

11 July 2025

Ref: 26800.250708.L1

Sadie Bosom
Managing Director
The Substantia Group

Dear Sadie,

44-46 THE GROVE, GRAVESEND, KENT**1 INTRODUCTION**

This Technical Note has been prepared in relation to the proposed upward extension at 44-46 The Grove, Gravesend in Kent. The purpose of this note is to assess whether the conclusions of the previous Noise Impact Assessment (undertaken to support the prior Class MA application) remain valid in light of the proposed addition of a further floor to the development. The update has been prepared to support a new full planning application for a single storey upwards extension to provide a further six residential units on the site.

2 PROJECT HISTORY

A previous Noise Impact Assessment Report 26800.NIA.02 (dated 04 Oct. 2024) had been prepared in line with the requirements of the Local Authority and with Permitted Development Rights (Class MA – offices to dwellings/houses) covering the proposed residential units from Ground to Third Floor.

An external noise survey was undertaken along the front and rear of the site. Ambient $L_{Aeq,T}$ noise levels were measured as follows:

- Position 1 (Front Façade) – 55dBA (daytime) and 51dBA (night-time)
- Position 2 (Rear Façade) – 50dBA (daytime) and 46dBA (night-time).

An internal noise survey was undertaken that demonstrated that internal $L_{Aeq,T}$ noise levels were 25dBA (daytime) and 23dBA (night-time) with the existing glazing installed. This would be compliant with the requirements of the Class MA application, which concerns that commercial noise sources should not negatively impact on the development site. Therefore, it was determined that the existing glazing would be suitable to control noise levels within the proposed dwellings.

A minimum glazing specification was proposed, in the event that the existing glazing was proposed to be removed and replaced with a new primary glazing system. The minimum acoustic specification is provided as follows, and should be achievable by the entire glazing system, including the frames, seals, etc.

Elevation	Sound reduction index (dB) at octave band centre frequency (Hz)						R _w (C; C _{tr}) dB
	125	250	500	1k	2k	4k	
All elevations	24	20	25	34	37	35	31 (-2;-4)

Table 2.1 Glazing specification

3 PROPOSAL

It has been proposed to add an additional storey at fourth floor level to the property, providing additional dwellings.

A preliminary drawing (dated Sept. 2024, project no. 22.0101, drawing no. 300.010), enclosed within the Appendix, indicates that six (6no.) new dwellings are proposed. Each dwelling features a small balcony and is in a 1-bed or 2-bed configuration.

4 NOISE ASSESSMENT GUIDANCE

In order to demonstrate if the proposed external building fabric of the Level 4 extension would be sufficient to protect the future residents, the measured internal noise levels would be assessed against the recommendations of the British Standard BS8233:2014 *Sound insulation and noise reduction for buildings*.

BS8233 describes recommended internal noise levels for residential spaces. These levels are shown in the following table.

Activity	Location	Period	
		Daytime 07:00-23:00	Night-time 23:00-07:00
Resting	Living Rooms	35 dBA	-
Dining	Dining Room/area	40 dBA	-
Sleeping (daytime resting)	Bedrooms	35 dBA	30 dBA

Table 4.1 BS8233 recommended internal background noise levels

5 EXTERNAL BUILDING FABRIC ASSESSMENT

The new extension is designed with a standing seam zinc mansard roof, which is dressed into the top of the existing brick parapet walls. It is currently understood that the non-glazed building façade is comprised of the following elements:

Roof build-up:

- Flat roof surfaces: Single-ply membrane roofing system over rigid insulation.
- Sloped elevations and dormers: Standing seam zinc cladding.

External walls:

- Proposed to be a high-performance insulated steel framing system (SFS) or similar.
- The outer face will be finished using the existing or new brickwork to match and integrate with the existing parapet walls.

Sound reduction performance calculations have been undertaken to demonstrate that internal noise levels within the dwellings at Level 4 would adhere to the criteria presented within BS8233:2014 with the glazing proposed within the original KP Acoustics' Noise Impact Assessment Report 26800.NIA.02 (dated 04 Oct. 2024).

