



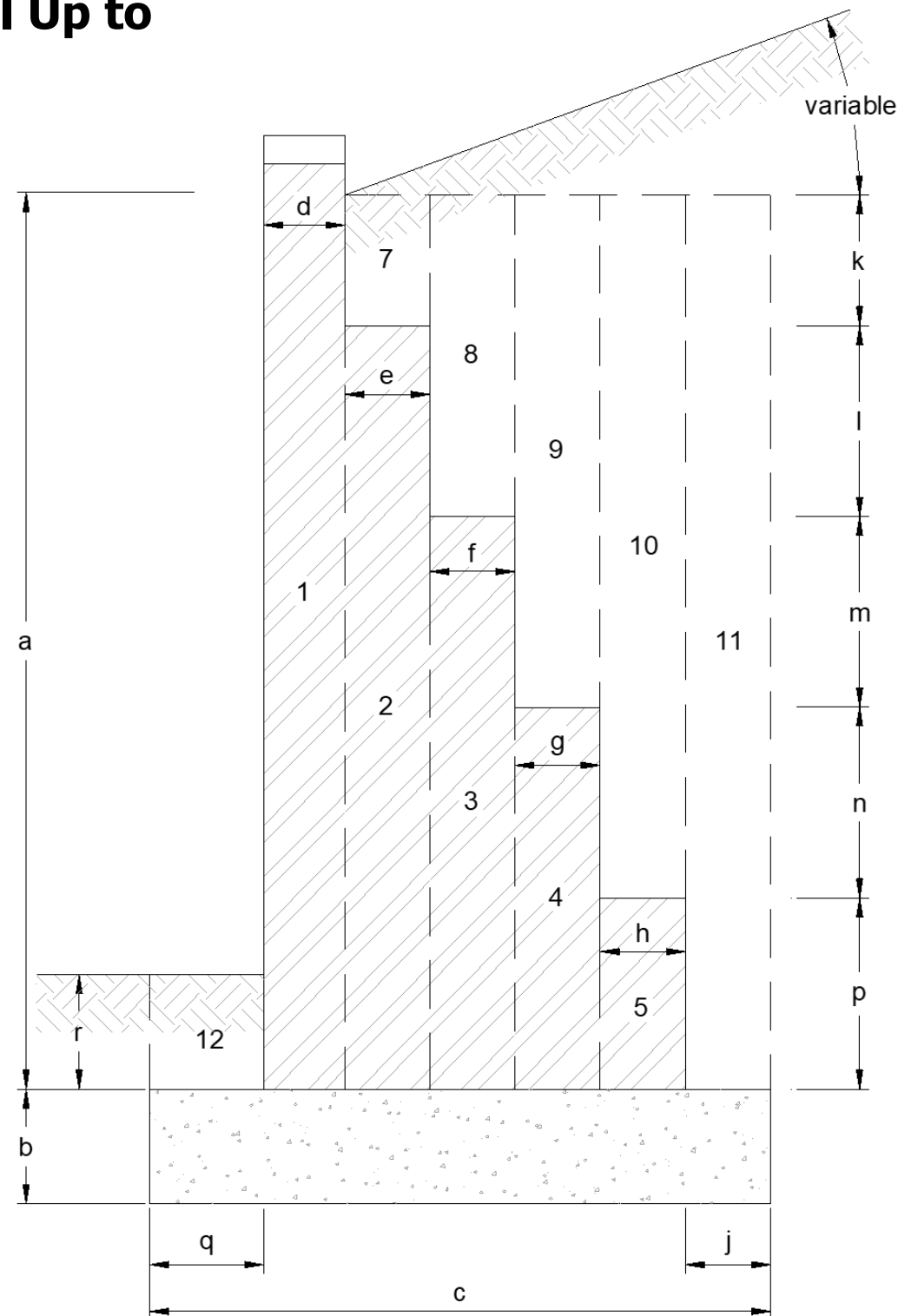
Unit 2, Chapel Barns, Merthyr Mawr,
Bridgend, CF32 0LS
Tel:- 01656 656267

Client:	Jehu Projects	Date Prepared:	April 2020
Project Title:	Coed Darcy, Phase 2	Prepared By:	GMcE
Project No:	2432	Date Revised:	
Sheet No:	1	Revision:	

Mass Masonry Retaining Wall Up to 1.20 m

Surcharge	=	10.00
Parapet	=	0.25
ka	=	0.27
Soil Int. Friction	=	35
Concrete	=	24
Brick/Block	=	16
Fill	=	18
Brick/Block - Fkx	=	0.25
Mat. Str. Factor	=	3.10

a	=	1.500 m
b	=	0.300 m
c	=	1.300 m
d	=	0.215 m
e	=	0.250 m
f	=	0.250 m
g	=	0.000 m
h	=	0.000 m
j	=	0.285 m
k	=	0.450 m
l	=	0.450 m
m	=	0.600 m
n	=	0.000 m
p	=	0.000 m
q	=	0.300 m
r	=	0.300 m



