STUART GUY CONSULTING

Report number 20-01-01 addendum **Date 27th April 2020**

Additional information on land adjacent to

41 Kenzie Drive, Sutton Bridge, Spalding, PE12 9SW

Following comments by the land contamination officer for South Holland District Council about not including information on the presence of a greenhouse on or near to this site, I make the following observations:

I did find the word 'nursery' on one map, but with no outline of a building, so it was a bit vague. I did not find any other reference to nursery, but the client confirmed that there were greenhouses on the site. In the site visit, there was no trace of foundations as would normally be found if large commercial greenhouses were present on this part of the site, the grass and bushes were growing very well and looked very healthy (noted in the report) and the soil from the geotechnical boreholes bore no signs of fill or contamination (also in the report).

The geotechnical report is appended as this was not available at the time of my report. The borehole logs show topsoil and fill with sandy silt below. I was concerned at the word fill as I did not see any other materials in the topsoil. However, Andy Richardson, a Director of Sidebottom Richardson & Cheng sent the following e-mail to explain what was presented. I thought that I understood, but telephoned him to confirm that it referred to the existence of topsoil that had been put on the site from an adjacent plot, as it was built up above the soil level at 41 Kenzie Drive. This gives an unstable base for foundations.

Hi Stuart,

With respect to your recent email and the unnecessary excitement regarding our ground investigation report, I am pleased to respond as follows.
It would appear that Ms Armour is an eminent figure with respect to contamination. However, is not able to give professional courtesy when needed.
Our report relates to geotechnical matter only, with reference made to the near surface deposits being topsoil and fill material, since it is unsuitable to support foundations and ground floor slabs.

I trust the foregoing clarifies matters.

Regards,

ANDY RICHARDSON

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Registered - England No 2517726

I have been able to examine maps of the site area from another report that show the nursery. The following extracts from those maps had nursery marked on them, but the earlier map in 1903 and the later map of 2002 did not have the word nursery on them..

OS 1929 - 31



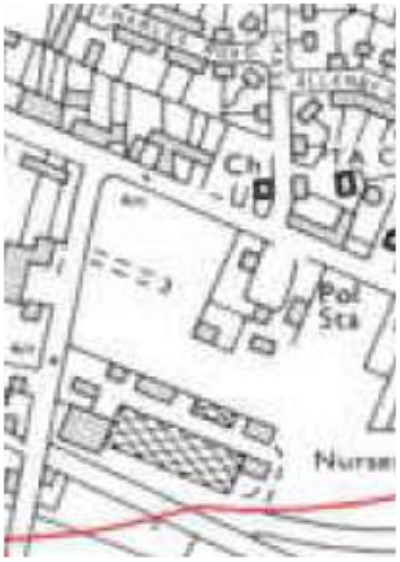
OS 1938



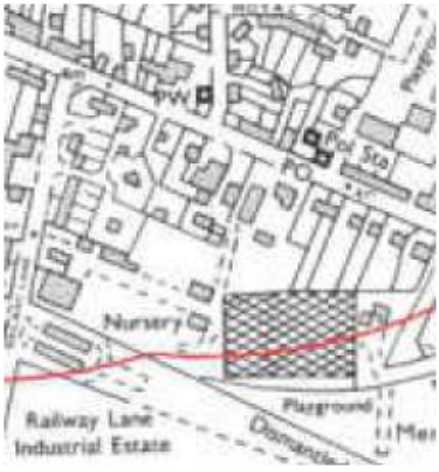
OS 1958



OS 1974



OS 1991



There are markings that may or may not be greenhouses, but they are in different positions on every map. The one from 1991 looks as if it is well away from this development site. These outlines cannot be buildings, but if they are greenhouses/nursery/beds, then perhaps they have been moved so that they are placed on soil that has been fertilized and allowed to recover. Heating traditional greenhouses is very expensive and little heating was usually applied when this nursery was operating. Small paraffin heaters were used for selected greenhouses when frost was expected. These small heaters would not cause any significant spills as the paraffin capacity was very small.

