: Bishopswood Road, Prestatyn, Clwyd Source: British Geological Survey, National Geoscience Information Service Reference: 9795 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Llanarmon Limestone Formation Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	736	1	307060 381780
134	**BGS Recorded Mineral Sites** Site Name: Ty'N-Yr-Allt Location: Hillside, Prestatyn, Denbighshire Source: British Geological Survey, National Geoscience Information Service Reference: 17106 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Llanarmon Limestone Formation Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A14SE (E)	761	1	307305 382195
135	**BGS Recorded Mineral Sites** Site Name: Ty'N-Yr-Allt Location: Prestatyn, Flintshire Source: British Geological Survey, National Geoscience Information Service Reference: 134064 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Llanarmon Limestone Formation Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A14NE (E)	784	1	307326 382442
136	**BGS Recorded Mineral Sites** Site Name: Ty'N-Yr-Allt Location: Trelawnyd, Prestatyn, Flintshire Source: British Geological Survey, National Geoscience Information Service Reference: 134131 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Teilia Formation Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A14NE (E)	828	1	307379 382368
137	**BGS Recorded Mineral Sites** Site Name: Ty'N-Yr-Allt Location: Hillside, Prestatyn, Denbighshire Source: British Geological Survey, National Geoscience Information Service Reference: 17107 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Llanarmon Limestone Formation Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A14SE (E)	875	1	307405 382115
138	**BGS Recorded Mineral Sites** Site Name: Ty'N-Yr-Allt Location: Prestatyn, Flintshire Source: British Geological Survey, National Geoscience Information Service Reference: 134129 Type: Opencast **Status: Ceased** Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Teilia Formation Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A14NE (E)	940	1	307490 382389

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Man-Made Mining Cavities Easting: 306900 Northing: 381700 Distance: 703 Quadrant Reference: A9 Quadrant Reference: NW Bearing Ref: SE Cavity Type: Not supplied Commodity: Not Supplied Solid Geology Detail: No Details Superficial Geology Detail: No Details	A9NW (SE)	703	7	306900 381700
	Natural Cavities Easting: 307000 Northing: 381710 Distance: 750 Quadrant Reference: A9 Quadrant Reference: NW Bearing Ref: SE Cavity Type: Vadose Cave Solid Geology Detail: Carboniferous Limestone Supergroup, Lower Carboniferous Limestone, Upper Carboniferous Limestone Superficial Geology Detail: No Details	A9NW (SE)	750	7	307000 381710
	Non Coal Mining Areas of Great Britain Risk: Highly Unlikely Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	306517 382336
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	306517 382336
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	306517 382336
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	306517 382336
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	306517 382336
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	306517 382336
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	306517 382336
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	176	1	306519 382550
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	306517 382336
	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	A13SE (SW)	0	1	306517 382336

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
139	**Contemporary Trade Directory Entries** Name: Repair Centre Location: 10, South Avenue, Prestatyn, Clwyd, LL19 8TG Classification: Domestic Appliances - Servicing, Repairs & Parts **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SW (W)	68	-	306402 382331
140	**Contemporary Trade Directory Entries** Name: Impak Marketing Ltd Location: Parc Dyffryn,1-5 Ffordd Pendyffryn, Prestatyn, Clwyd, LL19 9DG Classification: Cleaning Materials & Equipment **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13NE (NE)	126	-	306589 382492
141	**Contemporary Trade Directory Entries** Name: Monarch Cleaners Ltd Location: 31-33, Meliden Road, Prestatyn, Clwyd, LL19 9SD Classification: Laundries & Launderettes **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	199	-	306725 382448
142	**Contemporary Trade Directory Entries** Name: County Garage Location: Unit 1, Invetek House, Meliden Road, Prestatyn, Clwyd, LL19 9RT Classification: Classic Car Specialists **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	211	-	306684 382530
142	**Contemporary Trade Directory Entries** Name: Classicarssoldquick.Com Location: 30, Meliden Road, Prestatyn, Clwyd, LL19 9RT Classification: Classic Car Specialists **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	223	-	306717 382511
142	**Contemporary Trade Directory Entries** Name: Caravanssoldquick.Com Location: 30, Meliden Road, Prestatyn, Clwyd, LL19 9RT Classification: Caravan Dealers & Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	223	-	306717 382511
142	**Contemporary Trade Directory Entries** Name: Carssoldquick.Com Location: 30, Meliden Road, Prestatyn, Clwyd, LL19 9RT Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	223	-	306717 382511
143	**Contemporary Trade Directory Entries** Name: Angels About The House Location: 42, Maes y Groes, Prestatyn, Clwyd, LL19 9DA Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (N)	235	-	306504 382607
144	**Contemporary Trade Directory Entries** Name: Celtic Cars Location: 6-8, Meliden Road, PRESTATYN, Clwyd, LL19 9RT Classification: Car Dealers - Used **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	306	-	306768 382580
144	**Contemporary Trade Directory Entries** Name: Pet Zone Location: 218, High Street, Prestatyn, Clwyd, LL19 9BP Classification: Pet Foods & Animal Feeds **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13NE (NE)	342	-	306770 382629
145	**Contemporary Trade Directory Entries** Name: Waste Disposal Services Location: Princes Av, Prestatyn, Clwyd, LL19 8RS Classification: Waste Disposal Services **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A8NW (S)	328	-	306396 381993
146	**Contemporary Trade Directory Entries** Name: Tyre Dealer Location: 32, Gordon Avenue, Prestatyn, Clwyd, LL19 8RY Classification: Tyre Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	350	-	306272 382031

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
147	**Contemporary Trade Directory Entries** Name: Halo & Co Location: 210, High Street, Prestatyn, LL19 9BP Classification: Jewellery Manufacturers & Repairers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (NE)	352	-	306760 382650
148	**Contemporary Trade Directory Entries** Name: Old Stable Garage & Duttons Location: 2, Gronant Road, Prestatyn, LL19 9DS Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A14NW (NE)	404	-	306890 382576
148	**Contemporary Trade Directory Entries** Name: Dutton Tyres Location: 2, Gronant Road, Prestatyn, Clwyd, LL19 9DS Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (NE)	404	-	306890 382577
148	**Contemporary Trade Directory Entries** Name: The Old Stable Garage Location: 2, Gronant Road, Prestatyn, Clwyd, LL19 9DS Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (NE)	404	-	306890 382577
149	**Contemporary Trade Directory Entries** Name: P D Q Location: 21 Kings Av, Prestatyn, Clwyd, LL19 9AA Classification: Printers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A18SE (N)	416	-	306570 382790
150	**Contemporary Trade Directory Entries** Name: G M S Auto Centre Ltd Location: Unit 10 Parc Dyffryn Industrial Estate,Ffordd Pendyffryn, Prestatyn, Clwyd, LL19 9DG Classification: Garage Services **Status: Active** Positional Accuracy: Manually positioned to the address or location	A18SW (N)	468	-	306431 382831
150	**Contemporary Trade Directory Entries** Name: F E Jones & Sons Ltd Location: Unit 9, Parc Dyffryn Industrial Estate, Ffordd Pendyffryn, Prestatyn, Clwyd, LL19 9DG Classification: Garage Services **Status: Active** Positional Accuracy: Manually positioned to the address or location	A18SW (N)	501	-	306417 382861
151	**Contemporary Trade Directory Entries** Name: Prestatyn Community Hospital Location: 49, The Avenue, Prestatyn, Clwyd, LL19 9RD Classification: Hospitals **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	476	-	306819 381917
152	**Contemporary Trade Directory Entries** Name: Max Spielmann Location: 82, High Street, Prestatyn, Clwyd, LL19 9BE Classification: Photographic Processors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	515	-	306562 382890
152	**Contemporary Trade Directory Entries** Name: Top Of The Mops Location: 67, High Street, Prestatyn, Clwyd, LL19 9AH Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	562	-	306577 382936
153	**Contemporary Trade Directory Entries** Name: Avimo Optical Imaging Ltd Location: Parc Dyffryn Industrial Estate, Ffordd Pendyffryn, Prestatyn, Clwyd, LL19 9DG Classification: Optical Goods - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (N)	519	-	306468 382890

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
154	**Contemporary Trade Directory Entries** Name: Gleam Team Cleaning Services Location: The Old Stables, Nant Hall Road, Prestatyn, Clwyd, LL19 9LH Classification: Commercial Cleaning Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A18SE (N)	522	-	306636 382889
154	**Contemporary Trade Directory Entries** Name: Gleam Team Cleaning Services Location: The Old Stables, Nant Hall Road, Prestatyn, Clwyd, LL19 9LH Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	522	-	306636 382889
155	**Contemporary Trade Directory Entries** Name: S P P S Ltd Location: 28, Glyn Avenue, Prestatyn, Clwyd, LL19 9NN Classification: Machine Tool Accessories & Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (NE)	529	-	306847 382807
156	**Contemporary Trade Directory Entries** Name: French Polisher Location: 1, St. Georges Drive, Prestatyn, Clwyd, LL19 8EH Classification: French Polishing **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SE (W)	540	-	305970 382125
157	**Contemporary Trade Directory Entries** Name: Jones Supreme Cleaning Location: 42, High Street, Prestatyn, LL19 9BB Classification: Cleaning Services - Domestic **Status: Active** Positional Accuracy: Automatically positioned to the address	A18SW (N)	574	-	306509 382949
157	**Contemporary Trade Directory Entries** Name: Johnson Cleaners (Uk) Ltd Location: 28, High Street, Prestatyn, Clwyd, LL19 9BB Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (N)	607	-	306505 382982
157	**Contemporary Trade Directory Entries** Name: Supreme Finish Cleaning Services Location: Supreme Finish Cleaning Services,High Street, Prestatyn, Clwyd, LL19 9BB Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A18SW (N)	615	-	306502 382989
158	**Contemporary Trade Directory Entries** Name: H & B Joinery (Prestatyn) Ltd Location: Gas Works Lane, Prestatyn, Clwyd, LL19 7SE Classification: PVC-U Products - Manufacturers & Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (N)	578	-	306405 382938
159	**Contemporary Trade Directory Entries** Name: Central Garage Prestatyn Location: Nant Hall Road, Prestatyn, Clwyd, LL19 9LR Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A18SE (N)	601	-	306631 382970
159	**Contemporary Trade Directory Entries** Name: Central Garage Ltd Location: Nant Hall Road, Prestatyn, Clwyd, LL19 9LR Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	601	-	306631 382970
159	**Contemporary Trade Directory Entries** Name: Novatec Location: Nant Hall Road, Prestatyn, Clwyd, LL19 9LR Classification: Blinds, Awnings & Canopies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	641	-	306619 383012
160	**Contemporary Trade Directory Entries** Name: Spotless Solutions Location: 56, Pendre Avenue, PRESTATYN, Clwyd, LL19 9SL Classification: Commercial Cleaning Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A14NW (E)	620	-	307168 382391

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
161	**Contemporary Trade Directory Entries** Name: Joseph Holdsworth Location: 18, Gronant Road, Prestatyn, Clwyd, LL19 9DS Classification: Asphalt & Coated Macadam Laying Contractors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	623	-	307062 382715
162	**Contemporary Trade Directory Entries** Name: Roberts Wardell Mini Buses Location: 14, High Street, Prestatyn, Clwyd, LL19 9BB Classification: Bus & Coach Operators & Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NW (N)	659	-	306467 383030
163	**Contemporary Trade Directory Entries** Name: David J Jones Furniture Craftsmen Location: Unit 11-12, Prestatyn Shopping Park, Nant Hall Road, Prestatyn, Clwyd, LL19 9BJ Classification: Seating Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A18NW (N)	714	-	306478 383087
164	**Contemporary Trade Directory Entries** Name: Cambrian Joinery Location: Unit 1, Rear of Kwik Save, Nant Hall Road, Prestatyn, Clwyd, LL19 9LR Classification: Joinery Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NE (N)	729	-	306661 383094
165	**Contemporary Trade Directory Entries** Name: Peak Performance Centre Location: Unit 3/5, Sandy Lane Business Park, 25, Sandy Lane, Prestatyn, Clwyd, LL19 7SF Classification: Car Engine Tuning & Diagnostic Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	732	-	306102 382970
165	**Contemporary Trade Directory Entries** Name: Morton'S Motoring Services Location: Unit 6-8, Sandy Lane Business Park, 25, Sandy Lane, Prestatyn, Clwyd, LL19 7SF Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	732	-	306102 382970
165	**Contemporary Trade Directory Entries** Name: C H Mechanical Services Location: Unit 1, Sandy Lane Business Park, 25, Sandy Lane, Prestatyn, Clwyd, LL19 7SF Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	740	-	306122 382993
165	**Contemporary Trade Directory Entries** Name: Crystal Cleaning Services Location: Sandy Lane Business Park,25 Sandy La, Prestatyn, Clwyd, LL19 7SF Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	740	-	306108 382984
165	**Contemporary Trade Directory Entries** Name: Martin Services Ltd Location: Unit 7, Sandy Lane Business Park, 25, Sandy Lane, Prestatyn, Clwyd, LL19 7SF Classification: Electrical goods - servicing & repairs **Status: Active** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	752	-	306093 382987
165	**Contemporary Trade Directory Entries** Name: Premier Clean Uk Ltd Location: Unit 7, Sandy Lane Business Park, 25, Sandy Lane, Prestatyn, Clwyd, LL19 7SF Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	752	-	306093 382987
165	**Contemporary Trade Directory Entries** Name: Tf Towbars & Trailers Location: Unit 7, Sandy Lane Business Park, 25, Sandy Lane, Prestatyn, Clwyd, LL19 7SF Classification: Trailers & Towing Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	752	-	306093 382987

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
166	**Contemporary Trade Directory Entries** Name: Dampstop Location: 6, Parc Cemlyn, Prestatyn, Clwyd, LL19 9NX Classification: Damp & Dry Rot Control **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NE (N)	791	-	306805 383120
167	**Contemporary Trade Directory Entries** Name: Prestatyn Gates Location: Unit 1 Sandy Lane, Prestatyn, Clwyd, LL19 7SF Classification: Joinery Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A17NE (NW)	807	-	306042 383020
168	**Contemporary Trade Directory Entries** Name: All Steamed Up Location: 9, Bastion Road, Prestatyn, Clwyd, LL19 7ES Classification: Ironing & Home Laundry Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NW (N)	816	-	306369 383174
169	**Contemporary Trade Directory Entries** Name: Bath Resurfacing Location: 3, Bangor Crescent, PRESTATYN, Clwyd, LL19 8EN Classification: Bath Resurfacing **Status: Active** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	816	-	305754 381938
170	**Contemporary Trade Directory Entries** Name: Spotless Solutions Location: 35, Ffordd Parc Bodnant, Prestatyn, LL19 9LJ Classification: Commercial Cleaning Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	843	-	306889 383143
171	**Contemporary Trade Directory Entries** Name: The Morley Press Location: 1, Morley Road, Prestatyn, Clwyd, LL19 7HG Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NE (N)	883	-	306574 383258
172	**Contemporary Trade Directory Entries** Name: The Software Providers Ltd Location: Unit 3, Tai Tywyn Business Centre, Sandy Lane, Prestatyn, Clwyd, LL19 7SF Classification: Bakery Equipment Manufacturers & Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17NE (NW)	887	-	305923 383027
173	**Contemporary Trade Directory Entries** Name: Pritchards Pharmacy Location: 99, Victoria Road, Prestatyn, Clwyd, LL19 7SR Classification: Chemists' & Pharmacists' Suppliers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17NE (NW)	927	-	305930 383085
173	**Contemporary Trade Directory Entries** Name: C J Swimming Pools Location: 101, Victoria Road, Prestatyn, Clwyd, LL19 7SR Classification: Swimming Pool Contractors, Repairers & Service **Status: Active** Positional Accuracy: Automatically positioned to the address	A17NE (NW)	933	-	305922 383086
174	**Contemporary Trade Directory Entries** Name: B P Service Station Location: Marine Road, Prestatyn, Clwyd, LL19 7HA Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A23SE (N)	996	-	306661 383364
174	**Contemporary Trade Directory Entries** Name: Car Centre Ltd Location: 49, Marine Road, Prestatyn, Clwyd, LL19 7HA Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A23SE (N)	996	-	306661 383364
174	**Contemporary Trade Directory Entries** Name: Car Centre Location: 49, Marine Road, Prestatyn, Clwyd, LL19 7HA Classification: Mot Testing Centres **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A23SE (N)	996	-	306661 383364

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
174	**Contemporary Trade Directory Entries** Name: Car Centre Ltd Location: 49, Marine Road, Prestatyn, Clwyd, LL19 7HA Classification: Car Dealers - Used **Status: Active** Positional Accuracy: Automatically positioned to the address	A23SE (N)	996	-	306661 383364
175	**Fuel Station Entries** Name: Dutton Brothers Location: Gronant Road, PRESTATYN, Clwyd, LL19 9DS Brand: Obsolete Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Automatically positioned to the address	A14NW (NE)	404	-	306890 382577
176	**Fuel Station Entries** Name: Central Garage Location: Nant Hall Road, Prestatyn, Clwyd, LL19 9LR Brand: Unbranded Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Manually positioned to the address or location	A18SE (N)	601	-	306630 382970
177	**Fuel Station Entries** Name: Tesco Prestatyn Location: 5, High Street, Prestatyn, Clwyd, Ll19 9bb Brand: Tesco Premises Type: Hypermarket **Status: Open** Positional Accuracy: Manually positioned to the address or location	A18NW (N)	657	-	306509 383032
178	**Fuel Station Entries** Name: Prestatyn Service Station Location: Marine Road, Prestatyn, Clwyd, LL19 7HA Brand: Bp Premises Type: Petrol Station **Status: Open** Positional Accuracy: Manually positioned to the address or location	A18NW (N)	853	-	306417 383220
179	**Points of Interest - Commercial Services** Name: County Services Location: Unit 4 Invetek House, Meliden Road, Prestatyn, LL19 9RT Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13NE (NE)	211	8	306683 382530
180	**Points of Interest - Commercial Services** Name: Celtic Cars Location: 6-8 Meliden Road, Prestatyn, LL19 9RT Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13NE (NE)	306	8	306768 382580
181	**Points of Interest - Commercial Services** Name: The Old Stable Garage Location: 2 Gronant Road, Prestatyn, LL19 9DS Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A14NW (NE)	404	8	306890 382577
181	**Points of Interest - Commercial Services** Name: Dutton Bros Location: 2 Gronant Road, Prestatyn, LL19 9DS Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A14NW (NE)	404	8	306890 382577
181	**Points of Interest - Commercial Services** Name: Old Stable Garage & Duttons Location: 2 Gronant Road, Prestatyn, LL19 9DS Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A14NW (NE)	404	8	306890 382576
181	**Points of Interest - Commercial Services** Name: Old Stables Garage Location: 2 Gronant Road, Prestatyn, LL19 9DS Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A14NW (NE)	404	8	306890 382577

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
182	**Points of Interest - Commercial Services** Name: G M S Auto Centre Ltd Location: Unit 10 Parc Dyffryn Industrial Estate, Ffordd Pendyffryn, Prestatyn, LL19 9DG Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A18SW (N)	468	8	306431 382831
182	**Points of Interest - Commercial Services** Name: F E Jones & Sons Location: Unit 9 Parc Dyffryn Industrial Estate, Ffordd Pendyffryn, Prestatyn, LL19 9DG Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A18SW (N)	501	8	306417 382861
182	**Points of Interest - Commercial Services** Name: F E Jones & Sons Ltd Location: Unit 9 Parc Dyffryn Industrial Estate, Ffordd Pendyffryn, Prestatyn, LL19 9DG Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A18SW (N)	501	8	306417 382861
183	**Points of Interest - Commercial Services** Name: Central Garage Ltd Location: Nant Hall Road, Prestatyn, LL19 9LR Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A18SE (N)	601	8	306631 382970
183	**Points of Interest - Commercial Services** Name: Central Garage Prestatyn Location: Nant Hall Road, Prestatyn, LL19 9LR Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A18SE (N)	601	8	306630 382970
184	**Points of Interest - Commercial Services** Name: Peak Performance Centre Location: Unit 3/5 Sandy Lane Business Park 25, Sandy Lane, Prestatyn, LL19 7SF Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A17SE (NW)	732	8	306102 382970
184	**Points of Interest - Commercial Services** Name: Morton's Motoring Services Location: Unit 6-8 Sandy Lane Business Park 25, Sandy Lane, Prestatyn, LL19 7SF Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A17SE (NW)	732	8	306102 382970
184	**Points of Interest - Commercial Services** Name: Morton's Motoring Services Location: Unit 6-8 Sandy Lane Business Park 25, Sandy Lane, Prestatyn, LL19 7SF Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A17SE (NW)	732	8	306101 382969
185	**Points of Interest - Commercial Services** Name: I K Refinishing Ltd Location: 18 West Avenue, Prestatyn, LL19 9HA Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A14NE (NE)	734	8	307224 382642
186	**Points of Interest - Commercial Services** Name: Prestatyn Service Station Location: Marine Road, Prestatyn, LL19 7HA Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A18NW (N)	842	8	306440 383212
186	**Points of Interest - Commercial Services** Name: Car Wash Location: Marine Road, Prestatyn, Clwyd, LL19 7HA Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A18NW (N)	853	8	306417 383220
187	**Points of Interest - Commercial Services** Name: K R Jones Pest Control Location: 65 Victoria Road, Prestatyn, LL19 7SP Category: Contract Services Class Code: Pest and Vermin Control Positional Accuracy: Positioned to address or location	A17NE (NW)	874	8	306073 383120

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
188	**Points of Interest - Education and Health** Name: Prestatyn Clinic Location: Prestatyn Clinic 23, Kings Avenue, Prestatyn, LL19 9AA Category: Health Practitioners and Establishments Class Code: Hospitals Positional Accuracy: Positioned to address or location	A18SE (N)	399	8	306546 382775
189	**Points of Interest - Education and Health** Name: Prestatyn Community Hospital Location: 49 The Avenue, Prestatyn, LL19 9RD Category: Health Practitioners and Establishments Class Code: Hospitals Positional Accuracy: Positioned to address or location	A8NE (SE)	476	8	306819 381917
189	**Points of Interest - Education and Health** Name: Prestatyn Community Hospital Location: 49 The Avenue, Prestatyn, LL19 9RD Category: Health Practitioners and Establishments Class Code: Hospitals Positional Accuracy: Positioned to address or location	A8NE (SE)	476	8	306819 381917
189	**Points of Interest - Education and Health** Name: Prestatyn Community Hospital Location: 49 The Avenue, Prestatyn, LL19 9RD Category: Health Practitioners and Establishments Class Code: Hospitals Positional Accuracy: Positioned to address or location	A8NE (SE)	476	8	306819 381917
189	**Points of Interest - Education and Health** Name: Prestatyn Community Hospital Location: 49 The Avenue, Prestatyn, LL19 9RD Category: Health Practitioners and Establishments Class Code: Hospitals Positional Accuracy: Positioned to address or location	A8NE (SE)	476	8	306819 381917
190	**Points of Interest - Manufacturing and Production** Name: Factory Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18SE (N)	417	8	306561 382792
191	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18SW (N)	477	8	306495 382850
191	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18SW (N)	487	8	306492 382860
191	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18SW (N)	500	8	306484 382872
192	**Points of Interest - Manufacturing and Production** Name: Works Location: LL19 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18SW (N)	523	8	306465 382893
192	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18SW (N)	558	8	306379 382910
192	**Points of Interest - Manufacturing and Production** Name: Works Location: LL19 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18SW (N)	558	8	306374 382909

