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Former Archway Filling Station Site
New Dover Road
Capel-le-Ferne
CT18 7JD

Phase 1 & 2 Geo-Environmental Investigation

On behalf of Guardian Parks and Developments Ltd

Document Reference:13329 **October 2024**

Site: Former Archway Filling Station Site, New Dover Road Capel-le-Ferne, CT18 7JD

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Quality Management

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1 INTRODUCTION

Ground and Environmental Services Ltd (GES) was commissioned by Guardian Parks and Developments Ltd in August 2024 to undertake a combined Phase 1 & Phase 2 Geo-Environmental Investigation on a proposed redevelopment site on the former Archway filling station site on New Dover Road, Capel-le-Ferne, CT18 7JD.

It was understood that there were no definitive development proposals for the site, but that there may be future plans for a residential end use of the site.

The objectives of the Geo-Environmental Investigation are to ascertain the nature of the ground beneath the site in order to provide recommendations with regard to foundation, ground floor slab, pavement, soakaway and temporary works design.

In addition, the investigation aims to identify environmental liabilities associated with the site and delineate any areas of contamination resulting from the sites current and previous usage.

A Risk Assessment of the contamination potential on site was carried out based on the most sensitive potential end use of the site, i.e. a residential end use with plant uptake (i.e. private gardens).

2 SITE LOCATION AND LAYOUT

The site is located off New Dover Road, Capel-le-Ferne CT18 7JD, approximately 540m southeast of Capel-le-Ferne village hall, and is centred on approximate ordnance survey grid reference centre: TR255387.

3 SITE HISTORY

A map search was carried out for the site and extracts of the following Ordnance Survey maps were obtained covering the period between 1876 and 2024.

These are presented in Appendix 2 and the relevant historic details are summarised as follows:

Mapping Date Range	On Site	Surrounding Area
1876	The site comprises part of an open field. No significant features are noted within the site boundary.	Site is bound by agricultural fields. Dwelling and associated land noted approximately 100m southeast.
1898	No significant development is noted on site.	Minor changes to the dwelling and associated buildings to the southeast. No other significant changes noted.
1907		Residential development approximately 200m west.
1937		Residential development immediately east of the site. Site now bound to the south by a road (Dover Road).

		Further residential development approximately 200m southwest.
1961-2		No significant development is noted in the surrounding area.
1972	The site is noted as a filling station and comprises a rectangular structure in the southern part, with a hardstanding access and egress from Dover Road. The northern half of the site appears unchanged.	Two radio masts are noted on a parcel of land immediately north of the site. Associated buildings are also noted within the parcel of land. A filling station is noted approximately 50m southeast of the site. Residential development continues approximately 200m west.
1987	The site is no longer noted as a filling station and the rectangular structure is no longer noted. The hardstanding apron in the southern part of the site remains. The northern half of the site remains unchanged.	No significant development is noted in the surrounding area.
1993	No significant development is noted on site.	
1999		
2024		

The site's most recent use was as a fuel station and was short-lived. It is understood it opened it 1972 and was closed by 1974 when the bypass opened up to alleviate local traffic.

Parts of the former structure, forecourt as well as below ground tanks remain on site.

4 ENVIRONMENTAL SETTING

4.1 GEOLOGY

Reference to the British Geological Survey online geological mapping of the area indicates that the bedrock geology underlying the site comprises the New Pit Chalk Formation. Superficial deposits of the Clay-with-Flints formation are anticipated on site.

The geological memoir for the area described these strata as follows:

Clay-with-Flints

A residual deposit formed from the dissolution, decalcification and cryoturbation of bedrock strata of the Chalk Group and Palaeogene formations and, in the extreme west of the outcrop, the Upper Greensand Formation. It is unbedded and heterogenous. The dominant lithology is orange-brown and red-brown sandy clay with abundant nodules and rounded pebbles of flint. Angular flints are derived from the Chalk, and rounded flints, sand and clay from Palaeogene formations.

New Pit Chalk Formation

Principally blocky, white firm to moderately hard chalk with numerous marls or paired marl seams. Flint occurs sporadically in the upper part in the deeper basin areas of the Southern Province. In some localities flint, in seams, occurs towards the base of the formation most notable over structural highs, towards the margins of the outcrop and within the "Transitional" Province.

4.2 GROUNDWATER

Reference to the British Geological Survey 1:50,000 scale Aquifer Designation Dataset, shows the site to be set upon a Principal Aquifer within the bedrock Chalk, with the superficial clay-with-flint designated as Unproductive Strata.

Principal Aquifers are highly permeable formations. They are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.

Unproductive Strata are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

The soils are classified as medium combined (principal and unproductive) vulnerability with an intermediate pollutant speed.

The site is located within a Zone III (Total Catchment) Environment Agency-designated Groundwater Source Protection Zone (SPZ).

4.3 RADON

Reference to the British Geological Survey, National Geoscience Information Service indicated that the property is in a lower probability radon area (<1% of homes are estimated to be at or above the Action Level of 200 Bq/m3). No radon protective measures are necessary in the construction of new dwellings or extensions.

4.4 OTHER ENVIRONMENTAL INFORMATION

Reference was made to the environmental database Envirocheck, extracts from which are provided in Appendix 3. Relevant information relating to the site's environmental sensitivity is summarised as follows:

Dataset		**On site**	**Nearest significant off-site feature**
Agency and Hydrological	Nearest Surface Water Feature	None	456m south.
	Pollution Incidents to Controlled Waters	None	359m east. 1998. Sewage - Septic Tank Effluent. Overfilling during delivery. Category 3 - Minor Incident.

Dataset		On site	Nearest significant off-site feature
Waste	BGS Recorded Landfill Sites	None	None within 1km of the site.
	Historical Landfill Sites	None	None within 1km of the site.
	Local Authority Recorded Landfill Sites	None	None within 1km of the site.
	Registered Landfill Sites	None	None within 1km of the site.
Geological	Potential for Collapsible Ground Stability Hazards	Very low	
	Potential for Compressible Ground Stability Hazards	No hazard	
	Potential for Ground Dissolution Stability Hazards	Low	
	Potential for Landslide Ground Stability Hazards	Very low	
	Potential for Running Sand Ground Stability Hazards	No hazard	
	Potential for Shrinking or Swelling Clay Ground Stability Hazards	Low	
Industrial Land Use	Contemporary Trade Directory Entries	None	520m southwest. Boilers - Servicing, Replacements & Repairs – Inactive.
	Fuel Station Entries	None shown on database. Shown on historic maps	**Obsolete** (Shown as 47m southeast).
Sensitive Land Use	Areas of Outstanding Natural Beauty	Site is within Kent Downs AONB	
	Local Nature Reserves	None	233m south.
	Marine Nature Reserves	None	573m southeast.
	Sites of Special Scientific Interest	None	225m south.

4.5 UNDERGROUND OIL STORAGE TANK INFORMATION

The Kent County Council Petroleum Officer was contacted to establish whether an underground oil storage tank was present on site. The data held by the appropriate authorities suggest that there is no record of an underground oil storage tank. However, anecdotal evidence suggests that backfilled storage tanks are present on site in the vicinity

of WS6 and WS7. The letter from the Petroleum Officer is presented at Appendix 4. See section 10.

5 SITE WALKOVER

A site walkover was undertaken on 2nd September 2024 by a suitably experienced Environmental Consultant. The salient details, along with site photographs are set out below.

The was accessed via New Dover Road. The site was predominantly laid to bare earth and enclosed by established planting and hedgerow planting with a line of mature trees to the north. The site is relatively level.

The site is approximately 0.65 ha in size and the site is bounded to the:

- north and west by an immediate tree line then agricultural field, beyond the agricultural land to the west forms the wider built-up settlement of Cape-le-Ferne
- south by New Dover Road with Capel Court Park caravan park and the newly developed George Close beyond.
- east by residential properties with associated gardens.

Site photographs are presented in Appendix 1.

An area of hardstanding exists along the southern site boundary. This area was the former fuel pump dispensing island and the brick lined concrete tank farm is evident below the tank islands.

The presence of the undisturbed tank farm is consistent with the tanks having been decommissioned and backfilled and still being on site.

There was surface rubble across site, mostly consisting of large brick fragments.

6 PRELIMINARY CONCEPTUAL SITE MODEL

A preliminary conceptual site model (PCSM) is a system diagram identifying contaminant sources, routes of exposure (pathways), and which receptors are affected by contaminants moving along those pathways.

The model is produced to identify the zones of the site with different potential contaminations characteristics (e.g. whether contaminants in the soil are likely to be on the surface or at depth, distributed over an entire area or in localised ‘hot spots’).

The conceptual site model presented in the table below is based on the findings of the site walkover undertaken.

Source	Pollutant	Pathway	Hazard	Receptor	Observations/ Recommendations	Assessed Risk
Contaminated ground	Metals, organic (hydrocarbons) could be present	Direct contact, ingestion, inhalation.	Health risks including skin irritation.	Humans: site workers	Potential soil contamination from historical use.	Low-moderate
		Surface run off.	Lateral movement to surface watercourses.	Aquatic resources, ecology and subsequent users including humans.	Majority of current surface water will percolate the soil Historical drainage through oil/water interceptor No nearby surface water	Low-moderate
		Leaching/ Dispersion.	Downward migration to groundwater.	Aquatic resources – Groundwater, abstraction wells) / surface waters.	Principal Aquifer. Potential for mobile contamination. No water abstractions within 1km.	Low-moderate
		Uptake by plants.	Phytotoxic effects.	Soft landscaped areas / plants.	Soft landscaping may be proposed.	Low-moderate
		Direct contact	Aggressive chemical attack	Building structures and services	Contamination considered possible at depth of any service runs.	Low-moderate
Liquid contaminant sources	Diesel, Petrol and Oils.	Direct contact; ingestion, inhalation.	Health risks including skin irritation. Lateral and vertical migration of contaminants.	Humans: site workers. Groundwater and surface water.	Potential soil contamination from historical use.	Low-moderate
Asbestos	Asbestos fibres within made ground and waste on site	Inhalation.	Health risks including asbestosis, mesothelioma, and lung cancer.	Humans: site workers and future occupants.	Asbestos not identified on site. Appropriate PPE should be worn during site works.	Low
Landfill, madeground,	Ground Gases (CO_2, CH_4)	Inhalation and ingress into buildings	Asphyxiation and explosions	Buildings/humans/ future site users	No landfill sites within 250m of the site	Low
Redundant Waste, Demolition Waste		Dermal Contact/ingestion. Potential for migration via surface water run-off	Health Risks	Humans: Site workers	Waste should be managed in accordance with current legislation.	Low

7 INTRUSIVE INVESTIGATION

7.1 FIELDWORK

The site works were carried out between the 2nd September 2024 and the 30th September 2024 and comprised the following:

- Window Sampling (8 no.)
- Dynamic Cone Penetrometer Testing
- Falling Head Soakage Testing
- Soil Gas and Groundwater Level Monitoring

The positions of the above works on the site are indicated on Figure 1, Exploratory Hole Location Plan.

Window Sample Holes

Eight window sample holes (WS1 to WS8) were excavated using a Premier Compact 110 window sampling rig to depths ranging between 2m and 5m.

The soils and materials encountered in the holes were logged and representative samples recovered for laboratory analysis. Standard Penetration tests were also carried out at regular intervals using the split spoon or solid cone as appropriate to ground conditions

Upon completion the window sample holes WS1, WS6, and WS7 were installed with a 35mm standpipe. The remaining holes were backfilled with the hole arisings.

Window sample hole logs are presented in Appendix 5.

Falling Head Soakage Testing

Falling head soakage testing was undertaken in the standpipes installed in window sample holes WS1 and WS6. The test involved recording the drop in water level with respect to time.

The field test data is summarised below in Section 7.5 below and the results presented in Appendix 6.

Dynamic Cone Penetrometer Testing

Ten dynamic cone penetrometer (DCP1 to DCP10) tests were carried out across the site. The dynamic cone penetrometer (DCP) uses an 8 kg hammer dropping through a height of 575 mm and a 60° cone having a maximum diameter of 20 mm. Penetration depth is recorded after every blow. The DCP is a Penetrometer device used to provide a measure of in situ CBR. Blow count readings were converted to an equivalent CBR, which is

displayed in the results tables presented in Appendix 7. The TRRL equation was used to calculate the equivalent CBR value from the DCP results

Soil Gas Survey

A soil vapour survey was undertaken across the site and comprised the monitoring of the atmosphere within the standpipes installed in the window sample holes WS1, WS6 and WS7. Portable gas monitoring equipment (GA5000) was used to monitor the standpipes for concentrations of carbon dioxide (CO_2), methane (CH_4) and oxygen (O_2).

The gas monitoring results are presented in Appendix 8.

7.2 GROUNDWATER

Groundwater was not encountered during the period of intrusive investigation.

During the subsequent monitoring visits, groundwater was encountered at the following locations:

WS Ref.	10/09/2024	16/09/2024	26/09/2024
	Depth to Water (mbgl)	Depth to Water (mbgl)	Depth to Water (mbgl)
WS1	4.24	Dry	Dry
WS6	0.84	1.72	2.82
WS7	3.90	Dry	Dry

Given the variation in water level results it is considered that the water readings represent perched water within the clay-with-flints stratum. It is known from works on a site nearby that the groundwater table within the underlying stratum is in excess of 20m below ground level.

Groundwater levels may vary due to seasonal fluctuations in rainfall, but in the shorter term, can be affected by antecedent weather conditions or other causes.

8 LABORATORY TESTING`

8.1 GEOTECHNICAL TESTING

The following range of laboratory tests were scheduled and the results are presented in Appendix 9.

i. Determination of Natural Moisture Content (8 no.).
ii. Determination of Liquid and Plastic Limit (8 no.).
iii. Determination of Particle Size Distribution (1 no).
iv. Determination of pH (14No.). See Appendix 10.

v. Determination of water soluble sulphate (14No.). See Appendix 10.

8.2 ANALYTICAL TESTING

Eight soil samples were selected and scheduled for chemical analysis which was undertaken by DETS Ltd. All soil samples were analysed for a general screening suite of contaminants considered appropriate to the current usage and past history of the site and surrounding area.

Toxic Metals	Phytotoxic Metals	Inorganic Compounds	Organic Compounds
Arsenic Barium Beryllium Cadmium Chromium Lead Mercury Nickel Selenium Vanadium	Water Soluble Boron Copper Nickel Zinc	Water-Soluble Sulphate pH Asbestos	Total Polyaromatic Hydrocarbons (PAH) Mineral oils Total Petroleum Hydrocarbons (TPH)

Furthermore, given the historical site use as a fuel filling station, selected soil samples were also analysed for the presence of BTEX and MTBE compounds.

In addition, a composite sample of arisings was prepared and submitted for analysis in accordance with the Environment Agency's waste acceptance criteria (WAC) for the off-site disposal of soils.

Soil samples were stored in appropriate containers as specified within BS10175. The containers comprised of 1 kg capacity plastic containers with fitted lids.

Where organic compounds were to be determined, inert containers, which prevent loss by absorption, or volatilization, i.e. wide-mouthed amber glass containers, were used.

Samples were stored in appropriately cooled cool boxes and were transported to the laboratory as quickly as possible in order to minimize any potential for chemical and biological changes to take place.

The results of the analytical testing are presented in Appendix 10.

9 GROUND CONDITIONS AND ENGINEERING PROPERTIES

The ground profile in the window samples drilled across the site comprised Made Ground over soils typical of the Clay with Flints formation. The underlying chalk was not found during this ground investigation

Made Ground:

The thickness of Made Ground soils across the site was recorded between 0.25m and 0.7m.

In WS1-5 and WS8 The Made Ground materials generally comprised a variably gravelly, silty clay/ clayey silt typically with flint, black carbon and red brick. Occasional fragments of wood, glass, and plastic were also found within the Made Ground materials.

Window samples WS6 and WS7 drilled through the existing hard standing in the southern part of site. Here the upper layer of Made Ground to 0.3m and 0.5m respectively consisted of a sandy gravel where gravels comprised concrete, red brick, black carbon and occasional flint. Then to 0.6m and 0.65m respectively the made ground consisted a slightly gravelly silty clay with occasional black staining and slight hydrocarbon odour. The gravel comprised flint and red brick fragments.

Clay with Flints Formation

Underlying the Made Ground at depths ranging between 0.25m and 0.7m were soils typical of the Clay with Flints Formation

Immediately below the Made Ground in WS1, WS2, WS6 and WS7 was a variably gravelly silty clay. From 3.5m to a final depth of 5m the strata in WS2 was described as a clay/ gravelly clay with no noted silt content.

Immediately below the Made Ground in WS3, WS4, WS5 and WS8 was a variably gravelly, variably sandy/ clayey silt to depths between 0.7m and 1.2m. Then below this was the same variably silty clay as above.

In WS1 and WS2 a thin (0.3m) layer of clayey/gravelly sand was found between 2.6-2.9m and 2.0-2.3m respectively. The same sand layer is also found between 3.8-4.0m in WS7.

The base of the Clay-with -Flints was not proven with a maximum depth of investigation of 5m.

Standard penetration tests recorded N values in the range 5 to 19 (soft/firm to stiff). The SPT test results are presented in Figure 2. Figure 3 provides a plot of corrected N_{60} values against depth. The N_{60} value taking into account an energy ratio (Er) of 85% for the test equipment used.

Tactile observations made whilst logging recorded firm to stiff soils.

Classification testing recorded clay soils of low to intermediate plasticity with plasticity indices in the range 10 to 20% recorded. The test results indicated that the soil would have a low to medium shrink/swell potential with the majority in the low shrink/swell potential category.

A single particle size distribution test carried out on a sample recovered from WS5 at 0.4m recorded a slightly gravelly sandy silt with a fine fraction of 63.3% of which 55.0% was silt and 8.3% clay.

For foundation design purposes the following parameters may be used for the proposed new foundations founding within the Clay with Flints at a minimum formation level of 1.2m:

- Undrained shear strength = 45 kN/m^2 (Firm)
- Coefficient of compressibility = 0.22m^2/MN (estimated value)
- Shrink/swell potential = low

9.1 FOUNDATION DESIGN CONSIDERATIONS

It was understood that there were no definitive development proposals for the site at the time of this investigation, but that there may be future plans for a residential end use of the site.

For preliminary design purposes a line load of 60kN/m run has been adopted.

In deliberation of suitable foundation options consideration was given to the geotechnical hazards and risks as presented below:

Geotechnical Hazard	Qualitative Risk & Consequences	Possible Risk Reduction Measures
Existing underground structures such as service runs and old footings.	**Low to medium** Implication for foundation depth and economic feasibility of shallow foundations.	New foundations to be constructed in undisturbed ground or alternatively disturbed ground to be removed and replaced with suitable engineering fill.
Shrinkage/swelling of foundation soils due to action of tree roots.	**Low to Medium** Foundation movement and cracking of brickwork.	Follow NHBC guidance on building near trees for low shrink/swell potential soils
Variations in stiffness of ground below foundation depth that could give rise to unacceptable total and differential settlement.	**Low** Buildings particularly sensitive to differential settlement. Would result in cracking of superstructure if conventional brickwork or brick cladding.	Calculate likely magnitude of settlement and determine if within acceptable tolerances. Make foundations act as reinforced beams. Include movement joints if and where necessary.

Based upon the ground conditions found consideration has been given to founding the proposed new structures on conventional shallow foundations.

Shallow Strip Foundations

Foundation Depths

Strip footings founded within the Clay with Flints will provide a suitable foundation solution for the proposed new structures. A minimum foundation depth of 1.2m is recommended.

Foundations should extend a minimum of 0.3m into the natural soils and should comply with guidance for building on low shrink/swell potential soils.

Allowable Bearing Pressure and Foundation Sizing

Based on field observations, in situ testing and laboratory test results, a maximum allowable bearing of 110kN/m^2 is recommended for foundations placed at a minimum depth of 1.2m. Adopting a line load of 60kN/m run a minimum foundation width of 0.55m is recommended.

Settlement

A preliminary settlement analysis was conducted for a 0.55m wide strip foundation with an increase in foundation loading of 110kN/m^2. The results of the calculations indicated total settlements would be in the order of 20mm. Immediate settlement would be approximately 10% of the total settlement, the remainder being long term consolidation settlement

9.2 GROUND FLOORS

NHBC guidance advises that suspended ground floors should be adopted when the plasticity index (PI) of the founding soils is greater than 10%. In addition, where the depth of fill would be greater than 600 m within a self contained area, the floor construction over the whole of that area is required to be self supporting and independent of the fill.

Based upon the findings of this ground investigation it is recommended that ground floor slabs are suspended.

9.3 TEMPORARY WORKS

Excavations in excess of 1.2m depth maybe required in connection with the proposed development on this site. If there is a requirement for personnel to enter into excavations, then the need for trench side support should be considered for any depth of excavation and, therefore, appropriate equipment should be available on site prior to excavation proceeding. A site specific risk assessment should be carried out where man entry into excavations is required.

The base of foundation excavations should be inspected and any soft loose, organic or otherwise deleterious material at foundation level removed and replaced with lean mix

concrete. The soils encountered will be liable to softening/loosening when exposed to surface water infiltration. In order to avoid deterioration of the prepared formation the base of foundations should be blinded with concrete as soon as practical after excavation and particularly if there is delay before placing foundation concrete.

9.4 ROADS/HARDSTANDING

The results of in situ DCP tests indicated CBR values in the range 2 to 102% although below a typical formation level of 0.45m CBR values were generally in the range 3 to 17%.

For preliminary design purposes it is recommended that a CBR value of 3% should be adopted. The soils encountered during this ground investigation are considered frost susceptible therefore road construction should have a minimum thickness of 450 mm.

9.5 SOAKAWAYS

The results of the falling head test carried out in WS1 and WS6 are presented in Appendix 6. Prior to the testwork, groundwater was found in the WS6 standpipe at a depth of 2.82m, WS1 was dry. The testwork proved a low infiltration potential with infiltration rates of $7.4x10^{-6}$ m/s in WS1 and $3.9x10^{-6}$ m/s in WS6 estimated.

Based on these results the use of shallow chamber type soakaways is not considered to be a viable option for the disposal of surface water.

9.6 CHEMICAL ATTACK ON BURIED CONCRETE

The results of the chemical testing indicated a concentration of water-soluble sulphate in the near surface soils in the range <10 to 333mg/l as SO_4. pH values were slightly acidic to slightly alkaline with a range between 5.9 and 7.9 pH units.

In accordance with BRE Special Digest 1 (SD1:2005) entitled 'Concrete in Aggressive Ground' a design sulphate class for the site of DS-1 is recommended. Using SD1 an ACEC (Aggressive Chemical Environment for Concrete) class of AC-1 is recommended.

10 GROUND CONTAMINATION ASSESSMENT

The current guidelines used for this contamination assessment are presented within Appendix 11.

As development plans are not currently available, to provide a conservative assessment of contamination risks, it is assumed that future developments will comprise residential dwellings with soft landscaping. The contaminant concentrations encountered as part of this investigation have been compared against either Land Quality Management Generic Assessment Criteria (LQM GAC) for a residential development, the Chartered Institute of Environmental Health's (CIEH) Suitable for Use Levels (S4USL), or where available against newly published Category 4 Screening Levels (C4SLs) for a Residential (with home-grown produce) end use. Where neither guidelines have limit values, Contaminated Land Exposure Assessment (CLEA) framework guideline limit values have been assessed.

Category 4 Screening Levels (C4SLs) have currently been published for six substances as per the table below.

Substance	Residential (with home-grown produce)	Residential (without home-grown produce)	Allotments	Commercial	Public Open Space 1	Public Open Space 2
Arsenic	37	40	49	640	79	170
Benzene	0.87	3.3	0.18	98	140	230
Benzo(a)Pyrene	5.0	5.3	5.7	77	10	21
Cadmium	22	150	3.9	410	220	880
Chromium VI	21	21	170	49	21	250
Lead	200	310	80	2300	630	1300

All concentrations expressed in mg/kg

This table should be read in conjunction with the Final C4SL R&D Report

10.1 SOIL QUALITY

In terms of any proposed redevelopment of the site, the results of the analysis of the selected soil samples recovered during the site investigation indicated that the concentrations of *metals and metalloids* considered to be potentially toxic to humans were below the respective guideline values in all samples tested.

Organic contamination across the site was low and concentrations which may be considered to pose an unacceptable risk to human health should any viable pathway exist were not encountered.

Asbestos contamination was also not encountered within any of the soil samples analysed.

A comprehensive description of the soil quality as measured as part of the intrusive site investigation is given below.

10.1.1 Toxic Metals

Concentrations of toxic metals arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium, and zinc were all below their respective soil guidance values for either a residential development under the CLEA/LQM GAC guidelines and the C4SL guideline values for a residential (with plant uptake) end use where appropriate in all soil samples tested.

10.1.2 Phytotoxic Metals

Concentrations of copper, nickel, and zinc were found to be below the maximum permissible concentration for use on soils for the relevant pH level in all of the analysed soil samples.

10.1.3 Organic Compounds

Polycyclic Aromatic Hydrocarbons (PAH)

Concentrations of PAH were generally low and were found to be below the inert waste acceptance criteria of 100 mg/kg as detailed in the EC Landfill Directive 1999/31/EC as applied under the Environmental Permitting (England and Wales) (Amendment) (EU Exit) Regulations 2019 (*SI 2019/39*) and as defined by the council decision establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC(2003/33/EC), in all of the samples tested.

Benzo(a)pyrene (B(a)P)

B(a)P concentrations were below the C4SL guideline limit value of 5.0 mg/kg for a residential (with home-grown produce) end.

Speciated PAH Compounds

All speciated PAH compounds, within all of the analysed soil samples, were below their relevant guideline values.

Total Petroleum Hydrocarbons

Concentrations of TPH were low and were significantly below the inert waste acceptance criteria of 500 mg/kg as detailed within the Landfill (England and Wales) Regulations 2004 and also within the UK Water Industry Research (UKWIR) in all soil samples tested.

Generic Assessment Criteria (GAC) for total petroleum hydrocarbons according to both their molecular weight and chemical structure and also for a range of soil organic matter

(SOM) content values have been derived using CLEA software. The LQM CIEH GACs are presented according to their soil organic matter content and assumed end use of the land.

Comparison of the measured TPH data with the worst-case scenario constituent compounds and their GAC limit values was made to provide a conservative assessment of the organic contamination. The maximum TPH concentration recorded on site during the site investigation was 66 mg/kg within WS8 (0.2m) comprising predominantly of 55 mg/kg within the C21-C35 range, which is significantly below the absolute worst-case relevant GAC limit of 1,400 for C21-C35 for a residential with plant uptake end use.

It was noted that the near surface made ground soils from WS6 and WS7, identified to have a slight hydrocarbon odour based on olfactory methods (see logs), were subsequently tested and proven to not contain any significant petroleum hydrocarbon contamination.

The madeground with the slight hydrocarbon odour at WS6 and WS7 was noted in a gravelly clay subbase material. No staining or odours were noted in natural Clay soils below the subbase at 0.6 m in these excavations.

The TPH concentrations recorded on site, were below the relevant GAC limit for their respective ranges and would therefore not be considered to pose a significant risk of significant harm to human health.

Detectable concentrations of a range of other organic compounds, namely BTEX and MTBE were not found in any of the samples tested.

10.1.4 Inorganic Compounds

Concentrations of water-soluble sulphate close to surface were found (as SO_4) to be between <10 mg/l (below the analytical detection limit) and 333 mg/l within all the analysed soil samples.

The pH values were generally neutral to acidic with values ranging between 5.9 to 7.6 units.

10.1.5 Asbestos

Asbestos screening of the soil samples did not identify any Asbestos Containing Material (ACM).

10.2 Soil Gas

Three soil gas visits were carried out between the 10th and 26th September 2024.

During the visits, a soil vapour survey was undertaken which comprised the monitoring of the atmosphere within the installed Window Sample Hole standpipes. Portable gas monitoring equipment (GA 5000) was used to monitor the standpipes for concentrations of carbon dioxide (CO_2), methane (CH_4) and oxygen (O_2).

For determining the gas protection measures which may be required in low rise buildings with a beam and block floor there is published guidance from the NHBC for use on residential developments which utilises a traffic light system of classification. For larger buildings the guidance in CIRIA 665 and BS8485 is used.

Reference has also been made to the British Standard Code of Practice BS8485:2015, *Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new building*s and regard has been given to the recommendations presented therein. The processes set out in BS8485 represent good practice and is based on the CIRIA C665 document.

In addition CIRIA document C735, *Good practice on the testing and verification of protection systems for buildings against hazardous ground gases* has also been referenced.

The results obtained from the short-term soil gas monitoring undertaken indicated that elevated concentrations of soil gas *were not present* in the soils underlying the site. The soil gas results are attached at Appendix 8.

The results obtained from the soil gas survey undertaken indicated that elevated carbon dioxide concentrations were below the action level of 5%.

Methane concentrations were below the action level of 1% at all locations.

There was no measurable flow detected within any of the window sample installations.

10.3 WATCHING BRIEF AND DISCOVERY STRATEGY

It is understood that the decommissioned underground tanks are still on site. There are no current proposed redevelopment plans but it is understood that housing may be proposed. The tanks may need to be removed to facilitate re-development of the site. There is no indication of the tanks or associated dispensing infrastructure having leaked or failed during its use. The tanks were only in use for a few years at most.

If, any future proposed re-development plans involve the excavation and removal of the decommissioned tanks, the excavation void should be inspected for hydrocarbon stains and odours by a suitably competent environmental consultant/engineer.

Similarly, the fuel station's site drainage would have been through an oil/water separation interceptor which would also likely be excavated and removed from site. While there is no indication of any impacts to the surrounding soils from the use of the soil, validation inspection would also be required below the surface water drainage interceptor.

Whilst no significantly elevated contaminant concentrations were encountered as part of this site investigation, should discrete hotspots be encountered, which were not previously detected during any future site clearance or groundworks, these should be dealt with accordingly, by informing all parties involved with the site and drafting new contamination proposals if necessary. A number of options are available for handling any such material, which include:

- The removal from site and disposal to a suitably licensed landfill of all material suspected of being contaminated.
- Short-term storage of the suspected material while undertaking verification testing for suspected contamination. The storage area should be a contained area to ensure that contamination does not migrate and affect other areas of the site. Depending upon the amounts of material under consideration, this could be either a skip or a lined area.
- Treatment of the identified contamination as discussed above.
- Having a suitably experienced Environmental Engineer either on-call or with a watching brief for the visual and olfactory assessment of the material, and sampling for verification purposes.

Should a new source of contamination be suspected or identified then the relevant local authorities would be informed. A report indicating the nature of contamination and how this is to be dealt with would be submitted to their department and for their agreement. Any necessary remediation would then be detailed and verified in a supplementary remediation statement.

GES can confirm that such a watching brief should exist on this site during any enabling/construction works and should any contamination or potentially contaminative sources be discovered during the proposed enabling works all site works would cease and suitably competent consultants/engineers will attend site.

11 CONTAMINATION RISK ASSESSMENT

This risk assessment has been undertaken with due regard to the advice relating to groundwater as provided in the Environment Agency's "Methodology for the Derivation of Remedial Targets for Soil and Groundwater to Protect Water Resources", the advice provided in the Contaminated Land (England) Regulations 2000, and the associated statutory guidance. The guidance defines contaminated land as any land that is in such a condition that by reason of substances in, on or under the land:

- significant harm is being caused or there is a significant possibility of such harm being caused; or
- pollution of controlled water is being or is likely to be caused.

This definition is based on the principles of risk assessment defined as a combination of the probability (or frequency) of occurrence of a defined hazard and the magnitude (including the seriousness) of the consequences. Central to the risk assessment process is the concept of pollutant linkage, that is a linkage between a contaminant and a receptor by means of a pathway.

