	Project				Job Ref.	
	37 Heath Drive London, NW3 7SD				2551	
	for				Sheet no./rev.	
William Attwell & Associates	TAISHI LTD					1
William Altwell & Associates	Calc. by	Date	Chk'd by	Date	App'd by	Date
	GA	31/05/2024	WCA	31/05/2024	WCA	31/05/2024



JOB NO. 2551

STRUCTURAL CALCULATIONS

FOR

VEERA GADDAM / TAISHI LTD

AT

37 HEATH DRIVE, LONDON, NW3 7SD

Version	Date	Made by	Checked by	Status
1.0	31.05.2024	GA	WCA	Current

This set of calculations is to be read in conjunction with all other current versions (if any).

	Project				Job Ref.		
VAA		37 Heath Drive London, NW3 7SD				2551	
	for	for			Sheet no./rev.		
William Attwell & Associates		TAIS	HI LTD		2		
William Allweir & Associates	Calc. by	Date	Chk'd by	Date	App'd by	Date	
	GA	31/05/2024	WCA	31/05/2024	WCA	31/05/2024	
- Project descript	tion			,	o.3		
 Project descript Loading data 	tion			p.3 p.4			
- Applied loading	data refei	rence			o.7		
- Concrete frame	reactions			1	o.14		

Goled Serbis

GABRIELE ANGELINI BEng (Hons) MSc ACIOB

hr. c. artural.

WILLIAM ATTWELL BEng(Hons) CEng FIStructE FCIOB FConsE

	Project				Job Ref.	
	37 Heath Drive London, NW3 7SD				2551	
	for				Sheet no./rev.	
William Attwell & Associates	TAISHI LTD					3
	Calc. by	Date	Chk'd by	Date	App'd by	Date
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Project description

Construction of a five-story residential building, including a one-level basement, is proposed. The building will have a concrete frame with generally 250 mm thick reinforced concrete (RC) slabs supported on concrete columns and a concrete core. The retaining wall along the basement footprint of the building, formed by a contiguous piled wall (designed by others), will support the perimeter columns. The basement is also designed as a raft supported on piles. Stability is provided by a combination of the lift core and columns.

The following preliminary analysis has been carried out for ground movement analysis purposes only.

