



Inspection and Photos Record 15th March 2024

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**The Brunswick
97 Piccadilly
Manchester
M1 2DB**

On Behalf Of

TRUST PUBS

Document Ref: EQ092-HV-XX-XX-RP-S-0004



**SB HOLMES CONSULTING
HOLMES VENTURES LTD**

Document Control

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Author	Steven B. Holmes BEng(Hons) MEng CEng MICE MStructE
Signature	
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	Steven B. Holmes BEng(Hons) MEng CEng MICE MStructE
Signature	
Date	15/04/2025

Rev	Date	Details	Prepared By	Reviewed By
1	15/04/2025	Information	SBH	SBH
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1. Introduction

- 1.1. SB Holmes Consulting have been instructed by 'Trust Pubs' to attend the above public house and comment on reported settlement / movement of the ground floor structure within the main bar area, this was the subject of previous reports, as noted below. This report serves as a record of the inspection of the underside of the floor following removal of the cellar ceiling.
- 1.2. We initially visited the property on Tuesday 21st November 2023 and the findings and recommendations from that visit can be found in our report reference EQ92-HV-XX-XX-RP-S-001, dated 21st November 2023. The main purpose of the initial inspection was to agree the required propping arrangement to allow the Public House to continue trading until such time as a more detailed inspection and opening up works can be carried out. These works need careful planning due to the possible presence of asbestos within the ceiling of the basement area and so not permitting removal of the ceiling within the basement at this time. The intention following the report from the 21st was to open up areas of the ground floor from above to give a better, more informed view of the ground floor structure so that remedial works can be determined and a budget price arrived at. However on consultation with the Asbestos Specialist, they did not want such large areas of the ground floor opening up. It was therefore proposed that holes could be drilled into the floor to allow an 'Endiscope' inspection camera to be inserted into the holes in an attempt to gain more information of the state of the ground floor timbers. This method was attempted on Wednesday 13th December 2023 and is the subject of our report reference EQ92-HV-XX-XX-RP-S-001, dated 13th December 2024, the general findings of that inspection were pretty much inconclusive, and larger openings recommended under the direction of an Asbestos specialist.
- 1.3. The 3rd inspection and exploratory works were undertaken exposed on Tuesday 07th May 2024 by ARD Asbestos Specialist. Following trial holes been cut out by ARD, an air test was carried out and a clean air certificate issued so allowing our inspection of the trial pits on Wednesday 08th May, 2024, also present on 08th May were Kensington contractors who made good the trail holes after inspection.
- 1.4. This report, dated 15th April 2025, serves as a record of the inspection undertaken on 15th March and following removal of the cellar ceiling.

2. Limitations

- 2.1. This report is based on the findings of the initial report, and also inspection of the underside of the timbers on 15th April 2025. We did not carry out any further intrusive investigations or opening up works, therefore those elements of the building that were covered at the time of the survey were not inspected. Neither did we carryout any trail pits to check the construction of the existing foundations.
- 2.2. This report covers structural elements only. We did not undertake inspections of any other disciplines, e.g., mechanical, electrical etc., or any ecological or bat surveys.
- 2.3. The purpose of the inspection was an attempt to review the size, layout and condition of the ground floor timbers to check for their suitability to act as a public house suspended floor.
- 2.4. A full and detailed structural inspection was not undertaken, neither did we carry out a timber and damp survey, or gain access to the loft space to check the roof structure. We would note that we are not specialist in timber inspection in respect of wet / dry rot or investigation attack etc.
- 2.5. As are limited to one day, we cannot comment if any reported movement is ongoing.



3. Brief Description

- 3.1. The Brunswick pub was reportedly built in the late 18th Century and is now a 'Grade II' listed building, gaining the listed Status around October 1973. The building was originally a 'Hotel', but now operates as a public house at ground floor with the manager accommodation at 1st floor, and the remainder of the building unused and falling into a state of disrepair.
- 3.2. The building consist of a ground, 1st and 2nd floor along with basements below the majority of the footprint of the building. The main use of the building seems to be split into two, the front housing the public bar at ground floor and managers accommodation at 1s floor, and the remainder unused, and the rear section of the building which is accessed separately off 'Paton Street', and is currently unused.
- 3.3. The structure is mainly from load bearing masonry and suspended timber floors, with what appears to be a traditional timber roof from timber purlins and rafters with a slate finish.

4. Inspection - Discussion

- 4.1. Inspection of the visual condition of the timbers, along with the layout and sizing we would recommend the following. The references refer to the timbers in the ground floor above the cellar rooms as follows;
 - **Beer Cellar** – The timbes in the area appear to have been cut away and trimmed out in a number of positions, Photo 4 & 6 in Appendix A, and there were sings of Beatle infestation, Photo 7. These timbers also had a large deflection and on calculation were extensively over stressed in both bending stress, shear stress and deflection see Appendix B. The recommendation would be to replace this floor in its entirety as originally suspected, see Appendix C.
 - **Kitchen Store** – These timbers appeared to be in relatively good condition, refer to Photos 5 & 9 in Appendix A, and when checked, see Appendix B, they would be sufficient in sizing if the wall between the kitchen store and cellar was used to provide a central support. The recommendation would be to leave the timbers in place and pack off the wall between the beer cellar and store, as originally suspected, refer to Appendix C.
 - **Hallway** – These timbers were of concern due to their sizing, random layout, condition, and signs of water damage, refer to Photos 10, 11, 12, 13, and 17 in Appendix A. Therefore, we would recommend they are replaced as originally suspected, refer to Appendix C.
 - **Rear Storage** – These timbers appeared to be in a relatively good condition. The secondary members showed them to be of sufficient sizing, however when checking the main members these showed to be slightly over stressed and also failed in deflection. Therefore, we would be of the opinion the timbers could remain in palace, but with a additional steel member inserted at mid span of the main timbers, refer to Appendix C.