Statutory definitions relating to pollution linkage.	
Contaminant	"a substance which is in, on or under the land and which has the potential to cause harm or to cause pollution of controlled waters."
Receptor	"a living organism, a group of living organisms, and ecological system or a piece of property" which meets given criteria. "controlled waters which are, or could be, polluted by a contaminant".
Pathway	"one or more routes or means by, or through, which a receptor: • is being exposed to, or affected by, a contaminant, or • could be so exposed or affected".

The relationship between these components is discussed below in order to identify the existence of any source-pathway-receptor linkage on the site, and hence the potential risks associated with any contamination. In the absence of existing development plan, this risk assessment is based on an assumed redevelopment of the site for residential dwellings with associated soft landscaping.

The significance of the risks to the receptors/targets identified is based on an evaluation of the potential pathways between the contaminant source and receptors based on a residential (with plant uptake) end use.

Potential receptors/targets at the site and in the area in which the site is located include:

- future occupants and the general public;
- construction/maintenance workers;
- groundwater resources;
- underground services in and around the site;
- plants in any proposed garden and landscaped areas.

11.1 CONTAMINANT SOURCES

The site was an open field in maps dating from 1876 to 1962. By 1972, the site was in use as a filling station and anecdotally, the site was only open as a petrol station for 6 months in the 1970s and has been disused since.

It is understood the fuel station was closed and the below ground fuel storage tanks were decommissioned and filled with inert material. It is further understood that the tank filling and decommissioning was carried out under the supervision of the relevant authority at that time.

Neither GES nor the site owner have been able to access any historical information about the tanks decommissioning. The local Trading Standards Petroleum officer has no records, see Appendix 4. The environmental database has no record of a petrol station on site. The petrol station is shown on the historical maps.

The 1972 site layout plan attached at Appendix 12 and shows the three tanks below the pump island.

The pump dispensing island is still on site and there is no indication of any large historical excavation or disturbance of the brick- lined tank farm on site.

There are potential contamination risks associated site's historical use as a petrol station. Contaminants including heavy metals, TPH, PAH, BTEX, MBTE and asbestos may be harmful to human health should a viable exposure pathway remain i.e. in any proposed areas of gardens and soft landscaping.

The following potential contaminant sources have been identified at the site:

Potential Source	Source Description	Principal Contaminants of Concern
Current and Historic Site Use	Near surface in-fill/ reworked material of unknown origin. Demolition waste.	PAH, TPH, Metals, ACM
	Underground Fuel Storage Tanks.	PAH, TPH, BTEX & MTBE, Mineral Oil
	Hazardous materials used within existing on-site buildings.	ACM

The analytical testing of soils retrieved as part of the intrusive investigation did not reveal any significantly elevated contaminant concentrations. The risks associated with these contaminants are discussed below.

11.2 RISK TO HUMAN HEALTH

Toxic Metals

Concentrations of toxic metals arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, vanadium and zinc were all below their respective soil guidance values for a residential with plant uptake end use in all samples tested, therefore the risks posed to human health from these contaminants is considered to be low.

Organic Compounds

Concentrations of PAH and TPH, MTBE and BTEX were below their respective soil guidance values in all samples tested, including in samples taken from within the vicinity of the underground fuel storage tank location, including from depths at which hydrocarbon staining and odours were noted. Therefore, the risks posed to human health from these contaminants are considered to be low.

Asbestos

Asbestos-containing material has not been detected in any of the soil samples analysed on site and no potential sources of asbestos containing material were identified.

On the balance of the toxicological risks posed by the ground contamination encountered as part of the intrusive investigations undertaken by GES, it is considered that the potential risks to site workers and future occupants could be adequately controlled as follows:

Site Workers

- Provision of appropriate personal protective equipment and hygiene facilities.
- Provision of appropriate dust suppression, to minimise the generation of potentially contaminated suspended particulates during site works.

Future Occupants

Elevated levels of contaminants which could potentially pose a health risk to future users of the site were not identified during the intrusive investigation. Therefore, no remedial work, in terms of contaminated soils, is required upon the site as part of the proposed development, with regards to human health.

11.3 RISKS TO WATER RESOURCES

The site is underlain by a Principal Aquifer in the bedrock chalk and Unproductive Strata in the superficial Clay-with-flints formation. The site is located within a Zone III Environment Agency-designated Groundwater Source Protection Zone. There are no potable water abstractions within 1 km of the site.

The depth to groundwater is in excess of 20m and the unsaturated zone comprises uncontaminated low permeability clay.

Significant levels of potentially soluble and therefore mobile organic contaminant sources were not measured on site within the soil samples tested.

The risks to the underlying aquifer from any soluble/mobile soil contaminants is low.

11.4 RISKS TO PLANTS

The concentrations of potentially phytotoxic metals copper, zinc and nickel were all below their respective maximum permissible concentrations used in the Sewage Sludge (Use in Agriculture) Regulations 1989 for their relevant soil pH.

Furthermore, there are no signs of phytotoxic stress in any of the vegetation noted across the site. Therefore, the risk to plants is considered low.

Notwithstanding the above, given the significant thickness of made ground across the site, with respect to any proposed soft landscaped areas, the importation of clean suitable topsoil would therefore be necessary.

Any material imported to site for use in any proposed soft landscaped areas would require chemical testing to confirm its suitability for use.

11.5 RISKS TO BUILDINGS & SERVICES

The risks to buried services from organic contamination such as TPH, which can degrade/permeate plastics and other polymer materials used to supply potable water is considered to be negligible.

Based on current guidance, the need to protect incoming water supplies, e.g. by the use of barrier pipes, is unlikely given the contaminant levels encountered as part of this investigation however it is always advisable that confirmation from utility suppliers should be sought.

11.6 GAS RISK ASSESSMENT

The levels of soil gas underlying the site have been monitored as part of a short-term soil gas monitoring programme carried out across the site between the 10th September 2024 and the 26th September 2024. The results obtained from the soil gas survey indicate that elevated levels of soil gas, which may require gas protection measures to be incorporated into the development, are not present on site.

The highest carbon dioxide concentration encountered on site during this current investigation was measured in WS7 at 4.1% which is below the relevant guideline limit of 5%. Similarly, no elevated methane concentrations were recorded on site.

Measurement of both borehole pressure and gas emission rates indicates that no significant gas flows are present. The maximum gas flow rate measured on site was below the detection limit of the GA5000 built-in flow meter.

Based on BS 8485:2015, we have assessed the site based on the gas monitoring undertaken as part of the site investigation in order to calculate a Characteristic Gas Situation (CS).

Based on the worst-case gas characteristic situation, the worst-case implied CS derived by combining the maximum observed concentrations from different gas monitoring standpipes during any monitoring event and a worst-case flow rate of 1 l/h are as follows.

Flow Rate (l/h)	CH4 (%)	CO2 (%)	GSV – CH4 (l/h)	GSV – CO2 (l/h)	Implied CH4 CS	Implied CO2 CS
1	0	4.1	0	0.041	1	1

On the basis of the measurements in the table above, the GSV is taken to be 0.041 l/h, which is the worst case for methane and carbon dioxide. A GSV of 0.041 l/h lies within the GSV values for **CS1** (<0.07 l/h) which has a very low hazard potential.

BS 8485:2015 enables the minimum level gas protection (score) for the site or zones to be determined based on the determined CS and the type of proposed building. To provide a conservative assessment, it is assumed that the proposed end use of the site shall be residential, therefore a high-risk Type A building has been used for calculating the appropriate gas protection score.

Given that the site has an implied CS1, the minimum gas protection score required for a Type A building is 0, which means that gas protection measures would not be required as part of any proposed development based on current gas concentrations.

Therefore, the risks from ground gases on site are considered to be very low.

11.7 WASTE DISPOSAL

Should an excess volume of soil be required to be disposed of off-site then a waste classification may be required.

For a waste classification to be undertaken, materials may need to be subjected to chemical testing which would give an indication to the contaminants present and, therefore those most toxic to the environment in the waste. Following the assessment of the waste as hazardous or non-hazardous waste acceptance criteria leachate testing allows the appropriate disposal pathway to a suitably licensed disposal facility to be further determined.

Waste acceptance criteria (WAC) leachate testing was carried out on a composite soil sample from across the site. The results are attached at Appendix 10 and show that no leachable content in excess of the inert limit values was noted.

As a preliminary waste assessment and based on the results of materials tested to date, it is considered that the majority of any surplus soils requiring off-site disposal would be classified as EWC 17 05 04 non-hazardous and would likely be considered to be acceptable at a waste facility licensed to accept inert material. The final decision will rest with the waste facility permit holder.

12 CONCEPTUAL SITE MODEL

A conceptual site model (CSM) is a system diagram identifying contaminant sources, routes of exposure (pathways), and which receptors are affected by contaminants moving along those pathways.

The model is produced to identify the zones of the site with different potential contaminations characteristics (e.g. whether contaminants in the soil are likely to be on the surface or at depth, distributed over an entire area or in localised 'hot spots').

The conceptual site model presented in the table below is based on the findings of the site investigation undertaken and can be compared to the preliminary conceptual site model at Section 6.

Source	Pollutant	Pathway	Hazard	Receptor	Observations/ Recommendations	Assessed Risk
Contaminated ground	Metals, organic (hydrocarbons) could be present	Direct contact, ingestion, inhalation.	Health risks including skin irritation.	Humans: site workers	No significantly elevated contaminant concentrations encountered.	Low
		Surface run off.	Lateral movement to surface watercourses.	Aquatic resources, ecology and subsequent users including humans.	No mobile contamination, no surface water courses in vicinity of the site.	Low
		Leaching/ Dispersion.	Downward migration to groundwater.	Aquatic resources – Groundwater, abstraction wells) / surface waters.	No mobile contamination	Low
		Uptake by plants.	Phytotoxic effects.	Soft landscaped areas / plants.	Made ground to be removed to accommodate topsoil.	Low, following placement of suitable growth media in garden and soft landscaped areas.
		Direct contact	Aggressive chemical attack	Building structures and services	No significant organic contamination	Low
Liquid contaminant sources	Diesel, Petrol and Oils.	Direct contact; ingestion, inhalation.	Health risks including skin irritation. Lateral and vertical migration of contaminants.	Humans: site workers. Groundwater and surface water.	No significant contamination, and no mobile/soluble organic contamination on site.	Low
Asbestos	Asbestos fibres within made ground and waste on site	Inhalation.	Health risks including asbestosis, mesothelioma, and lung cancer.	Humans: site workers and future occupants.	Asbestos not identified on site. Appropriate PPE worn during site works.	Low
Landfill, madeground,	Ground Gases (CO_2, CH_4)	Inhalation and ingress into buildings	Asphyxiation and explosions	Buildings/humans/ future site users	No significantly elevated gas concentrations recorded	Low
Redundant Waste, Demolition Waste		Dermal Contact/ingestion. Potential for migration via surface water run-off	Health Risks	Humans: Site workers	Non Hazardous waste Inert Landfill	Low

13 CONCLUSIONS AND RECOMMENDATIONS

Based on the site investigation, intrusive works and subsequent data assessment, the following conclusions and recommendations have been drawn in respect of the former Archway Filling Station Site on New Dover Road, Capel-le-Ferne, CT18 7JD.

Geotechnical

- The ground investigation generally found soils typical of the Clay with Flints beneath a surface layer of Made Ground.
- There were no definitive development proposals for the site at the time of this investigation, but that there may be future plans for a residential end use of the site. For preliminary foundation design purposes, a line load of 60kN/m run has been adopted.
- Based on field observations an allowable bearing pressure of 110kN/m^2 was recommended at a minimum depth of 1.2m. Foundations within the Clay with Flints soils should follow guidelines for low shrink/swell potential soils and should extend a minimum of 0.3m into natural soils.
- It is recommended that a minimum foundation width of 0.5m is adopted.
- The results of the settlement calculations predicted total settlements would be in the order of 20mm.
- Suspended ground floor slabs were recommended.
- For preliminary design purposes it is recommended that a CBR value of 3% should be adopted.
- Based on the results of the falling head tests the use of shallow soakaways is not considered to be a viable option for disposal of surface water.
- In accordance with BRE Special Digest 1 (SD1) a design sulphate class for the site of DS-1 and a class of AC-1 is recommended.

Environmental

- The site is located above a Principal Aquifer within the bedrock strata and Unproductive Strata in the superficial deposits and is located within an Environment Agency defined groundwater Source Protection Zone III.
- The site has previously been in use as a petrol station, but as per the historical maps, has not been used for this purpose since before 1987. Anecdotally, the site was only open as a petrol station for 6 months in the 1970s.
- Decommissioned below ground tanks were backfilled with inert material and remain on site. No records of the decommissioning are available.
- No sources of contamination were identified on site as part of the walkover.
- No visual or olfactory evidence of organic contamination was noted during the intrusive investigations or noted in the detailed soil sampling logs with the

exception of black staining and a slight hydrocarbon odour noted in near surface madeground subbase at WS6 and WS7.

- Concentrations of organic contaminants within soils such as PAH, TPH, BTEX and MTBE were low across the site and would therefore not be considered to pose a significant risk of significant harm to human health.
- There is no indication of the tanks having leaked.
- Concentrations of toxic metals were below their respective soil guideline values and therefore are not considered to pose a significant risk of significant harm to human health.
- In the absence of a suitable growth media on site, it is recommended that certified clean topsoil and sub soil would be imported into any proposed garden and soft landscaped areas during any re-development of the site.
- The risks posed to workers involved in any future redevelopment of the site are not considered significant providing standard health and hygiene practices are adopted.
- Concentrations of phytotoxic metals on site are low.
- Based on low concentrations of organic contaminants found across the site, it is unlikely that any new services, in particular potable water, will require protection, however it is advisable to seek service provider confirmation of this.
- No gas protection measures are considered necessary within the construction of any new buildings on the site.
- The risk to groundwater in the underlying Principal aquifer is low.
- The majority of any surplus soil material to be removed off site is likely to be classified as non-hazardous and may be acceptable at a facility licensed to accept inert waste.
- It is recommended that a watching brief is implemented on this site during enabling works and should any contamination or potentially contaminative sources be discovered during the proposed enabling works all site works would cease and suitably competent consultants/engineers will attend site.

In the context of planning, while no application has been made yet, it is considered that following the importation of growth media to soft landscaped areas, there would be no risks posed to sensitive receptors including future site users from contamination on site if the site was used for houses with gardens.

Based on the principles and definitions outlined under section 57 of the Environment Act 1995, the site would not be considered to be “Contaminated Land”.

KEY:

- WS - WINDOW SAMPLE
- BH - BOREHOLE
- (I) - INSTALLATION
- TP - TRIAL PIT
- HDTP - HAND DUG TRIAL PIT
- SP - SOAKAGE PIT
- DCP - DYNAMIC CONE PENETRATION
- DP - DYNAMIC PROBE
- HA - HAND AUGER
- PT - PERCOLATION TEST
- GM - GAS MONITORING STANDPIPE
- S - SAMPLE LOCATION

CLIENT:
Bob Muston, Guardian Parks

SITE ADDRESS:
Archway Site
New Dover Road
Capel-Le-Ferne

DRAWING NO.:
Figure 1

DRAWING TITLE:
Exploratory Hole Location Plan

PROJECT NO.:
13329

DATE:
09/24

DRAWN:
PJ

REVISION:
00

GROUND AND ENVIRONMENTAL SERVICES (GES) LIMITED
UNIT 2
MONTPELIER BUSINESS PARK
DENCORA WAY
ASHFORD
KENT TN23 4FG
TEL: 01233 646 237

Figure 3: Dover Road, Capel le Ferne
SPT N60-Depth Profile

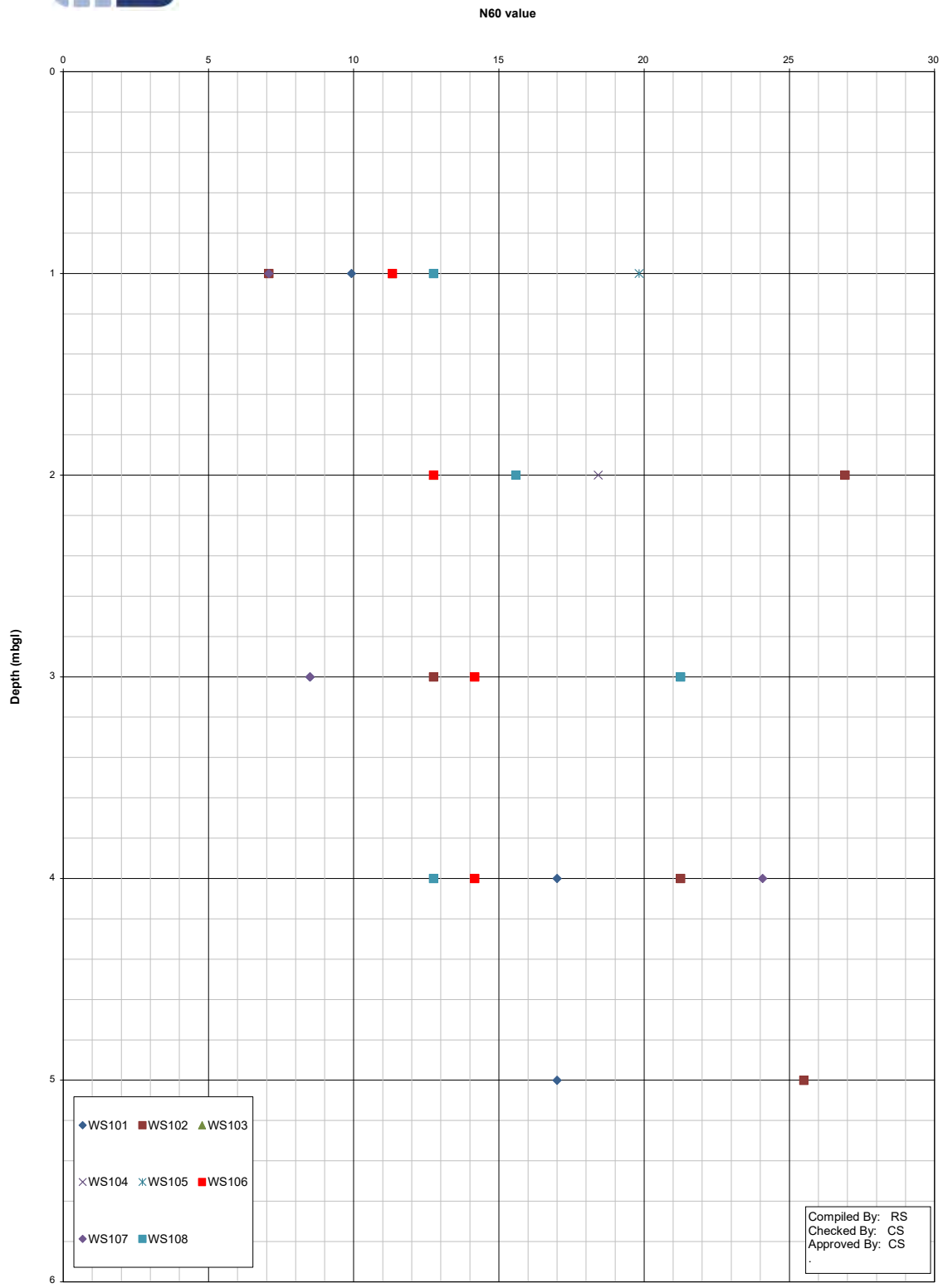
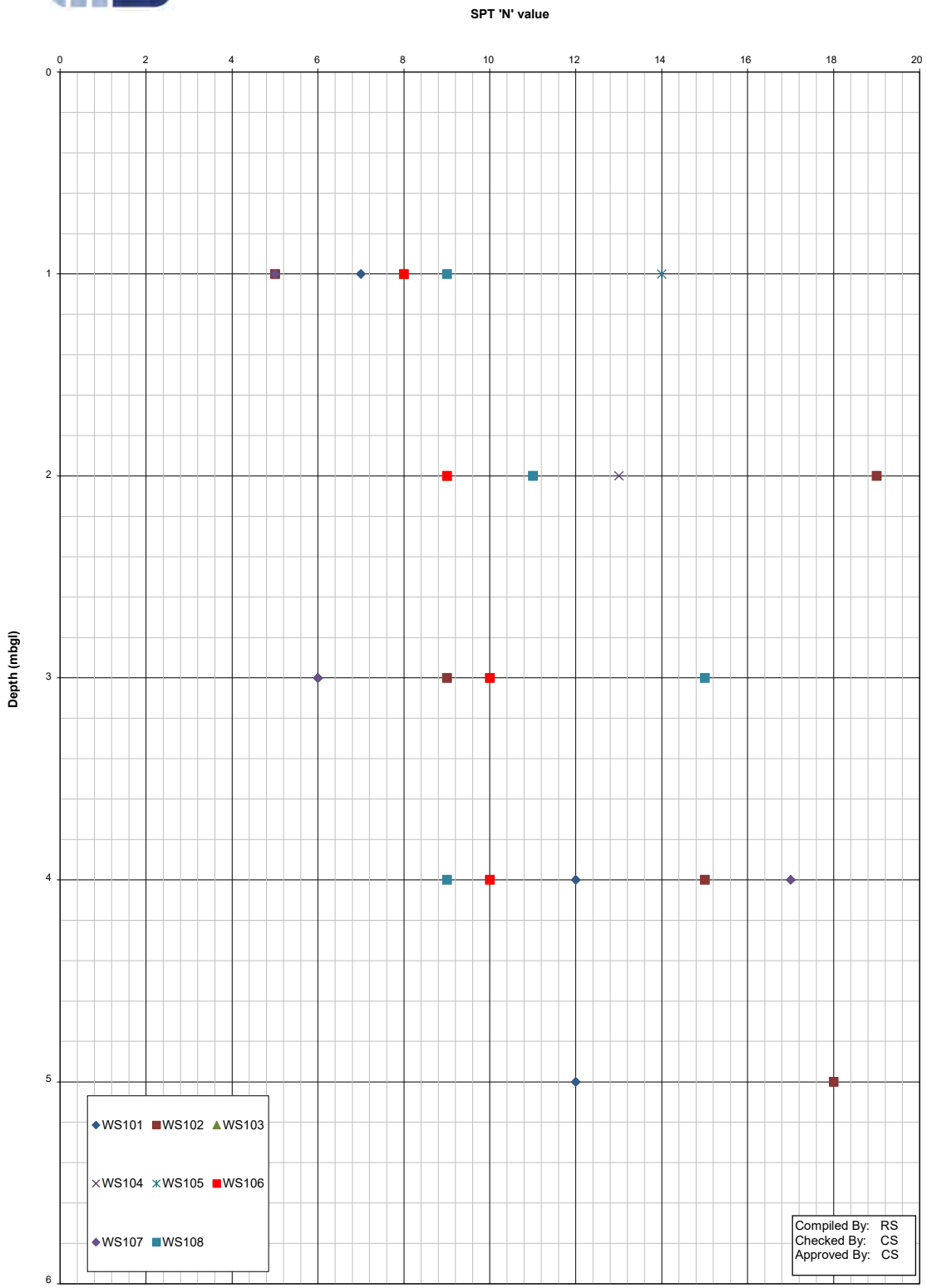


Figure 2: Dover Road, Capel le Ferne
SPT N-Depth Profile



APPENDIX 1

SITE PHOTOGRAPHS

Photo 1 – View west at southern end of site in location of petrol pumps.

Photo 2 – View west at southern end of site in location of petrol pumps.

Photo 3 – View from south east along eastern boundary. Residential dwellings located beyond fence.

Photo 4 – View from south eastern corner across centre of development area.

Photo 5 – View of centre of development area with demolition debris.

Photo 6 – View of northern part of the development area showing demolition debris.

Photo 7 – View of southern edge of development site taken from north eastern corner.

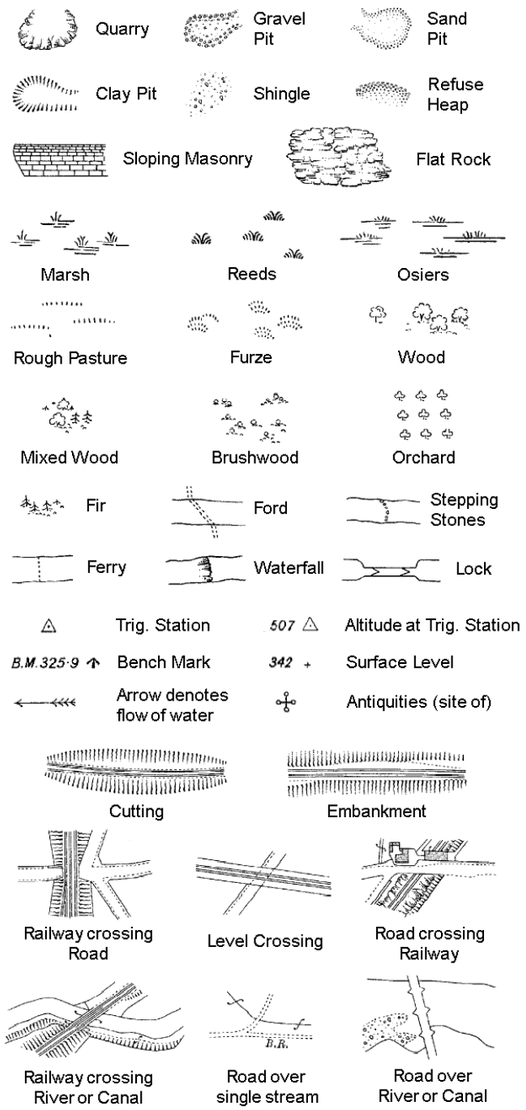
Photo 8 – View of eastern boundary taken from north eastern corner of the site.

APPENDIX 2

HISTORICAL MAPS

Historical Mapping Legends

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



County Boundary (Geographical)

County & Civil Parish Boundary

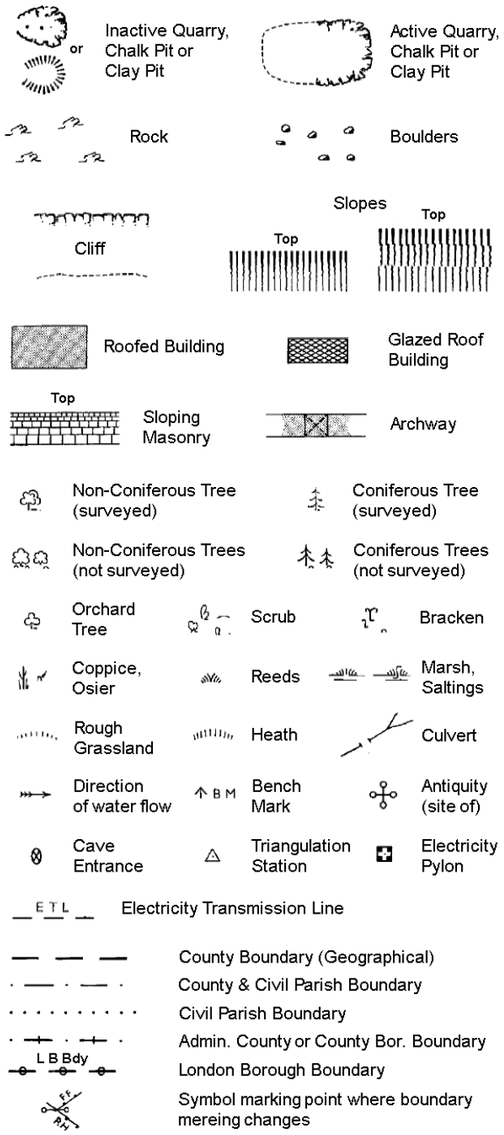
Administrative County & Civil Parish Boundary

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

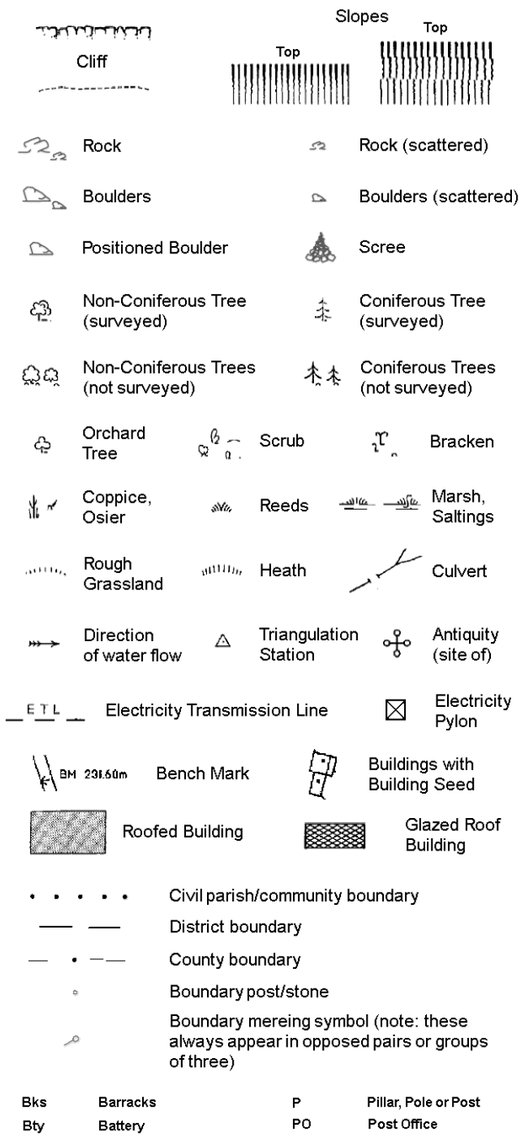
Admin. County or County Bor. Boundary

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

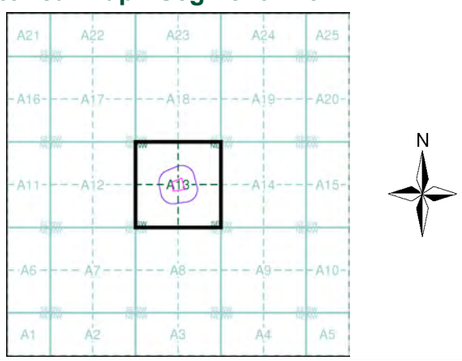
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

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

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Kent	1:2,500	1876	2
Kent	1:2,500	1898	3
Kent	1:2,500	1907	4
Kent	1:2,500	1937	5
Ordnance Survey Plan	1:2,500	1972	6
Additional SIMs	1:2,500	1987	7
Large-Scale National Grid Data	1:2,500	1993	8
Large-Scale National Grid Data	1:2,500	1993	9
Large-Scale National Grid Data	1:2,500	1993	10
Large-Scale National Grid Data	1:2,500	1994	11