The following noise levels have been predicted internally, compared with the requirements of BS8233. Please note that the full acoustic calculations are enclosed within the Appendix.

Period	Predicted internal noise level (dBA)	BS8233:2014 criteria (dBA)	Compliant with criteria?
FRONT FAÇADE			
Daytime 0700-2300	34	≤ 35	✓
Night-time 2300-0700	29	≤ 30	✓
REAR FAÇADE			
Daytime 0700-2300	29	≤ 35	✓
Night-time 2300-0700	26	≤ 30	✓

Table 5.2 Predicted noise levels

Therefore, provided that the advice from the previous KP Acoustics' Noise Impact Assessment Report 26800.NIA.02 is adhered to, the requirements of BS8233 will have been met. Therefore, no further mitigation measures would be required to achieve suitable internal noise levels.

6 CONCLUSION

External environmental noise levels have been used in conjunction with the acoustic assessment calculations to demonstrate that internal noise levels within dwellings at the Level 4 extension would be in line with typical planning requirements, provided that the glazing specification presented within Table 2.1 and the original KP Acoustics' Noise Impact Assessment Report 26800.NIA.02 (dated 04 Oct. 2024) is adhered to.

We trust that the above information is sufficient with regards to answering the key issues raised.

Yours sincerely,

Jacob Tyler-White MIOA
KP Acoustics Ltd

Attachments

Appendix External Building Fabric Assessment Calculations

Enclosed Holloway Drawings

APPENDIX

44-46 The Grove, Gravesend - Front Façade

EXTERNAL BUILDING FABRIC CALCULATIONS

British Standard BS8233:2014, Section G.2 - Internal noise level calculation method:		
$L_{eq,2} = L_{eq,ff} + 10 \log_{10} \left(\frac{A_0}{S} 10^{\frac{-D_{n,e}}{10}} + \frac{S_{wi}}{S} 10^{\frac{-R_{wi}}{10}} + \frac{S_{ew}}{S} 10^{\frac{-R_{ew}}{10}} + \frac{S_{rr}}{S} 10^{\frac{-R_{rr}}{10}} \right) + 10 \log_{10} \left(\frac{S}{A} \right) + 3$		
$L_{eq,2}$	Sound pressure level in a room (dB).	S is the total area in m^2 of the elements through which sound enters the room.
$L_{eq,ff}$	Equivalent continuous free-field sound pressure level outside the room façade.	$D_{n,e}$ is the insulation of the trickle ventilation measured according to BS EN ISO 10140.
A_0	is a reference absorption area of 10m ² and is independent of frequency.	R_{wi} is the sound reduction index SRI of the window.
S_f	is the total façade area in m^2 of the room in question.	R_{ew} is the sound reduction index SRI of the external wall.
S_{wi}	is the area in m^2 of the windows of the room.	R_{rr} is the sound reduction index SRI of the roof/ceiling.
S_{ew}	is the area in m^2 of the external wall of the room.	A is the equivalent absorption area of receiving room being considered.
S_{rr}	is the area in m^2 of the ceiling of the room.	

Description	Measured External Free-Field Noise Levels (dB)						dBA
	125	250	500	1k	2k	4k	
Daytime Ambient Noise Level (Leq,T)	58	54	52	51	47	41	55
Night-Time Ambient Noise Level (Leq,T)	53	49	46	46	43	37	51

Room Properties	
Façade width (m)	2.5
Room height (m)	2.5
Room depth (m)	4.3
Window area (m ²)	2.8
No. of trickle Vents	0

Element	Sound reduction index of elements (dB) at octave band centre frequency (Hz)						Overall (dB)
	125	250	500	1k	2k	4k	
Non-Glazed	27	38	45	49	50	50	47(-2;-7) Rw(C; Ctr)
Glazing	24	20	25	34	37	35	31(-2;-4) Rw(C; Ctr)
Roof	21	26	33	33	35	35	34(-1;-4) Rw(C; Ctr)