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
193	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18NE (N)	683	8	306556 383058
193	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A18NE (N)	700	8	306568 383075
194	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17SE (NW)	739	8	306167 383017
194	**Points of Interest - Manufacturing and Production** Name: Works Location: LL19 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17SE (NW)	739	8	306167 383017
195	**Points of Interest - Manufacturing and Production** Name: Quarry (Disused) Location: LL19 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to address or location	A9NW (SE)	768	8	307003 381690
195	**Points of Interest - Manufacturing and Production** Name: Shaft Location: LL19 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to address or location	A9NW (SE)	805	8	307088 381711
196	**Points of Interest - Manufacturing and Production** Name: Tank Location: LL19 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A14SE (E)	880	8	307410 382112
197	**Points of Interest - Manufacturing and Production** Name: Tank Location: LL19 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A18NE (N)	952	8	306526 383327
198	**Points of Interest - Manufacturing and Production** Name: Fynnon Fair (St Mary's Well) (Adit) Location: LL19 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to an adjacent address or location	A9SW (S)	953	8	306869 381412
199	**Points of Interest - Public Infrastructure** Name: Refuse Tip Location: LL19 Category: Infrastructure and Facilities Class Code: Refuse Disposal Facilities Positional Accuracy: Positioned to an adjacent address or location	A12NE (W)	502	8	306011 382531
200	**Points of Interest - Public Infrastructure** Name: Bus Station Location: LL19 Category: Public Transport, Stations and Infrastructure Class Code: Bus and Coach Stations, Depots and Companies Positional Accuracy: Positioned to address or location	A18SW (N)	555	8	306483 382928
201	**Points of Interest - Public Infrastructure** Name: Civic Amenity Site Location: LL19 Category: Infrastructure and Facilities Class Code: Refuse Disposal Facilities Positional Accuracy: Positioned to an adjacent address or location	A12SE (W)	561	8	305913 382269

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
202	**Points of Interest - Public Infrastructure** Name: Central Garage Location: Nant Hall Road, Prestatyn, LL19 9LR Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A18SE (N)	601	8	306630 382970
203	**Points of Interest - Public Infrastructure** Name: Tesco Prestatyn Location: 5 High Street, Prestatyn, LL19 9BB Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A18NW (N)	657	8	306509 383032
203	**Points of Interest - Public Infrastructure** Name: Roberts Wardell Mini Buses Location: 14 High Street, Prestatyn, LL19 9BB Category: Public Transport, Stations and Infrastructure Class Code: Bus and Coach Stations, Depots and Companies Positional Accuracy: Positioned to address or location	A18NW (N)	659	8	306467 383030
203	**Points of Interest - Public Infrastructure** Name: Prestatyn Rail Station Location: Bridge Road (Ffordd Y Bont), LL19 Category: Public Transport, Stations and Infrastructure Class Code: Railway Stations, Junctions and Halts Positional Accuracy: Positioned to address or location	A18NW (N)	707	8	306384 383065
203	**Points of Interest - Public Infrastructure** Name: Prestatyn Station Location: Bridge Road (Ffordd Y Bont), LL19 Category: Public Transport, Stations and Infrastructure Class Code: Railway Stations, Junctions and Halts Positional Accuracy: Positioned to address or location	A18NW (N)	707	8	306384 383065
204	**Points of Interest - Public Infrastructure** Name: Refuse Tip Location: LL19 Category: Infrastructure and Facilities Class Code: Refuse Disposal Facilities Positional Accuracy: Positioned to an adjacent address or location	A12NW (W)	658	8	305814 382376
205	**Points of Interest - Public Infrastructure** Name: Refuse Tip Location: LL19 Category: Infrastructure and Facilities Class Code: Refuse Disposal Facilities Positional Accuracy: Positioned to an adjacent address or location	A12NW (W)	710	8	305816 382603
206	**Points of Interest - Public Infrastructure** Name: BP Service Station Location: Marine Road, Prestatyn, LL19 7HA Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A18NW (N)	852	8	306417 383219
206	**Points of Interest - Public Infrastructure** Name: Murco Prestatyn Fs637 Location: Marine Road, Prestatyn, Clwyd, LL19 7HA Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A18NW (N)	852	8	306417 383219
206	**Points of Interest - Public Infrastructure** Name: Murco Petroleum Ltd Location: Marine Road, Prestatyn, LL19 7HA Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A18NW (N)	853	8	306417 383220
206	**Points of Interest - Public Infrastructure** Name: Prestatyn Service Station Location: Marine Road, Prestatyn, LL19 7HA Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A18NW (N)	853	8	306417 383220
207	**Points of Interest - Public Infrastructure** Name: Prestatyn Fire Station Location: Marine Road, Prestatyn, LL19 7HA Category: Central and Local Government Class Code: Fire Brigade Stations Positional Accuracy: Positioned to address or location	A18NE (N)	935	8	306520 383310

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
208	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A13NW (NW)	24	8	306478 382366
208	**Points of Interest - Recreational and Environmental** Name: Playground Location: South Avenue, LL19 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A13NW (NW)	26	8	306466 382358
209	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18NW (N)	768	8	306488 383142
209	**Points of Interest - Recreational and Environmental** Name: Play Area Location: Station Road (Ffordd Yr Orsaf), LL19 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A18NW (N)	774	8	306485 383148
209	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18NE (N)	790	8	306549 383165
209	**Points of Interest - Recreational and Environmental** Name: Playground Location: Caradoc Road, LL19 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A18NE (N)	794	8	306573 383169
210	**Points of Interest - Recreational and Environmental** Name: Playground Location: (Lon Eirlys), LL19 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A19NW (NE)	830	8	306945 383100

Sensitive Land Use

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
211	**Ancient Woodland** Name: Not Supplied Reference: 29963 Area(m²): 16842 Type: Ancient and Semi-Natural Woodland	A9SW (SE)	763	2	306914 381639
212	**Ancient Woodland** Name: Not Supplied Reference: 27487 Area(m²): 53334.89 Type: Ancient and Semi-Natural Woodland	A9SW (SE)	766	2	306918 381638
213	**Areas of Outstanding Natural Beauty** Name: Bryniau Clwyd A Dyffryn Dyfrdwy/Clwydian Range And Dee Valley Multiple Areas: N Total Area (m2): 389277308.58 Designation Date: 22nd November 2011 Source: Natural Resources Wales	A14SW (E)	614	2	307149 382166
214	**Environmentally Sensitive Areas** Name: Clwydian Range (decommissioned) Multiple Areas: N Total Area (m2): 278715136 Source: The National Assembly for Wales, GI Services (Department of Planning & Countryside)	A14SW (E)	614	9	307150 382168
215	**Nitrate Vulnerable Zones** Name: Not Supplied Description: Groundwater Source: Natural Resources Wales	A13SE (SW)	0	2	306517 382336
216	**Sites of Special Scientific Interest** Name: Prestatyn Hillside Multiple Areas: N Total Area (m2): 244531.89 Source: Natural Resources Wales Reference: 49031wjq Designation Details: Biological Designation Date: 1st January 1959 Date Type: Notified	A14SW (E)	612	2	307145 382159

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Flintshire Council - Environmental Health Department	April 2014	Annual Rolling Update
Conwy County Borough Council - Environmental Health Department	August 2013	Annual Rolling Update
Denbighshire County Council - Public Protection Department	January 2015	Annual Rolling Update
Discharge Consents		
Environment Agency - Welsh Region	August 2014	Quarterly
Natural Resources Wales	August 2017	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Welsh Region	March 2013	As notified
Integrated Pollution Controls		
Environment Agency - Welsh Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control		
Natural Resources Wales	August 2017	Quarterly
Environment Agency - Welsh Region	July 2017	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Flintshire Council - Environmental Health Department	April 2016	Annual Rolling Update
Conwy County Borough Council - Environmental Health Department	January 2015	Annual Rolling Update
Denbighshire County Council - Environmental Health Department	March 2013	Annual Rolling Update
Local Authority Pollution Prevention and Controls		
Flintshire Council - Environmental Health Department	April 2016	Annual Rolling Update
Denbighshire County Council - Environmental Health Department	December 2014	Annual Rolling Update
Conwy County Borough Council - Environmental Health Department	January 2015	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Flintshire Council - Environmental Health Department	April 2016	Annual Rolling Update
Denbighshire County Council - Environmental Health Department	December 2014	Annual Rolling Update
Conwy County Borough Council - Environmental Health Department	January 2015	Annual Rolling Update
Nearest Surface Water Feature		
Ordnance Survey	May 2017	
Pollution Incidents to Controlled Waters		
Environment Agency - Welsh Region	December 1998	Not Applicable
Prosecutions Relating to Authorised Processes		
Environment Agency - Welsh Region	March 2013	As notified
Natural Resources Wales	March 2013	As notified
Prosecutions Relating to Controlled Waters		
Environment Agency - Welsh Region	March 2013	As notified
Natural Resources Wales	March 2013	As notified
Registered Radioactive Substances		
Natural Resources Wales	January 2015	As notified
Environment Agency - Welsh Region	January 2015	
Substantiated Pollution Incident Register		
Natural Resources Wales	August 2018	Quarterly
Environment Agency Wales - North Area	July 2017	Quarterly
Water Abstractions		
Environment Agency - Welsh Region	October 2017	Quarterly
Natural Resources Wales	October 2017	Quarterly
Water Industry Act Referrals		
Natural Resources Wales	August 2017	Quarterly
Environment Agency - Welsh Region	July 2017	Quarterly
Groundwater Vulnerability		
Environment Agency - Head Office	April 2015	Not Applicable
Drift Deposits		
Environment Agency - Head Office	January 1999	Not Applicable

Agency & Hydrological	Version	Update Cycle
Bedrock Aquifer Designations British Geological Survey - National Geoscience Information Service	August 2015	As notified
Superficial Aquifer Designations British Geological Survey - National Geoscience Information Service	August 2015	As notified
Source Protection Zones Natural Resources Wales	November 2016	As notified
Extreme Flooding from Rivers or Sea without Defences Natural Resources Wales	August 2017	Quarterly
Flooding from Rivers or Sea without Defences Natural Resources Wales	August 2017	Quarterly
Areas Benefiting from Flood Defences Natural Resources Wales	August 2017	Quarterly
Flood Water Storage Areas Natural Resources Wales	August 2017	Quarterly
Flood Defences Natural Resources Wales	August 2017	Quarterly
OS Water Network Lines Ordnance Survey	July 2017	6 Weekly
Surface Water 1 in 30 year Flood Extent Natural Resources Wales	October 2013	As notified
Surface Water 1 in 100 year Flood Extent Natural Resources Wales	October 2013	As notified
Surface Water 1 in 1000 year Flood Extent Natural Resources Wales	October 2013	As notified
Surface Water Suitability Natural Resources Wales	October 2013	As notified
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	Annually

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites		
Natural Resources Wales	July 2017	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Welsh Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency Wales - North Area	July 2017	Quarterly
Natural Resources Wales	July 2017	Quarterly
Licensed Waste Management Facilities (Locations)		
Natural Resources Wales	August 2017	Quarterly
Environment Agency Wales - North Area	July 2017	Quarterly
Local Authority Landfill Coverage		
Conwy County Borough Council - Environmental Health Department	May 2000	Not Applicable
Denbighshire County Council - Environmental Health Department	May 2000	Not Applicable
Flintshire Council - Environmental Health Department	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
Conwy County Borough Council - Environmental Health Department	July 2003	Not Applicable
Denbighshire County Council - Environmental Health Department	May 2000	Not Applicable
Flintshire Council - Environmental Health Department	May 2000	Not Applicable
Potentially Infilled Land (Non-Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Registered Landfill Sites		
Environment Agency Wales - North Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency Wales - North Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency Wales - North Area	March 2003	Not Applicable
Hazardous Substances	**Version**	**Update Cycle**
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	September 2017	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
Conwy County Borough Council - Planning Department	February 2016	Annual Rolling Update
Denbighshire County Council - Planning Department	February 2016	Annual Rolling Update
Flintshire Council	January 2016	Annual Rolling Update
Planning Hazardous Substance Consents		
Conwy County Borough Council - Planning Department	February 2016	Annual Rolling Update
Denbighshire County Council - Planning Department	February 2016	Annual Rolling Update
Flintshire Council	January 2016	Annual Rolling Update

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	October 2015	As notified
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	November 2017	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	As notified
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	June 2015	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	As notified
Industrial Land Use	**Version**	**Update Cycle**
Contemporary Trade Directory Entries Thomson Directories	September 2017	Quarterly
Fuel Station Entries Catalist Ltd - Experian	August 2017	Quarterly
Gas Pipelines National Grid	July 2014	Quarterly
Points of Interest - Commercial Services PointX	September 2017	Quarterly
Points of Interest - Education and Health PointX	September 2017	Quarterly
Points of Interest - Manufacturing and Production PointX	September 2017	Quarterly
Points of Interest - Public Infrastructure PointX	September 2017	Quarterly
Points of Interest - Recreational and Environmental PointX	September 2017	Quarterly
Underground Electrical Cables National Grid	December 2015	Bi-Annually

Sensitive Land Use	Version	Update Cycle
Ancient Woodland		
Natural Resources Wales	May 2017	Bi-Annually
Areas of Outstanding Natural Beauty		
Natural Resources Wales	August 2017	Bi-Annually
Environmentally Sensitive Areas		
The National Assembly for Wales - GI Services (Department of Planning & Countryside)	January 2017	Annually
Forest Parks		
Forestry Commission	April 1997	Not Applicable
Local Nature Reserves		
Conwy County Borough Council	August 2017	Bi-Annually
Denbighshire County Council	August 2017	Bi-Annually
Flintshire Council	August 2017	Bi-Annually
Marine Nature Reserves		
Natural Resources Wales	August 2017	Bi-Annually
National Nature Reserves		
Natural Resources Wales	August 2017	Bi-Annually
National Parks		
Natural Resources Wales	August 2017	Annually
Nitrate Vulnerable Zones		
Natural Resources Wales	June 2017	Bi-Annually
The National Assembly for Wales - GI Services (Department of Planning & Countryside)	October 2005	
Ramsar Sites		
Natural Resources Wales	August 2017	Bi-Annually
Sites of Special Scientific Interest		
Natural Resources Wales	August 2017	Bi-Annually
Special Areas of Conservation		
Natural Resources Wales	August 2017	Bi-Annually
Special Protection Areas		
Natural England	August 2017	Bi-Annually
Natural Resources Wales	August 2017	Bi-Annually

Data Suppliers

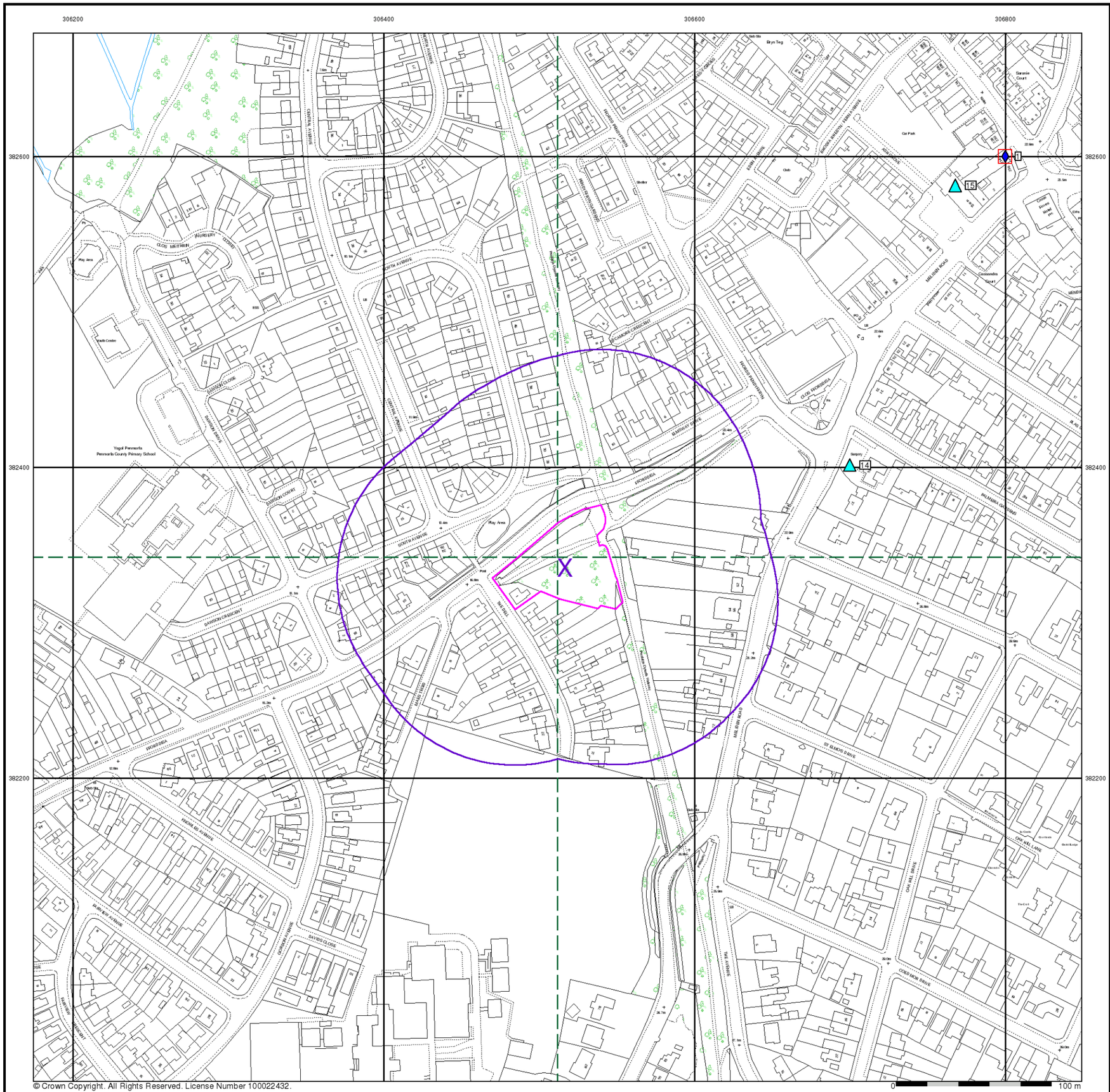
A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Peter Brett Associates	

Useful Contacts

Contact	Name and Address	Contact Details
1	**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
2	**Natural Resources Wales** Ty Cambria, 29 Newport Road, Cardiff, CF24 0TP	Telephone: 0300 065 3000 Email: enquiries@naturalresourceswales.gov.uk
3	**Denbighshire County Council - Environmental Health Department** Caledfryn, Smithfield, Denbigh, Denbighshire, LL16 3RJ	Telephone: 01824 706000 Fax: 01824 705026 Website: www.denbighshire.gov.uk
4	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
5	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 023 8079 2000 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
6	**Flintshire Council - Environmental Health Department** County Hall, Mold, Flintshire, CH7 6NF	Telephone: 01352 703413 Fax: 01352 703441 Website: www.flintshire.gov.uk
7	**Peter Brett Associates** Caversham Bridge House, Waterman Place, Reading, Berkshire, RG1 8DN	Telephone: 0118 950 0761 Fax: 0118 959 7498 Email: reading@pba.co.uk Website: www.pba.co.uk
8	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
9	**The National Assembly for Wales - GI Services (Department of Planning & Countryside)** Yr Hen Ysgol Gymraeg, Alexandria Road, Aberystwyth, Ceredigion, SY23 1LD	Telephone: 02920 825111 Website: www.wales.gov.uk
10	**Denbighshire County Council** Council Offices, Wynnstay Road, Ruthin, Clwyd, LL15 1YN	Telephone: 01824 706000 Fax: 01824 705026 Website: www.denbighshire.gov.uk
11	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

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



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LANDMARK INFORMATION GROUP®

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
- 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

Hazardous Substances

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

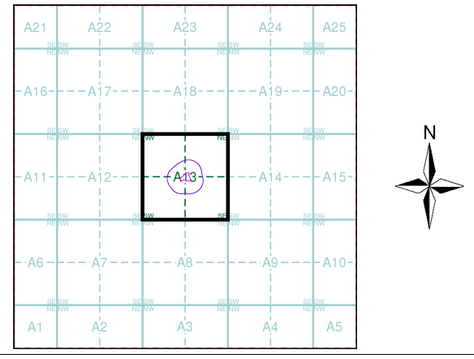
Geological

- BGS Recorded Mineral Site

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
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- 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