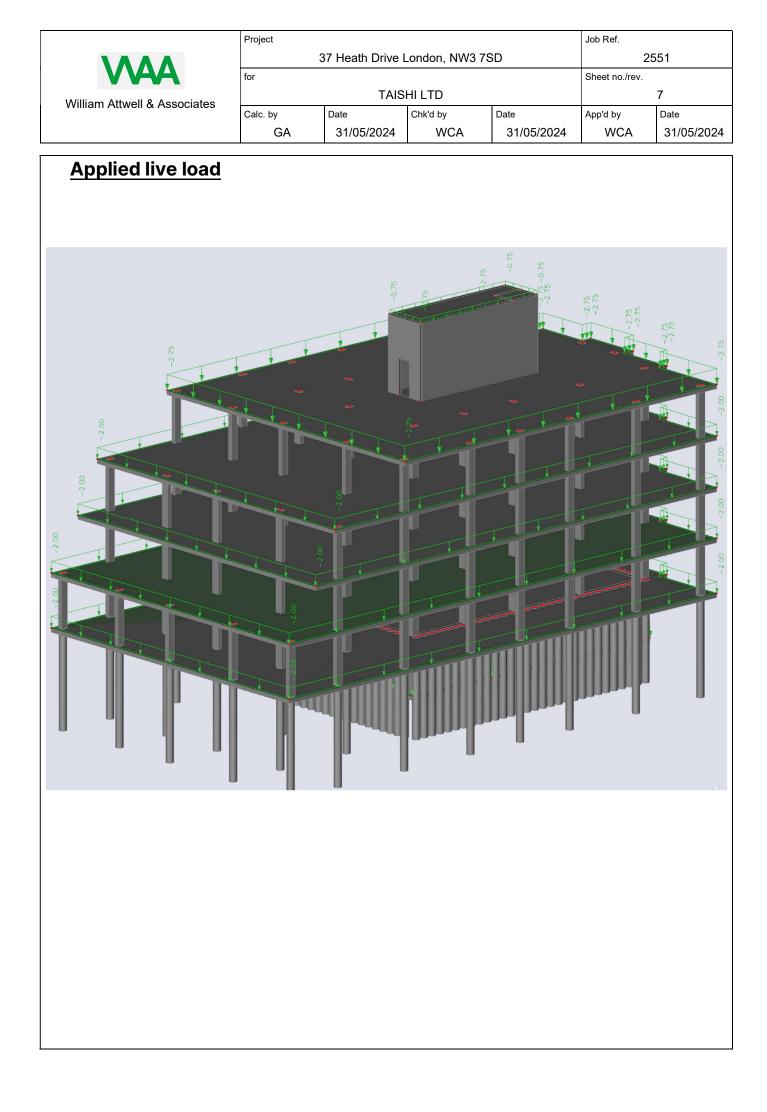
<image><caption>

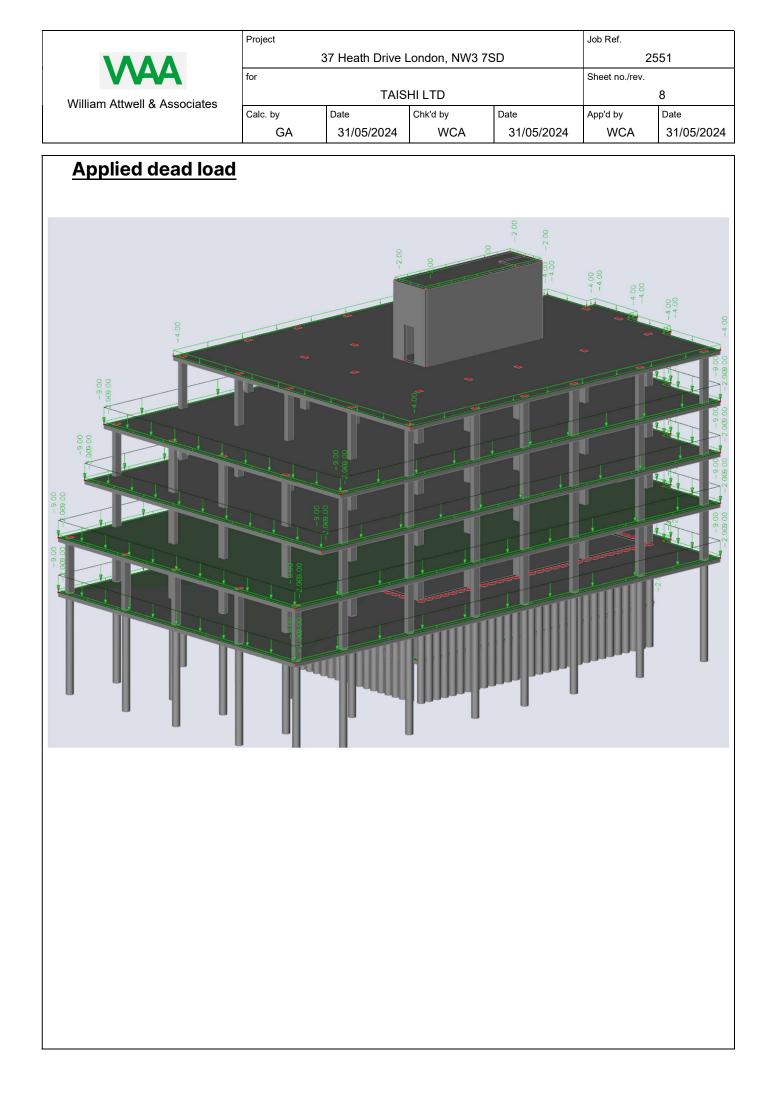
Scia engineering software has been used for the analysis and design of the structure.