Predicted Internal Noise Levels (dB)							dBA	Criteria
Description	125	250	500	1k	2k	4k		
Daytime Ambient Noise Level (Leq,T)	44	38	29	23	15	10	34	35
Night-Time Ambient Noise Level (Leq,T)	39	33	24	18	12	6	29	30

APPENDIX

44-46 The Grove, Gravesend - Rear Façade

EXTERNAL BUILDING FABRIC CALCULATIONS

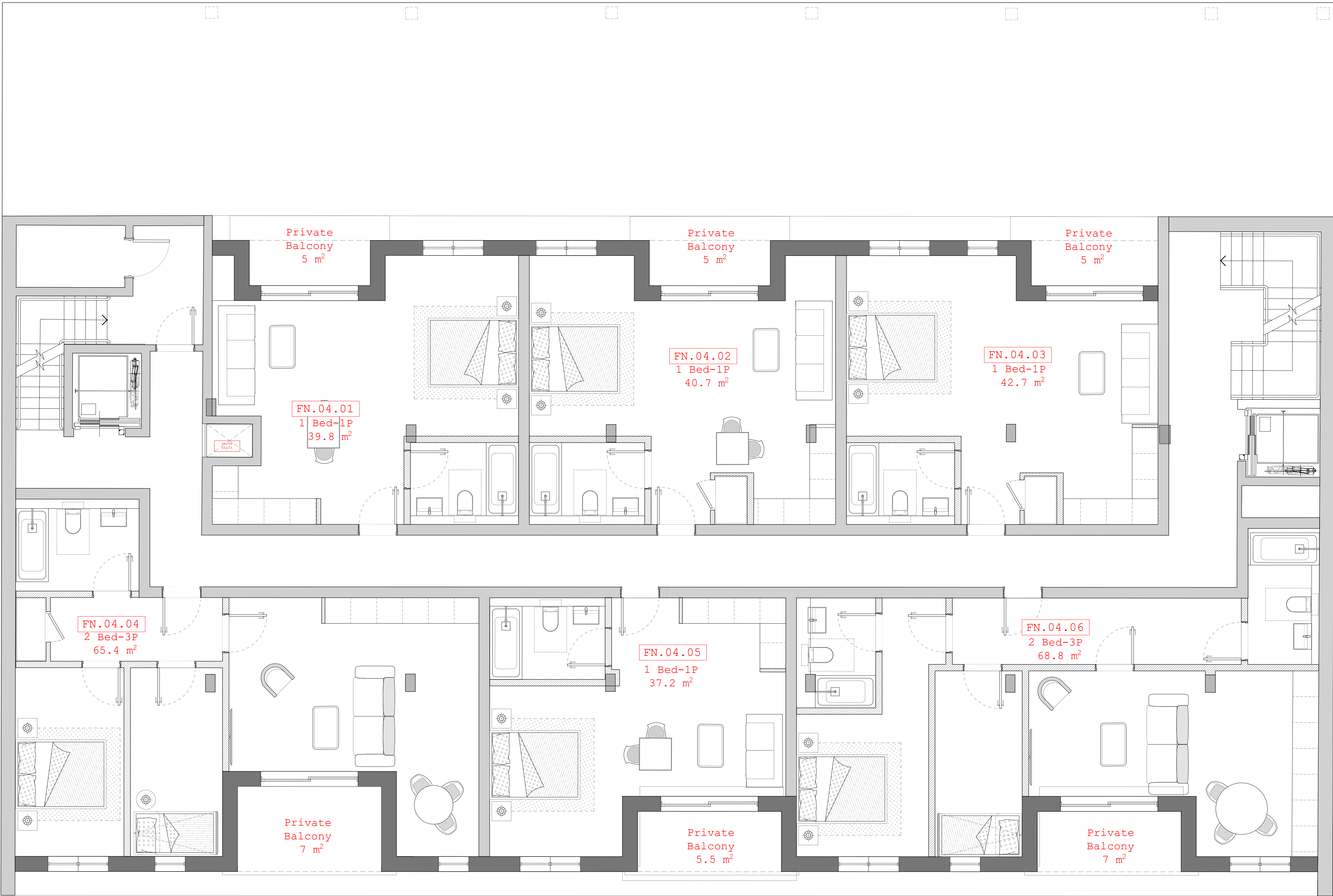
British Standard BS8233:2014, Section G.2 - Internal noise level calculation method:		
$L_{eq,2} = L_{eq,ff} + 10 \log_{10} \left(\frac{A_0}{S} 10^{\frac{-D_{n,e}}{10}} + \frac{S_{wi}}{S} 10^{\frac{-R_{wi}}{10}} + \frac{S_{ew}}{S} 10^{\frac{-R_{ew}}{10}} + \frac{S_{rr}}{S} 10^{\frac{-R_{rr}}{10}} \right) + 10 \log_{10} \left(\frac{S}{A} \right) + 3$		
$L_{eq,2}$	Sound pressure level in a room (dB).	S is the total area in m^2 of the elements through which sound enters the room.
$L_{eq,ff}$	Equivalent continuous free-field sound pressure level outside the room façade.	$D_{n,e}$ is the insulation of the trickle ventilation measured according to BS EN ISO 10140.
A_0	is a reference absorption area of 10m ² and is independent of frequency.	R_{wi} is the sound reduction index SRI of the window.
S_f	is the total façade area in m^2 of the room in question.	R_{ew} is the sound reduction index SRI of the external wall.
S_{wi}	is the area in m^2 of the windows of the room.	R_{rr} is the sound reduction index SRI of the roof/ceiling.
S_{ew}	is the area in m^2 of the external wall of the room.	A is the equivalent absorption area of receiving room being considered.
S_{rr}	is the area in m^2 of the ceiling of the room.	