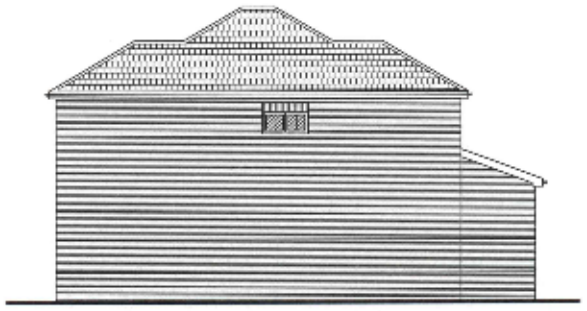
The houses have to be raised by about 1 m to resist flood damage, so the front will be hard surfaced and the rear garden will be quite small (see sketch supplied by developer).

In conclusion, there is little evidence for sources of potential contamination on this site as the soil and subsoil borehole logs show continuous top soil with extra amounts and sandy silt below, the nursery would only have small heaters in certain greenhouses as heating large greenhouses was very uneconomical if done for any length of time, the structures on site appear to have moved around the site and the rear garden is at the very edge of the nursery. No further site investigation is necessary.

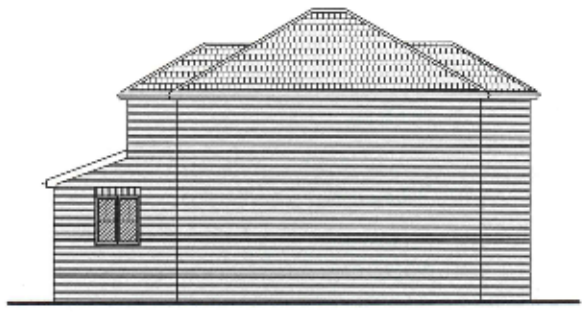
Stuart Guy, BSc, PhD, C Chem, MRSC, C Eng, MIMMM



