

Geoff Holyoake Associates Ltd.

Structural & Civil Engineering Consultants

27 Exeter Gardens

Stamford

Lincolnshire PE9 2RN

Tel: 01780 765971

Fax: 01780 765847

e-mail: info@holyoake-associates.co.uk

SOIL INVESTIGATION REPORT
FOR THE SITE ADJACENT TO
62 AUSTENDYKE ROAD,
WESTON HILLS.

S.I.1285/18/GCH
APRIL 2018

1. Client:

Highgrove Homes Ltd
Ashgrove Lodge
Austendyke Road
Weston Hills
Spalding
Lincolnshire PE12 6BZ

2. Brief.

- 2.1.** Provide a soil investigation report of the titled site using trial holes and comment on the foundation types for the proposed domestic development.
- 2.2.** All as per the client's instruction confirmed, on site, dated 22 March 2018.
- 2.3.** In accordance with our standard practice, this report is for the sole use of the parties to whom it is addressed and no responsibility is accepted to any third party for the whole or any parts of its contents.
- 2.4.** The following recommendations are based on the findings of the site investigation. We highlight that, other conditions may occur elsewhere on the site of which we have no knowledge and therefore cannot accept any responsibility.
- 2.5.** Please note that, this site has not been tested for contamination.

3. Site Location.

- 3.1.** See location plan.
- 3.2.** The site, at present, is an open arable field to the east of 62 Austendyke Road, in the Lincolnshire village of Weston Hills. This area is covered by the South Holland District Council.
- 3.3.** There is an open dyke to the eastern end of the field along Delgate Road. There is also an easement parallel to the dyke.
- 3.4.** There are no significant trees within the site or nearby. It is understood that the existing roadside Hawthorn hedge (less than 1.5m high) is to be replaced with a new Beech hedge.
- 3.5.** It is understood that an old chapel building stood within the roadside area of Plot 1.

4. Trial Hole Investigation

- 4.1. See trial hole logs 01 – 06 and kpa readings.
- 4.2. All the trial holes shared a similar ground make-up being one of: - topsoil overlying firm mottled brown sandy clayey silt, which became softer and wetter with depth.
- 4.3. The lower silt within trial hole 03 turned grey and no peat was encountered throughout.
- 4.4. In general, the silt became wetter with depth and the sides of the trial holes quickly collapsed. This is a characteristic of wet non-cohesive soils. Silt is considered to be a low to non-shrinkable soil.
- 4.5. Pilcon shear vane meter readings were taken within trial hole 02. The kpa readings of 30 - 40 represent firm silt with a safe allowable design bearing capacity in the order of 75kn/m^2 .
- 4.6. Standing water level in trial hole 01 at the end of the investigation was 2m below ground level. No sulphate tests were undertaken.
- 4.7. It is highlighted that, larger depths of topsoil/fill were encountered within the roadside trial holes 02, 04 & 05.
- 4.8. These appear to represent a 'filled in' roadside dyke.
- 4.9. Trial hole 06 was excavated to ascertain the depth of the topsoil layer within the general footprint of the proposed bungalows.