Historical Map - Segment A13



Order Details

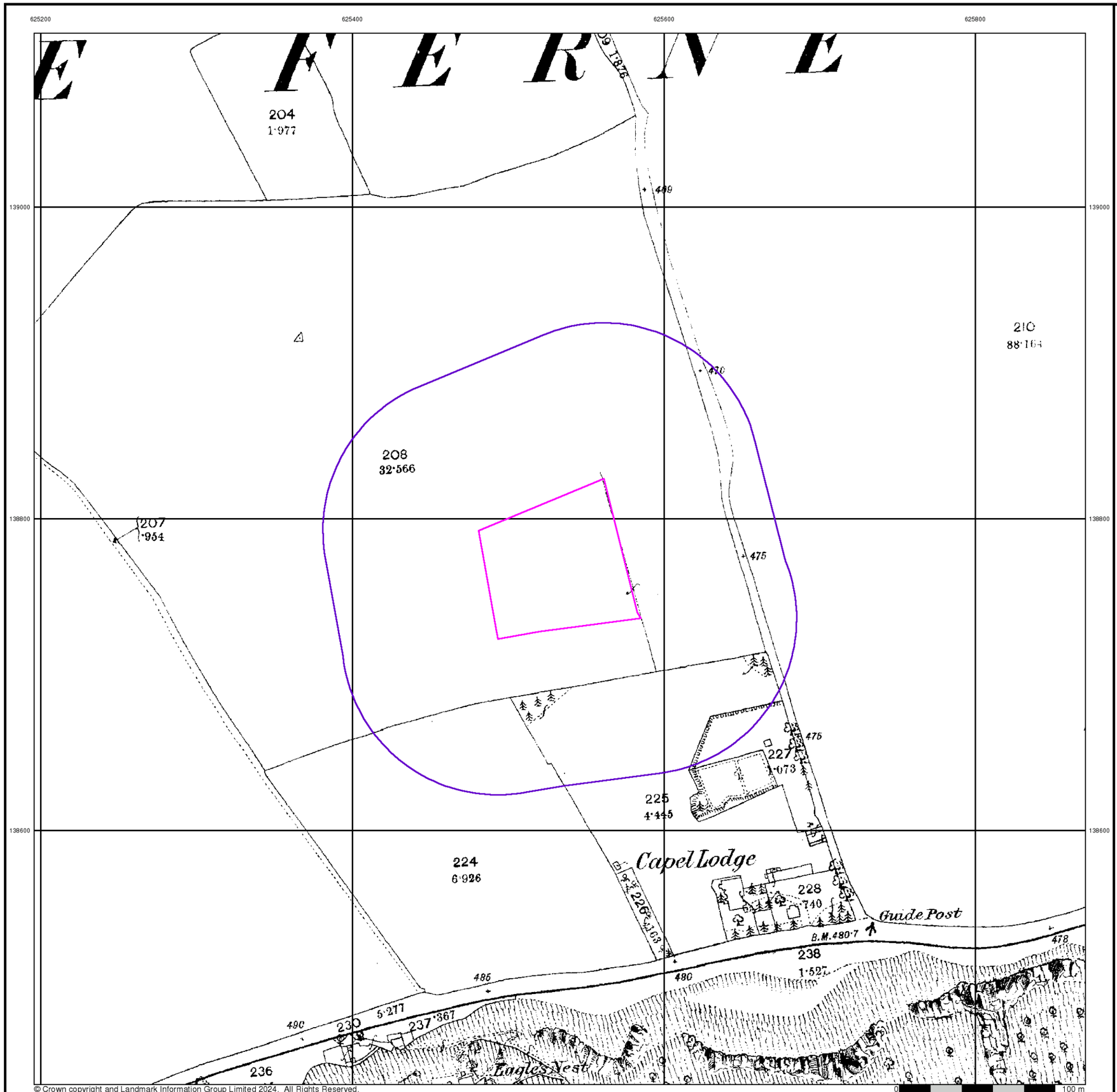
Order Number:	356007273_1_1
Customer Ref:	13329
National Grid Reference:	625530, 138770
Slice:	A
Site Area (Ha):	0.72
Search Buffer (m):	100

Site Details

Archway Site, New Dover Road, Capel-le-Ferne, Folkestone, CT18 7JD

Landmark INFORMATION GROUP

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



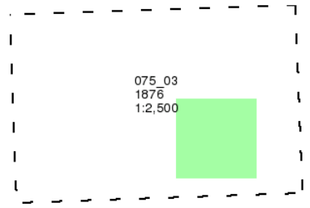
Kent

Published 1876

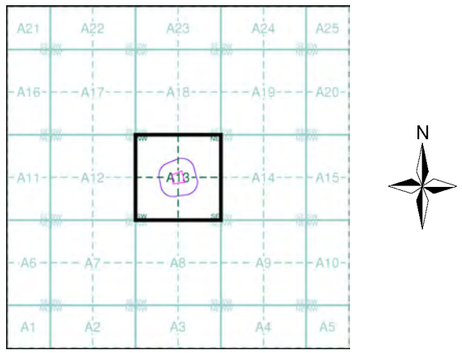
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



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Site Area (Ha):	0.72
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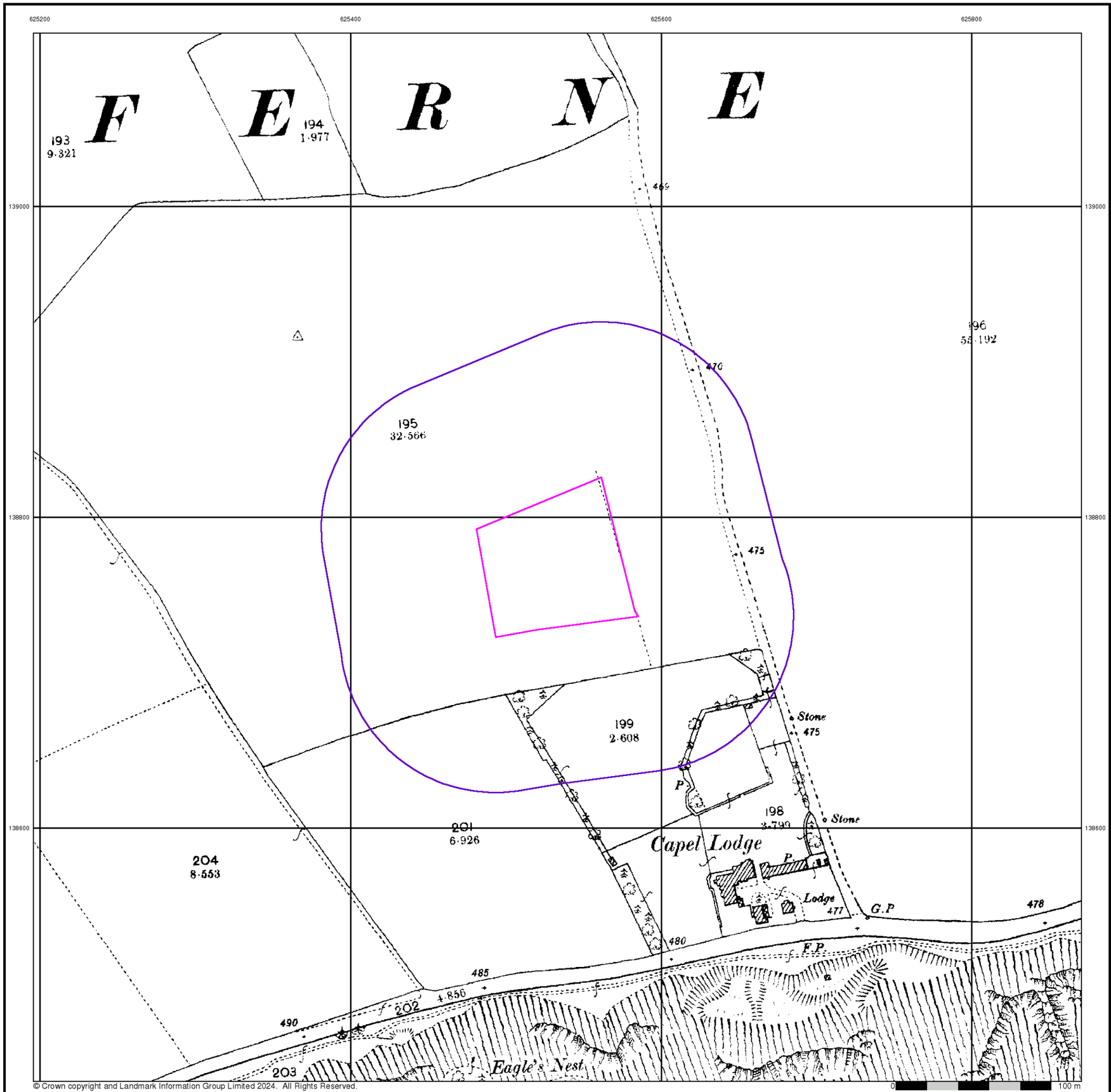


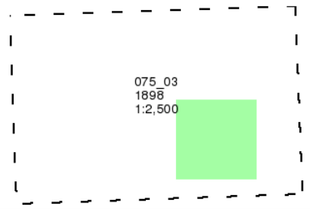
Kent

Published 1898

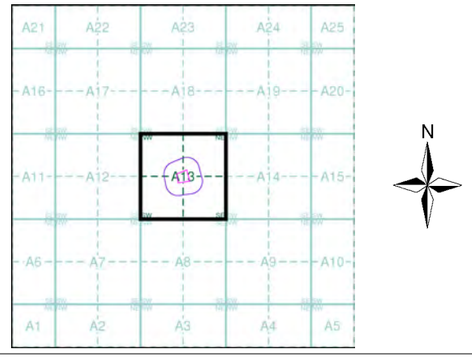
Source map scale - 1:2,500

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



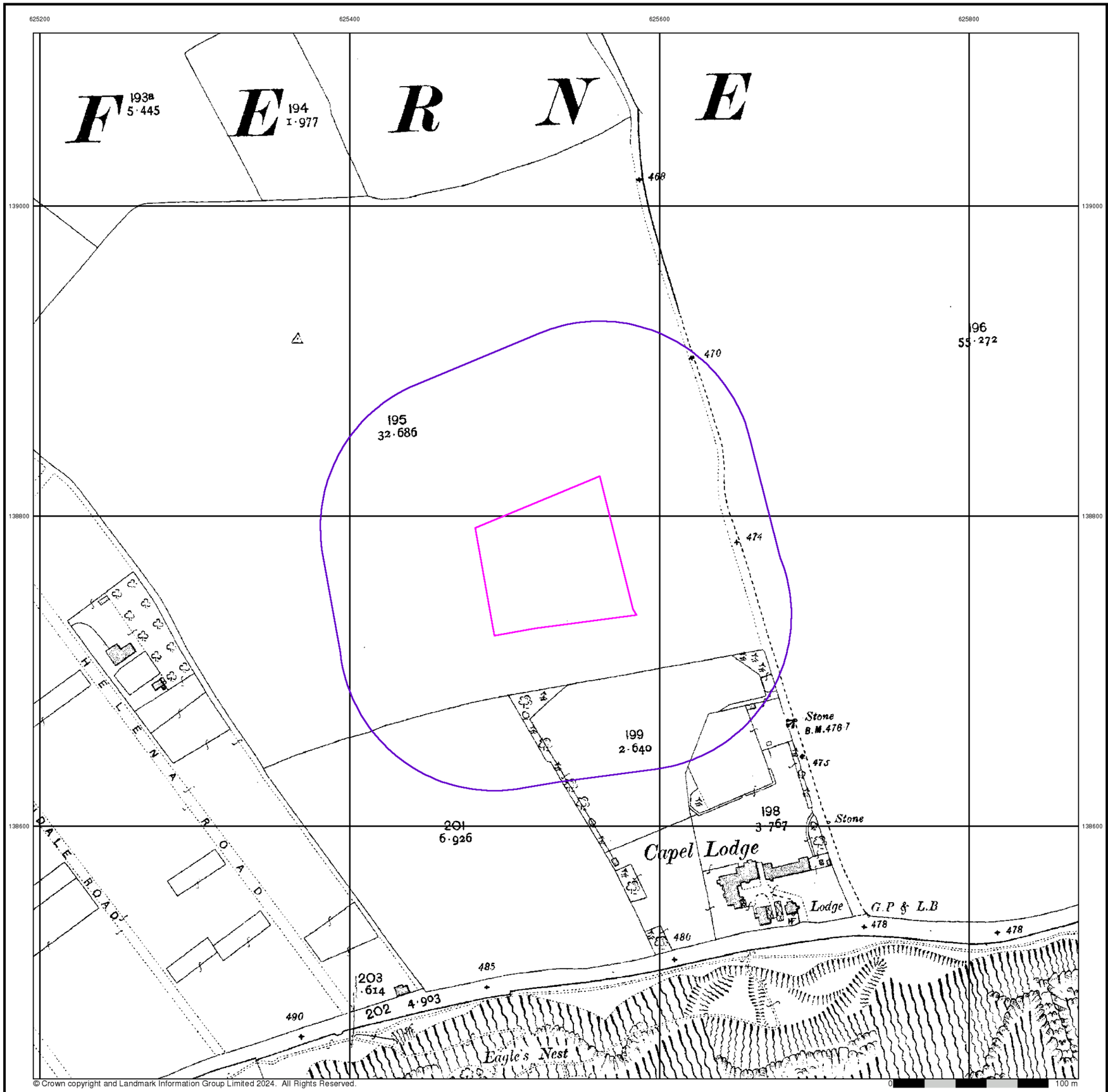
Order Details

Order Number:	356007273_1_1
Customer Ref:	13329
National Grid Reference:	625530, 138770
Slice:	A
Site Area (Ha):	0.72
Search Buffer (m):	100

Site Details

Archway Site, New Dover Road, Capel-le-Ferne, Folkestone, CT18 7JD

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



Kent

Published 1907

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.

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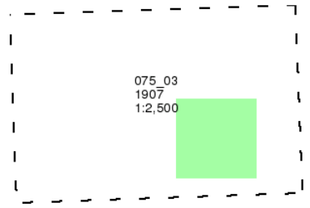
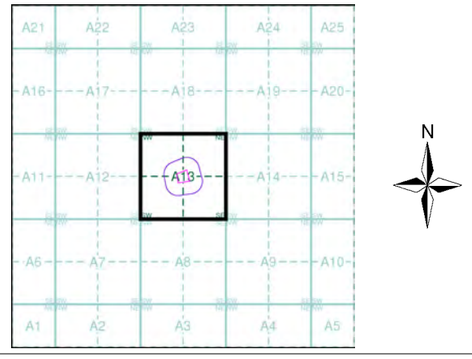


Historical Map - Segment A13



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National Grid Reference:	625530, 138770
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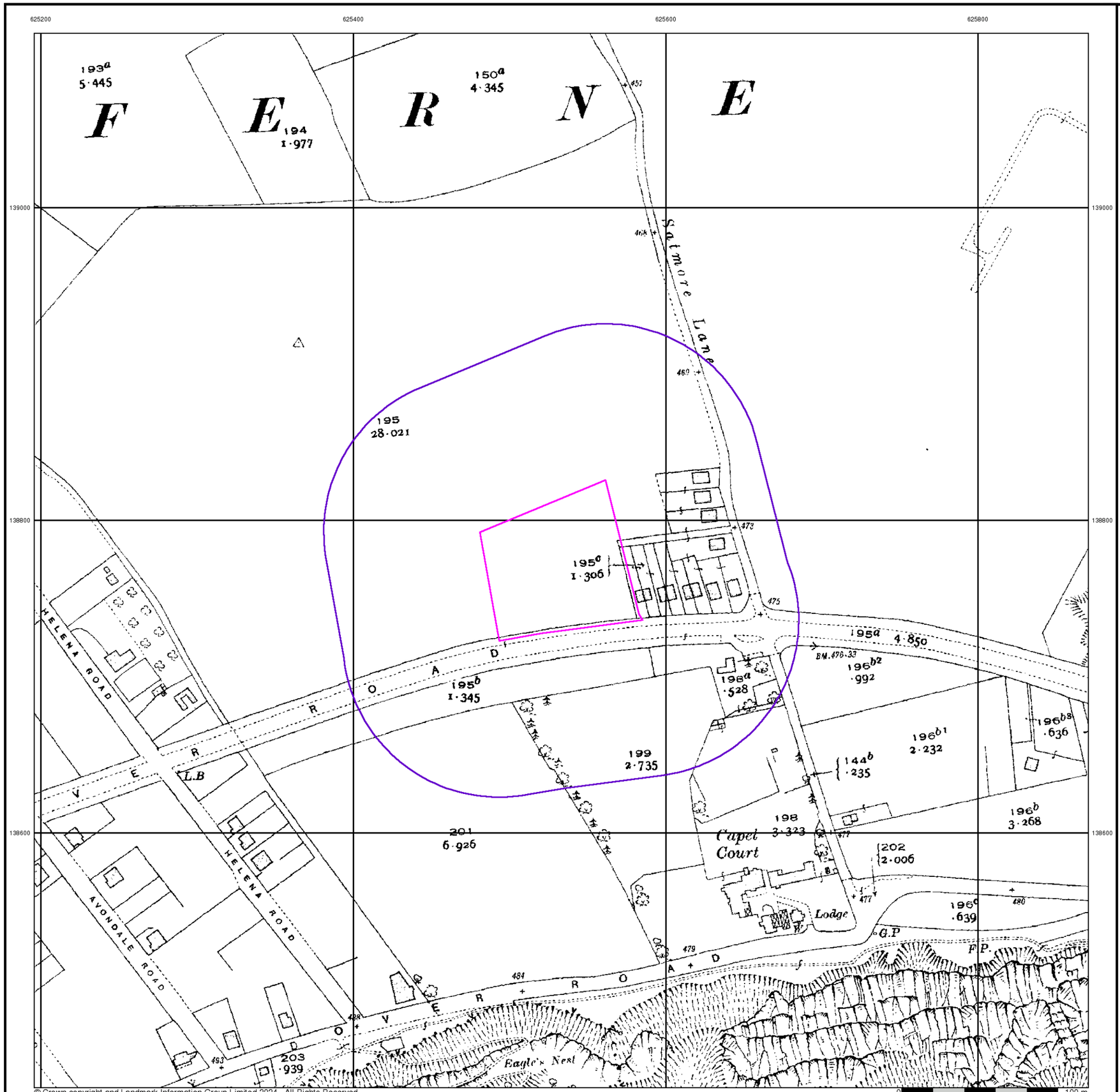


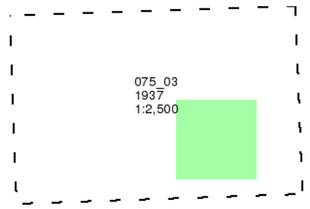
Kent

Published 1937

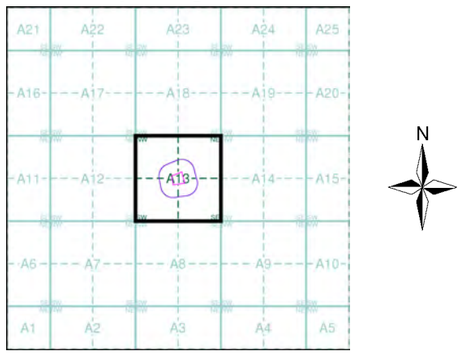
Source map scale - 1:2,500

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:	356007273_1_1
Customer Ref:	13329
National Grid Reference:	625530, 138770
Slice:	A
Site Area (Ha):	0.72
Search Buffer (m):	100

Site Details

Archway Site, New Dover Road, Capel-le-Ferne, Folkestone, CT18 7JD

Landmark INFORMATION GROUP
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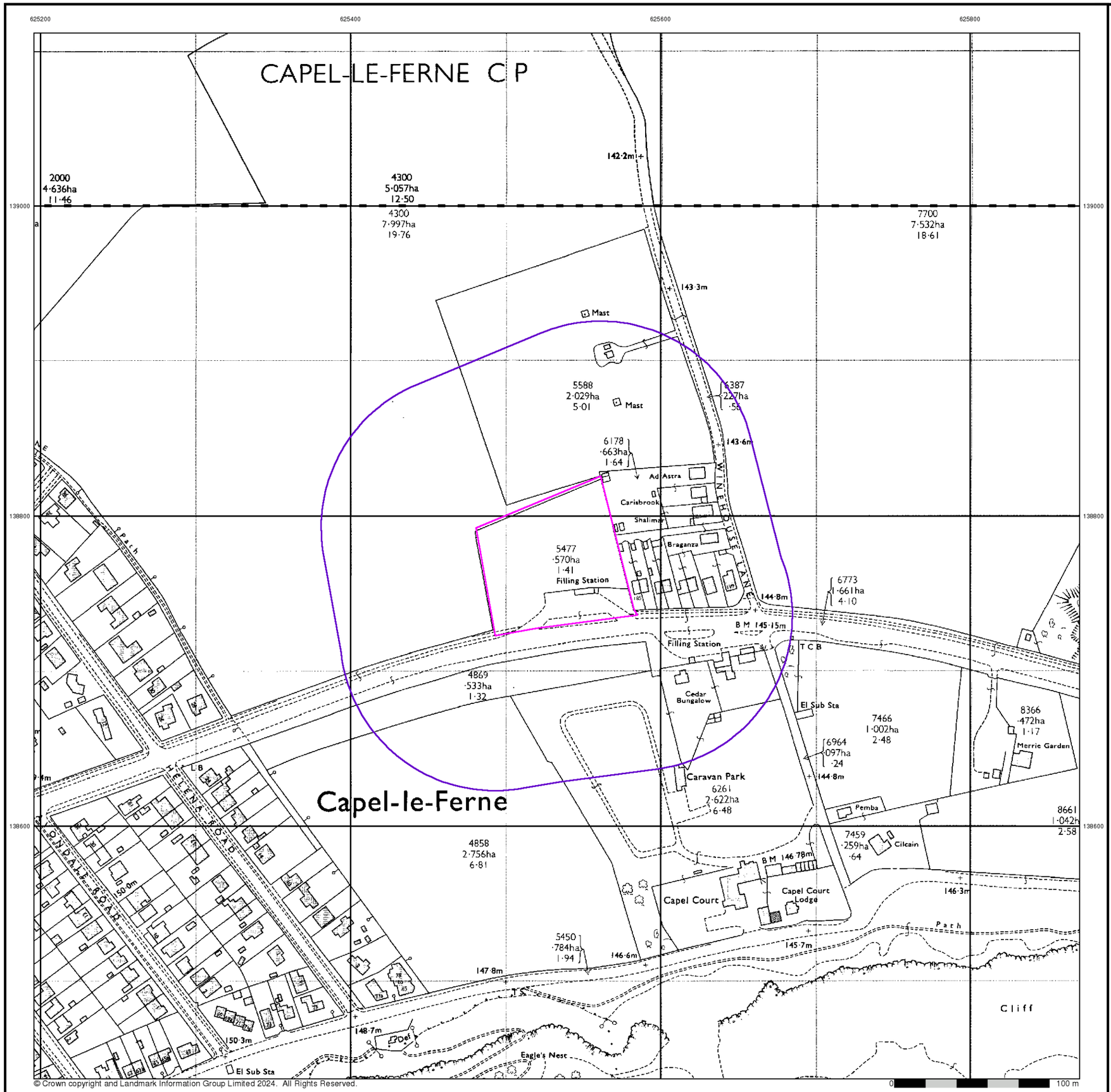


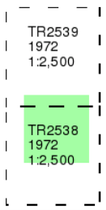
Ordnance Survey Plan

Published 1972

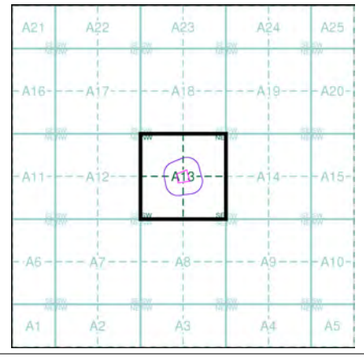
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



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Order Number:	356007273_1_1
Customer Ref:	13329
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Site Area (Ha):	0.72
Search Buffer (m):	100

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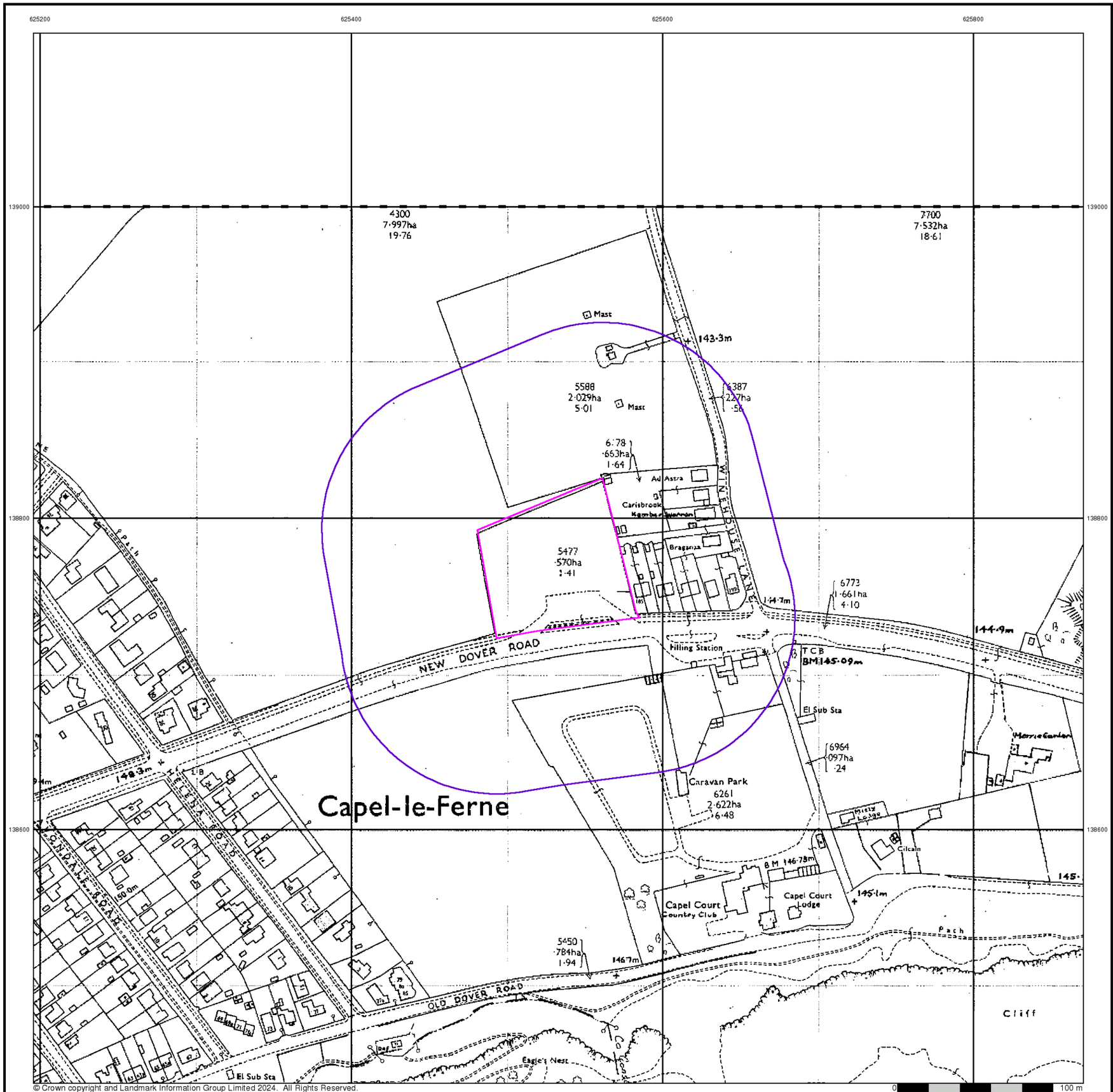


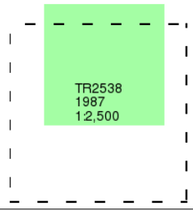
Additional SIMs

Published 1987

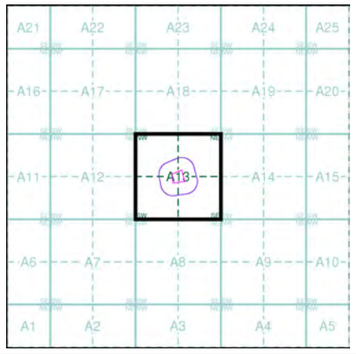
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



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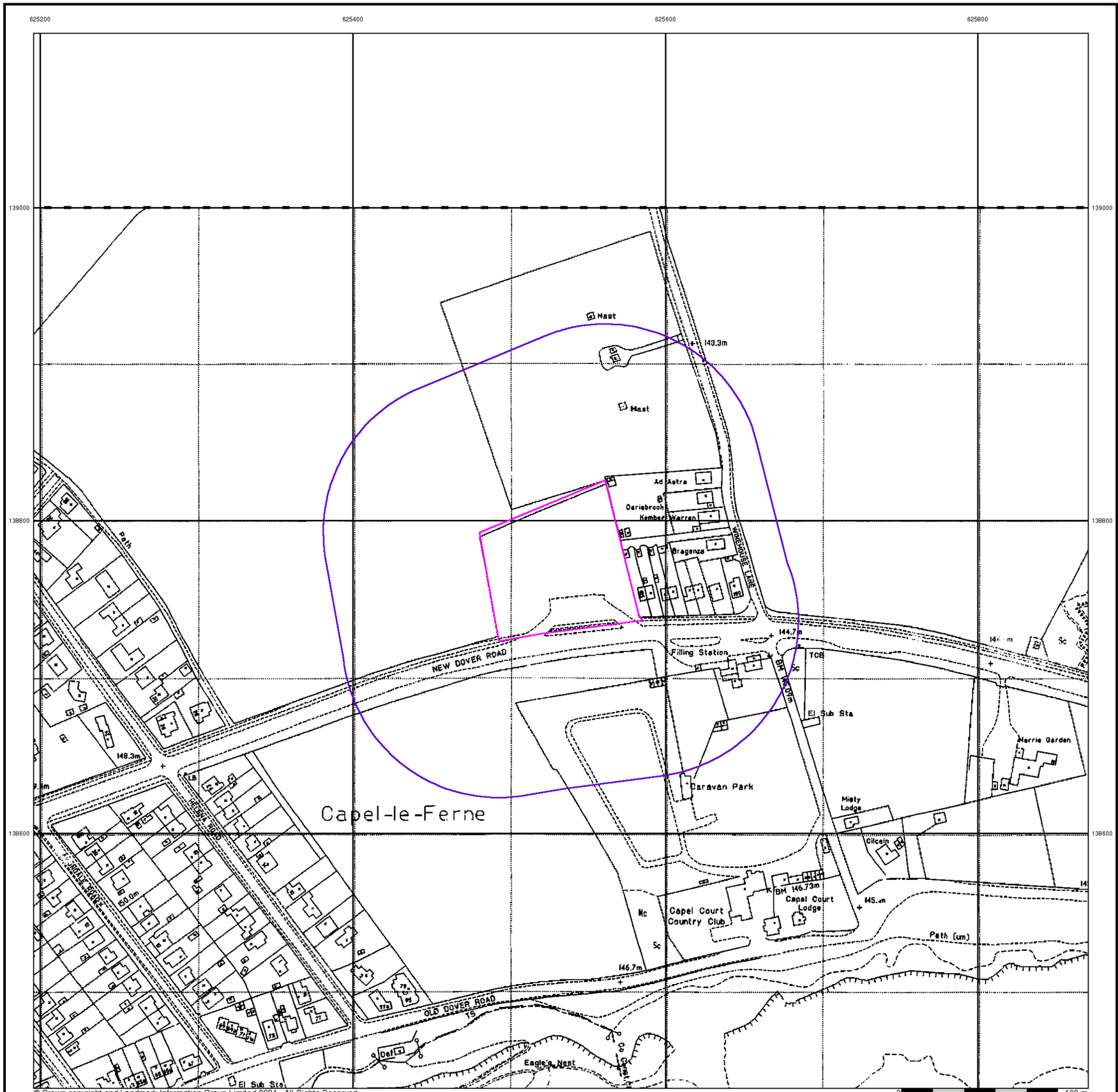


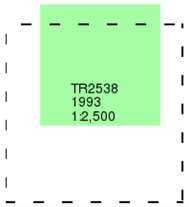
Large-Scale National Grid Data

Published 1993

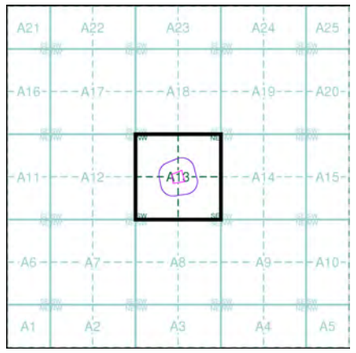
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