5. Appendix A – Photo Record

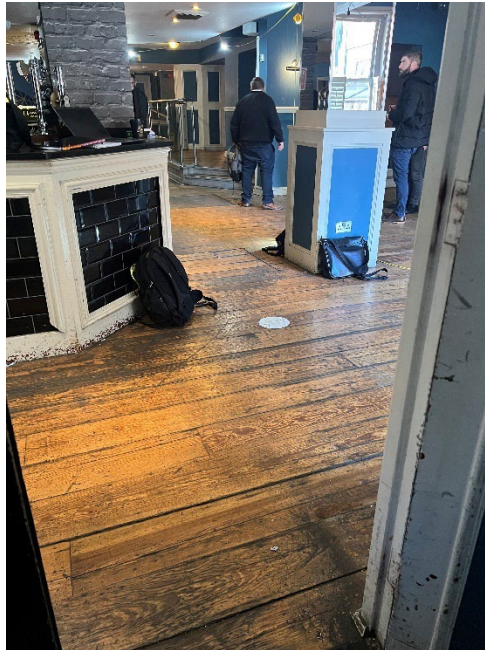


Photo 1

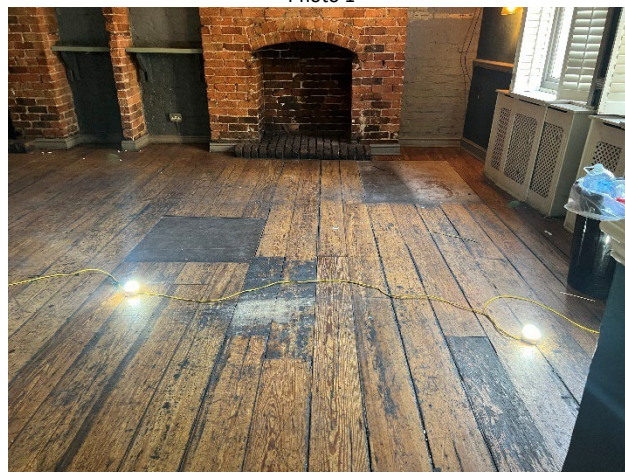


Photo 2

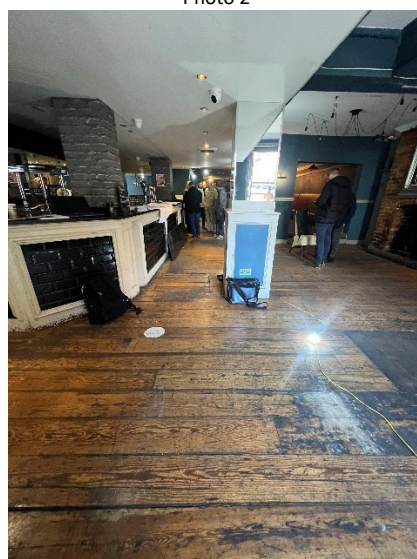


Photo 3



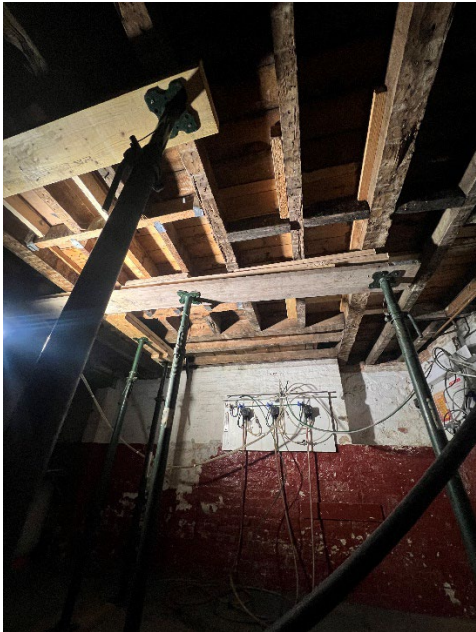


Photo 4



Photo 5

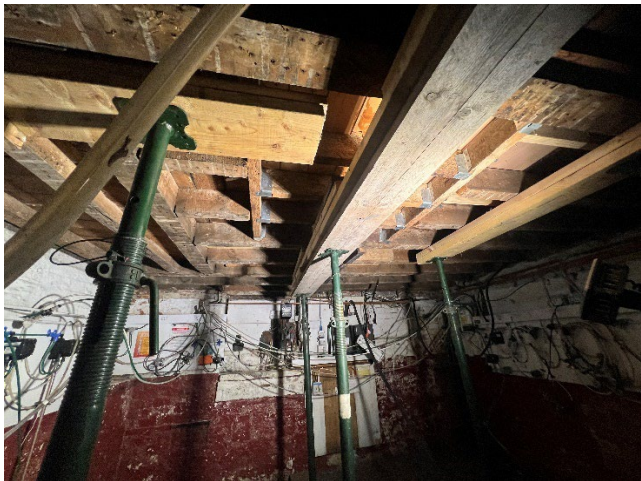


Photo 6





Photo 7

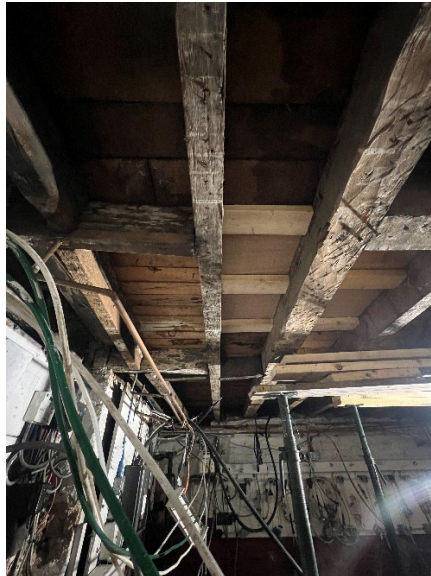


Photo 8

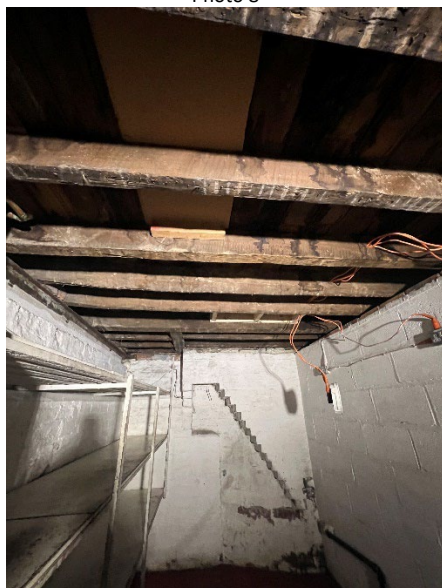


Photo 9



Photo 10



Photo 11



Photo 12



Photo 13



Photo 14



Photo 15





Photo 16

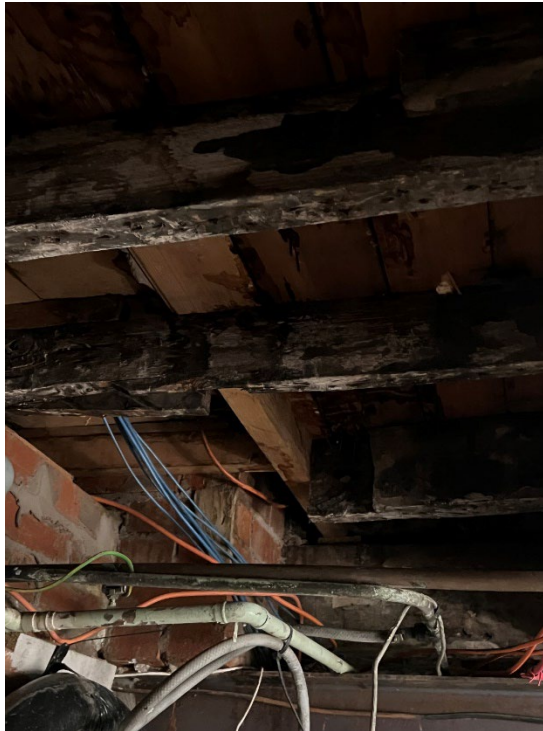


Photo 17

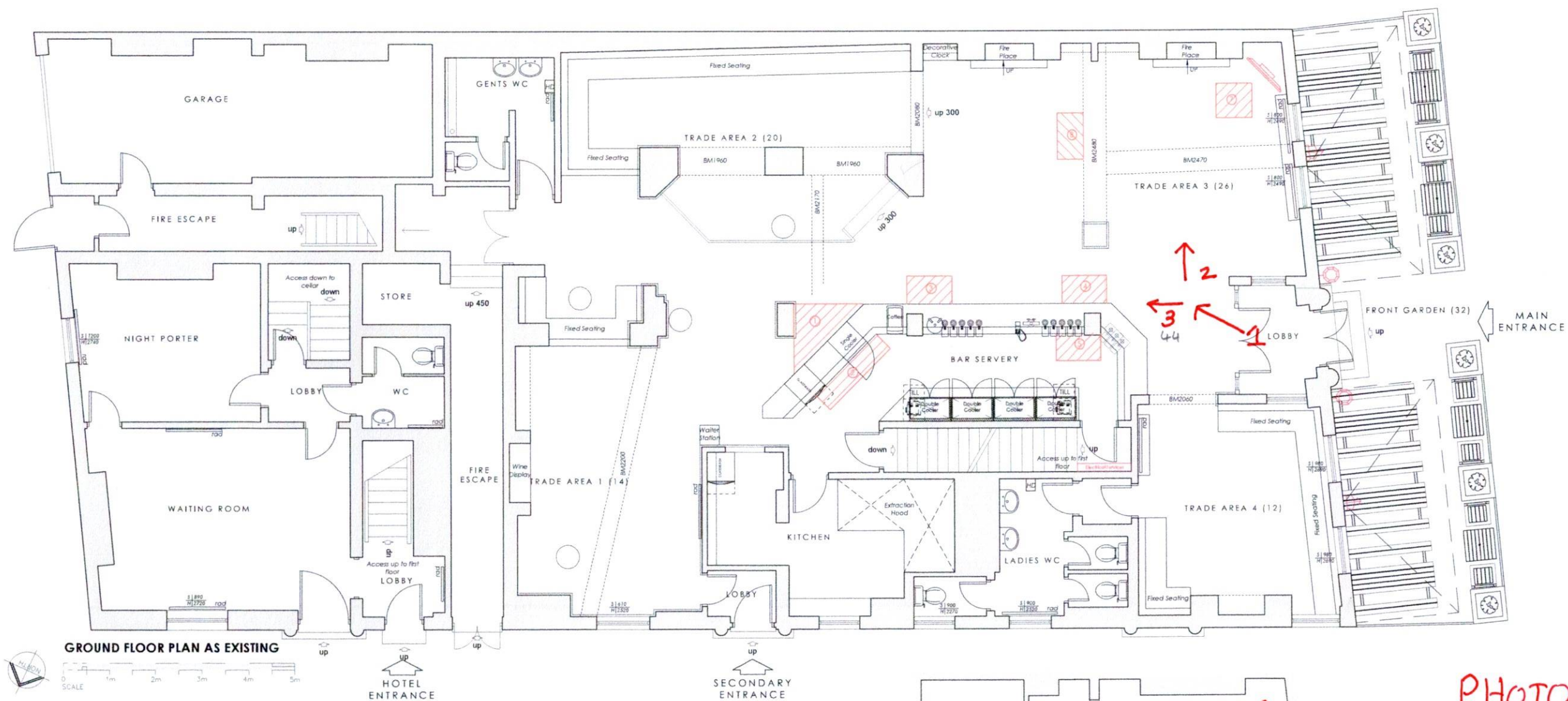
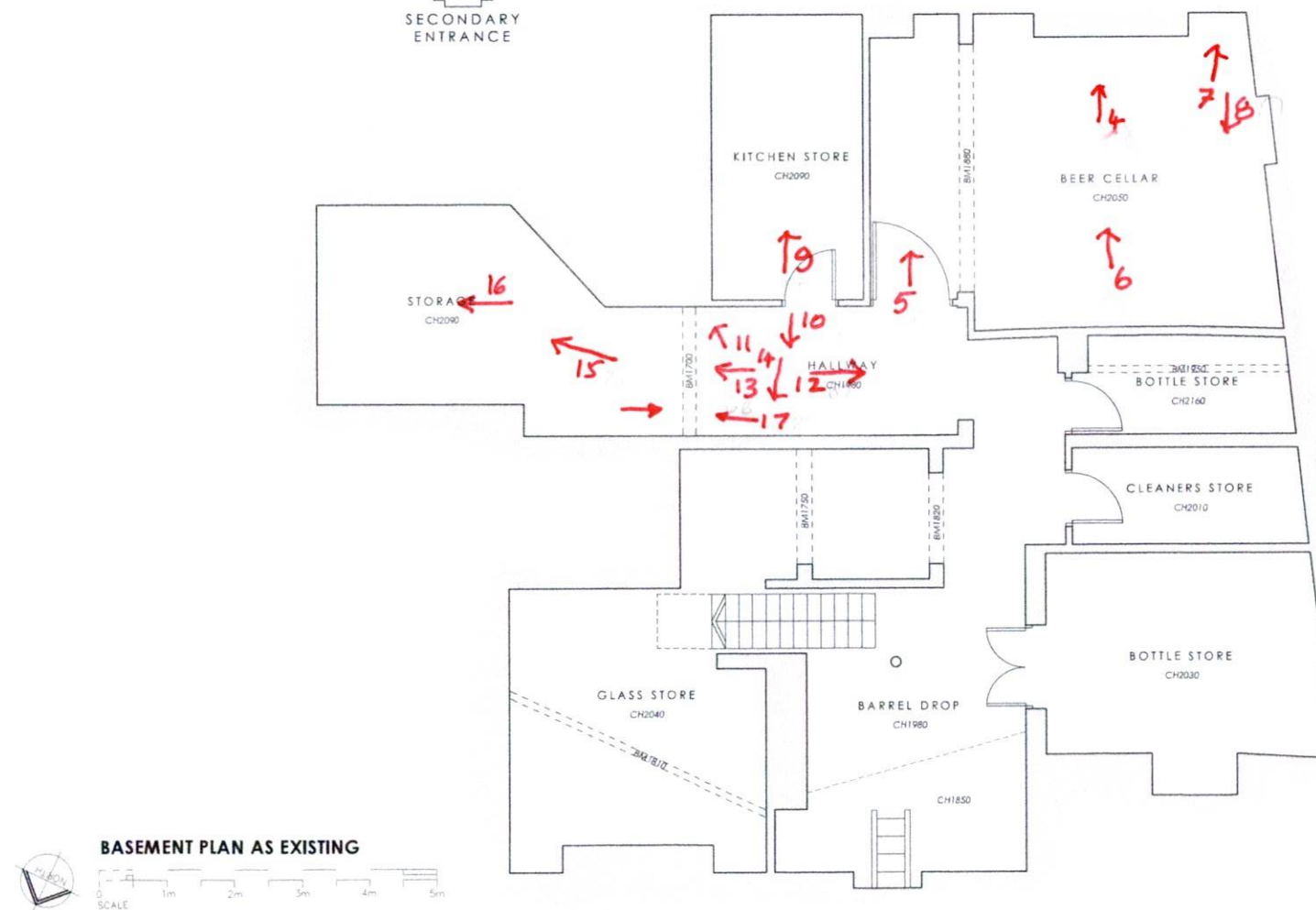


PHOTO RECORD
15/04/25



Rev	Description	By	Date
1	INVENTIVE DESIGN ASSOCIATES ARCHITECTURE & INTERIOR DESIGN		
2	57 Station Road, Cheadle Hulme Stockport, Greater Manchester SK8 7AA Company Reg No: 7251414		
3	TRUST PUBS The Brunswick 97 Piccadilly, Manchester M1 2DB		
4	GF & BASEMENT PLAN		
5	0161 428 0310 office@inventiveda.com www.inventiveda.com @inventiveda		
6	DRAWN JW DATE 11/01/24 DRAWING NO. 22108-102		
7	SCALE 1:50@A1 REV. -		

6. Appendix B – Check Calculations





Project The Brunswick				Job No. EQ092	
Section Existing Floor Timbers				Sheet no./rev 2	Checking Level 1
Calc. by SRH	Date 16/04/25	Chk'd by SRH	Date 16/04/25	App'd by SRH	Date 16/04/25

17-19

MEMBER 9, 200x100 @ 1.6m Spacing, Span = 2.0

$$DL = \frac{1.6}{2} \times 0.5 \text{ kN/m}^2 = 0.4 \text{ kN/m}$$

$$LL = 1.6 \times 5.0 \text{ kN/m}^2 = 8 \text{ kN/m}$$

Passes

20-21

MEMBER 10, 150x75 @ 400mm c/c, Span 1600mm

$$DL = 0.5 \text{ kN/m}^2, LL = 5.0 \text{ kN/m}^2$$

Passes

22-24

MEMBER 11, 200x100 @ 2.0m, Span

$$\therefore DL = \frac{2.0}{2} \times 0.5 \text{ kN/m}^2 = 0.5 \text{ kN/m}$$

$$LL = 2.0 \times 5.0 \text{ kN/m}^2 = 10 \text{ kN/m}$$

$$\text{Reaction} = \frac{2.0}{2} \times 0.5 = 0.5 \text{ kN (DL)}$$

$$= 1.0 \times 5 = 5 \text{ kN (LL)}$$

Passes

24-

MEMBER 12, 200x100 @ 2m Span

$$\text{Central Point Load } W = DL = 0.5 \text{ kN}$$

$$LL = 5.0 \text{ kN}$$

Passes



Project The Brunswick				Job No. EQ092	
Section EXISTING FLOOR TIMBERS				Sheet no./rev. 1	Checking Level 1
Calc. by SBH	Date 16/04/25	Chk'd by SBH	Date 16/04/25	App'd by SBH	Date 16/04/25

4-6	$DL = 0.5 \text{ kN/m}^2$ / $LL = 5.0 \text{ kN/m}^2$ <u>MEMBER 1 - 150x140</u> $SPAN = 2.3 \text{ m}$ $LOAD = DL = 0.5 \times \frac{3.5}{2} = 0.9 \text{ kN/m}$ $LL = 5.0 \times \frac{3.5}{2} = 8.8 \text{ kN/m}$ FAILS in Bending σ , Shear τ & Deflection $Reaction = DL = 0.9 \times \frac{3}{2} = 1.4 \text{ kN}$ $CL = 8.8 \times \frac{3}{2} = 13.2 \text{ kN}$				
7-9	<u>MEMBER 2 & 3 - 150x140</u> $SPAN = 4.5 \text{ m}$ $LOAD = \text{Point Load @ } 1.5 \text{ m} = DL = 1 \text{ kN}$ $LL = 10 \text{ kN}$ $+ \text{UDL of } 0.450 \times DL = 0.5 = 0.225 \text{ kN/m}$ $-11- \quad CL = 5.0 = 2.3 \text{ kN/m}$ FAILS in Bending σ , Shear τ & Deflection				
10-11	<u>MEMBER 4 - 150x75 @ 450mm CLC</u> $SPAN = 4.5 \text{ m}$ $LOAD = DL = 0.5 \text{ kN/m}^2, LL = 5.0 \text{ kN/m}^2$				
12-13	<u>MEMBER 6 - 150x75 @ 400mm CLC</u> $SPAN = 2.7 \text{ m}$ $LOAD = DL = 0.5 \text{ kN/m}^2, LL = 5.0 \text{ kN/m}^2$				
	PASS.				
14-16	<u>MEMBER 8 & 7 - 230x150 @ 16m,</u> $SPAN = 2.9 \text{ m}$				
	$DL = 1.6 \times 0.5 \text{ kN/m}^2 = 0.8 \text{ kN/m}^2$ $LL = 1.6 \times 5.0 \text{ kN/m}^2 = 8.0 \text{ kN/m}^2$ FAILS @ C18, in Bending σ , Deflection PASSES @ C24				

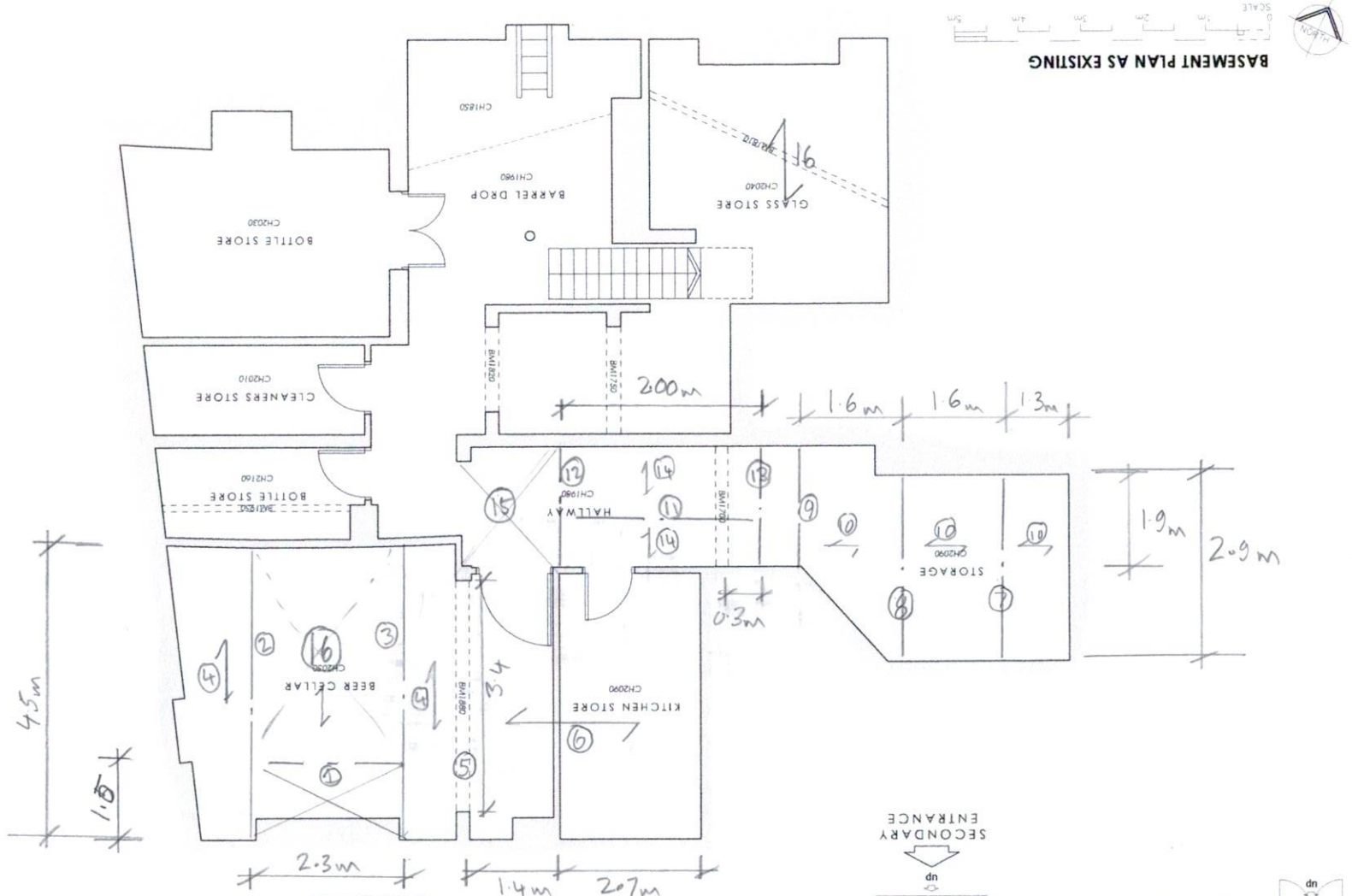
INVENTIVE DESIGN ASSOCIATES
ARCHITECTURE & INTERIOR DESIGN
57 Station Road, Cheadle Hulme
Stockport, Greater Manchester SK8 7AA
Company Reg No: 9251414

