ASHDOWN
SITE INVESTIGATION

GEOTECHNICAL ASSESSMENT REPORT

BATTLE SPORTS PAVILION
NORTH TRADE ROAD
BATTLE
EAST SUSSEX

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EXECUTIVE SUMMARY

The following presents a summary of the main findings of the report. It is emphasised that no reliance should be placed on any individual point until the whole of the report has been read as other sections of the report may put into context the information contained herein.

It is proposed to demolish the existing sports pavilion at Battle Recreation Ground and construct a new pavilion building on the footprint of the demolished structure.

The existing sports pavilion is located within the northern part of the recreation ground, adjacent to two tennis courts, and is connected on its western side to a guide hall, which is to be retained.

Reference to geological datasets indicates that the site is expected to be underlain by the Wadhurst Clay Formation. The ground investigation confirmed the underlying soils to comprise a shallow thickness of made ground, overlying Wadhurst Clay Formation deposits.

The Wadhurst Clay Formation is classed as an Unproductive Stratum. The site does not lie within a SPZ. With the exception of borehole WS02 where groundwater was noted between a depth of 2.00m and 3.00m below ground level, the boreholes were recorded to remain dry during the short period of the intrusive works.

Precautions against shrinkage and heave for any new foundation system should assume a medium volume change potential for the fine-grained Wadhurst Clay Formation.

A net allowable bearing capacity of 150kN/m^2 may be assumed for spread (pad or strip) foundations up to 1.00m across bearing within the Wadhurst Clay Formation soils of at least stiff consistency.

Ground floors should be suspended unless the conditions set out within this report can be met.

A DS-1 Design Sulfate Class and an AC-2z ACEC classification should be assumed as a minimum for the design of concrete in contact with the ground.

Infiltration testing within the Wadhurst Clay Formation soils recorded an infiltration rate of 1.17 x 10^{-6} m/s for a 1.7m driving head and 3.78 x 10^{-6} m/sec for a 2.1m driving head.

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Proposed Development Layout

APPENDIX B

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APPENDIX D

Aggressivity To Concrete Assessment
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1. INTRODUCTION

It is proposed to construct a replacement, larger sports pavilion at Battle Recreation Ground, on the footprint of the existing pavilion building. Details of the proposed development layout are presented in Appendix A.

Ashdown Site Investigation Ltd was requested to undertake a ground investigation and to provide advice to assist with the structural design.

The specific objectives of the works were to:

a) Establish the expected geology and hydrogeology at the site;
b) Investigate the shallow ground and groundwater conditions in the area of the proposed development; and
c) Provide advice/parameters to assist others in undertaking design of spread foundations, ground floors and soakaways.

The scope of the works covered by this report, and the terms and conditions under which they were undertaken, were set out within the offer letter Q14896, dated 17th January 2025. The instruction to proceed was received from the client, Battle Town Council.

2. SITE CONTEXT

2.1 Site Location

The area of the proposed replacement sports pavilion lies within the northern part of Battle Recreation Ground located at North Trade Road, Battle, East Sussex, and is centred on the approximate Ordnance Survey national grid reference 574270, 116150. A site location plan and site plan are presented as Figure 1 and Figure 2, respectively.

The existing sports pavilion is located adjacent to two tennis courts, and is connected on its western side to a guide hall, which is to be retained.

2.2 Geological Data Review

2.2.1 Expected Geology and Aquifer Designation

The stratigraphic unit that may be expected to underlie the site has been established by reference to British Geological Survey (BGS) mapping and the BGS Lexicon of Named Rock Units. The expected stratigraphy is presented in the following table.

Table 1. Expected Strata and Aquifer Designation

Type	Stratum	Aquifer Designation
Bedrock	Wadhurst Clay Formation	Unproductive Stratum

The Wadhurst Clay Formation forms part of the Wealden Group. The formation is of Valanginian age (133.9 to 139.4 million years old; Early Cretaceous). The Wadhurst Clay Formation comprises dark grey thinly-bedded mudstones ("shales") and mudstones with subordinate beds of pale grey siltstone, fine-grained sandstone (locally calcareous where it is known as Tilgate Stone or colloquially "Hastings Granite"), shelly limestone, clay ironstone and rare pebble beds. The top metre or so of the Wadhurst Clay often comprises stiff clay stained red by weathering. Thin beds of shelly limestone are present throughout. Nodular clay-ironstone occurs particularly in the lower part of the formation, but also near the top. Thicker beds of siltstone and lenticular calcareous sandstone units are also present. In the Tunbridge Wells district a thicker sand in the lower part of the formation is present but this does not appear on BGS maps. The base of the formation is commonly a thicker siltstone and, in some areas, a basal pebble bed, the Top Ashdown Pebble Bed is present. The formation is recorded by the BGS to range in thickness up to 78m.

2.2.2 Mining and Ground Workings

The geological units of the Wealden Group, including the Wadhurst Clay Formation, were locally mined for iron during the early Roman period, the Medieval period and significantly between the 15th and 18th centuries. The mining activities were associated with hammer and furnace ponds, and forges. The locations of many of the workings are unknown, the works mostly having been dismantled and sites overgrown with woodland. Many of the old ponds in the Weald may be representative of old hammer or furnace ponds.

The historical extraction was mostly from open pits excavated from surface, but during the Medieval period, extraction in the eastern Weald was increasingly from mine pits. These mine pits were typically five metres in diameter and up to twelve metres deep. The pits were worked in sequence with spoil from one pit used to in-fill the one before. In the western part of the Weald, the principal method of extracting iron ore was also the mine pit but smaller in scale; the pits consisted of a vertical shaft up to 2.5 metres in diameter and the base of the shaft would have been widened out.

The British Geological Survey GeoIndex Onshore viewer records the presence of the ceased Kelk Wood Pits some 960m to the west of the site. A search of the Wealden Iron Research Group database (www.wirgdata.org) revealed no records of iron workings within 1km of the site. The risk posed to the development is considered to be negligible to very low.

Further assessment of the natural ground and mining hazards can be undertaken, if required, to provide more detailed comment specific to the site.

2.2.3 Groundwater Source Protection Zones (SPZ)

The Environment Agency defines SPZs as those areas where groundwater supplies are at risk from potentially polluting activities and accidental releases of pollutants. SPZs are primarily a policy tool used to control activities close to water supplies intended for human consumption.

The site does not lie within a SPZ.

3. SITE WORKS

3.1 Introduction

The intrusive site works comprised a series of dynamic sampler boreholes, together with accompanying in-situ geotechnical testing. The intrusive work was carried out on 3rd February 2025. The exploratory hole locations are shown on Figure 2.

Descriptions of the strata encountered and comments on groundwater conditions are shown in the exploratory hole records given in Appendix B, which also includes explanatory notes to assist in their interpretation.

3.2 Exploratory Holes

The following table summarises the intrusive works undertaken at the site.

Table 2. Summary of Intrusive Works Undertaken

Designation	Depth (m bgl)	Method
WS01	3.00	Dynamic Sampler
WS02	3.00	Dynamic Sampler
WS03	3.00	Dynamic Sampler
WS04	2.90	Dynamic Sampler

3.3 Sampling

Samples of soil were taken from the exploratory holes at the depths shown in the exploratory hole records. The types of samples taken are indicated on the exploratory hole records. Details on the sample types are provided in the explanatory notes.

3.4 In Situ Strength Testing

The types and depths of in situ testing, together with the test results, are either given on the exploratory hole records or are summarised separately in Appendix B. Further details on the in situ testing methods are provided in the explanatory notes.

3.5 In Situ Infiltration Testing

Falling head soakage testing was undertaken in a single borehole in general accordance with Kent County Council guidance[1]. The results of the testing along with the infiltration rate calculations are included in Appendix D.

3.6 Laboratory Testing

Laboratory testing was scheduled by Ashdown Site Investigation Ltd.

[1] The Soakaway Design Guide published by Kent County Council, 2000.

Geotechnical testing was undertaken by Ashdown Site Investigation Ltd. Chemical testing was undertaken by a laboratory with recognised (UKAS and MCERTS) accreditation for quality control.

Results from the laboratory tests are provided in Appendix C, with the chemical testing also summarised in Appendix D.

4. GROUND CONDITIONS

4.1 Stratigraphy

4.1.1 Surface Covering

Each of the exploratory holes was excavated through an initial surface cover of topsoil.

4.1.2 Made Ground

Made ground, comprising slightly gravelly slightly sandy silty clay, was recorded to depths of between 0.70m and 1.00m below ground level. The gravel fraction comprised variable quantities of ironstone, mudstone, sandstone, brick, organic matter and ash-like material.

4.1.3 Wadhurst Clay Formation

Underlying the made ground, the boreholes progressed into generally stiff slightly gravelly silty clay soils, which were recorded to be locally very stiff. The gravel fraction comprised subangular to subrounded fine to coarse mudstone, ironstone and sandstone.

These deposits continued to the final investigation depth of 3.00m below ground level and are considered to represent the Wadhurst Clay Formation indicated to underlie the site on BGS geological maps.

4.2 Stability

Each of the exploratory holes was recorded to remain stable during the course of drilling.

4.3 Groundwater Conditions

Groundwater was noted within borehole WS02 between depths of 2.00m and 3.00m below ground level. The remaining boreholes were recorded to remain dry during the course of drilling.

5. GEOTECHNICAL ASSESSMENT

The geotechnical assessment has been prepared in connection with the development proposals shown on the drawings included in Appendix A.

In summary, the proposed development is to comprise demolition of the existing sports pavilion, and the construction of a replacement pavilion with a larger footprint than the previous.

At the time of writing, no details were available concerning the specific loads likely to be applied to the foundations.

5.1 Foundations

5.1.1 Soil Shrinkage/Heave Potential

The fine-grained soils of the Wadhurst Clay Formation have been classified as clays, and with plasticity indices in the range of 17% to 33%, the soils may be expected to exhibit a low to medium volume change potential.

It is recommended that the design of precautions against shrinkage and heave for any new foundation system (spread footings and ground beams etc.) should assume a medium volume change potential for the fine-grained Wadhurst Clay Formation soils and take into account current guidance such as that given by the Building Research Establishment (BRE)[2] or the National House Builders Council (NHBC)[3].

Whilst this report has been prepared to provide advice to assist designers in undertaking detailed design, the report itself does not represent a detailed design statement. Detailed foundation design, including assessment of foundation type, minimum founding depths for spread foundations, and requirements for placement of void formers et cetera, should take into account the findings of this report and the presence of trees (previous, present and proposed). In connection with the latter, it is recommended that an arboricultural survey of the site that identifies the species and maturity of the existing or any recently felled trees in the areas of the proposed new buildings should be provided to engineers responsible for the foundation design. Information on proposed planting schemes that may affect foundation design should also be provided.

5.1.2 Spread Foundations

5.1.2.1 Foundation Depths for Spread Foundations

Foundations should be constructed to bear below soils that are likely to be affected by significant soil volume changes caused by seasonal changes in moisture content to avoid damage to foundations that could otherwise arise. In addition, all made ground and any soils disturbed by the construction or removal of any previously existing foundations or services should be regarded as being variable in nature and state of compaction and, as such, unsuitable as a founding medium for shallow footings. New footings should be constructed so as to bear below made ground/disturbed natural soils and soil subject to seasonal soil volume changes, whichever is the deeper, and onto undisturbed, competent, natural deposits.

