

SITE INVESTIGATION REPORT

Sunny Corner, Copse Lane, Walberton,

West Sussex, BN18 0QH.

January 2025

Client:

Mr and Mrs Holden
Sunny Corner,
Copse Lane,
Walberton,
BN18 0QH,

Geotechnical Engineer:

W K Elson
PhD, CEng, MICE
7 Finches Court
Hickmans Lane
Lindfield, Sussex
RH16 2PG

SITE INVESTIGATION REPORT

Sunny Corner, Copse Lane, Walberton, West Sussex, BN18 0QH.

ii

1.0 Introduction

It is proposed to build a new Chalet Bungalow on the site of a lawn just off the drive to Sunny Corner, Copse Lane, Walberton. The survey of the site is given on Drawing No. 24077/1.01 by Folkes Architecture and the plan of the new house is shown on Drawing No. 2 by Scandia Hus Ltd although the sitting room will be off the master bedroom.

The 1/50,000 geological map, sheet 302, indicates the area to be underlain by Head or Raised Beach deposits, with a solid geology of the Lambeth Group (Grid Reference SU 965 065). To explore the site four windowless sample boreholes were drilled on 23rd December 2024. Super heavy dynamic probes were also conducted adjacent to each borehole.

2.0 Soil Conditions

The site proved to be underlain by a thin Head, comprising a dull brown silty clay with a variable proportion of angular flint gravel. Below a depth of about 1.0m, orange brown silty sand and fine sand was present to the full depth drilled. These latter deposits were assumed to be Raised Beach material; however the underlying Lambeth Group was not proved.

Ground water was encountered in all the boreholes and the 'at rest' depth was between 0.90m and 1.10m. A check of the water level on 16th January 2025 showed the depth to be in a similar range; presumed to represent the typical winter depth of the ground water in the area. The land to the west of the site was somewhat lower and was marshy with a number of small ponds. A stream to the west of the site rises in this area.

The surface silty clays classified with a low to intermediate plasticity with a plasticity index of 12 to 20 percent. Such soils are of a low shrinkability as defined by the NHBC Specifications, Chapter 4.2. The silty clays were of a firm to stiff consistency and the underlying fine sands and silts were in a loose or very loose state of compaction.

The super heavy dynamic probes indicated the soils to a depth of approximately 2m to be of a firm to stiff consistency and N_{100} values of 3 to 4 blows/100mm were recorded in this zone. The underlying silty fine sands were in a loose state of compaction with N_{100} of 1 to 3 blows/100mm. In three boreholes there was a zone of soil at a depth of about 2.5m where no driving resistance was recorded.

3.0 Foundation Design

The near surface soils are of a reasonable bearing capacity however the depth of excavation for the foundations will be restricted by the high-water table. The soils are of a low potential shrinkability and the water table will reduce the risk that trees will desiccate the soil to any great depth. It is proposed the new dwelling be founded on 0.90m deep strip footings of either mass concrete or lightly reinforced concrete. Based on the super heavy dynamic probe test results a nett allowable bearing capacity of 75 KN/m² may be adopted for the design of the foundations.

4.0 Site Drainage

A falling head permeability test to the method given by Kent County Council was conducted in a separate borehole. The borehole was cased to a depth of 1.00m, approximately the depth of the water table, and a further 0.60m long active length drilled. The sandy soils collapsed to a depth of 1.20m during the test, leaving a very short test pocket. Calculations suggest the coefficient of permeability of the fine sand to be about 6×10^{-6} m/s , however the test was not entirely satisfactory.

The high-water table in the area will restrict the use of conventional soakaways as they will remain filled with water. One possibility to disperse storm run-off would be to a shallow seepage trench. The land to be retained with the house falls to marshy wooded area to the west of the proposed house. This area could be used as an infiltration area and a small pond established to provide efficient short-term storage. The storm water together with over-flow from the existing ponds would seep into the small stream further to the west.

5.0 Conclusions

The site of the proposed new dwelling at Sunny Corner, Copse Lane, Walberton proved to be underlain by a thin Head with deposits of a fine Marine Sand to a depth greater than 4.0m. There was a high-water table in the area, approximately 1m below ground level, and a stream rose in marshy land to the west of the site. The Head was a silty clay with angular flint gravel and was of a low shrinkability, hence it is recommended the new house be founded on 0.9m deep trench fill footings. The underlying sands are in a loose or very loose state of compaction and as a precaution it is suggested the footings are lightly reinforced to restrict possible differential settlement.

(W K Elson)
PhD, CEng, MICE

16th January 2025

APPENDIX

**Sunny Corner, Copse Lane, Walberton,
West Sussex, BN18 0QH.**

Laboratory Test Results

Water Content

Borehole No	1	1	2	2	3	3	4	4
Depth (m)	1.00	2.00	1.10	2.00	0.90	2.00	1.00	2.00
Water content (%)	22.0	26.3	22.7	22.6	23.4	20.9	23.9	22.8

Atterberg Limits

Sample reference	Liquid limit (%)	Plastic limit (%)	Plasticity index (%)	Soil classification
BH 1 1.00m	35	23	12	CL/ML
BH 3 0.90m	33	20	13	CL

BH 4 1.00m	41	21	20	CI
---------------	----	----	----	-----------

Ground Water Level Observations

Date	Borehole No 1	Borehole No 3	Comments
23 -12-2024	1.02m	0.90m	Boreholes drilled
16-01-2025	1.04m	0.92m	