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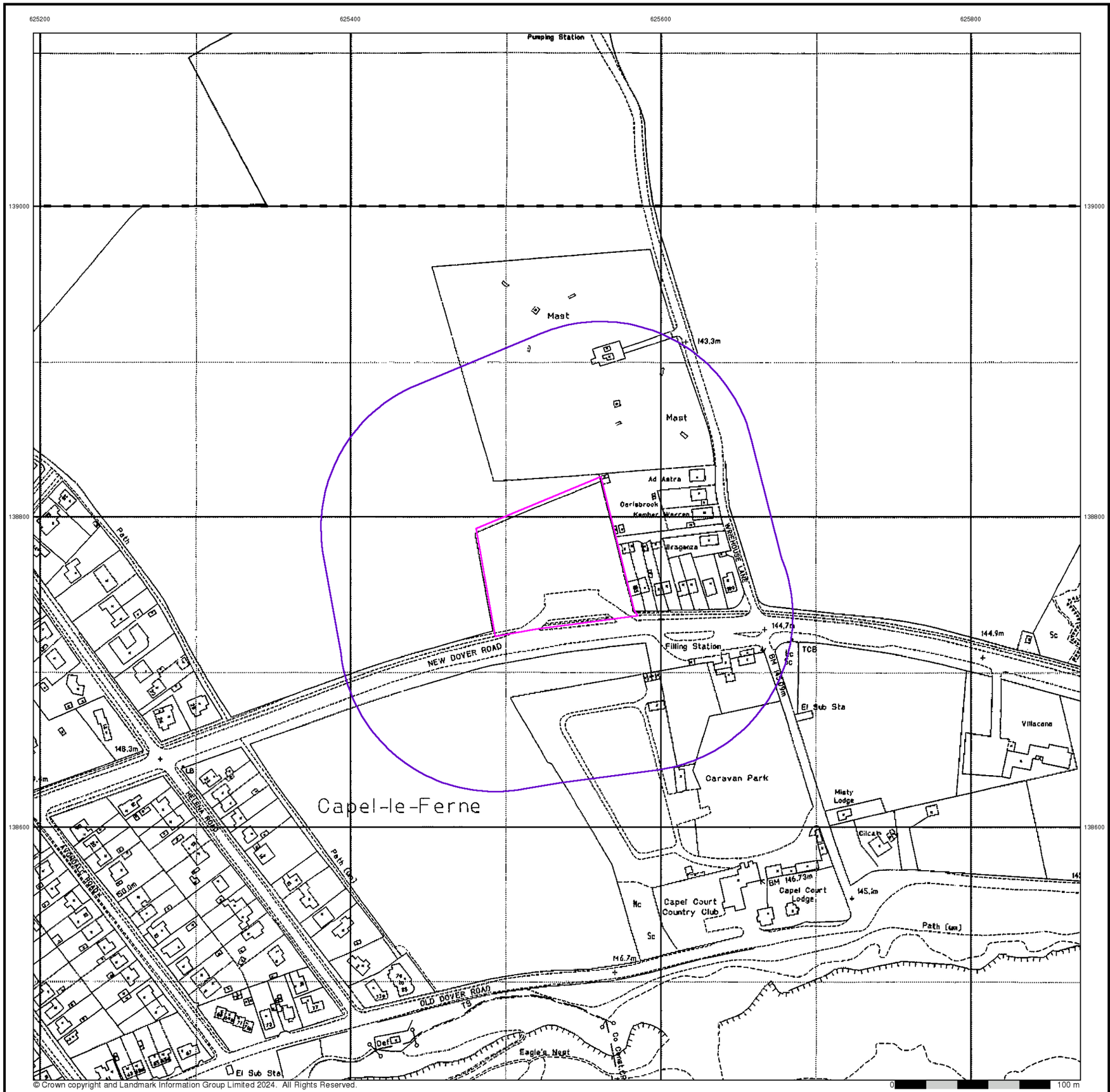

Large-Scale National Grid Data

Published 1993

Source map scale - 1:2,500

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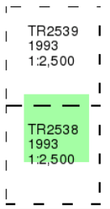
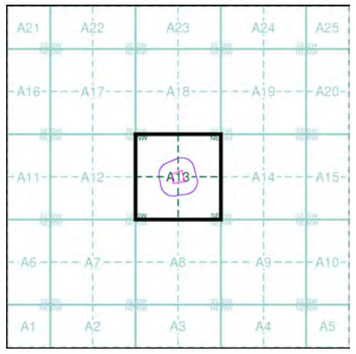


Historical Map - Segment A13



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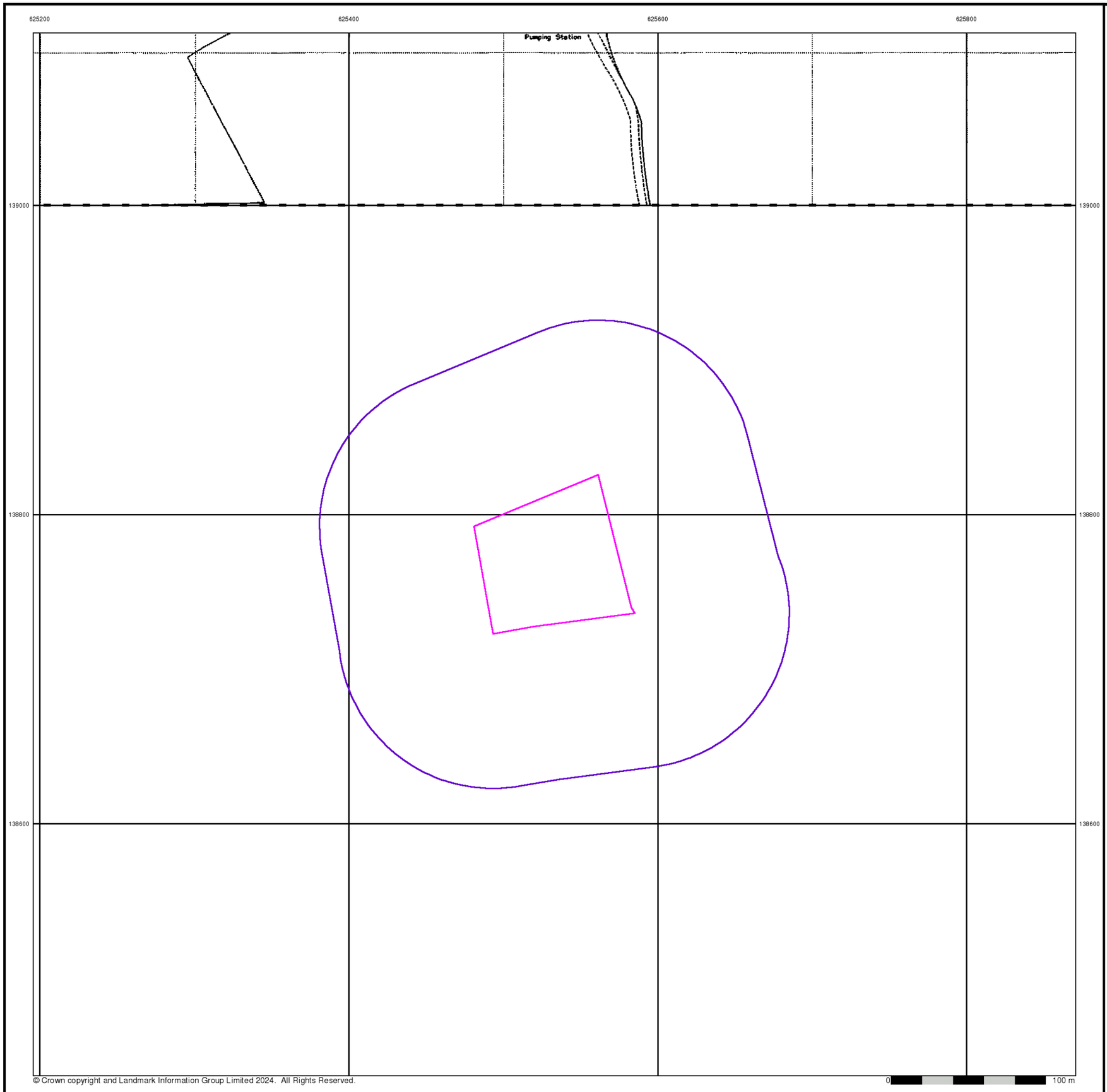

Large-Scale National Grid Data

Published 1993

Source map scale - 1:2,500

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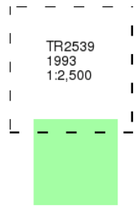
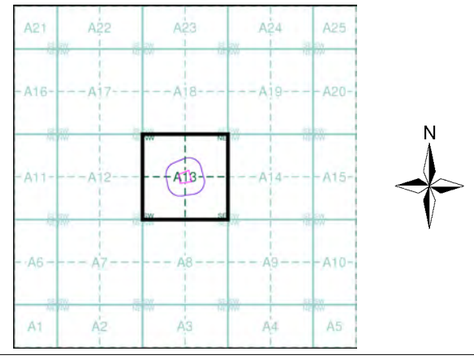
Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	356007273_1_1
Customer Ref:	13329
National Grid Reference:	625530, 138770
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Site Area (Ha):	0.72
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Site Details

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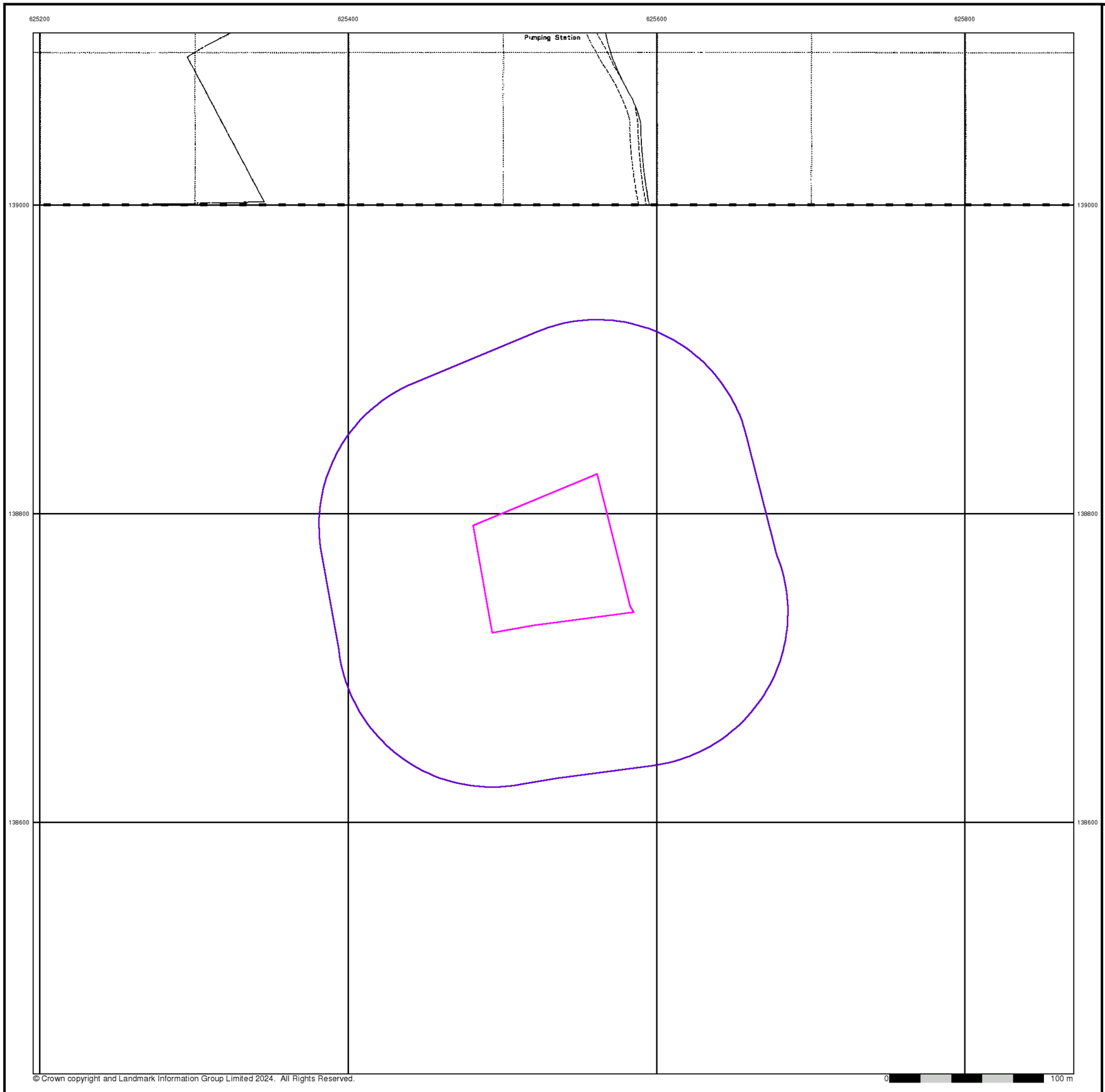


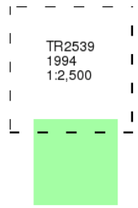
Large-Scale National Grid Data

Published 1994

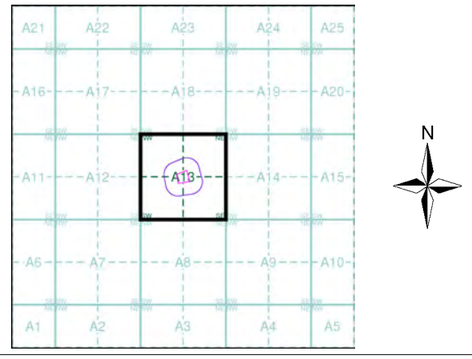
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



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Site Details

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

APPENDIX 3

ENVIROCHECK REPORT
AND SITE SENSITIVITY DATA

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
356007273_1_1

Customer Reference:
13329

National Grid Reference:
625530, 138770

Slice:
A

Site Area (Ha):
0.72

Search Buffer (m):
1000

Site Details:

Archway Site, New Dover Road
Capel-le-Ferne
Folkestone
CT18 7JD

Client Details:

Mr P Johnson
Ground & Environmental Services Ltd
Unit 2, Montpelier Business Park
Dencora Way
Ashford
Kent
TN23 4FG

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

Report Version v53.0

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	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents					
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					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 1			Yes	
Pollution Incidents to Controlled Waters	pg 1			1	
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions					
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 1	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk	pg 1	1	n/a	n/a	n/a
Bedrock Aquifer Designations	pg 1	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 1	Yes	n/a	n/a	n/a
Source Protection Zones	pg 1	1			1
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					

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 3	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Registered Landfill Sites					
Registered Waste Transfer Sites					
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					
Geological					
BGS 1:625,000 Solid Geology	pg 4	Yes	n/a	n/a	n/a
BGS Recorded Mineral Sites					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas	pg 4	Yes	n/a	n/a	n/a
Mining Instability	pg 4	Yes	n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities	pg 4				1
Non Coal Mining Areas of Great Britain	pg 4	Yes		n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 4	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 4	Yes	Yes	n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 4	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 5		Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 5	Yes	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

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Industrial Land Use					
Contemporary Trade Directory Entries	pg 6				11
Fuel Station Entries	pg 7		1		
Gas Pipelines					
Underground Electrical Cables					
Sensitive Land Use					
Ancient Woodland					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty	pg 8	1			
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves	pg 8		1		
Marine Nature Reserves	pg 8				1
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
Sites of Special Scientific Interest	pg 8		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: Limited Potential for Groundwater Flooding to Occur	A13SE (W)	0	1	625534 138769
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (S)	294	1	625650 138450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (SE)	309	1	625700 138450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NE (S)	323	1	625534 138400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	328	1	625550 138400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	336	1	625600 138400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (W)	482	1	625000 138769
	Nearest Surface Water Feature	A8NE (S)	456	-	625651 138283
1	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Sewage Treatment Works Location: White Clifs Caravan Park, Abbotts Cliff, CAPEL Authority: Environment Agency, Southern Region Pollutant: Sewage - Septic Tank Effluent Note: Cesspit Overflow Pipe Down Cliff Incident Date: 6th October 1998 Incident Reference: 29381 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overfilling During Delivery Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14NW (E)	359	2	625938 138800
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: 300-550 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	A13SE (W)	0	3	625534 138769
	Groundwater Vulnerability - Soluble Rock Risk Classification: Very Significant Risk - Moderate Possibility	A13SE (W)	0	3	625534 138769
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	A13SE (W)	0	3	625534 138769
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A13SE (W)	0	3	625534 138769
2	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone III (Total Catchment): The total area needed to support the discharge from the protected groundwater source.	A13SE (W)	0	2	625534 138769

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	A19SW (NE)	825	2	626185 139366
	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				
	OS Water Network Lines None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Dover District Council - Has no landfill data to supply		0	4	625534 138769
	Local Authority Landfill Coverage Name: Kent County Council - Had landfill data but passed it to the relevant environment agency		0	5	625534 138769
	Local Authority Landfill Coverage Name: Shepway District Council - Has no landfill data to supply		234	6	625525 138490

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: White Chalk Subgroup	A13SE (W)	0	1	625534 138769
	Coal Mining Affected Areas Description: In an area which may be affected by coal mining activity. It is recommended that a coal mining report is obtained from the Coal Authority. Contact details are included in the Useful Contacts section of this report.	A13SE (W)	0	7	625534 138769
	Mining Instability Mining Evidence: Inconclusive Coal Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	A13SE (W)	0	-	625534 138769
	Natural Cavities Easting: 624700 Northing: 138150 Distance: 979 Quadrant Reference: A7 Quadrant Reference: NW Bearing Ref: SW Cavity Type: Solution Pipe x 3 Solid Geology Detail: Chalk Group Superficial Geology Detail: No Details	A7NW (SW)	979	8	624700 138150
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A13SE (W)	0	1	625534 138769
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (W)	0	1	625534 138769
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (W)	0	1	625534 138769
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (W)	0	1	625534 138769
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	9	1	625590 138776
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	88	1	625404 138833
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	196	1	625668 138559
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	213	1	625600 138523
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	215	1	625541 138511
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	225	1	625545 138503
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (W)	0	1	625534 138769
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	200	1	625581 138533
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	213	1	625583 138520
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	225	1	625545 138503

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (W)	0	1	625534 138769
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	88	1	625404 138833
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (W)	0	1	625534 138769
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	88	1	625404 138833
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	216	1	625450 139013
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	225	1	625545 138503
	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 (W)	0	1	625534 138769
	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 (W)	0	1	625534 138769

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	**Contemporary Trade Directory Entries** Name: Alan Wardle Location: 1, Albert Road, Capel-le-Ferne, Folkestone, Kent, CT18 7JY Classification: Boilers - Servicing, Replacements & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (SW)	520	-	625033 138482
5	**Contemporary Trade Directory Entries** Name: Capel Groundworks Location: Great Satmar Farm, Satmar Lane, Capel-le-Ferne, Folkestone, CT18 7JF Classification: Asphalt & Coated Macadam Laying Contractors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	523	-	625720 139324
5	**Contemporary Trade Directory Entries** Name: M M Macey Location: Unit 2, Great Satmar Farm, Satmar Lane, Capel-le-Ferne, Folkestone, Kent, CT18 7JF Classification: Joinery Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SE (N)	530	-	625758 139317
6	**Contemporary Trade Directory Entries** Name: D Sinclair Location: 79, Capel Street, Capel-le-Ferne, Folkestone, Kent, CT18 7HF Classification: Joinery Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	621	-	624873 138911
7	**Contemporary Trade Directory Entries** Name: Patriot Components Ltd Location: Abbots Land Farm, New Dover Road, Capel-le-Ferne, Folkestone, Kent, CT18 7HY Classification: Kitchen Furniture Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (E)	720	-	626263 138987
7	**Contemporary Trade Directory Entries** Name: Zero Exhausts Ltd Location: Abbots Land Farm, New Dover Road, Capel-le-Ferne, Folkestone, Kent, CT18 7HY Classification: Exhaust System Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NE (E)	720	-	626263 138987
8	**Contemporary Trade Directory Entries** Name: Folkestone & Dover Car Breakers Location: 162, Capel Street, Capel-le-Ferne, Folkestone, Kent, CT18 7HA Classification: Car Breakers & Dismantlers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SE (NW)	745	-	625076 139417
9	**Contemporary Trade Directory Entries** Name: B H Cabinets Ltd Location: New Dover Rd, Capel-le-Ferne, Folkestone, Kent, CT18 7HY Classification: Furniture Manufacturers - Home & Office **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A14SE (E)	774	-	626357 138688
10	**Contemporary Trade Directory Entries** Name: Capel Location: 30, Old Dover Road, Capel-le-Ferne, Folkestone, Kent, CT18 7HN Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	819	-	624785 138312
11	**Contemporary Trade Directory Entries** Name: Flamewaves Fires Location: Eagles Nest, Old Dover Road, Capel-le-Ferne, Folkestone, Kent, CT18 7HL Classification: Fireplaces & Mantelpieces **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	820	-	624848 138217
12	**Contemporary Trade Directory Entries** Name: Invicta Moulds Ltd Location: Great Cauldham Farm, Cauldham Lane, Capel-le-Ferne, Folkestone, Kent, CT18 7HQ Classification: Die-Casting Equipment & Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A11NE (W)	998	-	624484 138805

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
13	**Fuel Station Entries** Name: Former Garage Location: New Dover Road Winehouse Lane, Capel Le Ferne , Folkestone, Kent, CT18 7JD Brand: Obsolete Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Manually positioned to the address or location	A13SE (SE)	47	-	625620 138706

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
14	**Areas of Outstanding Natural Beauty** Name: Kent Downs Multiple Areas: Y Total Area (m2): 879004390.4543287 Designation Date: 30th July 1968 Source: Natural England	A13SE (W)	0	9	625534 138769
15	**Local Nature Reserves** Name: Folkestone Warren Multiple Area: Y Area (m2): 836229.25 Source: Natural England Designation Date: 1st January 1990	A13SW (S)	233	9	625515 138491
16	**Marine Nature Reserves** Name: Dover To Folkestone Multiple Area: N Area (m2): 19525965.32 Source: Natural England	A8NE (SE)	573	9	625781 138197
17	**Sites of Special Scientific Interest** Name: Folkestone Warren Multiple Areas: N Total Area (m2): 3162949.98 Source: Natural England Reference: 1003675 Designation Details: Geological Conservation Review Designation Date: 29th July 1987 Date Type: Notified Designation Details: Local Nature Reserve Designation Date: 29th July 1987 Date Type: Notified Designation Details: Nature Conservation Review Designation Date: 29th July 1987 Date Type: Notified Designation Details: Site Of Special Scientific Interest Designation Date: 29th July 1987 Date Type: Notified	A13SE (S)	225	9	625605 138509

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Folkestone and Hythe District Council - Environmental Health, Planning and Building Control	April 2014	Annual Rolling Update
Environment Agency - Head Office	November 2023	Annually
Dover District Council - Environmental Health Department	September 2017	Annual Rolling Update
Discharge Consents		
Environment Agency - Southern Region	July 2024	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Southern Region	March 2013	
Integrated Pollution Controls		
Environment Agency - Southern Region	January 2009	
Integrated Pollution Prevention And Control		
Environment Agency - South East Region - Kent & South London Area	July 2024	Quarterly
Environment Agency - Southern Region	July 2024	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Dover District Council - Environmental Health Department	June 2014	Variable
Folkestone and Hythe District Council - Environmental Health Department	May 2014	Variable
Local Authority Pollution Prevention and Controls		
Dover District Council - Environmental Health Department	June 2014	Annual Rolling Update
Folkestone and Hythe District Council - Environmental Health Department	May 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Dover District Council - Environmental Health Department	June 2014	Variable
Folkestone and Hythe District Council - Environmental Health Department	May 2014	Variable
Nearest Surface Water Feature		
Ordnance Survey	June 2024	
Pollution Incidents to Controlled Waters		
Environment Agency - Southern Region	December 1999	
Prosecutions Relating to Authorised Processes		
Environment Agency - Southern Region	July 2015	
Prosecutions Relating to Controlled Waters		
Environment Agency - Southern Region	March 2013	
Registered Radioactive Substances		
Environment Agency - Head Office	May 2023	Quarterly
Environment Agency - Southern Region	May 2023	
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	April 2012	
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	April 2012	
Substantiated Pollution Incident Register		
Environment Agency - South East Region - Kent & South London Area	April 2024	Quarterly
Environment Agency - Southern Region - Kent Area	April 2024	Quarterly
Environment Agency - Southern Region - Kent and East Sussex	April 2024	Quarterly
Water Abstractions		
Environment Agency - Southern Region	July 2024	Quarterly
Water Industry Act Referrals		
Environment Agency - Southern Region	October 2017	
Groundwater Vulnerability Map		
Environment Agency - Head Office	June 2018	As notified
Groundwater Vulnerability - Soluble Rock Risk		
Environment Agency - Head Office	June 2018	As notified

Data Currency

Agency & Hydrological	Version	Update Cycle
Bedrock Aquifer Designations Environment Agency - Head Office	January 2018	As notified
Superficial Aquifer Designations Environment Agency - Head Office	January 2018	As notified
Source Protection Zones Environment Agency - Head Office	September 2022	Bi-Annually
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	December 2023	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	December 2023	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	February 2023	
Flood Water Storage Areas Environment Agency - Head Office	January 2024	Quarterly
Flood Defences Environment Agency - Head Office	August 2022	
OS Water Network Lines Ordnance Survey	July 2024	Quarterly
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	As notified

Data Currency

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites		
Environment Agency - Head Office	May 2024	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Southern Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - South East Region - Kent & South London Area	May 2024	Quarterly
Environment Agency - Southern Region - Kent Area	May 2024	Quarterly
Environment Agency - Southern Region - Kent and East Sussex	May 2024	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - South East Region - Kent & South London Area	July 2024	Quarterly
Environment Agency - Southern Region - Kent Area	July 2024	Quarterly
Environment Agency - Southern Region - Kent and East Sussex	July 2024	Quarterly
Local Authority Landfill Coverage		
Dover District Council - Environmental Health Department	February 2003	Not Applicable
Folkestone and Hythe District Council - Environmental Health Department	February 2003	Not Applicable
Kent County Council - Waste Management Group	February 2003	Not Applicable
Local Authority Recorded Landfill Sites		
Dover District Council - Environmental Health Department	October 2018	
Folkestone and Hythe District Council - Environmental Health Department	October 2018	
Kent County Council - Waste Management Group	October 2018	
Registered Landfill Sites		
Environment Agency - Southern Region - Kent Area	March 2006	Not Applicable
Environment Agency - Southern Region - Kent and East Sussex	March 2006	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Southern Region - Kent Area	April 2018	
Environment Agency - Southern Region - Kent and East Sussex	April 2018	
Registered Waste Treatment or Disposal Sites		
Environment Agency - Southern Region - Kent Area	June 2015	
Environment Agency - Southern Region - Kent and East Sussex	June 2015	
Hazardous Substances	**Version**	**Update Cycle**
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	January 2024	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements		
Dover District Council - Planning Department	May 2023	Variable
Kent County Council	May 2023	Variable
Folkestone and Hythe District Council	September 2023	Variable
Planning Hazardous Substance Consents		
Dover District Council - Planning Department	April 2016	Variable
Folkestone and Hythe District Council	February 2016	Variable
Kent County Council	January 2016	Variable

Data Currency

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	January 2024	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB) Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011 November 2020	As notified
Coal Mining Affected Areas The Coal Authority - Property Searches	February 2023	Annual Rolling Update
Mining Instability Ove Arup & Partners	June 1998	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	April 2020	As notified
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	October 2023	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	October 2023	Annually
Industrial Land Use	**Version**	**Update Cycle**
Contemporary Trade Directory Entries Thomson Directories	June 2024	Quarterly
Fuel Station Entries Catalist Ltd - Experian	February 2024	Quarterly
Gas Pipelines National Grid	October 2021	Bi-Annually
Underground Electrical Cables National Grid	January 2024	Bi-Annually

Data Currency

Sensitive Land Use	Version	Update Cycle
Ancient Woodland		
Natural England	April 2024	Bi-Annually
Areas of Adopted Green Belt		
Dover District Council - Planning Department	July 2024	Quarterly
Folkestone and Hythe District Council	July 2024	Quarterly
Areas of Unadopted Green Belt		
Dover District Council - Planning Department	July 2024	Quarterly
Folkestone and Hythe District Council	July 2024	Quarterly
Areas of Outstanding Natural Beauty		
Natural England	May 2024	Bi-Annually
Environmentally Sensitive Areas		
Natural England	August 2023	
Forest Parks		
Forestry Commission	May 2023	Not Applicable
Local Nature Reserves		
Natural England	February 2024	Bi-Annually
Marine Nature Reserves		
Natural England	February 2024	Bi-Annually
National Nature Reserves		
Natural England	February 2024	Bi-Annually
National Parks		
Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas		
Natural England	April 2023	Not Applicable
Nitrate Vulnerable Zones		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	April 2016	
Environment Agency - Head Office	April 2024	Bi-Annually
Ramsar Sites		
Natural England	February 2024	Bi-Annually
Sites of Special Scientific Interest		
Natural England	April 2024	Bi-Annually
Special Areas of Conservation		
Natural England	April 2024	Bi-Annually
Special Protection Areas		
Natural England	April 2024	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	
Stantec UK Ltd	

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science 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	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
4	**Dover District Council - Environmental Health Department** Council Offices, White Cliffs Business Park, Dover, Kent, CT16 3PQ	Telephone: 01304 821199 Fax: 01304 827268 Website: www.dover.gov.uk
5	**Kent County Council - Waste Management Group** Block H, The Forstal, Beddow Way, Aylesford, Kent, ME20 7BT	Telephone: 01622 605976 Website: www.kent.gov.uk
6	**Folkestone and Hythe District Council - Environmental Health Department** Civic Centre, Castle Hill Avenue, Folkestone, Kent, CT20 2QY	Telephone: 01303 850388 Fax: 01303 245978 Website: www.folkestone-hythe.gov.uk
7	**The Coal Authority - Property Searches** 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG	Telephone: 0345 762 6848 Fax: 01623 637 338 Email: groundstability@coal.gov.uk Website: www2.groundstability.com
8	**Stantec UK Ltd** Caversham Bridge House, Waterman Place, Reading, RG1 8DN	Telephone: 0118 950 0761 Email: pba.reading@stantec.com Website: www.stantec.com
9	**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.

APPENDIX 4

PETROLEUM OFFICER LETTER

Trading Standards
P O Box 320
Ashford
Kent
TN24 8AS
Direct Dial: 03000 412020
Website:
www.kent.gov.uk/tradingstandards
Email:
trading.standards@kent.gov.uk
Date: 19 September 2024

Paul Johnson
Ground and Environmental Services Limited
Unit 2 Montpelier Business Park
Dencora Way
Ashford
Kent
ĐN23 4FG

Dear Paul Johnson

Environmental Information Regulations 2004, Regulation 5

Thank you for your enquiry regarding the history of the site at NEW DOVER ROAD, CAPEL-LE-FERNE, FOLKESTONE, CT18 7JD

Having carried out extensive checks for this address on our database, and both our current and archived paper records, I have been unable to locate any information relating to the current or historical presence of underground fuel tanks on the site or within the immediate vicinity, nor any storage of licensable products.

Please note that this information is sought from the site records held by KCC Trading Standards and is not taken from the direct knowledge or recollection of the undersigned officer. As such no responsibility can be taken for any inaccuracies discovered from the unavailability of this information.