1	16	x	1.500	x	0.215	=	5.16	Kn	x	0.408	=	2.103	Kn
2	16	x	1.050	x	0.250	=	4.200	Kn	x	0.64	=	2.688	Kn
3	16	x	0.600	x	0.250	=	2.400	Kn	x	0.890	=	2.136	Kn
4	16	x	0.000	x	0.000	=	0	Kn	x	1.015	=	0.000	Kn
5	16	x	0.000	x	0.000	=	0.000	Kn	x	1.015	=	0.000	Kn
6	24	x	0.300	x	1.300	=	9.360	Kn	x	0.650	=	6.084	Kn
7	18	x	0.450	x	0.250	=	2.025	Kn	x	0.64	=	1.296	Kn
8	18	x	0.900	x	0.250	=	4.050	Kn	x	0.890	=	3.605	Kn
9	18	x	1.500	x	0.000	=	0	Kn	x	1.015	=	0.000	Kn
10	18	x	1.500	x	0.000	=	0.000	Kn	x	1.015	=	0.000	Kn
11	18	x	1.500	x	0.285	=	7.695	Kn	x	1.1575	=	8.907	Kn
12	18	x	0.300	x	0.300	=	1.62	Kn	x	0.15	=	0.243	Kn

Wall Mass = **36.51** Kn Rest' Mom = **27.061** Knm

Disturbing Forces

Pa	0.27	x	18	x	1.80	x	0.90	=	7.873	Kn	x	0.600	=	4.724	Kn
Ps	0.27	x	10.0	x	1.80			=	4.860	Kn	x	0.900	=	4.374	Kn
ph	0.25							=	0.250	Kn	x	2.300	=	0.575	Kn

Sliding = **12.983** Kn O/T Mom = **9.673** Knm

Check Overturning 27.061 / 9.673 = **2.798** **O.K**

Check Sliding
(tan 35° = 0.7) 25.557 / 12.983 = **1.968** **O.K**



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Check Bearing Pressures

Centre of Gravity = Restoring Moment / Mass
27.061 / 36.510 = 0.741 m

Distance 'X' = Disturbing Moment / Mass
9.673 / 36.510 = 0.265 m

F.La = 9.673

e = 0.265 - 0.091 = 0.174 m

L/6 = 0.217 m Within Middle Third, O.K

Bearing Stress

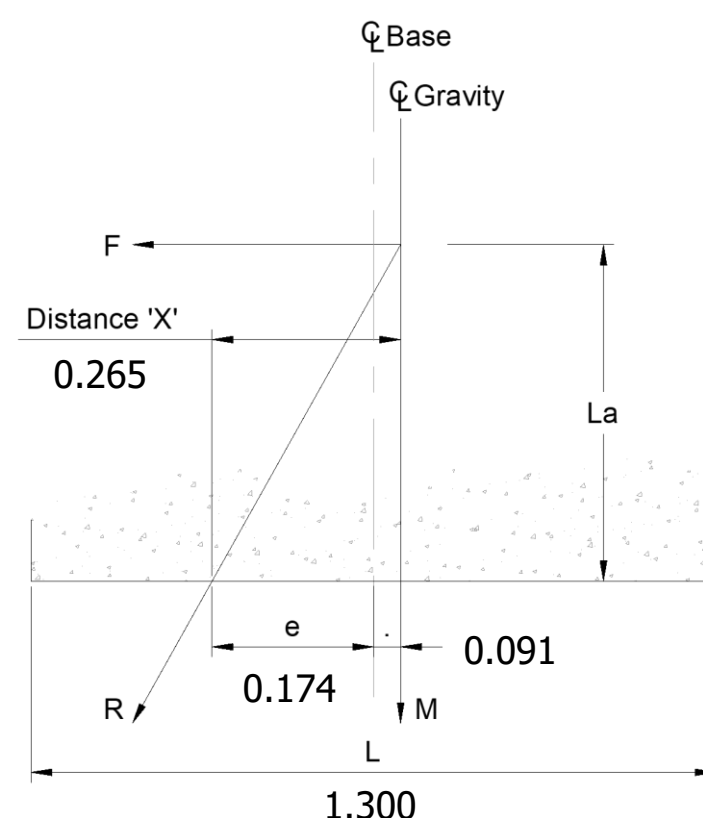
f = k.F / bl

k = 1.802 or 0.198

F = 36.510

b . L = 1.300

Bearing Stress, f = $\frac{50.605}{5.564}$ kn/m² (max) (min)



Check Section at Top of Base

Distubing Forces

Pa 0.270 x 18.000 x 1.500 x 0.750 = 5.468 x 0.500 = 2.734 Knm
Ps 0.270 x 10.000 x 1.500 = 4.050 x 0.750 = 3.038 Knm
Ph 0.250 = 0.250 x 2.000 = 0.500 Knm

Horizontal Force = 9.768 O/T Mom = 6.271 Knm

Applied design Moment = 6.271 x 1.400 = 8.780 Knm

Moment of Resistance of Masonry section (BS5628)

For Brickwork, Fkx = 0.250

Quality Factor, δm = 3.100

Gd = Design Vertical load / Area
17.835 / 0.715 = 0.025 n/mm²

Section Modulus = 1000 x 0.715 x 0.119 = 85.20 x 10⁶ mm²

Moment of Resistance = 8.784 Knm O.K