Site Sensitivity Map - Segment A13



Order Details

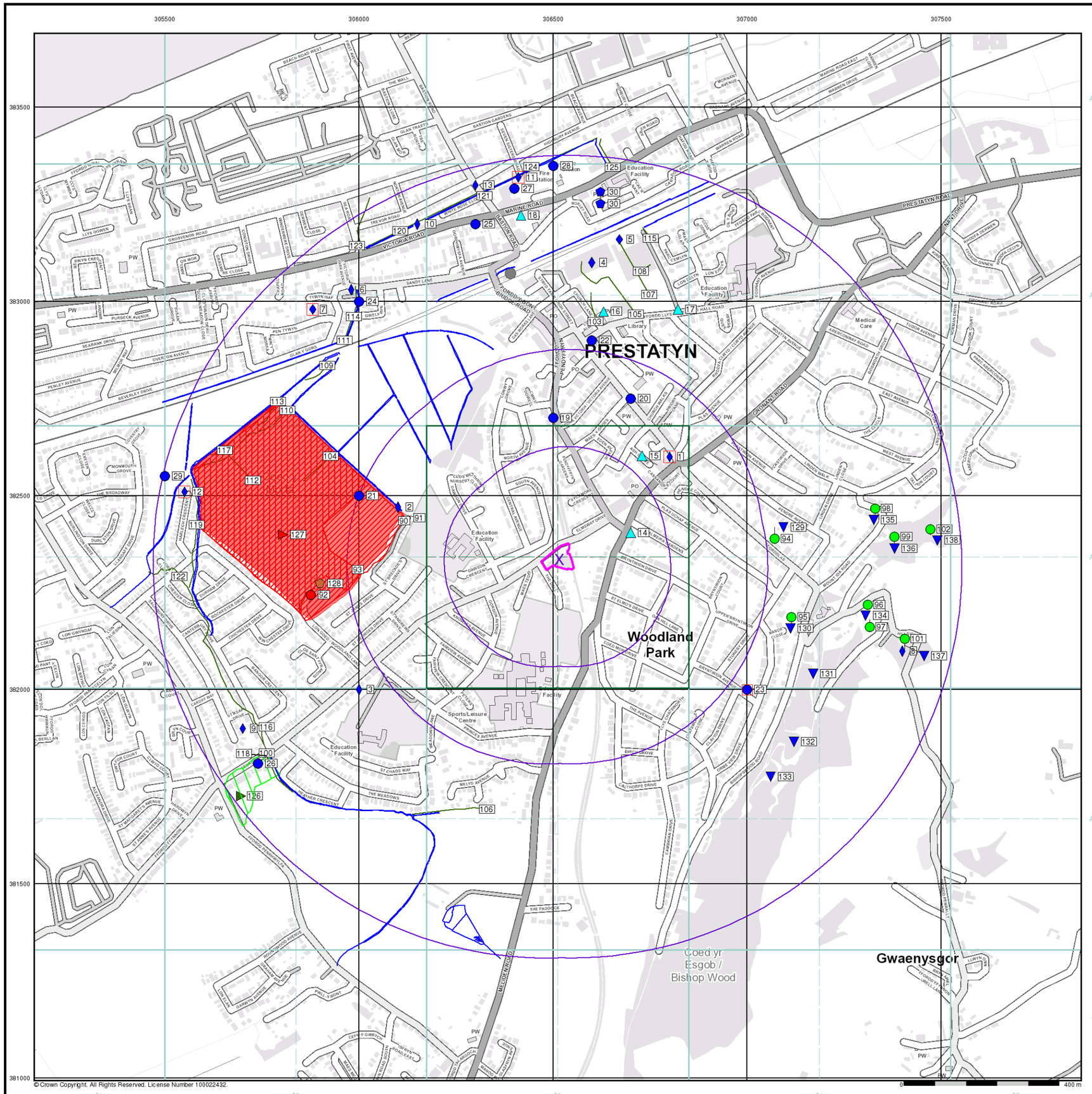
Order Number:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Plot Buffer (m):	100

Site Details

Site at 306520, 382340

Landmark INFORMATION GROUP

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



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LANDMARK INFORMATION GROUP®

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)
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- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
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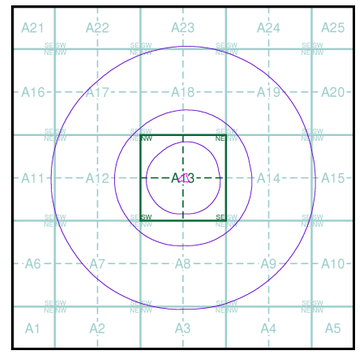
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Slice A



Order Details

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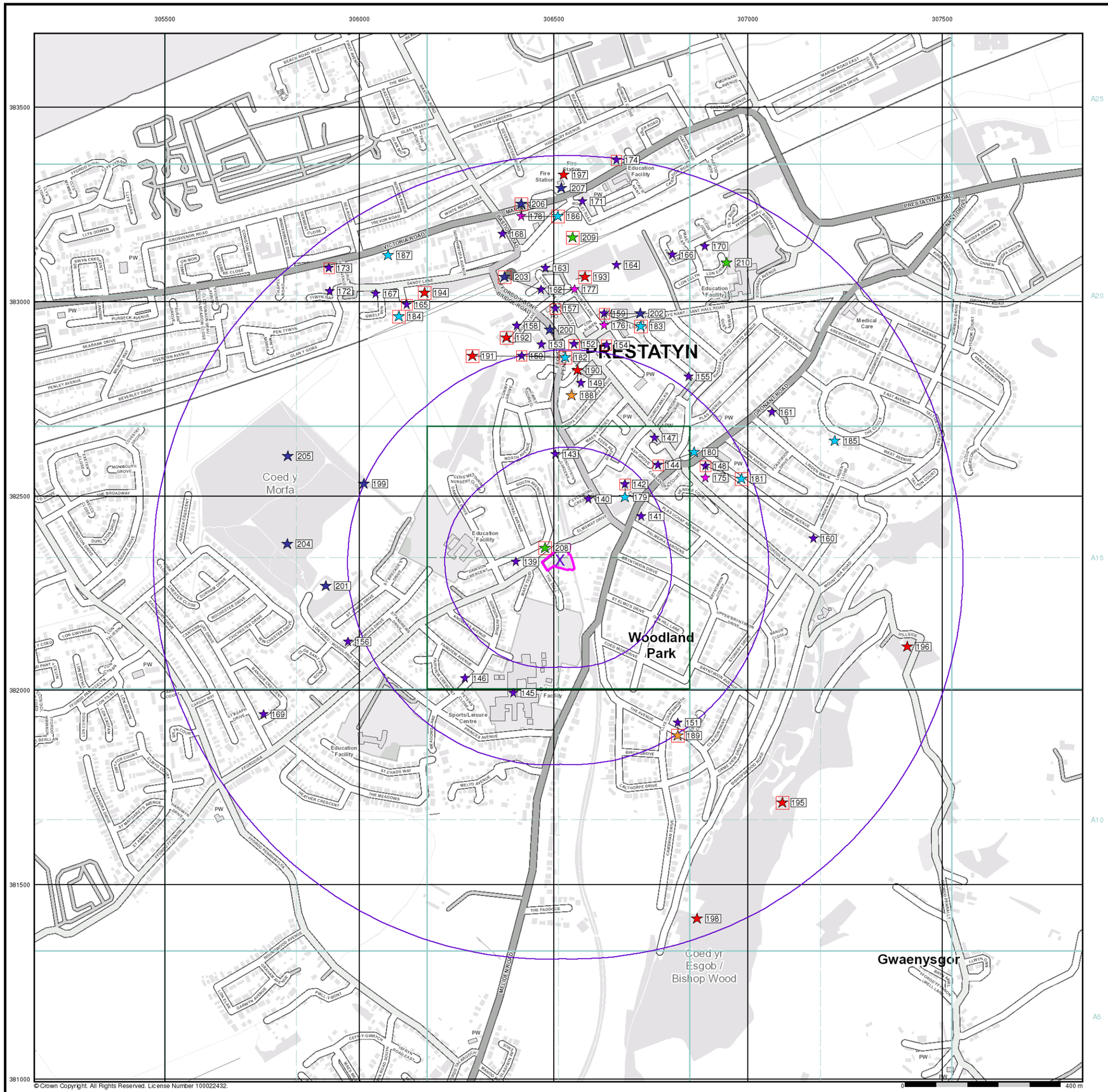
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	1000

Site Details

Site at 306520, 382340

Landmark INFORMATION GROUP

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



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Industrial Land Use Map

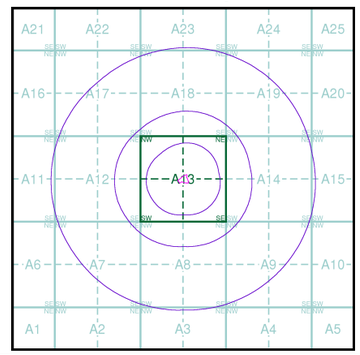
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- Points of Interest - Commercial Services
- Points of Interest - Education and Health
- Points of Interest - Manufacturing and Production
- Points of Interest - Public Infrastructure
- Points of Interest - Recreational and Environmental
- Underground Electrical Cables

Industrial Land Use Map - Slice A



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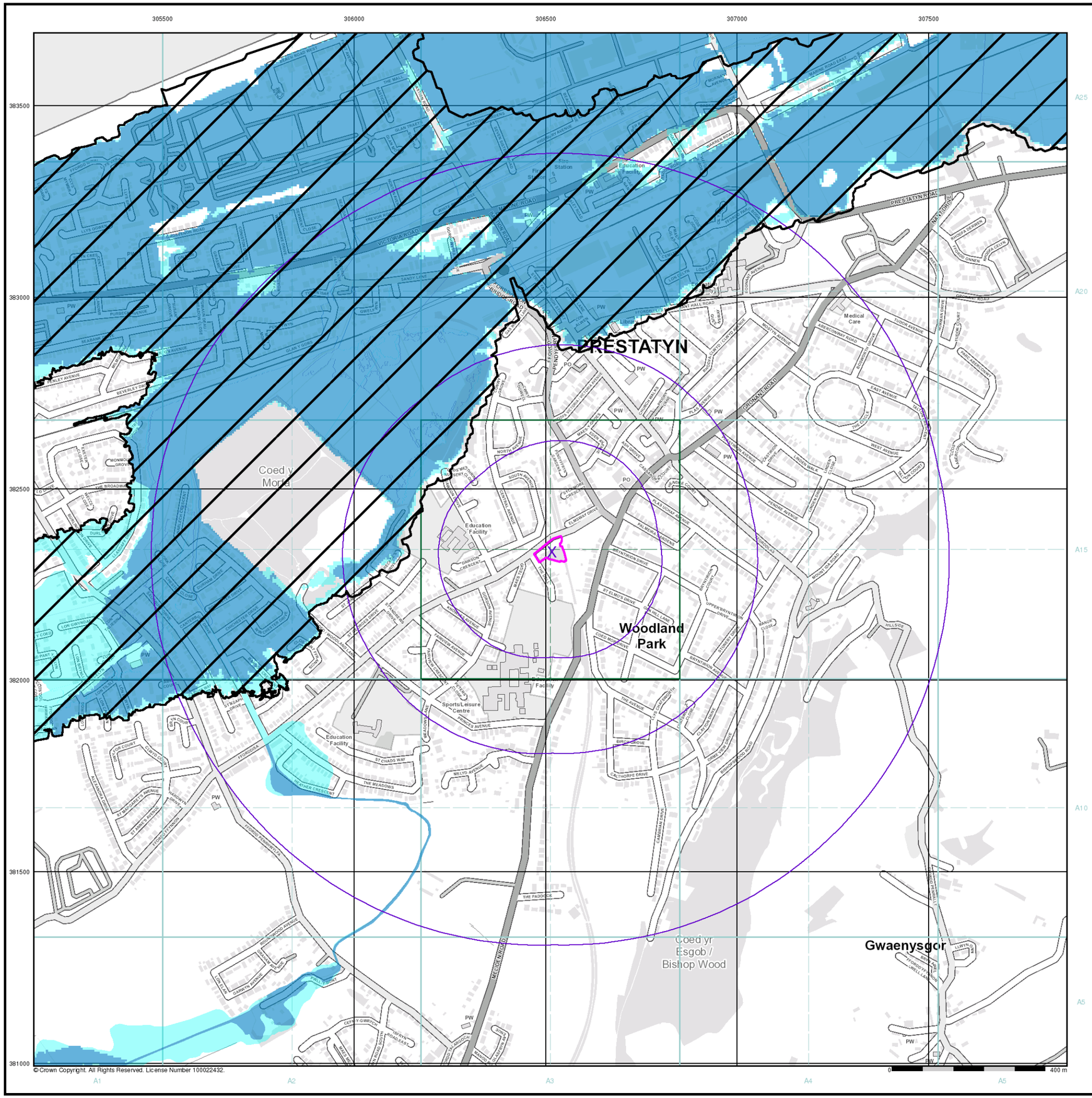

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LANDMARK INFORMATION GROUP®

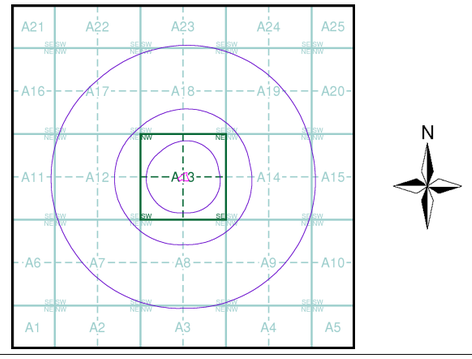
General

- 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:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	1000

Site Details

Site at 306520, 382340

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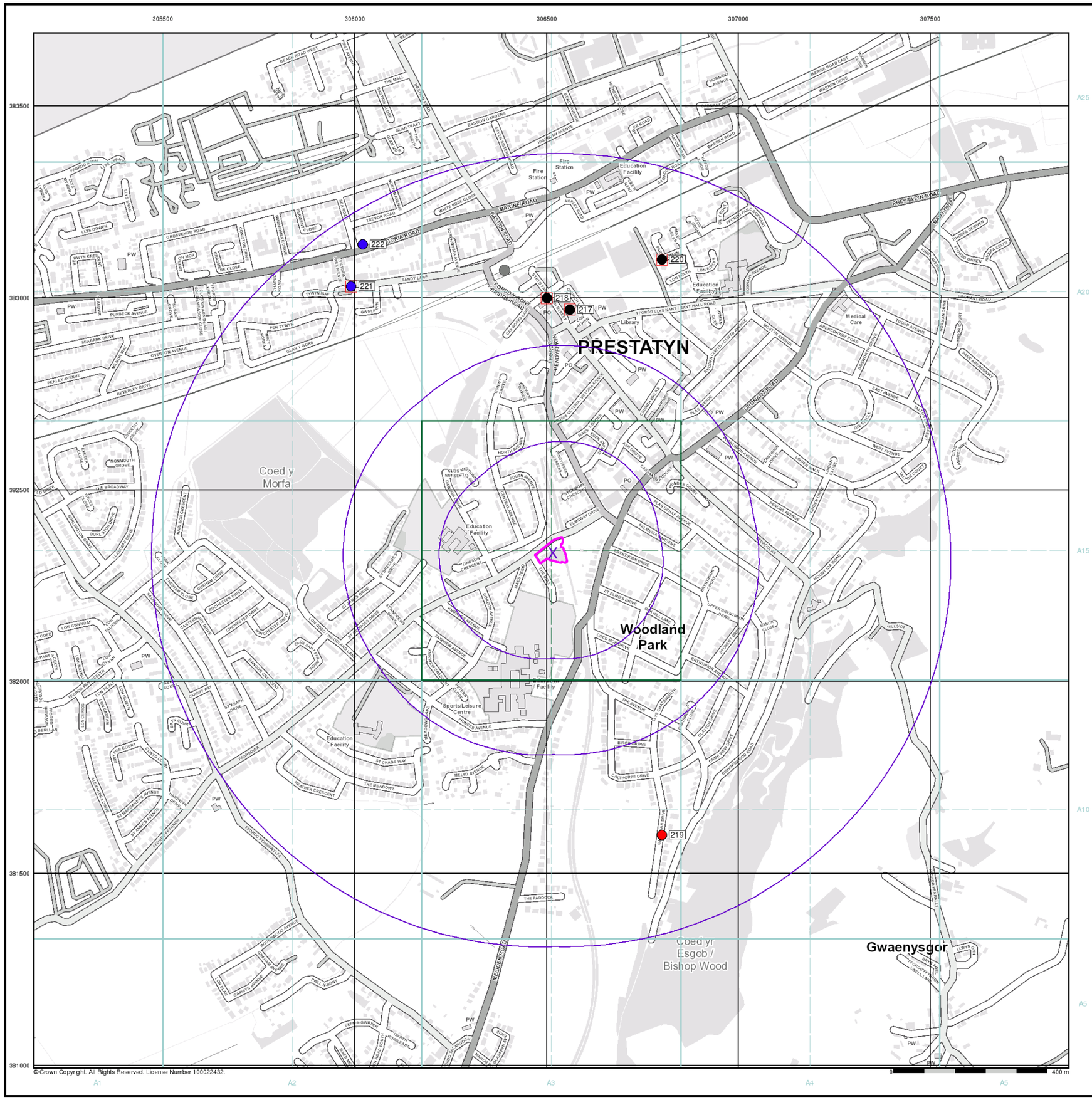

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LANDMARK INFORMATION GROUP®

General

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

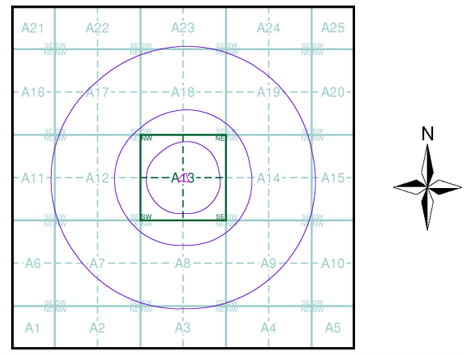
Agency and Hydrological (Boreholes)

- 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

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Site Area (Ha):	0.33
Search Buffer (m):	1000

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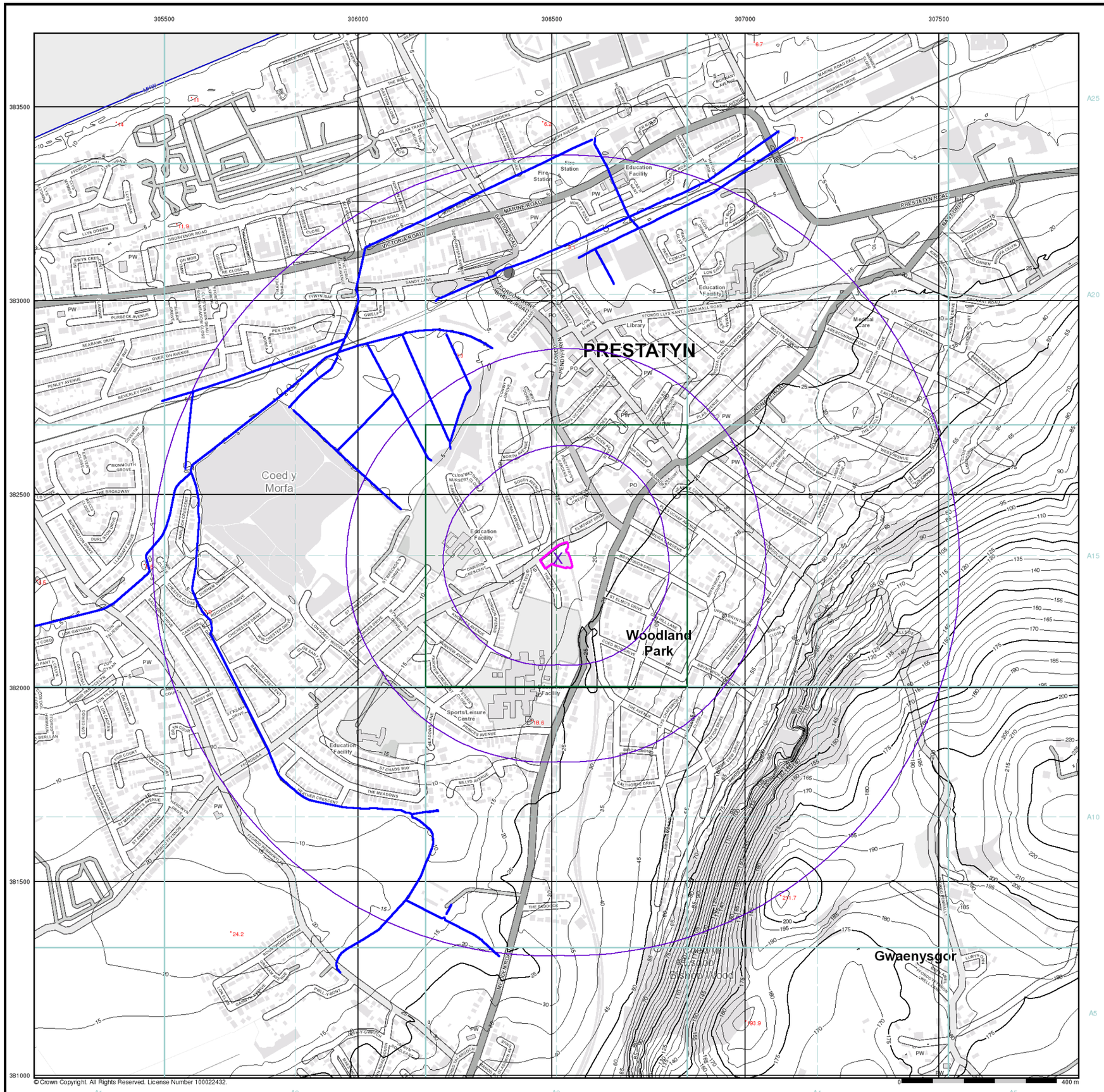

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LANDMARK INFORMATION GROUP®

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

OS Water Network Data

- Canal
- Reservoir
- Foreshore
- Marsh
- Tidal River
- Inland River
- Drain
- Other
- Lake
- Transfer
- Lock Or Flight Of Locks
- Sea

Contours (height in meters)