Yours faithfully

Karen Hopkins

Trading Standards Officer

APPENDIX 5

WINDOW SAMPLE LOGS
AND INSTALLATION DETAILS

Ground and Environmental Services Limited
Unit 2 Montpelier Business Park Tel: 01233 646237
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS1
Sheet: 1 of 1

Equipment & Methods. Premier Compact 110 _Support Used:None _Backfill: 35mm Installation	Project Name: Former BP Petrol Station Project Location: Capel-le-Ferne, CT18 7JD Client: Bob Muston	Job No: 13329
Co-ordinates: E: N:	Ground Level (m):	Date Started:02/09/2024 Date Completed:02/09/2024

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.30		J TUB			MADEGROUND: Dark brown silty clay with occasional fine to coarse flint, fine red brick and fine black carbon. Frequent fine roots less than 1mm in diameter. One larger root 10mm in diameter.			(0.70)
						-0.70		0.70
0.80- 0.90		D			Firm, light brown silty CLAY.			
			SN=7	1,1/1,2,2,2	...from 0.70 to 1.00 Fine roots to 1m.			(0.60)
						-1.30		1.30
1.60- 1.70		D			Firm light brown slightly gravelly, silty CLAY. Gravel is fine to coarse subrounded to subangular flint.			(0.70)
			SN=9	1,1/2,2,2,3		-2.00		2.00
2.40- 2.50		D			Firm, light brown slightly silty CLAY.			(0.60)
						-2.60		2.60
2.80- 2.90		D			Medium dense, orangish light brown slightly clayey SAND.			(0.30)
			SN=6	2,2/1,1,2,2	Firm orangish light brown slightly gravelly, silty CLAY. Gravel is fine to coarse subangular flint.	-2.90		2.90
3.60- 3.70		D						(1.20)
			SN=12	5,6/3,2,4,3	...from 3.80 to 4.10 Becoming more gravelly.			
						-4.10		4.10
4.50- 4.60		D			Firm to stiff orange-brown silty CLAY with speckled black oxidisation throughout.			(0.90)
			SN=12	1,2/2,2,4,4		-5.00		5.00
								End of W/S 5.00 m (Thickness of basal layer not proven)

Remarks:

Logged By:	Checked By:
RS	CS
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park Tel: 01233 646237
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS2
Sheet: 1 of 1

Equipment & Methods. Premier Compact 110 _Support Used:None _Backfill: Arisings	Project Name: Former BP Petrol Station Project Location: Capel-le-Ferne, CT18 7JD Client: Bob Muston	Job No: 13329
Co-ordinates: E: N:	Ground Level (m):	Date Started:02/09/2024 Date Completed:02/09/2024

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADEGROUND: Soft light brown very silty clay with abundant root fragments.	-0.05		(0.05)
0.30		J TUB			MADEGROUND: Dark brown silty clay with occasional fine to coarse flint and fine red brick. Frequent fine roots up to 1mm in diameter.			(0.55)
					Soft becoming firm orange-brown with light grey slightly silty CLAY. Speckled reddish black oxidiation throughout.	-0.60		0.60
0.80- 0.90		D	SN=5	1,1/1,1,2,1				(1.40)
1.60- 1.70		D						
2.10- 2.20		D	SN=19	2,4/6,6,4,3	Medium dense, orange-brown slightly clayey, gravelly SAND. Gravel is fine to medium subrounded flint.	-2.00		2.00 (0.30)
					Firm, light orange-brown with light grey silty CLAY.	-2.30		2.30
2.80- 2.90		D	SN=9	1,1/2,2,2,3				(1.20)
					Stiff, dark orange-brown with light grey CLAY. Speckled black and red oxidisation throughout.	-3.50		3.50
3.70- 3.80		D	SN=15	1,2/3,3,4,5				(1.00)
					Stiff, dark orange-brown with light grey very gravelly CLAY. Speckled black and red oxidisation throughout.	-4.50		4.50
4.70- 4.90		D	SN=18	2,3/4,4,5,5				(0.50)
						-5.00		5.00

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:

Logged By: RS	Checked By: CS
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park Tel: 01233 646237
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS3

Sheet: 1 of 1

Equipment & Methods. Premier Compact 110 _Support Used:None _Backfill: Arisings	Project Name: Former BP Petrol Station Project Location: Capel-le-Ferne, CT18 7JD Client: Bob Muston	Job No: 13329
Co-ordinates: E: N:	Ground Level (m):	Date Started:02/09/2024 Date Completed:02/09/2024

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.20		J TUB			MADEGROUND: Grass over dark grey-brown gravelly, silty clay. Gravel is fine flint, red brick and rare black carbon fragments. Abundant fine roots up to 10mm in diameter.	-0.25		(0.25)
0.40- 0.50		D			Loose, brown slight clayey, slightly gravelly sandy SILT. Gravel is fine to medium subangular flint. Roots up to 1mm in diameter.			0.25 (0.45)
0.60		J TUB				-0.70		0.70
0.80- 0.90		D			Firm yellow-brown silty CLAY. Speckled black oxidisation throughout.			
			SN=8	1,1/2,2,2,2				(1.30)
1.60- 1.70		D						
			SN=9	1,1/2,2,2,3		-2.00		2.00

End of W/S 2.00 m
(Thickness of basal layer not proven)

Remarks:

Logged By: RS	Checked By: CS
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited
Unit 2 Montpelier Business Park Tel: 01233 646237
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS4
Sheet: 1 of 1

Equipment & Methods.
Premier Compact 110
_Support Used:None
_Backfill: Arisings

Project Name: Former BP Petrol Station
Project Location: Capel-le-Ferne, CT18 7JD
Client: Bob Muston

Job No: 13329

Co-ordinates:
E:
N:

Ground Level (m):

Date Started:02/09/2024
Date Completed:02/09/2024

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.30		J TUB			MADEGROUND: Black becoming dark brown-grey silty clay with occasional plastic fragments, red brick, black carbon, flint and wood chippings and rare glass fragments. Abundant roots up to 20mm in diameter.			(0.40)
0.60		J TUB			...from 0.30 to 0.31 10mm band of light grey clay with shell fragments.	-0.40		0.40
0.80- 0.90		D			Loose, brown slight clayey, slightly gravelly sandy SILT. Gravel is fine to medium subangular flint. Roots up to 1mm in diameter.			(0.60)
			SN=9	3,3/3,3,2,1		-1.00		1.00
1.20- 1.30		D			Firm, orange-brown silty CLAY. ...from 1.00 to 1.20 Very gravelly. Gravel is fine to coarse subangular flint.			(1.00)
1.80- 1.90		D						
			SN=13	1,1/2,2,5,4		-2.00		2.00

End of W/S 2.00 m
(Thickness of basal layer not proven)

Remarks:

Logged By: RS
Checked By: CS
Scale: 1:30
Approved By:
FIG No.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park Tel: 01233 646237
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS5

Sheet: 1 of 1

Equipment & Methods. Premier Compact 110 _Support Used:None _Backfill: Arisings	Project Name: Former BP Petrol Station Project Location: Capel-le-Ferne, CT18 7JD Client: Bob Muston	Job No: 13329
Co-ordinates: E: N:	Ground Level (m):	Date Started:02/09/2024 Date Completed:02/09/2024

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.20		J TUB			MADEGROUND: Dark brown slightly clayey silt with occasional flint, black carbon and rare glass fragments. Abundant roots up to 25mm in diameter.			(0.30)
						-0.30		0.30
0.40- 0.50		D			Soft, brown slight clayey, slightly gravelly sandy SILT. Gravel is fine to medium subangular flint.			(0.50)
0.60		J TUB						
						-0.80		0.80
0.90- 1.00		D	SN=14	2,2/2,3,4,5	Firm to stiff orange-brown with light grey silty CLAY. ...from 0.90 Fine roots up to 1mm in diameter to 0.9m			(0.50)
1.10- 1.20		D						
						-1.30		1.30
1.70- 1.80		D			Stiff,dark orange-brown slightly gravelly, silty CLAY. Speckled black oxidisation throughout. Gravel is fine to coarse subangular to subrounded flint.			(0.70)
			SN=11	1,1/3,2,3,3		-2.00		2.00

End of W/S 2.00 m
(Thickness of basal layer not proven)

Remarks:

Logged By: RS	Checked By: CS
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited
Unit 2 Montpelier Business Park Tel: 01233 646237
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS6
Sheet: 1 of 1

Equipment & Methods.
Premier Compact 110
_Support Used:None
_Backfill: 35mm Installation

Project Name: Former BP Petrol Station
Project Location: Capel-le-Ferne, CT18 7JD
Client: Bob Muston

Job No: 13329

Co-ordinates:
E:
N:

Ground Level (m):

Date Started:02/09/2024
Date Completed:02/09/2024

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADEGROUND: Red and blackish grey sandy gravel. Gravel comprises concrete, red brick, black carbon fragments and occasional flint.			(0.30)
						-0.30		0.30
0.40		J TUB			MADEGROUND: Dark grey slightly gravelly, silty clay with occasional black staining and hydrocarbon odour. Gravel is fine to coarse flint and fine red brick.			(0.30)
						-0.60		0.60
0.70		J			Firm orange-brown with light grey silty CLAY with occasional pockets of gravel.			
0.90- 1.00		D	SN=8	1,1/2,1,3,2				
					...from 1.20 Fine to coarse subangular gravels			(2.20)
			SN=9	1,1/2,2,3,2				
2.30- 2.40		D						
					...from 2.70 Coarse subrounded gravels	-2.80		2.80
2.90- 3.00		D	SN=10	1,1/2,2,3,3	Firm, dark orange-brown gravelly, silty CLAY with red oxidisation throughout. Gravel is fine to coarse subangular to subrounded flint.			
3.40- 3.50		D						(1.20)
			SN=10	1,2/2,2,3,3		-4.00		4.00

End of W/S 4.00 m
(Thickness of basal layer not proven)

Remarks:

Logged By: RS
Checked By: CS
Scale: 1:30
Approved By:
FIG No.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited
Unit 2 Montpelier Business Park Tel: 01233 646237
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS7
Sheet: 1 of 1

Equipment & Methods.
Premier Compact 110
_Support Used:None
_Backfill: 35mm Installation

Project Name: Former BP Petrol Station
Project Location: Capel-le-Ferne, CT18 7JD
Client: Bob Muston

Job No: 13329

Co-ordinates:
E:
N:

Ground Level (m):

Date Started:02/09/2024
Date Completed:02/09/2024

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADEGROUND: Red and balckish grey sandy gravel. Gravel comprises concrete, red brick cobbles, black carbon fragments and occasional flint.			(0.50)
						-0.50		0.50
0.60		J TUB			MADEGROUND: Dark grey slightly gravelly, silty clay with occasional black staining and hydrocarbon odour. Gravel is fine flint and fine to coarse red brick.	-0.65		(0.15) 0.65
0.80		J			Firm, locally stiff becoming very stiff orange-brown silty CLAY with occasional pockets of gravel.			
0.90- 1.00		D	SN=5	1,1/1,1,1,2				
					...from 1.00 to 2.00 with light grey.			
1.60- 1.70		D						
			SN=11	1,1/2,2,3,4				(3.15)
2.50- 2.60		D						
2.80- 3.00		D						
			SN=6	1,1,/1,2,1,2	...from 2.80 Becoming firm.			
3.30- 3.40		D						
3.80- 3.90		D				-3.80		3.80
					Medium dense orange, slightly gravelly, slightly clayey SAND. Sand is medium to coarse. Gravel is fine subangular to subrounded flint.			(0.20)
			SN=17	4,3/5,3,4,5		-4.00		4.00

End of W/S 4.00 m
(Thickness of basal layer not proven)

Remarks:

Logged By: RS
Checked By: CS
Scale: 1:30
Approved By:
FIG No.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park Tel: 01233 646237
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS8

Sheet: 1 of 1

Equipment & Methods. Premier Compact 110 _Support Used:None _Backfill: Arisings	Project Name: Former BP Petrol Station Project Location: Capel-le-Ferne, CT18 7JD Client: Bob Muston	Job No: 13329
Co-ordinates: E: N:	Ground Level (m):	Date Started:02/09/2024 Date Completed:02/09/2024

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.20		J TUB			MADEGROUND: Dark brown slightly clayey, slightly sandy, slightly gravelly silt. Gravel is occasional black carbon, fine to coarse flint, and rare red brick. Abundant roots up to 25mm in diameter.	-0.30		(0.30)
					Loose, brown slight clayey, slightly gravelly sandy SILT. Gravel is fine to medium subangular flint. Roots up to 1mm in diameter to 1.1m.			0.30
0.80- 0.90		D						(0.90)
			SN=9	2,2/2,2,3,2				
1.10- 1.20		D				-1.20		1.20
					Firm, light orange-brown with light grey silty CLAY.			
1.60- 1.70		D						(1.30)
			SN=11	1,2/2,3,3,3				
2.30- 2.40		D				-2.50		2.50
					Stiff, dark orange-brown slightly silty CLAY. Some red and black speckled oxidisation throughout.			
2.80- 2.90		D						(1.50)
			SN=15	1,2/3,4,4,4				
3.30- 3.40		D						
					...from 3.50 to 4.00 Heavy red oxidisation.			
3.80- 4.00		D				-4.00		4.00
			SN=9	1,1/2,2,3,2				

End of W/S 4.00 m
(Thickness of basal layer not proven)

Remarks:

Logged By: RS	Checked By: CS
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited
Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

Hole ID. WS1

Installation Details & Readings

Sheet: 1 of 1

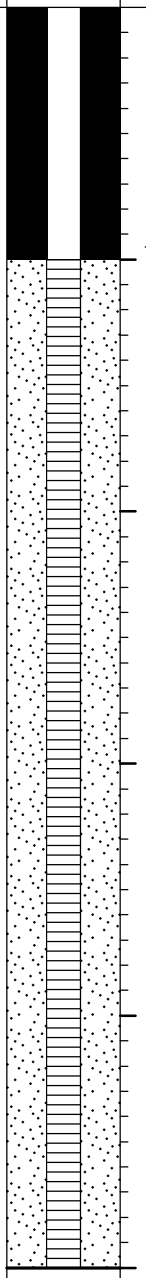
Equipment & Methods. Premier Compact 110 _Support Used:None _Backfill: 35mm Installation	Project Name: Former BP Petrol Station Project Location: Capel-le-Ferne, CT18 7JD Client: Bob Muston	Job No: 13329
Co-ordinates: E: N:	Ground Level (m):	Date Started:02/09/2024 Date Completed:02/09/2024

Installation Date : 02/09/2024
Depth to TOP Response Zone : (m)

Installation Type : SP
Depth to BASE Response Zone : (m)

Installation Diagram

Depth Related Remarks (Elevation)



Plain 35mm standpipe with bentonite seal

Slotted 35mm standpiep with 10mm gravel

End of Hole 5.00 m

Compiled By: RS	Checked By: CS
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG 13329 LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 9/10/24

Ground and Environmental Services Limited
Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

Hole ID. WS6

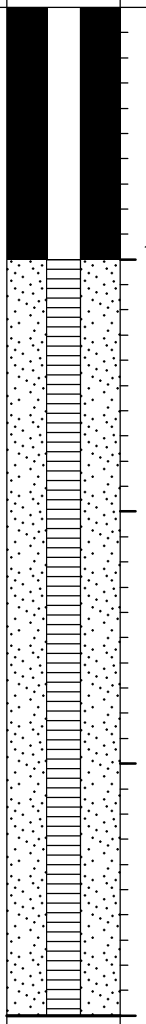
Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Premier Compact 110 _Support Used:None _Backfill: 35mm Installation	Project Name: Former BP Petrol Station Project Location: Capel-le-Ferne, CT18 7JD Client: Bob Muston	Job No: 13329
Co-ordinates: E: N:	Ground Level (m):	Date Started:02/09/2024 Date Completed:02/09/2024

Installation Date : 02/09/2024
Installation Type : SP

Depth to TOP Response Zone : (m)
Depth to BASE Response Zone : (m)



Installation Diagram	Depth Related Remarks (Elevation)
	Plain 35mm standpipe with bentonite seal
	Slotted 35mm standpiep with 10mm gravel
	End of Hole 4.00 m

Compiled By:	Checked By:
RS	CS
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG 13329 LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 9/10/24

Ground and Environmental Services Limited
Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

Hole ID. WS7

Installation Details & Readings

Sheet: 1 of 1

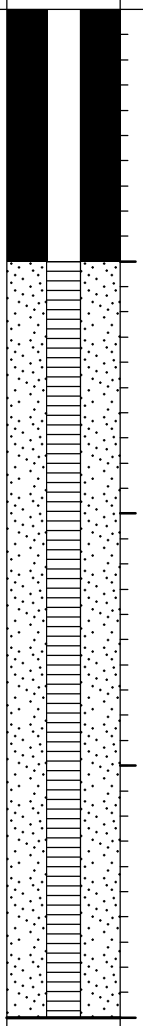
Equipment & Methods. Premier Compact 110 _Support Used:None _Backfill: 35mm Installation	Project Name: Former BP Petrol Station Project Location: Capel-le-Ferne, CT18 7JD Client: Bob Muston	Job No: 13329
Co-ordinates: E: N:	Ground Level (m):	Date Started:02/09/2024 Date Completed:02/09/2024

Installation Date : 02/09/2024
Installation Type : SP

Depth to TOP Response Zone : (m)
Depth to BASE Response Zone : (m)

Installation Diagram

Depth Related Remarks (Elevation)



Plain 35mm standpipe with bentonite seal

Slotted 35mm standpiep with 10mm gravel

End of Hole 4.00 m

Compiled By: RS	Checked By: CS
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG 13329 LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 9/10/24

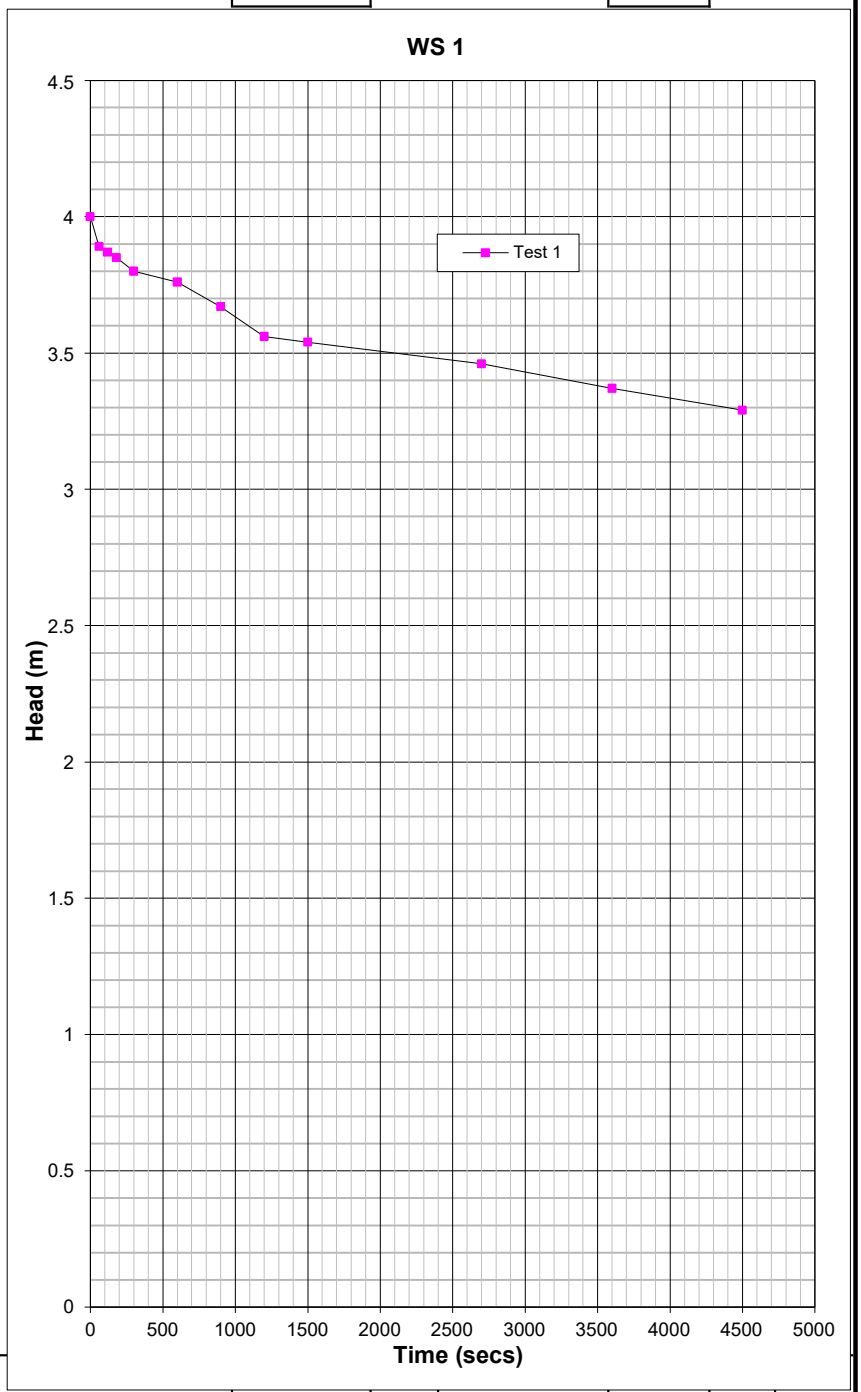
APPENDIX 6

FALLING HEAD TEST RESULTS

	Dover Road, Capel-le-Ferne		WS 1

Top section	1	m	Centre section	2.5	m	Diameter of Hole	0.075	m
Bottom section	4	m	Diameter of test section	0.075	m	Length of test section	3	m
Water Level	Dry	m						

Time (Seconds)	Depth	Head
0	0	4
60	0.11	3.89
120	0.13	3.87
180	0.15	3.85
300	0.2	3.8
600	0.24	3.76
900	0.33	3.67
1200	0.44	3.56
1500	0.46	3.54
2700	0.54	3.46
3600	0.63	3.37
4500	0.71	3.29



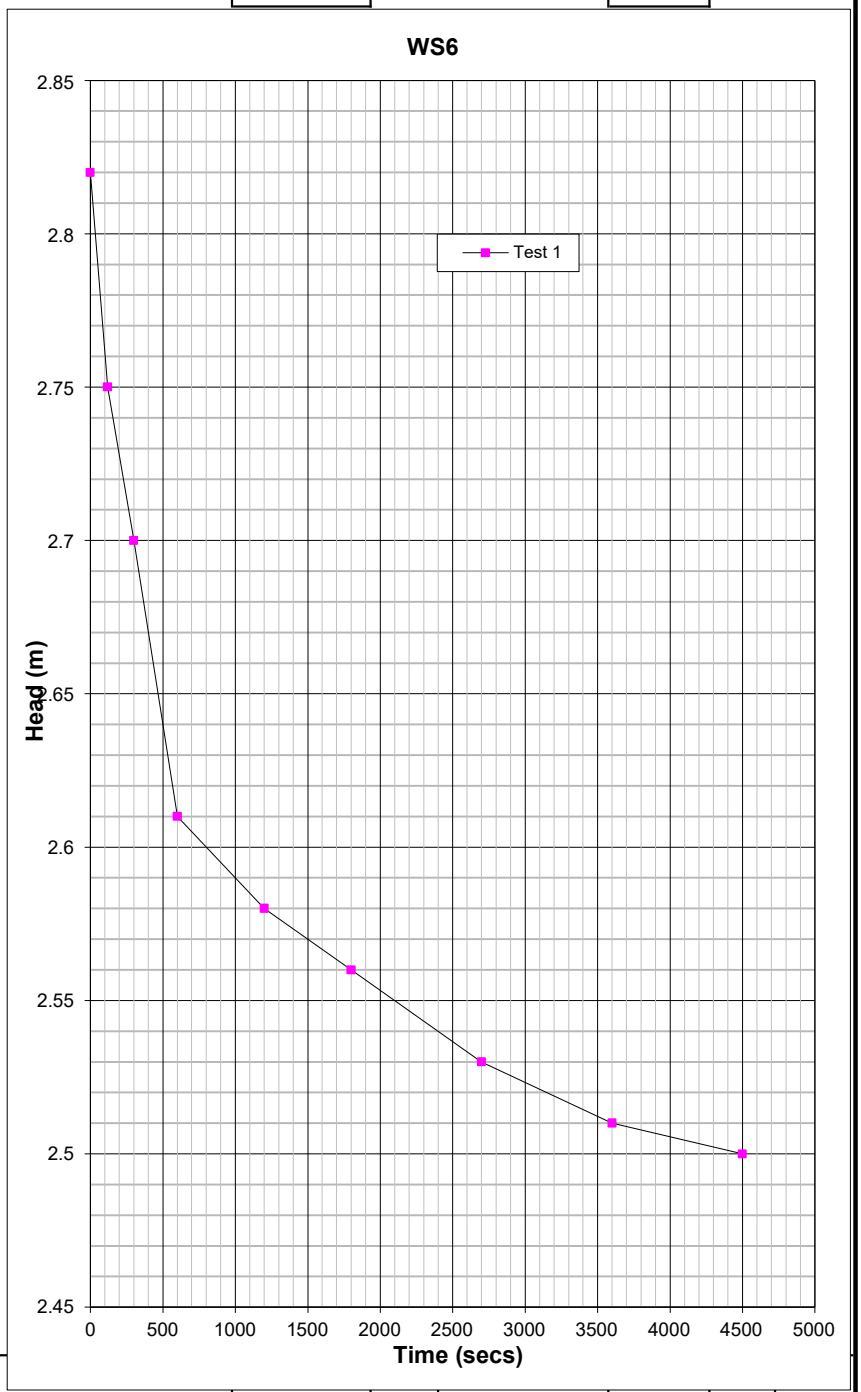
Low soakage potential - 20 litres added

After BS5930:1999 k(approx) = 7.4×10^{-6} m/s estimated

	Dover Road, Capel-le-Ferne		WS6

Top section	1	m	Centre section	1.75	m	Diameter of Hole	0.075	m
Bottom section	2.5	m	Diameter of test section	0.075	m	Length of test section	1.5	m
Water Level	2.82	m						

Time (Seconds)	Depth	Head
0	0	2.82
120	0.07	2.75
300	0.12	2.7
600	0.21	2.61
1200	0.24	2.58
1800	0.26	2.56
2700	0.29	2.53
3600	0.31	2.51
4500	0.32	2.5



Low soakage potential - 10 litres added

After BS5930:1999 k(approx) = 3.9×10^{-6} m/s estimated

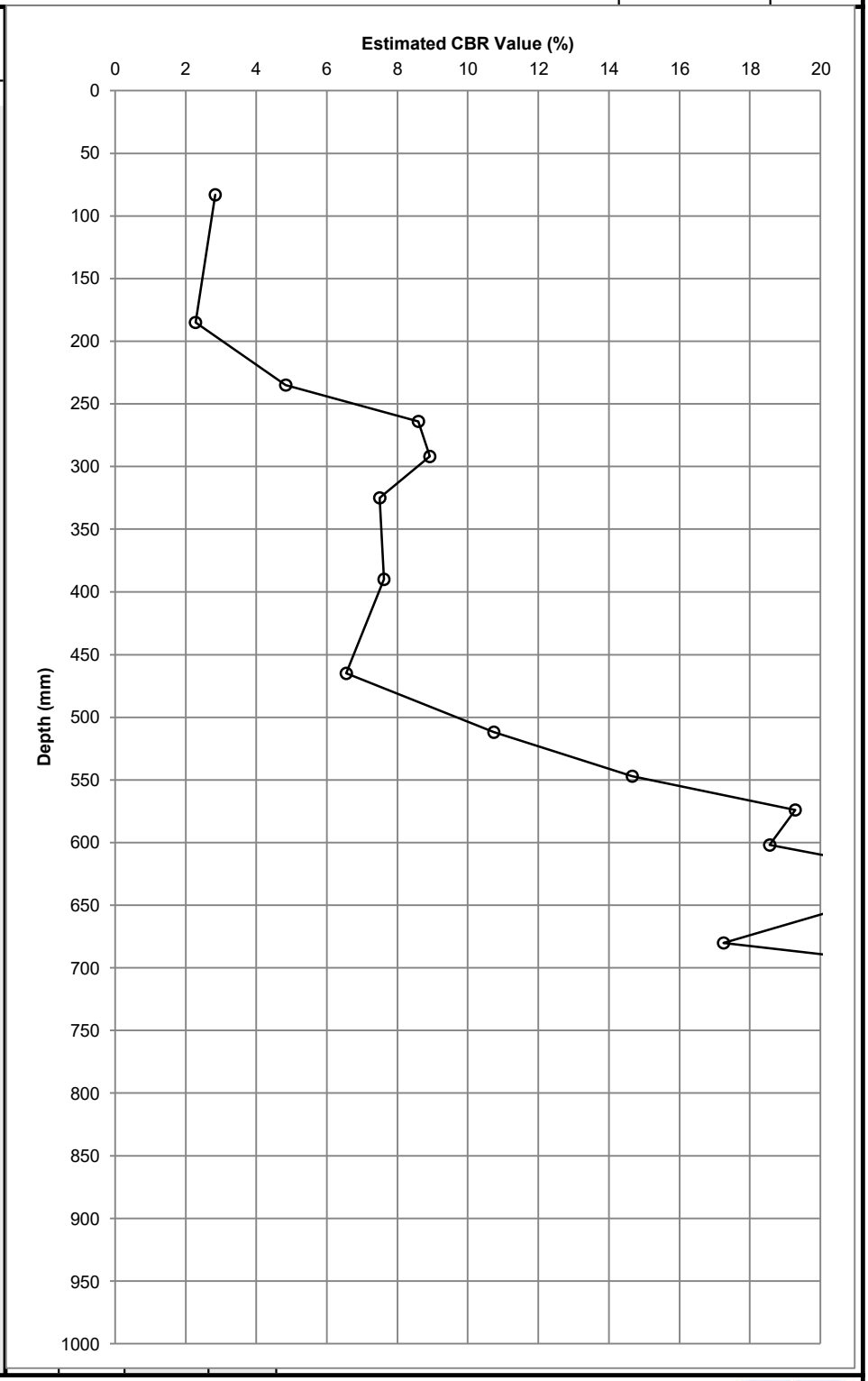
APPENDIX 7

DYNAMIC CONE PENETROMETER TEST RESULTS

DYNAMIC CONE PENETROMETER TEST RESULTS

		Test No	DCP1
		Date:	01-Oct
Project Name:	**Dover Road, Capel-le-Ferne**	**Project No:**	13329
Client Name:	**Mr B Muston**	**Zero Reading**	120

No. of Blows	Depth (mm)	Penetration mm/blow	Est CBR (%)
0	0		
1	83	83	3
2	185	102	2
3	235	50	5
4	264	29	9
5	292	28	9
6	325	33	7
8	390	32.5	8
10	465	37.5	7
12	512	23.5	11
14	547	17.5	15
16	574	13.5	19
18	602	14	19
20	625	11.5	23
22	650	12.5	21
24	680	15	17
26	702	11	24
28	720	9	30
30	735	7.5	36
32	755	10	26
34	770	7.5	36
36	778	4	70
38	796	9	30



GROUND AND ENVIRONMENTAL SERVICES LIMITED
Ground Investigation and Environmental Consultants