	Project				Job Ref.		
\ΛΛΛ		37 Heath Drive	London, NW3	7SD		2551	
	for TAISHI LTD				Sheet no./rev. 4		
William Attwell & Associates	Calc. by	Date					
	GA	Date 31/05/2024	Chk'd by WCA	31/05/2024	WCA	31/05/2024	
				I			
		Load	ing				
Roof							
Dead Load							
	Clay	tilos		0.50			
	City	1103		0.50			
				0.05			
	Insul	ation		0.05			
	Vap	our control	layer	0.05			
	18mi	m plywooc	l/osb	0.15			
	Timb	er rafters		0.25			
		orranois		0.20			
	Caili		~	0.15			
	Ceili	ng & servic	es	0.15			
	Total	(on slope)		<u>1.20 KI</u>	N/m^2		
	10101		,	<u>1,20 M</u>			
	1	امعط			NI /		
	LIVE	Load		<u>0.60 KI</u>	<u>n/m²</u>		

	Project				Job Ref.			
λαλ	for	37 Heath Drive	Sheet no./rev.	2551				
William Attwell & Associates		TAIS	HI LTD		oneer no./rev.	5		
William Allweir & Associates	Calc. by	Date	Chk'd by	Date	App'd by WCA	Date		
	GA	31/05/2024	WCA	31/05/2024	WCA	31/05/2024		
Upper levels								
Dead Load (excludin	g SW of sla	b)						
	Fini	shes		0.10				
	60n	nm cement	screed	1.20				
	0			0.10				
	3m	m acoustic r	membrane	0.10				
	Insi	ulation		0.05				
	11130	Insulation						
	12.5	12.5mm ceiling/services						
	Tote	Total			<u>N/m2</u>			
	Live	e load + Part	itions	<u>2.00 KI</u>	<u>N/m2</u>			
	15.4			2 00 KI	Al /ma 0			
	LIVE	e load (com	munai)	<u>3.00 KI</u>	<u>v/mz</u>			
Deserventional								
Basement level		1- 1						
Dead Load (excludin	g Svv of sid	D)						
	Fini	shes		0.20				
	60n	60mm cement screed			1.20			
	Insi	Insulation						
		12.5mm ceiling/services		0.05 0.30				
	Tot				N/m2			
				<u>1.75 KN/m2</u>				
		e load + Part		<u>3.00 KI</u>				

	Project	37 Heath Drive	London, NW3	7SD	Job Ref.	2551	
VAA	for					Sheet no./rev.	
William Attwell & Associates					6		
	Calc. by GA	Date 31/05/2024	Chk'd by WCA	Date 31/05/2024	App'd by WCA	Date 31/05/202	
Basement level (st	orage / p	lant room)				
Dead Load (excludin	g SW of sla	b)					
	Fini	shes		0.20			
	60n	nm cement	screed	1.20			
	Insu	llation		0.05			
	12.5mm ceiling/services			0.30			
	Tote	Total <u>1</u>			<u>75 KN/m2</u>		
	Live	load		<u>7.50 / 3</u>	<u>3.00 KN/n</u>	<u>n2</u>	
External walls							
Dead Load	Bric	kwork			2.10	C	
	Cladding frame system			0.25			
	Insulation			0.0	5		
	12.5	12.5 cement board/vapour layer				C	
	2No	2No 12.5 Gypsum plasterboard			0.1	5	
	Toto	ıl			<u>2.</u> 7	<u>5 kN/m2</u>	
		3.25m				0 kN/m	





	Project				Job Ref.		
		37 Heath Drive	London, NW3	7SD	2	2551	
VAA	for				Sheet no./rev.		
William Attwell & Associates		TAIS	SHI LTD			9	
William Allweir & Associates	Calc. by	Date	Chk'd by	Date	App'd by	Date	
	GA	31/05/2024	WCA	31/05/2024	WCA	31/05/202	
Applied wind load	1						
Applied wind load	<u>1</u>						
Applied wind load	<u>1</u>		0				

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	Project				Job Ref.	
	37 Heath Drive London, NW3 7SD				2551	
	for				Sheet no./rev.	
William Attwell & Associates	TAISHI LTD					10
	Calc. by	Date	Chk'd by	Date	App'd by	Date
	GA	31/05/2024	WCA	31/05/2024	WCA	31/05/2024

