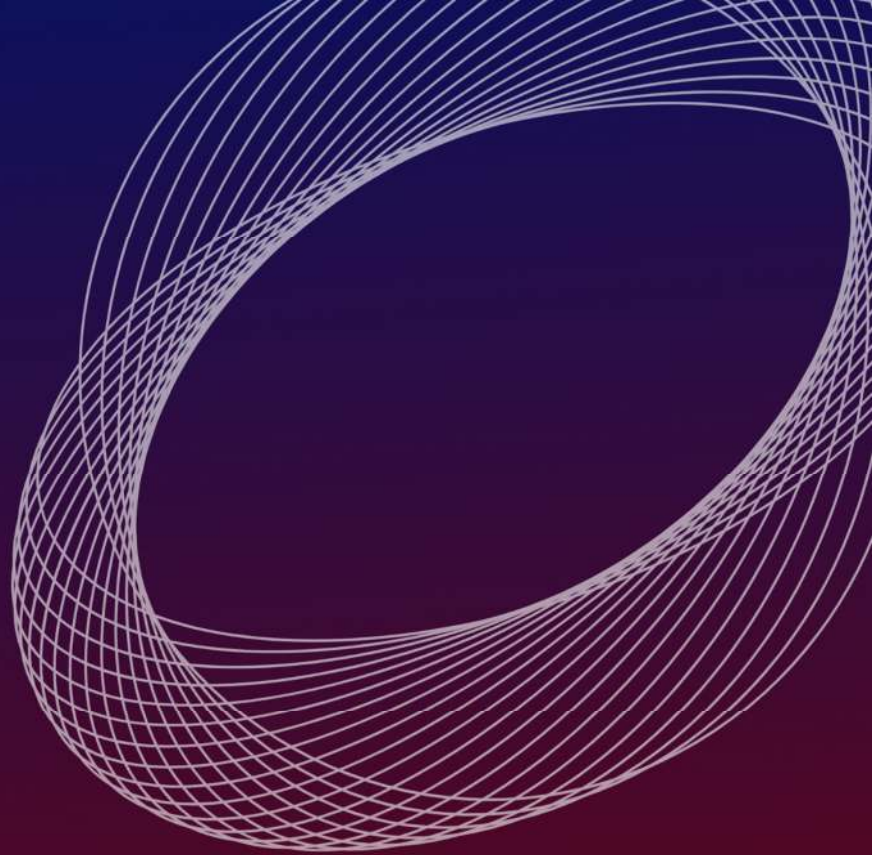




Opening to Kitchen/Dining Room

Structural Calculations Package

45 Henry Street
Reading
RG1 2NW

Dane Kramberger

Our Ref: P1863

Designed By: FO

Checked By: FO

09/05/2023

Issue: 1.1

DISCLAIMER

Private and Confidential – This report has been prepared as per the instruction stated in the quotation solely for the confidential use of the above-mentioned client and on the condition that the client accepts the terms stated in the quotation.

This report has been created with only our client's interests in mind and is not suitable for any other purpose. This report can only be passed to third parties for inspection and acknowledgement purposes. Any person that gains access to and chooses to rely upon this report (including for the avoidance of any doubt any agents of our client with whom we have not specifically engaged) does so at his/her own risk and without recourse to PIBOB CONSULTING LTD.

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1. BASIS OF STRUCTURAL DESIGN

All design has been carried out in accordance with the current British Standards (Eurocodes):

- ❖ BS EN 1990:2002 Eurocode 1: Basis of Structural Design.
- ❖ BS EN 1991-1-1:2002 Eurocode 1: Actions on structures. General actions – Densities, self-weight, imposed loads
- ❖ BS EN 1991-1-4:2005 Eurocode 1: Actions on structures. General actions – Wind actions
- ❖ BS EN 1992-1-1:2004 Eurocode 2: Design of concrete structures
- ❖ BS EN 1993-1-1:2005 Eurocode 3: Design of steel structures
- ❖ BS EN 1997-1:2004 Eurocode 7: Geotechnical design

These calculations should be read in conjunction with any relevant architectural details and drawings.

2. CONSTRUCTION NOTES

2.1. CONSTRUCTION NOTES

Any deviation from the design assumptions is to be reported to the Architect/Engineer prior to commencement of works.

The existing building is assumed to be in good structural order and any defects are to be reported to the architect/engineer.

The temporary stability of the structure during all stages of the construction work is the responsibility of the contractor.

2.2. NEW WORKS

All new masonry piers/walls are to be built as noted within the calculations and the architects/engineer's specifications.

2.3. GENERAL NOTES

These calculations and details are to be read in conjunction with all relevant architects and engineers' drawings and specifications.

The works are to be carried out to accepted good building practice and with full compliance and in accordance with all relevant British Standards and Codes of Practice.

The lengths and spans used in these calculations are for design purposes only and should not be used as a basis for ordering materials/fabrication purposes. Note, the design span in these calculations is not the same as clear span.

All lengths and spans used in these calculations should be verified on site prior to commencement of any construction works. Contractor and/or steel fabricator to take their dimensions on site.

Builder/contractor is to check that the structural engineer's proposal (i.e. location of steel beams/trimmers etc.) is feasible and necessary before ordering materials. Open up top of walls etc. to determine existing spans & necessity of steels/beams.

No opening works were undertaken and therefore any defects hidden or inaccessible could not be reported upon and thus not the engineer's responsibility.

3. STRUCTURAL CALCULATIONS

PIBOB Consulting has been appointed by Dane Kramberger to complete a Structural Design Package for the proposed works at the above-named address. New lintels are designed with a 150mm minimum bearing length into the corresponding walls, so the actual design length and the main span may differ on site.