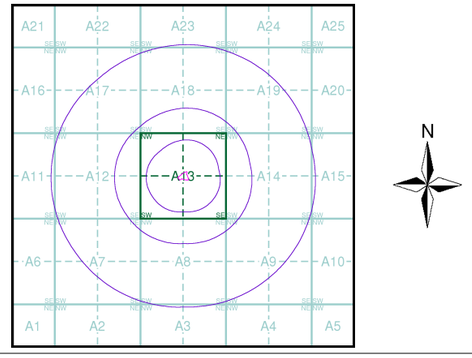
Standard Contour

Master Contour

Spot Height 167.3

- MLW Mean Low Water
- MHW Mean High Water

OS Water Network Map - Slice A



Order Details

Order Number:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	1000

Site Details

Site at 306520, 382340

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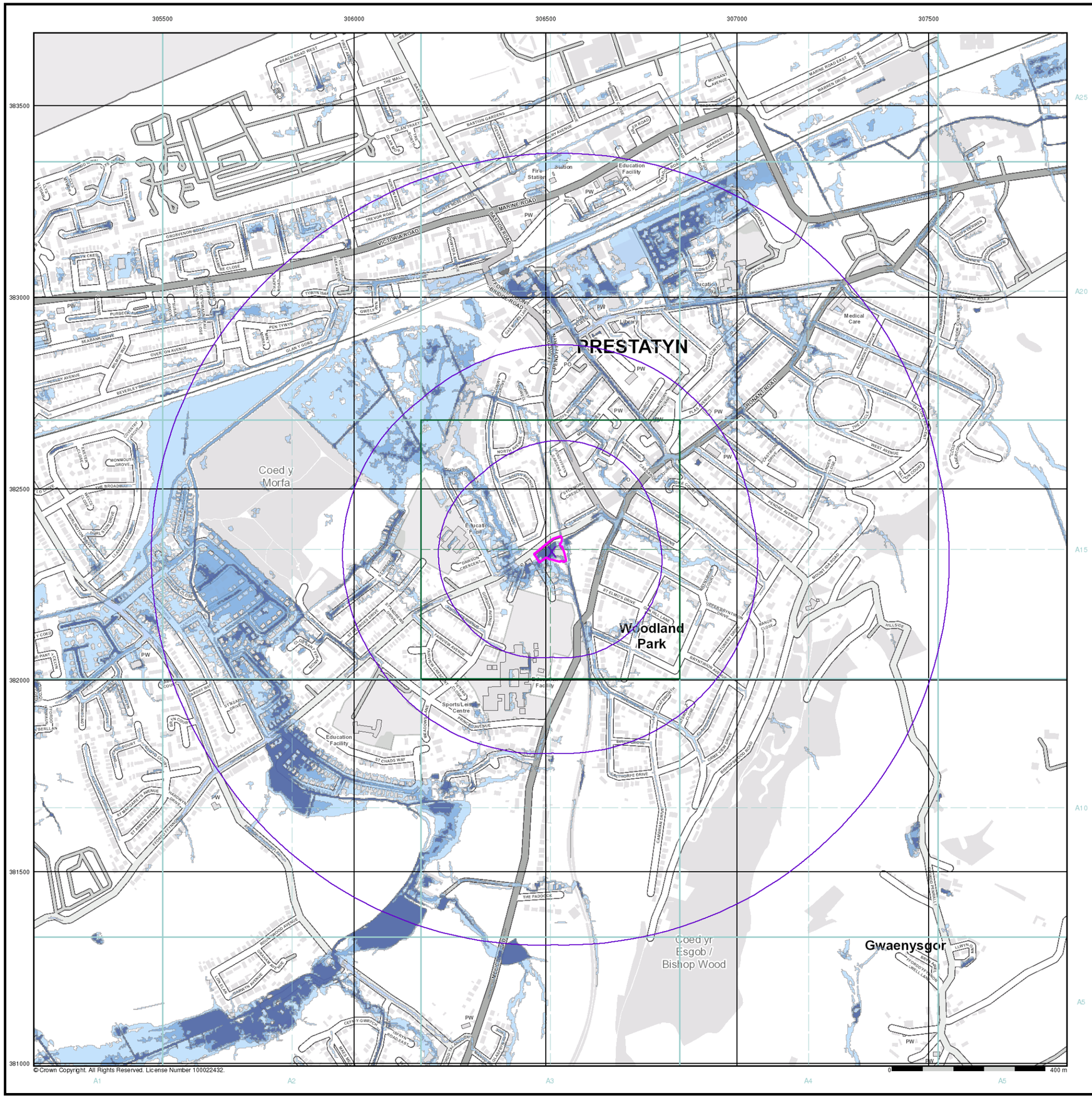

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LANDMARK INFORMATION GROUP®

General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

Risk of Flooding from Surface Water

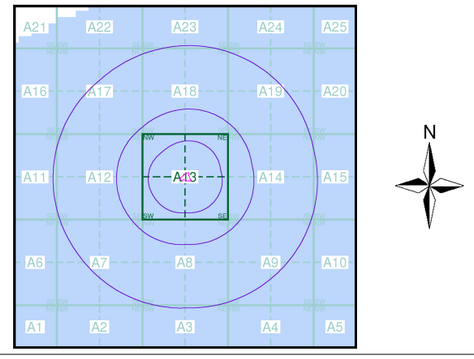
- High - 30 Year Return
- Medium - 100 Year Return
- Low - 1000 Year Return

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



Order Details

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Customer Ref:	R2485
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Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	1000

Site Details

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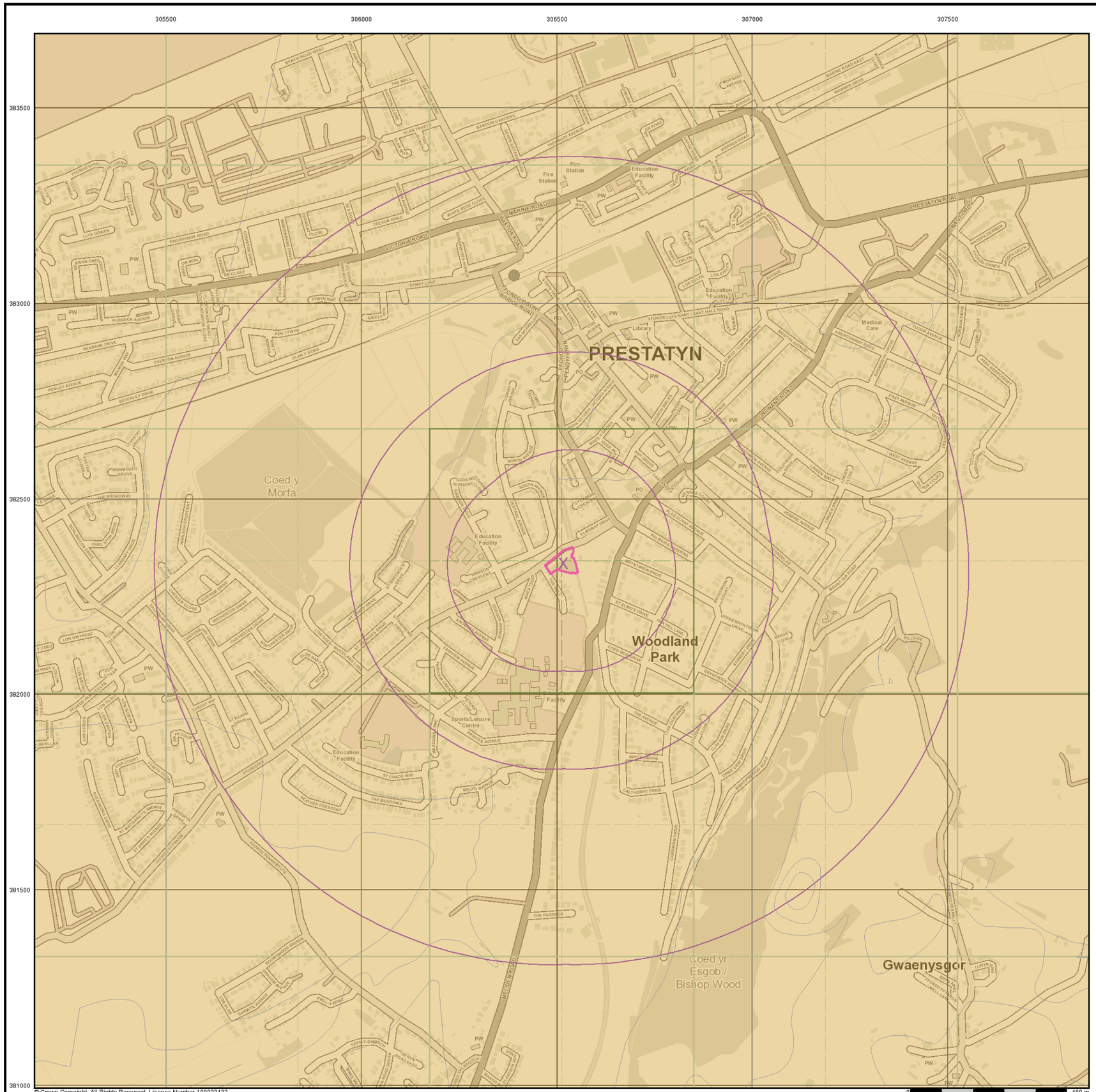


Envirocheck®

LANDMARK INFORMATION GROUP®

General

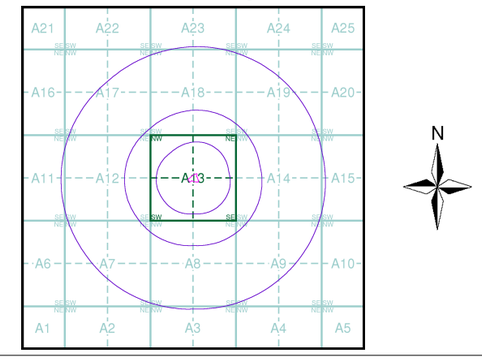
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Arsenic

Arsenic Concentrations mg/kg

- < 15
- 15 - 25
- 25 - 35
- 35 - 45
- 45 - 60
- 60 - 120
- > 120

Estimated Soil Chemistry Arsenic - Slice A



Order Details

Order Details:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	1000

Site Details

Site at 306520, 382340

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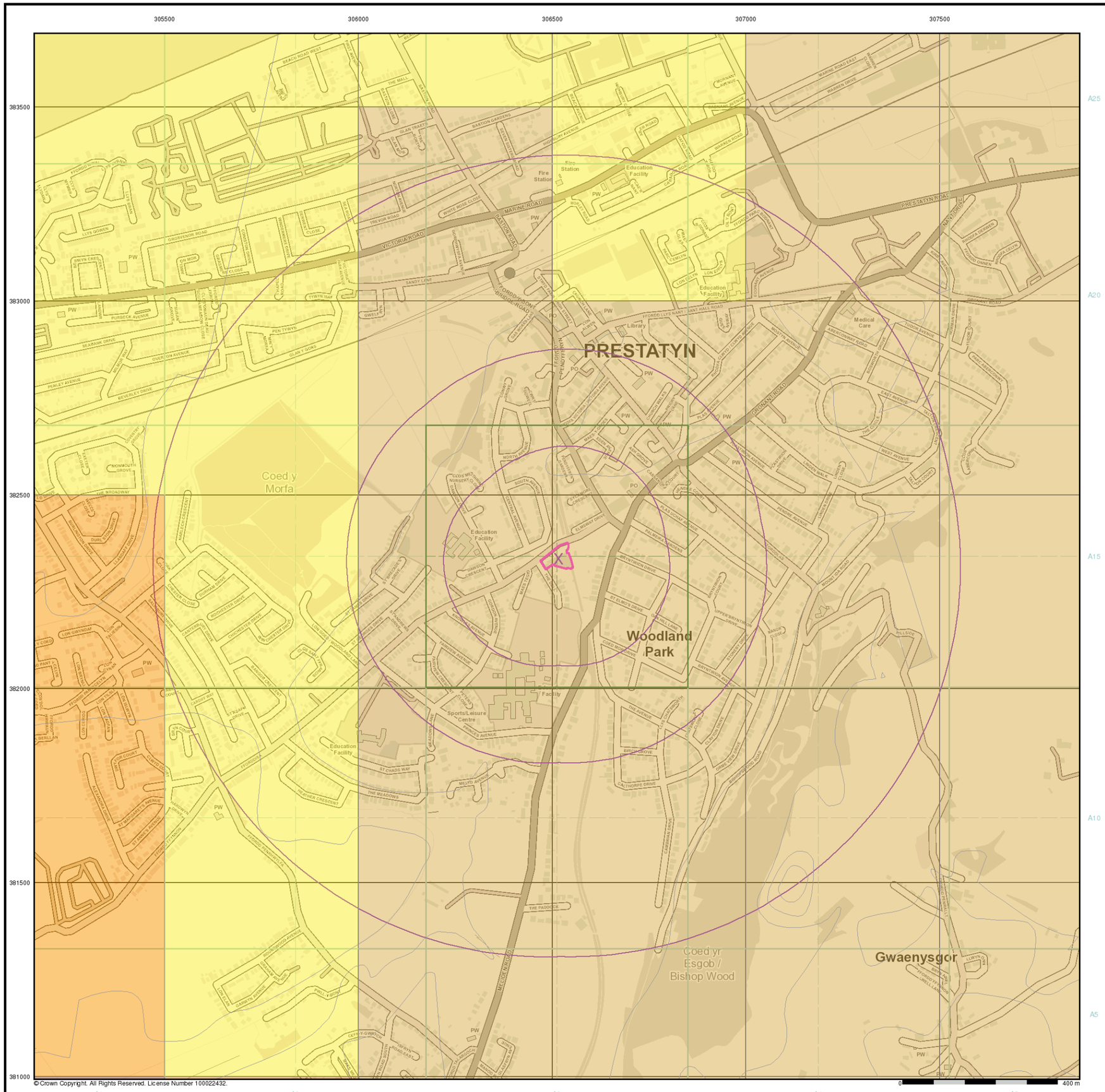
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Envirocheck®

LANDMARK INFORMATION GROUP®

General

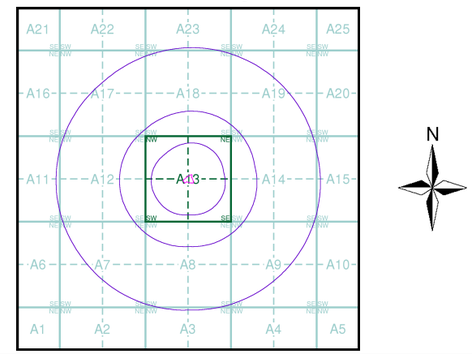
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg

- < 1.8
- 1.8 - 2.2
- 2.2 - 3.0
- > 3.0

Estimated Soil Chemistry Cadmium - Slice A



Order Details

Order Details:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
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Site Details

Site at 306520, 382340

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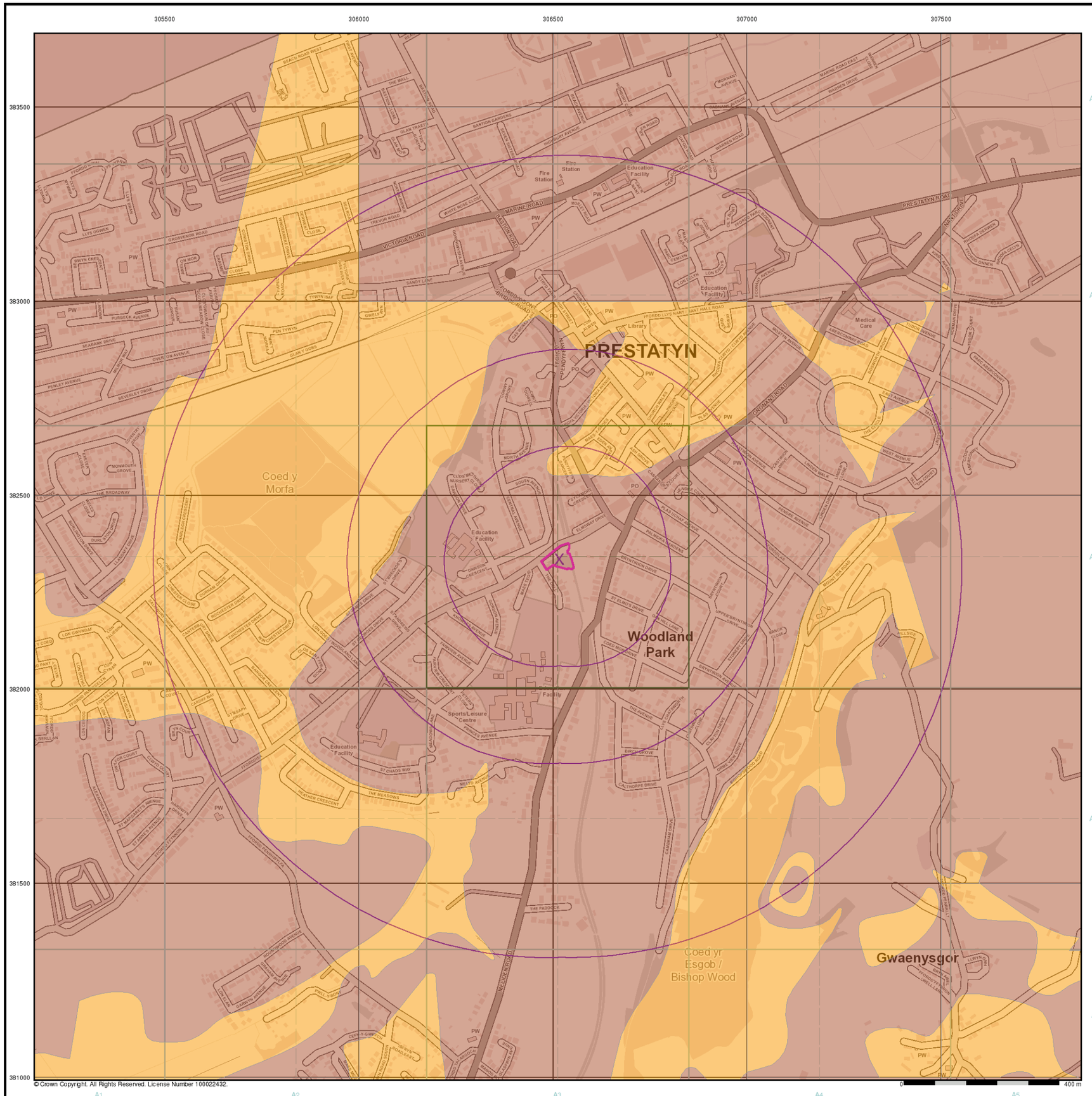


Envirocheck®

LANDMARK INFORMATION GROUP®

General

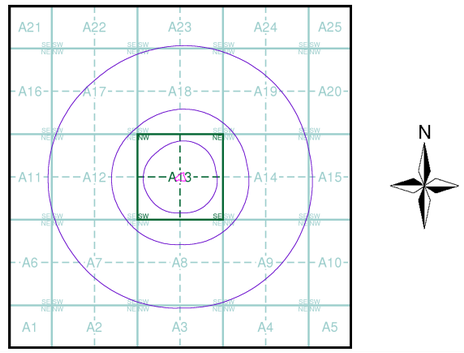
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Chromium

Chromium Concentrations mg/kg

- < 20
- 20 - 40
- 40 - 60
- 60 - 90
- 90 - 120
- 120 - 180
- > 180

Estimated Soil Chemistry Chromium - Slice A



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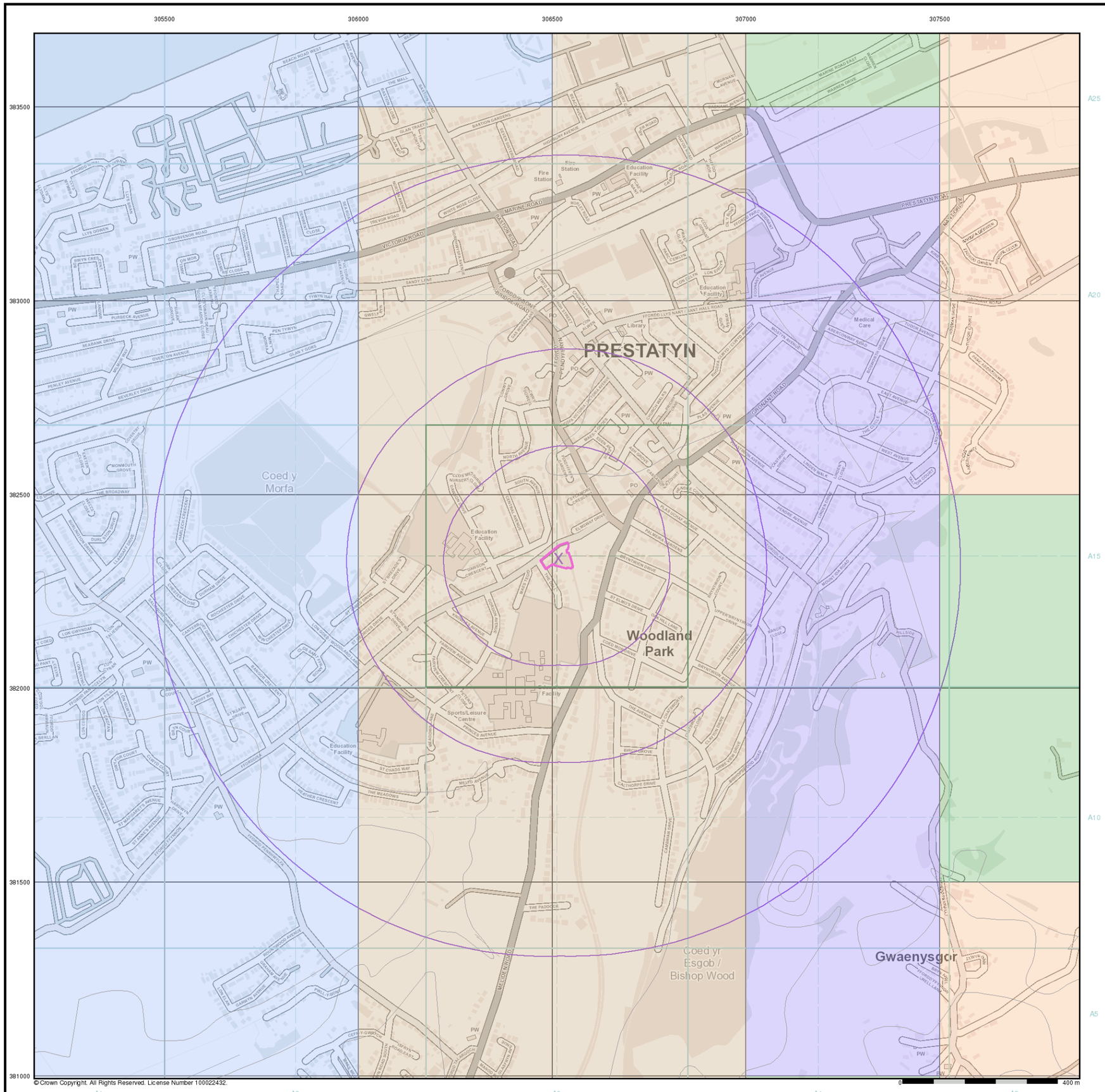
Site Details

Site at 306520, 382340

Landmark INFORMATION GROUP

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



Envirocheck®

LANDMARK INFORMATION GROUP®

General

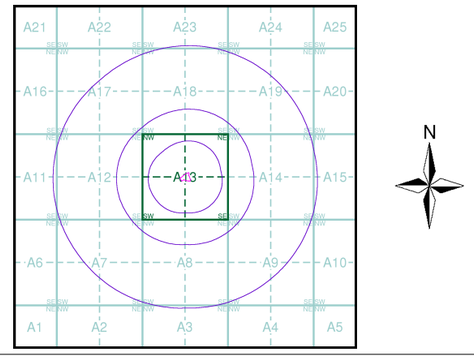
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg

- <100 mg/kg
- 100 - 200
- 200 - 300
- 300 - 600
- 600 - 1200
- >1200

Estimated Soil Chemistry Lead - Slice A



Order Details

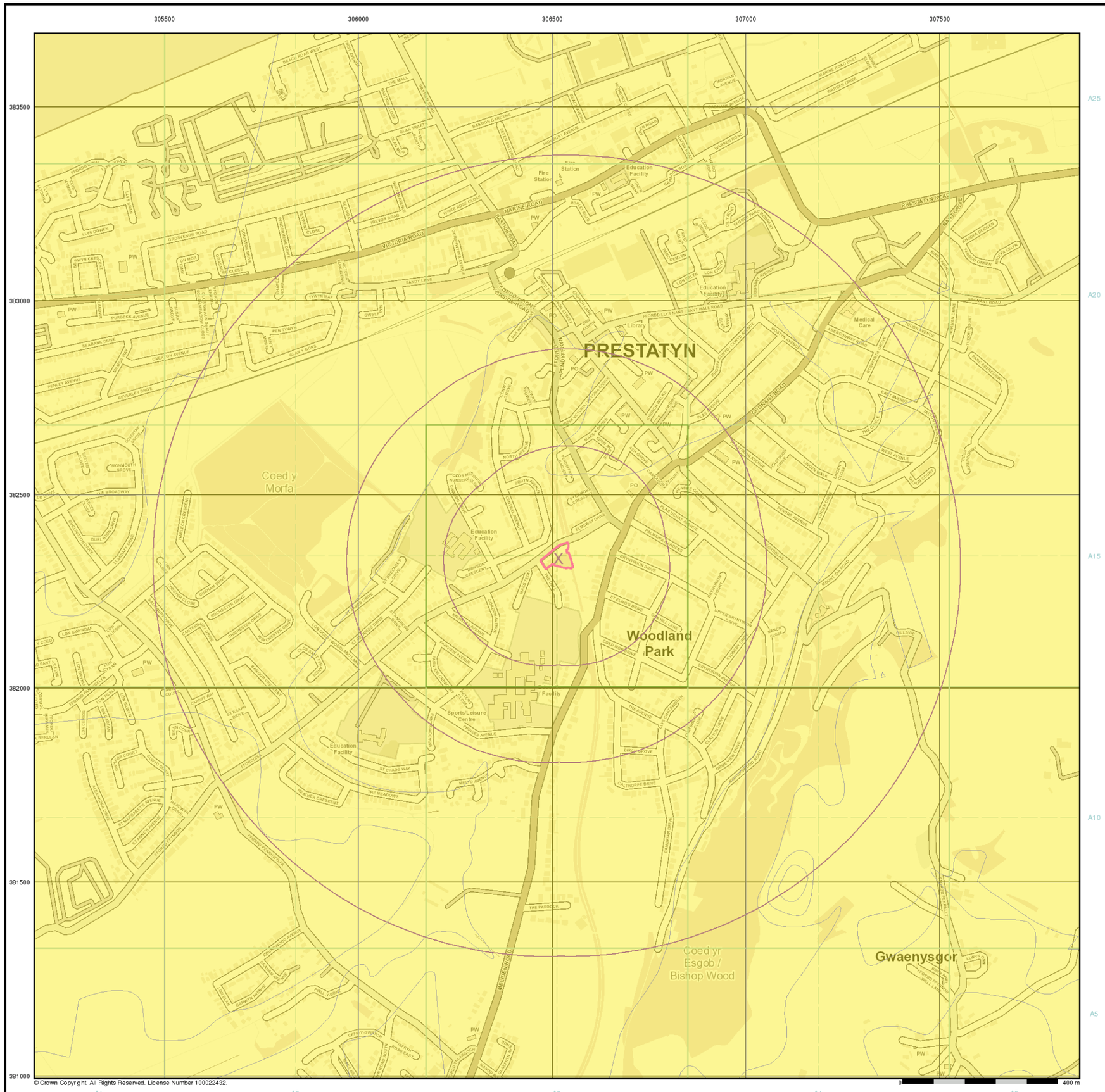
Order Details:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	1000

Site Details

Site at 306520, 382340

Landmark INFORMATION GROUP

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



Envirocheck®

LANDMARK INFORMATION GROUP®

General

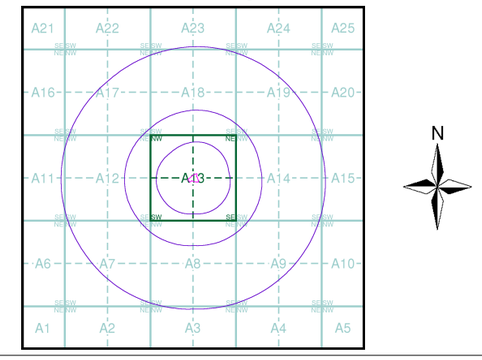
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg

- < 15
- 15 - 30
- 30 - 45
- 45 - 60
- 60 - 80
- 80 - 100
- > 100

Estimated Soil Chemistry Nickel - Slice A



Order Details

Order Details:	145587949_1_1
Customer Ref:	R2485
National Grid Reference:	306520, 382340
Slice:	A
Site Area (Ha):	0.33
Search Buffer (m):	1000

Site Details

Site at 306520, 382340

Landmark INFORMATION GROUP

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

APPENDIX C

Coal Authority Report

The Coal Authority

Resolving the impacts of mining

CON29M Non-Residential Mining Report

SITE AT 306520, 382340
FLINTSHIRE

Date of enquiry:	10 November 2017
Date enquiry received:	10 November 2017
Issue date:	10 November 2017
Our reference:	51001687920001
Your reference:	145587949_2|

CON29M Non-Residential Mining Report

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.

Client name

LANDMARK INFORMATION GROUP LIMITED

Enquiry address

SITE AT 306520, 382340, FLINTSHIRE

Approximate position of property

How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

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

Summary

Has the search report highlighted evidence or potential of		
1	Past underground coal mining	No
2	Present underground coal mining	No
3	Future underground coal mining	No
4	Mine entries	No
5	Coal mining geology	No
6	Past opencast coal mining	No
7	Present opencast coal mining	No
8	Future opencast coal mining	No
9	Coal mining subsidence	No
10	Mine gas	No
11	Hazards related to coal mining	No
12	Withdrawal of support	No
13	Working facilities order	No
14	Payments to owners of former copyhold land	No
15	Information from the Cheshire Brine Subsidence Compensation Board	No

For detailed findings, please go to page 4.

Detailed findings

1. Past underground coal mining

The property is not within a surface area that could be affected by past underground mining.

2. Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3. Future underground coal mining

The property is not in an area where the Coal Authority has plans to grant a licence to remove coal using underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

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

4. Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

5. Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

6. Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

7. Present opencast coal mining
The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8. Future opencast coal mining
There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

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.

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

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

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

10. Mine gas
The Coal Authority has no record of a mine gas emission requiring action.

11. 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.

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

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

13. Working facilities order
The property is not in an area where 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.

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

15. Information from the Cheshire Brine Subsidence Compensation Board
The property lies outside the Cheshire Brine Compensation District.

Additional remarks

Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. 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 applicable at the time the report was produced.

Disclaimer

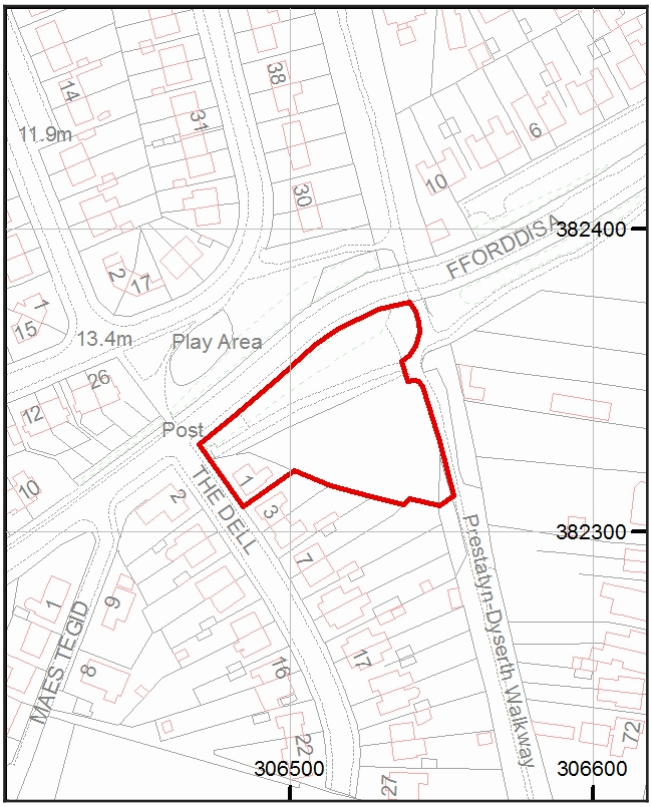
Alternative formats

If you would like this report in an alternative format, please contact our communications team.

Enquiry boundary

Key

Approximate position of enquiry boundary shown



Map data

How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

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

APPENDIX D

Site Investigation Logs and Photographs

Geo-Ventures (UK) Limited
Geotechnical and Environmental Services

Site	Borehole Number
The Dell, Prestatyn	BH 1

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	150mm cased to 6.00m			17-1616

Location	Dates	Engineer	Sheet
	29/11/2017	Smith Grant LLP	1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20	DD					(1.50)	MADE GROUND : brown soil, ash, gravel and medium sand fill with occasional fine / medium angular gravel and occasional wood			
1.00	DD									
1.50-1.95	SPT(C) N=10			1,2/3,2,3,2		1.50				
1.50-1.95	D					(0.50)	MADE GROUND : loose brown claybound gravelly medium sand fill		▼1	
2.00	DD					2.00	Stiff reddish brown CLAY			
						(1.00)				
3.00-3.45	DD			Steady(1) at 3.00m, rose to 1.70m in 20 mins.		3.00	Medium dense reddish brown very clayey SAND		▽1	
3.00-3.45	SPT N=17			2,2/3,4,5,5						
4.00	D					(2.00)				
4.50-4.95	SPT N=20			3,4/4,5,6,5						
4.50-4.95	D									
5.00	DD					5.00	Soft / firm reddish brown sandy CLAY			
						(0.50)				
5.50	DD					5.50	Very dense brown slightly gravelly medium to coarse SAND			
6.00-6.44	SPT 50/290			2,3/4,9,16,21		(0.95)				
6.00-6.44	D					6.45	Complete at 6.45m			

Remarks
Services pit excavated by hand to 1.20m
Water added to borehole to assist drilling

Scale (approx)	Logged By
1:50	Dr J Crook

Figure No.
17-1616.BH 1

Geo-Ventures (UK) Limited
Geotechnical and Environmental Services

Site	Borehole Number
The Dell, Prestatyn	BH 2

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	150mm cased to 10.00m			17-1616
	Location	**Dates** 01/12/2017	**Engineer** Smith Grant LLP	**Sheet** 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.50	DD						MADE GROUND : blackish brown slightly gravelly clay fill. Gravel is angular brick.		
1.00	D					(2.30)			
1.50-1.95 1.50-1.95	SPT(C) N=11 DD			2,3/2,2,3,4					
2.30	DD					2.30			
						(0.70)	MADE GROUND : firm reddish brown mottled black and blusih greyslightly gravelly clauy sandy CLAY (Made Ground?)		
3.00-3.45 3.00-3.45 3.30	SPT N=12 DD DD			1,2/2,3,3,4		3.00 (0.30) 3.30	Soft / firm brown slightly sandy CLAY with occasional fine to medium gravel		▼1
4.00	D			Steady(1) at 4.00m, rose to 3.10m in 20 mins.		(2.20)	Medium dense reddish brown slightly silty fine SAND		▽1
4.50-4.95 4.50-4.75	SPT N=11 DD			2,2/3,2,3,3					
5.50	DD					5.50 (0.50)	Firm / stiff brown slightly sandy CLAY		
6.00-6.45 6.00-6.45	SPT N=27 D			3,4/6,6,7,8		6.00	Medium dense brown silty fine SAND		
7.00	DD					(1.40)			
7.50-7.85 7.50-7.95	SPT 50/200 D			2,12/18,16,16		7.40	Very dense brown silty fine SAND with very occasional fine sub-rounded gravel		
8.00	D					(2.60)			
9.00-9.34 9.00-9.45	SPT 50/190 D			4,10/17,19,14					
10.00	D					10.00			

Remarks
Services pit excavated by hand to 1.20m
Water added to borehole to assist drilling

Scale (approx)	Logged By
1:50	Dr J Crook

Figure No. 17-1616.BH 2

Geo-Ventures (UK) Limited
Geotechnical and Environmental Services

Site	Borehole Number
The Dell, Prestatyn	BH 3

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	150mm cased to 6.00m			17-1616
	Location	**Dates** 06/12/2017	**Engineer** Smith Grant LLP	**Sheet** 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						(0.40)	Brown TOPSOIL with rootlets		
0.20	DD					0.40			
0.40	DD					(0.50)	Brown fine SAND (dessicated)		
						0.90			
1.00	DD					(0.70)	Brown claybound fine / medium SAND and fine sub-rounded GRAVEL		
1.50-1.95	SPT(C) N=18			3,4/3,4,5,6		1.60			
1.50-1.95	D						Stiff reddish brown CLAY		
1.70	DD								
2.00	D					(1.30)			
						2.90			
3.00-3.45	SPT N=12			1,2/2,3,3,4			Medium dense brown fine / medium SAND with occasional fine sub-rounded gravel		
3.00-3.45	DD								
4.00	D								
						(3.10)			
4.50-4.95	SPT N=16			2,3/2,4,5,5					
4.50-4.95	D								
5.00	D								
						6.00			
6.00-6.44	SPT 18/290			2,3/4,4,5,5		(0.45)	Medium dense brown medium / coarse SAND and fine / medium sub-rounded GRAVEL		
6.00-6.45	DD					6.45			
							Complete at 6.45m		

Remarks
Services pit excavated by hand to 1.20m
Water added to borehole to assist drilling

Scale (approx)	Logged By
1:50	Dr J Crook

Figure No. 17-1616.BH 3

Geo-Ventures (UK) Limited
Geotechnical and Environmental Services

Site	Borehole Number
The Dell, Prestatyn	BH 4

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	150mm cased to 6.00m			17-1616
	Location	**Dates** 04/12/2017	**Engineer** Smith Grant LLP	**Sheet** 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	DD					(1.60)	MADE GROUND : dark brown slightly gravelly sandy clay fill		
1.00	D								
1.50-1.95	SPT(C) N=6			2,1/1,2,1,2		1.60			
1.50-1.95	D						MADE GROUND : loose light brown locally mottled blackish brown very clayey SAND and GRAVEL		
1.60	DD								
2.00	D					(1.40)			
3.00-3.45	SPT N=12			1,2/2,3,3,4		3.00			
3.00-3.45	DD						Medium dense becoming very dense reddish brown slightly gravelly becoming gravelly SAND		
4.00	D								
4.50-4.95	SPT N=12			2,3/2,3,3,4		(3.45)			
4.50-4.95	D								
5.00	D								
6.00-6.44	SPT 16/290			2,2/3,4,4,5		6.45			
6.00-6.45	DD						Complete at 6.45m		

Remarks
Water added to borehole to assist drilling
Services pit excavated by hand to 1.20m

Scale (approx)	Logged By
1:50	Dr J Crook

Figure No. 17-1616.BH 4

Geo-Ventures (UK) Limited
Geotechnical and Environmental Services

Site	Borehole Number
The Dell, Prestatyn	BH 5

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	150mm cased to 6.00m			17-1616

Location	Dates	Engineer	Sheet
	06/12/2017	Smith Grant LLP	1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20	DD					(0.50)	Brown slightly gravelly clayey TOPSOIL with rootlets			
0.50	DD					0.50	Brown fine SAND (dessicated)			
1.00	DD					(0.50)	Brown clayey fine SAND			
1.50-1.95	SPT(C) N=17			3,3/4,4,4,5		1.00				
1.50-1.95	D					(0.70)				
1.70	DD					1.70	Stiff brown CLAY			
2.00	D					(1.30)				
3.00-3.45	SPT N=12			2,3/2,3,3,4		3.00	Medium dense reddish brown fine SAND with occasional fine sub-rounded gravel			
3.00-3.45	DD									
4.00	D									
4.50-4.95	SPT N=18			2,3/4,4,5,5		(3.00)				
4.50-4.95	D									
5.00	D									
6.00-6.44	SPT 17/290			2,3/3,4,5,5		6.00	Very dense brown medium / coarse SAND and fine / medium sub-rounded GRAVEL			
6.00-6.45	DD					(0.45)				
						6.45	Complete at 6.45m			

Remarks
Services pit excavated by hand to 1.20m
Water added to borehole to assist drilling

Scale (approx)	Logged By
1:50	Dr J Crook

Figure No.
17-1616.BH 5

Geo-Ventures (UK) Limited
Geotechnical and Environmental Services

Site	Borehole Number
The Dell, Prestatyn	BH 6

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	150mm cased to 6.00m			17-1616

Location	Dates	Engineer	Sheet
	04/12/2017	Smith Grant LLP	1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						(0.40)	Brown TOPSOIL with rootlets			
0.20	DD					0.40				
0.40	DD						Brown slightly clayey fine SAND			
						(0.90)				
1.00	D									
1.30	DD					1.30				
1.50-1.95	SPT(C) N=11			1,2/2,2,3,4			Stiff reddish brown CLAY			
1.50-1.95	D									
2.00	D					(1.70)				
3.00-3.45	SPT N=14			2,2/3,3,3,5		3.00				
3.00-3.45	D						Medium dense reddish brown fine / medium SAND with occasional fine sub-rounded gravel			
4.00	D									
4.50-4.95	SPT N=15			2,2/3,3,4,5						
4.50-4.95	D					(3.45)				
5.00	D									
6.00-6.44	SPT 17/290			2,2/3,4,5,5						
6.00-6.45	DD									
						6.45				
							Complete at 6.45m			

Remarks
Water added to borehole to assist drilling
Services pit excavated by hand to 1.20m

Scale (approx)	Logged By
1:50	Dr J Crook

Figure No.
17-1616.BH 6

Geo-Ventures (UK) Limited
Geotechnical and Environmental Services

Standard Penetration Test Results

Site : The Dell, Prestatyn

Client :

Engineer : Smith Grant LLP

Job Number 17-1616

Sheet 1 / 1

Borehole Number	Base of Borehole (m)	End of Seating Drive (m)	End of Test Drive (m)	Test Type	Seating Blows per 75mm		Blows for each 75mm penetration				Result	Comments
					1	2	1	2	3	4		
BH 1	1.50	1.65	1.95	CPT	1	2	3	2	3	2	N=10	
BH 1	3.00	3.15	3.45	SPT	2	2	3	4	5	5	N=17	
BH 1	4.50	4.65	4.95	SPT	3	4	4	5	6	5	N=20	
BH 1	6.00	6.15	6.44	SPT	2	3	4	9	16	21	50/290mm	Refusal
BH 2	1.50	1.65	1.95	CPT	2	3	2	2	3	4	N=11	
BH 2	3.00	3.15	3.45	SPT	1	2	2	3	3	4	N=12	
BH 2	4.50	4.65	4.95	SPT	2	2	3	2	3	3	N=11	
BH 2	6.00	6.15	6.45	SPT	3	4	6	6	7	8	N=27	
BH 2	7.50	7.65	7.85	SPT	2	12	18	16	16		50/200mm	Refusal
BH 2	9.00	9.15	9.34	SPT	4	10	17	19	14		50/190mm	Refusal
BH 3	1.50	1.65	1.95	CPT	3	4	3	4	5	6	N=18	
BH 3	3.00	3.15	3.45	SPT	1	2	2	3	3	4	N=12	
BH 3	4.50	4.65	4.95	SPT	2	3	2	4	5	5	N=16	
BH 3	6.00	6.15	6.44	SPT	2	3	4	4	5	5	18/290mm	
BH 4	1.50	1.65	1.95	CPT	2	1	1	2	1	2	N=6	
BH 4	3.00	3.15	3.45	SPT	1	2	2	3	3	4	N=12	
BH 4	4.50	4.65	4.95	SPT	2	3	2	3	3	4	N=12	
BH 4	6.00	6.15	6.44	SPT	2	2	3	4	4	5	16/290mm	
BH 5	1.50	1.65	1.95	CPT	3	3	4	4	4	5	N=17	
BH 5	3.00	3.15	3.45	SPT	2	3	2	3	3	4	N=12	
BH 5	4.50	4.65	4.95	SPT	2	3	4	4	5	5	N=18	
BH 5	6.00	6.15	6.44	SPT	2	3	3	4	5	5	17/290mm	
BH 6	1.50	1.65	1.95	CPT	1	2	2	2	3	4	N=11	
BH 6	3.00	3.15	3.45	SPT	2	2	3	3	3	5	N=14	
BH 6	4.50	4.65	4.95	SPT	2	2	3	3	4	5	N=15	
BH 6	6.00	6.15	6.44	SPT	2	2	3	4	5	5	17/290mm	

Geo-Ventures (UK) Limited
Geotechnical and Environmental Services

Site	Borehole Number
The Dell, Prestatyn	BH 1

Installation Type	Dimensions	Client	Job Number
Single Installation	Internal Diameter of Tube [A] = 50 mm Diameter of Filter Zone = 150 mm		17-1616

Location	Ground Level (mOD)	Engineer	Sheet
		Smith Grant LLP	1/1

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description
				0.10	Concrete
					Bentonite Seal
				1.00	
	▼1				
	▽1				
					Well Screen
				6.00	
					Bottom Fill
				6.45	

Groundwater Strikes During Drilling

Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings 5 min	Readings 10 min	Readings 15 min	Readings 20 min	Depth Sealed (m)
29/11/17		3.00		Steady				1.70	

Groundwater Observations During Drilling

Date	Start of Shift Time	Start of Shift Depth Hole (m)	Start of Shift Casing Depth (m)	Start of Shift Water Depth (m)	Start of Shift Water Level (mOD)	End of Shift Time	End of Shift Depth Hole (m)	End of Shift Casing Depth (m)	End of Shift Water Depth (m)	End of Shift Water Level (mOD)

Instrument Groundwater Observations

Inst. [A] Type : Slotted Standpipe

Date	Instrument [A] Time	Instrument [A] Depth (m)	Instrument [A] Level (mOD)	Remarks