1. 3D wind generator data

Code references

National annex	Standard EN
Base code	EN 1991-1-4:2005-04
Correction sheets / Addenda	EN 1991-1-4:2005/AC:2010-01

Wind pressure according to EC1

V_b,0 - basic wind velocity [m/s]	26.200
ro - air density [kg/m ³]	1.3
c_dir - directional factor	1
c_season - season factor	1
c_o - orography factor	1
1/p - life period of the building [year]	50.00
c_prob - probability factor	1
K - shape factor	0.2
n - exponent	0.5
terrain category	0
Kr - terrain factor	0.156036
z_0 - roughness length [m]	0.003
z_min - minimal height [m]	1.000
k_I - turbulence factor	1
Type of the structure	Vertical walls or rectangular buildings (EC1-1-4, 7.2.2)
Reference level of terrain [m]	0.000
Correlation between zones D and E	x

Wind data

Name	Туре	Roof type	Roof overhangs	Swap outer surface
WD1	Wall	1		x
WD2	Wall			×
WD3	Wall			×
WD4	Wall			×
WD5	Wall			×
WD6	Wall			×
WD7	Wall			×
WD8	Wall			×
WD9	Wall			×
WD10	Wall			×
WD11	Wall			×
WD12	Roof	Monopitch	No	×
WD13	Roof	Monopitch	No	x
WD14	Roof	Monopitch	No	×
WD15	Roof	Monopitch	No	×

Name	Load direction	+Cpi	-Cpi	Region	Zones	+Cpe	-Cpe
WD1	0	0.2000	-0.3000	1	A	-1.2000	-1.2000
	2	0.0000000000000000000000000000000000000	10341395359	2	В	-0.8000	-0.8000
				3	C	-0.5000	-0.5000
				4	A	-1.2000	-1.2000
				5	В	-0.8000	-0.8000
				6	С	-0.5000	-0.5000
				7	A	-1.2000	-1.2000
				8	В	-0.8000	-0.8000
				9	C	-0.5000	-0.5000
				10	A	-1.2000	-1.2000
				11	В	-0.8000	-0.8000
				12	C	-0.5000	-0.5000
	90	0.2000	-0.3000	1	D	0.7789	0.7789
				2	D	0.7789	0.7789
				3	D	0.7789	0.7789
				4	D	0.7789	0.7789
	180	0.2000	-0.3000	1	A	-1.2000	-1.2000
				2	В	-0.8000	-0.8000
				3	C	-0.5000	-0.5000
				4	A	-1.2000	-1.2000
				5	В	-0.8000	-0.8000
				6	C	-0.5000	-0.5000
				7	A	-1.2000	-1.2000
				8	В	-0.8000	-0.8000
				9	C	-0.5000	-0.5000
				10	A	-1.2000	-1.2000
				11	В	-0.8000	-0.8000
				12	С	-0.5000	-0.5000
	270	0.2000	-0.3000	1	E	-0.4579	-0.4579
	079230	1.01000324034	100000000000000000000000000000000000000	2	E	-0.4579	-0.4579
				3	E	-0.4579	-0.4579
				4	E	-0.4579	-0.4579
ND2	0	0.2000	-0.3000	1	D	0.7000	0.7000

	Project		Job Ref.			
	3	2551				
	for		Sheet no./rev.			
William Attwell & Associates		TAIS	11			
	Calc. by	Date	Chk'd by	Date	App'd by	Date
	GA	31/05/2024	WCA	31/05/2024	WCA	31/05/2024