FRONT ELEVATION



SIDE ELEVATION



SIDE ELEVATION

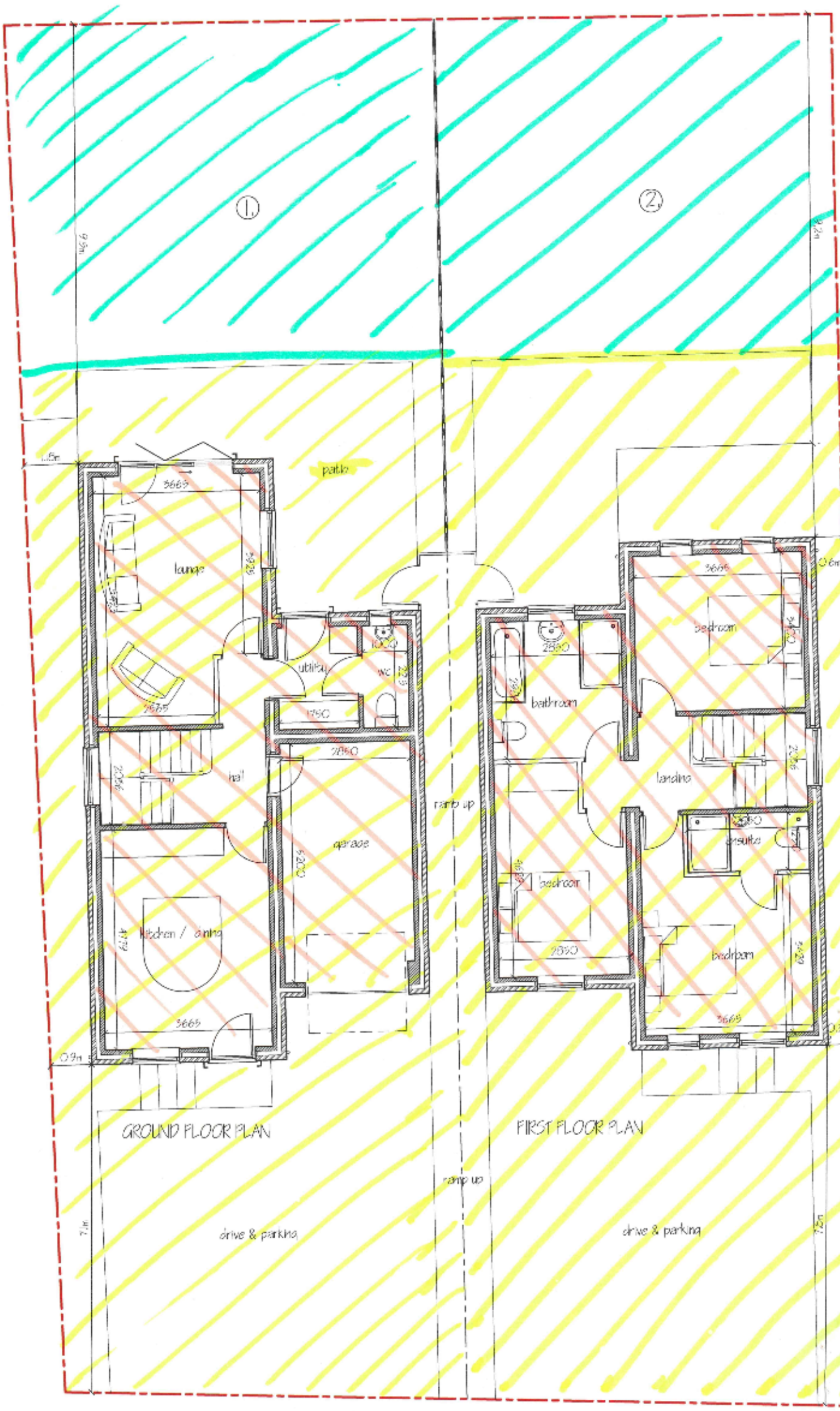


REAR ELEVATION

PATIO / DRIVE / PATHS / AREAS HARDSTANDING.

OVERSITE | Metre above EXISTING GROUND

GARDEN AREA



3	CLIENTS COMMENTS & PLANNING AMD	20.11.19
2	CLIENTS COMMENTS	28.10.19
1	CLIENTS COMMENTS	16.10.19
ref:	revision	date

G. R. MERCHANT LTD.
I.ENG AMICE FIWO

ARCHITECTURAL, STRUCTURAL AND LAND DRAINAGE CONSULTANTS

4 Wrights Mews
12A Park Road, Holbeach,
Spalding, Lincs. PE12 7EE
Tel: 01406 490800
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E-Mail: gr.merchant@btconnect.com

Project
5 BEDROOM HOUSES & GARAGES
OFF FENZIE DRIVE,
SUTTON BRIDGE,
SPALDING. LINCS. PE12 9SW.

Client
D. BROWN BUILDING CONTRACTORS LTD

Drawing
PLOTS 1 & 2 (AMENDED)
FLOOR PLANS & ELEVATIONS

Job Ref.	Drawing No.
3690-19.	02C
Date	Drawn
SEPTEMBER 2019.	S.J.

Scales
1/50 & 1/100

DO NOT SCALE FROM THIS DRAWING

This drawing is copyright and may not be altered, reused, photographed or used for any other purpose other than for which it is issued. The General Contractor is to check all dimensions on site and report any discrepancies to the Architect. All details shown on this drawing have been assumed upon typical site conditions inherent in the area. No responsibility can be accepted for unforeseen conditions which may be discovered during excavation / construction superior to the architect's or the design / workmanship now to be utilised. This and all other drawings are recommended to be read in conjunction with all other consultants' drawings and specifications. The General Contractor must visit the site and be satisfied as to the nature of the ground conditions and shall be responsible for checking all dimensions relative to the site and boundaries before building work is commenced. This drawing is not to be used for the purpose of obtaining Building Regulations approval. This drawing must not be used as a tender document. The Contractor will be required to become or employ a CITB registered Site Safety Supervisor for the duration of the contract. It is the duty of any nominated Principal Contractor, in the absence of client appointed one, to ensure suitability in control of the works, adequate resources of materials, subcontractors and coordination, and ensure to comply with all the requirements of the Construction (Design and Management) Regulations 2015. All dimensions are to be checked on site before any work is put in hand. Figured dimensions are to be taken in preference to scaled dimensions. Any discrepancies are to be reported to the Architect before proceeding with the work. Unless otherwise stated all work is to be carried out in accordance with the relevant current edition of British Standard Codes of Practice and Building Regulations. All materials are to be used strictly in accordance with the manufacturer's instructions and relevant current British Standard Specification or British Board of Agrément Certificate where applicable. The Contractor / Client shall ensure that the authorised surveyor is summoned at the appropriate stages to inspect the works and that all necessary notices are served and all necessary fees are paid. The Contractor / Client shall ensure that the authorised surveyor is summoned at the appropriate stages to inspect the works and that all necessary notices are served and all necessary fees are paid. The Contractor / Client shall ensure that the authorised surveyor is summoned at the appropriate stages to inspect the works and that all necessary notices are served and all necessary fees are paid. The Contractor / Client shall ensure that the authorised surveyor is summoned at the appropriate stages to inspect the works and that all necessary notices are served and all necessary fees are paid.