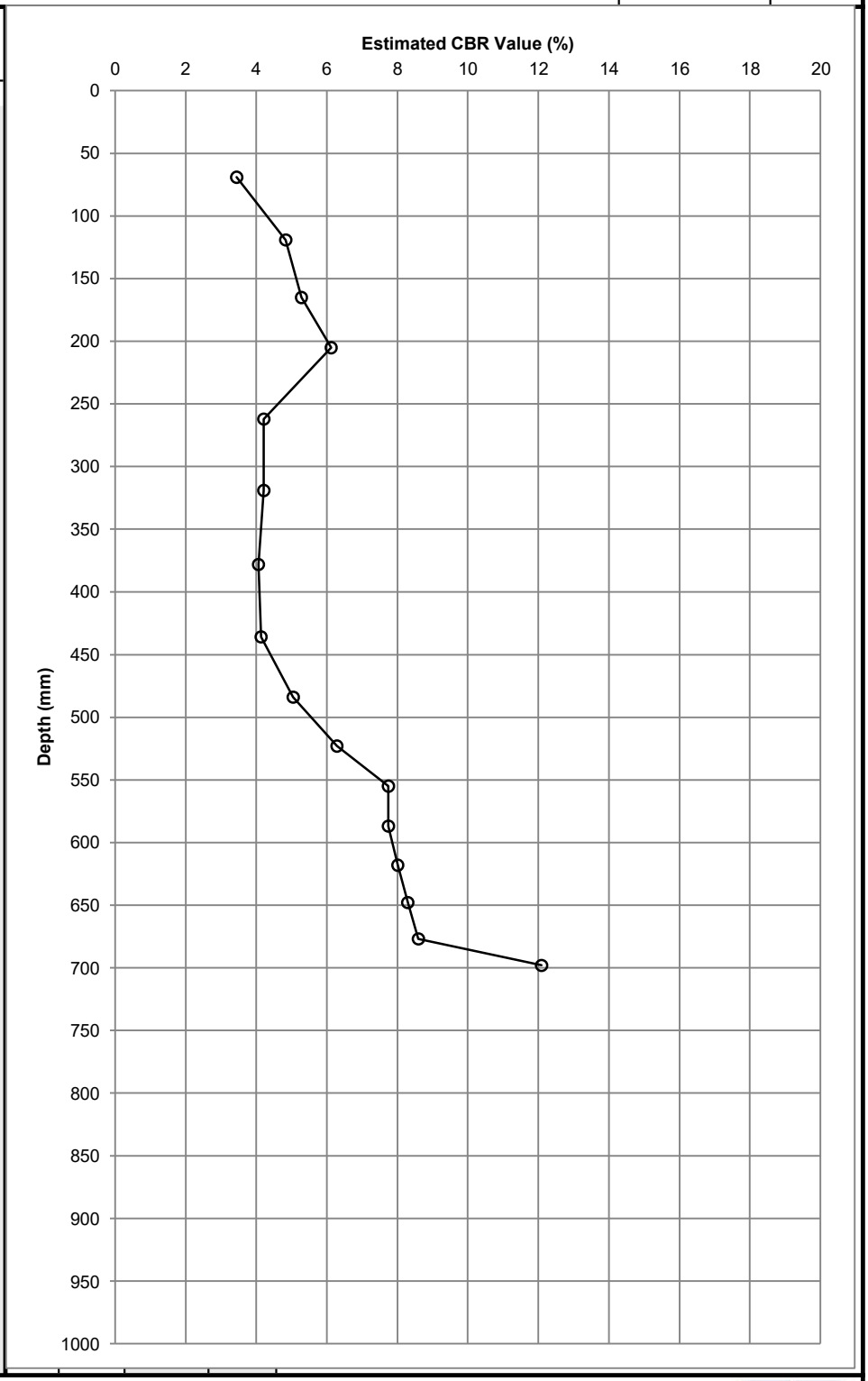
Tested By: HM **Approved By: CSS**

Checked By: PAD

DYNAMIC CONE PENETROMETER TEST RESULTS

		Test No	DCP2
		Date:	01-Oct
Project Name:	**Dover Road, Capel-le-Ferne**	**Project No:**	13329
Client Name:	**Mr B Muston**	**Zero Reading**	227

No. of Blows	Depth (mm)	Penetration mm/blow	Est CBR (%)
0	0		
1	69	69	3
2	119	50	5
3	165	46	5
4	205	40	6
5	262	57	4
6	319	57	4
7	378	59	4
8	436	58	4
9	484	48	5
10	523	39	6
11	555	32	8
12	587	32	8
13	618	31	8
14	648	30	8
15	677	29	9
16	698	21	12



GROUND AND ENVIRONMENTAL SERVICES LIMITED
Ground Investigation and Environmental Consultants

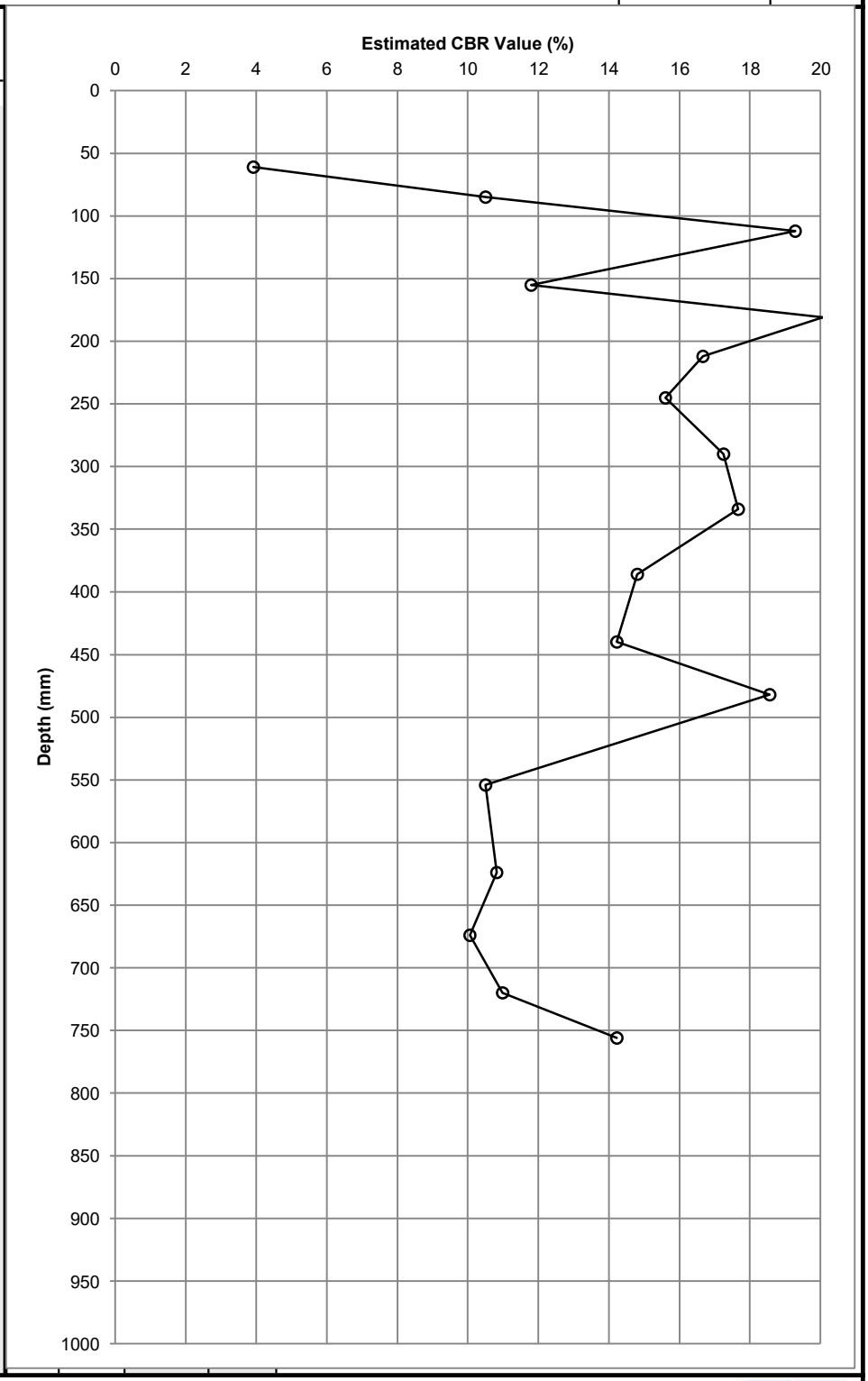
Tested By: HM **Approved By: CSS**

Checked By: PAD

DYNAMIC CONE PENETROMETER TEST RESULTS

		Test No	DCP3
		Date:	01-Oct
Project Name:	**Dover Road, Capel-le-Ferne**	**Project No:**	13329
Client Name:	**Mr B Muston**	**Zero Reading**	160

No. of Blows	Depth (mm)	Penetration mm/blow	Est CBR (%)
0	0		
1	61	61	4
2	85	24	10
4	112	13.5	19
6	155	21.5	12
8	181	13	20
10	212	15.5	17
12	245	16.5	16
15	290	15	17
18	334	14.6666667	18
21	386	17.3333333	15
24	440	18	14
27	482	14	19
30	554	24	10
33	624	23.3333333	11
35	674	25	10
37	720	23	11
39	756	18	14



GROUND AND ENVIRONMENTAL SERVICES LIMITED
Ground Investigation and Environmental Consultants

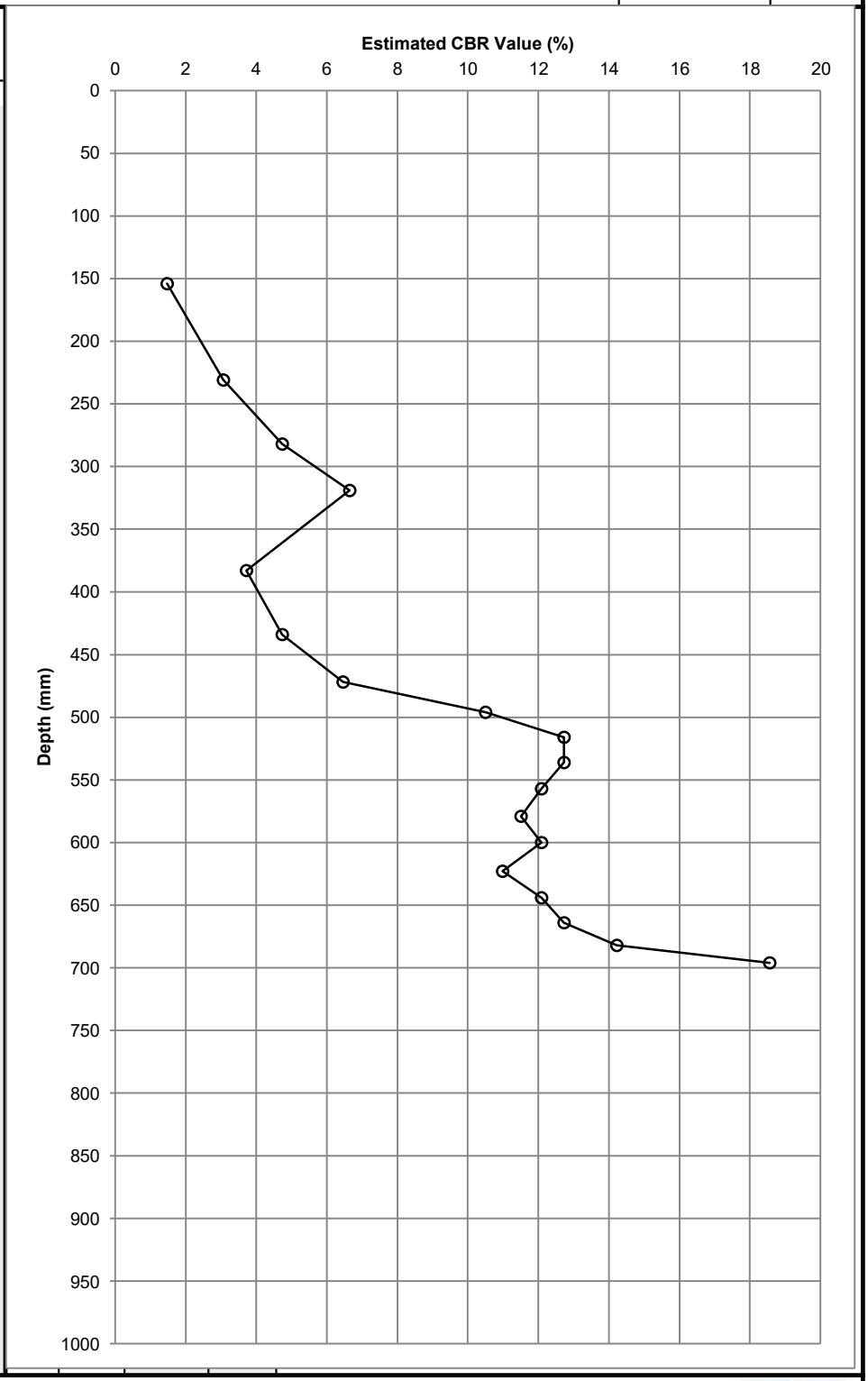
Tested By: HM **Approved By: CSS**

Checked By: PAD

DYNAMIC CONE PENETROMETER TEST RESULTS

		Test No	DCP4
		Date:	01-Oct
Project Name:	**Dover Road, Capel-le-Ferne**	**Project No:**	13329
Client Name:	**Mr B Muston**	**Zero Reading**	220

No. of Blows	Depth (mm)	Penetration mm/blow	Est CBR (%)
0	0		
1	154	154	1
2	231	77	3
3	282	51	5
4	319	37	7
5	383	64	4
6	434	51	5
7	472	38	6
8	496	24	10
9	516	20	13
10	536	20	13
11	557	21	12
12	579	22	12
13	600	21	12
14	623	23	11
15	644	21	12
16	664	20	13
17	682	18	14
18	696	14	19



GROUND AND ENVIRONMENTAL SERVICES LIMITED
Ground Investigation and Environmental Consultants

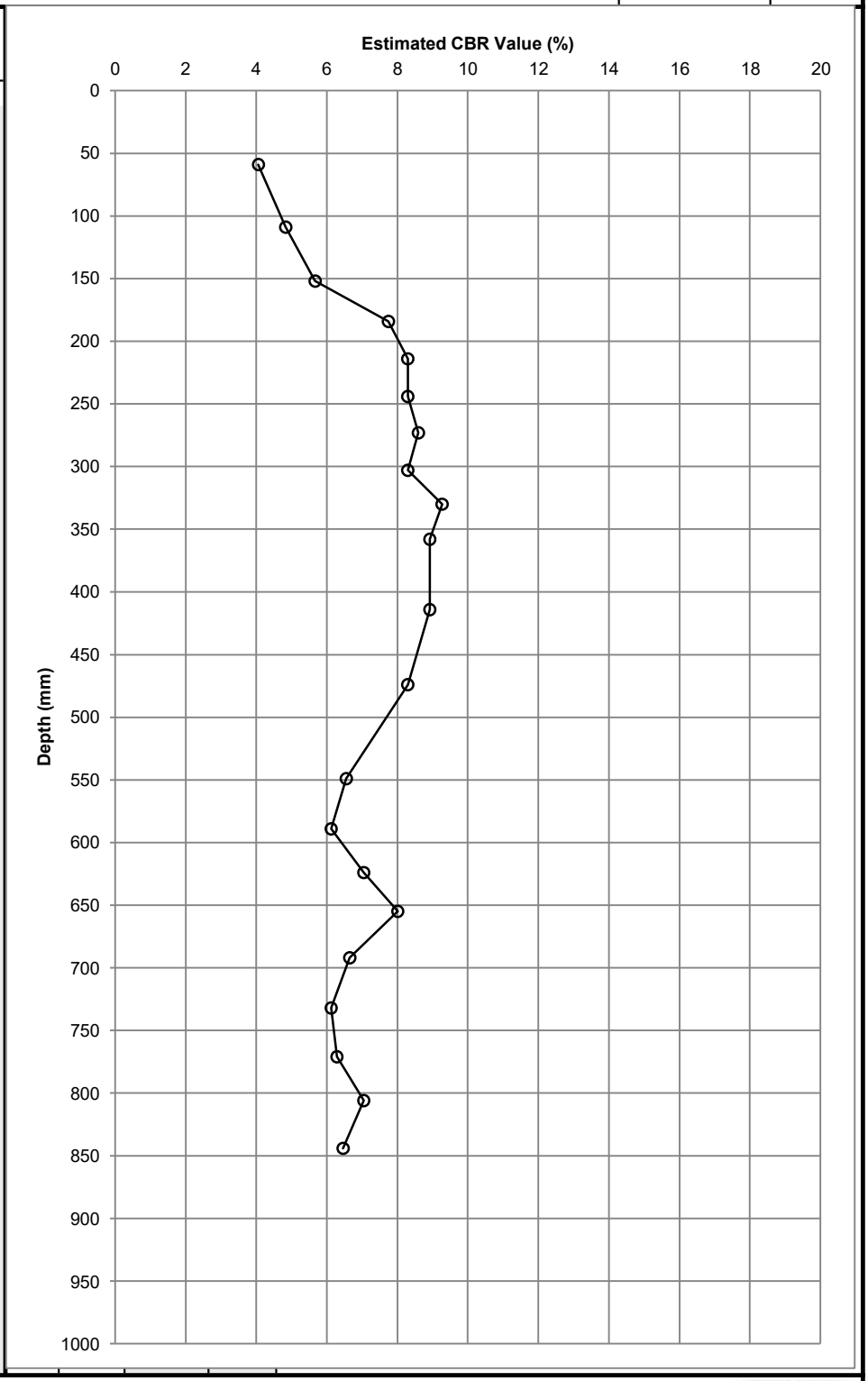
Tested By: HM **Approved By: CSS**

Checked By: PAD

DYNAMIC CONE PENETROMETER TEST RESULTS

		Test No	DCP5
		Date:	01-Oct
Project Name:	**Dover Road, Capel-le-Ferne**	**Project No:**	13329
Client Name:	**Mr B Muston**	**Zero Reading**	92

No. of Blows	Depth (mm)	Penetration mm/blow	Est CBR (%)
0	0		
1	59	59	4
2	109	50	5
3	152	43	6
4	184	32	8
5	214	30	8
6	244	30	8
7	273	29	9
8	303	30	8
9	330	27	9
10	358	28	9
12	414	28	9
14	474	30	8
16	549	37.5	7
17	589	40	6
18	624	35	7
19	655	31	8
20	692	37	7
21	732	40	6
22	771	39	6
23	806	35	7
24	844	38	6



GROUND AND ENVIRONMENTAL SERVICES LIMITED
Ground Investigation and Environmental Consultants

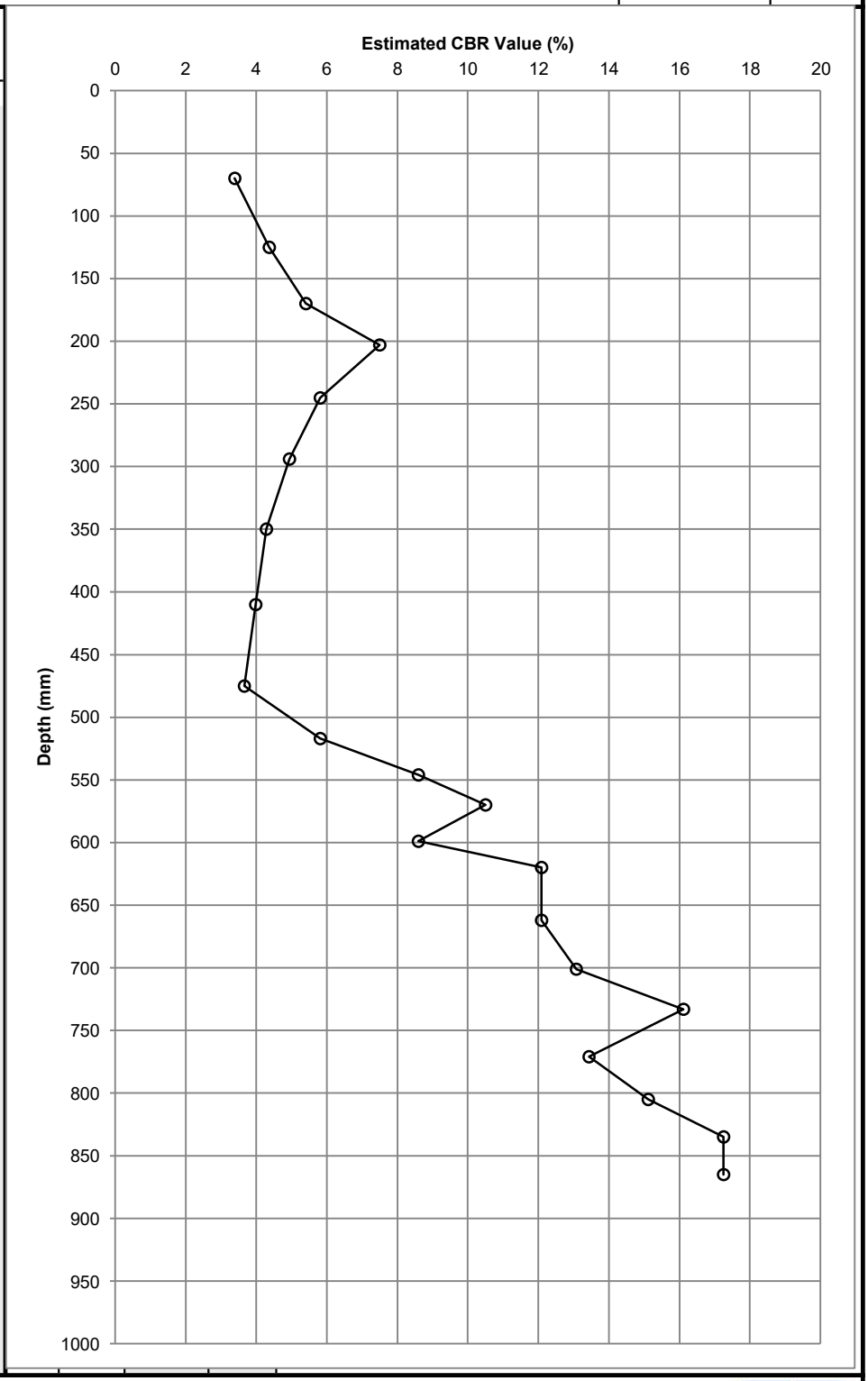
Tested By: HM **Approved By: CSS**

Checked By: PAD

DYNAMIC CONE PENETROMETER TEST RESULTS

		Test No	DCP6
		Date:	01-Oct
Project Name:	**Dover Road, Capel-le-Ferne**	**Project No:**	13329
Client Name:	**Mr B Muston**	**Zero Reading**	51

No. of Blows	Depth (mm)	Penetration mm/blow	Est CBR (%)
0	0		
1	70	70	3
2	125	55	4
3	170	45	5
4	203	33	7
5	245	42	6
6	294	49	5
7	350	56	4
8	410	60	4
9	475	65	4
10	517	42	6
11	546	29	9
12	570	24	10
13	599	29	9
14	620	21	12
16	662	21	12
18	701	19.5	13
20	733	16	16
22	771	19	13
24	805	17	15
26	835	15	17
28	865	15	17



GROUND AND ENVIRONMENTAL SERVICES LIMITED
Ground Investigation and Environmental Consultants

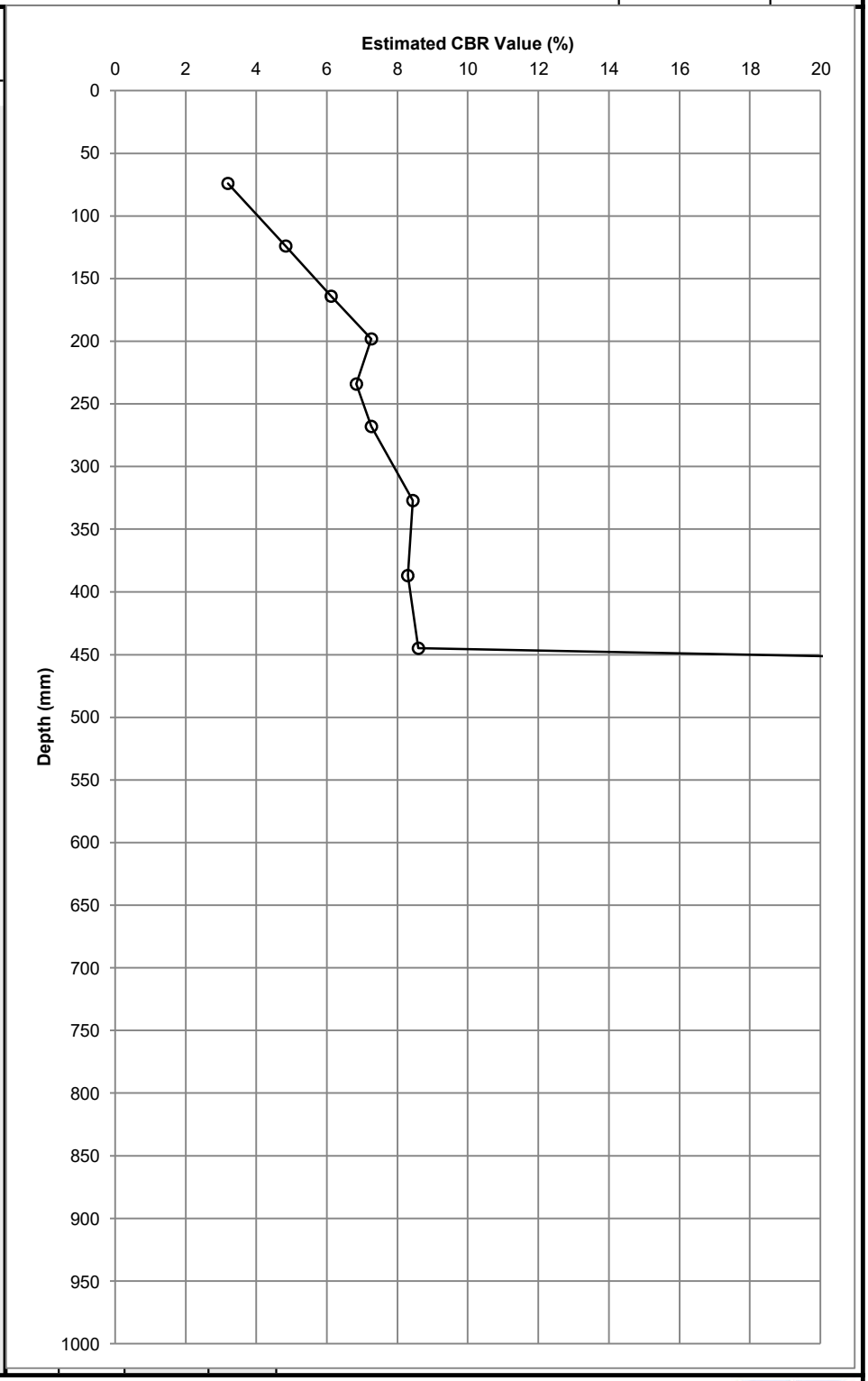
Tested By: HM **Approved By: CSS**

Checked By: PAD

DYNAMIC CONE PENETROMETER TEST RESULTS

		Test No	DCP7
		Date:	01-Oct
Project Name:	**Dover Road, Capel-le-Ferne**	**Project No:**	13329
Client Name:	**Mr B Muston**	**Zero Reading**	127

No. of Blows	Depth (mm)	Penetration mm/blow	Est CBR (%)
0	0		
1	74	74	3
2	124	50	5
3	164	40	6
4	198	34	7
5	234	36	7
6	268	34	7
8	327	29.5	8
10	387	30	8
12	445	29	9
14	460	7.5	36
16	473	6.5	42
19	489	5.33333333	51
22	515	8.66666667	31
27	559	8.8	30
32	607	9.6	28
37	652	9	30
42	685	6.6	41
47	723	7.6	35
50	757	11.3333333	23
52	779	11	24
53	791	12	22



GROUND AND ENVIRONMENTAL SERVICES LIMITED
Ground Investigation and Environmental Consultants

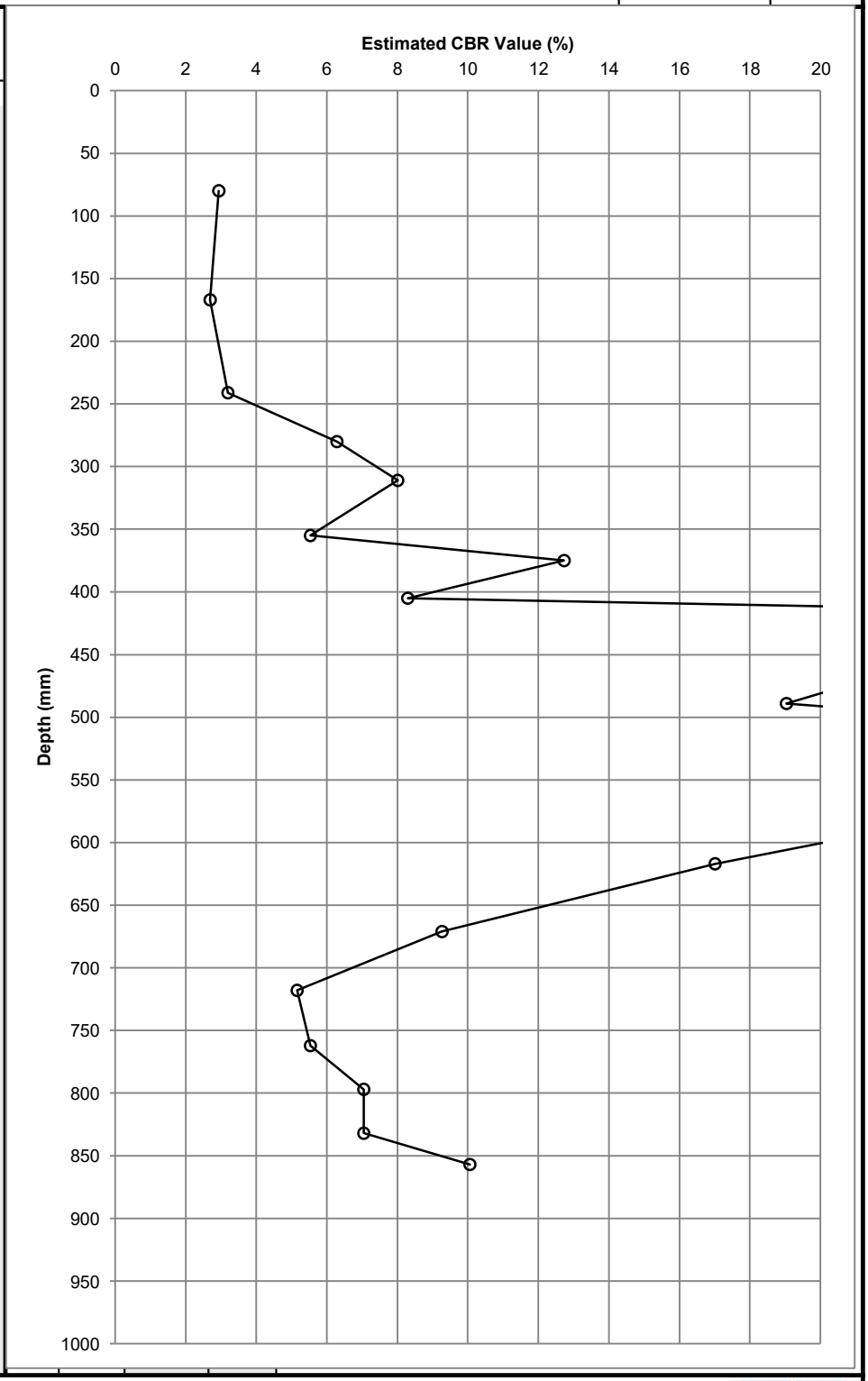
Tested By: HM **Approved By: CSS**

Checked By: PAD

DYNAMIC CONE PENETROMETER TEST RESULTS

		Test No	DCP8
		Date:	01-Oct
Project Name:	**Dover Road, Capel-le-Ferne**	**Project No:**	13329
Client Name:	**Mr B Muston**	**Zero Reading**	75