Summary guidance on suitable minimum foundation depths to protect against the effects of seasonal soil volume changes is presented in the table below but designers undertaking detailed design of foundations should follow the detailed guidance such as that provided within Chapter 4.2 of the NHBC Standards.

[2] www.bre.co.uk : BRE Digests 240, 241 and 242, Low rise buildings on shrinkable clay soils, parts 1, 2 and 3; and BRE Digest 298 , The influence of trees on house foundations in clay soils and BRE Digest 412, Desiccation in clay soils.
[3] http://www.nhbc.co.uk/ : NHBC Standards, Chapter 4.2.

Table 3. Indicative Minimum Foundation Depths

Tree Type	Water Demand of Tree	Tree Distance to Tree Height Ratio (D/H)									
		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.80	1.00	1.25
		Minimum Foundation Depth Required in Medium Volume Change Potential Soils (m)									
Broad Leaf	High	†			2.50	2.35	2.20	2.00	1.70	1.35	0.90*
	Moderate	2.00	1.60	1.45	1.30	1.15	0.90*	0.90*	0.90*	0.90*	0.90*
	Low	1.50	1.15	1.05	0.90*	0.90*	0.90*	0.90*	0.90*	0.90*	0.90*
Coniferous	High	†		1.95	1.60	1.25	0.90*	0.90*	0.90*	0.90*	0.90*
	Moderate	2.00	1.10	0.90*	0.90*	0.90*	0.90*	0.90*	0.90*	0.90*	0.90*

* Minimum foundation depth required to protect against soil volume changes.
† Foundations deeper than 2.50m require specialist design to protect against soil volume changes.

Where specialist foundation design is required (foundation depths exceeding the maximum permitted by the guidance) then piled foundations are likely to be needed, though commercial considerations may also dictate that piled foundations may be more economic even in comparison with conventional spread foundations constructed to depths less than the maximum permitted by guidance. Further works including deep boreholes would be required if structural engineers or quantity surveyors decide that piled foundations should be adopted.

Details on the water demand and mature height of common trees is given within Table 3 of Chapter 4.2 of the NHBC standards which should be referred to when assessing minimum foundation depths required for the proposed development. A summary is provided in the table below.

Table 4. Indicative Summary of Water Demand and Mature Height of Common Trees

Tree Type	High Water Demand		Moderate Water Demand		Low Water Demand	
	Tree	Height (m)	Tree	Height (m)	Tree	Height (m)
Broad Leaf	Elm	18 – 24*	Acacia	18	Birch	14
	Oak	16 – 24*	Alder	18	Elder	10
	Poplar	15 – 28*	Apple	10	Fig	8
	Willow	16 – 24*	Ash	11 – 23*	Hazel	8
	Eucalyptus	18	Laurel	10	Holly	12
	Hawthorn	10	Beech	20	Honey Locust	14
			Blackthorn	8	Hornbeam	17
			Cherry	8 – 17*	Laburnum	12
			Chestnut	20 – 24*	Magnolia	9
			Lime	22	Mulberry	9
			Maple	8 – 18*	Tulip Tree	20
			Pear	12		
			Plane	26		
			Plum	10		
			Sycamore	22		

Tree Type	High Water Demand		Moderate Water Demand		Low Water Demand
			Tree of Heaven	20	
			Walnut	18	
			Whitebeam	12	
Coniferous	Cypress	18 – 20*	Cedar	20	
			Douglas Fir	20	
			Larch	20	
			Monkey Puzzle	18	
			Pine	20	
			Spruce	18	
			Wellingtonia	30	
			Yew	12	

* Dependent on particular species.

5.1.2.2 Bearing Capacity for Spread Foundations

For design purposes, a net allowable bearing capacity of 150kN/m^2 may be assumed for spread (pad or strip) foundations up to 1.00m across bearing within the Wadhurst Clay Formation soils of at least stiff consistency. The quoted bearing capacity is expected to limit settlement to less than 25mm.

In view of the risk associated with the underlying geology at the site for potential mining hazards, it is recommended that as a minimum all stripped formation levels should be inspected by a suitably qualified person for evidence of historical backfilled shafts/chambers as a precaution, and the inspections should be appropriately documented.

5.2 Ground Floors

In view of the variable thickness of made ground and presence of soils of up to medium volume change potential underlying the site, it is recommended that ground floors should be suspended.

Current guidance[4] suggests that ground bearing floor slabs may, however, be considered where:

1) All made ground is removed from beneath the building footprint;
2) The depth of foundations required to protect against seasonal soil volume changes close to trees is less than 1.5m; and
3) Further works demonstrate that close to the time of construction, no significant soil desiccation is present.

Where the above criteria cannot be met, ground floors should be suspended.

If ground bearing floors are adopted it is recommended that the potential for differential movement, both between the floor slab and walls and across the floor slab itself, should be anticipated. Such floors should be fully debonded from walls. Formations should be adequately proof rolled and any excessively soft materials excavated and replaced with a suitable, well graded granular fill. The depth of any fill should be limited to a maximum of 600mm unless placed to an engineering specification designed to limit internal settlement of the fill materials to a tolerance to be advised by the designer.

[4] http://www.nhbc.co.uk/ : NHBC Standards, Chapter 4.2.

5.3 Groundwater

With the exception of borehole WS02 where groundwater was noted between a depth of 2.00m and 3.00m below ground level, the boreholes were recorded to remain dry during the short period of the intrusive works. It should be noted that water levels within the exploratory holes may not have equilibrated with the groundwater table at the time the readings were recorded and that groundwater levels should be expected to fluctuate seasonally.

Where excavations are proposed to extend below the groundwater table, groundwater control will be required to maintain adequately dry working conditions and excavation stability. If deep excavations are anticipated, it may be prudent to undertake trial pumping from proposed formation depths in advance of detailed design to fully establish requirements for groundwater control at this site.

For shallow excavations made above the water table, ingress of perched groundwater or surface water run-off into excavations during heavy precipitation events would be expected to be adequately managed by pumping from sumps.

5.4 Stability of Excavations

All made ground soils exposed in excavations should be assumed to be unstable, even in the short term. Whilst fine-grained natural soils may remain stable for a short period of time if not subjected to surcharge loads (such as may be imposed by existing foundations, traffic or storage of materials), the stability of these deposits if left unsupported should be assumed to have the potential to deteriorate. Where stable excavations are required, excavations should either be suitably supported or, where space permits, side slopes could be battered back to a safe angle of repose.

All excavations requiring human entry must be shored or battered as necessary to conform to current best practice, as accepted by the Health and Safety Executive (HSE)[5]. Current legislation requires that where personnel access is required into any excavation a competent person must inspect excavation supports or battering of slopes at the start of the working shift and at other specified times. No work should take place until the excavation is safe. Excavations should also be inspected after any event that may have affected their stability, such as a significant weather event, changes in surcharge loadings imposed by temporary storage of materials or changes in site traffic plans or alteration of support systems. Inspections should be formally recorded and any faults that are found should be corrected immediately.

Particular attention must be paid to ensuring the stability of nearby structures, services and neighbouring sites.

5.5 Aggressivity to Concrete

The aggressivity of the soils to concrete has been assessed in accordance with guidance published by the BRE[6]. The results of the chemical laboratory testing together with a summary of the characteristic values is included in Appendix D.

In consideration of the soils encountered beneath the site it is considered that ‘natural ground conditions’ should be assumed for the purpose of assessing the aggressivity of the chemical environment for concrete classification (ACEC class). Given the noted occurrence of groundwater, ‘mobile groundwater’ conditions should be assumed.

[5] Relevant guidance is given on the HSE website, www.hse.gov.uk
[6] BRE Special Digest 1:2005 Concrete in Aggressive Ground.

The following table summarises the characteristic values indicated from the chemical analysis of the soils present beneath the site.

Table 5. Assessment of the Chemical Analysis of the Soil

	Characteristic Value	Design Sulfate Class	ACEC Classification
pH	3.5	-	-
Water Soluble Sulphate (mg/l as SO4) *	<100	DS-1	AC-2z

Notes: * Characteristic value rounded to nearest 100.

In accordance with the guidance, a DS-1 Design Sulfate Class and an AC-2z ACEC classification should be assumed as a minimum for the design of concrete in contact with the ground.

5.6 Stormwater Infiltration Systems

In-situ infiltration testing[7] was undertaken in borehole WS04. From the test results, calculations were made to estimate the infiltration rate that could be expected for soakaways constructed to discharge into the underlying soils within the test zone.

The infiltration rates derived from the tests are summarised in the following table.

Table 6. Calculated Infiltration Rates

Exploratory Hole	Top of Response Zone (m bgl)	Bottom of Response Zone (m bgl)	Stratum	Infiltration Rate (f) (m/sec)	Driving Head of Water (m)
WS04	1.90	2.90	Wadhurst Clay Formation	3.78×10^{-6}	2.1
				1.17×10^{-6}	1.7