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PRELIMINARY GROUND INVESTIGATION REPORT

UPON

SITE OFF KENZIE DRIVE,

SUTTON BRIDGE

LINCOLNSHIRE

PROJECT No: 41119

DOCUMENT REF: 41119-GI-01



D Brown Building Contractors Ltd

Seas End Road

Spalding

Lincolnshire

PE12 6LD

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Contents

1. INTRODUCTION 2
2. LOCATION AND BRIEF DESCRIPTION OF THE SITE 3
2.1 Site location 3
2.2 Site History description 3
2.3 Site description 3
2.4 Geological description 4
3. SITE WORK 5
4.0 GROUND CONDITIONS 6
5.0 CONCLUSIONS & RECCOMENDATIONS 7
APPENDIX A 8
APPENDIX B 10
APPENDIX C 12

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1. INTRODUCTION

Acting upon instruction from D Brown Building Contractors Ltd, we visited site on 02nd January 2020 with a view to determining the basic characteristics of the soils strata.

Hand Auger boreholes and in-situ testing took place, and our comments are based upon a visual Inspection of the disturbed samples and testing results obtained on site.

No soil infiltration rate tests were undertaken at this stage.

We would suggest the groundwater conditions may vary seasonally and that water levels as recorded at the time of boreholing should not necessarily be taken as being constant as they may be subject to fluctuations.

The opinions and comments expressed in this report are based upon ground conditions encountered in the boreholes sunk at the time of our visit.

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2. LOCATION AND BRIEF DESCRIPTION OF THE SITE

2.1 Site location

Situated on the South side of Kenzie Drive, Sutton Bridge, appropriate National Grid reference TF 473212. A site location plan is contained in APPENDIX A.

2.2 Site History description

Desktop study of historical maps has been undertaken. The site does not appear to have been previously developed. The maps indicate dismantled railway lines to the south of the site. Also an Industrial Estate is noted on the maps which still appears to be in operation today.

Extract of the 1991 Ordnance survey county series map is contained within APPENDIX B.

2.3 Site description

The site currently stands as unused land. The investigation is limited to site boundaries as shown on our location plan contained within APPENDIX A.

The North of the site is bound by Kenzie Drive.

The Eastern boundary is shared with an adjacent property. This boundary line is formed with an close boarded fence.

Along the Southern boundary to the site there is a concrete post and wire fence, this separates the site from a public footpath. The boundary also consists of reguralary spaced 8-10m high broad leafed trees. The site level at the access from Kenzie Drive is approximately 3.9m AOD, falling away from the road towards the concrete post and wire fencing at the back of the site.

At the time of our visit the weather was dry and clear, and there had not been any significant rainfall in the past days.

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2.4 Geological description

Desktop study of the area has been undertaken using the British Geological Society Maps.

The maps indicate the site to be underlain by superficial tidal flat deposits of silts and sands.

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3. SITE WORK

Two 100mm diameter Hand Auger boreholes took place in the locations shown on the location plan contained within APPENDIX A.

A visual inspection of the disturbed samples and in-situ testing using mackintosh probe, were undertaken. A description of the strata is shown on sheet No.d 41119/BH01 & 41119/BH02. The borehole logs are contained in APPENDIX C.

The soil demonstrated no identifying odours or markers for known contamination therefore, no samples were submitted for contamination laboratory testing.

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4.0 GROUND CONDITIONS

The sequence of the strata encountered at depth during the investigation generally confirms the anticipated geology as interpreted from the geological maps

Once the hard dry topsoil material was penetrated at the 0.4m to 0.5m range, the strata became a dense and dry sandy silt material to depths ranging 1.5m to 1.8m. In this strata Mackintosh Probe tests were undertaken, indicating an allowable bearing pressure in excess of 80kN/m².

Generally the strata started to become wetter with depth with a water strike at 1.8m in BH01 and 1.5m in BH02.