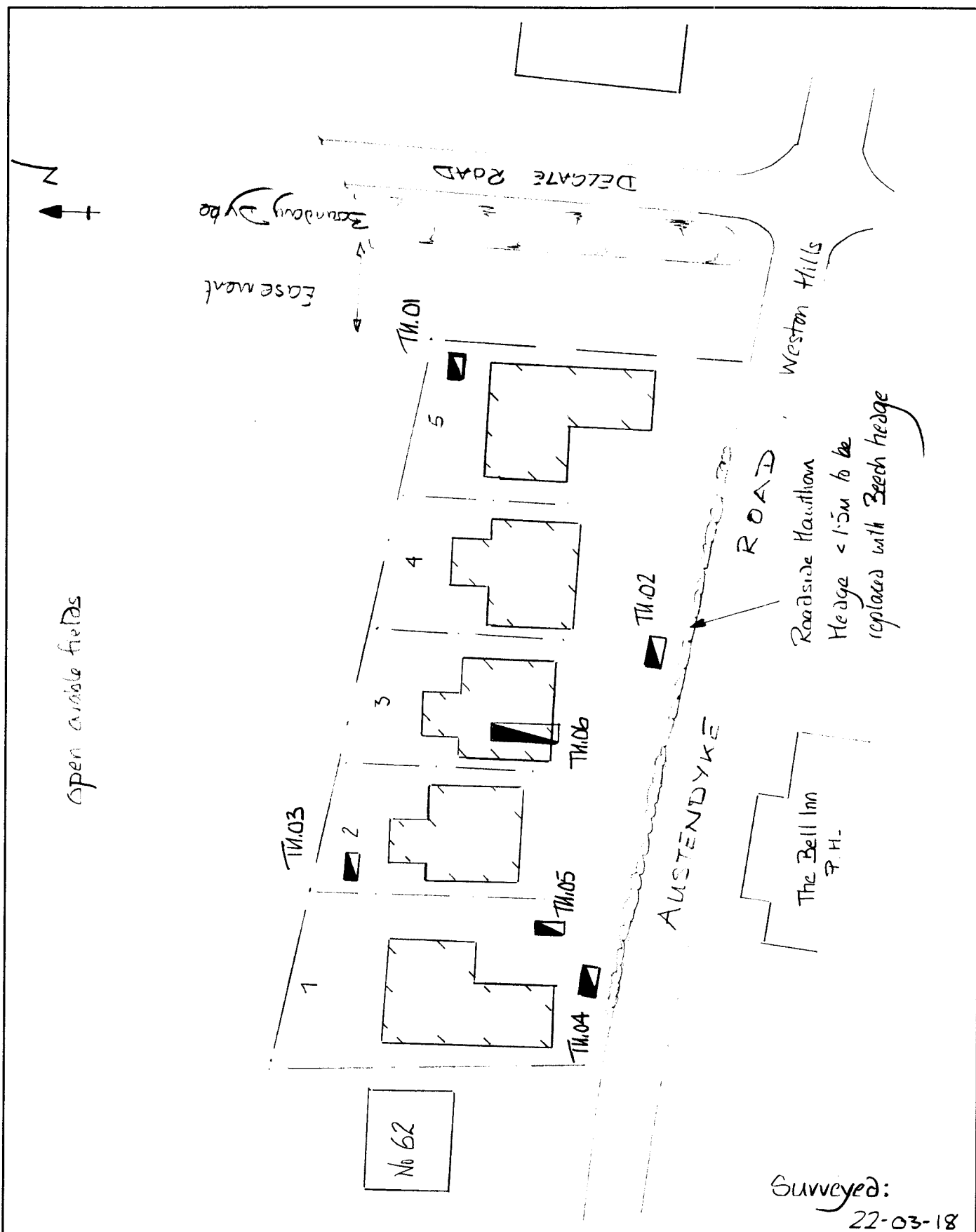
5. Foundation Types.

- 5.1. The proposed bungalows will generate foundation line loads in the order of $25 - 35\text{kn/m}$ when considering a suspended ground floor system. For traditional mass concrete foundations, 600mm wide, a bearing capacity in the order of 60kn/m^2 is required. This is acceptable for the upper horizons of the natural silt stratum.
- 5.2. In general, a ground bearing floor slab may be used as long as the depth of any stone backfill after the removal of all topsoil/fill does not exceed 600mm, based on the final floor levels being 300mm above existing ground level.
- 5.3. However the garage areas to plots 1 and 5 may encroach upon the assumed 'filled in dyke'.

- 5.4. In these areas the bearing capacity of the wet silt below the fill is considerable less and therefore will adversely affect any mass concrete foundations.
- 5.5. It is also highlighted that any new foundation would need to extend into natural silt beyond the depth of any old foundation within Plot 1.
- 5.6. Once the extent of the filled areas is known then, if necessary, the house types to Plots 1 – 5 should ideally be adjusted to avoid the 'dyke' area. Otherwise any excavation for strip/trench footings should not exceed 1.2m unless agreed, on site, with the Local Authority Building Control Officer as works progress. Alternatively, either raft or piled foundations should be used for these plots.
- 5.7. In general, all loadbearing walls should be built off mass concrete strip footings, 600mm wide x minimum 300mm thick founded at a minimum 0.75m below existing ground level within the firm natural silt stratum.
- 5.8. The minimum grade for buried mass concrete is GEN 3.

A handwritten signature in black ink, reading 'G. C. Holyoake'. The signature is written in a cursive style with a large, sweeping flourish at the end of the last name.

Eur. Ing. G. C. Holyoake, B.Sc. C.Eng. M.I.C.E.