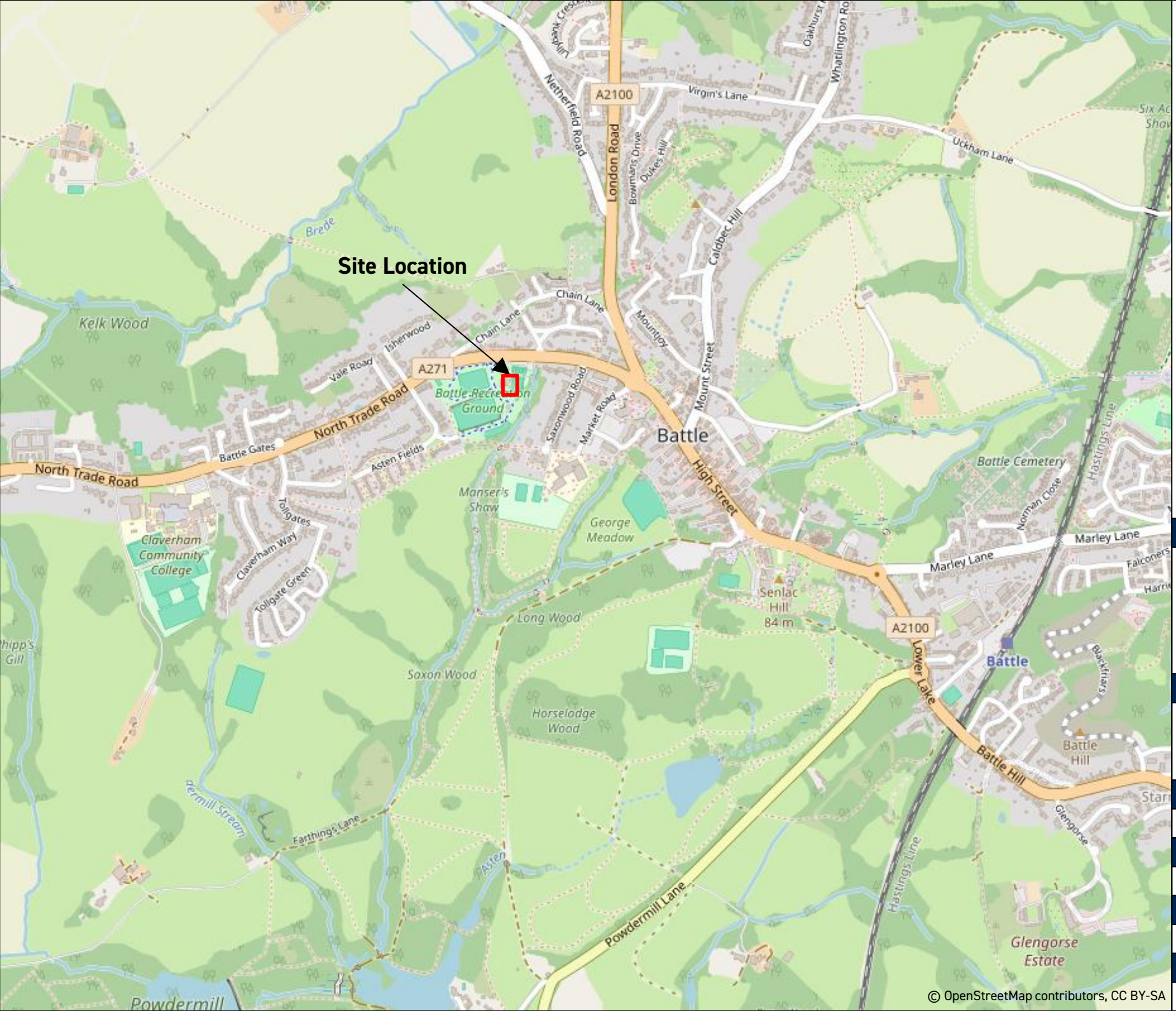
The value 'f' is equivalent to the soil infiltration coefficient 'q' quoted in the Construction Industry Research and Information Association (CIRIA) Report 156.
The results from the infiltration tests should be provided to engineers responsible for the design of the drainage system.

To comply with building regulations[8], point discharging infiltration systems (conventional ring or trench soakaways) are required to be constructed a minimum of 5.0m away from proposed or existing buildings.

[7] Conducted in accordance with The Soakaway Design Guide, published by Kent County Council, July 2000.
[8] The Building Regulations 2010; Part H; Drainage and Waste Disposal

FIGURES

Figure 1 Site Location Plan
Figure 2 Site Plan



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Project Ref

P17031

Figure No

1

Drawing Title

Site Location Plan

Scale

Not To Scale

ASHDOWN SITE INVESTIGATION

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East Sussex

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Figure No

2

Drawing Title

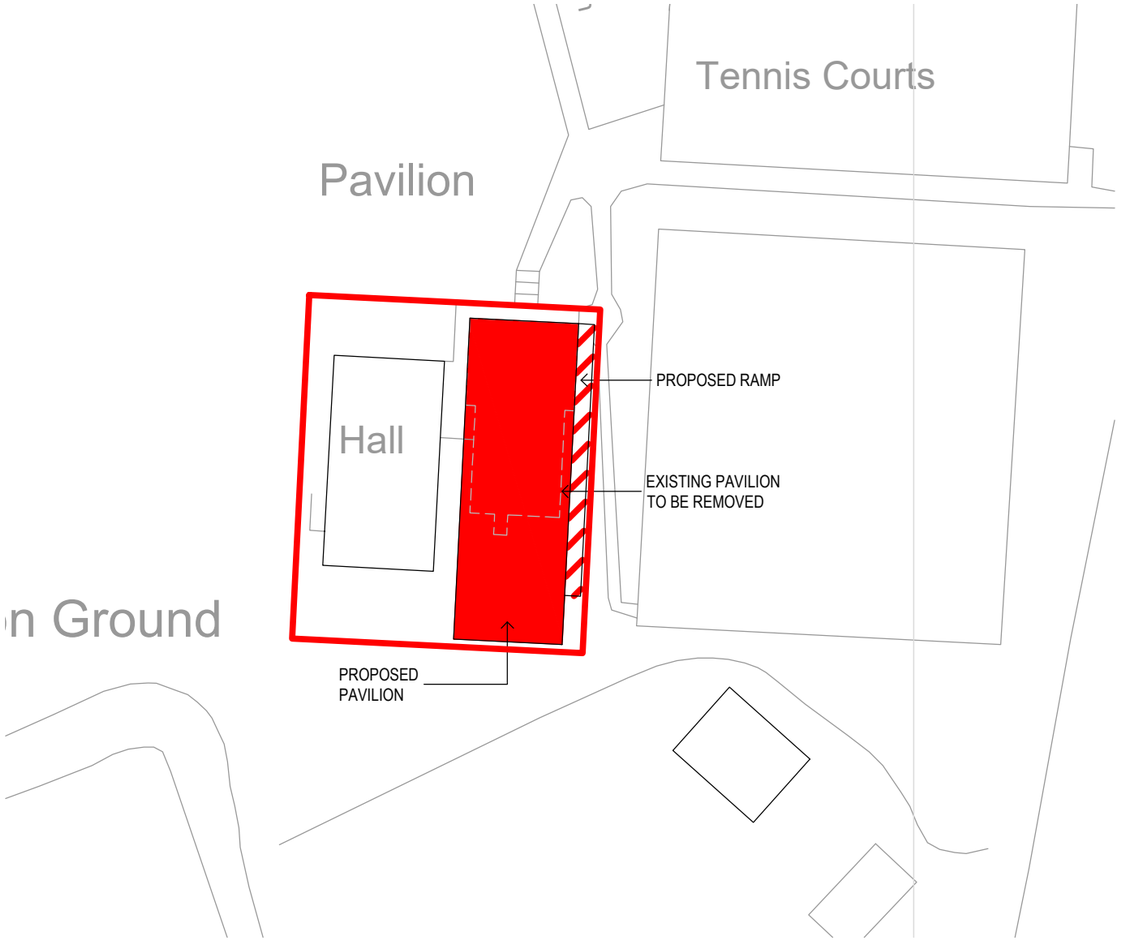
Site Plan

Scale

Not To Scale

APPENDIX A

Proposed Development Layout



BLOCK PLAN

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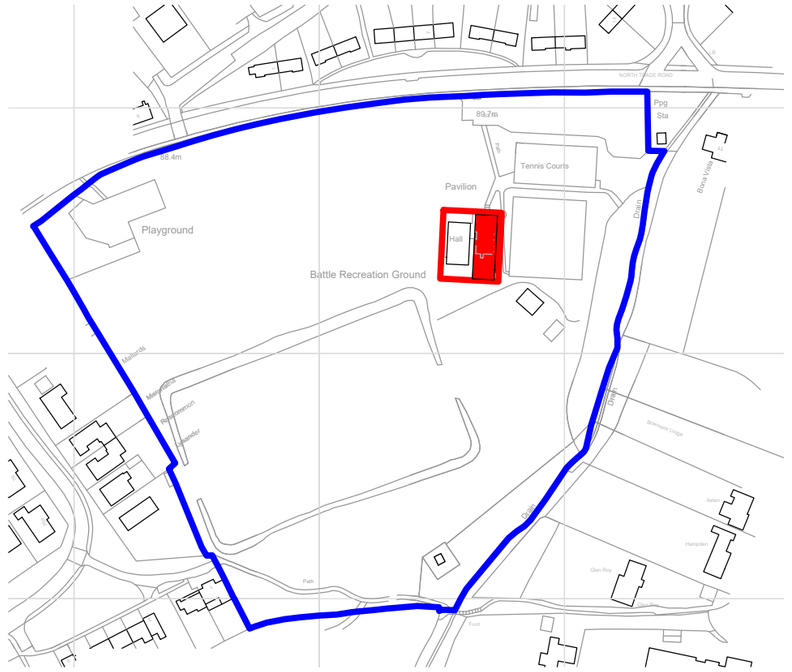
5



LOCATION PLAN

1:2500 0 50 100 150 200 250m

GENERAL NOTES

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORKS - PLEASE REPORT ERRORS OR OMISSIONS TO THE ARCHITECT.

THIS DRAWING HAS BEEN PRODUCED FOR THE PURPOSES OF PLANNING AND BUILDING REGULATIONS APPROVALS ONLY AND IS NOT INTENDED TO BE A FULL WORKING DRAWING.

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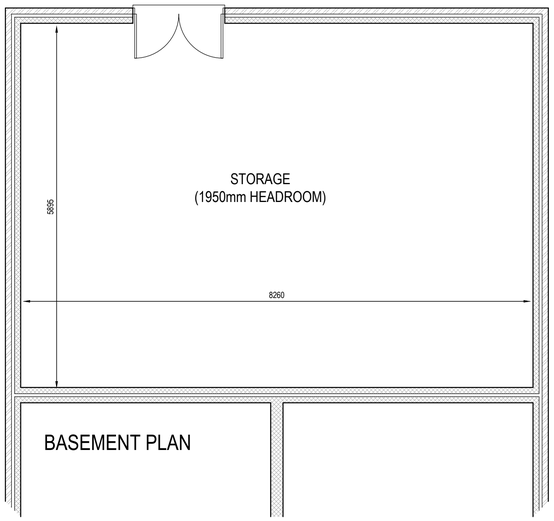
F			
E			
D			
C			
B			
A			

