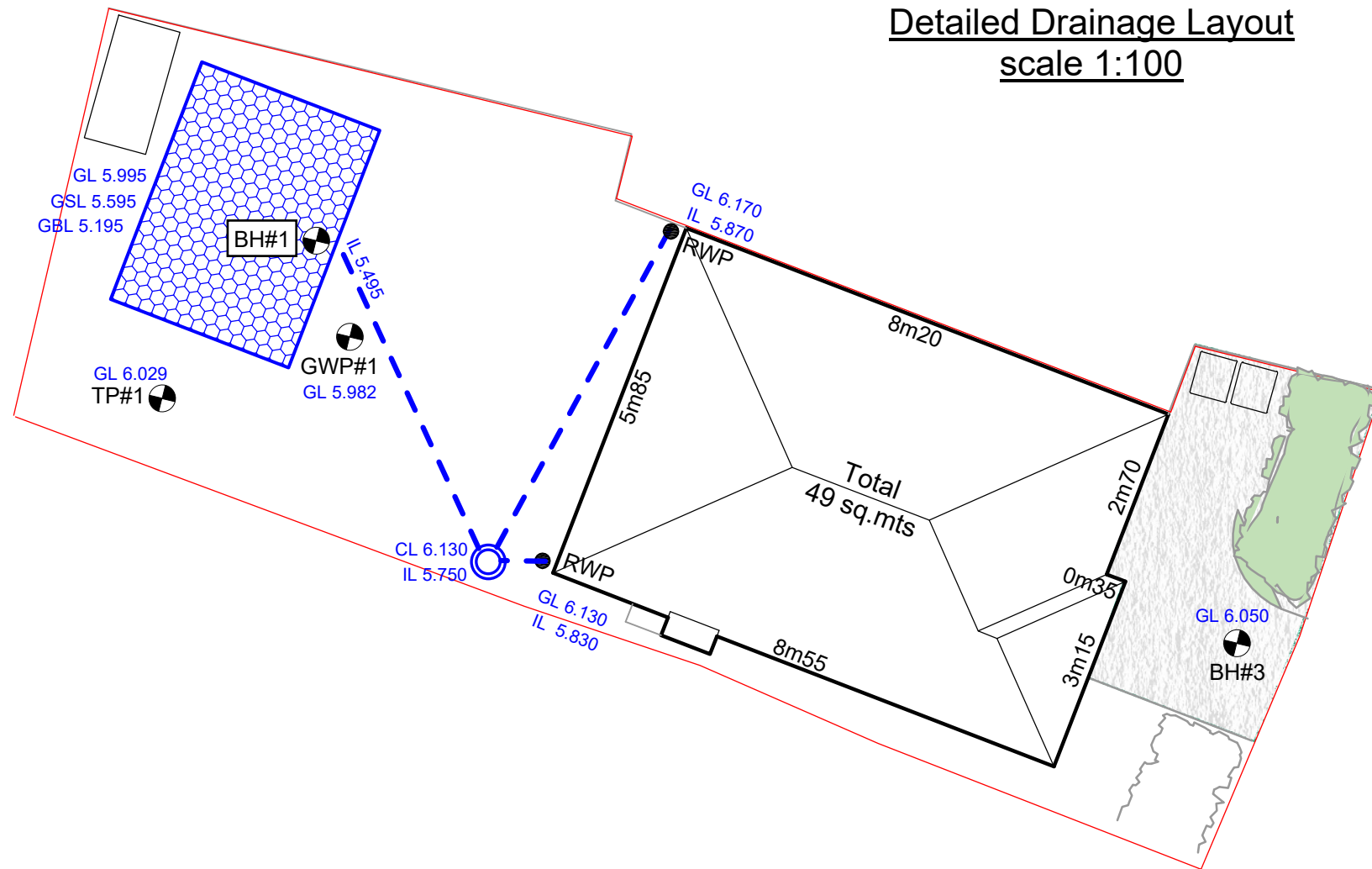
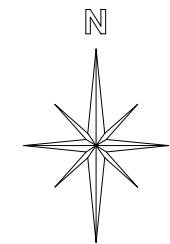




KEY

- Proposed surface water drainage.
100mm diameter PVC pipe.
Minimum fall of 1:100
- GWP Groundwater Monitoring Test Point.
- TP Soil Infiltration Testing BRE365 Test Pit.
- BH Test BoreHole for Provisional Soil Infiltration Testing.
- Proposed silt trap inspection chamber
- Proposed Geocellular Soakaway.
4.00 metres long x 3.00 metre wide
giving a footprint of 12.00 square
metres of 400mm deep geocells.
- GL ##### Ground level at detailed items
- CL ##### Cover level of surface water chambers
- IL ##### Invert level of surface water drains
- GSL ##### Soffit (top) level of Geocell structure
- GBL ##### Base level of Geocell structure
- + 5.999 All levels are to AOD unless otherwise stated

