

Job Title: 17 Holmewood Close.

Job No:

Date:

Member/Location:

Sheet No:

1

Engineer:

Checked/Approved:

Revision:

Aim

To design beams for new opening in
Side wall to give access to the new
extension

Span = 2.9m.

Roof spans on to this wall

first floor spans parallel to wall.

Pitched Roof.
DL

tiles 0.7
Roofing 0.15

$$0.85 \times \frac{1}{\cos 30} = 0.98 \text{ kN/m}^2 \text{ on plan.}$$

LL

$$0.75 \text{ kN/m}^2$$

ceiling

p. board 0.2
Joists 0.2
0.4

$$0.4 \text{ kN/m}^2$$

LL

$$0.25 \text{ kN/m}^2$$

wall unit loading

inner leaf

$$2 \text{ kN/m}^2$$

outer leaf

$$2.25 \text{ kN/m}^2$$

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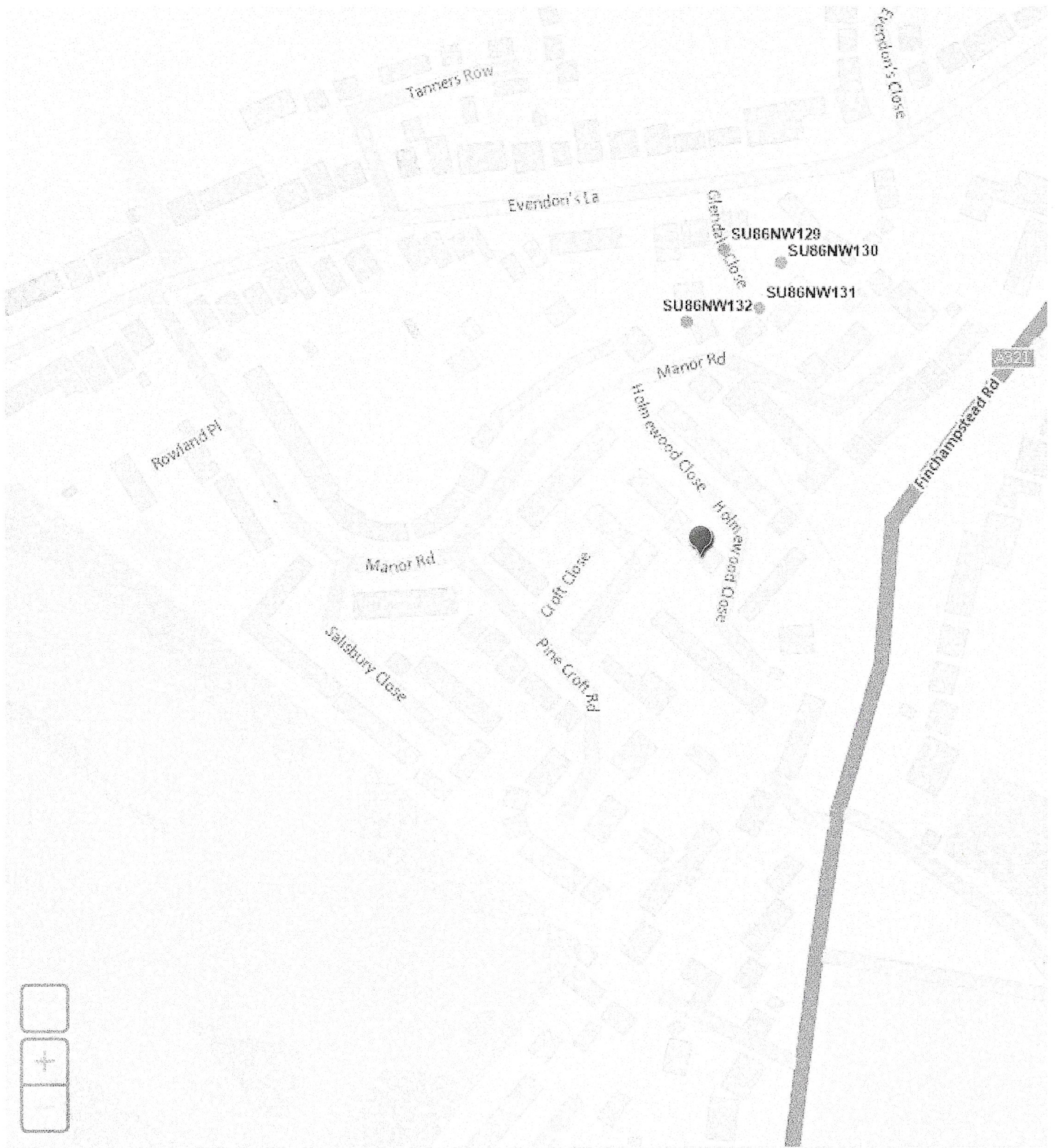
Revision:

Foundations

BGS records show a trial pit
approx 100m north of the site
showing layers of silty sand and
sandy clay over SAND

A hand auger was used on site
to investigate the ground conditions
and attained a depth of 1.7m. see
attached log.

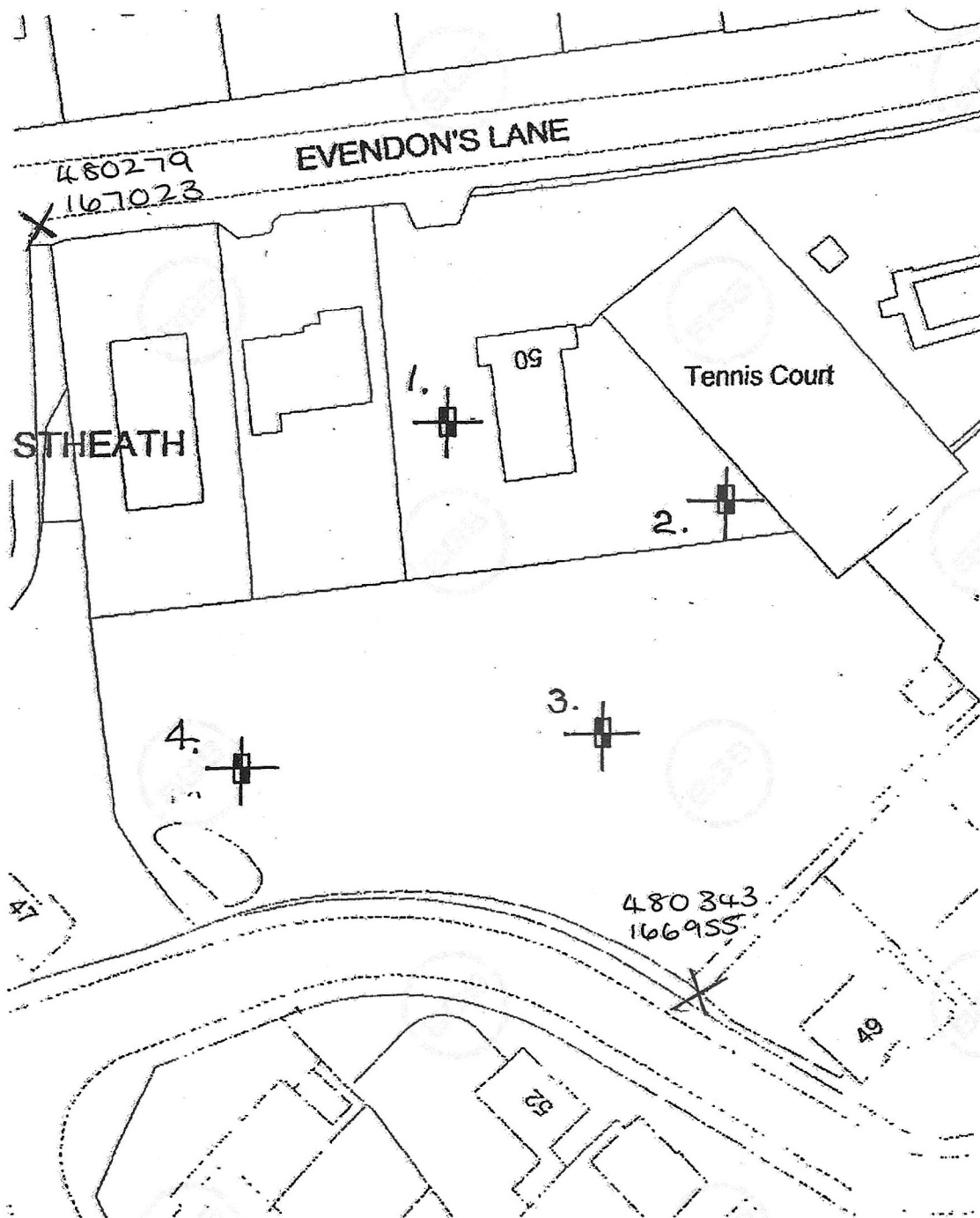
The foundations will be a piled
raft to minimise disturbance
of the soil to the roots of trees.