Name		+Cpi	-Cpi	Region	Zones	+Cpe	-Cpe
	90	0.2000	-0.3000	1	A	-1.2000	-1.2000
				2	В	-0.8000	-0.8000
				3	С	-0.5000	-0.5000
	180	0.2000	-0.3000	1	E	-0.3000	-0.3000
	270	0.2000	-0.3000	1	A	-1.2000	-1.2000
	2/0	0.2000	-0.3000		2.2		
				2	В	-0.8000	-0.8000
				3	С	-0.5000	-0.5000
WD3	0	0.2000	-0.3000	1	D	0.7000	0.7000
	90	0.2000	-0.3000	1	A	-1.2000	-1.2000
				2	В	-0.8000	-0.8000
				3	c	-0.5000	-0.5000
	180	0.2000	-0.3000	1	E	-0.3000	-0.3000
					1.11		
	270	0.2000	-0.3000	1	A	-1.2000	-1.2000
				2	В	-0.8000	-0.8000
				3	C	-0.5000	-0.5000
WD4	0	0.2000	-0.3000	1	D	0.7000	0.7000
	90	0.2000	-0.3000	1	A	-1.2000	-1.2000
				2	в	-0.8000	-0.8000
				3	C		
	100	0.0000	0.0000			-0.5000	-0.5000
	180	0.2000	-0.3000	1	E	-0.3000	-0.3000
	270	0.2000	-0.3000	1	A	-1.2000	-1.2000
				2	В	-0.8000	-0.8000
				3	С	-0.5000	-0.5000
WD5	0	0.2000	-0.3000	1	D	0.7609	0.7609
	90	0.2000	-0.3000	1	A	-1.2000	-1.2000
		0.2000	0.5000		2.0		
				2	B	-0.8000	-0.8000
				3	C	-0.5000	-0.5000
	180	0.2000	-0.3000	1	E	-0.4217	-0.4217
	270	0.2000	-0.3000	1	A	-1.2000	-1.2000
	0.0020	10400.000003	10.041333.067	2	В	-0.8000	-0.8000
				3	c	-0.5000	-0.5000
WD6	0	0.2000	-0.3000	1	A	-1.2000	-1.2000
1100	0	0.2000	-0.3000				
				2	В	-0.8000	-0.8000
				3	С	-0.5000	-0.5000
		1		4	A	-1.2000	-1.2000
				5	В	-0.8000	-0.8000
		1		6	С	-0.5000	-0.5000
				7	A	-1.2000	-1.2000
		1		8	в	-0.8000	-0.8000
					-		
				9	C	-0.5000	-0.5000
		1		10	A	-1.2000	-1.2000
				11	В	-0.8000	-0.8000
	1999 - Carlo I.			12	C	-0.5000	-0.5000
	90	0.2000	-0.3000	1	E	-0.4579	-0.4579
	-			2	E	-0.4579	-0.4579
		1		3	E	-0.4579	-0.4579
					-		
	100			4	E	-0.4579	-0.4579
	180	0.2000	-0.3000	1	A	-1.2000	-1.2000
		1		2	В	-0.8000	-0.8000
		1		3	С	-0.5000	-0.5000
				4	A	-1.2000	-1.2000
		1		5	в	-0.8000	-0.8000
				6			
		1			C	-0.5000	-0.5000
		1		7	A	-1.2000	-1.2000
				8	В	-0.8000	-0.8000
		1		9	C	-0.5000	-0.5000
				10	A	-1.2000	-1.2000
		1		11	В	-0.8000	-0.8000
				12	c	-0.5000	-0.5000
	270	0.2000	0 2000	12.5			And the second second
	270	0.2000	-0.3000	1	D	0.7789	0.7789
				2	D	0.7789	0.7789
		1		3	D	0.7789	0.7789
				4	D	0.7789	0.7789
WD7	0	0.2000	-0.3000	1	E	-0.3708	-0.3708
	1 ²	0.2000	0.0000	2	E	-0.3798	-0.3798
		1					
				3	E	-0.3873	-0.3873
				4	E	-0.4217	-0.4217
	90	0.2000	-0.3000	1	A	-1.2000	-1.2000
	10.00		0.0000000000000000000000000000000000000	2	A	-1.2000	-1.2000
				3	A	-1.2000	-1.2000
		1			220		
				4	A	-1.2000	-1.2000
	180	0.2000	-0.3000	1	D	0.7354	0.7354
	100 m 200	1000000000000	5859-655929K	2	D	0.7399	0.7399
		1		3	D	0.7436	0.7436
				4	212		
	1	1	1	1.5	D	0.7609	0.7609
	0.70					1 2000	
	270	0.2000	-0.3000	1 2	A	-1.2000	-1.2000