Remarks

Geo-Ventures (UK) Limited
Geotechnical and Environmental Services

Site	Borehole Number
The Dell, Prestatyn	BH 5

Installation Type	Dimensions	Client	Job Number
Single Installation	Internal Diameter of Tube [A] = 50 mm Diameter of Filter Zone = 150 mm		17-1616

Location	Ground Level (mOD)	Engineer	Sheet
		Smith Grant LLP	1/1

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description
				0.10	Concrete
					Bentonite Seal
				1.00	
					Well Screen
				6.00	
					Bottom Fill
				6.45	

Groundwater Strikes During Drilling

Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)
					5 min	10 min	15 min	20 min	

Groundwater Observations During Drilling

Date	Start of Shift					End of Shift				
	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)

Instrument Groundwater Observations

Inst. [A] Type : Slotted Standpipe

Date	Instrument [A]			Remarks
	Time	Depth (m)	Level (mOD)	

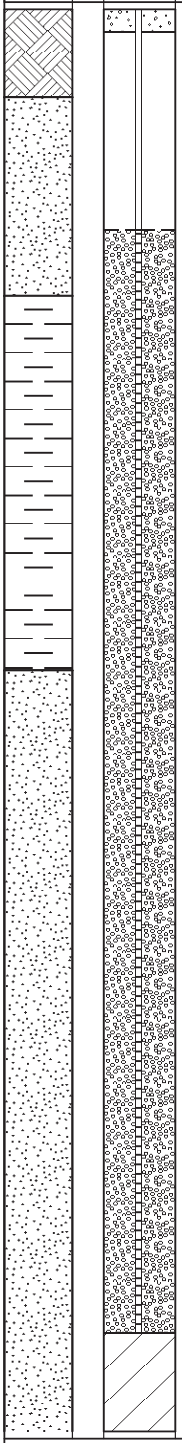
Remarks

Geo-Ventures (UK) Limited
Geotechnical and Environmental Services

Site	Borehole Number
The Dell, Prestatyn	BH 6

Installation Type	Dimensions	Client	Job Number
Single Installation	Internal Diameter of Tube [A] = 50 mm Diameter of Filter Zone = 150 mm		17-1616

Location	Ground Level (mOD)	Engineer	Sheet
		Smith Grant LLP	1/1

Legend	Water	Instr (A)	Level (mOD)	Depth (m)	Description
				0.10	Concrete
					Bentonite Seal
				1.00	
					Well Screen
				6.00	
					Bottom Fill
				6.45	

Groundwater Strikes During Drilling

Date	Time	Depth Struck (m)	Casing Depth (m)	Inflow Rate	Readings				Depth Sealed (m)
					5 min	10 min	15 min	20 min	

Groundwater Observations During Drilling

Date	Start of Shift					End of Shift				
	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)	Time	Depth Hole (m)	Casing Depth (m)	Water Depth (m)	Water Level (mOD)

Instrument Groundwater Observations

Inst. [A] Type : Slotted Standpipe

Date	Instrument [A]			Remarks
	Time	Depth (m)	Level (mOD)	

Remarks

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	The Dell Prestatyn	CS	R2485	TP01
		EXCAVATED BY: JCB 3cx backhoe excavator	CLIENT: Denbighshire County Council	DATE: 29 November 2017	

DEPTH (m)	SAMPLES	Field Records	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
0.2	ES1		0	Dark brown slightly clayey silty sandy TOPSOIL with roots.	
			0.3	Firm reddish brown slightly sandy slightly gravelly clayey SAND with lenses of light grey sand. Gravel is fine to coarse subrounded limestone (GLACIAL TILL).	
0.8	B	P.P. = 1.5kg/cm2			
2	D1	P.P. = 1.5kg/cm2			
		P.P. = 2kg/cm2			
				Terminated at 2.7m. Trial pit collapsing below groundwater level.	

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email: consult@smithgrant.co.uk

GROUND WATER:

Groundwater inflow at 2.4m

REMARKS:

Sidewalls collapsing below groundwater level.
Time: 11:00-11:25 am

ES: jar sample
D: small disturbed sample
B: bulk disturbed sample
P.P. - pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	CS	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	The Dell Prestatyn	CS	R2485	TP02
		EXCAVATED BY: JCB 3cx backhoe excavator	CLIENT: Denbighshire County Council	DATE: 29 November 2017	

DEPTH (m)	SAMPLES	Field Records	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0	Blackish dark brown slightly clayey silty sandy TOPSOIL with roots.	
0.3	ES1		0.4	Reddish brown locally light grey slightly gravelly slightly clayey silty SAND with lenses of silty clay and occasional subrounded cobbles of limestone. Gravel is fine to coarse subrounded limestone (GLACIAL TILL).	
0.6	D1				
0.7	B				
				Terminated at 3.1m. Trial pit collapsing below 1.5m.	

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GROUND WATER:

Groundwater seepage at 2.4m. Groundwater inflow at 2.8m.

REMARKS:

Sidewalls collapsing from 1.5m.
Time: 11:30-12:00

ES: jar sample
D: small disturbed sample
B: bulk disturbed sample
P.P. - pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	CS	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	The Dell Prestatyn	CS	R2485	TP03
		EXCAVATED BY: JCB 3cx backhoe excavator	CLIENT: Denbighshire County Council	DATE: 29 November 2017	

DEPTH (m)	SAMPLES	Field Records	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0	Dark brown slightly clayey silty sandy TOPSOIL with roots.	
1	D1		0.4	Light brown slightly clayey silty SAND with occasional fine to coarse subrounded gravel of limestone (GLACIAL TILL).	
			1.4	Reddish brown slightly gravelly slightly clayey silty SAND with lenses of clay. Gravel is fine to coarse subrounded limestone (GLACIAL TILL).	
			1.7	Stiff reddish brown slightly gravelly slightly sandy CLAY with partings of sand. Gravel is fine to coarse subrounded limestone (GLACIAL TILL).	
				Terminated at 3.1m. Trial pit collapsing below 2.4m.	

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GROUND WATER:

Grounwater seepage at 3m.

REMARKS:

Sidewalls collapsing from 2.4m.
Time: 12:00-12:15 pm

ES: jar sample
D: small disturbed sample
B: bulk disturbed sample
P.P. - pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	CS	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	The Dell Prestatyn	CS	R2485	TP04
		EXCAVATED BY: JCB 3cx backhoe excavator	CLIENT: Denbighshire County Council	DATE: 29 November 2017	

DEPTH (m)	SAMPLES	Field Records	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0	Blackish dark brown slightly clayey silty sandy TOPSOIL with roots.	
0.6	ES1		0.4	Light brown slightly clayey silty SAND with lenses of clay and with occasional fine to coarse subrounded gravel of limestone (GLACIAL TILL).	
1.9	D1	P.P. = 1kg/cm2	2	Firm locally very stiff reddish brown slightly gravelly sandy to very sandy CLAY with partings of sand. Gravel is fine to coarse subrounded limestone (GLACIAL TILL).	
2.5	D2	P.P. = 1.5kg/cm2		Terminated at 3.2m.	
		P.P. = 4kg/cm2			

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GROUND WATER:

Grounwater inflow at 3.1m.

REMARKS:

Sidewalls collapsing below groundwater level.
Time: 12:15-12:40 pm

ES: jar sample
D: small disturbed sample
B: bulk disturbed sample
P.P. - pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	CS	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	The Dell Prestatyn	CS	R2485	TP05
		EXCAVATED BY: JCB 3cx backhoe excavator	CLIENT: Denbighshire County Council	DATE: 29 November 2017	

DEPTH (m)	SAMPLES	Field Records	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0	Blackish dark brown slightly clayey silty sandy TOPSOIL with roots.	
0.4	ES1		0.4	Light brown locally light grey sandy to very sandy slightly gravelly CLAY withe lenses of sand. Gravel is fine to coarse subrounded limestone (GLACIAL TILL).	
			1.7	Reddish brown silty SAND with lenses of light grey sandy GRAVEL of fine to coarse subrounded limestone and sandstone (GLACIAL TILL).	
				Terminated at 3.3m. Trial pit collapsing below 1.1m.	

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GROUND WATER:

Grounwater seepage at 3.2m.

REMARKS:

Sidewalls collapsing from 1.1m.
Time: 12:40-13:00 pm

ES: jar sample
D: small disturbed sample
B: bulk disturbed sample
P.P. - pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	CS	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	The Dell Prestatyn	CS	R2485	TP06
		EXCAVATED BY: JCB 3cx backhoe excavator	CLIENT: Denbighshire County Council	DATE: 29 November 2017	

DEPTH (m)	SAMPLES	Field Records	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0	MADE GROUND: Blackish dark grey slightly clayey gravelly sand with roots, wood and occasional concrete sleepers. Gravel is angular brick and concrete.	
			1.3	Grey slightly clayey gravelly SAND.	
1.9	ES1				
			2.2	Very stiff reddish brown CLAY with occasional medium to coarse subrounded gravel of limestone (GLACIAL TILL).	
2.6	D2	P.P. = 3.5kg/cm2 P.P. = 4kg/cm2			
				Terminated at 3.3m.	

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GROUND WATER:

Grounwater seepage from 2.1m.

REMARKS:

Sidewalls unstable below groundwater level.
Time: 13:00-13:30 pm

ES: jar sample
D: small disturbed sample
B: bulk disturbed sample
P.P. - pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	CS	1

TP1

TP2

TP3

TP4

TP5

TP6

APPENDIX E

Environmental Laboratory Testing Results

Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781

Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

4225

Attention :	Dan Wayland
Date :	12th December, 2017
Your reference :	R2485
Our reference :	Test Report 17/19690 Batch 1
Location :	The Dell Prestatyn
Date samples received :	29th November, 2017
Status :	Final report
Issue :	1

Eight samples were received for analysis on 29th November, 2017 of which eight were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Lucas Halliwell
Project Co-ordinator

Client Name: Smith Grant LLP
Reference: R2485
Location: The Dell Prestatyn
Contact: Dan Wayland
JE Job No.: 17/19690

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	1	2	3	4-5	6-7	8-9	10-11	12-13			LOD/LOR	Units	Method No.
Sample ID	TP3	TP2	TP4	TP6	TP2	TP5	TP1	TP4					
Depth	1.00	0.60	1.90	1.90	0.30	0.40	0.20	0.60					
COC No / misc													
Containers	T	T	T	V J	V J	V J	V J	V J					
Sample Date	29/11/2017 14:00	29/11/2017 14:00	29/11/2017 14:00	29/11/2017 14:00	29/11/2017 14:00	29/11/2017 14:00	29/11/2017 14:00	29/11/2017 14:00					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	29/11/2017	29/11/2017	29/11/2017	29/11/2017	29/11/2017	29/11/2017	29/11/2017	29/11/2017					
Arsenic #M	-	-	-	4.3	8.1	11.3	7.0	-			<0.5	mg/kg	TM30/PM15
Cadmium #M	-	-	-	0.7	1.9	53.8AA	4.2	-			<0.1	mg/kg	TM30/PM15
Chromium #M	-	-	-	81.7	92.5	73.7	83.8	-			<0.5	mg/kg	TM30/PM15
Copper #M	-	-	-	10	21	85	21	-			<1	mg/kg	TM30/PM15
Lead #M	-	-	-	48	240	4768AA	243	-			<5	mg/kg	TM30/PM15
Mercury #M	-	-	-	<0.1	<0.1	0.2	<0.1	-			<0.1	mg/kg	TM30/PM15
Nickel #M	-	-	-	18.6	19.9	34.8	18.6	-			<0.7	mg/kg	TM30/PM15
Selenium #M	-	-	-	<1	<1	<1	<1	-			<1	mg/kg	TM30/PM15
Zinc #M	-	-	-	132	349	9584AA	391	-			<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #M	-	-	-	<0.04	<0.04	0.10	<0.04	-			<0.04	mg/kg	TM4/PM8
Acenaphthylene	-	-	-	<0.03	<0.03	0.05	<0.03	-			<0.03	mg/kg	TM4/PM8
Acenaphthene #M	-	-	-	<0.05	<0.05	<0.05	<0.05	-			<0.05	mg/kg	TM4/PM8
Fluorene #M	-	-	-	<0.04	<0.04	<0.04	<0.04	-			<0.04	mg/kg	TM4/PM8
Phenanthrene #M	-	-	-	<0.03	0.09	0.21	0.07	-			<0.03	mg/kg	TM4/PM8
Anthracene #	-	-	-	<0.04	<0.04	0.21	<0.04	-			<0.04	mg/kg	TM4/PM8
Fluoranthene #M	-	-	-	<0.03	0.22	0.57	0.19	-			<0.03	mg/kg	TM4/PM8
Pyrene #	-	-	-	<0.03	0.20	0.55	0.18	-			<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	-	-	-	<0.06	<0.06	0.23	0.07	-			<0.06	mg/kg	TM4/PM8
Chrysene #M	-	-	-	<0.02	0.15	0.35	0.12	-			<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #M	-	-	-	<0.07	0.22	0.47	0.21	-			<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	-	-	-	<0.04	0.11	0.20	0.11	-			<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #M	-	-	-	<0.04	0.09	0.14	0.08	-			<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	-	-	-	<0.04	<0.04	<0.04	<0.04	-			<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	-	-	-	<0.04	0.07	0.17	0.08	-			<0.04	mg/kg	TM4/PM8
PAH 16 Total	-	-	-	<0.6	1.2	3.3	1.1	-			<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	-	-	-	<0.05	0.16	0.34	0.15	-			<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	-	-	-	<0.02	0.06	0.13	0.06	-			<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	-	-	-	96	102	104	106	-			<0	%	TM4/PM8
TPH CWG													
Aliphatics													
>C5-C6 #M	-	-	-	<0.1	<0.1	<0.1	<0.1	-			<0.1	mg/kg	TM36/PM12
>C6-C8 #M	-	-	-	<0.1	<0.1	<0.1	<0.1	-			<0.1	mg/kg	TM36/PM12
>C8-C10	-	-	-	<0.1	<0.1	<0.1	<0.1	-			<0.1	mg/kg	TM36/PM12
>C10-C12 #M	-	-	-	<0.2	<0.2	<0.2	<0.2	-			<0.2	mg/kg	TM5/PM16
>C12-C16 #M	-	-	-	<4	<4	<4	<4	-			<4	mg/kg	TM5/PM16
>C16-C21 #M	-	-	-	<7	<7	<7	<7	-			<7	mg/kg	TM5/PM16
>C21-C35 #M	-	-	-	<7	<7	<7	<7	-			<7	mg/kg	TM5/PM16
Total aliphatics C5-35	-	-	-	<19	<19	<19	<19	-			<19	mg/kg	TM5/TM36/PM12/PM16

Please see attached notes for all abbreviations and acronyms

Client Name: Smith Grant LLP
Reference: R2485
Location: The Dell Prestatyn
Contact: Dan Wayland
JE Job No.: 17/19690

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

J E Sample No.	1	2	3	4-5	6-7	8-9	10-11	12-13			LOD/LOR	Units	Method No.
Sample ID	TP3	TP2	TP4	TP6	TP2	TP5	TP1	TP4					
Depth	1.00	0.60	1.90	1.90	0.30	0.40	0.20	0.60					
COC No / misc													
Containers	T	T	T	V J	V J	V J	V J	V J					
Sample Date	29/11/2017 14:00	29/11/2017 14:00	29/11/2017 14:00	29/11/2017 14:00	29/11/2017 14:00	29/11/2017 14:00	29/11/2017 14:00	29/11/2017 14:00					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	29/11/2017	29/11/2017	29/11/2017	29/11/2017	29/11/2017	29/11/2017	29/11/2017	29/11/2017					
TPH CWG													
Aromatics													
>C5-EC7 #	-	-	-	<0.1	<0.1	<0.1	<0.1	-			<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	-	-	-	<0.1	<0.1	<0.1	<0.1	-			<0.1	mg/kg	TM36/PM12
>EC8-EC10 #M	-	-	-	<0.1	<0.1	<0.1	<0.1	-			<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	-	-	-	<0.2	<0.2	<0.2	<0.2	-			<0.2	mg/kg	TM5/PM16
>EC12-EC16 #	-	-	-	<4	<4	<4	<4	-			<4	mg/kg	TM5/PM16
>EC16-EC21 #	-	-	-	<7	<7	<7	<7	-			<7	mg/kg	TM5/PM16
>EC21-EC35 #	-	-	-	<7	<7	51	<7	-			<7	mg/kg	TM5/PM16
Total aromatics C5-35 #	-	-	-	<19	<19	51	<19	-			<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	-	-	-	<38	<38	51	<38	-			<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	-	-	-	<5	<5	<5	<5	-			<5	ug/kg	TM31/PM12
Benzene #	-	-	-	<5	<5	<5	<5	-			<5	ug/kg	TM31/PM12
Toluene #	-	-	-	<5	<5	<5	<5	-			<5	ug/kg	TM31/PM12
Ethylbenzene #	-	-	-	<5	<5	<5	<5	-			<5	ug/kg	TM31/PM12
m/p-Xylene #	-	-	-	<5	<5	<5	<5	-			<5	ug/kg	TM31/PM12
o-Xylene #	-	-	-	<5	<5	<5	<5	-			<5	ug/kg	TM31/PM12
Natural Moisture Content	-	-	-	20.0	23.2	14.8	17.7	-			<0.1	%	PM4/PM0
Hexavalent Chromium #	-	-	-	<0.3	<0.3	<0.3	<0.3	-			<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #M	0.0226	<0.0015	0.0239	-	-	-	-	0.0165			<0.0015	g/l	TM38/PM20
Chromium III	-	-	-	81.7	92.5	73.7	83.8	-			<0.5	mg/kg	NONE/NONE
Organic Matter	-	-	-	0.9	11.9	6.0	4.8	-			<0.2	%	TM21/PM24
pH #M	7.97	8.01	7.91	7.17	6.56	6.59	6.83	7.32			<0.01	pH units	TM73/PM11
Sample Type	Clayey Sand	Clay	Clayey Sand	Clay	Clay	Clay	Clay	Sandy Loam				None	PM13/PM0
Sample Colour	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown				None	PM13/PM0
Other Items	stones	stone, sand and vegertation	stones	stones	roots and sand	stones and sand	stones	clay				None	PM13/PM0

Client Name: Smith Grant LLP
Reference: R2485
Location: The Dell Prestatyn
Contact: Dan Wayland

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
17/19690	1	TP6	1.90	5	07/12/2017	**General Description (Bulk Analysis)**	Soil/Stones
					07/12/2017	**Asbestos Fibres**	NAD
					07/12/2017	**Asbestos Fibres (2)**	NAD
					07/12/2017	**Asbestos ACM**	NAD
					07/12/2017	**Asbestos ACM (2)**	NAD
					07/12/2017	**Asbestos Type**	NAD
					07/12/2017	**Asbestos Type (2)**	NAD
					07/12/2017	**Asbestos Level Screen**	NAD
17/19690	1	TP2	0.30	7	07/12/2017	**General Description (Bulk Analysis)**	Soil/Stones
					07/12/2017	**Asbestos Fibres**	NAD
					07/12/2017	**Asbestos Fibres (2)**	NAD
					07/12/2017	**Asbestos ACM**	NAD
					07/12/2017	**Asbestos ACM (2)**	NAD
					07/12/2017	**Asbestos Type**	NAD
					07/12/2017	**Asbestos Type (2)**	NAD
					07/12/2017	**Asbestos Level Screen**	NAD
17/19690	1	TP5	0.40	9	07/12/2017	**General Description (Bulk Analysis)**	Soil/Stones
					07/12/2017	**Asbestos Fibres**	NAD
					07/12/2017	**Asbestos Fibres (2)**	NAD
					07/12/2017	**Asbestos ACM**	NAD
					07/12/2017	**Asbestos ACM (2)**	NAD
					07/12/2017	**Asbestos Type**	NAD
					07/12/2017	**Asbestos Type (2)**	NAD
					07/12/2017	**Asbestos Level Screen**	NAD
17/19690	1	TP1	0.20	11	07/12/2017	**General Description (Bulk Analysis)**	Soil/Stones
					07/12/2017	**Asbestos Fibres**	NAD
					07/12/2017	**Asbestos Fibres (2)**	NAD
					07/12/2017	**Asbestos ACM**	NAD
					07/12/2017	**Asbestos ACM (2)**	NAD
					07/12/2017	**Asbestos Type**	NAD
					07/12/2017	**Asbestos Type (2)**	NAD
					07/12/2017	**Asbestos Level Screen**	NAD

Client Name: Smith Grant LLP
Reference: R2485
Location: The Dell Prestatyn
Contact: Dan Wayland

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
No deviating sample report results for job 17/19690						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
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NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 17/19690

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All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

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Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

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Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

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DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

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REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution

JE Job No: 17/19690

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
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TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis./Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis./Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	Yes

JE Job No: 17/19690

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes	Yes	AD	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes	Yes	AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes	Yes	AR	No
NONE	No Method Code	NONE	No Method Code			AR	Yes

Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781

Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

Attention :	Dan Wayland
Date :	4th January, 2018
Your reference :	R2485
Our reference :	Test Report 17/20505 Batch 1
Location :	The Dell Prestatyn
Date samples received :	13th December, 2017
Status :	Final report
Issue :	1

Three samples were received for analysis on 13th December, 2017 of which three were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Lucas Halliwell
Project Co-ordinator

Client Name: Smith Grant LLP
Reference: R2485
Location: The Dell Prestatyn
Contact: Dan Wayland
JE Job No.: 17/20505