Mate GeoTechnic Services

03	Update Silt Trap Position / Pipe Runs	RC	14-6-20
02	Final	RC	30-4-20
01	Original	RC	21-4-20
Rev.	Description	Drn.	Date

Surface Water Drainage Design Notes

As detailed from the British Geological Survey, the Superficial Geological ground conditions here indicates River Terrace Deposits of sand, silt and clay over Bedrock of London Clay. The London Clay was not encountered in the BoreHole for Groundwater Monitoring at its depth of 1805mm below ground level. Excavation of the boreholes and the test pit indicated silty clay overlying clay at depth.

In mid February 2020 a 75mm diameter BoreHole was opened, GWP#1 to a depth of 1805mm below ground level and groundwater was encountered at a depth of 1500mm below ground level, rising to a stable level of 960mm below ground level within 45 minutes. Groundwater was monitored in this open borehole for a further 4 readings until the end of February 2020. During this monitoring period in borehole GWP#1 the highest level of groundwater, of 910mm below ground level, ie 5.072AOD, was recorded on February 29th 2020. This highest level of groundwater precluded the use of infiltration at depths greater than ~900mm below ground level, since no Freeboard would then be available. Note the Met Office (the national meteorological service for the UK) determined February 2020 as being the wettest, month of February, on record.

A preliminary trial borehole BH#1 was opened, at the location of the proposed soakaway structure, adjacent to the groundwater monitoring point, in mid February 2020 to a depth of 900mm below ground level and two percolation tests were performed. These tests produced results in the order of 1.020 E-03 metres / second. This was obviously not representative of the soils which were silt and crumbly silty clay and would only be produced by an adjacent void space. Investigations were inconclusive as to it being a current soakaway for the adjacent house "Chandos", but it's position was unlikely for that. It was also unlikely to be the result of draining into an extremely permeable layer e.g. a gravel. Further testing at this location was abandoned.

A second preliminary trial borehole BH#2 was opened well away from BH#1 towards the rear corner of the garden, on the following day, to a depth of 850mm below ground level, and a percolation test was performed. This produced a result of 5.501 E-06 metres / second, thus indicating no influences from erroneous void spaces as in BH#1.

This borehole was enlarged into a BRE365 Test Pit of size 1050mm long by 350mm wide by 850mm deep, and 3 Percolation tests were carried out. The results are detailed in the table below. The drainage design is based on percolation tests carried out in late February 2020 to BRE365 principles within this Test Pit. Testing produced a minimum soil infiltration rate of 3.304 E-06 metres / second. A Factor of Safety of 2 has been applied to the minimum rate achieved.

A third preliminary trial borehole BH#3 was opened in the front the garden to a depth of 640mm below ground level to establish general infiltration rates for the front permeable area. Two percolation tests were performed. The results are detailed in the table below.

A 400mm deep rectangular geocellular soakaway has been designed, 4.00 metres long x 3.00 metres wide, with a cover of 400mm, which will be suitable to drain the proposed new building of a total for the Impermeable Roof Area of 49.0 square metres, without flooding above ground level, on a 1 in 100 year rainfall return event, plus 40% climate change addition. The soakaway should be sited a minimum of 5 metres from any habitable building to avoid any saturation of the ground.

The front permeable garden area will be self draining as this replaces the existing impermeable concrete drive entrance to the existing garage.

NOTE

This drawing had been produced for discharge of planning conditions only. All levels and details to be checked for Building Regulations approval and construction purposes

Winter Soil Infiltration Testing Results

TP#1 (1050mm long by 350mm wide by 850mm deep)
February 25th 2020 -- 5.209 E-06 m/s
February 29th 2020 -- 3.304 E-06 m/s
March 2nd 2020 -- 4.435 E-06 m/s

BH#3 (160mm diameter by 630mm deep and 640mm)
February 25th 2020 -- 2.390 E-05 m/s
February 29th 2020 -- 5.141 E-05 m/s

The minimum Rate used in the calculations was from the tests performed within a BRE365 Test Pit TP#1 at 3.304 E-06 metres / second.

A Factor of Safety of 2.0 was used in the calculations for the design.

Project

Proposed New Build
Land Adjacent to "Chandos"
Elm Grove
Bognor Regis
PO21 2SW

Client

Mr Shaun Theron

Drawing
Title

Surface Water Drainage

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Scale As Shown

Drawing
Original A3

Drawing
Number

MGS -- BR/302/19-rev03