STUART GUY CONSULTING

Report number 20-01-01 addendum **Date 8th 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 with fill with sandy silt below. I was concerned at the word fill as I did not see any other materials in the topsoil. I have spoken to Jack Lawrence and he confirmed that his use of the word fill does not imply that any imported material was found. He confirmed what I also found in that the topsoil was of very good quality.

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

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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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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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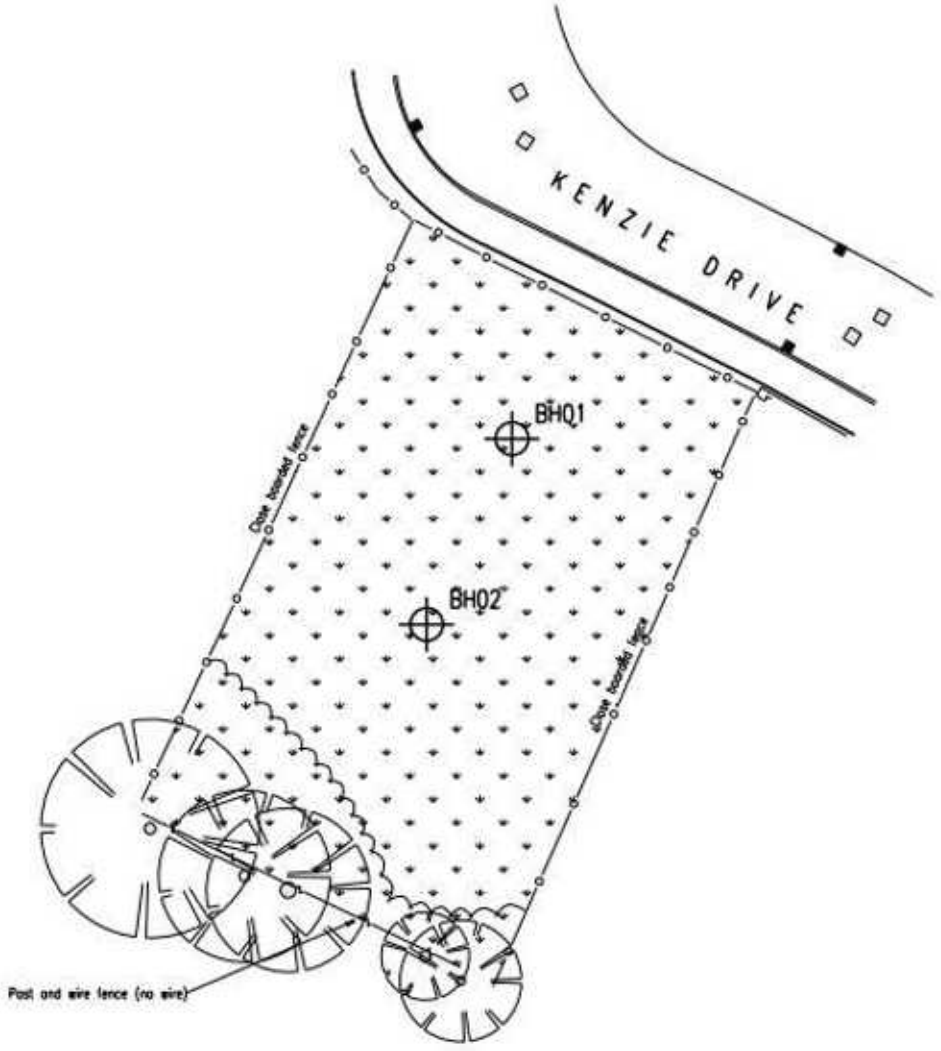
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Sheet No. 41119/SK01					Rev -
Status	FOR INFORMATION				
Date	Jan. '20	Drawn	SA	Checked	JL
Scale	1:250	Design	SRC	File Name	41119-SK01