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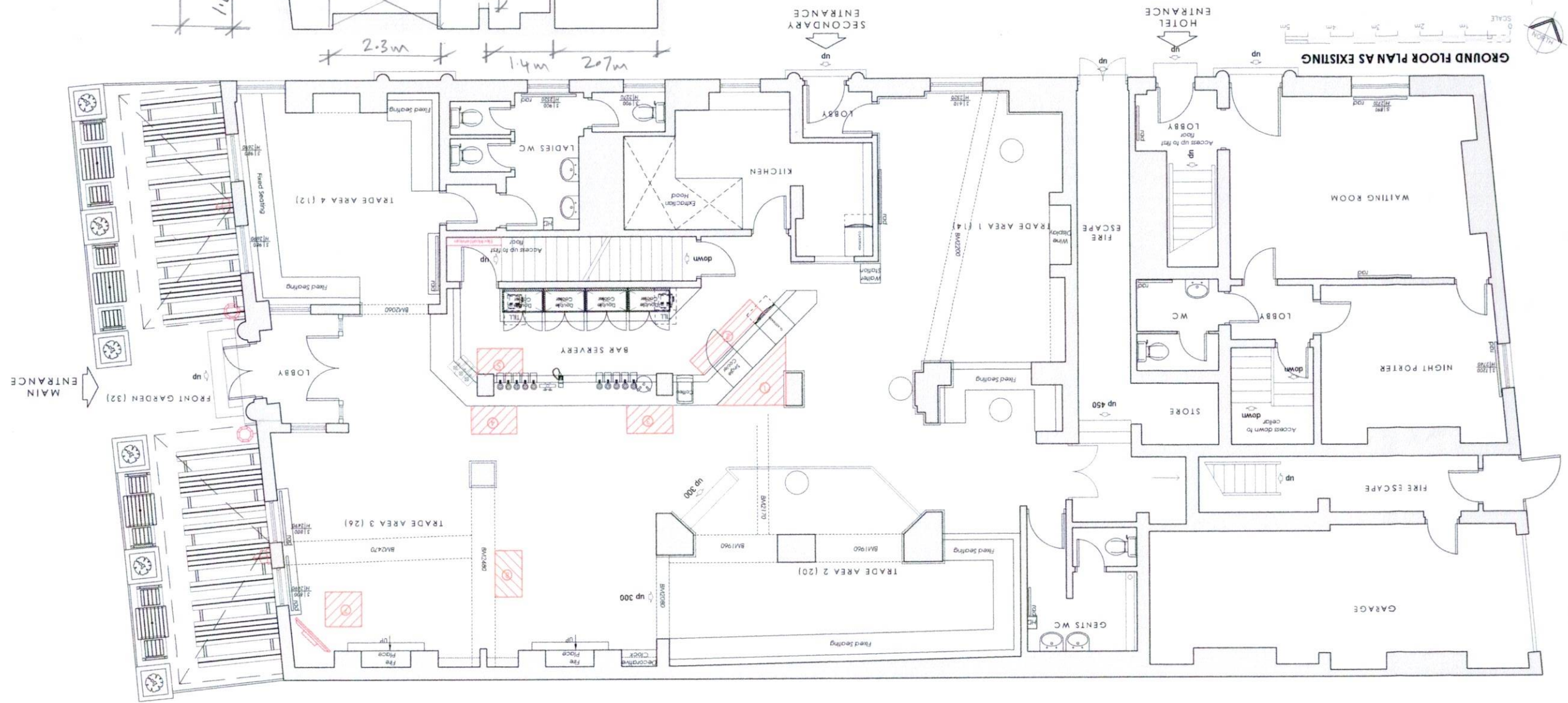
DRAWN JW DATE 11/01/24
SCALE 1:50@A1 REV. 22108-102

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Rev	Description	By	Date



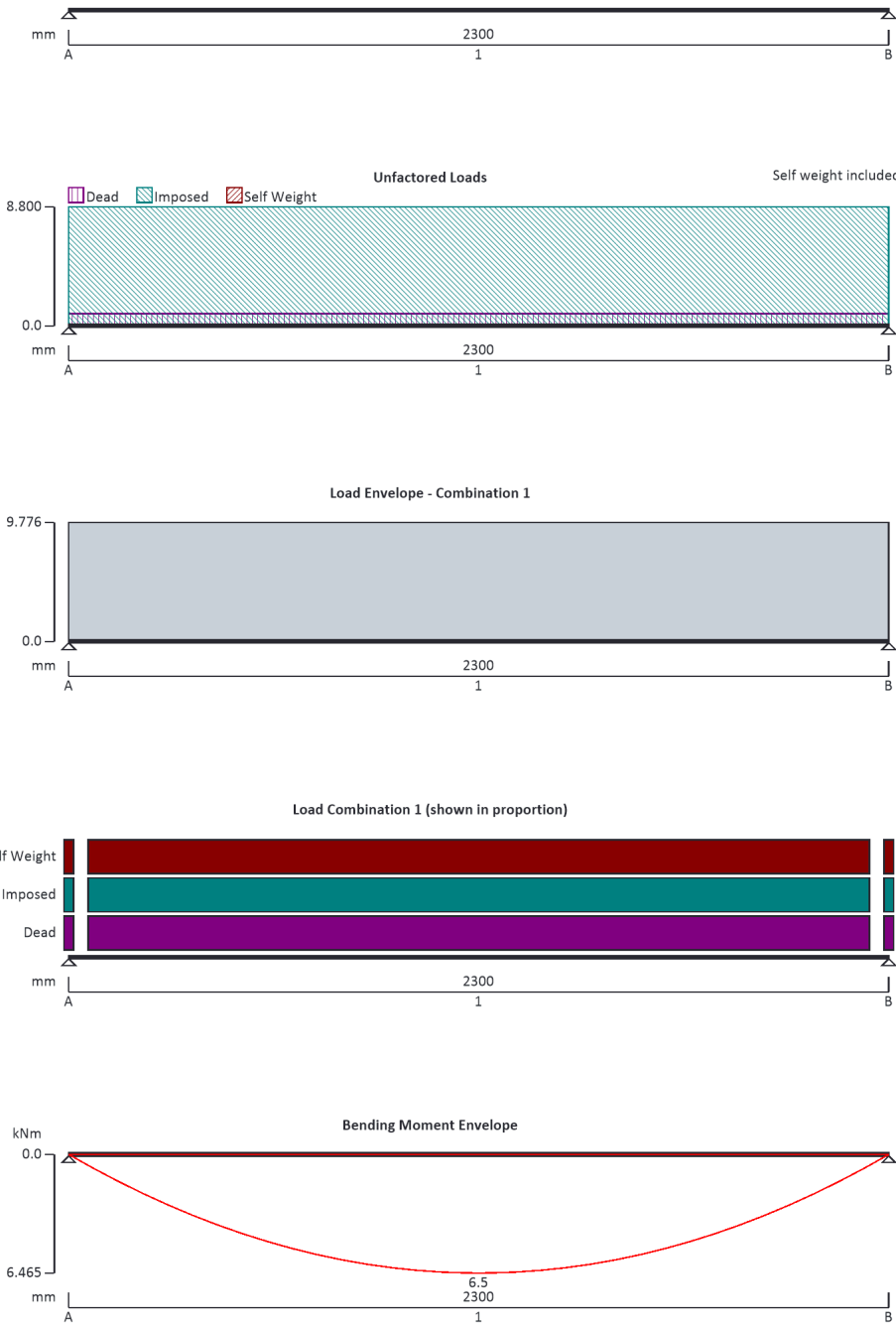
- 1 - 150 x 140
- 2 - 150 x 140
- 3 - 150 x 140
- 4 - 150 x 75 @ 450mm C/C
- 5 - 180 x 100 Steel Section.
- 6 - 150 x 75 @ 400mm C/C
- 7 - 230 x 150
- 8 - 230 x 150
- 9 - ? 200 x 100
- 10 - ? 150 x 75
- 11 - ? 200 x 100
- 12 - ? 200 x 100
- 13 - ? 200 x 100
- 14 - mix of Timbers } Damp, Random
- 15 - mix of Timbers } and bearing
- 16 - mix of Timbers & Trimmers.



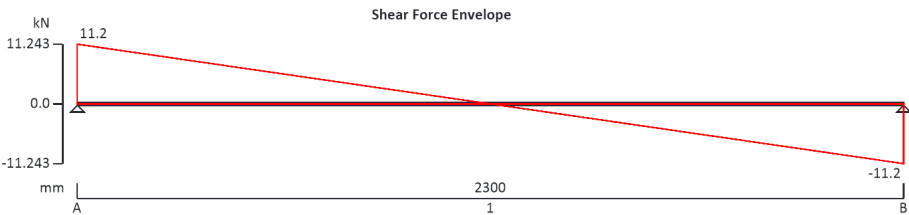
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	The Brunswick				EQ092	
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1 - Member 1				4		
Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date	
SBH	16/04/2025	SBH	16/04/2025	SBH	16/04/2025	

TIMBER BEAM ANALYSIS & DESIGN TO BS5268-2:2002

TEDDS calculation version 1.7.03



Tekla.Tedds SB Holmes Consulting	Project				Job no.	
	The Brunswick				EQ092	
	Calcs for				Start page no./Revision	
	1 - Member 1				5	
	Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date
	SBH	16/04/2025	SBH	16/04/2025	SBH	16/04/2025



Applied loading

Beam loads

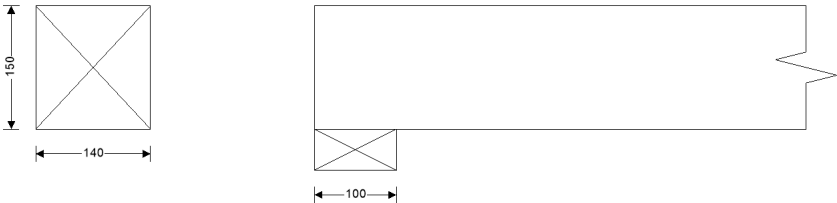
Dead full UDL 0.900 kN/m
Imposed full UDL 8.800 kN/m
Dead self weight of beam × 1

Load combinations

Load combination 1	Support A	Dead × 1.00 Imposed × 1.00 Self Weight × 1.00
	Span 1	Dead × 1.00 Imposed × 1.00 Self Weight × 1.00
	Support B	Dead × 1.00 Imposed × 1.00 Self Weight × 1.00

Analysis results

Design moment	M = 6.465 kNm	Design shear	F = 11.243 kN
Total load on beam	W _{tot} = 22.485 kN		
Reactions at support A	R _{A_max} = 11.243 kN	R _{A_min} = 11.243 kN	
Unfactored dead load reaction at support A	R _{A_Dead} = 1.123 kN		
Unfactored imposed load reaction at support A	R _{A_Imposed} = 10.120 kN		
Reactions at support B	R _{B_max} = 11.243 kN	R _{B_min} = 11.243 kN	
Unfactored dead load reaction at support B	R _{B_Dead} = 1.123 kN		
Unfactored imposed load reaction at support B	R _{B_Imposed} = 10.120 kN		



Timber section details

Breadth of section	b = 140 mm	Depth of section	h = 150 mm
Number of sections	N = 1	Breadth of beam	b _b = 140 mm
Timber strength class	C16		

Member details

Service class of timber	1	Load duration	Long term
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Tekla.Tedds SB Holmes Consulting	Project				Job no.	
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	Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date
	SBH	16/04/2025	SBH	16/04/2025	SBH	16/04/2025

Length of span

$L_{s1} = 2300$ mm

Length of bearing

$L_b = 100$ mm

Lateral support - cl.2.10.8

Permiss.depth-to-breadth ratio

2.00

Actual depth-to-breadth ratio

1.07

PASS - Lateral support is adequate

Check bearing stress

Permissible bearing stress

$\sigma_{c_adm} = 2.200$ N/mm²

Applied bearing stress

$\sigma_{c_a} = 0.803$ N/mm²

PASS - Applied compressive stress is less than permissible compressive stress at bearing

Bending parallel to grain

Permissible bending stress

$\sigma_{m_adm} = 5.720$ N/mm²

Applied bending stress

$\sigma_{m_a} = 12.313$ N/mm²

FAIL - Applied bending stress exceeds permissible bending stress

Shear parallel to grain

Permissible shear stress

$\tau_{adm} = 0.670$ N/mm²

Applied shear stress

$\tau_a = 0.803$ N/mm²

FAIL - Applied shear stress exceeds permissible shear stress

Deflection

Permissible deflection

$\delta_{adm} = 6.900$ mm

Total deflection

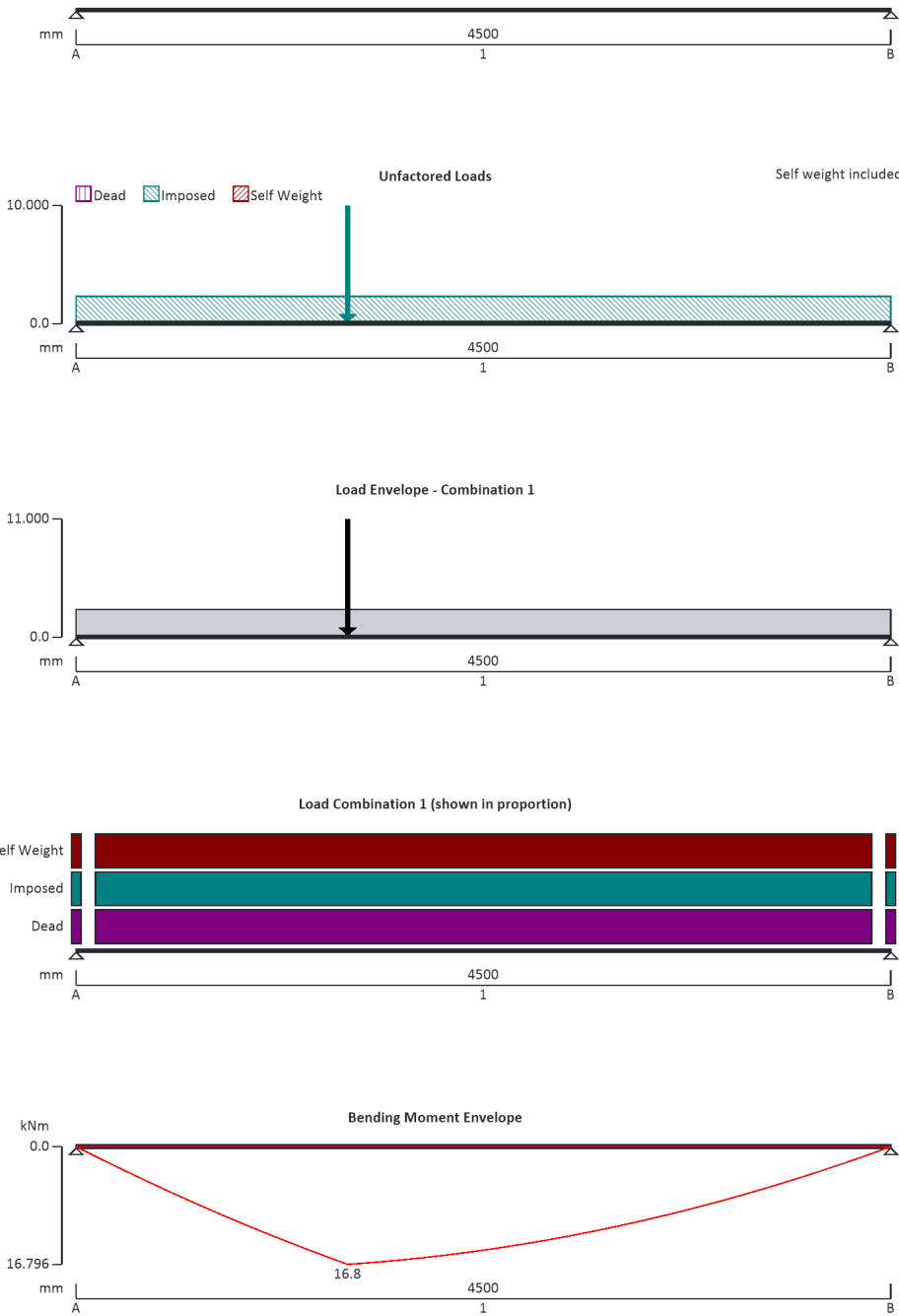
$\delta_a = 16.617$ mm

FAIL - Total deflection exceeds permissible deflection

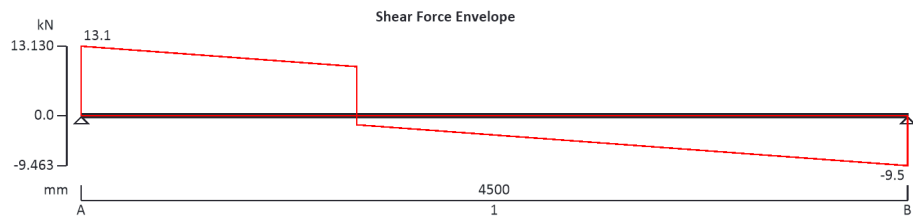
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	The Brunswick				EQ092	
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2 - Member 2				7		
Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date	
SBH	17/04/2025	SBH	16/04/2025	SBH	16/04/2025	