Description	Measured External Free-Field Noise Levels (dB)						dBA
	125	250	500	1k	2k	4k	
Daytime Ambient Noise Level (Leq,T)	53	49	47	46	41	32	50
Night-Time Ambient Noise Level (Leq,T)	49	46	43	43	37	28	47

Room Properties	
Façade width (m)	2.5
Room height (m)	2.5
Room depth (m)	4.3
Window area (m ²)	2.8
No. of trickle Vents	0

Element	Sound reduction index of elements (dB) at octave band centre frequency (Hz)						Overall (dB)	
	125	250	500	1k	2k	4k		
Non-Glazed	27	38	45	49	50	50	47(-2;-7)	Rw(C; Ctr)
Glazing	24	20	25	34	37	35	31(-2;-4)	Rw(C; Ctr)
Roof	21	26	33	33	35	35	34(-1;-4)	Rw(C; Ctr)

Predicted Internal Noise Levels (dB)							dBA	Criteria
Description	125	250	500	1k	2k	4k		
Daytime Ambient Noise Level (Leq,T)	40	33	24	18	10	1	29	35
Night-Time Ambient Noise Level (Leq,T)	36	30	20	15	6	-3	26	30



PROPOSED ROOF PLAN EXTENSION - 7 UNITS, ALL WITH PRIVATE TERRACES

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Project Number	44-46 THE GROVE
Client	THE SUBSTANTIA GROUP
Title	DRAWING TITLE
Status	PRELIMINARY
Scale@A1	1:100
Date	SEP.24
Drawn	AD
Chk'd	MWJ