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

Title: Site Plan Showing Borehole Locations



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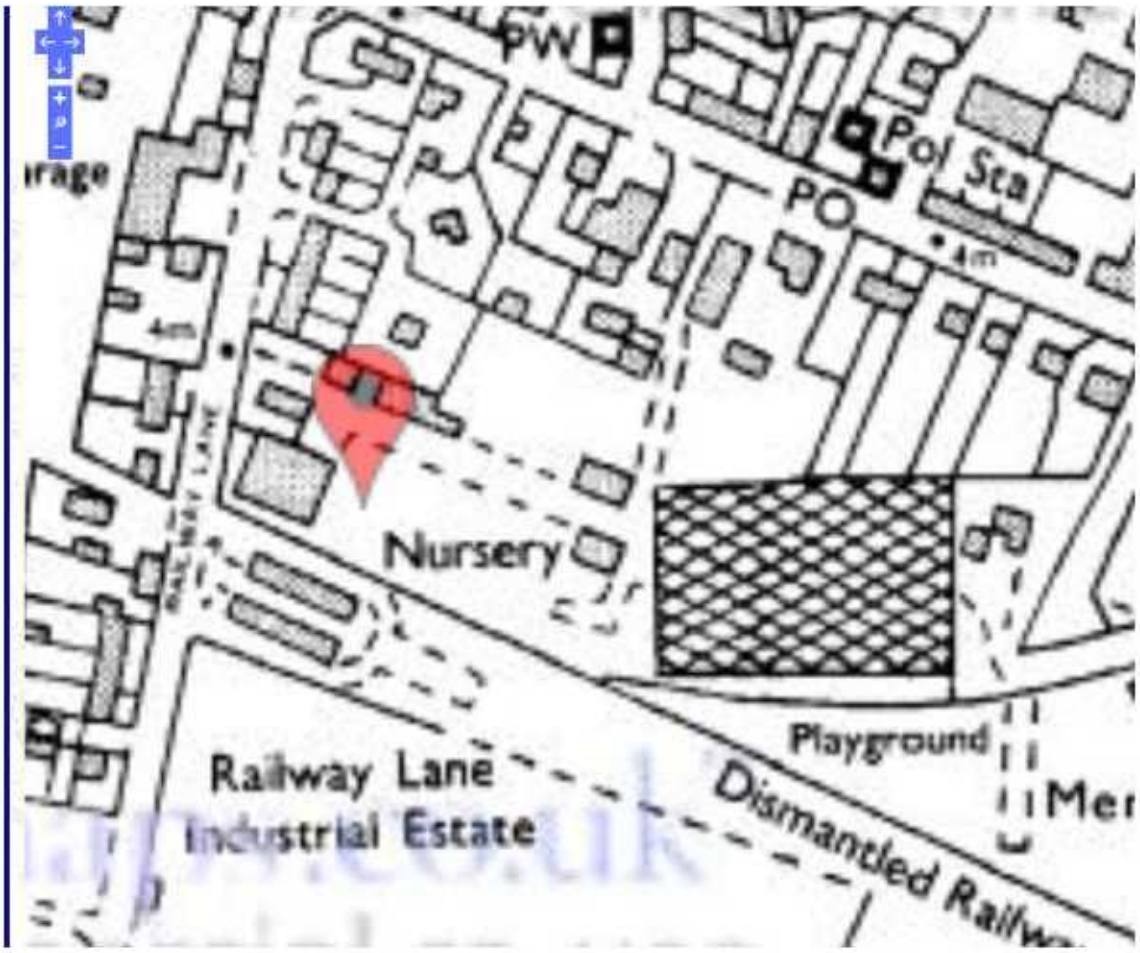
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APPENDIX B