Both boreholes extended between 2.0 and 2.1m BGL. BH01 was terminated due to the very wet orangey silt being lost from the auger head. BH02 was terminated at 2.0m due to suction and difficulty in retrieving the auger head.

In BH01 the water levels rose to 1.7m BGL after 1 being left for 1 hour. BH02 was left for 20 minutes and upon returning, the water level had risen to 1.5m BGL.

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5.0 CONCLUSIONS & RECCOMENDATIONS

The ground conditions encountered across the site are consistent, and therefore, we would recommend the same solution for both of the plots on the site. Traditional strip foundations of appropriate size to accommodate the applied loading will be satisfactory along with the use of suspended beam and block ground floors to accommodate proposed finished levels.

In order that any soft spots may be bridged and potential differential settlements minimised, a layer of mesh fabric reinforcement should be placed within the strip foundations

A minimum excavation depth of 750mm below existing ground level is recommended. However, if disturbed strata is encountered, excavations should continue, and be backfilled with lean mix concrete, to general formation level.

In order to limit settlements both total and differential to within the acceptable limits, it is recommended that a safe allowable bearing pressure of 80kN/m² is used for the design of foundations.

If during excavation water is to enter the trench then a layer of lean mix concrete is to be placed in the ''bottom'' of the excavation to stabilise the strata. The necessity of this blinding layer will largely depend on the time of year and weather conditions prior to the foundations being poured.

For and on behalf of **SIDEBOTTOM RICHARDSON CHENG LTD**

J. Lawrence

(Checked)A. Wilson CEng MIStructE **14th February 2020**

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APPENDIX A

Borehole Location Plan

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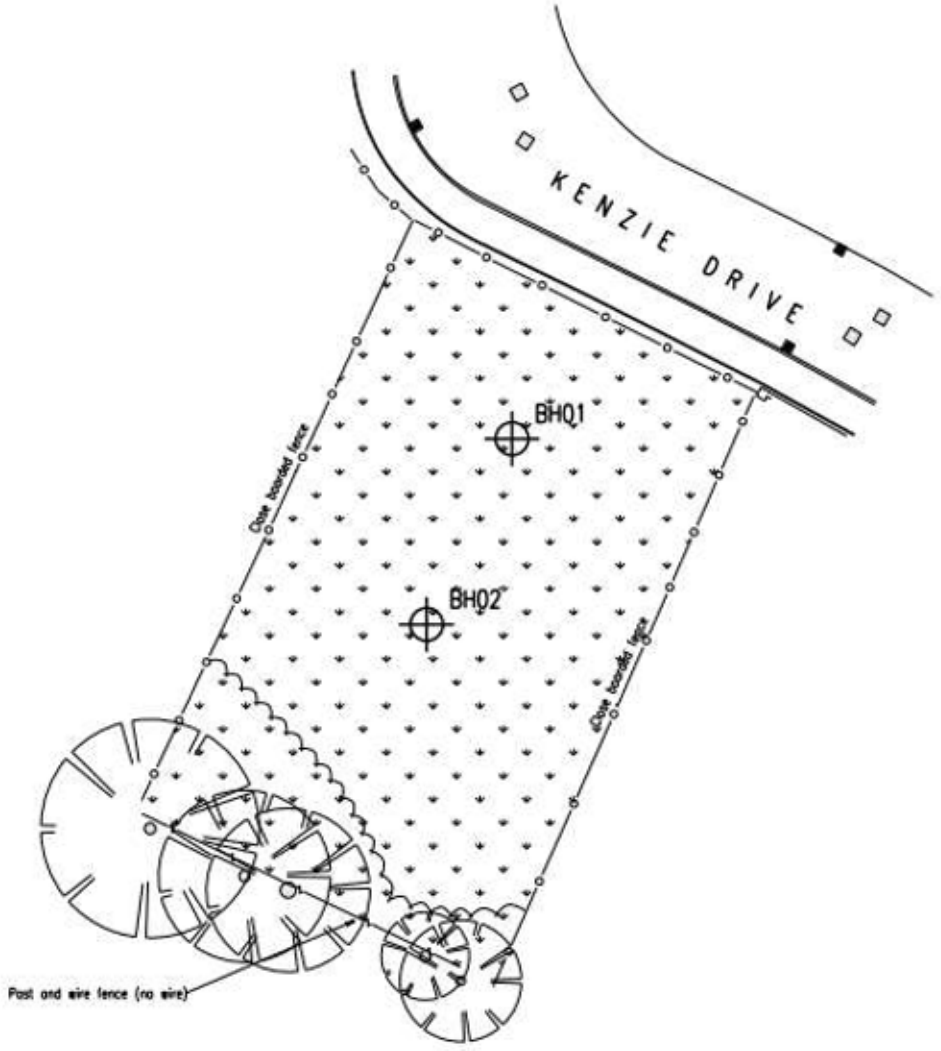
Sheet No.	Rev
41119/SK01	-