No. of Blows	Depth (mm)	Penetration mm/blow	Est CBR (%)
0	0		
1	80	80	3
2	167	87	3
3	241	74	3
4	280	39	6
5	311	31	8
6	355	44	6
7	375	20	13
8	405	30	8
9	415	10	26
12	448	11	24
15	489	13.6666667	19
18	515	8.66666667	31
21	541	8.66666667	31
26	617	15.2	17
28	671	27	9
29	718	47	5
30	762	44	6
31	797	35	7
32	832	35	7
33	857	25	10



GROUND AND ENVIRONMENTAL SERVICES LIMITED
Ground Investigation and Environmental Consultants

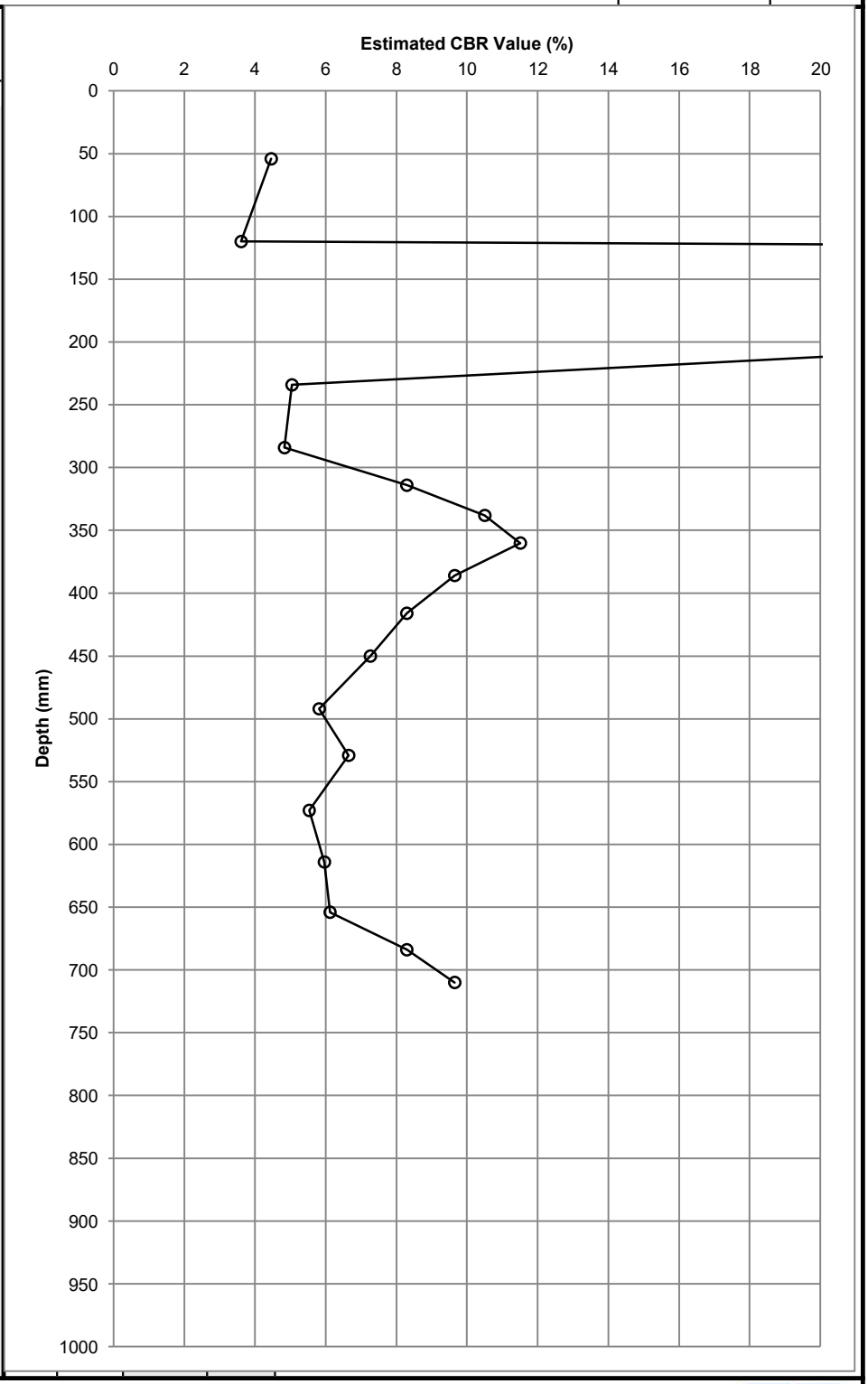
Tested By: HM **Approved By: CSS**

Checked By: PAD

DYNAMIC CONE PENETROMETER TEST RESULTS

		Test No	DCP9
		Date:	01-Oct
Project Name:	**Dover Road, Capel-le-Ferne**	**Project No:**	13329
Client Name:	**Mr B Muston**	**Zero Reading**	206

No. of Blows	Depth (mm)	Penetration mm/blow	Est CBR (%)
0	0		
1	54	54	4
2	120	66	4
7	134	2.8	102
12	150	3.2	88
17	186	7.2	37
18	234	48	5
19	284	50	5
20	314	30	8
21	338	24	10
22	360	22	12
23	386	26	10
24	416	30	8
25	450	34	7
26	492	42	6
27	529	37	7
28	573	44	6
29	614	41	6
30	654	40	6
31	684	30	8
32	710	26	10



GROUND AND ENVIRONMENTAL SERVICES LIMITED
Ground Investigation and Environmental Consultants

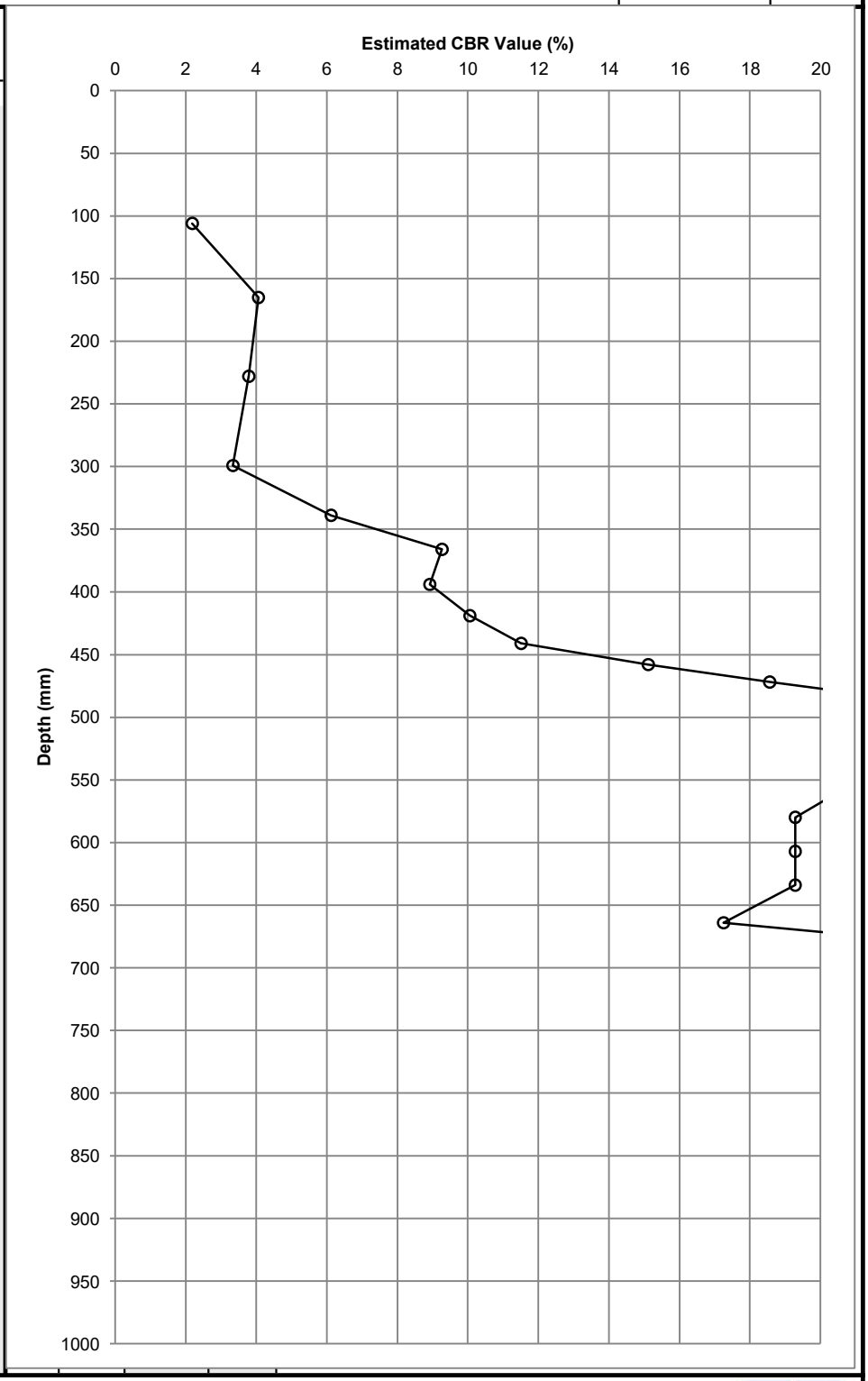
Tested By: HM **Approved By: CSS**

Checked By: PAD

DYNAMIC CONE PENETROMETER TEST RESULTS

		Test No	DCP10
		Date:	01-Oct
Project Name:	**Dover Road, Capel-le-Ferne**	**Project No:**	13329
Client Name:	**Mr B Muston**	**Zero Reading**	206

No. of Blows	Depth (mm)	Penetration mm/blow	Est CBR (%)
0	0		
1	106	106	2
2	165	59	4
3	228	63	4
4	299	71	3
5	339	40	6
6	366	27	9
7	394	28	9
8	419	25	10
9	441	22	12
10	458	17	15
11	472	14	19
12	484	12	22
14	506	11	24
16	528	11	24
18	553	12.5	21
20	580	13.5	19
22	607	13.5	19
24	634	13.5	19
26	664	15	17
28	685	10.5	25
30	706	10.5	25



GROUND AND ENVIRONMENTAL SERVICES LIMITED
Ground Investigation and Environmental Consultants

Tested By: HM **Approved By: CSS**

Checked By: PAD

APPENDIX 8

SOIL GAS AND GROUNDWATER LEVEL MONITORING RESULTS

SOIL GAS SURVEY

Project:	Archway Site	Date:	10/09/2024		GA 5000/Dipmeter
Location:	Capel-le-Ferne	Weather:	Sunny		
Job No.	13331	Temp:	18ºC		

Monitoring Point No.	Time	O2 (% v/v)	CO2 (% v/v)	CH4 (% v/v)	H2S (PPM)	CO (PPM)	PID (PPM)	Flow (l/hr)	Water (mbgl)
WS1	10:47	20.2	1.1	0				0	4.24
WS6	NO READINGS - PUMP FLOW FAILED								0.84
WS7									3.9

Site Observations/ Comments

Time	Barometric Pressure
10:17	993 mbar

Datum:

Tested by: HM

Checked by: CSS

Ground and Environmental Services Limited

Accuracy and range of Gas Analyser 5000 (GA5000)

Gas	Accuracy: Gas Concentrations 0-5%	5-15%	0-FS	Range
CH_4	+/-0.5%	+/-3%		0-70% to specification, 0-100% reading
CO_2	+/-0.5%	+/-3%		0-40% to specification, 0-100% reading
O_2	+/-1%	+/-1%		0-25%
CO			+/-10%FS	0-500ppm
H_2S			+/-10%FS	0-200ppm
B.P.	+/- 5 mBar			700-1200 mBar
Flow:				

Notes:

CH4: methane in percent volume per volume (% v/v)

CO2: carbon dioxide in %v/v

O2: oxygen in % v/v

H2S: hydrogen sulphide in part per million (ppm)

CO: carbon monoxide in ppm

B.P.: Barometric pressure in mBar

Flow: Gas flow in litre per hour (l/h)

SOIL GAS SURVEY

Project:	Archway Site	Date:	16/09/2024		GA 5000/Dipmeter
Location:	Capel-le-Ferne	Weather:	Overcast, 6/8 cloud cover		
Job No.	13331	Temp:	18ºC		

Monitoring Point No.	Time	O2 (% v/v)	CO2 (% v/v)	CH4 (% v/v)	H2S (PPM)	CO (PPM)	PID (PPM)	Flow (l/hr)	Water (mbgl)	Site Observations/ Comments
WS1	10:13	18.7	1	0				0	DRY	
WS6	10:19	19.2	0.6	0				0	1.72	
WS7	10:28	14.1	3.2	0				0	DRY	

Time	Barometric Pressure
10:17	1002 mbar

Datum:

Tested by: JF

Checked by: CSS

Ground and Environmental Services Limited

Accuracy and range of Gas Analyser 5000 (GA5000)

Gas	Accuracy: Gas Concentrations 0-5%	5-15%	0-FS	Range
CH_4	+/-0.5%	+/-3%		0-70% to specification, 0-100% reading
CO_2	+/-0.5%	+/-3%		0-40% to specification, 0-100% reading
O_2	+/-1%	+/-1%		0-25%
CO			+/-10%FS	0-500ppm
H_2S			+/-10%FS	0-200ppm
B.P.	+/- 5 mBar			700-1200 mBar
Flow:				

Notes:

CH4: methane in percent volume per volume (% v/v)

CO2: carbon dioxide in %v/v

O2: oxygen in % v/v

H2S: hydrogen sulphide in part per million (ppm)

CO: carbon monoxide in ppm

B.P.: Barometric pressure in mBar

Flow: Gas flow in litre per hour (l/h)

SOIL GAS SURVEY

Project:	Archway Site	Date:	26/09/2024		GA 5000/Dipmeter
Location:	Capel-le-Ferne	Weather:	Overcast and raining		
Job No.	13331	Temp:	16ºC		

Monitoring Point No.	Time	O2 (% v/v)	CO2 (% v/v)	CH4 (% v/v)	H2S (PPM)	CO (PPM)	PID (PPM)	Flow (l/hr)	Water (mbgl)
WS1	12:46	19.2	1	0				0	DRY
WS6	12:40	19.5	0.3	0				0	2.82
WS7	12:33	12.1	4.1	0				0	DRY

Site Observations/ Comments	
Time	Barometric Pressure
12:40	973 MB
Datum:	

Tested by: JF

Checked by: CSS

Ground and Environmental Services Limited

Accuracy and range of Gas Analyser 5000 (GA5000)

Gas	Accuracy: Gas Concentrations 0-5%	5-15%	0-FS	Range
CH_4	+/-0.5%	+/-3%		0-70% to specification, 0-100% reading
CO_2	+/-0.5%	+/-3%		0-40% to specification, 0-100% reading
O_2	+/-1%	+/-1%		0-25%
CO			+/-10%FS	0-500ppm
H_2S			+/-10%FS	0-200ppm
B.P.	+/- 5 mBar			700-1200 mBar
Flow:				

Notes:

CH4: methane in percent volume per volume (% v/v)

CO2: carbon dioxide in %v/v

O2: oxygen in % v/v

H2S: hydrogen sulphide in part per million (ppm)

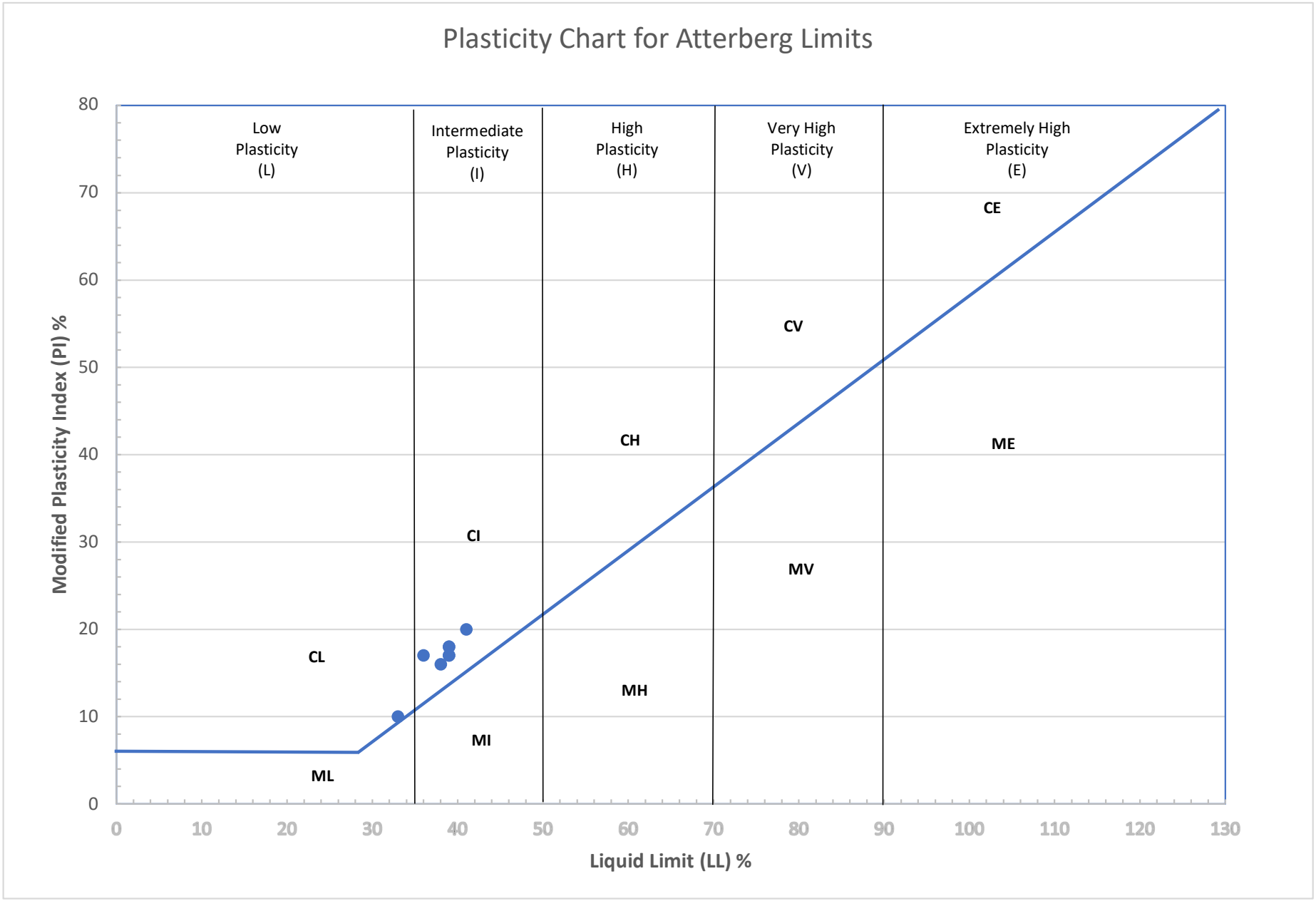
CO: carbon monoxide in ppm

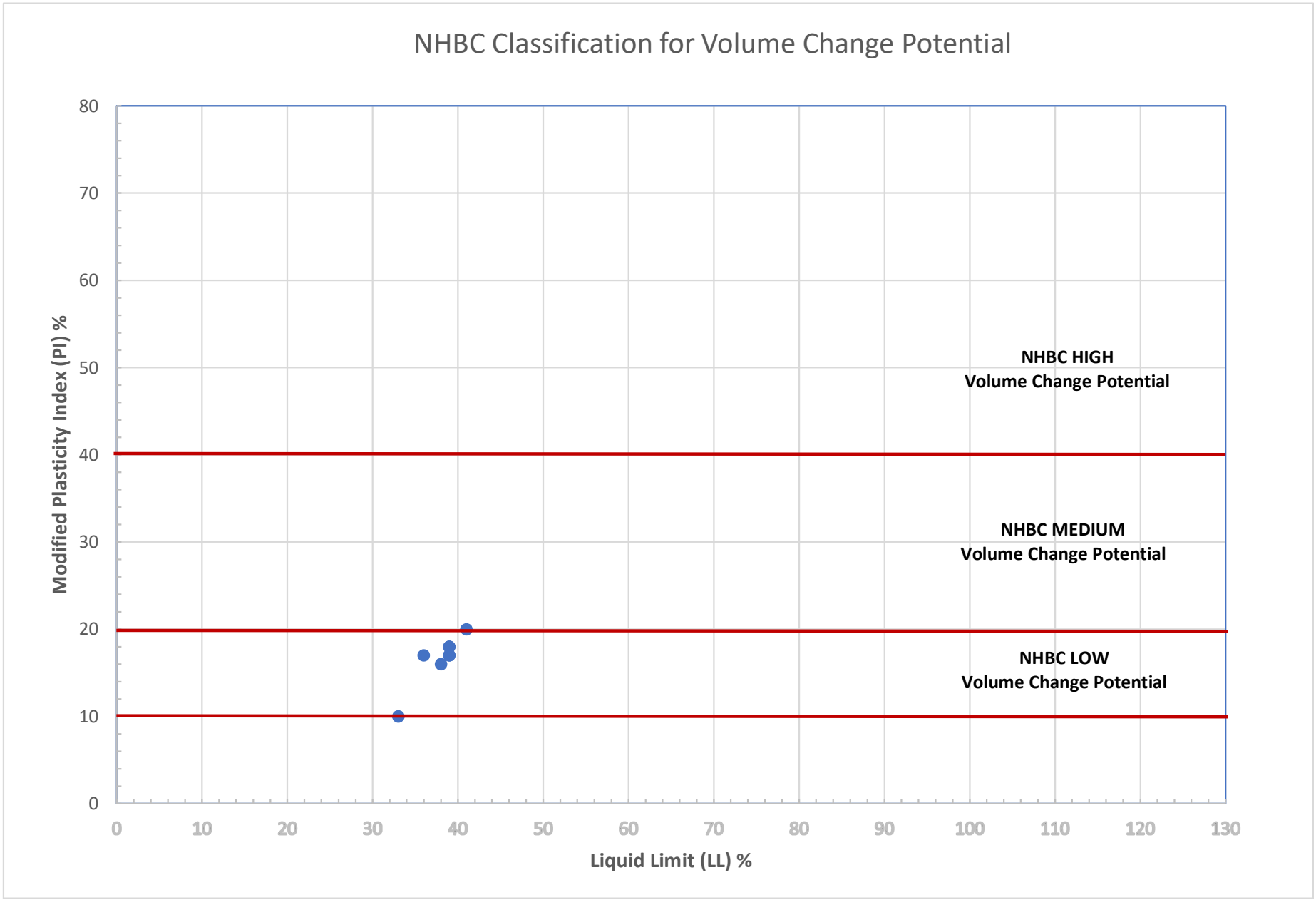
B.P.: Barometric pressure in mBar

Flow: Gas flow in litre per hour (l/h)

APPENDIX 9

LABORATORY TEST RESULTS


Plasticity Chart for Atterberg Limits
Low Plasticity (L)
Intermediate Plasticity (I)
High Plasticity (H)
Very High Plasticity (V)
Extremely High Plasticity (E)
CE
CV
CH
ME
CI
MV
CL
MH
MI
ML
Modified Plasticity Index (PI) %
Liquid Limit (LL) %
0
10
20
30
40
50
60
70
80
90
100
110
120
130


NHBC Classification for Volume Change Potential
Modified Plasticity Index (PI) %
Liquid Limit (LL) %
0
10
20
30
40
50
60
70
80
90
100
110
120
130
NHBC HIGH
Volume Change Potential
NHBC MEDIUM
Volume Change Potential
NHBC LOW
Volume Change Potential

Ground and Environmental Services Limited
Unit 2 Montpelier Business Park
Dencora Way
Ashford
Kent
TN23 4FG

www.genvs.com
E: info@genvs.com
T: 01233 646237

Site: Former BP site, Capel-Le-Ferne

Project No: 13329

Client: Bob Muston

Date 19/09/2024

Date Received: 09/09/2024

Date Tested: 18/09/2024

Test Results

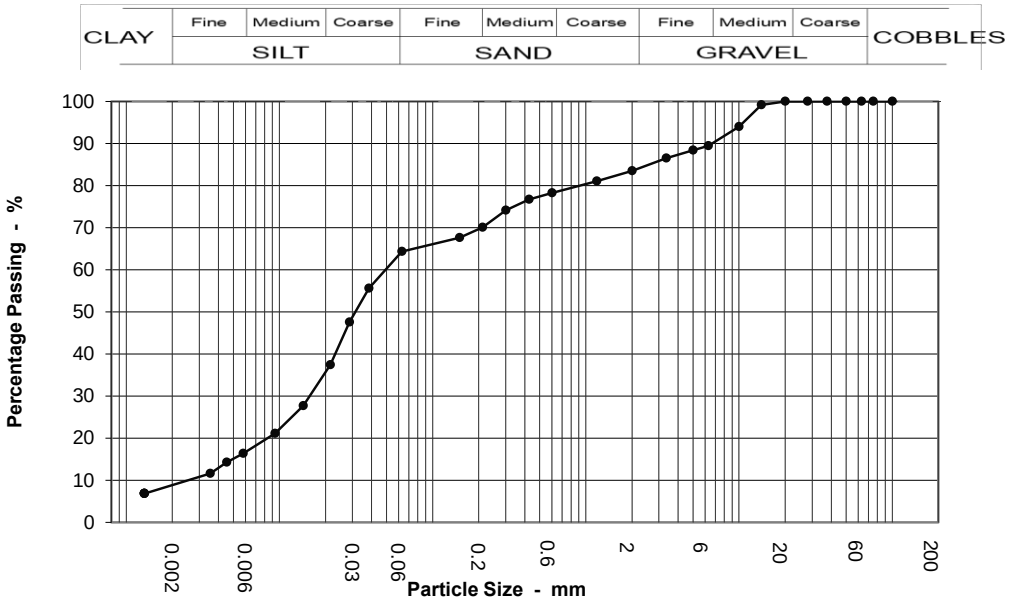
Location ID	Depth (m)	MC (%)	LL (%)	PL (%)	PI (%)	Est. % passing 425 µm sieve	Classification	Sample Type
WS 1	0.8-0.9	21	39	22	17	98	CI	D
WS 2	1.6-1.7	24	39	21	18	98	CI	D
WS 3	0.8-0.9	17	36	19	17	95	CI	D
WS 5	1.1-1.2	21	38	22	16	95	CI	D
WS 6	0.9-1.0	21	39	21	18	90	CI	D
WS 7	0.9-1.0	22	41	21	20	98	CI	D
WS 8	0.8-0.9	14	33	23	10	95	CL	D
WS 8	1.6-1.7	19	39	22	17	98	CI	D

Visual Descriptions

Location ID	Depth	Description
WS 1	0.8-0.9	Light brown very silty CLAY
WS 2	1.6-1.7	Orange brown with light grey very silty CLAY
WS 3	0.8-0.9	Yellow brown very silty CLAY
WS 5	1.1-1.2	Orange brown with light grey very silty CLAY
WS 6	0.9-1.0	Orange brown with light grey very silty CLAY
WS 7	0.9-1.0	Orange brown very silty CLAY
WS 8	0.8-0.9	Brown very silty CLAY
WS 8	1.6-1.7	Orange brown with light grey very silty CLAY

Tested by: STP Checked by: CSS Approved by: CSS

	PARTICLE SIZE DISTRIBUTION **BS 1377 : Part 2 : 1990 : Clause 9**	**Job Ref**	**13329**
		Borehole / Pit No	WS 5
Project	**Former BP site, Capel-Le-Ferne**	Sample No	
		Depth	0.4-0.5 m
Soil Description	Brown slightly gravelly sandy SILT with some clay content	Sample type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100	0.038	56
63	100	0.029	48
50	100	0.021	37
37.5	100	0.014	28
28	100	0.009	21
20	100	0.006	16
14	99	0.005	14
10	94	0.004	12
6.3	89	0.001	7
5	88		
3.35	86		
2	84		
1.18	81		
0.6	78		
0.425	77		
0.3	74		
0.212	70		
0.15	68		
0.063	64		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.2
Sedimentation	Clause 9.5

Sample Proportions	
Cobbles	0.0
Gravel	16.5
Sand	20.2
Silt	55.0
Clay	8.3

Grading Analysis	
D100	20.0
D60	0.051
D10	0.003
Uniformity Coefficient	18

Operator	Checked	Approved	Remarks	
STP	KM	CSS		

APPENDIX 10

ANALYTICAL TEST RESULTS

John Finch
Ground & Environmental Services Ltd
Unit 2
Montpelier Business Park
Dencora Way
Ashford
Kent
TN23 4FG

Normec DETS Limited
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 24-10399

Site Reference:	Former BP Petrol Station, Capel-le-Ferne
Project / Job Ref:	13329
Order No:	GES/5733.13329
Sample Receipt Date:	04/09/2024
Sample Scheduled Date:	05/09/2024
Report Issue Number:	1
Reporting Date:	12/09/2024

Authorised by:

Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. 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 except in full, without the prior written approval of the laboratory.