Surveyed:
22-03-18

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Drawing Title

LOCATION PLAN

Drawn

CCU

Date

APR'18

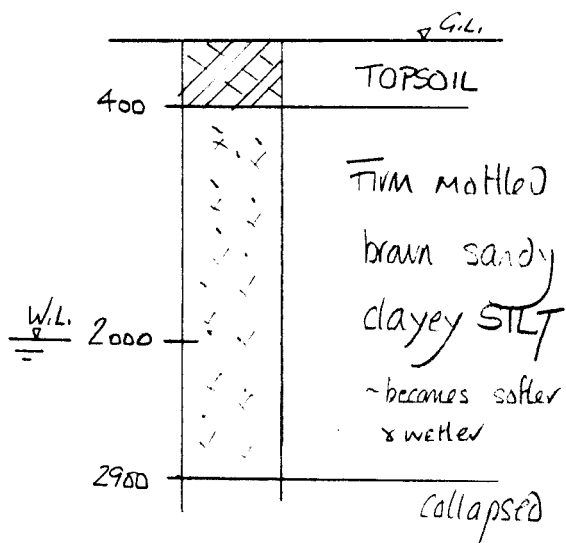
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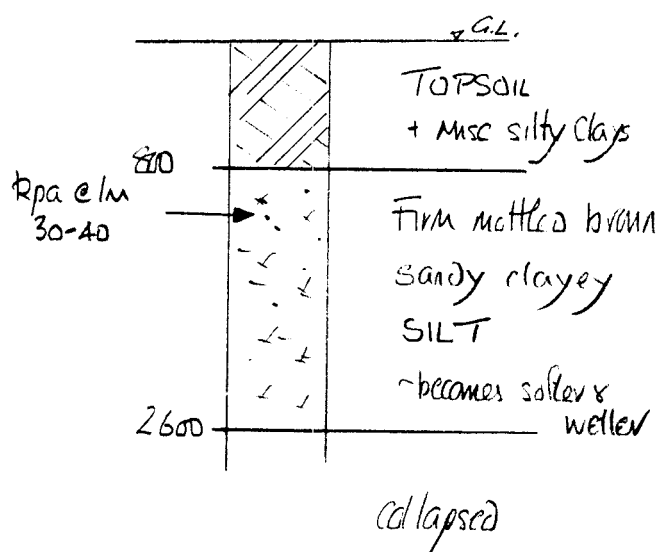
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18/01**

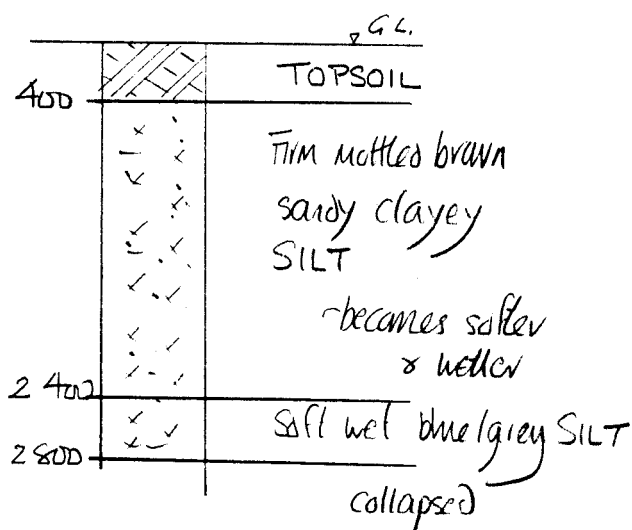
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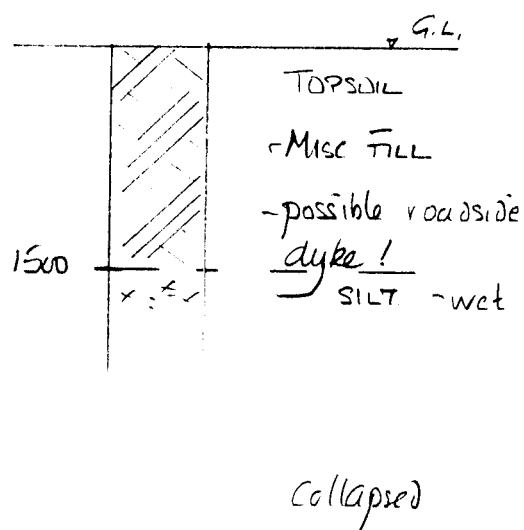
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Drawing Title

TRIAL HOLE LOGS 01-04

Drawn

GCH

Date

APR 18

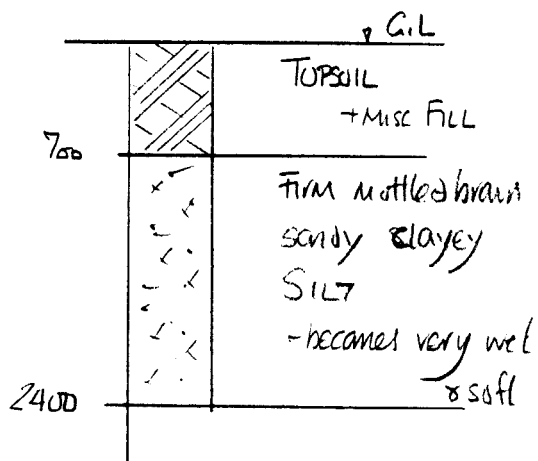
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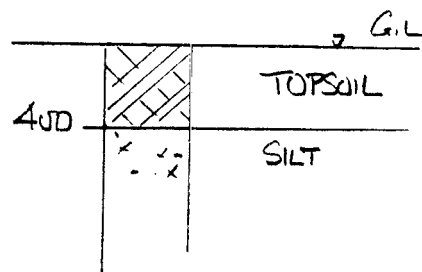
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**SI/285
18/02**

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Drawing Title

TRIAL HOLE LOGS 05 & 06

Drawn

GCH

Date

APR 18

Scale

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Dwg No

**SZ1285
18/03**