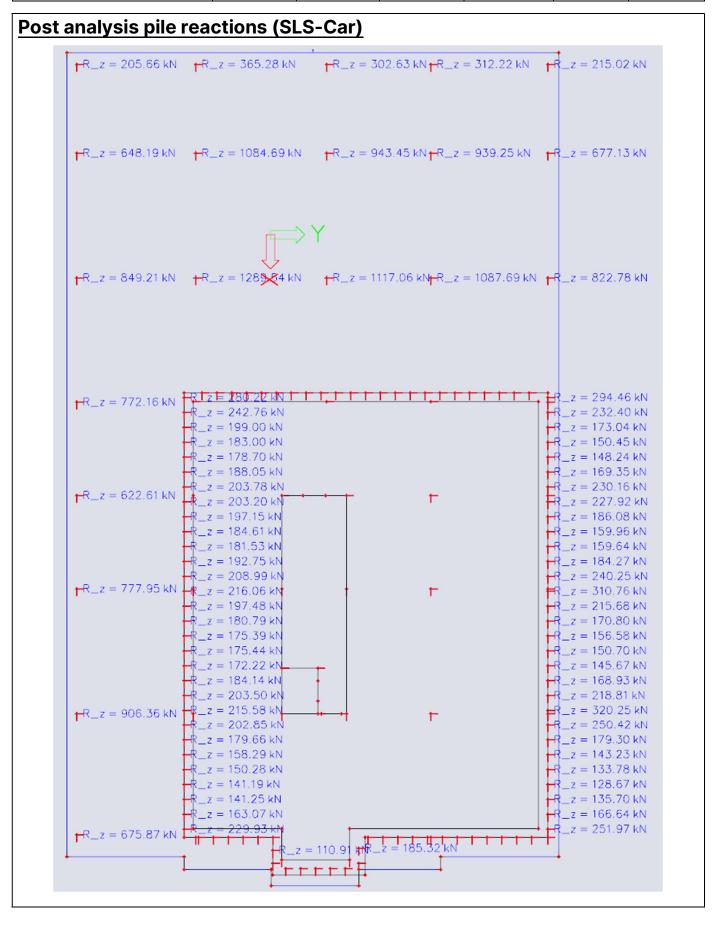
Project				Job Ref.	
3	37 Heath Drive I	2551			
for				Sheet no./rev.	
	TAIS	12			
Calc. by	Date	Chk'd by	Date	App'd by	Date
GA	31/05/2024	WCA	31/05/2024	WCA	31/05/2024
	for Calc. by	37 Heath Drive L for TAIS Calc. by Date	37 Heath Drive London, NW3 75 for TAISHI LTD Calc. by Date Chk'd by	37 Heath Drive London, NW3 7SD for TAISHI LTD Calc. by Date Chk'd by Date	37 Heath Drive London, NW3 7SD 25 for Sheet no./rev. TAISHI LTD Calc. by Date Chk'd by Date App'd by