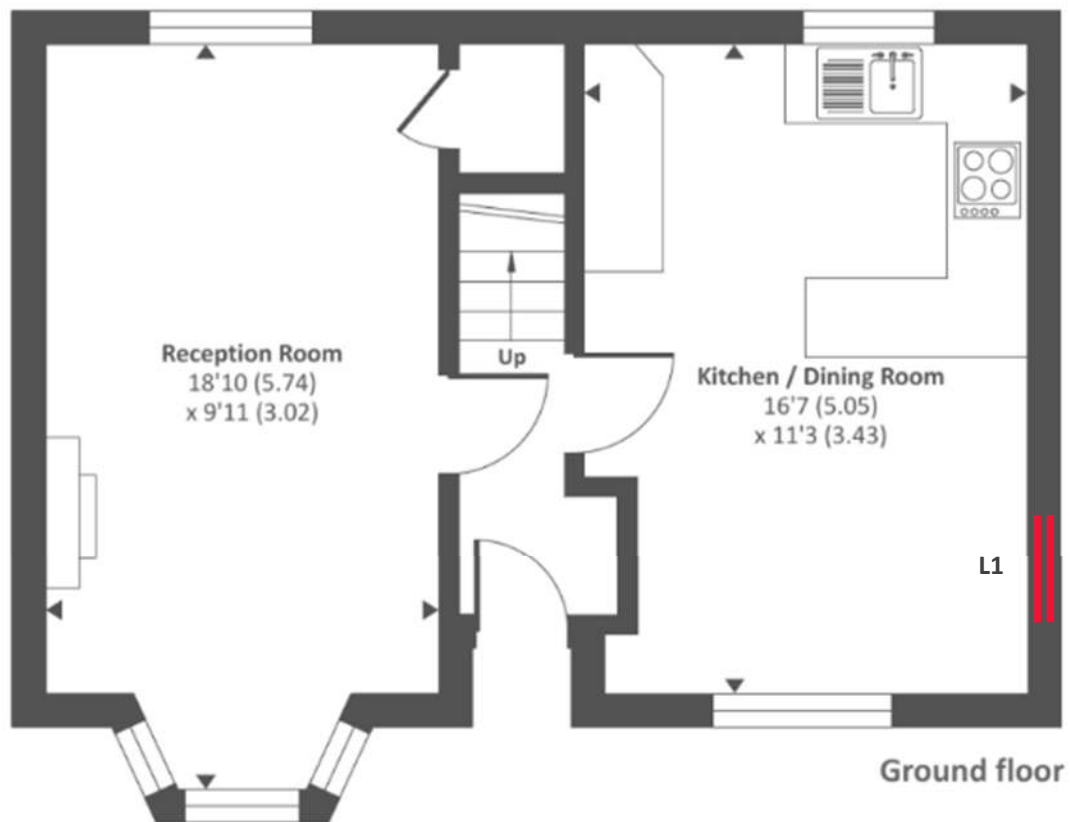


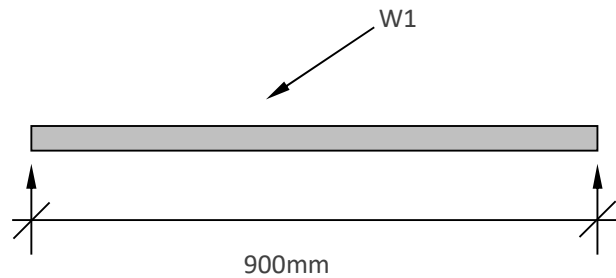
Figure 1 - Property floor plan with new lintel location

3.1. LINTELS

3.1.1. LINTELS L1

Design span = 900

(This is not fabrication length – clear span)



Loads –

W1
→

Wall=	$2.2\text{kN/m}^2 \times 3.2\text{m}$	= 7.1	kN/m
Roof=	$2.3\text{kN/m}^2 \times 2\text{m}/2$	= 2.3	kN/m
Floor=	$1.95\text{kN/m}^2 \times 3.4\text{m}/2$	= 3.32	kN/m

Try Lintel: 100 x 140mm = 12.72 kN/m

SWL = 12.72 kN (< 20.83) ∴ OK

SEE OVERLEAF FOR MANUFACTURER SPECIFICATIONS

100 x 140 NAYLOR CONCRETE LINTEL UNDER EACH LEAF (ER2)

The Economy Range is manufactured in lengths up to 3m and offer 30 minutes fire resistance only.

Economy Range		ER1	ER2	ER3	ER4	ER6	ER7	ER8
Load Table								
Suitable For Foundation Use		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Available Range Finish		Standard	Standard	Standard	Standard	Standard	Standard	Standard
		UNFACTORED LOADS IN kN/m						
Length	Clear Span	100x65	100x140	140x65	215x65	140x140	100x215	140x215
900mm	700mm	9.27	35.30	9.80	19.67	27.18	58.49	67.89
1200mm	1000mm	5.00	20.83	5.56	11.24	15.95	35.32	40.93
1500mm	1200mm	3.46	14.69	3.84	7.79	11.19	24.85	28.76
1800mm	1500mm	2.18	9.49	2.40	4.92	7.16	16.26	18.78
2100mm	1800mm	1.48	6.59	1.61	3.34	4.91	11.40	13.13
2400mm	2100mm	1.05	4.81	1.13	2.38	3.52	8.38	9.62
2700mm	2400mm	n/a	3.63	0.82	1.75	2.61	6.38	7.30
3000mm	2700mm	n/a	2.82	0.61	1.32	1.98	4.99	5.67
Lintel Weight kg/m		16	34	22	34	47	52	72