TIMBER BEAM ANALYSIS & DESIGN TO BS5268-2:2002

TEDDS calculation version 1.7.03



 Tekla.Tedds SB Holmes Consulting	Project				Job no.	
	The Brunswick				EQ092	
	Calcs for				Start page no./Revision	
2 - Member 2				8		
Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date	
SBH	17/04/2025	SBH	16/04/2025	SBH	16/04/2025	



Applied loading

Beam loads

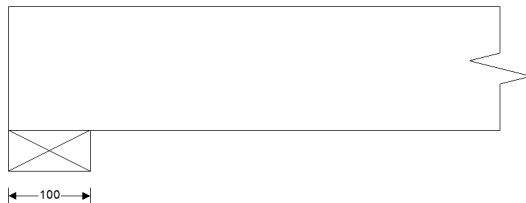
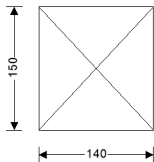
Dead point load 1.000 kN at 1500 mm
Imposed point load 10.000 kN at 1500 mm
Dead full UDL 0.200 kN/m
Imposed full UDL 2.300 kN/m
Dead self weight of beam $\times 1$

Load combinations

Load combination 1	Support A	Dead $\times 1.00$ Imposed $\times 1.00$ Self Weight $\times 1.00$
	Span 1	Dead $\times 1.00$ Imposed $\times 1.00$ Self Weight $\times 1.00$
	Support B	Dead $\times 1.00$ Imposed $\times 1.00$ Self Weight $\times 1.00$

Analysis results

Design moment	M = 16.796 kNm	Design shear	F = 13.130 kN
Total load on beam	W _{tot} = 22.593 kN		
Reactions at support A	R _{A_max} = 13.130 kN	R _{A_min} = 13.130 kN	
Unfactored dead load reaction at support A	R _{A_Dead} = 1.288 kN		
Unfactored imposed load reaction at support A	R _{A_Imposed} = 11.842 kN		
Reactions at support B	R _{B_max} = 9.463 kN	R _{B_min} = 9.463 kN	
Unfactored dead load reaction at support B	R _{B_Dead} = 0.955 kN		
Unfactored imposed load reaction at support B	R _{B_Imposed} = 8.508 kN		



Timber section details

Breadth of section	b = 140 mm	Depth of section	h = 150 mm
Number of sections	N = 1	Breadth of beam	b _b = 140 mm
Timber strength class	C16		

 Tekla.Tedds SB Holmes Consulting	Project				Job no.	
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3 - Memebr 4				10		
Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date	
SBH	16/04/2025	SBH	16/04/2025	SBH	16/04/2025	

TIMBER JOIST DESIGN (BS5268-2:2002)

Tedds calculation version 1.1.04

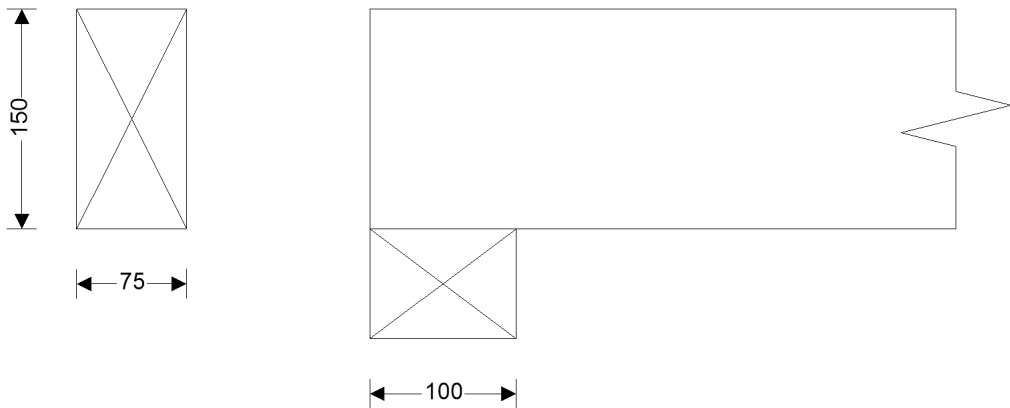
Joist details

Joist breadth	b = 75 mm	Joist depth	h = 150 mm
Joist spacing	s = 450 mm	Service class of timber	1
Timber strength class	C16		



Span details

Number of spans	N _{span} = 1	Length of bearing	L _b = 100 mm
Clear length of span	L _{s1} = 4500 mm		



Section properties

Second moment of area	I = 21093750 mm ⁴	Section modulus	Z = 281250 mm ³
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Loading details

Joist self weight	F _{swt} = 0.03 kN/m	Dead load	F _{d_udi} = 0.50 kN/m ²
Imposed UDL(Long term)	F _{i_udi} = 5.00 kN/m ²		
Imposed point load (Medium)	F _{i_pt} = 1.40 kN		

Consider long term loads

Design bending moment	M = 6.351 kNm	Design shear force	V = 5.646 kN
Design support reaction	R = 5.646 kN	Design deflection	δ = 73.407 mm

Check bending stress

Permissible bending stress	σ _{m_adm} = 6.292 N/mm ²	Applied bending stress	σ _{m_max} = 22.583 N/mm ²
FAIL - Applied bending stress exceeds permissible bending stress			

Check shear stress

Permissible shear stress	τ _{adm} = 0.737 N/mm ²	Applied shear stress	τ _{max} = 0.753 N/mm ²
FAIL - Applied shear stress exceeds permissible shear stress			

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Check bearing stress

Permissible bearing stress $\sigma_{c_adm} = 2.420 \text{ N/mm}^2$ Applied bearing stress $\sigma_{c_max} = 0.753 \text{ N/mm}^2$
PASS - Applied bearing stress within permissible limits

Check deflection

Permissible deflection $\delta_{adm} = 13.500 \text{ mm}$ Actual deflection $\delta = 73.407 \text{ mm}$
FAIL - Actual deflection exceeds permissible deflection

Consider medium term loads

Design bending moment $M = 2.231 \text{ kNm}$ Design shear force $V = 1.983 \text{ kN}$
 Design support reaction $R = 1.983 \text{ kN}$ Design deflection $\delta = 22.207 \text{ mm}$

Check bending stress

Permissible bending stress $\sigma_{m_adm} = 7.865 \text{ N/mm}^2$ Applied bending stress $\sigma_{m_max} = 7.933 \text{ N/mm}^2$
FAIL - Applied bending stress exceeds permissible bending stress

Check shear stress

Permissible shear stress $\tau_{adm} = 0.921 \text{ N/mm}^2$ Applied shear stress $\tau_{max} = 0.264 \text{ N/mm}^2$
PASS - Applied shear stress within permissible limits

Check bearing stress

Permissible bearing stress $\sigma_{c_adm} = 3.025 \text{ N/mm}^2$ Applied bearing stress $\sigma_{c_max} = 0.264 \text{ N/mm}^2$
PASS - Applied bearing stress within permissible limits

Check deflection

Permissible deflection $\delta_{adm} = 13.500 \text{ mm}$ Actual deflection $\delta = 22.207 \text{ mm}$
FAIL - Actual deflection exceeds permissible deflection

SB Holmes Consulting Tekla.Tedds	Project The Brunswick				Job no. EQ092	
	Calcs for 4 - Member 6				Start page no./Revision 12	
	Calcs by SBH	Calcs date 17/04/2025	Checked by SBH	Checked date 16/04/2025	Approved by SBH	Approved date 16/04/2025

TIMBER JOIST DESIGN (BS5268-2:2002)

Tedds calculation version 1.1.04

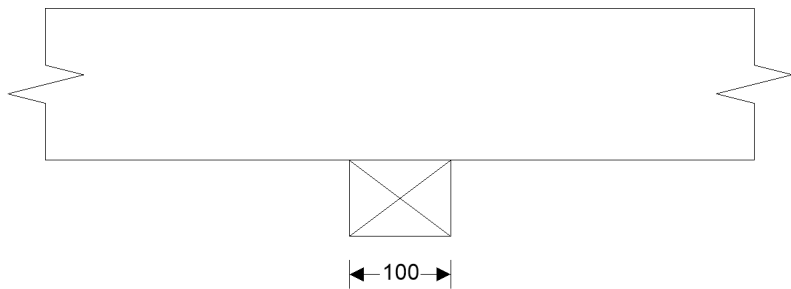
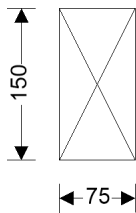
Joist details

Joist breadth	b = 75 mm	Joist depth	h = 150 mm
Joist spacing	s = 400 mm	Service class of timber	1
Timber strength class	C16		



Span details

Number of spans	N _{span} = 2	Length of bearing	L _b = 100 mm
Clear length of span 1	L _{s1} = 1400 mm	Clear length of span 2	L _{s2} = 2700 mm



Section properties

Second moment of area	I = 21093750 mm ⁴	Section modulus	Z = 281250 mm ³
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Loading details

Joist self weight	F _{swt} = 0.03 kN/m	Dead load	F _{d_udi} = 0.50 kN/m ²
Imposed UDL(Long term)	F _{i_udi} = 5.00 kN/m ²		
Imposed point load (Medium)	F _{i_pt} = 1.40 kN		

Consider long term loads

Design bending moment	M = 1.528 kNm	Design shear force	V = 3.582 kN
Design support reaction	R = 6.237 kN	Design deflection	δ = 5.310 mm

Check bending stress

Permissible bending stress	σ _{m_adm} = 6.292 N/mm ²	Applied bending stress	σ _{m_max} = 5.432 N/mm ²
PASS - Applied bending stress within permissible limits			

Check shear stress

Permissible shear stress	τ _{adm} = 0.737 N/mm ²	Applied shear stress	τ _{max} = 0.478 N/mm ²
PASS - Applied shear stress within permissible limits			

Check bearing stress

Permissible bearing stress	σ _{c_adm} = 2.662 N/mm ²	Applied bearing stress	σ _{c_max} = 0.832 N/mm ²
PASS - Applied bearing stress within permissible limits			