PAGE: 1	LOCATION	TRIALPIT LAYOUT
DATE: 21.11.97	EVENDONS LANE - WOKINGHAM	

TRIALPIT LAYOUT



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PAGE: 2		LOCATION					TRIALPIT	
DATE:21.11.97		EVENDDONS LANE - WOKINGHAM					1	
DESCRIPTION	RELIED	DEPTH	LEGEND	SAMPLE		THICKNESS	SPT	REMARKS
	LEVEL m	m		TYPE	DEPTH	m	N	
TOPSOIL		0.00	-X-X-X- 					

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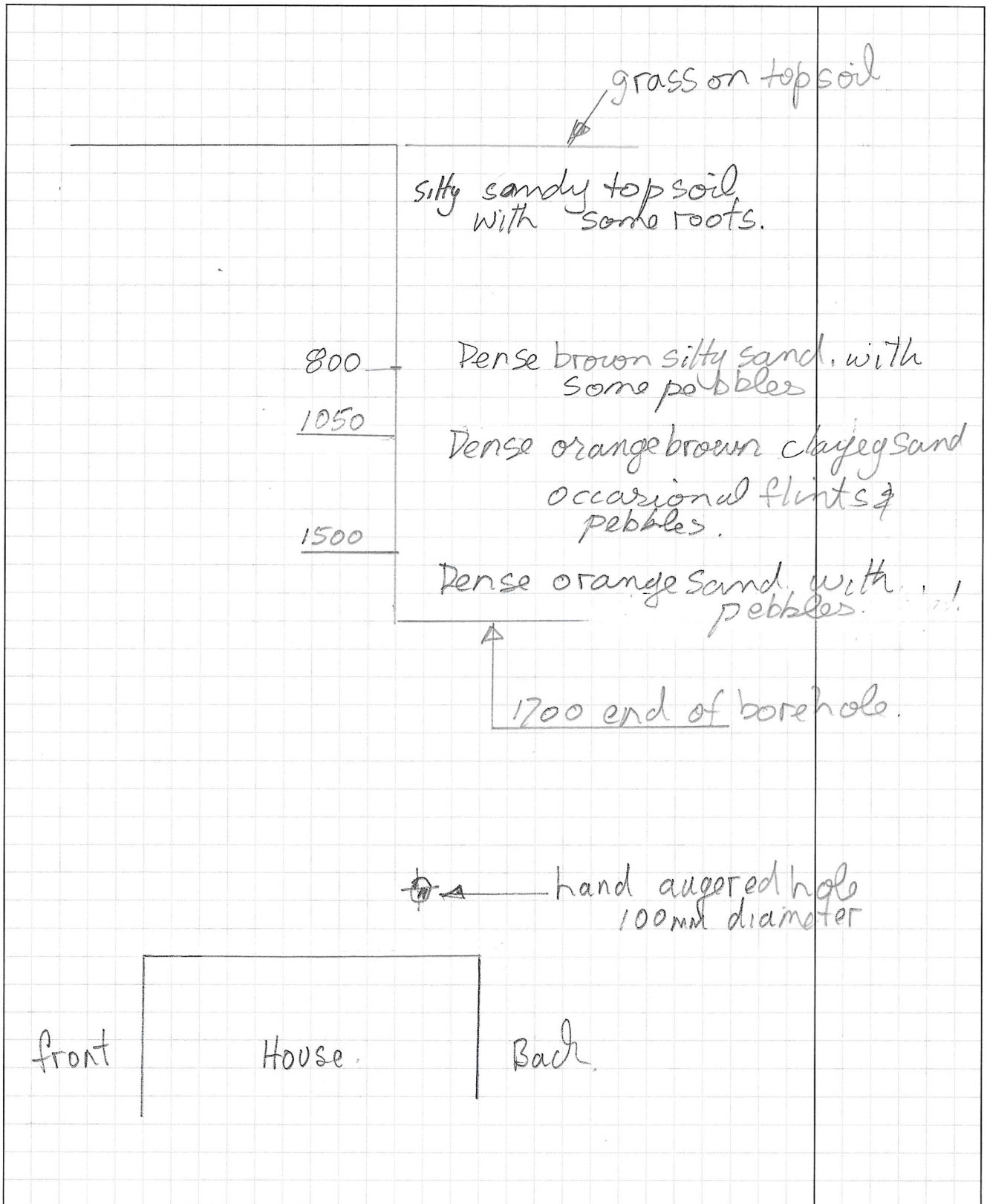
Member/Location: Log of hand augered borehole.