Name	Load direction	+Cpi	-Cpi	Region	Zones	+Cpe	-Cpe
				3	A	-1.2000	-1.2000
				4	A	-1.2000	-1.2000
WD8	0	0.2000	-0.3000	1	E	-0.7000	-0.7000
1000000	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -			2	E	-0.7000	-0.7000
				3	E	-0.7000	-0.7000
				4	E	-0.7000	-0.7000
	90	0.2000	-0.3000	1	С	-0.5000	-0.5000
				2	С	-0.5000	-0.5000
				3	С	-0.5000	-0.5000
				4	c	-0.5000	-0.5000
	180	0.2000	-0.3000	1	D	0.8000	0.8000
	160	0.2000	-0.3000		C2-2		
				2	D	0.8000	0.8000
				3	D	0.8000	0.8000
				4	D	0.8000	0.8000
	270	0.2000	-0.3000	1	C	-0.5000	-0.5000
	210303	100000000000	1105000055	2	С	-0.5000	-0.5000
				3	c	-0.5000	-0.5000
				4	С	-0.5000	-0.5000
WD9	0	0.2000	-0.3000	1	E	-0.7000	-0.7000
				2	E	-0.7000	-0.7000
				3	E	-0.7000	-0.7000
				4	E	-0.7000	-0.7000
	00	0 2000	-0 3000		c		-0.5000
	90	0.2000	-0.3000	1		-0.5000	
				2	С	-0.5000	-0.5000
				3	C	-0.5000	-0.5000
				4	C	-0.5000	-0.5000
	180	0.2000	-0.3000	1	D	0.8000	0.8000
	100	0.2000	0.5000		-		
				2	D	0.8000	0.8000
				3	D	0.8000	0.8000
				4	D	0.8000	0.8000
	270	0.2000	-0.3000	1	С	-0.5000	-0.5000
				2	c	-0.5000	-0.5000
						0.0000000000000000000000000000000000000	
				3	С	-0.5000	-0.5000
				4	С	-0.5000	-0.5000
WD10	0	0.2000	-0.3000	1	E	-0.7000	-0.7000
				2	E	-0.7000	-0.7000
				3	E	-0.7000	-0.7000
		0.000	0.000	4	E	-0.7000	-0.7000
	90	0.2000	-0.3000	1	C	-0.5000	-0.5000
				2	С	-0.5000	-0.5000
				3	C	-0.5000	-0.5000
				4	c	-0.5000	-0.5000
	190	0.0000	0 2000	1.2			
	180	0.2000	-0.3000	1	D	0.8000	0.8000
				2	D	0.8000	0.8000
				3	D	0.8000	0.8000
				4	D	0.8000	0.8000
	270	0.2000	-0.3000	1	C	-0.5000	-0.5000
		0.2000	0.5000				
				2	C	-0.5000	-0.5000
				3	С	-0.5000	-0.5000
				4	С	-0.5000	-0.5000
WD11	0	0.2000	-0.3000	1	E	-0.3708	-0.3708
1012103	13			2	E	-0.3798	-0.3798
				3	E		-0.3873
						-0.3873	
			10000	4	E	-0.4217	-0.4217
	90	0.2000	-0.3000	1	A	-1.2000	-1.2000
				2	A	-1.2000	-1.2000
				3	A	-1.2000	-1.2000
				4	A	-1.2000	-1.2000
				5	1000		
					В	-0.8000	-0.8000
	180	0.2000	-0.3000	1	D	0.7354	0.7354
				2	D	0.7399	0.7399
				3	D	0.7436	0.7436
				4	D	0.7609	0.7609
	270	0 2000	0.2000		5.		
	270	0.2000	-0.3000	1	A	-1.2000	-1.2000
				2	A	-1.2000	-1.2000
				3	A	-1.2000	-1.2000
				4	A	-1.2000	-1.2000
				5	в		
		0.0000	0.0000			-0.8000	-0.8000
WD12	0	0.2000	-0.3000	1	Fup	-2.1440	-2.1440
			1000000000	2	н	-0.9707	-0.9707
				3	I	-0.7853	-0.7853
	90	0.2000	-0.3000	1	F2	-1.3053	-1.3053
	50	0.2000	-0.3000				
				2	G	-0.8733	-0.8733
				3	н	-0.8147	-0.8147
	180	0.2000	-0.3000	1	Fup	-2.1440	-2.1440
	0.000.00			2	Н	-0.9707	-0.9707
		1	1				
		1		3	I	-0.7853	-0.7853

	Project		Job Ref.			
	3	87 Heath Drive L	2551			
	for		Sheet no./rev.			
William Attwell & Associates		TAIS	13			
	Calc. by	Date	Chk'd by	Date	App'd by	Date
	GA	31/05/2024	WCA	31/05/2024	WCA	31/05/2024