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Check deflection

Permissible deflection

$\delta_{adm} = 8.100 \text{ mm}$

Actual deflection

$\delta = 5.310 \text{ mm}$

PASS - Actual deflection within permissible limits

Consider medium term loads

Design bending moment

$M = 0.881 \text{ kNm}$

Design shear force

$V = 1.775 \text{ kN}$

Design support reaction

$R = 2.054 \text{ kN}$

Design deflection

$\delta = 2.611 \text{ mm}$

Check bending stress

Permissible bending stress

$\sigma_{m_adm} = 7.865 \text{ N/mm}^2$

Applied bending stress

$\sigma_{m_max} = 3.133 \text{ N/mm}^2$

PASS - Applied bending stress within permissible limits

Check shear stress

Permissible shear stress

$\tau_{adm} = 0.921 \text{ N/mm}^2$

Applied shear stress

$\tau_{max} = 0.237 \text{ N/mm}^2$

PASS - Applied shear stress within permissible limits

Check bearing stress

Permissible bearing stress

$\sigma_{c_adm} = 3.327 \text{ N/mm}^2$

Applied bearing stress

$\sigma_{c_max} = 0.274 \text{ N/mm}^2$

PASS - Applied bearing stress within permissible limits

Check deflection

Permissible deflection

$\delta_{adm} = 8.100 \text{ mm}$

Actual deflection

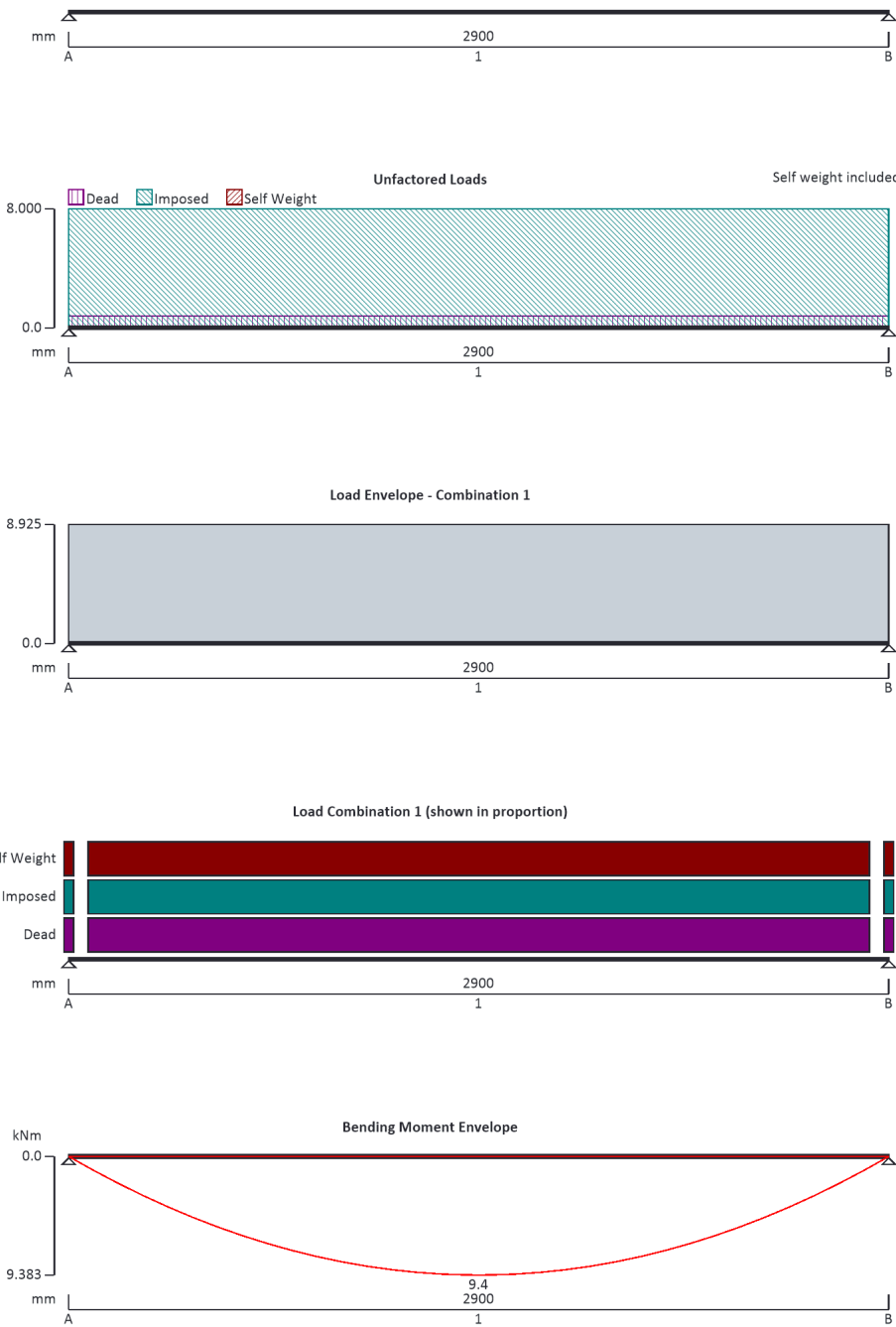
$\delta = 2.611 \text{ mm}$

PASS - Actual deflection within permissible limits

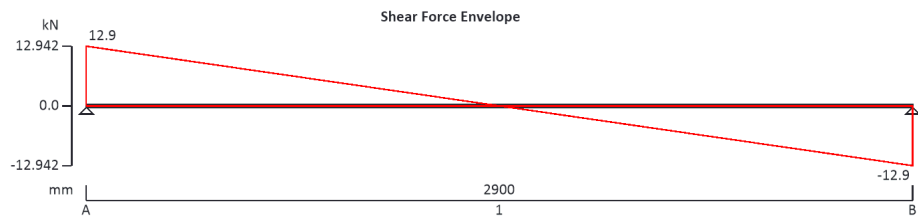
 SB Holmes Consulting	Project				Job no.	
	The Brunswick				EQ092	
	Calcs for				Start page no./Revision	
5 - Member 7 & 8				14		
Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date	
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TIMBER BEAM ANALYSIS & DESIGN TO BS5268-2:2002

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5 - Member 7 & 8				15		
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SBH	17/04/2025	SBH	16/04/2025	SBH	16/04/2025	



Applied loading

Beam loads

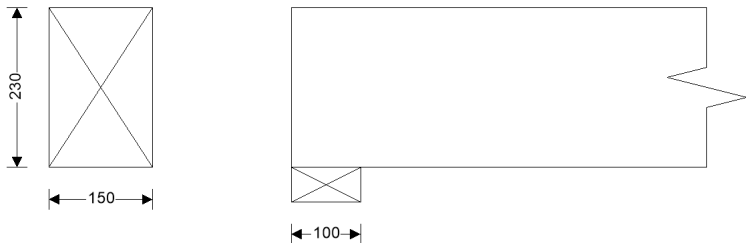
Dead full UDL 0.800 kN/m
Imposed full UDL 8.000 kN/m
Dead self weight of beam $\times 1$

Load combinations

Load combination 1	Support A	Dead $\times 1.00$ Imposed $\times 1.00$ Self Weight $\times 1.00$
	Span 1	Dead $\times 1.00$ Imposed $\times 1.00$ Self Weight $\times 1.00$
	Support B	Dead $\times 1.00$ Imposed $\times 1.00$ Self Weight $\times 1.00$

Analysis results

Design moment	M = 9.383 kNm	Design shear	F = 12.942 kN
Total load on beam	W _{tot} = 25.883 kN		
Reactions at support A	R _{A_max} = 12.942 kN	R _{A_min} = 12.942 kN	
Unfactored dead load reaction at support A	R _{A_Dead} = 1.342 kN		
Unfactored imposed load reaction at support A	R _{A_Imposed} = 11.600 kN		
Reactions at support B	R _{B_max} = 12.942 kN	R _{B_min} = 12.942 kN	
Unfactored dead load reaction at support B	R _{B_Dead} = 1.342 kN		
Unfactored imposed load reaction at support B	R _{B_Imposed} = 11.600 kN		



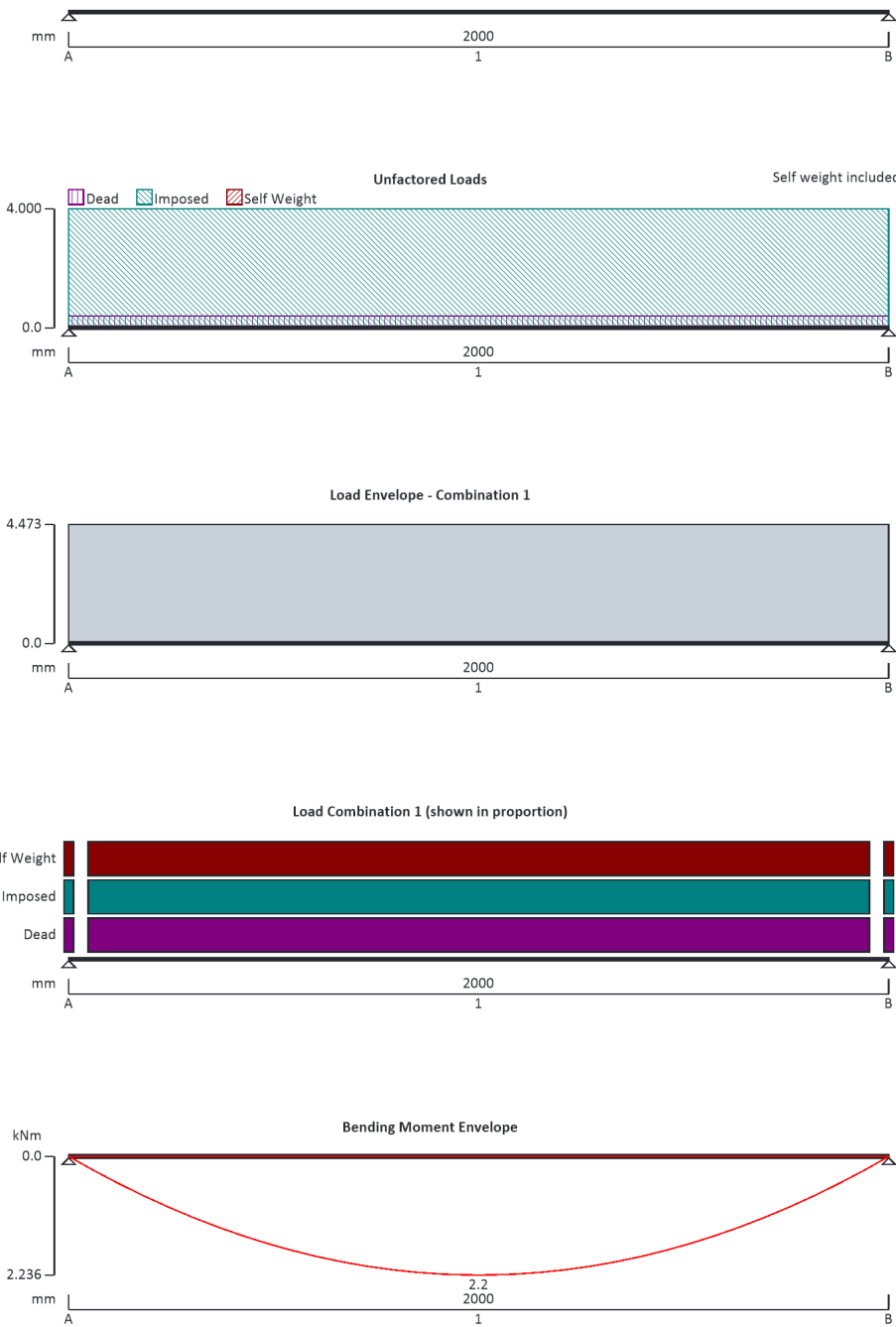
Timber section details

Breadth of section	b = 150 mm	Depth of section	h = 230 mm
Number of sections	N = 1	Breadth of beam	b _b = 150 mm
Timber strength class	C16		

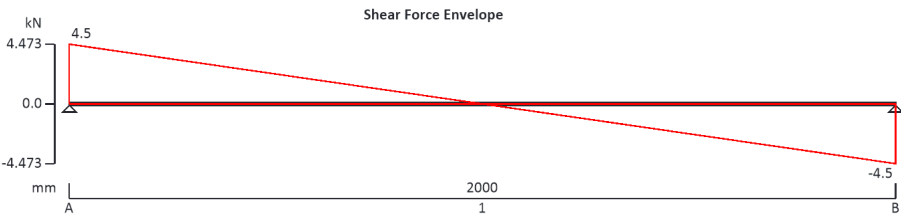
 Tekla.Tedds SB Holmes Consulting	Project				Job no.	
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	Calcs for				Start page no./Revision	
6 - Member 9				17		
Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date	
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6 - Member 9				18		
Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date	
SBH	17/04/2025	SBH	16/04/2025	SBH	16/04/2025	



Applied loading

Beam loads

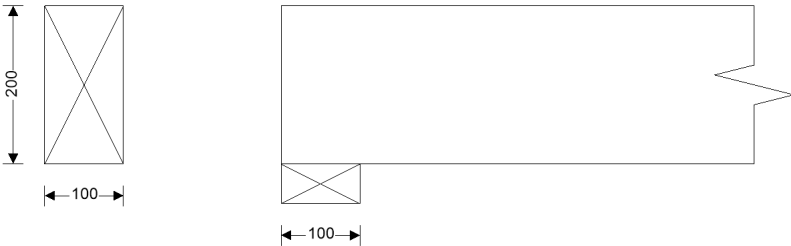
Dead full UDL 0.400 kN/m
Imposed full UDL 4.000 kN/m
Dead self weight of beam × 1

Load combinations

Load combination 1	Support A	Dead × 1.00 Imposed × 1.00 Self Weight × 1.00
	Span 1	Dead × 1.00 Imposed × 1.00 Self Weight × 1.00
	Support B	Dead × 1.00 Imposed × 1.00 Self Weight × 1.00

Analysis results

Design moment	M = 2.236 kNm	Design shear	F = 4.473 kN
Total load on beam	W _{tot} = 8.945 kN		
Reactions at support A	R _{A_max} = 4.473 kN	R _{A_min} = 4.473 kN	
Unfactored dead load reaction at support A		R _{A_Dead} = 0.473 kN	
Unfactored imposed load reaction at support A		R _{A_Imposed} = 4.000 kN	
Reactions at support B	R _{B_max} = 4.473 kN	R _{B_min} = 4.473 kN	
Unfactored dead load reaction at support B		R _{B_Dead} = 0.473 kN	
Unfactored imposed load reaction at support B		R _{B_Imposed} = 4.000 kN	



Timber section details

Breadth of section	b = 100 mm	Depth of section	h = 200 mm
Number of sections	N = 1	Breadth of beam	b _b = 100 mm
Timber strength class	C16		

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TIMBER JOIST DESIGN (BS5268-2:2002)

Tedds calculation version 1.1.04

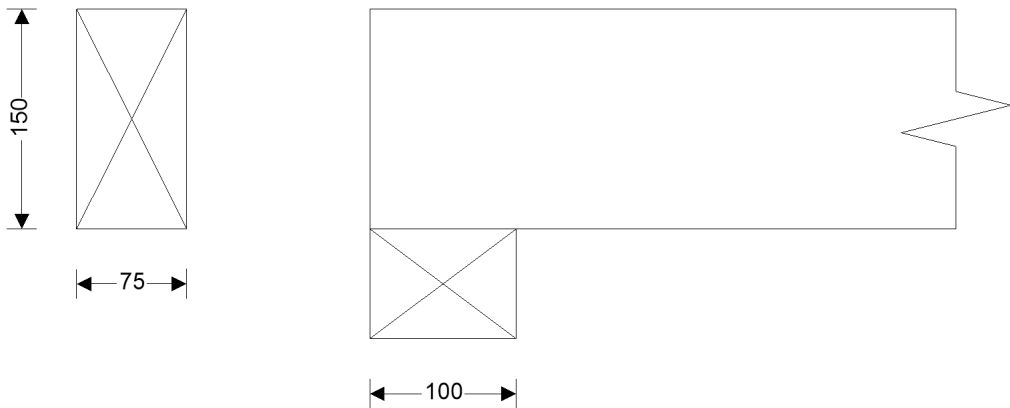
Joist details

Joist breadth	b = 75 mm	Joist depth	h = 150 mm
Joist spacing	s = 450 mm	Service class of timber	1
Timber strength class	C16		



Span details

Number of spans	N _{span} = 1	Length of bearing	L _b = 100 mm
Clear length of span	L _{s1} = 1600 mm		



Section properties

Second moment of area	I = 21093750 mm ⁴	Section modulus	Z = 281250 mm ³
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Loading details

Joist self weight	F _{swt} = 0.03 kN/m	Dead load	F _{d_udi} = 0.50 kN/m ²
Imposed UDL(Long term)	F _{i_udi} = 5.00 kN/m ²		
Imposed point load (Medium)	F _{i_pt} = 1.40 kN		

Consider long term loads

Design bending moment	M = 0.803 kNm	Design shear force	V = 2.007 kN
Design support reaction	R = 2.007 kN	Design deflection	δ = 1.309 mm

Check bending stress

Permissible bending stress	σ _{m_adm} = 6.292 N/mm ²	Applied bending stress	σ _{m_max} = 2.855 N/mm ²
PASS - Applied bending stress within permissible limits			

Check shear stress

Permissible shear stress	τ _{adm} = 0.737 N/mm ²	Applied shear stress	τ _{max} = 0.268 N/mm ²
PASS - Applied shear stress within permissible limits			