Sheet No: 7

Engineer:

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Member/Location: Sheet No: 8

Engineer: Checked/Approved: Revision:

Pilo loadings

Roof DL = 0.98 kN/m^2

LL = 0.75 kN/m^2
 1.75 kN/m^2

External Wall 4.25 kN/m^2

Ground floor slab.

imposed 1.5 kN/m^2

150 slab. 3.6 kN/m^2

screeed 1.8 kN/m^2

6.9 kN/m^2

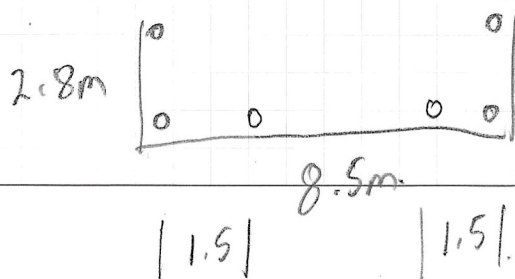
External foundation load

Roof $1.75 \text{ kN/m}^2 \times 1.4 \text{ m} = 2.5$

Wall. $4.25 \text{ kN/m}^2 \times 3.0 \text{ m} = 12.8$

Slab. $6.9 \text{ kN/m}^2 \times 1.4 \text{ m} = 9.7$

25.0 kN/m



$2.75 \times 25 = 70 \text{ kN}$

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Engineer: Checked/Approved: Revision:

Ground Beam design

Span = 2.6 m.

Load/m = 25 kN/m service load
x 1.5 = 37.5 kN/m ult.

Span/depth say 20.

$$\frac{2600}{20} = 130 \text{ mm.}$$

try 250

$$B.M = 37.5 \times \frac{2.6^2}{8} = 31.7 \text{ kNm.}$$

d = 200

$$\frac{M}{bd^2 f_m} = \frac{31.7 \times 10^6}{300 \times 200^2 \times 40} = 0.067.$$

 $\alpha_1 = 0.91$

$$A_s = \frac{31.7 \times 10^6}{0.87 \times 500 \times 0.91 \times 200} = 400 \text{ mm}^2.$$