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

J E Sample No.	1-4	5-8	9-12									
Sample ID	BH1GW	BH5GW	BH6GW									
Depth	5.00	3.00	2.00									
COC No / misc												
Containers	V P G	V P G	V P G									
Sample Date	13/12/2017 14:00	13/12/2017 14:00	13/12/2017 15:00									
Sample Type	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1									
Date of Receipt	13/12/2017	13/12/2017	13/12/2017									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Dissolved Arsenic #	<0.9	3.2	<0.9								<0.9	ug/l	TM30/PM14
Dissolved Boron	87	68	71								<12	ug/l	TM30/PM14
Dissolved Cadmium #	0.56	<0.03	<0.03								<0.03	ug/l	TM30/PM14
Total Dissolved Chromium #	<0.2	<0.2	0.5								<0.2	ug/l	TM30/PM14
Dissolved Copper #	<3	<3	3								<3	ug/l	TM30/PM14
Dissolved Lead #	<0.4	<0.4	<0.4								<0.4	ug/l	TM30/PM14
Dissolved Nickel #	5.9	1.7	7.3								<0.2	ug/l	TM30/PM14
Dissolved Selenium #	<1.2	<1.2	<1.2								<1.2	ug/l	TM30/PM14
Dissolved Zinc #	265.5	3.7	4.4								<1.5	ug/l	TM30/PM14
Mercury Dissolved by CVAF #	<0.01	<0.01	<0.01								<0.01	ug/l	TM61/PM38
PAH MS													
Naphthalene	<0.1	<0.1	<0.1								<0.1	ug/l	TM4/PM30
Acenaphthylene	<0.01	<0.01	<0.01								<0.01	ug/l	TM4/PM30
Acenaphthene	<0.01	<0.01	<0.01								<0.01	ug/l	TM4/PM30
Fluorene	<0.01	<0.01	<0.01								<0.01	ug/l	TM4/PM30
Phenanthrene	<0.01	<0.01	<0.01								<0.01	ug/l	TM4/PM30
Anthracene	<0.01	<0.01	<0.01								<0.01	ug/l	TM4/PM30
Fluoranthene	<0.01	<0.01	<0.01								<0.01	ug/l	TM4/PM30
Pyrene	<0.01	<0.01	<0.01								<0.01	ug/l	TM4/PM30
Benzo(a)anthracene	<0.01	<0.01	<0.01								<0.01	ug/l	TM4/PM30
Chrysene	<0.01	<0.01	<0.01								<0.01	ug/l	TM4/PM30
Benzo(bk)fluoranthene	<0.01	<0.01	<0.01								<0.01	ug/l	TM4/PM30
Benzo(a)pyrene	<0.01	<0.01	<0.01								<0.01	ug/l	TM4/PM30
Indeno(123cd)pyrene	<0.01	<0.01	<0.01								<0.01	ug/l	TM4/PM30
Dibenzo(ah)anthracene	<0.01	<0.01	<0.01								<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene	<0.01	<0.01	<0.01								<0.01	ug/l	TM4/PM30
PAH 16 Total	<0.1	<0.1	<0.1								<0.1	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	<0.01								<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	<0.01	<0.01								<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	95	91	86								<0	%	TM4/PM30
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10	<10								<10	ug/l	TM36/PM12
>C6-C8 #	<10	<10	<10								<10	ug/l	TM36/PM12
>C8-C10 #	<10	<10	<10								<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5								<5	ug/l	TM5/PM30
>C12-C16 #	<10	<10	<10								<10	ug/l	TM5/PM30
>C16-C21 #	<10	<10	<10								<10	ug/l	TM5/PM30
>C21-C35 #	<10	<10	<10								<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	<10	<10	<10								<10	ug/l	TM5/TM36/PM30/PM12

Client Name: Smith Grant LLP
Reference: R2485
Location: The Dell Prestatyn
Contact: Dan Wayland
JE Job No.: 17/20505

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											LOD/LOR	Units	Method No.
TPH CWG													
Aromatics													
>C5-EC7 #	<10	<10	<10								<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10	<10								<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	<10	<10								<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	<5								<5	ug/l	TM5/PM30
>EC12-EC16 #	<10	<10	<10								<10	ug/l	TM5/PM30
>EC16-EC21 #	<10	<10	<10								<10	ug/l	TM5/PM30
>EC21-EC35 #	<10	<10	<10								<10	ug/l	TM5/PM30
Total aromatics C5-35 #	<10	<10	<10								<10	ug/l	TM5/TM36/PM30/PM12
Total aliphatics and aromatics(C5-35) #	<10	<10	<10								<10	ug/l	TM5/TM36/PM30/PM12
MTBE #	<5	<5	<5								<5	ug/l	TM31/PM12
Benzene #	<5	<5	<5								<5	ug/l	TM31/PM12
Toluene #	<5	<5	<5								<5	ug/l	TM31/PM12
Ethylbenzene #	<5	<5	<5								<5	ug/l	TM31/PM12
m/p-Xylene #	<5	<5	<5								<5	ug/l	TM31/PM12
o-Xylene #	<5	<5	<5								<5	ug/l	TM31/PM12
Hexavalent Chromium	<2	<2	4								<2	ug/l	TM38/PM0
Total Dissolved Chromium III	<2	<2	<2								<2	ug/l	TM0/PM0
pH #	6.97	7.26	7.22								<0.01	pH units	TM73/PM0

Client Name: Smith Grant LLP
Reference: R2485
Location: The Dell Prestatyn
Contact: Dan Wayland

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
No deviating sample report results for job 17/20505						

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LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 17/20505

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM0	Not available	PM0	No preparation is required.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM30/PM12	CWG GC-FID	Yes			
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.				
TM61	Modified US EPA methods 245.7 and 200.7. Determination of Mercury by Cold Vapour Atomic Fluorescence.	PM38	Samples are brominated to reduce all mercury compounds to Mercury (II) which is analysed using method TM061.	Yes			

JE Job No: 17/20505

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			

APPENDIX F

Geotechnical Laboratory Testing Results

LABORATORY REPORT

REPORT

4043

Contract Number: PSL17/5870

Report Date: 05 January 2018

Client's Reference: R2485

Client Name: Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

For the attention of: Dan Wayland

Contract Title: The Dell Prestatyn

Date Received: 1/12/2017
Date Commenced: 1/12/2017
Date Completed: 5/1/2018

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson (Director)	A Watkins (Director)	R Berriman (Quality Manager)
L Knight (Senior Technician)	C Marshall (Laboratory Manager)	A Fry (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP1		B	0.80		Brown slightly gravelly very sandy CLAY.
TP1	1	D	2.00		Brown very silty SAND.
TP2		B	0.70		Brown slightly gravelly very sandy CLAY.
TP4	2	D	2.50		Brown slightly gravelly very sandy CLAY.
TP6	2	D	2.60		Brown slightly sandy CLAY.
BH1	5	D	4.00		Brown very silty SAND.

UKAS TESTING 4043

PSL Professional Soils Laboratory

The Dell Prestatyn	Contract No:
	PSL17/5870
	Client Ref:
	R2485

SUMMARY OF SOIL CLASSIFICATION TESTS

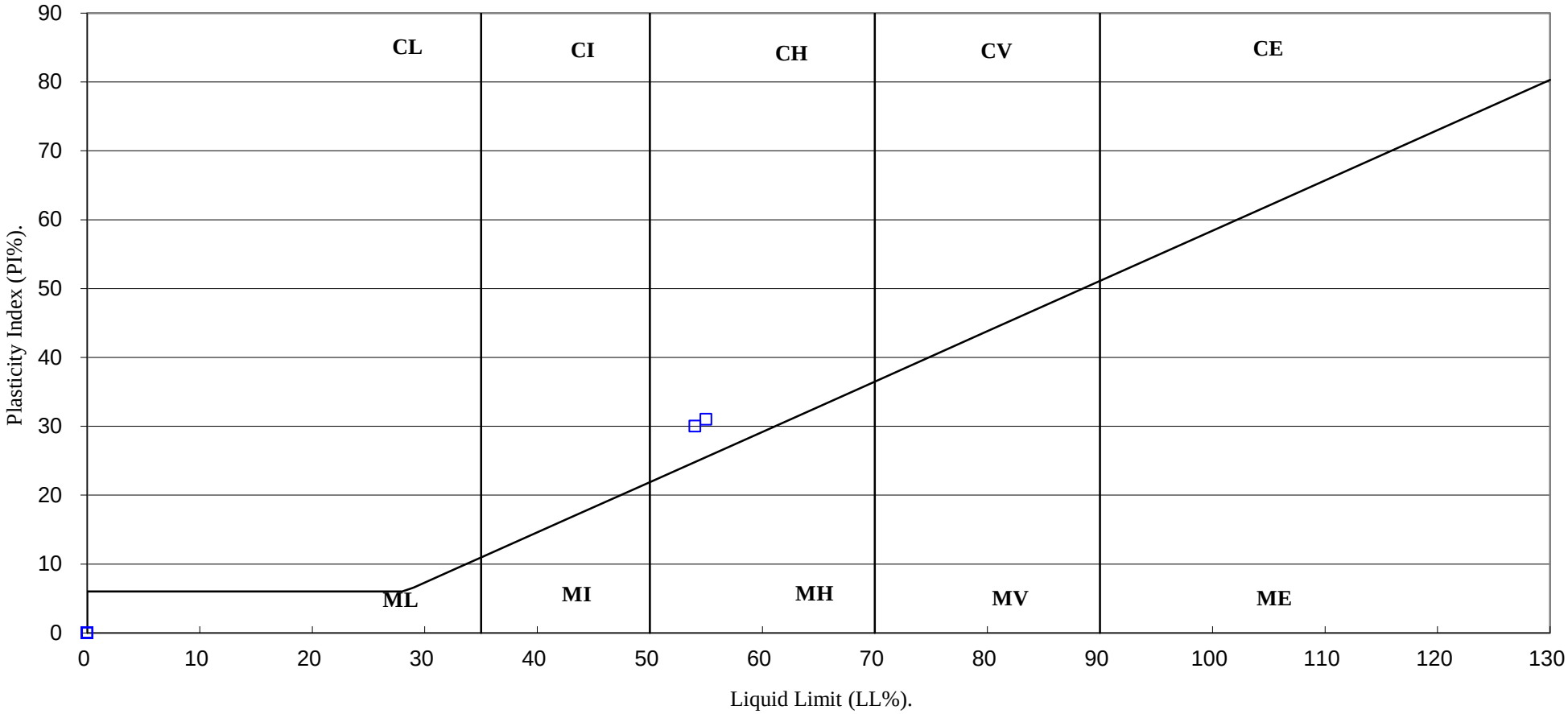
(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
TP1	1	D	2.00		19				NP			
TP4	2	D	2.50		22			54	24	30	100	High plasticity CH.
TP6	2	D	2.60		26			55	24	31	100	High plasticity CH.
BH1	5	D	4.00		20				NP			

SYMBOLS : NP : Non Plastic *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043	PSL Professional Soils Laboratory	**The Dell Prestatyn**	**Contract No:** PSL17/5870 **Client Ref:** R2485

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043	PSL Professional Soils Laboratory	The Dell Prestatyn	**Contract No:** PSL17/5870 **Client Ref:** R2485

PARTICLE SIZE DISTRIBUTION TEST

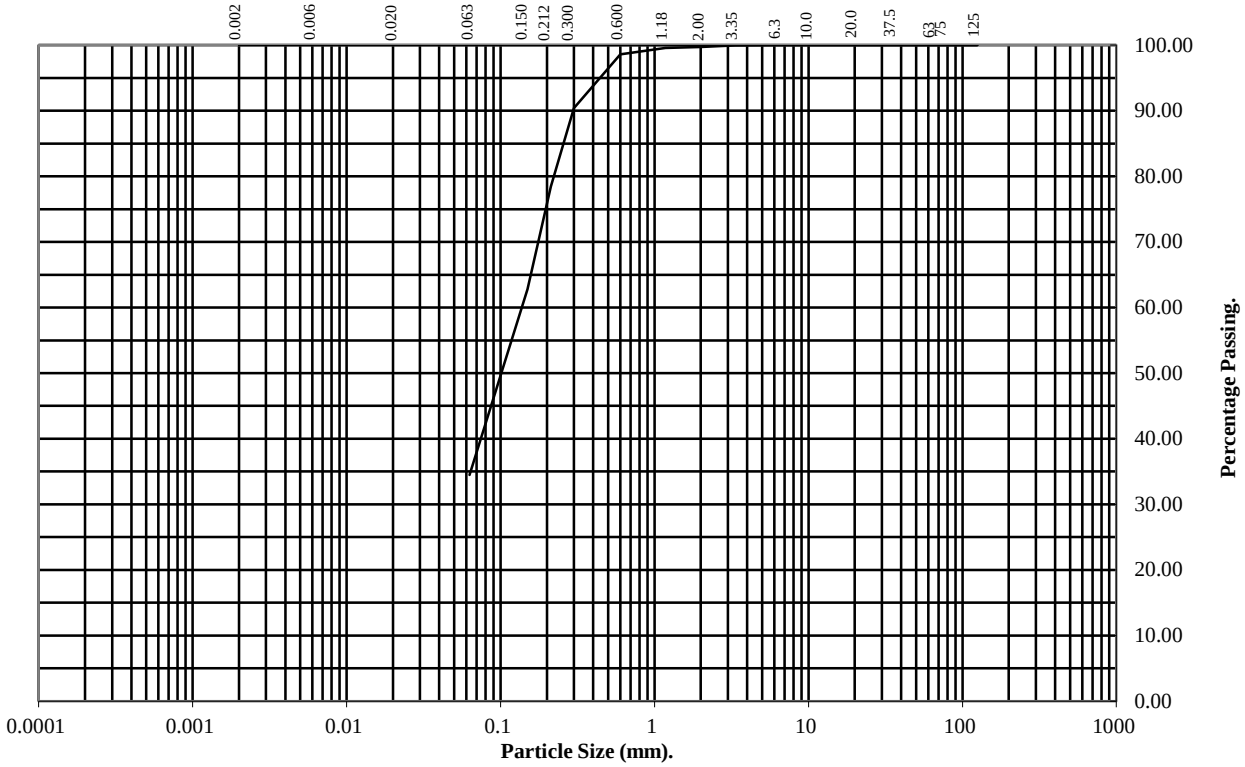
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH1** **Top Depth (m):** **4.00**

Sample Number: **5** **Base Depth(m):**

Sample Type: **D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.6	99
0.3	90
0.212	78
0.15	63
0.063	34

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	66
Silt/Clay	34

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

The Dell Prestatyn

Contract No:
PSL17/5870
Client Ref:
R2485

PARTICLE SIZE DISTRIBUTION TEST

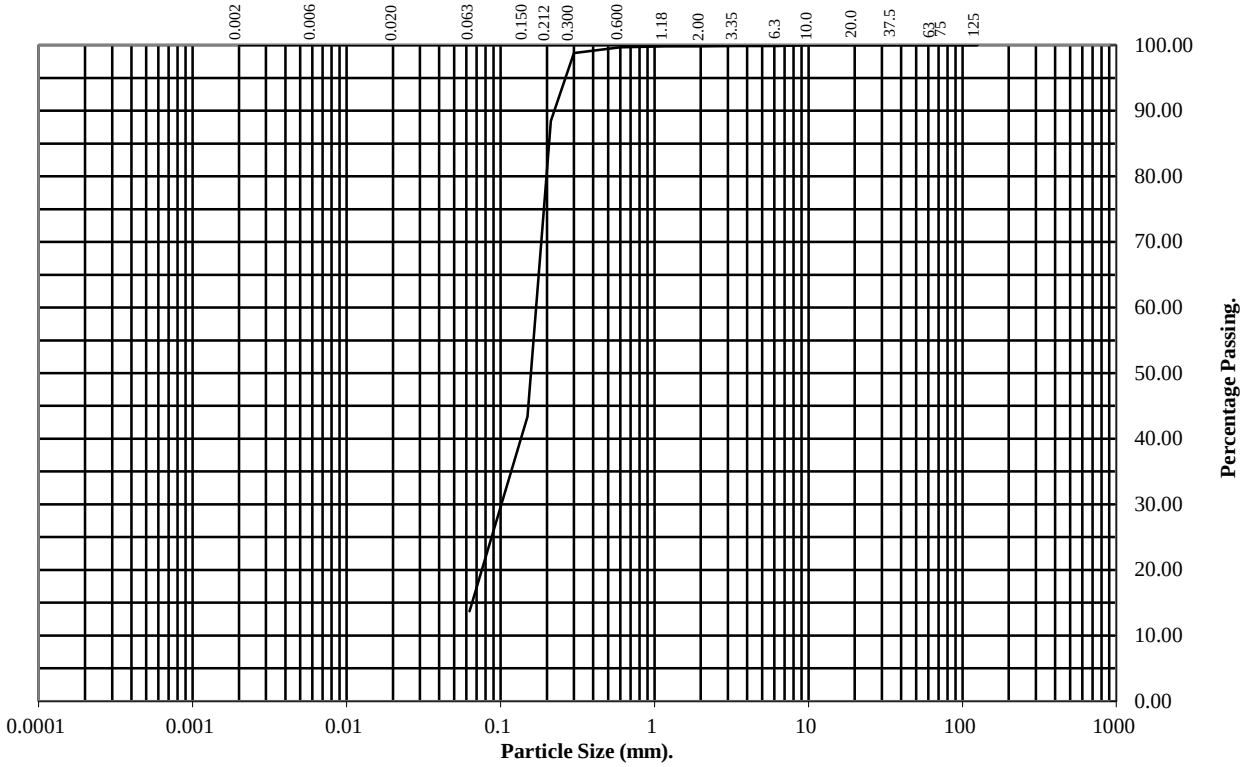
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **TP1** **Top Depth (m):** **2.00**

Sample Number: **1** **Base Depth(m):**

Sample Type: **D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.6	100
0.3	99
0.212	88
0.15	43
0.063	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	86
Silt/Clay	14

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

The Dell Prestatyn

Contract No:
PSL17/5870
Client Ref:
R2485

PARTICLE SIZE DISTRIBUTION TEST

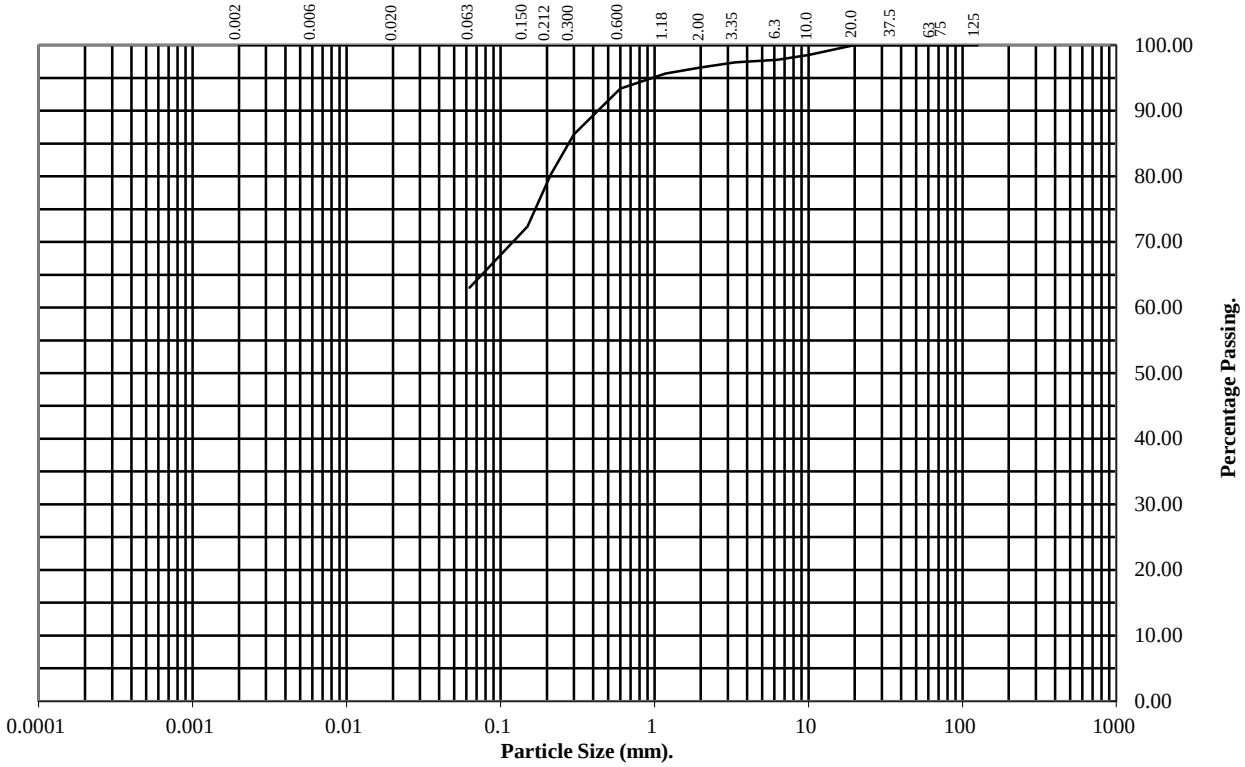
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **TP4** **Top Depth (m):** **2.50**

Sample Number: **2** **Base Depth(m):**

Sample Type: **D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	98
3.35	97
2	97
1.18	96
0.6	93
0.3	86
0.212	80
0.15	72
0.063	63

Soil Fraction	Total Percentage
Cobbles	0
Gravel	3
Sand	34
Silt/Clay	63

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043	PSL Professional Soils Laboratory	**The Dell Prestatyn**	**Contract No:** **PSL17/5870** **Client Ref:** **R2485**

PARTICLE SIZE DISTRIBUTION TEST

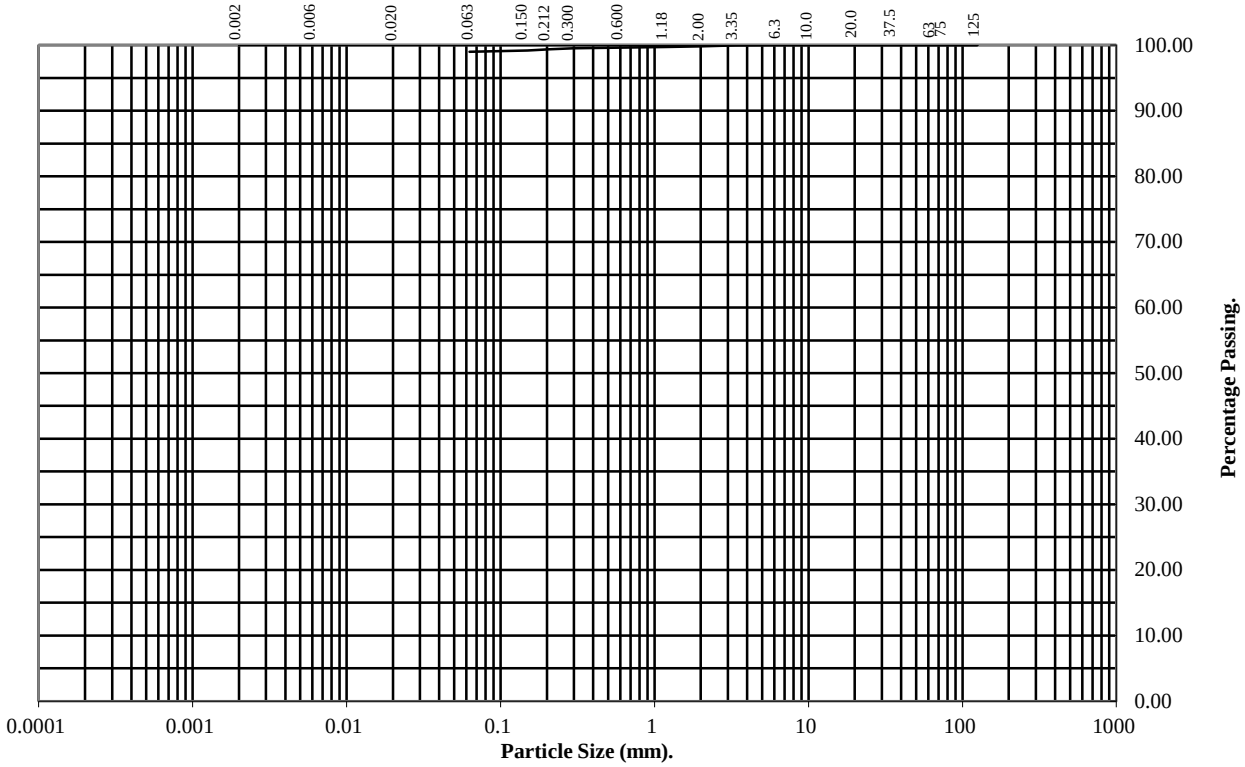
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **TP6** **Top Depth (m):** **2.60**