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Check bearing stress

Permissible bearing stress

$\sigma_{c_adm} = 2.420 \text{ N/mm}^2$

Applied bearing stress

$\sigma_{c_max} = 0.268 \text{ N/mm}^2$

PASS - Applied bearing stress within permissible limits

Check deflection

Permissible deflection

$\delta_{adm} = 4.800 \text{ mm}$

Actual deflection

$\delta = 1.309 \text{ mm}$

PASS - Actual deflection within permissible limits

Consider medium term loads

Design bending moment

$M = 0.643 \text{ kNm}$

Design shear force

$V = 1.607 \text{ kN}$

Design support reaction

$R = 1.607 \text{ kN}$

Design deflection

$\delta = 0.887 \text{ mm}$

Check bending stress

Permissible bending stress

$\sigma_{m_adm} = 7.865 \text{ N/mm}^2$

Applied bending stress

$\sigma_{m_max} = 2.286 \text{ N/mm}^2$

PASS - Applied bending stress within permissible limits

Check shear stress

Permissible shear stress

$\tau_{adm} = 0.921 \text{ N/mm}^2$

Applied shear stress

$\tau_{max} = 0.214 \text{ N/mm}^2$

PASS - Applied shear stress within permissible limits

Check bearing stress

Permissible bearing stress

$\sigma_{c_adm} = 3.025 \text{ N/mm}^2$

Applied bearing stress

$\sigma_{c_max} = 0.214 \text{ N/mm}^2$

PASS - Applied bearing stress within permissible limits

Check deflection

Permissible deflection

$\delta_{adm} = 4.800 \text{ mm}$

Actual deflection

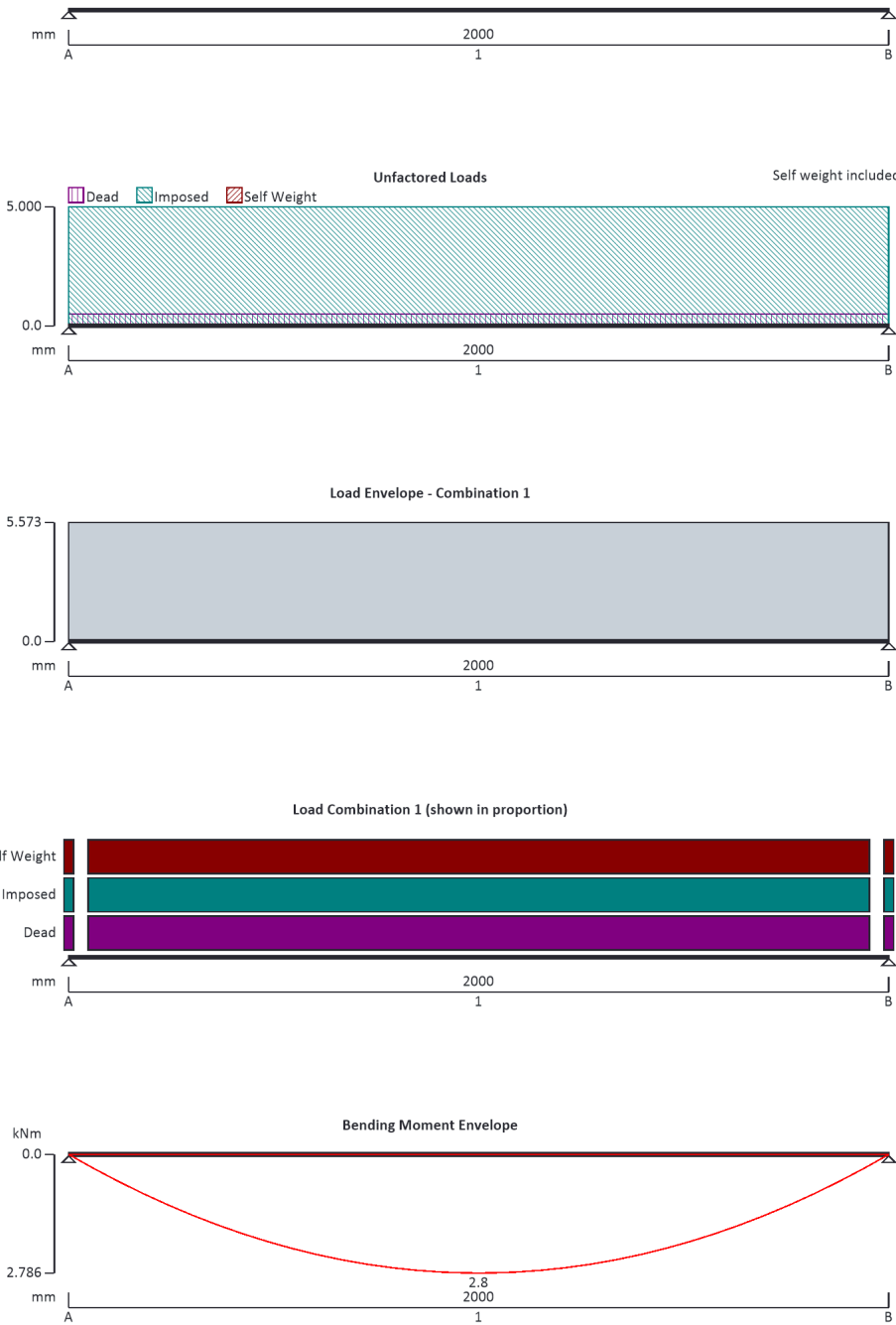
$\delta = 0.887 \text{ mm}$

PASS - Actual deflection within permissible limits

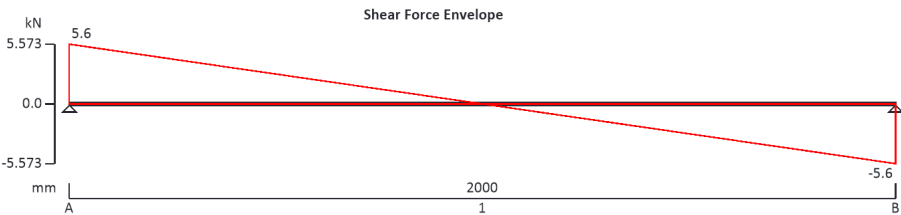
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	The Brunswick				EQ092	
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8 - Member 11				22		
Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date	
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Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date	
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Applied loading

Beam loads

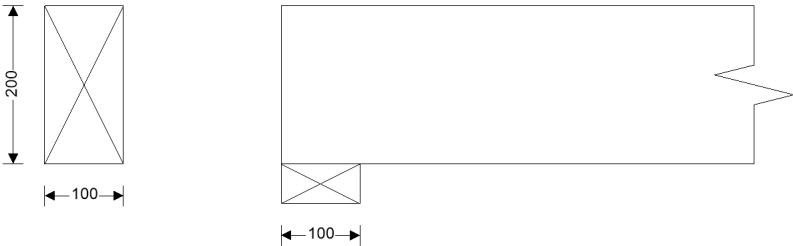
Dead full UDL 0.500 kN/m
Imposed full UDL 5.000 kN/m
Dead self weight of beam × 1

Load combinations

Load combination 1	Support A	Dead × 1.00 Imposed × 1.00 Self Weight × 1.00
	Span 1	Dead × 1.00 Imposed × 1.00 Self Weight × 1.00
	Support B	Dead × 1.00 Imposed × 1.00 Self Weight × 1.00

Analysis results

Design moment	M = 2.786 kNm	Design shear	F = 5.573 kN
Total load on beam	W _{tot} = 11.145 kN		
Reactions at support A	R _{A_max} = 5.573 kN	R _{A_min} = 5.573 kN	
Unfactored dead load reaction at support A		R _{A_Dead} = 0.573 kN	
Unfactored imposed load reaction at support A		R _{A_Imposed} = 5.000 kN	
Reactions at support B	R _{B_max} = 5.573 kN	R _{B_min} = 5.573 kN	
Unfactored dead load reaction at support B		R _{B_Dead} = 0.573 kN	
Unfactored imposed load reaction at support B		R _{B_Imposed} = 5.000 kN	



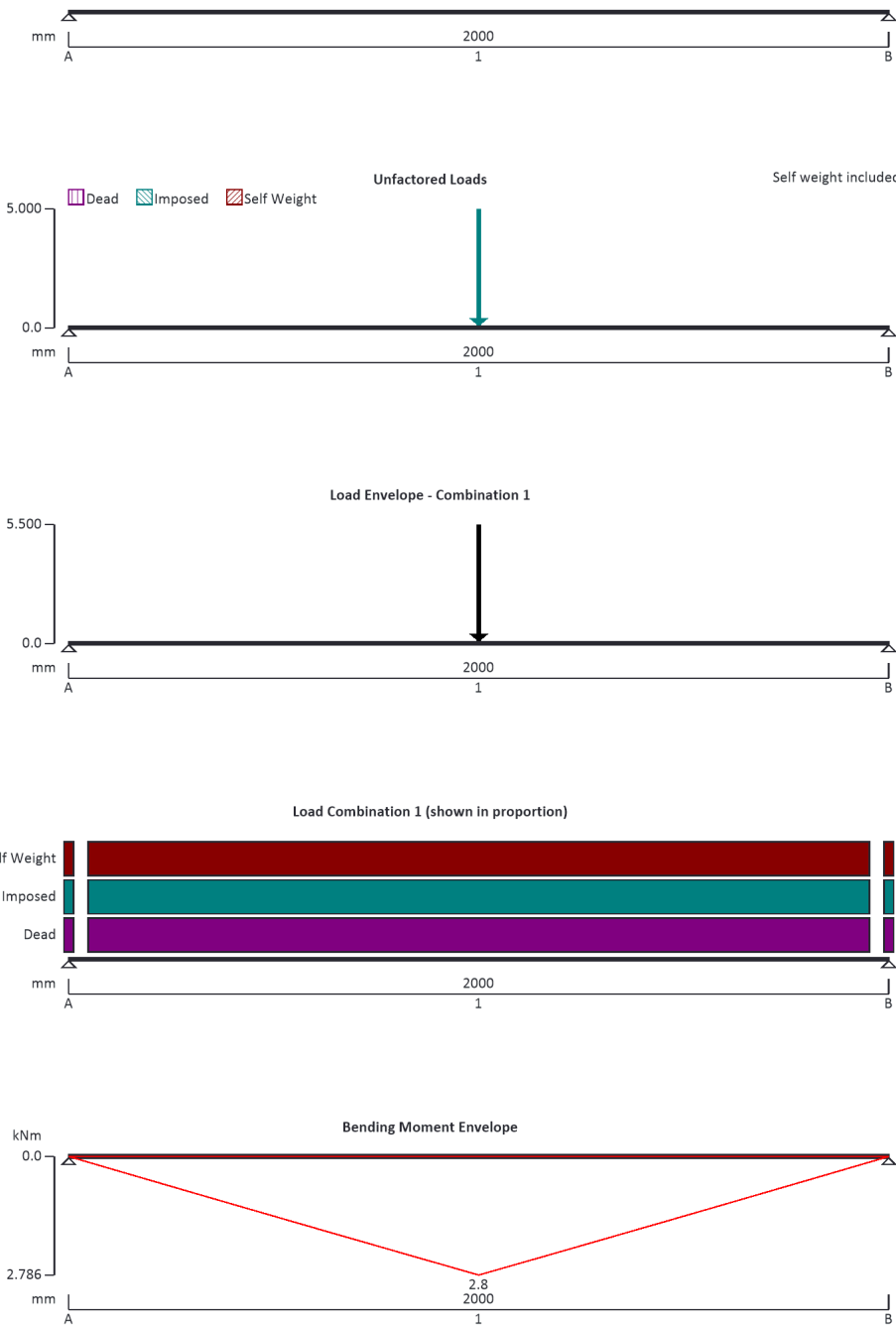
Timber section details

Breadth of section	b = 100 mm	Depth of section	h = 200 mm
Number of sections	N = 1	Breadth of beam	b _b = 100 mm
Timber strength class	C16		

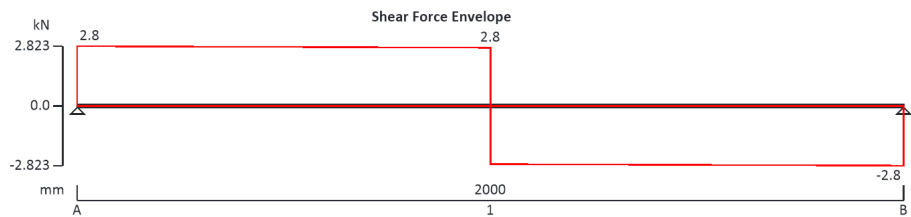
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9 - Member 12				24		
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TIMBER BEAM ANALYSIS & DESIGN TO BS5268-2:2002

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Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date	
SBH	17/04/2025	SBH	16/04/2025	SBH	16/04/2025	



Applied loading

Beam loads

Dead point load 0.500 kN at 1000 mm
Imposed point load 5.000 kN at 1000 mm
Dead self weight of beam $\times 1$

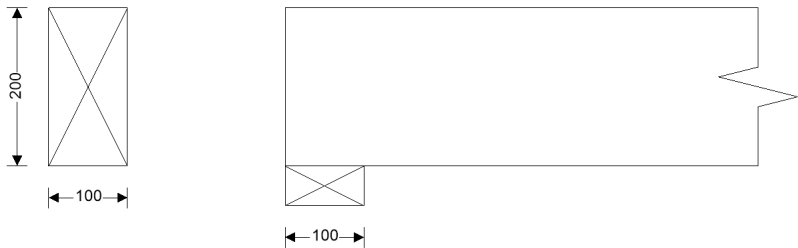
Load combinations

Load combination 1

Support A	Dead $\times 1.00$ Imposed $\times 1.00$ Self Weight $\times 1.00$
Span 1	Dead $\times 1.00$ Imposed $\times 1.00$ Self Weight $\times 1.00$
Support B	Dead $\times 1.00$ Imposed $\times 1.00$ Self Weight $\times 1.00$

Analysis results

Design moment	M = 2.786 kNm	Design shear	F = 2.823 kN
Total load on beam	W _{tot} = 5.645 kN		
Reactions at support A	R _{A_max} = 2.823 kN	R _{A_min} = 2.823 kN	
Unfactored dead load reaction at support A		R _{A_De} = 0.323 kN	
Unfactored imposed load reaction at support A		R _{A_Im} = 2.500 kN	
Reactions at support B	R _{B_max} = 2.823 kN	R _{B_min} = 2.823 kN	
Unfactored dead load reaction at support B		R _{B_De} = 0.323 kN	
Unfactored imposed load reaction at support B		R _{B_Im} = 2.500 kN	