2H16 402 mm²4H12 452 mm²

Shear

$$V = \frac{37.5 \times 2.75}{2} = 51.6 \text{ kN.}$$

$$\tau = \frac{51.6 \times 1000}{400 \times 200} = 0.65 \text{ N/mm}^2$$

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$$\frac{100 A_s}{b d}$$

$$= \frac{100 \times 452}{400 \times 200} = 0.565$$

$$\sigma_c = 0.72 \text{ N/mm}^2$$

Min links

$$A_{sv} = \frac{0.4 \times 400 \times 150}{0.87 \times 250}$$

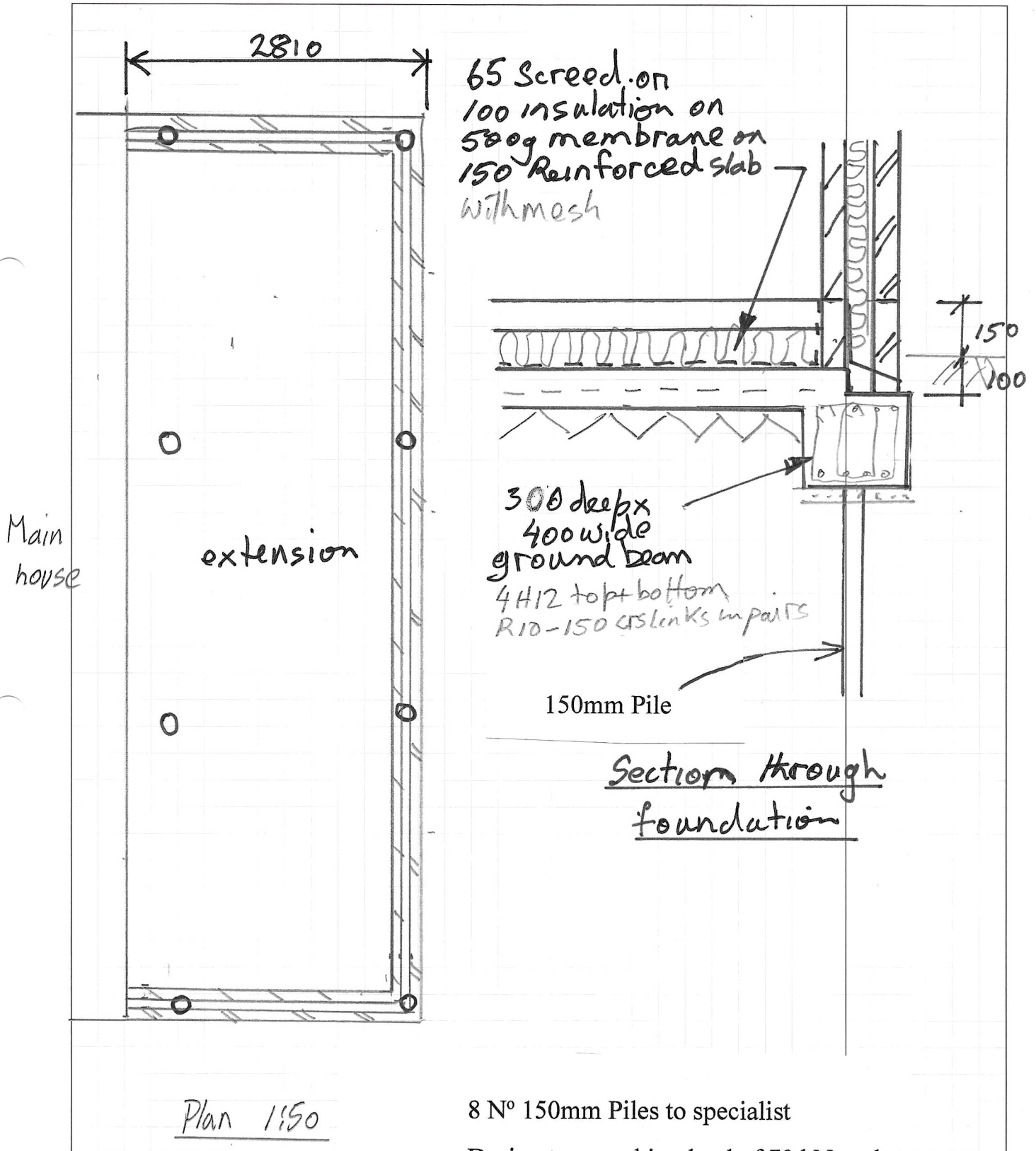
$$110 \text{ mm}^2$$

R# 4 legs 113

Job Title: 17 Holmewood close Job Title: Date:

Member/Location: Piled foundation Sheet No: SK10.

Engineer: Checked/Approved: Revision: B



8 N° 150mm Piles to specialist

Design to a working load of 70 kN each