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate						
DETS Report No: 24-10399	~Date Sampled	02/09/24	02/09/24	02/09/24	02/09/24	02/09/24
Ground & Environmental Services Ltd	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Former BP Petrol Station, Capel-le-Ferne	~TP / BH No	WS1	WS2	WS3	WS4	WS5
~Project / Job Ref: 13329	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: GES/5733.13329	~Depth (m)	0.30	0.30	0.20	0.30	0.20
Reporting Date: 12/09/2024	DETS Sample No	736313	736314	736315	736316	736317

Determinand	Unit	RL	Accreditation					
Stone Content	%	< 0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	6.0	5.9	6.6	7.5	6.5
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	< 10	< 10	< 10	14	18
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	< 0.01	< 0.01	< 0.01	0.01	0.02
Organic Matter (SOM)	%	< 0.1	MCERTS	2	2.8	3.3	5.5	4.4
Arsenic (As)	mg/kg	< 2	MCERTS	12	12	18	21	10
Barium (Ba)	mg/kg	< 2.5	MCERTS	34	31	46	62	31
Beryllium (Be)	mg/kg	< 0.5	MCERTS	< 0.5	< 0.5	0.8	< 0.5	< 0.5
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	1.4	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.2	< 0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	23	24	31	24	19
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	13	13	18	27	13
Lead (Pb)	mg/kg	< 3	MCERTS	35	30	43	57	25
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	9	9	11	9	8
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Vanadium (V)	mg/kg	< 1	MCERTS	35	34	53	28	28
Zinc (Zn)	mg/kg	< 3	MCERTS	39	38	61	89	45
Mineral Oil (C10 - C40)	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion

Subcontracted analysis (S)

~Sample details provided by customer and can affect the validity of results

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Soil Analysis Certificate						
DETS Report No: 24-10399	~Date Sampled	02/09/24	02/09/24	02/09/24	02/09/24	
Ground & Environmental Services Ltd	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
~Site Reference: Former BP Petrol Station, Capel-le-Ferne	~TP / BH No	WS6	WS7	WS8	WAC	
~Project / Job Ref: 13329	~Additional Refs	None Supplied	None Supplied	None Supplied	Composite	
~Order No: GES/5733.13329	~Depth (m)	0.40	0.60	0.20	None Supplied	
Reporting Date: 12/09/2024	DETS Sample No	736318	736319	736320	736321	

Determinand	Unit	RL	Accreditation					
Stone Content	%	< 0.1	NONE	< 0.1	< 0.1	24.2	< 0.1	
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected	
pH	pH Units	N/a	MCERTS	6.9	7.3	7.6	7.5	
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	333	53	< 10	< 10	
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.33	0.05	< 0.01	< 0.01	
Organic Matter (SOM)	%	< 0.1	MCERTS	1.8	1.5	3	1.5	
Arsenic (As)	mg/kg	< 2	MCERTS	11	10	11	12	
Barium (Ba)	mg/kg	< 2.5	MCERTS	28	31	58	36	
Beryllium (Be)	mg/kg	< 0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5	
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	
Chromium (Cr)	mg/kg	< 2	MCERTS	27	26	17	23	
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	
Copper (Cu)	mg/kg	< 4	MCERTS	9	9	20	11	
Lead (Pb)	mg/kg	< 3	MCERTS	13	11	58	14	
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	
Nickel (Ni)	mg/kg	< 3	MCERTS	8	10	7	11	
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	
Vanadium (V)	mg/kg	< 1	MCERTS	35	34	27	34	
Zinc (Zn)	mg/kg	< 3	MCERTS	31	33	81	37	
Mineral Oil (C10 - C40)	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion

Subcontracted analysis (S)

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 24-10399	~Date Sampled	02/09/24	02/09/24	02/09/24	02/09/24	02/09/24
Ground & Environmental Services Ltd	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Former BP Petrol Station, Capel-le-Ferne	~TP / BH No	WS1	WS2	WS3	WS4	WS5
~Project / Job Ref: 13329	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: GES/5733.13329	~Depth (m)	0.30	0.30	0.20	0.30	0.20
Reporting Date: 12/09/2024	DETS Sample No	736313	736314	736315	736316	736317

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.19	0.20	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.20	0.66	0.62	0.18
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.16	0.58	0.53	0.17
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.30	0.28	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.34	0.34	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.41	0.39	0.17
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	0.15	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.29	0.31	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.19	0.21	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.16	0.20	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	3.1	3.2	< 1.6

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 24-10399	~Date Sampled	02/09/24	02/09/24	02/09/24	02/09/24	
Ground & Environmental Services Ltd	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
~Site Reference: Former BP Petrol Station, Capel-le-Ferne	~TP / BH No	WS6	WS7	WS8	WAC	
~Project / Job Ref: 13329	~Additional Refs	None Supplied	None Supplied	None Supplied	Composite	
~Order No: GES/5733.13329	~Depth (m)	0.40	0.60	0.20	None Supplied	
Reporting Date: 12/09/2024	DETS Sample No	736318	736319	736320	736321	

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.62	< 0.1	
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	1.95	< 0.1	
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	1.75	< 0.1	
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.99	< 0.1	
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	1.08	< 0.1	
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	1.57	< 0.1	
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.39	< 0.1	
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	1.24	< 0.1	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.84	< 0.1	
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.15	< 0.1	
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	0.76	< 0.1	
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	11.3	< 1.6	

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Soil Analysis Certificate - EPH Banded (Type D)						
DETS Report No: 24-10399	~Date Sampled	02/09/24	02/09/24	02/09/24	02/09/24	02/09/24
Ground & Environmental Services Ltd	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Former BP Petrol Station, Capel-le-Ferne	~TP / BH No	WS1	WS2	WS3	WS4	WS5
~Project / Job Ref: 13329	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: GES/5733.13329	~Depth (m)	0.30	0.30	0.20	0.30	0.20
Reporting Date: 12/09/2024	DETS Sample No	736313	736314	736315	736316	736317

Determinand	Unit	RL	Accreditation					
EPH (>C8 - C10)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EPH (>C10 - C12)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EPH (>C12 - C16)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
EPH (>C16 - C21)	mg/kg	< 1	MCERTS	< 1	< 1	2	5	< 1
EPH (>C21 - C35)	mg/kg	< 6	NONE	< 6	< 6	8	42	< 6
EPH (C8 - C35)	mg/kg	< 6	NONE	< 6	< 6	10	47	< 6

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Soil Analysis Certificate - EPH Banded (Type D)						
DETS Report No: 24-10399	~Date Sampled	02/09/24	02/09/24	02/09/24	02/09/24	
Ground & Environmental Services Ltd	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
~Site Reference: Former BP Petrol Station, Capel-le-Ferne	~TP / BH No	WS6	WS7	WS8	WAC	
~Project / Job Ref: 13329	~Additional Refs	None Supplied	None Supplied	None Supplied	Composite	
~Order No: GES/5733.13329	~Depth (m)	0.40	0.60	0.20	None Supplied	
Reporting Date: 12/09/2024	DETS Sample No	736318	736319	736320	736321	

Determinand	Unit	RL	Accreditation					
EPH (>C8 - C10)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	
EPH (>C10 - C12)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	
EPH (>C12 - C16)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	
EPH (>C16 - C21)	mg/kg	< 1	MCERTS	< 1	< 1	11	< 1	
EPH (>C21 - C35)	mg/kg	< 6	NONE	< 6	< 6	55	< 6	
EPH (C8 - C35)	mg/kg	< 6	NONE	< 6	< 6	66	< 6	

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 24-10399	~Date Sampled	02/09/24	02/09/24			
Ground & Environmental Services Ltd	~Time Sampled	None Supplied	None Supplied			
~Site Reference: Former BP Petrol Station, Capel-le-Ferne	~TP / BH No	WS6	WS7			
~Project / Job Ref: 13329	~Additional Refs	None Supplied	None Supplied			
~Order No: GES/5733.13329	~Depth (m)	0.40	0.60			
Reporting Date: 12/09/2024	DETS Sample No	736318	736319			

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2	< 2			
Toluene	ug/kg	< 5	MCERTS	< 5	< 5			
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2			
p & m-xylene	ug/kg	< 2	MCERTS	< 2	< 2			
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2			
MTBE	ug/kg	< 5	MCERTS	< 5	< 5			

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Waste Acceptance Criteria Analytical Certificate

DETS Report No: 24-10399		~Date Sampled	02/09/24				Landfill Waste Acceptance Criteria Limits	
Ground & Environmental Services Ltd		~Time Sampled	None Supplied				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
~Site Reference: Former BP Petrol Station, Capel-le-Ferne		~TP / BH No	WAC						
~Project / Job Ref: 13329		~Additional Refs	Composite						
~Order No: GES/5733.13329		~Depth (m)	None Supplied						
Reporting Date: 12/09/2024		DETS Sample No	736321						
Determinand	Unit	MDL							
TOC[MU]	%	< 0.1	0.9				3%	5%	6%
Loss on Ignition[MU]	%	< 0.01	4.40				--	--	10%
BTEX[MU]	mg/kg	< 0.05	< 0.05				6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1				1	--	--
Mineral Oil[MU]	mg/kg	< 10	< 10				500	--	--
Total PAH[MU]	mg/kg	< 1.7	< 1.7				100	--	--
pH[MU]	pH Units	N/a	7.5				--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1				--	To be evaluated	To be evaluated

Eluate Analysis	10:1 mg/l			Cumulative 10:1 * mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic[U]	0.0004			0.004	0.5	2	25
Barium[U]	0.0041			0.041	20	100	300
Cadmium[U]	< 0.0002			< 0.002	0.04	1	5
Chromium[U]	0.0006			0.006	0.5	10	70
Copper[U]	0.0008			0.008	2	50	100
Mercury[U]	< 0.00004			< 0.0004	0.01	0.2	2
Molybdenum[U]	0.0003			0.003	0.5	10	30
Nickel[U]	0.0008			0.008	0.4	10	40
Lead[U]	0.0003			0.003	0.5	10	50
Antimony[U]	< 0.0002			< 0.002	0.06	0.7	5
Selenium[U]	< 0.0002			< 0.002	0.1	0.5	7
Zinc[U]	0.004			0.04	4	50	200
Chloride[U]	< 1.0			< 10	800	15000	25000
Fluoride[U]	< 0.5			< 5	10	150	500
Sulphate[U]	1.7			17	1000	20000	50000
TDS	18			180	4000	60000	100000
Phenol Index[U]	< 0.01			< 0.1	1	-	-
DOC[U]	11.3			113	500	800	1000
Leach Test Information							
Sample Mass (kg)	0.10						
Dry Matter (%)	87.7						
Moisture (%)	14						
Stage 1							
Volume Eluate L10 (litres)	0.89						

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
Stated limits are for guidance only and Normec DETS Limited cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test
~Sample details provided by customer and can affect the validity of results
* DETS are accredited for the testing of leachate and not the leachate preparation stage which is unaccredited

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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 24-10399	
Ground & Environmental Services Ltd	
~Site Reference: Former BP Petrol Station, Capel-le-Ferne	
~Project / Job Ref: 13329	
~Order No: GES/5733.13329	
Reporting Date: 12/09/2024	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
736313	WS1	None Supplied	0.30	13.8	Light brown sandy clay
736314	WS2	None Supplied	0.30	14.4	Light brown sandy clay with stones
736315	WS3	None Supplied	0.20	16.6	Brown sandy clay
736316	WS4	None Supplied	0.30	15.6	Brown sandy clay with vegetation
736317	WS5	None Supplied	0.20	16.4	Brown sandy clay with vegetation
736318	WS6	None Supplied	0.40	12.7	Brown sandy clay
736319	WS7	None Supplied	0.60	14.5	Brown sandy clay
736320	WS8	None Supplied	0.20	9.4	Brown sandy clay with vegetation
736321	WAC	Composite	None Supplied	12.3	Light brown sandy clay

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample I/S

Unsuitable Sample U/S

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 24-10399
Ground & Environmental Services Ltd
~Site Reference: Former BP Petrol Station, Capel-le-Ferne
~Project / Job Ref: 13329
~Order No: GES/5733.13329
Reporting Date: 12/09/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

Normec DETS Limited
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Rose Lane
Lenham Heath
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Kent ME17 2JN
Tel : 01622 850410

UKAS TESTING 4480

Water Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 24-10399
Ground & Environmental Services Ltd
~Site Reference: Former BP Petrol Station, Capel-le-Ferne
~Project / Job Ref: 13329
~Order No: GES/5733.13329
Reporting Date: 12/09/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	F	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	UF	Biological Oxygen Demand (BOD)	Determination using BOD sensors measuring the change of pressure	E133
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 – C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichlorometha	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered
~Sample details provided by customer and can affect the validity of results

Parameter	Matrix Type	Expanded Uncertainity Measurement	Unit
TOC	Soil	12.2	%
Loss on Ignition	Soil	22.9	%
BTEX	Soil	11.2	%
Sum of PCBs	Soil	43.4	%
Mineral Oil	Soil	9.0	%
Total PAH	Soil	18.5	%
pH	Soil	0.335	Units
Acid Neutralisation Capacity	Soil	18.0	%
Clay Content	Soil	15.0	%
Silt Content	Soil	14.0	%
Sand Content	Soil	13.0	%
Loss on Ignition	Soil	22.9	%
pH	Soil	0.335	Units
Carbonate	Soil	12.0	%
Total Nitrogen	Soil	12.0	%
Phosphorus (Extractable)	Soil	24.0	%
Potassium (Extractable)	Soil	20.0	%
Magnesium (Extractable)	Soil	26.0	%
Zinc	Soil	21.6	%
Copper	Soil	18.2	%
Nickel	Soil	24.3	%
Available Sodium	Soil	23.0	%
Available Calcium	Soil	23.0	%
Electrical Conductivity	Soil	10.0	%

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Rose Lane Industrial Estate
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ME17 2JN
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DETS Report No: 24-10640

Site Reference:	Former BP Petrol Station, Capel-Le-Ferne
Project / Job Ref:	13329
Order No:	GES/5735.13329
Sample Receipt Date:	11/09/2024
Sample Scheduled Date:	11/09/2024
Report Issue Number:	1
Reporting Date:	17/09/2024

Authorised by:

Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. 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 except in full, without the prior written approval of the laboratory.

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Soil Analysis Certificate						
DETS Report No: 24-10640	~Date Sampled	09/09/24	09/09/24	09/09/24	09/09/24	09/09/24
Ground & Environmental Services Ltd	~Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Former BP Petrol Station, Capel-Le-Ferne	~TP / BH No	WS2	WS4	WS5	WS7	WS8
~Project / Job Ref: 13329	~Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: GES/5735.13329	~Depth (m)	0.80 - 0.90	1.20 - 1.30	0.90 - 1.00	1.60 - 1.70	0.80 - 0.90
Reporting Date: 17/09/2024	DETS Sample No	737478	737479	737480	737481	737482

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	MCERTS	7.0	7.9	6.7	7.4	7.9
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	11	< 10	< 10	20	< 10
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.01	< 0.01	< 0.01	0.02	< 0.01

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)
~Sample details provided by customer and can affect the validity of results

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Lenham Heath
Maidstone
Kent ME17 2JN
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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 24-10640	
Ground & Environmental Services Ltd	
~Site Reference: Former BP Petrol Station, Capel-Le-Ferne	
~Project / Job Ref: 13329	
~Order No: GES/5735.13329	
Reporting Date: 17/09/2024	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
737478	WS2	None Supplied	0.80 - 0.90	12.4	Light brown sandy clay with stones
737479	WS4	None Supplied	1.20 - 1.30	10.3	Light brown sandy clay with stones
737480	WS5	None Supplied	0.90 - 1.00	14	Light brown sandy clay with stones
737481	WS7	None Supplied	1.60 - 1.70	15.9	Light brown clay
737482	WS8	None Supplied	0.80 - 0.90	9.6	Light brown sandy clay

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S
~Sample details provided by customer and can affect the validity of results

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 24-10640
Ground & Environmental Services Ltd
~Site Reference: Former BP Petrol Station, Capel-Le-Ferne
~Project / Job Ref: 13329
~Order No: GES/5735.13329
Reporting Date: 17/09/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

APPENDIX 11

GUIDELINES ON CONTAMINANT LEVELS

CLEA Soil Guideline values (SGV)

The UKs primary contaminated land guidance is contained within the Contaminated Land Exposure Assessment (CLEA) framework. Within this framework a number of Soil Guideline Values (SGVs) were published for key contaminants along with toxicological guideline values relating to intake thresholds. The soil guideline values provided by the CLEA model represented intervention values for end uses based upon potential human exposure and soil concentrations of a contaminant above these values might represent an unacceptable risk to the health of the site users.

The Environment Agency had an ongoing programme of SGV publication with associated toxicological information for key contaminants. All CLEA SGVs were withdrawn for use by the Environment Agency in 2008.

Part 2A of the Environmental Protection Act 1990 was intended to ensure that the risks from land contamination to human health, property and the environment are managed appropriately. Defra subsequently revised the statutory guidance for Part 2A to address concerns regarding its real-world application. The revised guidance presents a four category system for classifying land under Part 2A, ranging from Category 4, where the level of risk posed is acceptably low, to Category 1, where the level of risk is clearly unacceptable.

Contamination levels below the C4SL are acceptably low and levels above should be assessed in the context of background levels and site specific risk assessment.

The C4SLs are more pragmatic compared to the SGVs. The C4SLs consist of cautious estimates of contaminant concentrations in soil that are still considered to present an acceptable level of risk.

To date (2024), fifteen C4SLs have been derived and published. In the absence of a published C4SL for a specific contaminant, the Land Quality Management and Chartered Institute of Environmental Health (LQM/CIEH) have derived values using the same principles applied in the derivation of the C4SLs. These values are the Suitable for Use Levels (S4UL).

In the absence of any published C4SL or S4UL data, GES have used appropriate screening tools or Generic Assessment Criteria Levels as assessment criteria guidelines for those determinands not currently assigned screening levels using the CLEA model, v1.06.

DEFRA Category four screening level (C4SL) and LQM/CIEH Suitable 4 Use Levels

Screening values proposed in the DEFRA document SP1010-Development of Category 4 Screening Levels for Assessment of Land affected by Contamination Final Project Report (C4SL) are considered along with the suitable for use levels (S4USL) derived by the Chartered Institute of Environmental Health (CIEH) in partnership with the Land Quality Management Organization (LQM).

The screening levels are given for residential, commercial, allotment or public open space end uses below. C4SLs are used in preference to S4UL where they are available.

PARAMETER	Residential		Commercial	Allotment	Public open Space		Sources
	With Plant uptake	Without Plant uptake			near homes	park land	
Inorganics - mg/kg unless stated							
Arsenic	37	40	640	49	79	170	C4SL
Beryllium	1.7	1.7	12	35	2.2	63	LQM/S4UL
Boron	290	11,000	240,000	45	21,000	46,000	
Cadmium	22	150	410	3.9	220	880	C4SL
Chromium III	910	910	8,600	18,000	1,500	33,000	LQM/S4UL
Chromium VI	21	21	49	170	21	250	C4SL
Copper	2,400	7,100	68,000	520	12,000	44,000	LQM/S4UL
Lead	200	310	2,300	80	630	1,300	C4SL
Inorganic mercury	200	300	5100	86	610	1300	
Elemental mercury	1.2	1.2	58	21	16	30	LQM/S4UL
Methylmercury	11	15	320	6	40	68	
Nickel	180	180	980	230	230	3,400	
Selenium	250	430	12,000	88	1,100	1,800	
Vanadium	410	1,200	9,000	91	2,000	5,000	
Zinc	3,700	40,000	730,000	620	81,000	170,000	

CLEA does not currently provide guidance for total Polycyclic Aromatic Hydrocarbons (PAHs). A standalone Defra C4SL for benzo(a)pyrene has been assigned and is shown below.

In addition, the Chartered Institute of Environmental Health (CIEH) in partnership with the Land Quality Management Organization (LQM) used CLEA software to derive ***Suitable 4 Use Levels (S4ULs***) for the following PAH compounds:

The values in the table below which are C4SL derived are highlighted grey.

PARAMETER	Residential						Commercial			Allotment			POS_{resi}	POS_{park}	Source
	With Plant uptake			Without Plant uptake											
SOM %	1	2.5	6	1	2.5	6	1	2.5	6	1	2.5	6	6% SOM		
Organics - mg/kg unless stated															
Acenaphthene	210	510	1100	3000	4700	6000	84000	97000	10000	34	85	200			LQM/S4USL
Acenaphthylene	170	420	920	2900	4600	6000	83000	97000	10000	28	69	160			
Anthracene	2400	5400	11000	31000	35000	37000	520000	540000	540000	380	950	2200			
Benzo(a)anthracene	7.2	11	13	11	14	15	170	170	180	2.9	6.5	13			
Benzo(a)pyrene C4SL			**5**			**5.3**			**77**			**5.7**	**10**	**21**	
Benzo(b)fluoranthene	2.6	3.3	3.7	3.9	4	4	44	44	45	0.99	2.1	3.9			
Benzo(g,h,i)perylene	320	340	350	360	360	360	3900	4000	4000	290	470	640			
Benzo(k)fluoranthene	77	93	100	110	110	110	1200	1200	1200	37	75	130			
Chrysene	15	22	27	30	31	32	350	350	350	4.1	9.4	19			
Dibenzo(a,h)anthracene	0.24	0.28	0.3	0.31	0.32	0.32	3.5	3.6	3.6	0.14	0.27	0.43			
Fluoranthene	280	560	890	1500	1600	1600	23000	23000	23000	52	130	290			
Fluorene	170	480	860	2800	3800	4500	63000	68000	71000	27	67	160			
Indeno(1,2,3-cd)pyrene	27	36	41	45	46	46	500	510	510	9.5	21	40			
Naphthalene C4SL	**15**	**36**	**85**	**15**	**36**	**85**	**1600**	**3700**	**8400**	**65**	**130**	**200**	**17000**	**1900**	
Phenanthrene	95	220	440	1300	1500	1500	22000	22000	23000	15	38	90			
Pyrene	620	1200	2000	3700	3800	3800	54000	54000	55000	110	270	620			
Phenol C4SL	**280**	**550**	**1100**	**750**	**1300**	**2300**	**760**	**1500**	**3200**	**66**	**140**	**280**	**3200**	**3200**	

Petroleum Hydrocarbons represent a complex situation being a mixture of a range of compounds, the relative concentrations of which may change over time.

As discussed above, Generic Assessment Criteria (GAC) for total petroleum hydrocarbons according to both their molecular weight and chemical structure and also for a range of soil organic matter (SOM) content values have been derived using CLEA software.

The ***LQM CIEH S4ULs*** are again presented according to their soil organic matter content and proposed end use of the land. The generic assessment criteria for a 1%, 2.5% and 6% SOM content are tabulated below and presented according to the proposed end use.

	LQM CIEH Generic Assessment Criteria (mg/kg dry weight soil)													
	Residential						Allotment Land Use			Commercial Land Use				
	With Plant Uptake			Without Plant Uptake										
SOM %	1	2.5	6	1	2.5	6	1	2.5	6	1	2.5	6		
Aliphatic														
EC 5 – 6	42	78	160	42	78	160	730	1700	3900	3200	5900	12000		
EC > 6 – 8	100	230	530	100	230	530	2300	5600	13000	7800	17000	40000		
EC > 8 – 10	27	65	150	27	65	150	320	770	1700	2000	4800	11000		
EC > 10 – 12	130	330	760	130	330	760	2200	4400	7300	9700	23000	47000		
EC > 12 – 16	1100	2400	4300	1100	2400	4300	11000	13000	13000	59000	82000	90000		
EC > 16 – 35	65000	92000	110000	65000	92000	110000	260000	270000	270000	1600000	1700000	1800000		
EC > 35 – 44	65000	92000	110000	65000	92000	110000	260000	270000	270000	1600000	1700000	1800000		
Aromatic														
EC 5 – 7 (benzene)	70	140	300	370	690	1400	13	27	57	26000	46000	86000		
EC > 7 – 8 (toluene)	130	290	660	860	1800	3900	22	51	120	56000	110000	180000		
EC > 8 – 10	34	83	190	4	110	270	8.6	21	51	3500	8100	17000		
EC > 10 – 12	74	180	380	250	590	1200	13	31	74	16000	28000	34000		
EC > 12 – 16	140	330	660	1800	2300	2500	23	57	130	36000	37000	38000		
EC > 16 – 21	260	540	930	1900	1900	1900	46	110	260	28000	28000	28000		
EC > 21 – 35	1100	1500	1700	1900	1900	1900	370	820	1600	28000	28000	28000		
EC > 35 – 44	1100	1500	1700	1900	1900	1900	370	820	1600	28000	28000	28000		
Ali &Aro EC>44-70	1600	1800	1900	1900	1900	1900	1200	2100	3000	28000	28000	28000		
Benzene C4SL			0.87			3.3			0.18			98	POS_{resi} 140	POS_{park} 230
													6% SOM	
Toluene	130	290	660	880	1900	3900	22	51	120	56000	110000	180000		
Ethylbenzene	47	110	260	83	190	440	16	39	91	5700	13000	27000		
o-xylene	60	140	330	88	210	480	28	67	160	6600	15000	33000		
m-xylene	59	140	320	82	190	450	31	74	170	6200	14000	31000		
p-xylene	56	130	310	79	180	430	29	69	160	5900	14000	30000		

Inert Material

The limit values for inert waste are given in the EC Landfill Directive 1999/31/EC as applied under the Environmental Permitting (England and Wales) (Amendment) (EU Exit) Regulations 2019 (*SI 2019/39*) and as defined by the council decision establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC(2003/33/EC).

The regulations and associated guidance provide waste acceptance criteria, which set the limits of contaminants permitted in various waste categories going to landfill.

Inert waste is defined as waste which contains insignificant potential for pollution and does not endanger the quality of surface water or groundwater. The Landfill Directive states that inert waste will not adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health.

For risk assessment purposes we would consider that any materials (soils) containing concentrations of potential contaminants that would result in them being classified as inert would be considered as uncontaminated and therefore representing a low risk to human health.
Similarly, such material would not be considered to represent a significant risk to water resources.

However, with regard to Planning and proposed re-development, limit values for inert waste would not be considered appropriate to determine the risks posed to people where any open contaminant to receptor pathway remained intact.

Selected inert waste acceptance criteria as given in Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills for the Landfill Directive are given below.

Landfill acceptance criteria for inert waste (mg/kg)	
Total organic carbon (TOC)	30,000
Mineral oils (C10 – C40)	500
PCBs	1
PAH	100

Risks to Plants

The CLEA framework does not provide a method for the assessment of phytotoxic risks to plants. However maximum permissible concentrations have been published in the Sludge (Use in Agriculture) Regulations 1989 (SI 1989, No. 1263). This legislation enforces the provisions of the EC Directive 86/278/EEC for potentially toxic elements (PTEs) on soils for agricultural use where sewage sludge has been applied (see table below). These limits relate to the potential risk to plants and not human health for which CLEA is the overriding risk assessment model. The limit value from the British topsoil and subsoil standards may also apply.

Maximum permissible concentration in agricultural soils following sewage sludge application (mg/kg).				
	pH 5.0<5.5	**pH 5.5<6.0**	**pH 6.0-7.0**	**pH >7.0**
Zinc	200	250	300	450
Copper	80	100	135	200
Nickel	50	60	75	110

Risks to buried concrete

The potential risks to buried concrete can be assessed by reference to the BRE Special Digest 1 (SD1) entitled 'Concrete in Aggressive Ground'. This document provides a methodology for the specification of concrete based on the ground conditions encountered and is based upon chemical analysis and associated factors (e.g. groundwater). The guidance provides a Design Sulphate Class (DS) based upon the ground conditions and it is considered that a low concentration of sulphate and pH (i.e. DS – 1 and DS – 2) is considered to represent a low risk to buildings.

Risks to buried services

In addition, where water is supplied in plastic pipes which could come into contact with contaminated ground then this can lead to premature failures, resulting in leakage and loss of water quality. Risks to water supply pipes are assessed using guidance published by the UK Water Industry Research (UKWIR) entitled '*Guidance for the Selection of Water Pipes to be used in Brownfield Sites'* (Report Ref. No. 10/WM/03/21). This is known as the UKWIR guidance.

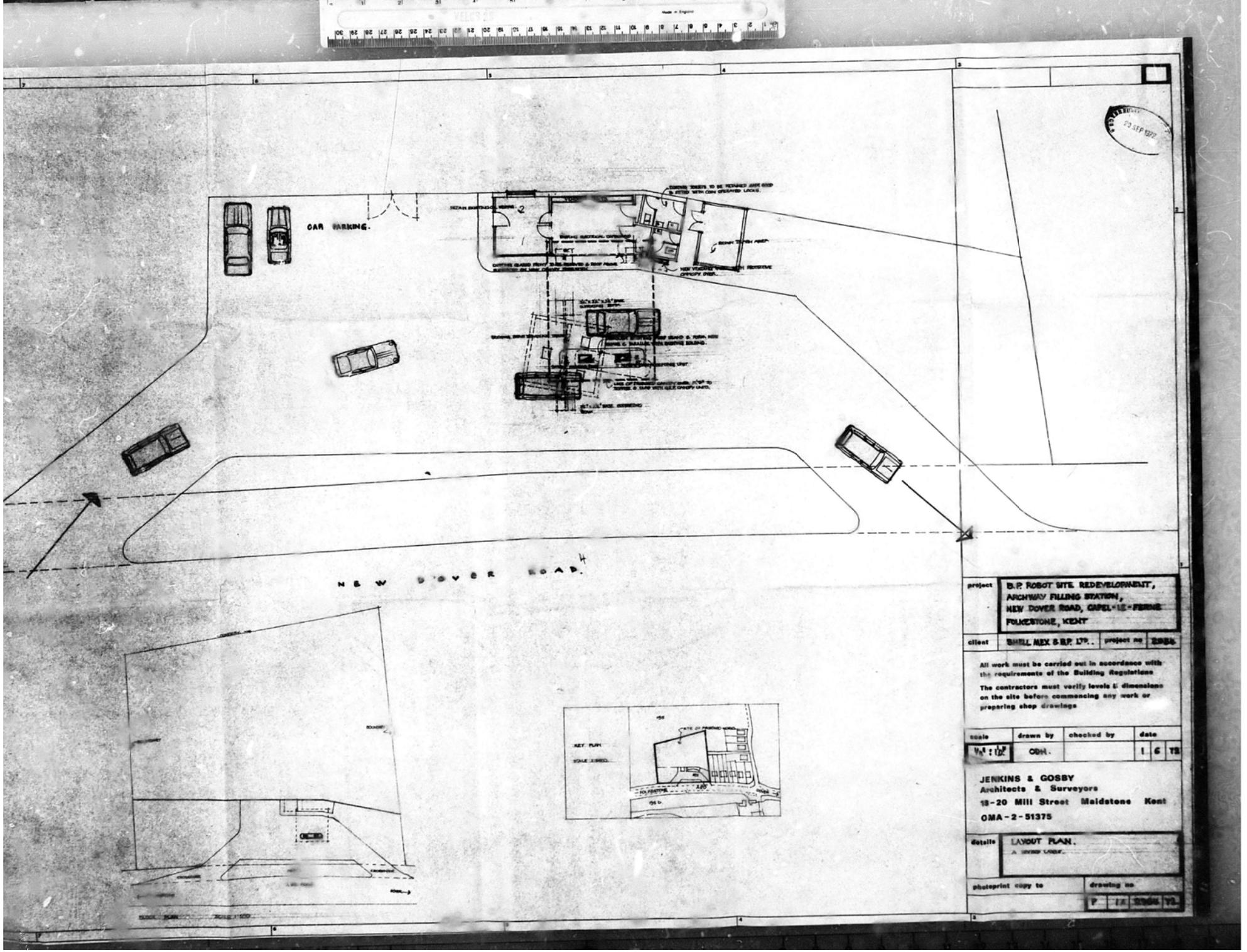
Previous guidance from WRAS has been withdrawn but may still be in use by certain water supply companies. In general water companies have adopted a common set of guidelines as given in the ***Contaminated Land Assessment Guidance from January 2014.*** Additional threshold values for determining pipe material have also been published by certain water supply companies. If these threshold values are exceeded then consideration should be given to the selection of pipe material or to the use of barrier pipes. The UKWIR threshold values, together with those of certain water supply companies are presented in the table below for a range of potential hazards.

Substance[1]	Water UK Guidance	Thames Water
Total VOC	0.5	-
Total BTEX & MTBE	0.1	0.1 or either
Total SVOC	2	-
EC5-EC10 aliphatic and aromatic hydrocarbons	2	-
EC5-EC12 aliphatic hydrocarbons		0.5
EC5-EC12 aromatic hydrocarbons		0.5
EC10-EC16 aliphatic and aromatic hydrocarbons	10	-
EC12-EC21 aliphatic hydrocarbons		10
EC12-EC21 aromatic hydrocarbons		10
EC16-EC40 aliphatic and aromatic hydrocarbons	500	-
EC21-EC35 aliphatic hydrocarbons		500
EC21-EC35 aromatic hydrocarbons		500
Phenols	2	5*
Cresols and chlorinated phenols	2	2
Naphthalene	**-**	**5**
Ethers	0.5	-
Nitrobenzene	0.5	-
Ketones	0.5	-
Aldehydes	0.5	-
Amines	0	-
Corrosives pH and EC	# ##	

All units mg kg-1 in soil;
pH <7 for wrapped steel, pH <5 wrapped ductile iron and copper and ##EC >400µS/cm;
*Phenol limit at 2mg/kg in presence of BTEX.

APPENDIX 12

HISTORICAL SITE LAYOUT PLAN


CAR PARKING.
NEW DOVER ROAD.
KEY PLAN
SCALE 1:1250
project
B.P. ROBOT SITE REDEVELOPMENT, ARCHWAY FILLING STATION, NEW DOVER ROAD, CAPEL-LE-FERNE FOLKESTONE, KENT
client
SHELL MEX & B.P. LTD.
project no
All work must be carried out in accordance with the requirements of the Building Regulations
The contractors must verify levels & dimensions on the site before commencing any work or preparing shop drawings
scale
drawn by
checked by
date
ODH.
JENKINS & GOSBY
Architects & Surveyors
18-20 Mill Street Maidstone Kent
OMA-2-51375
details
LAYOUT PLAN.
photoprint copy to
drawing no