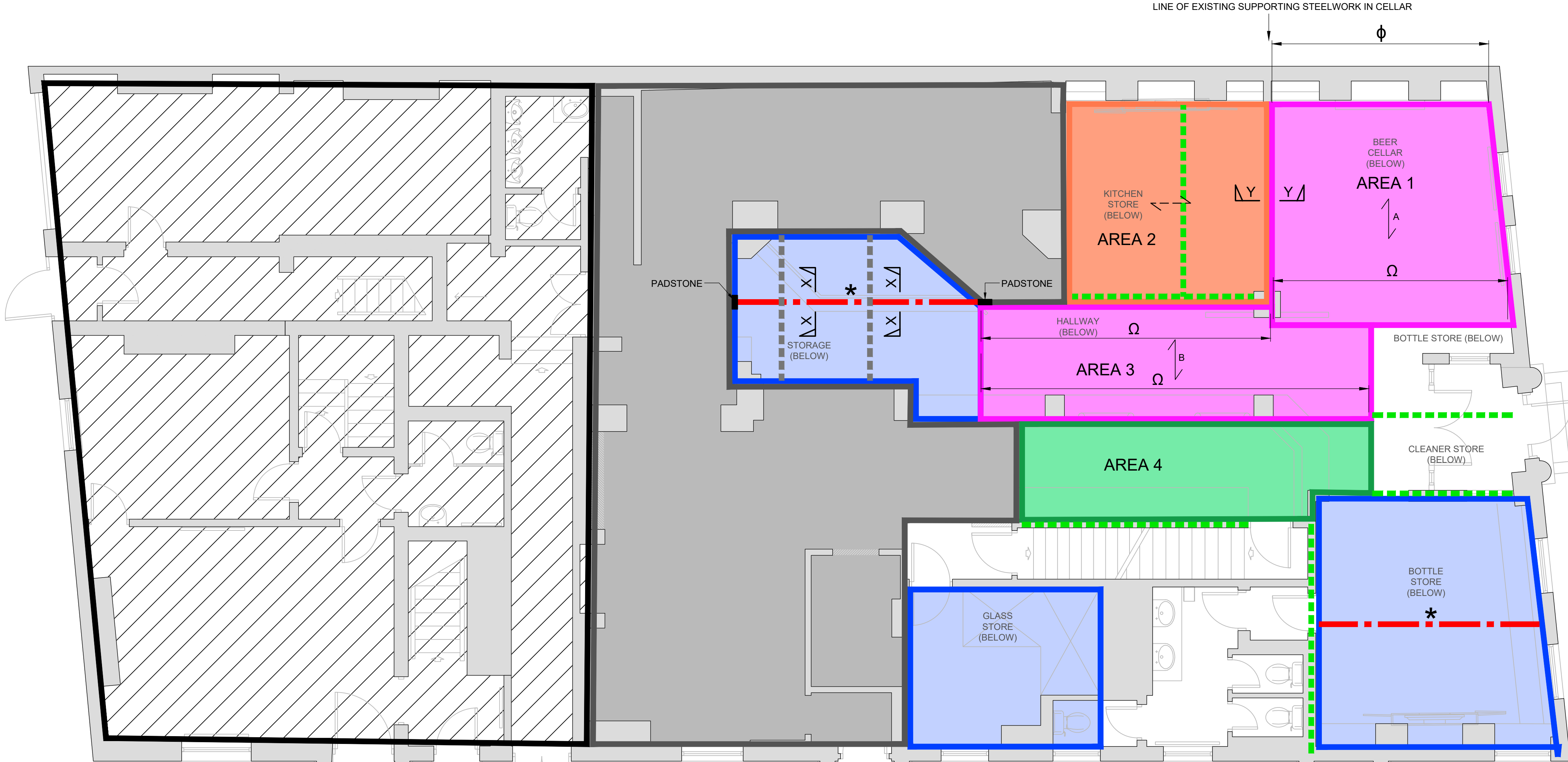


Timber section details

Breadth of section	b = 100 mm	Depth of section	h = 200 mm
Number of sections	N = 1	Breadth of beam	b _b = 100 mm
Timber strength class	C16		

7. Appendix C – Proposals





KEY:

- DENOTES ESTIMATED POSITION OF SUPPORTING WALLS IN CELLAR
- DENOTES EXISTING BEAM
- DENOTES AREA OF FLOOR TO BE RETAINED. EXISTING 50x175mm DEEP TIMBERS TO BE PACKED OFF EXISTING WALL MID-SPAN
- DENOTES AREAS OF FLOOR TO BE REPLACED. ALLOW FOR THE FOLLOWING:
 - A DENOTES SPAN OF NEW 75x250mm DEEP C24 TIMBER GROUND FLOOR JOISTS @ 400mm C/C (AREA 1 - OVER CELLAR)
 - B DENOTES SPAN OF NEW 75x200mm DEEP C24 TIMBER GROUND FLOOR JOISTS @ 400mm C/C (AREA 3 - OVER HALLWAY & AREA 4 BELOW REAR OF BAR)
 - DENOTES SPAN OF EXISTING FLOOR JOISTS TO BE RETAINED. WALL BELOW TO BE PACKED TIGHT TO UNDERSIDE OF JOISTS
- DENOTES AREAS OF FLOOR TO RETAINED. FOR PRICING PURPOSES ALLOW FOR THE INSTALLATION OF FOLLOWING STEEL SUPPORTS: (AS INDICATED ON THE PLAN)
- DENOTES AREAS OF FLOOR TO RETAINED. FURTHER INSPECTION ON SITE TO BE CONFIRMED
- * DENOTES NEW 203x203x46 UKC ON ENGINEERING BRICK PADSTONES - SEE DETAIL
- DENOTES AREAS OF ASSUMED GROUND BEARING FLOOR SLAB. ALLOW PROVISIONAL SUM FOR MAKING GOOD 50% OF FLOOR
- φ DENOTES JOISTS TO BE POKETED INTO EXISTING WALL AND WRAPPED IN DPM
- Ω DENOTES NEW JOISTS TO BE SUPPORTED ON EXISTING WALL. ALLOW FOR 100x75mm DEEP C24 TIMBER WALLPLATE TO TOP OF WALL, WHERE POSSIBLE (TO BE REVIEWED ON SITE)

STEELWORK

NEW STRUCTURAL STEELWORK TO BE GRADE S355. ALL STEELWORK TO BE FREE OF RUST BUILD-UP, GREASE, DIRT, MILL SCALE etc. AND PAINTED WITH A SUITABLE POST-FABRICATION PRIMER, e.g. HIGH-BUILD ZINC PHOSPHATE (MIN. 75 MICRONS dft), PRIMER TO BE TOUCHED UP ON SITE, AFTER ERECTION OF STEELWORK. BEAMS TO BE ENCASED IN 'FIRELINED' BOARD TO ACHIEVE 1 HOUR FIRE RESISTANCE. STEELWORK CONNECTIONS UNLESS SHOWN TO BE DESIGNED BY THE STEELWORK CONTRACTOR AND DETAILS FORWARDED TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION. ALL STEELWORK TO BE CE MARKED TO EXECUTION CLASS 2 (EXC2).

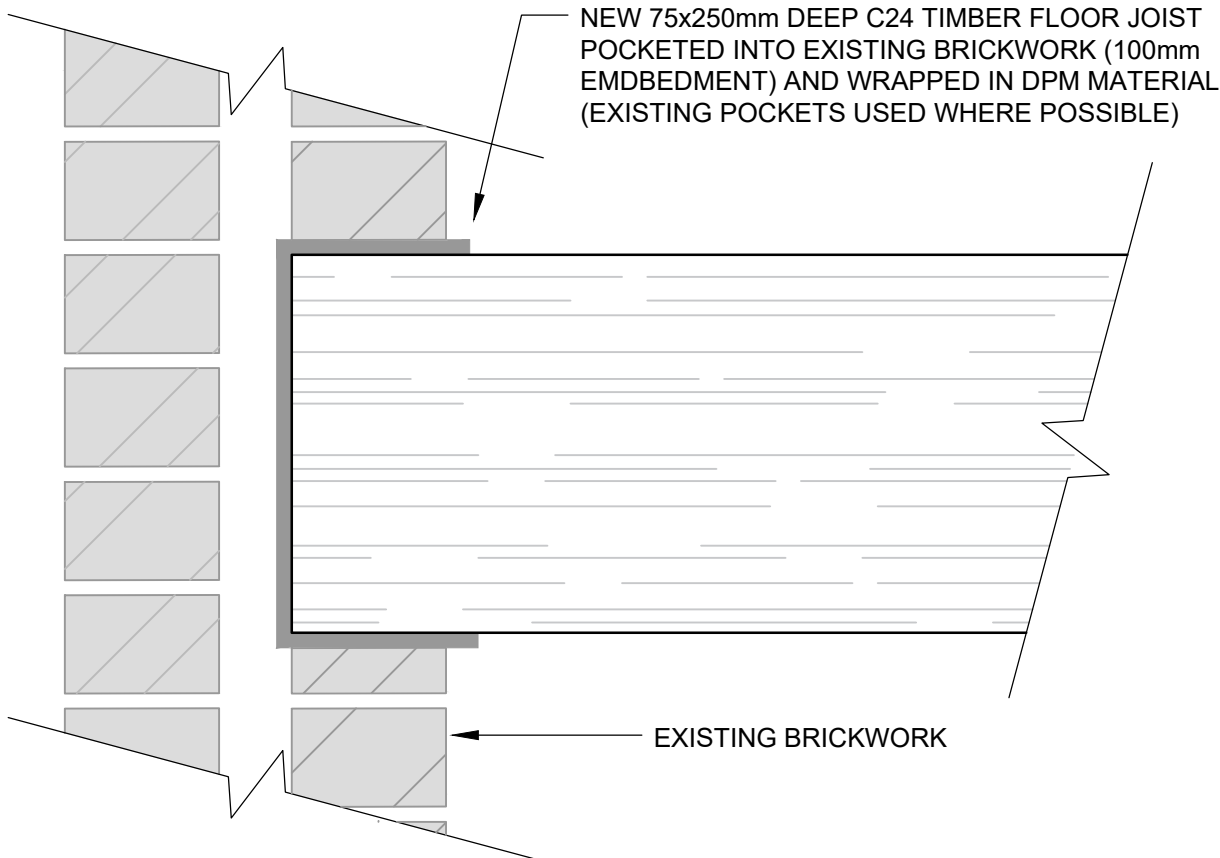
PADSTONES

BLUE (CLASS 'A') ENGINEERING BRICKS SET IN DESIGNATION (i) MORTAR i.e. 1:3 (CEMENT : SAND) MIX.

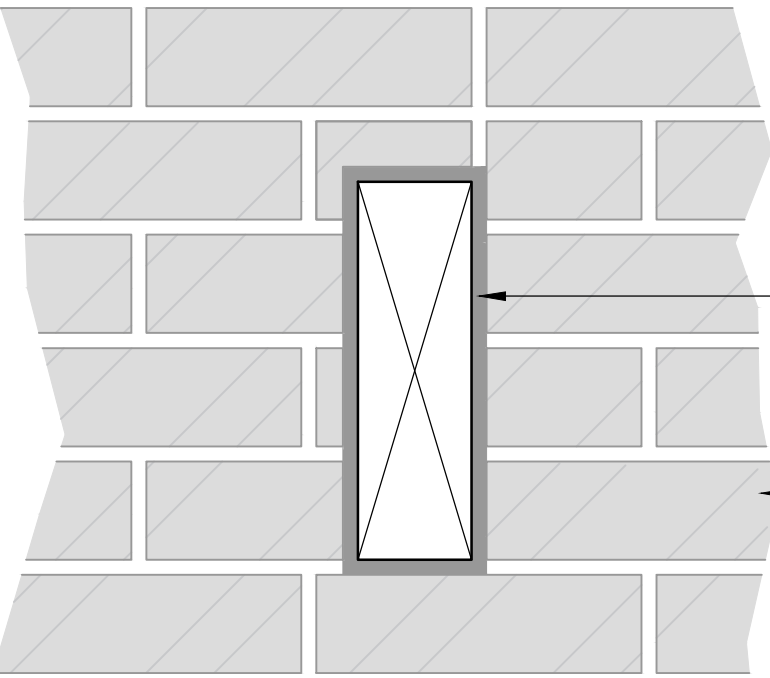
GROUND FLOOR GENERAL ARRANGEMENT
(SHOWING FLOOR REMEDIAL WORKS)

SCALE 1:50

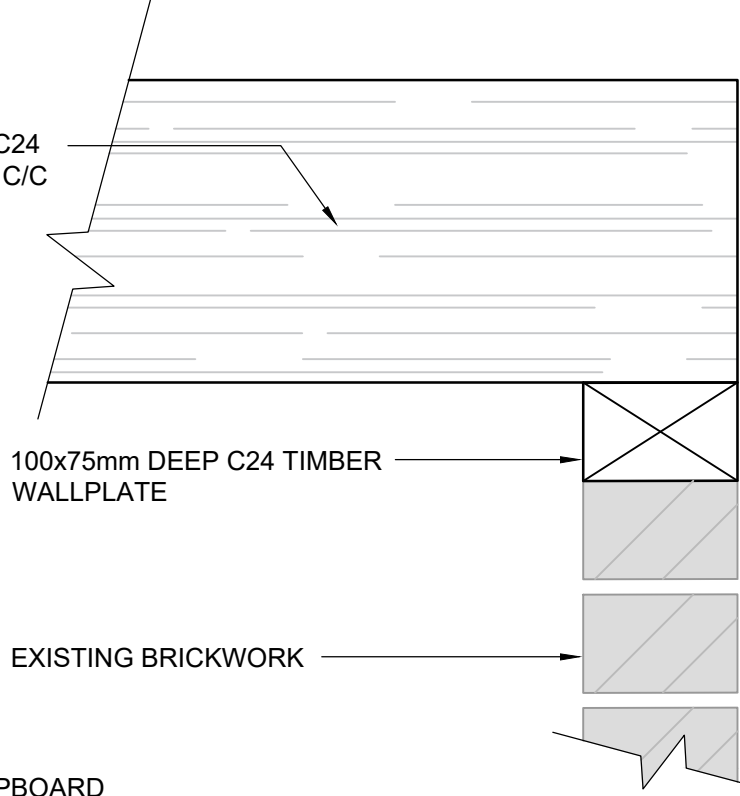
NEW 75x250mm DEEP OR 75x200mm DEEP C24
TIMBER GROUND FLOOR JOISTS @ 400mm C/C