BATTLE RECREATION GROUND
NORTH TRADE ROAD
BATTLE
for Battle Town Council

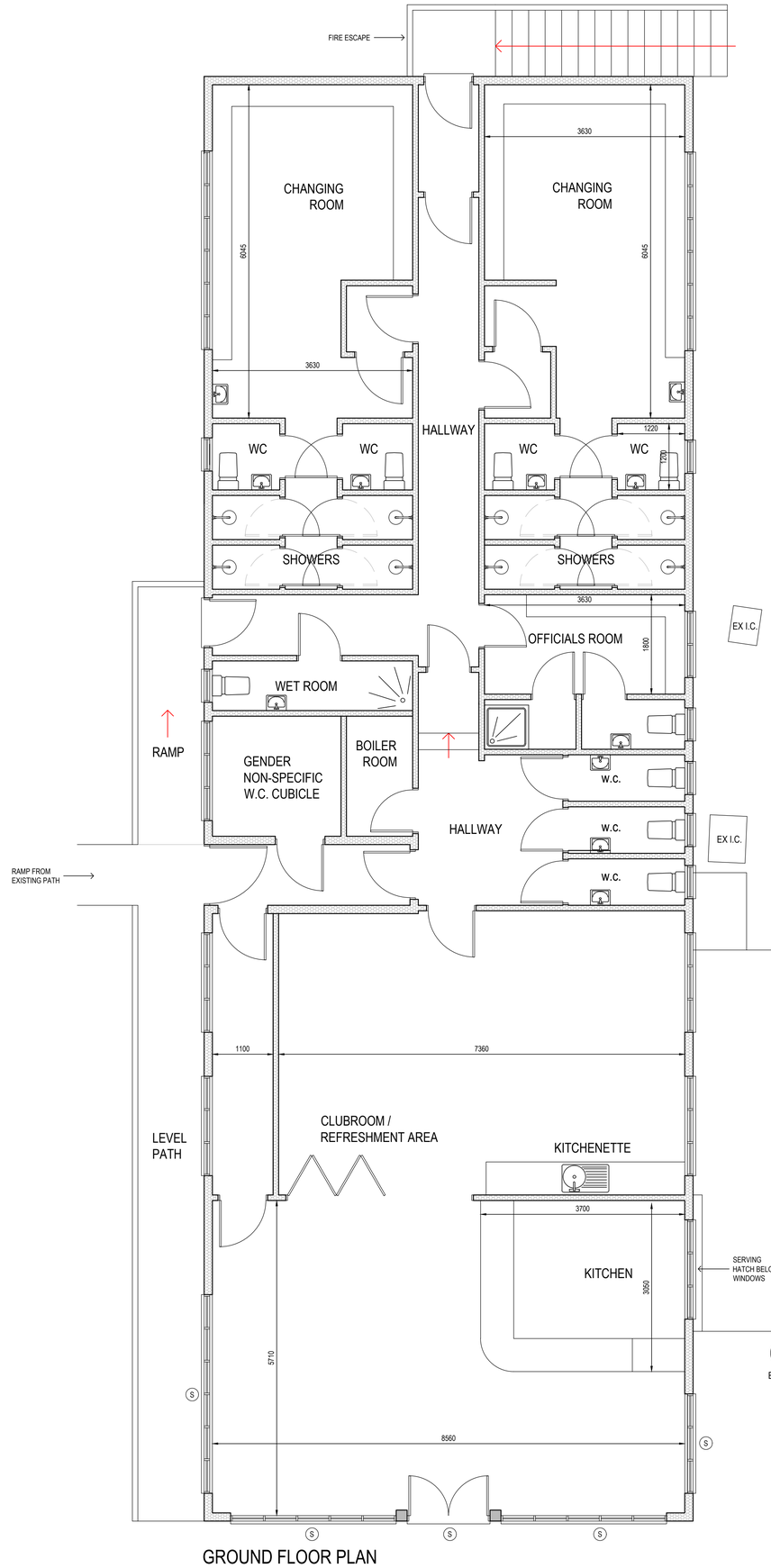
LOCATION BLOCK PLAN

DRAWN BY - JRPL
DATE - APRIL 2018
SCALE - 1:500 & 1:2500 @ A3

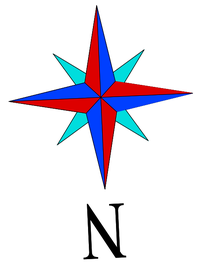
DRAWING No. 5744 / LBP

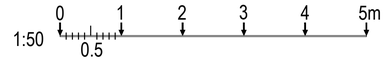


BASEMENT PLAN



GROUND FLOOR PLAN





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KEY

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F			
E	BUILDING REGULATION DETAILS ADDED	AMG	MAR 20
D	CLIENT AMENDMENTS	SMG	NOV 19
C	CLIENT AMENDMENTS	JRPL	OCT 19
B	CLIENT AMENDMENTS	JRPL	OCT 19
A	CLIENT AMENDMENTS	JRPL	SEP 19

BATTLE RECREATION GROUND
NORTH TRADE ROAD
BATTLE
for Battle Town Council

PROPOSED FLOOR PLAN - PAVILION

DRAWN BY - JRPL
DATE - SEPTEMBER 2019
SCALE - 1:50 @ A1

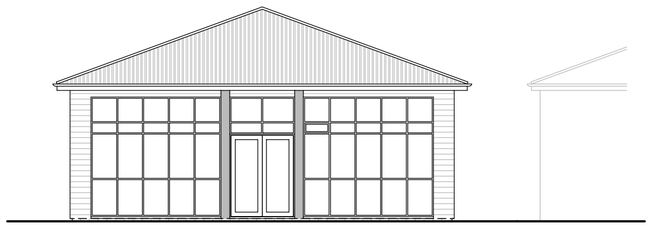
DRAWING No. 5744 / 2019 / 1 / E

GENERAL NOTES

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORKS - PLEASE REPORT ERRORS OR OMISSIONS TO THE ARCHITECT.

THIS DRAWING HAS BEEN PRODUCED FOR THE PURPOSES OF PLANNING AND BUILDING REGULATIONS APPROVALS ONLY AND IS NOT INTENDED TO BE A FULL WORKING DRAWING.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ANY WRITTEN SPECIFICATIONS, SCHEDULES OF WORK AND STRUCTURAL ENGINEER'S DETAILS AS APPROPRIATE.



FRONT ELEVATION

SIDE ELEVATION

1:100 — 0, 2, 4, 6, 8, 10m — 1

REAR ELEVATION

SIDE ELEVATION

PumpHouse
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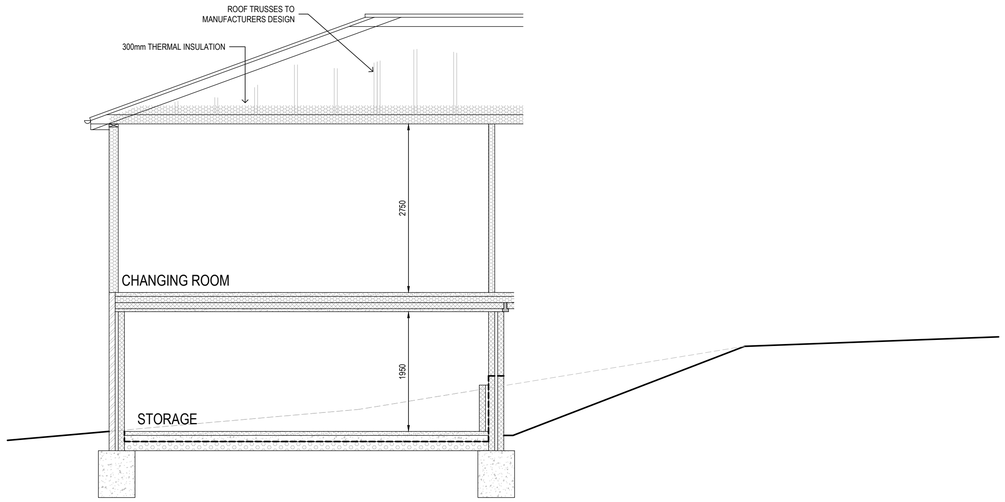
F			
E	BUILDING REGULATION DETAILS ADDED	AMG	MAR 20
D	SOLAR PANELS ADDED	AMG	FEB 20
C	CLIENT AMENDMENTS	JRPL	OCT 19
B	CLIENT AMENDMENTS	JRPL	OCT 19
A	CLIENT AMENDMENTS	JRPL	SEP 19

BATTLE RECREATION GROUND
NORTH TRADE ROAD
BATTLE
for Battle Town Council

PROPOSED ELEVATIONS - PAVILION

DRAWN BY - JRPL
DATE - SEPTEMBER 2019
SCALE - 1:100 @ A2

DRAWING No. 5744 / 2019 / 2 / E



SECTION A-A

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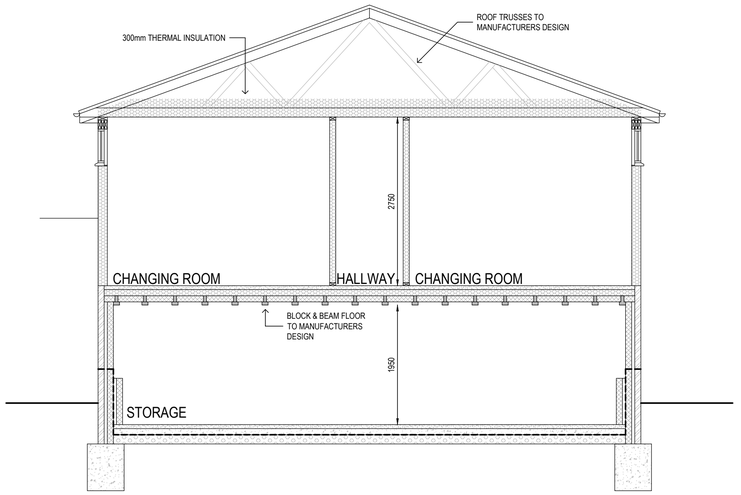
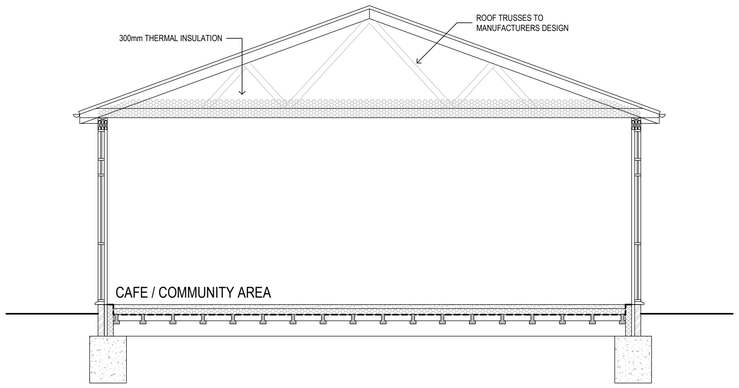
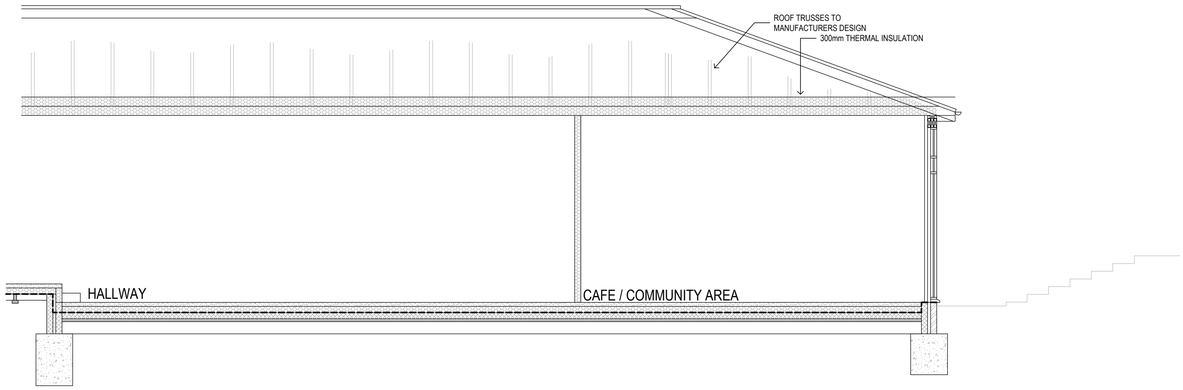
0.5



SECTION B-B



SECTION C-C



SECTION D-D

GENERAL NOTES

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORKS - PLEASE REPORT ERRORS OR OMISSIONS TO THE ARCHITECT.