Name	Load direction	+Cpi	-Cpi	Region	Zones	+Cpe	-Cpe
	270	0.2000	-0.3000	1	F1	0.6267	-0.5587
				2	F2	0.6267	-0.5587
				3	G	0.6267	-0.5440
				4	н	0.3707	-0.2147
WD13	0	0.2000	-0.3000	1	F1	0.5797	-0.5963
				2	F2	0.5797	-0.5963
				3	G	0.5797	-0.5722
				4	н	0.3519	-0.2241
	90	0.2000	-0.3000	1	Fup	-2.1722	-2.172
				2	н	-0.9519	-0.9519
				3	I	-0.7759	-0.7759
	180	0.2000	-0.3000	1	G	-0.9203	-0.9203
				2	н	-0.8241	-0.8241
	270	0.2000	-0.3000	1	Fup	-2.1722	-2.1722
	120023	0.0000000000	100000000000000000000000000000000000000	2	н	-0.9519	-0.9519
				3	I	-0.7759	-0.775
WD14	0	0.2000	-0.3000	1	Fup	-2.1500	-2.150
	100.0	1000000000000		2	н	-0.9667	-0.966
				3	I	-0.7833	-0.783
	90	0.2000	-0.3000	1	F1	0.6167	-0.566
				2	F2	0.6167	-0.566
				3	G	0.6167	-0.550
				4	н	0.3667	-0.216
	180	0.2000	-0.3000	1	Fup	-2.1500	-2.1500
				2	н	-0.9667	-0.966
				3	I	-0.7833	-0.783
	270	0.2000	-0.3000	1	F1	-1.3333	-1.333
				2	G	-0.8833	-0.883
				3	H	-0.8167	-0.816
WD15	0	0.2000	-0.3000	1	G	-0.6396	-0.639
				2	н	-0.7465	-0.746
	90	0.2000	-0.3000	1	Fup	-1.7792	-1.779
	5.0			2	н	-1.0000	-1.0000
				3	I	-0.8535	-0.853
	180	0.2000	-0.3000	1	- F1	0.7000	-0.232
				2	F2	0.7000	-0.2327
				3	G	0.7000	-0.2327
				4	н	0.5069	-0.093
	270	0.2000	-0.3000	1	Fup	-1.7792	-1.7792
		0.2000	0.0000	2	н	-1.0000	-1.0000
				3	т	-0.8535	-0.853

	Project				Job Ref.		
	3	87 Heath Drive L	2551				
VVVA	for		Sheet no./rev.				
William Attwell & Associates	TAISHI LTD				14		
	Calc. by	Date	Chk'd by	Date	App'd by	Date	
	GA	31/05/2024	WCA	31/05/2024	WCA	31/05/2024	



ναδ	Project	37 Heath Drive L	Job Ref. 2551 Sheet no./rev.			
William Attwell & Associates	TAISHI		HI LTD Chk'd by Date		App'd by	15 Date
	GA GA	31/05/2024	WCA	31/05/2024	WCA	31/05/2024
F	٢	, t	-	F	F	
F	F	т		F	۲	
F	280.22 kN 256.07 kN T 205.63 kN 180.98 kN	69.50 kN 77.15 kN 85.98 kN 10.78 kN	32.24 kN 22.35 kN 08.83 kN 13.99 kN 38.75 kN	61 66 79 73 73 73	54 74 46 k	
F	R_z = 28	R_z = 1 R_z = 1 R_z = 1 R_z = 1 R_z = 1 R_z = 1 R_z = 2 R_z = 2 R_z = 2 R_z = 2 R_z = 1 R_z =				
T			—	F		
F		T	T	F		
F	8 kN 8 kN 8 kN 8 kN	T KN	0 kN 7 kN 86 kN 85 kN	2 KN 2 KN 2 KN 2 KN 2 KN 2 KN 2 KN 2 KN	5 kN 52 kN 1 1 1 1 1	
F	R_z = 297.59 kN R_z = 191.48 kN R_z = 146.57 kN	→ K_Z = 1.54.3 → A + A + A 159.0086M → K_Z = 160.89 kN → R_Z = 151.96 kN → R_Z = 151.96 kN		R_z = 308.22 kN R_z = 308.22 kN R_z = 149.92 kN R_z = 149.92 kN R_z = 139.29 kN	R_Z = 140.27 kW R_Z = 155.05 kN R_Z = 209.82 kN	