Status: FOR INFORMATION

Date	Jan. '20	Drawn	SA	Checked	JL
Scale	1:250	Design	SRC	File Name	41119-SK01

Project: 2 No. Proposed Dwellings, Kenzie Drive, Sutton Bridge, Lincolnshire, PE12 9SW

Title: Site Plan Showing Borehole Locations



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APPENDIX B

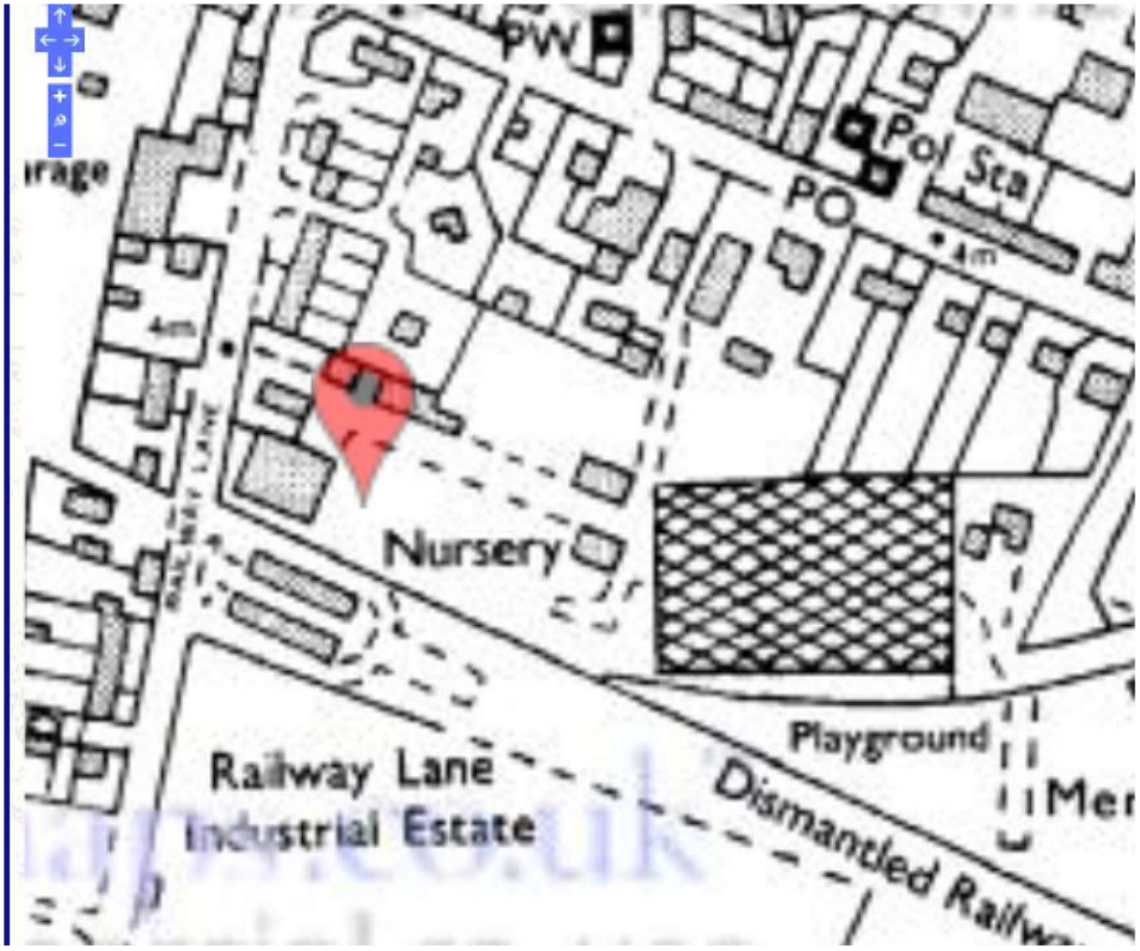
1991 OS Map

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1991 Ordnance survey county series map