THIS DRAWING HAS BEEN PRODUCED FOR THE PURPOSES OF PLANNING AND BUILDING REGULATIONS APPROVALS ONLY AND IS NOT INTENDED TO BE A FULL WORKING DRAWING.

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F			
E			
D			
C			
B			
A			

BATTLE RECREATION GROUND
NORTH TRADE ROAD
BATTLE
for Battle Town Council

PROPOSED SECTIONS - PAVILION

DRAWN BY - AMG
DATE - MARCH 2020
SCALE - 1:50 @ A1

DRAWING No. 5744 / 2019 / 3

APPENDIX B

Explanatory Notes
Exploratory Hole Records
DPSH-B Dynamic Probe Records

ASHDOWN
SITE INVESTIGATION

EXPLANATORY NOTES

Symbols and abbreviations on Exploratory Hole Records

Samples

U	'Undisturbed' Sample: - 100mm diameter by 450mm long. The number of blows to drive in the sampling tube is shown after the test index letter in the SPT column.
Pi	Piston Sample: 'Undisturbed' sample 100mm diameter by 600mm long.
D	Disturbed Sample
R	Root Sample
B	Bulk Disturbed Sample
W	Water Sample
ES	Environmental Suite (on older records may be referenced J T)

In Situ Testing

S	Standard penetration test (SPT): Using the split spoon sampler.
C	Standard Penetration Test (SPT): Using a solid cone instead of the sampler – conducted usually in coarse grained soils or weak rocks.
V	Shear Vane Test: Undrained shear strength (cohesion) (kN/m^2) shown within the Vane/Pen Test and N Value column.
H	Hand penetrometer Test: Undrained shear strength (cohesion) (kN/m^2) shown within the Vane/Pen Test and N Value column.
P	Perth Penetrometer Test: Number of blows for 300mm penetration shown under Vane/Pen Test and N Value column.

Excavation Method

CP	Cable Percussion Borehole
RC	Rotary Cored Borehole
WLS	Dynamic Sampler Borehole using windowless sampler tubes
WS	Dynamic Sampler Borehole using window sampler tubes
TP	Trial Pit excavated using mechanic excavator
HDP	Trial Pit excavated using hand tools

Soil Description

Description and classification of soils has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of soil, Part 1 Identification and description (BS EN ISO 14688-1) and Part 2 Principles of classification (BS EN 14688-2) as well as the BS5930 code of Practice for Ground Investigations.

Rock Description

Description and classification of rocks has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of rock, Part 1 Identification and classification (BS EN ISO 14689-1) as well as the BS5930 code of Practice for Ground Investigations. TCR – Total Core Recovery, SCR – Solid Core Recovery, RQD – Rock Quality Designation, NI – Non Intact, If – indicative fracture spacing (min/ave/max), FI – Fracture Index.

Chalk Description

Chalk description is based on BS EN ISO 14688, BS EN ISO 14689 and BS5930. The classification of chalk generally follows the guidance offered by the Construction Industry Research and Information Association (CIRIA) C574, 'Engineering in Chalk'. This is based on assessment of chalk density, discontinuity and aperture spacing, and the proportion of intact chalk to silt of chalk.

In Situ Strength Testing

Standard penetration testing (SPT) carried out in accordance with BS EN ISO 22476-3:2005.

Continuous dynamic probe testing conducted using a super heavy DPSH-B (As defined by BS EN ISO 22476-2:2005) probing geometry. The DPSH-B configuration is similar to that of the standard penetration test (SPT); the main differences being that the tip comprises a 90° cone, the driving rods are lighter than those used for SPT testing and the blow counts are recorded over 100mm increments rather than 300mm, as is the case for the SPT.

Perth penetrometer tests carried out in accordance with Australian Standard AS 1289:6.3.3-1997, Method of Testing Soils for Engineering Purposes; no equivalent European or British Standard having been published to date.

Undrained shear strength determinations made in-situ using a Geonor hand shear vane or a hand penetrometer.

Testing to determine the in-situ California Bearing Ratio (CBR) of soils conducted at shallow depths using a hand-held Transport Research Laboratory (TRL) cone penetrometer.

ASHDOWN SITE INVESTIGATION
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Web: www.ashdownsi.co.uk
Tel: 01273 483119

Site Name: Battle Sports Pavilion, North Trade Road, Battle, East Sussex

Job Number: P17031

Start Date: 03/02/2025

End Date: 03/02/2025

Borehole Number: **WS01**

Standpipe	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Dynamic Probe 0 5 10 15 20 25 30	Legend	Depth	Stratum Description
							0.00	Topsoil over,
							0.15	MADE GROUND: Brown slightly gravelly slightly sandy silty clay. Gravel is subangular to subrounded fine to medium organic matter and ash-like material.
								MADE GROUND: Brown slightly gravelly slightly sandy silty clay. Gravel is subangular to subrounded fine to medium ironstone, mudstone, brick and ash-like material.
	D	0.80					0.80	
	H	0.90		100				Stiff orange brown and grey brown mottled slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to medium mudstone. (Wadhurst Clay Formation)
	V	1.00		>130				
	D	1.20						becoming very stiff below 1.20m depth.
	H	1.20		>225				
	H	1.50		>225				
	H	1.90		>225				
	V	2.00		>130				
	D	2.20						
	H	2.20		>225			2.30	Very stiff orange brown and grey brown mottled slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium mudstone and ironstone. (Wadhurst Clay Formation)
	D	2.80						
	H	2.80		>225				
	V	3.00		>130			3.00	End of borehole at 3.00m

Remarks

Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: n/a

Excavation Method: WLS

Borehole Diameter: Various

Made By: TM

ASHDOWN SITE INVESTIGATION
E-mail: contact@ashdownsi.co.uk
Web: www.ashdownsi.co.uk
Tel: 01273 483119

Site Name: Battle Sports Pavilion, North Trade Road, Battle, East Sussex

Job Number: P17031

Start Date: 03/02/2025

End Date: 03/02/2025

Borehole Number: **WS02**

Standpipe	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Dynamic Probe 0 5 10 15 20 25 30	Legend	Depth	Stratum Description
							0.00	Topsoil.
							0.10	MADE GROUND: Brown slightly gravelly slightly sandy silty clay. Gravel is subangular to subrounded fine to medium ironstone, brick and ash-like material.
	D	0.50						
	H	0.90		100			0.90	Stiff orange brown and grey brown mottled slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to coarse mudstone and ironstone. (Wadhurst Clay Formation)
	H	1.20		175				becoming very stiff below 1.20m depth.
	D	1.50						
	H	1.50		>225				
	V	2.00		>130			2.00	Very stiff grey brown slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to coarse sandstone and ironstone. (Wadhurst Clay Formation)
	D	2.50						
	H	2.50		>225				
	V	3.00		>130			3.00	End of borehole at 3.00m

Remarks

Groundwater: Groundwater noted between 2.00m and 3.00m depth.

Stability: Borehole stable on completion.

Notes: n/a

Excavation Method: WLS

Borehole Diameter: Various

Made By: TM

ASHDOWN SITE INVESTIGATION
E-mail: contact@ashdownsi.co.uk
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Tel: 01273 483119

Site Name: Battle Sports Pavilion, North Trade Road, Battle, East Sussex

Job Number: P17031

Start Date: 03/02/2025

End Date: 03/02/2025

Borehole Number: **WS03**

Standpipe	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Dynamic Probe 0 5 10 15 20 25 30	Legend	Depth	Stratum Description
							0.00	Topsoil.
							0.15	MADE GROUND: Brown slightly gravelly slightly sandy silty clay. Gravel is subangular to subrounded fine to coarse ironstone and mudstone.
							0.70	Stiff orange brown and grey brown mottled slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to coarse mudstone and ironstone. (Wadhurst Clay Formation)
	D	0.90						
	H	0.90		75				
	V	1.00		>130				
	H	1.10		210				becoming very stiff below 1.10m depth.
	H	1.40		210				
	D	1.50						
	V	2.00		>130				
	D	2.30						
							2.70	Stiff grey brown slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to coarse mudstone. (Wadhurst Clay Formation)
	H	2.80		75				
	D	2.90						
	H	2.90		100				
	V	3.00		>130				
							3.00	End of borehole at 3.00m

Remarks

Groundwater: Borehole dry on completion.

Stability: Borehole stable on completion.

Notes: n/a

Excavation Method: WLS

Borehole Diameter: Various

Made By: TM

ASHDOWN SITE INVESTIGATION
E-mail: contact@ashdownsi.co.uk
Web: www.ashdownsi.co.uk
Tel: 01273 483119

Site Name: Battle Sports Pavilion, North Trade Road, Battle, East Sussex

Job Number: P17031

Start Date: 03/02/2025

End Date: 03/02/2025

Borehole Number: **WS04**

Standpipe	Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Dynamic Probe 0 5 10 15 20 25 30	Legend	Depth	Stratum Description
							0.00	Topsoil over, MADE GROUND: Brown slightly gravelly slightly sandy silty clay. Gravel is subangular to subrounded fine to medium sandstone and brick.
	D	0.50					0.40	MADE GROUND: Orange brown and red brown mottled slightly gravelly slightly sandy silty clay. Gravel is subangular to subrounded fine to medium brick. (Wadhurst Clay Formation)
	V	1.00		120			1.00	Stiff orange brown and grey brown mottled slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to coarse mudstone. (Wadhurst Clay Formation)
	D	1.10						
	H	1.70		100				
	D	1.80					1.80	Very stiff orange brown and grey brown mottled slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse mudstone. (Wadhurst Clay Formation)
	V	2.00		>130				
	D	2.30						
	D	2.80						
	V	2.90		>130			2.90	End of borehole at 2.90m

Remarks

Groundwater: Borehole dry on completion.

Stability: Borehole cased to 1.90m depth.
Borehole stable on completion.

Notes: No further progress below 2.90m depth - too hard/ dense.