TYPICAL JOIST POCKET DETAIL φ
(VIEW 1)
SCALE 1:5



TYPICAL JOIST POCKET DETAIL φ
(VIEW 2)
SCALE 1:5



TYPICAL JOIST SUPPORT DETAIL Ω
SCALE 1:5

DEMOLITIONS AND PROPPING

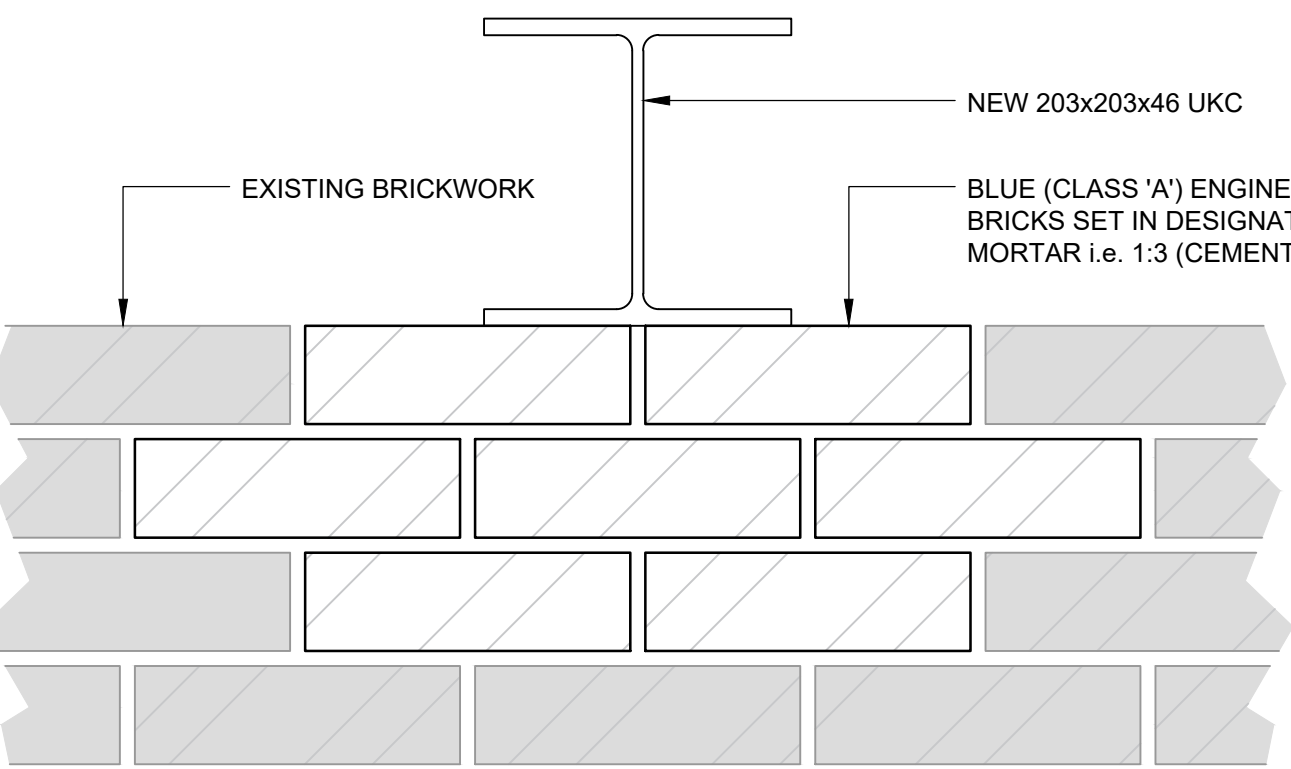
THE EXISTING STRUCTURAL ELEMENTS ARE TO BE FULLY EXPOSED PRIOR TO ANY DEMOLITIONS AND ALTERATIONS BEING CARRIED OUT. THE ENGINEER IS TO BE NOTIFIED OF ANY DISCREPANCIES FROM THE DETAILS SHOWN ON THE DRAWINGS. METHOD STATEMENTS SHOULD BE PREPARED FOR ALL DEMOLITION WORKS, OUTLINING IN SEQUENCE ALL THE NECESSARY TASKS INVOLVED, INCLUDING FULL DETAILS OF ALL THE NECESSARY PROPPING, AND DETAILS FORWARDED TO THE PLANNING SUPERVISOR OF THE PROJECT. TO CONTRACTOR IS SOLELY RESPONSIBLE FOR TEMPORARY WORKS AND A SUITABLY EXPERIENCED PERSON MUST OVERSEE ANY DEMOLITION AND PROPPING WORKS

TIMBER

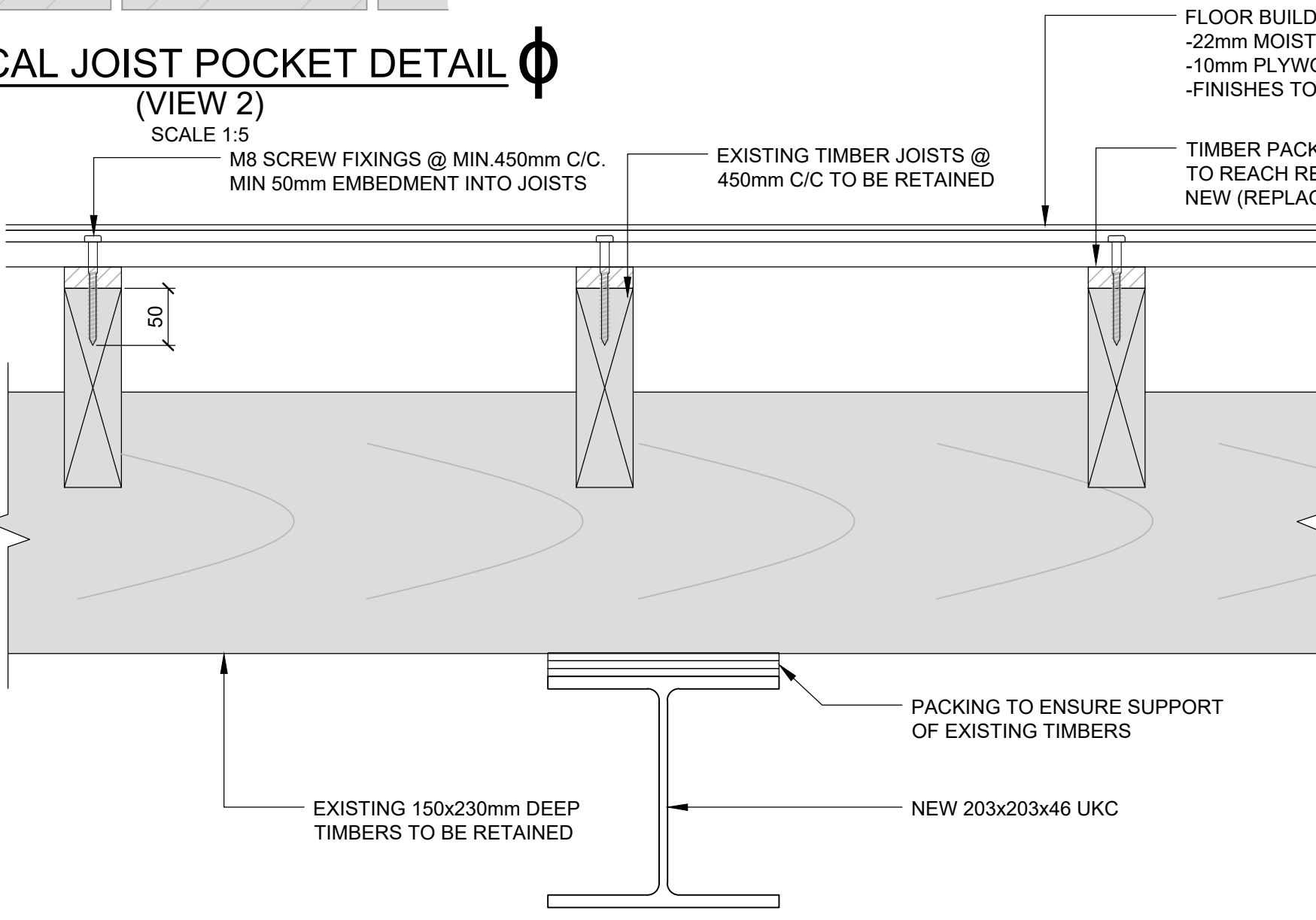
STRUCTURAL SOFTWOOD GRADED C24 IN ACCORDANCE WITH BS EN 14081-1 AND STAMPED ACCORDINGLY BY A CERTIFIED TIMBER GRADING AGENCY. ALL ELEMENTS DIMENSIONS TO CONFORM TO THE FOLLOWING TOLERANCES: W(T1) x D(T2), WHERE W AND D ARE THE WIDTH AND DEPTH OF THE ELEMENT RESPECTIVELY. T1 AND T2 REFER TO TOLERANCE CLASSES SET OUT IN BS EN 336, WHERE T1 IS +3/-1mm FOR WIDTHS LESS THAN 100mm AND +4/-2mm THEREAFTER, AND T2 IS ±1mm FOR DEPTHS LESS THAN 100mm AND ±1.5mm THEREAFTER. STRUCTURAL TIMBER MEMBERS CUT FROM LARGE GRADED SECTIONS ARE TO BE RE-GRADED AND MARKED ACCORDINGLY IF THE REDUCTION IN SECTION SIZE EXCEEDS THE LIMIT SPECIFIED IN BS EN 14081-1. ALL TIMBER ELEMENTS ARE TO HAVE ADEQUATE NATURAL DURABILITY IN ACCORDANCE WITH EN 350-2 FOR THE APPROPRIATE HAZARD CLASS (DEFINED IN EN 335-1, EN 335-2 AND EN 335-3), OR BE GIVEN A PRESERVATIVE TREATMENT SELECTED IN ACCORDANCE WITH EN 351-1 AND EN 460. ANY APPLIED TREATMENT SHALL NOT BE DETRIMENTAL TO ANY FIXING IN CONTACT WITH TIMBER MEMBERS. METAL FASTENERS SHALL COMPLY WITH EN 14592 AND METAL CONNECTORS SHALL COMPLY WITH EN 14545. METAL FASTENERS AND OTHER STRUCTURAL CONNECTIONS SHALL BE INHERENTLY CORROSION-RESISTANT OR BE PROTECTED AGAINST CORROSION IN ACCORDANCE TO TABLE 4.1 OF BS EN 1995-1-1 RELATED TO ISO 2081. ALL ELEMENTS ARE TO BE EITHER CE MARKED AND STATED TO CONFORM TO THE ABOVE SPECIFICATIONS IN THEIR DECLARATION OF PERFORMANCE DOCUMENTS OR CERTIFIED VIA THIRD PARTY CERTIFICATION FROM NOTIFIED BODIES AND STATED TO CONFORM TO THE ABOVE SPECIFICATIONS IN THEIR CERTIFICATION DOCUMENTS WHICH MUST BE IN ACCORDANCE WITH BS EN 338. ANY DISCREPANCIES FROM THE ABOVE MUST BE REPORTED TO THE STRUCTURAL ENGINEER AND A WRITTEN APPROVAL MUST BE OBTAINED PRIOR TO THE COMMENCEMENT OF WORKS.

ALL DETAILS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTS PLANS, SECTIONS & DETAILS

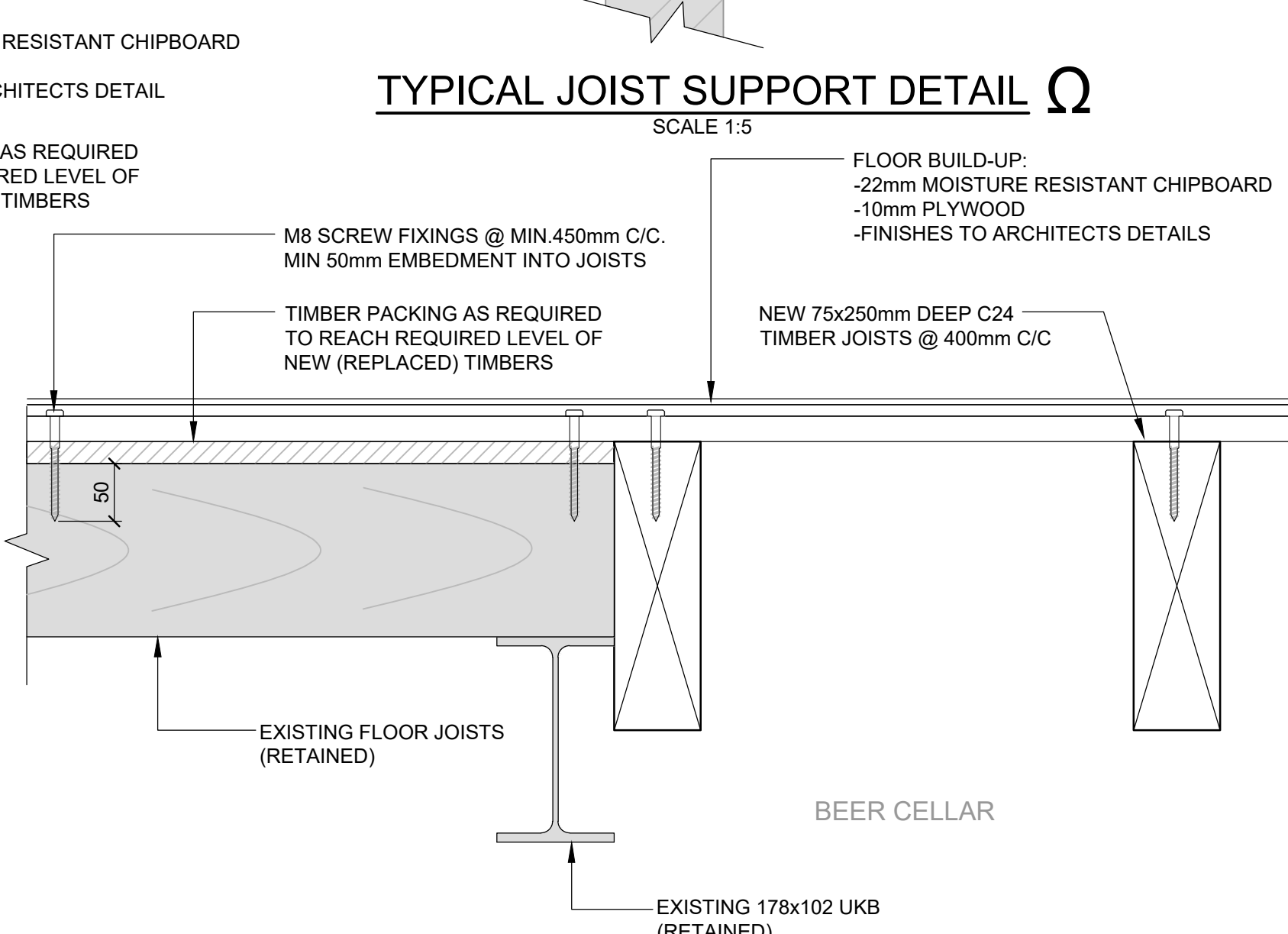
ALL LEVELS, BUILDING & SETTING OUT DIMENSIONS IN
ACCORDANCE WITH ARCHITECTS DRAWINGS AND DETAILS



TYPICAL PADSTONE P1 ELEVATION
SCALE 1:5



SECTION X - X
SCALE 1:5



SECTION Y - Y
SCALE 1:5

REV.	DATE	DRAWN	DESCRIPTION	CHKD	APPRD
STATUS					
FOR APPROVAL					
CLIENT			TRUST PUBS		
PROJECT			INTERNAL REFURBISHMENT		
LOCATION			THE BRUNSWICK, MANCHESTER		
DRAWING TITLE			PROPOSED STRUCTURAL PLAN		
DRAWING No.			REF.		REVISION
DR-001			EQ92		P06
			DATE		SCALE(S)
			JANUARY 2025		AS SHOWN
					A1