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APPENDIX C

Borehole Logs

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Sheet No.	41119/BH01	Rev	-
Status	FOR INFORMATION		
Date	Jan, '20	Drawn	SA
Scale	1:20	Design	SRC
Checked	JL	File Name	41119-BH01

Location	Land Off Kenzie Drive, Sutton Bridge, PE12 9SW	Carried Out For	GR Merchant
Date Undertaken	02/01/2020	Logged By	JL

Equipment & Methods
100mmø HandAuger
Mackintosh Probe

Site Coordinates:

Ground Level:

Borehole No. 1

Description	Reduced Level	Legend	Depth (Thick)	Samples Depth	Samples Sample Reference	Samples Sample Type	Samples Sample No.	Test Required	M.P.T. Blow Count (Depth)
Hard Dry Topsoil and Fill.			500mm						
Hard Dry Sandy Silt.			800mm (300mm)						
Very Dense Mid Brown Sandy Silt.									1.0m Below G.L. 100 Blows For 150mm Movement
									1.5m Below G.L.
Dense Greyey Brown Sandy Silt.			1700mm (900mm)						100 Blows For 190mm Movement
Water Strike - Becoming Wetter With Depth. Greyey Brown Sandy Silt.			1800mm						1.8m Below G.L.
			1900mm						60 Blows For 300mm Movement
Very Wet Orangey Sandy Silt.			2000mm						
Borehole Terminated Due To Non-Recovery.									

Remarks
Borehole Terminated @ 2.0m Due To Non-Recovery.
Standing Water @ 1.7m After 1 Hour.

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Sheet No.	41119/BH02		Rev -
Status	FOR INFORMATION		
Date	Jan, '20	Drawn SA	Checked JL
Scale	1:20	Design SRC	File Name 41119-BH02

Location	Land Off Kenzie Drive, Sutton Bridge, PE12 9SW
Carried Out For	D. Brown Contractors Ltd.
Date Undertaken	02/01/2020
Logged By	JL

Equipment & Methods
100mm⌀ HandAuger
Mackintosh Probe

Site Coordinates:

Ground Level:

Borehole No. 2

Description	Reduced Level	Legend	Depth (Thick)	Samples: Depth	Samples: Sample Reference	Samples: Sample Type	Samples: Sample No.	Test Required	M.P.T. Blow Count (Depth)
Hard Dry Topsoil and Fill.			400mm						
Mid Brown Loose Sandy Silt.			1500mm (1100mm)						1.0m Below G.L. 100 Blows For 200mm Movement 1.3m Below G.L. 100 Blows For 220mm Movement
Water Strike - Damp Brown Sandy Silt, Becoming Wetter With Depth.			2100mm (600mm)						1.5m Below G.L. 76 Blows For 300mm Movement
Terminated Due To Suction									

Remarks
Borehole Terminated @ 2.1m Due To Suction.
Standing Water @ 1.5m After 20 Mins.