Excavation Method: WLS

Borehole Diameter: Various

Made By: TM

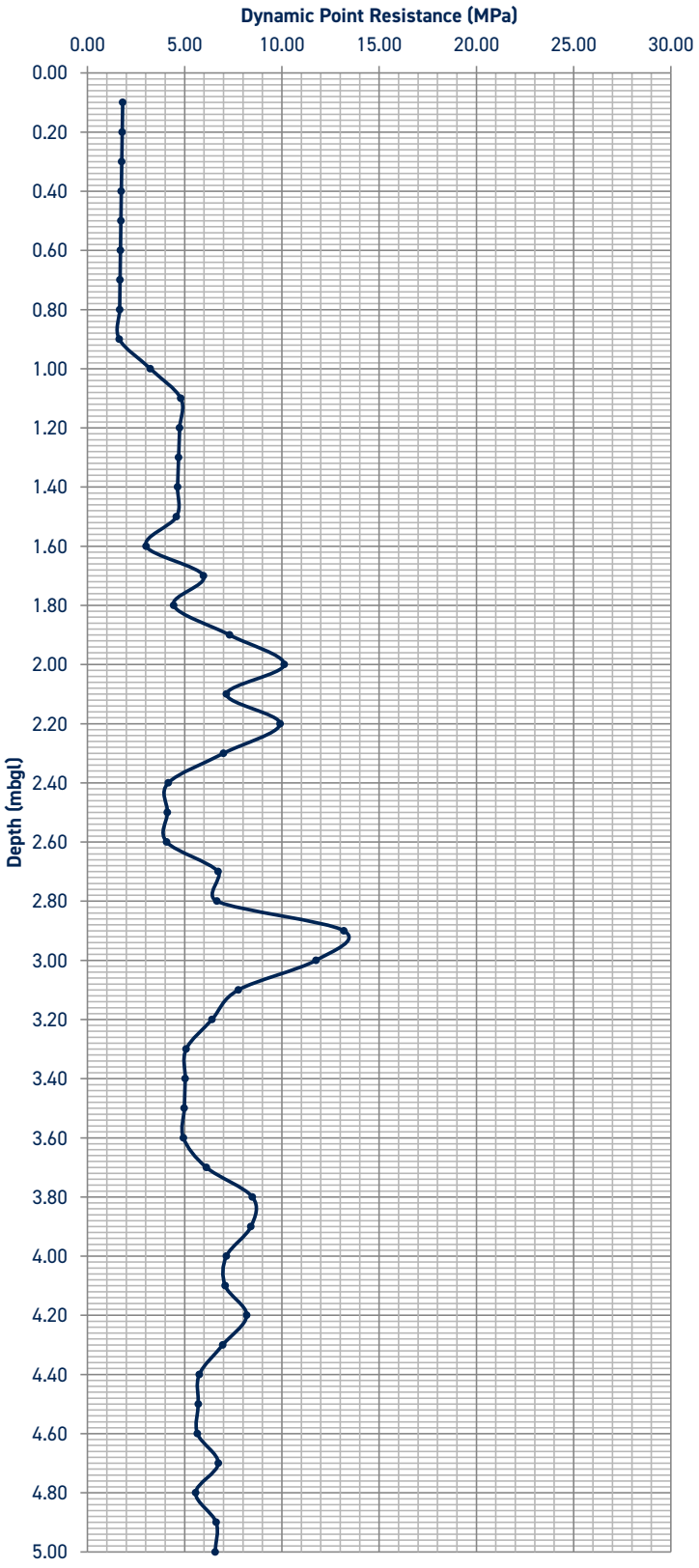
ASHDOWN SITE INVESTIGATION

DPSH-B DYNAMIC PROBE RECORD

Site: Battle Sports Pavilion, North Trade Road, Battle, East Sussex **Project Ref:** P17031

Test Location Reference	WS01

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10	1	0.10	1.87	1.82
0.20	1	0.10	1.87	1.79
0.30	1	0.10	1.87	1.77
0.40	1	0.10	1.87	1.74
0.50	1	0.10	1.87	1.72
0.60	1	0.10	1.87	1.70
0.70	1	0.10	1.87	1.68
0.80	1	0.10	1.87	1.66
0.90	1	0.10	1.87	1.64
1.00	2	0.05	3.74	3.24
1.10	3	0.03	5.61	4.80
1.20	3	0.03	5.61	4.74
1.30	3	0.03	5.61	4.69
1.40	3	0.03	5.61	4.64
1.50	3	0.03	5.61	4.58
1.60	2	0.05	3.74	3.02
1.70	4	0.03	7.48	5.98
1.80	3	0.03	5.61	4.43
1.90	5	0.02	9.34	7.31
2.00	7	0.01	13.08	10.12
2.10	5	0.02	9.34	7.15
2.20	7	0.01	13.08	9.91
2.30	5	0.02	9.34	7.00
2.40	3	0.03	5.61	4.16
2.50	3	0.03	5.61	4.12
2.60	3	0.03	5.61	4.08
2.70	5	0.02	9.34	6.73
2.80	5	0.02	9.34	6.66
2.90	10	0.01	18.69	13.19
3.00	9	0.01	16.82	11.76
3.10	6	0.02	11.21	7.76
3.20	5	0.02	9.34	6.41
3.30	4	0.03	7.48	5.08
3.40	4	0.03	7.48	5.03
3.50	4	0.03	7.48	4.98
3.60	4	0.03	7.48	4.94
3.70	5	0.02	9.34	6.12
3.80	7	0.01	13.08	8.49
3.90	7	0.01	13.08	8.41
4.00	6	0.02	11.21	7.15
4.10	6	0.02	11.21	7.08
4.20	7	0.01	13.08	8.19
4.30	6	0.02	11.21	6.96
4.40	5	0.02	9.34	5.75
4.50	5	0.02	9.34	5.70
4.60	5	0.02	9.34	5.66
4.70	6	0.02	11.21	6.73
4.80	5	0.02	9.34	5.56
4.90	6	0.02	11.21	6.62
5.00	6	0.02	11.21	6.57



Notes:

Hammer Mass	63.5 kg
Fall Height	0.76 m
Cone Area	0.0019 m^2
E_{theor}	473 J
Energy Ratio	0.75
Anvil Mass	1 kg
Rod Mass	8.79 kg/m

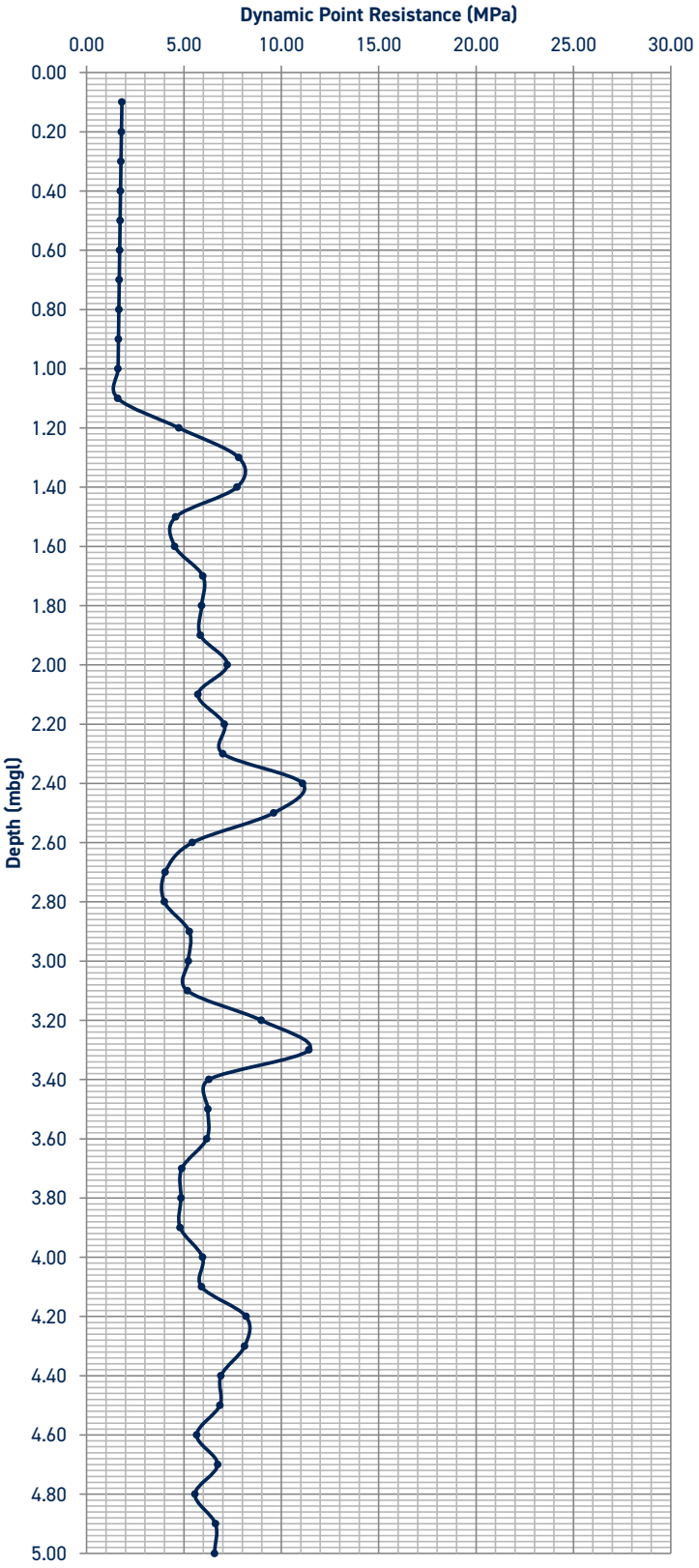
ASHDOWN SITE INVESTIGATION

DPSH-B DYNAMIC PROBE RECORD

Site: Battle Sports Pavilion, North Trade Road, Battle, East Sussex **Project Ref:** P17031

Test Location Reference	WS02

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10	1	0.10	1.87	1.82
0.20	1	0.10	1.87	1.79
0.30	1	0.10	1.87	1.77
0.40	1	0.10	1.87	1.74
0.50	1	0.10	1.87	1.72
0.60	1	0.10	1.87	1.70
0.70	1	0.10	1.87	1.68
0.80	1	0.10	1.87	1.66
0.90	1	0.10	1.87	1.64
1.00	1	0.10	1.87	1.62
1.10	1	0.10	1.87	1.60
1.20	3	0.03	5.61	4.74
1.30	5	0.02	9.34	7.82
1.40	5	0.02	9.34	7.73
1.50	3	0.03	5.61	4.58
1.60	3	0.03	5.61	4.53
1.70	4	0.03	7.48	5.98
1.80	4	0.03	7.48	5.91
1.90	4	0.03	7.48	5.85
2.00	5	0.02	9.34	7.23
2.10	4	0.03	7.48	5.72
2.20	5	0.02	9.34	7.08
2.30	5	0.02	9.34	7.00
2.40	8	0.01	14.95	11.09
2.50	7	0.01	13.08	9.61
2.60	4	0.03	7.48	5.43
2.70	3	0.03	5.61	4.04
2.80	3	0.03	5.61	4.00
2.90	4	0.03	7.48	5.28
3.00	4	0.03	7.48	5.22
3.10	4	0.03	7.48	5.17
3.20	7	0.01	13.08	8.97
3.30	9	0.01	16.82	11.42
3.40	5	0.02	9.34	6.29
3.50	5	0.02	9.34	6.23
3.60	5	0.02	9.34	6.17
3.70	4	0.03	7.48	4.89
3.80	4	0.03	7.48	4.85
3.90	4	0.03	7.48	4.81
4.00	5	0.02	9.34	5.95
4.10	5	0.02	9.34	5.90
4.20	7	0.01	13.08	8.19
4.30	7	0.01	13.08	8.12
4.40	6	0.02	11.21	6.90
4.50	6	0.02	11.21	6.84
4.60	5	0.02	9.34	5.66
4.70	6	0.02	11.21	6.73
4.80	5	0.02	9.34	5.56
4.90	6	0.02	11.21	6.62
5.00	6	0.02	11.21	6.57



Notes:

Hammer Mass	63.5	kg
Fall Height	0.76	m
Cone Area	0.0019	m^2
E_{theor}	473	J
Energy Ratio	0.75	
Anvil Mass	1	kg
Rod Mass	8.79	kg/m