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
Dense Greyey Brown Sandy Silt.			1700mm (900mm)						1.5m Below G.L. 100 Blows For 190mm Movement
Water Strike - Becoming Wetter With Depth. Greyey Brown Sandy Silt.			1800mm						1.8m Below G.L. 60 Blows For 300mm Movement
			1900mm						
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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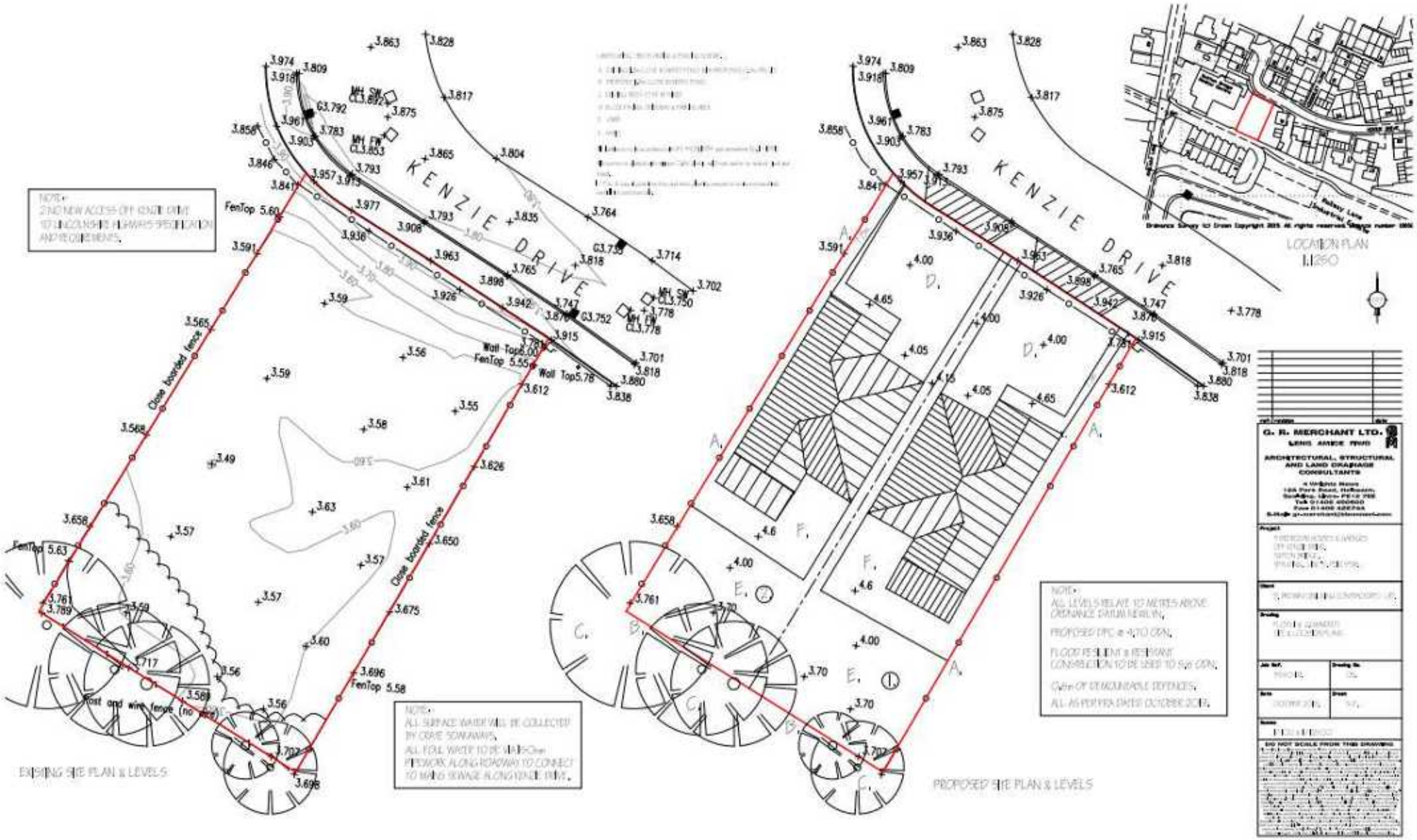
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APPENDIX G

Site Plan

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KENZIE DRIVE
Close boarded fence
Post and wire fence (no gate)
FenTop 5.60
FenTop 5.63
FenTop 5.58
Wall Top6.00
FenTop 5.55
Wall Top5.78
NOTE:
2 NO NEW ACCESS OFF KENZIE DRIVE
TO BE CONSTRUCTED TO HIGHWAYS SPECIFICATION
AND RECOMMENDATIONS.
NOTE:
ALL SURFACE WATER WILL BE COLLECTED
BY DRIVE SOAKAWAYS.
ALL FOUL WATER TO BE MAINS DRAINED
PIPEWORK ALONG ROADWAY TO CONNECT
TO MAIN SEWAGE ALONG KENZIE DRIVE.
NOTE:
ALL LEVELS RELATE TO METRES ABOVE
ORDNANCE DATUM NEWLYN.
PROPOSED DPC @ +4.70 OSN.
FLOOD RESILIENT & RESILIENT
CONSTRUCTION TO BE USED TO 5.20 OSN.
CODE OF DEMONSTRABLE DEFENCES.
ALL AS PER EA DATED OCTOBER 2019.
A.
B.
C.
D.
E. 1
E. 2
F.
LOCATION PLAN
1:1250
EXISTING SITE PLAN & LEVELS
PROPOSED SITE PLAN & LEVELS
G. R. MERCHANT LTD.
ARCHITECTURAL, STRUCTURAL
AND LAND DRAINAGE
CONSULTANTS
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