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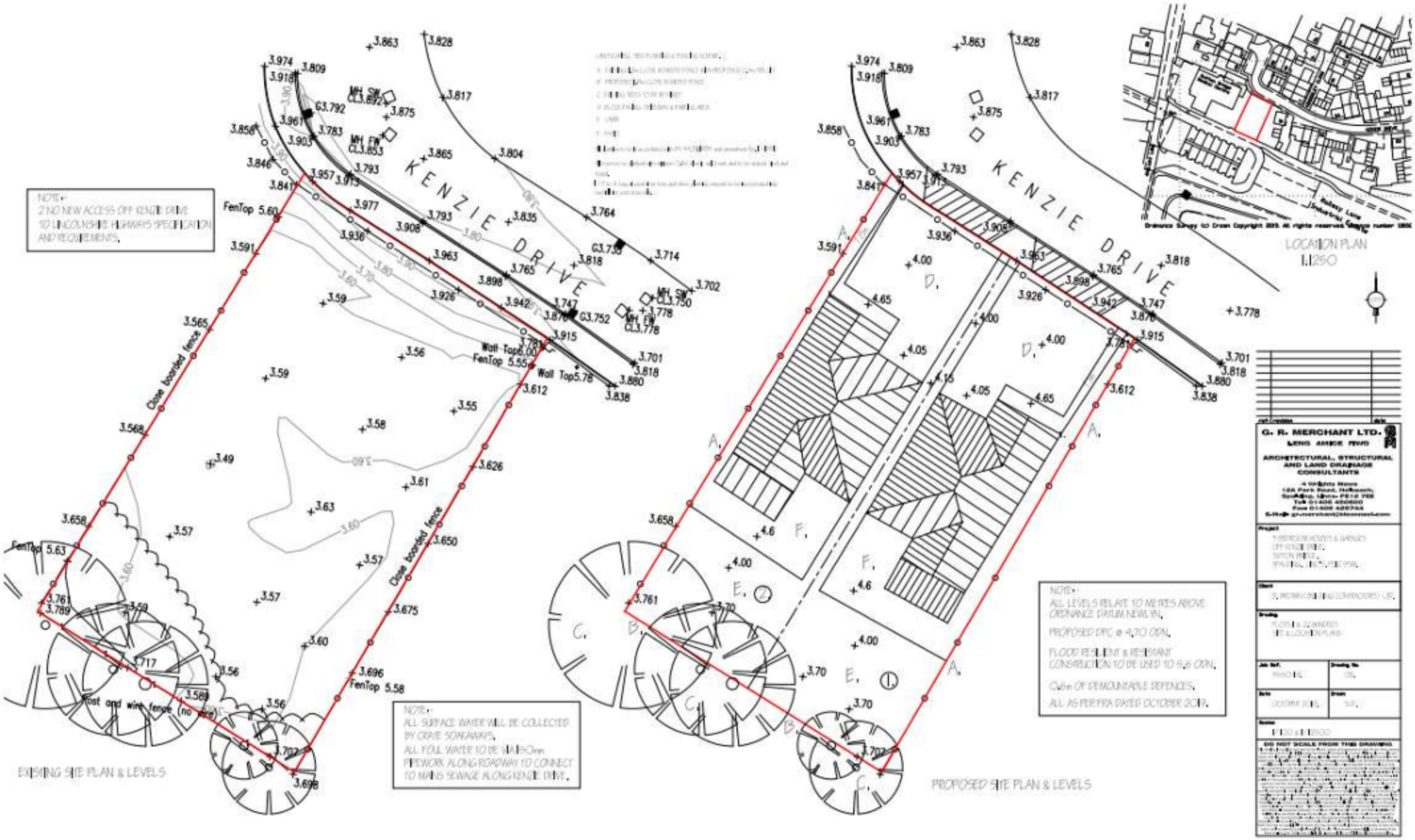
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APPENDIX G

Site Plan

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KENZIE DRIVE
NOTE:-
2 NO NEW ACCESS OFF KENZIE DRIVE
TO LINCOLNSHIRE HIGHWAYS SPECIFICATION
AND REQUIREMENTS.
Close boarded fence
Post and wire fence (no fence)
FenTop 5.60
FenTop 5.63
FenTop 5.58
Wall Top6.00
FenTop 5.55
Wall Top5.78
EXISTING SITE PLAN & LEVELS
NOTE:-
ALL SURFACE WATER WILL BE COLLECTED
BY CRATE SOAKAWAYS.
ALL FOUL WATER TO BE VIA 150mm
PIPEWORK ALONG ROADWAY TO CONNECT
TO MAINS SEWAGE ALONG KENZIE DRIVE.
A.
B.
C.
D.
E. 1
E. 2
F.
NOTE:-
ALL LEVELS RELATE TO METRES ABOVE
ORDNANCE DATUM NEWLYN.
PROPOSED DPC @ 4.70 ODN.
FLOOD RESILIENT & RESISTANT
CONSTRUCTION TO BE USED TO 5.6 ODN.
CVBm OF DEMOUNTABLE DEFENCES.
ALL AS PER FRA DATED OCTOBER 2017.
PROPOSED SITE PLAN & LEVELS
LOCATION PLAN
1:1250
G. R. MERCHANT LTD.
LONG ANDE RWD
ARCHITECTURAL, STRUCTURAL
AND LAND DRAINAGE
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