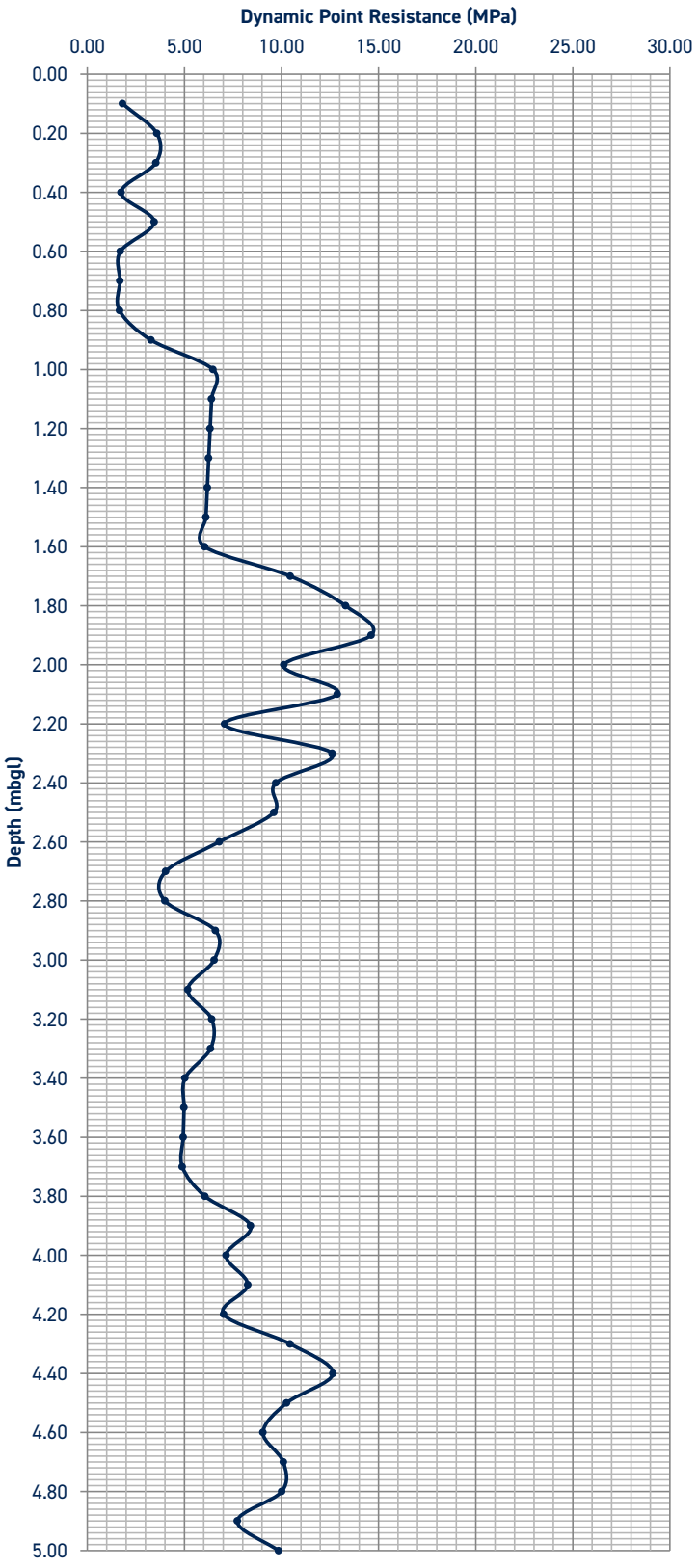
ASHDOWN SITE INVESTIGATION

DPSH-B DYNAMIC PROBE RECORD

Site: Battle Sports Pavilion, North Trade Road, Battle, East Sussex **Project Ref:** P17031

Test Location Reference	WS03

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10	1	0.10	1.87	1.82
0.20	2	0.05	3.74	3.58
0.30	2	0.05	3.74	3.54
0.40	1	0.10	1.87	1.74
0.50	2	0.05	3.74	3.45
0.60	1	0.10	1.87	1.70
0.70	1	0.10	1.87	1.68
0.80	1	0.10	1.87	1.66
0.90	2	0.05	3.74	3.28
1.00	4	0.03	7.48	6.48
1.10	4	0.03	7.48	6.40
1.20	4	0.03	7.48	6.33
1.30	4	0.03	7.48	6.25
1.40	4	0.03	7.48	6.18
1.50	4	0.03	7.48	6.11
1.60	4	0.03	7.48	6.04
1.70	7	0.01	13.08	10.46
1.80	9	0.01	16.82	13.30
1.90	10	0.01	18.69	14.62
2.00	7	0.01	13.08	10.12
2.10	9	0.01	16.82	12.88
2.20	5	0.02	9.34	7.08
2.30	9	0.01	16.82	12.61
2.40	7	0.01	13.08	9.71
2.50	7	0.01	13.08	9.61
2.60	5	0.02	9.34	6.79
2.70	3	0.03	5.61	4.04
2.80	3	0.03	5.61	4.00
2.90	5	0.02	9.34	6.59
3.00	5	0.02	9.34	6.53
3.10	4	0.03	7.48	5.17
3.20	5	0.02	9.34	6.41
3.30	5	0.02	9.34	6.35
3.40	4	0.03	7.48	5.03
3.50	4	0.03	7.48	4.98
3.60	4	0.03	7.48	4.94
3.70	4	0.03	7.48	4.89
3.80	5	0.02	9.34	6.06
3.90	7	0.01	13.08	8.41
4.00	6	0.02	11.21	7.15
4.10	7	0.01	13.08	8.26
4.20	6	0.02	11.21	7.02
4.30	9	0.01	16.82	10.44
4.40	11	0.01	20.56	12.65
4.50	9	0.01	16.82	10.27
4.60	8	0.01	14.95	9.05
4.70	9	0.01	16.82	10.10
4.80	9	0.01	16.82	10.01
4.90	7	0.01	13.08	7.72
5.00	9	0.01	16.82	9.85



Notes:

Hammer Mass	63.5 kg
Fall Height	0.76 m
Cone Area	0.0019 m^2
E_{theor}	473 J
Energy Ratio	0.75
Anvil Mass	1 kg
Rod Mass	8.79 kg/m

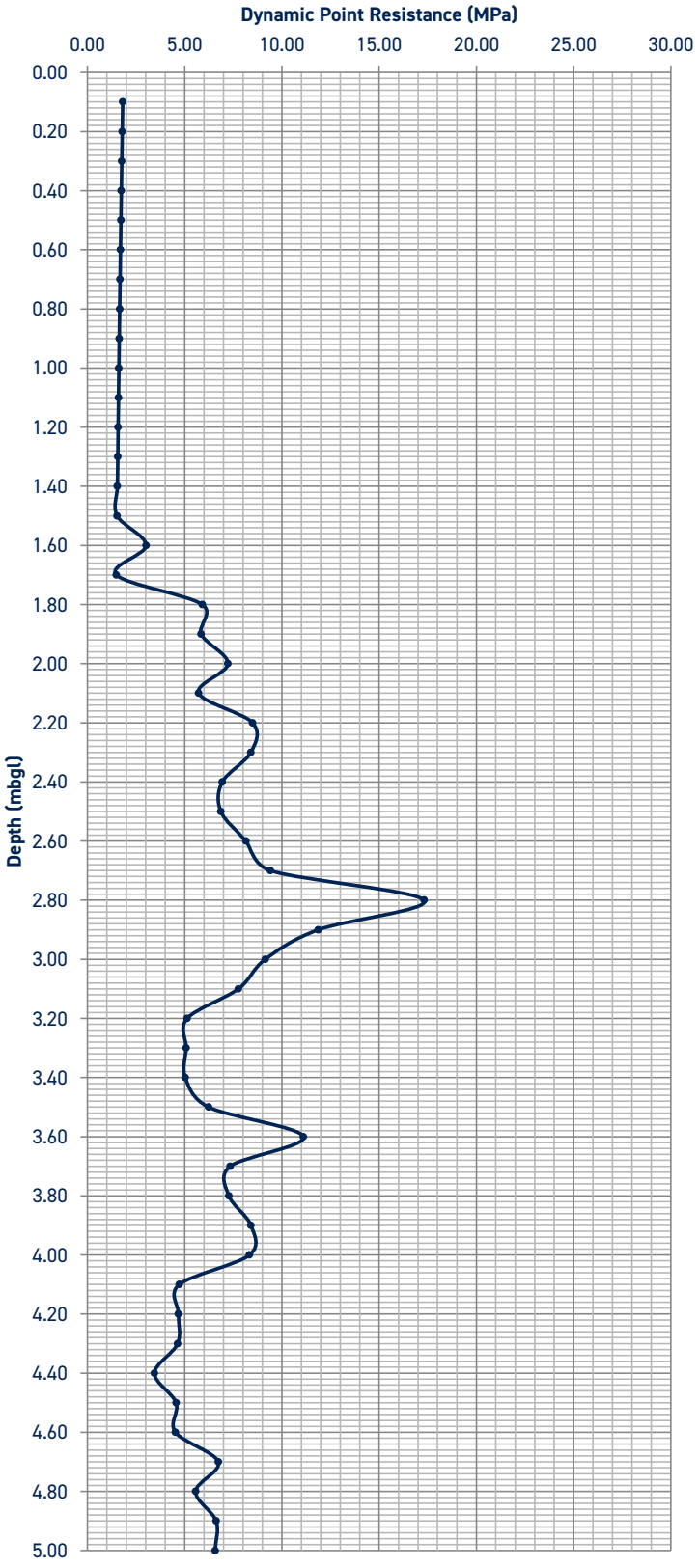
ASHDOWN SITE INVESTIGATION

DPSH-B DYNAMIC PROBE RECORD

Site: Battle Sports Pavilion, North Trade Road, Battle, East Sussex **Project Ref:** P17031

Test Location Reference	WS04

Depth (mbgl)	Blows (per 100mm)	Average Penetration per Blow (m)	Unit Point Resistance (MPa)	Dynamic Point Resistance (MPa)
0.10	1	0.10	1.87	1.82
0.20	1	0.10	1.87	1.79
0.30	1	0.10	1.87	1.77
0.40	1	0.10	1.87	1.74
0.50	1	0.10	1.87	1.72
0.60	1	0.10	1.87	1.70
0.70	1	0.10	1.87	1.68
0.80	1	0.10	1.87	1.66
0.90	1	0.10	1.87	1.64
1.00	1	0.10	1.87	1.62
1.10	1	0.10	1.87	1.60
1.20	1	0.10	1.87	1.58
1.30	1	0.10	1.87	1.56
1.40	1	0.10	1.87	1.55
1.50	1	0.10	1.87	1.53
1.60	2	0.05	3.74	3.02
1.70	1	0.10	1.87	1.49
1.80	4	0.03	7.48	5.91
1.90	4	0.03	7.48	5.85
2.00	5	0.02	9.34	7.23
2.10	4	0.03	7.48	5.72
2.20	6	0.02	11.21	8.49
2.30	6	0.02	11.21	8.41
2.40	5	0.02	9.34	6.93
2.50	5	0.02	9.34	6.86
2.60	6	0.02	11.21	8.15
2.70	7	0.01	13.08	9.42
2.80	13	0.01	24.29	17.31
2.90	9	0.01	16.82	11.87
3.00	7	0.01	13.08	9.14
3.10	6	0.02	11.21	7.76
3.20	4	0.03	7.48	5.13
3.30	4	0.03	7.48	5.08
3.40	4	0.03	7.48	5.03
3.50	5	0.02	9.34	6.23
3.60	9	0.01	16.82	11.11
3.70	6	0.02	11.21	7.34
3.80	6	0.02	11.21	7.27
3.90	7	0.01	13.08	8.41
4.00	7	0.01	13.08	8.34
4.10	4	0.03	7.48	4.72
4.20	4	0.03	7.48	4.68
4.30	4	0.03	7.48	4.64
4.40	3	0.03	5.61	3.45
4.50	4	0.03	7.48	4.56
4.60	4	0.03	7.48	4.52
4.70	6	0.02	11.21	6.73
4.80	5	0.02	9.34	5.56
4.90	6	0.02	11.21	6.62
5.00	6	0.02	11.21	6.57