Sample Number: **2** **Base Depth(m):**

Sample Type: **D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.6	100
0.3	100
0.212	99
0.15	99
0.063	99

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	1
Silt/Clay	99

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

The Dell Prestatyn

Contract No:
PSL17/5870
Client Ref:
R2485

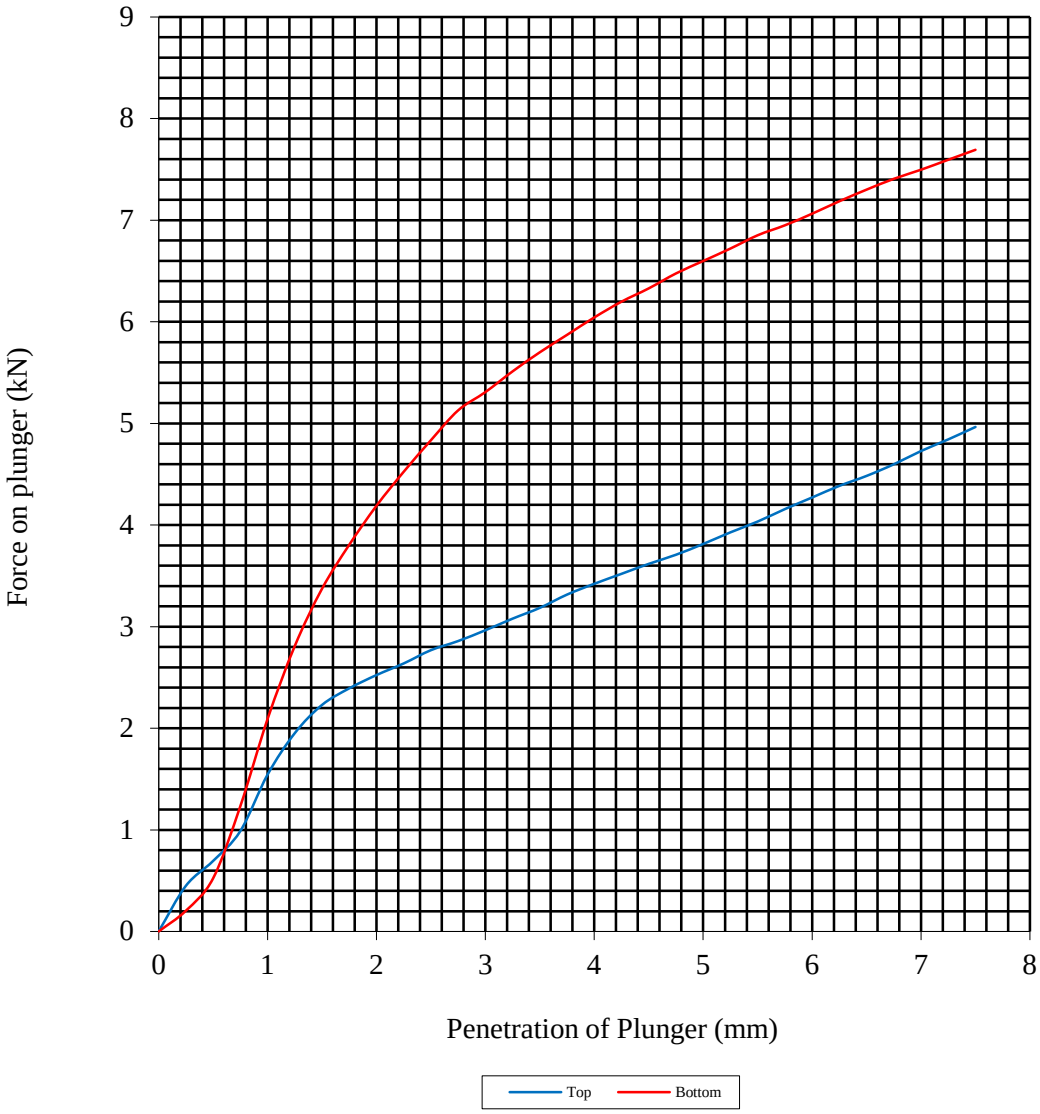
CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

Hole Number: TP1 **Top Depth (m):** 0.80

Sample Number: **Base Depth (m):**

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	8.5	Surcharge Kg:	4.20	Sample Top	8.6	Sample Top	21.0
Bulk Density Mg/m3:	1.97	Soaking Time hrs	0	Sample Bottom	6.9	Sample Bottom	36.6
Dry Density Mg/m3:	1.81	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			2				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL Professional Soils Laboratory

The Dell Prestatyn

Contract No: PSL17/5870

Client Ref: R2485

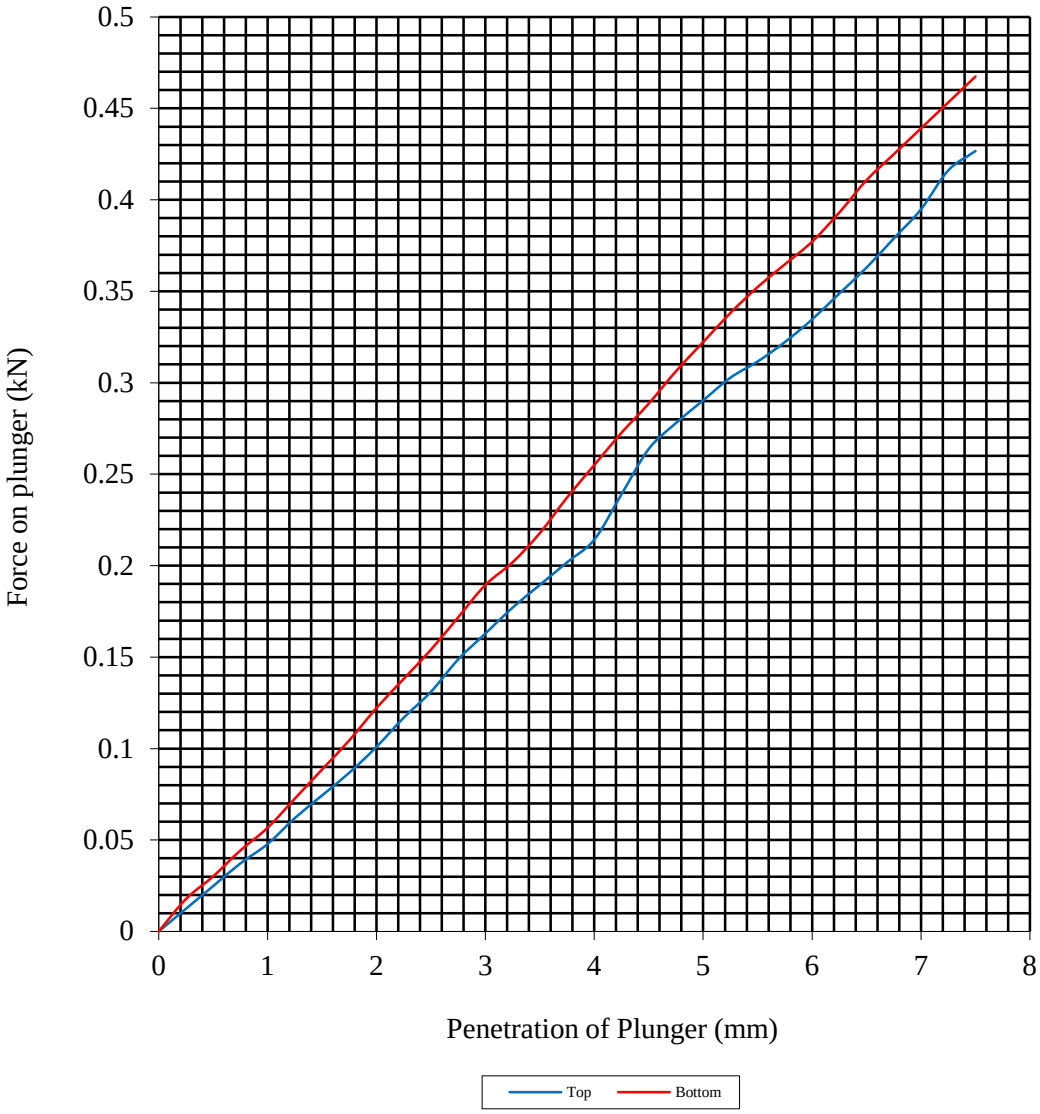
CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

Hole Number: TP2 **Top Depth (m):** 0.70

Sample Number: **Base Depth (m):**

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	13	Surcharge Kg:	4.20	Sample Top	13	Sample Top	1.5
Bulk Density Mg/m3:	2.17	Soaking Time hrs	0	Sample Bottom	13	Sample Bottom	1.6
Dry Density Mg/m3:	1.92	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			5				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL Professional Soils Laboratory

The Dell Prestatyn

Contract No: PSL17/5870

Client Ref: R2485

APPENDIX G

Gas Monitoring Record

GROUND GAS MONITORING REPORT

Site name:	The Dell, Prestatyn		Job number:	R2485		Barometric pressure at:	start:	990	mb	finish:	990	mb
Time at:	start	10:00	Date:	13.12.17		Pressure trend						(previous 3 days)
	finish	13:00	Staff:	CS		Instruments:	GA2000[1], MiniRAE 2000 PID[2]					
Record code:			Weather conditions:	Cloudy, cold, rain			Ground conditions:	Saturated				

Well No.	Methane %vol		Carbon dioxide %vol		Oxygen %vol		Carbon monoxide ppm	Hydrogen sulphide ppm	VOCs ppm	Gas flow l/hr		Well pressure mb	Depth to water m bgl	Depth to base m bgl	Notes
	Peak	steady	peak	steady	min	steady				peak	steady				
BH1	2.4	2.4	9.5	9.5	1.7	1.7	0	0	_	0	0	0	1.53	5.86	
BH5	0	0	1.7	1.7	17	17	0	0	_	0	0	0	1.58	5.52	
BH6	0	0	4.6	4.6	12.2	12.2	0	0	_	0	0	0	1	5.82	
Limit of Detection	0.1%		0.1%		0.1%		1ppm	1ppm	0.1ppm	0.1l/hr (-60/+100)	0.1l/hr (-60/+100)	1Pa_0.01mb (-800/+1500)			
Accuracy (% of reading)	±3.0%		±3.0%		±0.5%		±5%	±5%	±5%						

1. Date of last calibration 09.01.12
2. Calibrated with 100ppm isobutylene gas in air

APPENDIX H

Groundwater Monitoring Record

GROUNDWATER MONITORING LOG

Site name:	The Dell, Prestatyn		Job number:	R2485	Weather Conditions:	Cloudy, cold, rain	Ground Conditions:	Saturated
Time at:	start	10:00	Date:	13.12.17	Sampling Method:	bailer / waterra tubing	Purge Method:	X3 well volume / Steady state
	finish	13:00	Staff:	CS	Pump (if used):	Submersible / Peristatic	Date of Equipment Last Calibration:	
Record code:	GW01							

Well No.	Time	GW depth (before purge)	GW depth (after purge)	Depth to base	Volume purged[1]	Floating Product	Sampled	Temp	DO	DO	SPC	C	pH	ORP(eH)	Description / Observations
		m bgl[2,3]	m bgl[2]	m bgl[2]	l	mm	(✓/x)	°C	%	mg l^{-1}	µs cm^{-1}	µS cm^{-1}	units	mV	
BH1	10:00	1.53	1.87	5.86			√	10.4	37.7	4.04	898		6.51	27.7	brown silty / no odour
BH5	13:00	1.58	2	5.52			√	11	43	4.88	952		6.92	88.8	brown silty / no odour
BH6	12:00	1	1.26	5.82			√	10.9	29.7	3.27	1137		6.76	65.7	brown silty / no odour

Notes:

1 Where well volume (l) = 1000 x 3.142 x (well dimater in mm / 2000)^2 x saturated depth
2 Amend to m toc (m below top of casing) as necessary
3 Record as 'dry' if no water present
4 Record sample description (odour / colouration of sample)
5 Note any other comments - state of casing, ground conditions, if different sampling method used etc

APPENDIX I

Soakaway Testing Report and Results

Contaminated Land
Air Quality
Environmental Audit

SMITH GRANT Environmental Consultancy LLP

Partnership No: OC 300776

Our ref: R2485-L20171218
Your ref: Soil Infiltration (Soakaway) Calculations

Mr David Whieldon
Facilities, Assets & Housing
Denbighshire County Council

18th December 2017

By e-mail: david.whieldon@denbighshire.gov.uk

Dear David,

Proposed Development at The Dell, Prestatyn
Soil Infiltration Testing

SGP were instructed to carry out soakaway trial-pits to determine a soil infiltration rate to allow assist determination in assessing the feasibility of soakaways and their design at the above site.

Prior to the commencement of intrusive works, SGP were advised of 2 potential locations in which soakaways may be located if determined suitable and recommendations were made on excavation depths of 2.2m and 2.9m or to the point at which groundwater was encountered. The locations of the test-pits are provided on the attached drawing (L20171218-D01) with works carried out in accordance with BRE 365[1].

Ground conditions were typical to those observed during the previous site investigation with entries SA1 and SA2 recording a surface cover of topsoil underlain by clayey silty sand with occasional gravel (Glacial Till outwash) within both locations. Shallow groundwater was encountered during the excavation with a slight seep noted at 1.7m bgl and trial pit collapsing below the seepage level within SA2. SGP consulted with the on-site engineer from Opus who agreed that the excavations should not extend beyond 1.7m bgl. The total depth of SA2 was 2m bgl following excavation but effective depth of 1.7m was considered for the purpose of deriving soil infiltration rates.

It is noted that the soakaway testing was completed following a period of snowmelt and during heavy to light rainfall which is considered to provide a 'worse case' scenario in terms of ground degree of saturation.

Soakaway tests were carried out within each test-pit on a single occasion due to slow infiltration rates with monitoring conducted over a test period of 4hrs. Soil infiltration rates were calculated by the methodology detailed in BRE 365, copies of the worksheets are provided with soil infiltration rates summarised in the table below:

Table 1.1 Soil infiltration rates

Test-Pit	Soil Infiltration Rate (ms^{-1})
SA1	8.88×10^{-7}
SA2	2.06×10^{-6}

[1] Building Research Establishment; Soakaway Design. Digest 365

Soil infiltration rates ranged between 2.06 x 10^{-6} and 8.88 x 10^{-7} and are classed as 'poor drainage' which is typical for very fine sands, silts and clay silt laminate[2] as were recorded during the trial-pit excavation.

The results should be provided to a specialist drainage engineer who can determine the suitability of soakaways on the site, however based on the results provided and the findings of the site investigation, the suitability of soakaways is considered unlikely.

Yours sincerely
for: Smith Grant LLP

Dan Wayland
Senior Consultant

[2] BS8004: Code of Practice for Foundations

BRE Digest 365, 2007

Trial Pit Soakage Calculation Sheet

Date: 13.12.17

Site: The Dell, Prestatyn

R2485

Trial Pit SA2

Trial pit dimensions (m)	
Length	1.60
Width	0.50
Depth	1.70
Trial pit fill	none
Initial water volume (m^3)	0.432

Weather conditions: cloudy, constant light rain with heavy rain intervals
Ground conditions: saturated, previous snow meltdown followed by rain

assumed drain invert at 0.2m bgl

effective depth (ed)	1.500	m
75% ed	0.575	m
25% ed	1.325	m

Fall from 25%-75% full depth not achieved during test; effective depth change adopted infiltration rate therefore estimated from 25-75% actual depth change:

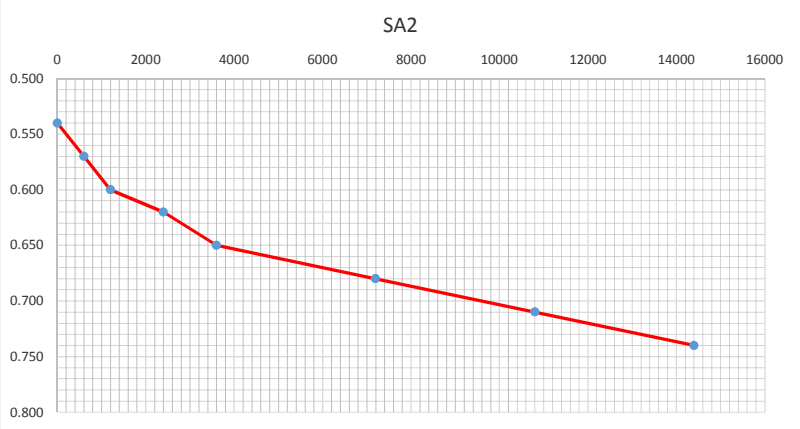
Drainage times

Run 1		Run2	
elapsed time (s)	depth to water (m)	elapsed time (s)	depth to water (m)
0	0.540		
600	0.570		
1200	0.600		
2400	0.620		
3600	0.650		
7200	0.680		
10800	0.710		
14400	0.740		
0	0.000		
0	0.000		
0	0.000		
0	0.000		
0	0.000		
0	0.000		
0	0.000		
0	0.000		
0	0.000		
0	0.000		
0	0.000		
0	0.000		

Calculations

	Run 1	
level at start (0%)	0.540	m
level at end (100%)	0.740	m
25% level	0.59	m
75% level	0.69	m
level change (75-25%)	0.1	m
volume drained (75-25%)	0.08	m^3
surface area drained (75-25%)	5.252	m^2
time at 25% level	1000	s
time at 75% level	8400	s
soil infiltration rate (75-25% actual), f =	**2.06E-06**	**ms^{-1}**

Note:
Trial pit depth - 2m bgl
Groundwater seepage at 1.7m bgl
Effective depth for calculations - 1.7m bgl



Pit profile

GL	Blackish dark brown slightly clayey silty sandy TOPSOIL with roots.
0.4m	
	Reddish brown locally light grey slightly gravelly slightly clayey silty SAND with lenses of silty clay and occasional subrounded cobbles of limestone. Gravel is fine to coarse subrounded limestone (GLACIAL TILL).
GW 1.7m	
2m	


Trial pit


Start of test


End of test

BRE Digest 365, 2007

Trial Pit Soakage Calculation Sheet

Date: 13.12.17

Site: The Dell, Prestatyn

R2485

Trial Pit SA1

Weather conditions: cloudy, constant light rain with heavy rain intervals
Ground conditions: saturated, previous snow meltdown followed by rain

Trial pit dimensions (m)	
Length	1.60
Width	0.50
Depth	1.70
Trial pit fill	none
Initial water volume (m^3)	0.408

assumed drain invert at 0.2m bgl

effective depth (ed)	1.500	m
75% ed	0.575	m
25% ed	1.325	m

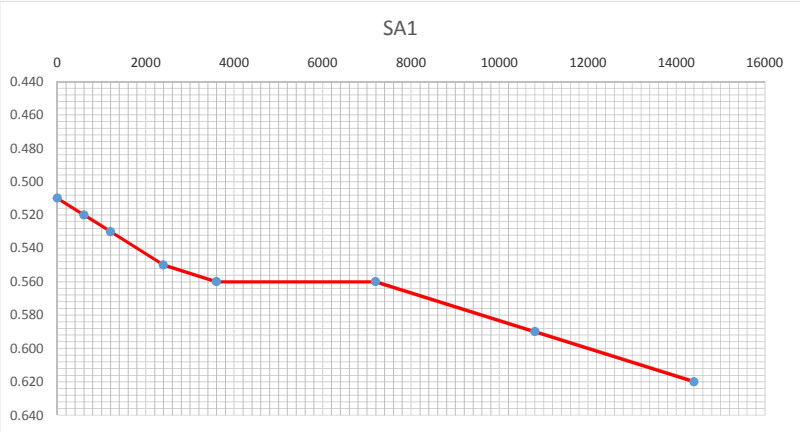
Fall from 25%-75% full depth not achieved during test; effective depth change adopted infiltration rate therefore estimated from 25-75% actual depth change:

Drainage times

Run 1		Run2	
elapsed time (s)	depth to water (m)	elapsed time (s)	depth to water (m)
0	0.510		
600	0.520		
1200	0.530		
2400	0.550		
3600	0.560		
7200	0.560		
10800	0.590		
14400	0.620		
0	0.000		
0	0.000		
0	0.000		
0	0.000		
0	0.000		
0	0.000		
0	0.000		
0	0.000		
0	0.000		
0	0.000		
0	0.000		
0	0.000		

Calculations

	Run 1	
level at start (0%)	0.510	m
level at end (100%)	0.620	m
25% level	0.5375	m
75% level	0.5925	m
level change (75-25%)	0.055	m
volume drained (75-25%)	0.044	m^3
surface area drained (75-25%)	5.567	m^2
time at 25% level	1900	s
time at 75% level	10800	s
soil infiltration rate (75-25% actual), f =	**8.88E-07**	**ms^{-1}**



Pit profile

GL	Blackish dark brown slightly clayey silty sandy TOPSOIL with roots.
0.4m	Light brown slightly clayey silty SAND with lenses of clay and with occasional fine to coarse subrounded gravel of limestone (GLACIAL TILL).
1.7m	

Beginning of test

End of test