Notes:

Hammer Mass	63.5 kg
Fall Height	0.76 m
Cone Area	0.0019 m^2
E_{theor}	473 J
Energy Ratio	0.75
Anvil Mass	1 kg
Rod Mass	8.79 kg/m

APPENDIX C

Geotechnical Laboratory Test Results

ASHDOWN SITE INVESTIGATION

SOIL CLASSIFICATION SUMMARY

Site: Battle Sports Pavilion, North Trade Road, Battle, East Sussex **Project Ref:** P17031

BH/TP No.	Depth (m)	Nat. Moist. Cont. (w %)	Equiv. Moist. Cont. (w_a %)	Atterberg Limits			Class'n	Cons. Index (I_c)	% passing 425 µm sieve	Visual Description of Sample
				W_l %	W_p %	I_p %				
WS01	1.20	17		42	24	18	ClM	1.39*	100	Very stiff orange brown and grey brown mottled silty CLAY.
WS02	2.50	18		40	22	18	ClM	1.22*	90	Very stiff orange brown and grey brown mottled slightly gravelly silty CLAY. Gravel is fine mudstone.
WS03	0.90	19		42	25	17	ClM	1.35*	90	Very stiff orange brown and grey brown mottled slightly gravelly silty CLAY. Gravel is fine mudstone.
WS04	1.80	26		57	24	33	ClH	0.94*	90	Stiff orange brown and grey brown mottled slightly gravelly CLAY.Gravel is fine mudstone.

Test Method: Classification Tests BS1377: Part 2: 1990: Method 4.4, 5.3 and 5.4

* Consistency index based on natural moisture content and not the equivalent moisture content.

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Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
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DETS Report No: 25-01345

Site Reference:	Battle Sport Pavillion, North Trade Road, Battle, East Sussex
Project / Job Ref:	P17031_2676
Order No:	12045
Sample Receipt Date:	11/02/2025
Sample Scheduled Date:	11/02/2025
Report Issue Number:	1
Reporting Date:	19/02/2025

Authorised by:

Dave Ashworth
Technical 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: 25-01345	**~Date Sampled**	03/02/25	03/02/25	03/02/25	03/02/25	
Ashdown Site Investigations Ltd	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
~Site Reference: Battle Sport Pavillion, North Trade Road, Battle, East Sussex	**~TP / BH No**	WS01	WS02	WS03	WS04	
~Project / Job Ref: P17031_2676	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	
~Order No: 12045	**~Depth (m)**	2.80	1.50	2.30	1.10	
Reporting Date: 19/02/2025	**DETS Sample No**	763758	763759	763760	763761	

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	MCERTS	4.3	3.5	5.3	6.2	
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	10	32	13	< 10	
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.01	0.03	0.01	< 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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Soil Analysis Certificate - Sample Descriptions
DETS Report No: 25-01345
Ashdown Site Investigations Ltd
~Site Reference: Battle Sport Pavillion, North Trade Road, Battle, East Sussex
~Project / Job Ref: P17031_2676
~Order No: 12045
Reporting Date: 19/02/2025

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
763758	WS01	None Supplied	2.80	14.6	Grey clay
763759	WS02	None Supplied	1.50	15	Light brown sandy clay
763760	WS03	None Supplied	2.30	10.2	Light brown sandy clay
763761	WS04	None Supplied	1.10	19.3	Light brown 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: 25-01345

Ashdown Site Investigations Ltd

~Site Reference: Battle Sport Pavillion, North Trade Road, Battle, East Sussex

~Project / Job Ref: P17031_2676

~Order No: 12045

Reporting Date: 19/02/2025

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

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

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List of HWOL Acronyms and Operators
DETS Report No: 25-01345
Ashdown Site Investigations Ltd
~Site Reference: Battle Sport Pavillion, North Trade Road, Battle, East Sussex
~Project / Job Ref: P17031_2676
~Order No: 12045
Reporting Date: 19/02/2025

Acronym	**Description**
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total
~	Sample details provided by customer and can affect the validity of results

Det - Acronym

APPENDIX D

Aggressivity To Concrete Assessment
Borehole Infiltration Test Results

ASHDOWN SITE INVESTIGATION

AGGRESSIVITY TO CONCRETE ASSESSMENT

Site: Battle Sports Pavilion, North Trade Road, Battle, East sussex **Project Ref:** P17031

Chemical Laboratory Test Results

Sample Location	Sample Depth (m)	pH Value (Units)	Total Sulphate (AS % as SO_4)	Total Sulphur (TS % as S)	Water Soluble Sulphate (mg/l as SO_4)	Water Soluble Chloride (mg/l)	Water Soluble Nitrate (mg/l)	Water Soluble Magnesium (mg/l)
WS01	2.80	4.3			10			
WS02	1.50	3.5			32			
WS03	2.30	5.3			13			
WS04	1.10	6.2			10			

Notes: Chemical testing was undertaken by an external laboratory with recognised (UKAS and MCERTS) accreditation for quality control. Testing scheduled in line with the BRE Special Digest 1:2005 Concrete in Aggressive Ground Suites A-D and as such some determinands were not required to be tested.

Assessment of the Chemical Analysis of the Soil

Ground Condition	Natural Ground Conditions
Groundwater Condition	Mobile Groundwater Conditions
Pyrite Soil Condition	Soils present beneath the site are not expected to contain pyrite

	Characteristic Value	Design Sulfate Class	ACEC Classification
pH	3.5	-	-
Water Soluble Sulphate (mg/l as SO4) *	<100	DS-1	AC-2z
Total Potential Sulphate (TPS % SO4)	N/A - Non Pyrite Soil Present	-	-
Magnesium (mg/l) *	N/A - Natural Ground Conditions	-	-
Water Soluble Sulphate including mineral acids (mg/l as SO4) *	N/A - Natural Ground Conditions	-	-

Notes: * Characteristic value rounded to nearest 100.

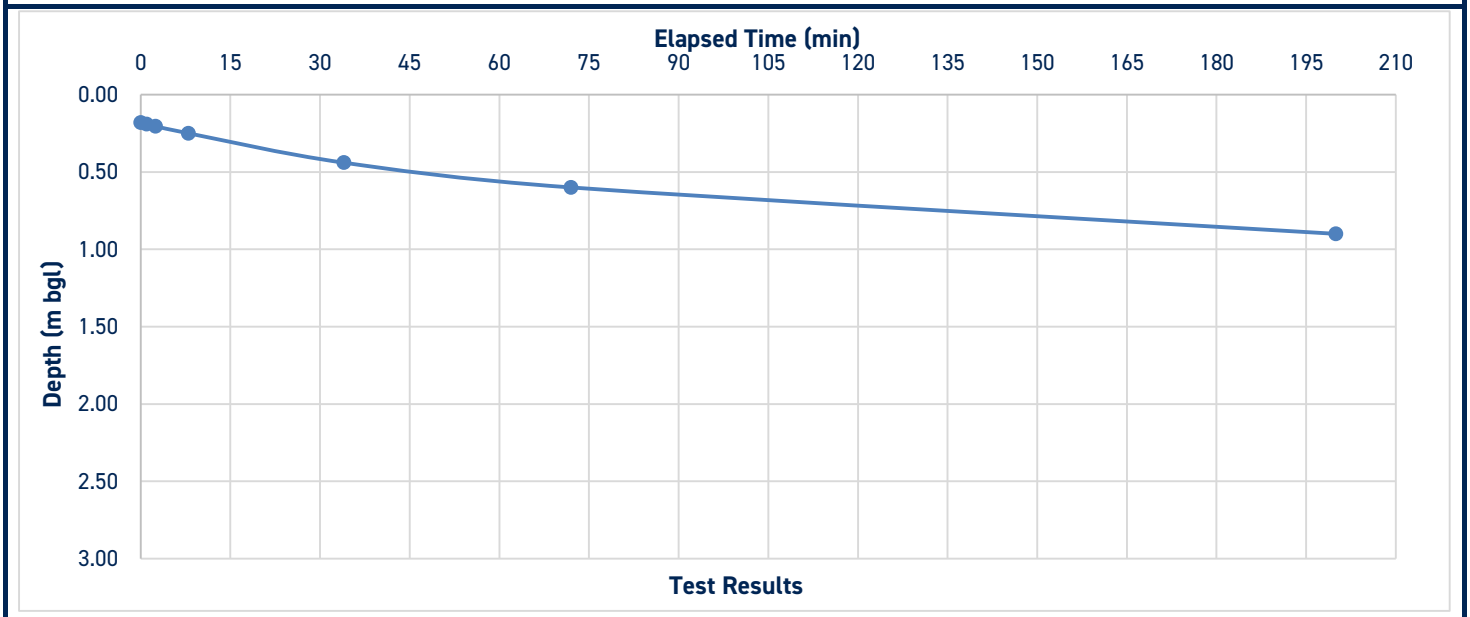
The aggressivity of the soils to concrete has been assessed in accordance with guidance published by the BRE Special Digest 1:2005 Concrete in Aggressive Ground.

BOREHOLE INFILTRATION TEST RESULTS

Site: Battle Sports Pavilion, North Trade Road, Battle, East sussex **Project Ref:** P17031

Test Location Reference	**WS04**
Test Number	**1**

Casing Depth	1.90	m blg
Borehole Depth	2.90	m bgl
Casing Diameter	0.105	m
Average Borehole Diameter	0.092	m



Length of Test Zone		1.00 m	L
Depth to Center of Test Zone		2.40 m	X
Water level at start of test		0.18 m	
Water level at end of test		0.90 m	
Duration of test		200 min	
Average Depth Of Water		2.36 m	
Average Drained Area		0.69 m^2	
Volume of Water Lost		0.005 m^3	
Driving Head	**2.1**	**1.7 m**	
Infiltration rate	**3.78E-06**	**1.17E-06 m/sec**	

Calculation method: Calculated in accordance with The Soakaway Design Guide, published by Kent County Council, July 2000.