Project Number	Drawing Number	Revision
22.0101	300.010	----

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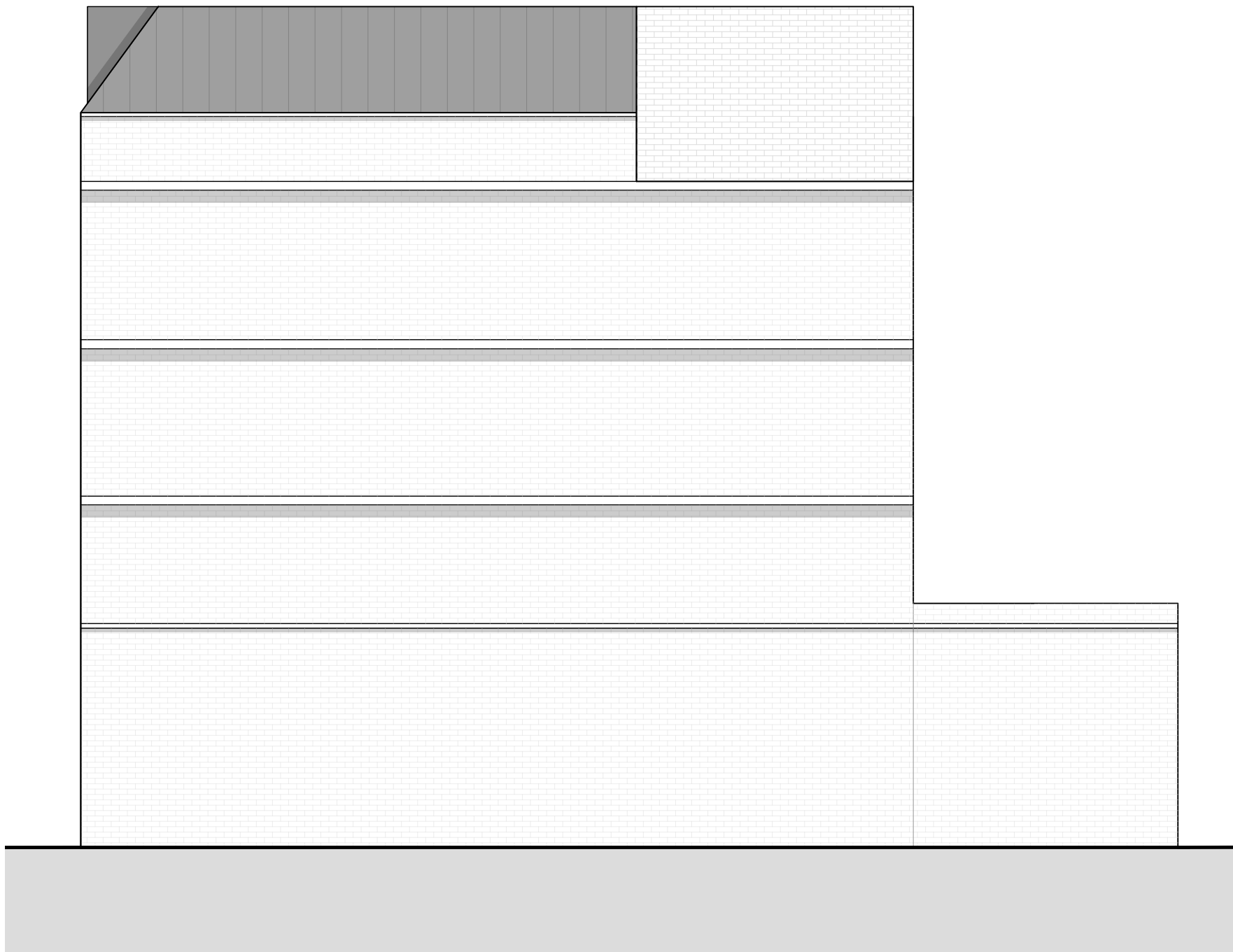
1 East Facing Proposed Elevation (Entrance from The Grove)



2 South Facing Proposed Elevation



3 West Facing Proposed Elevation



4 East Facing Proposed Elevation

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Project | 44-46 THE GROVE

GRAVESEND,----

Client | THE SUBSTANTIA GROUP

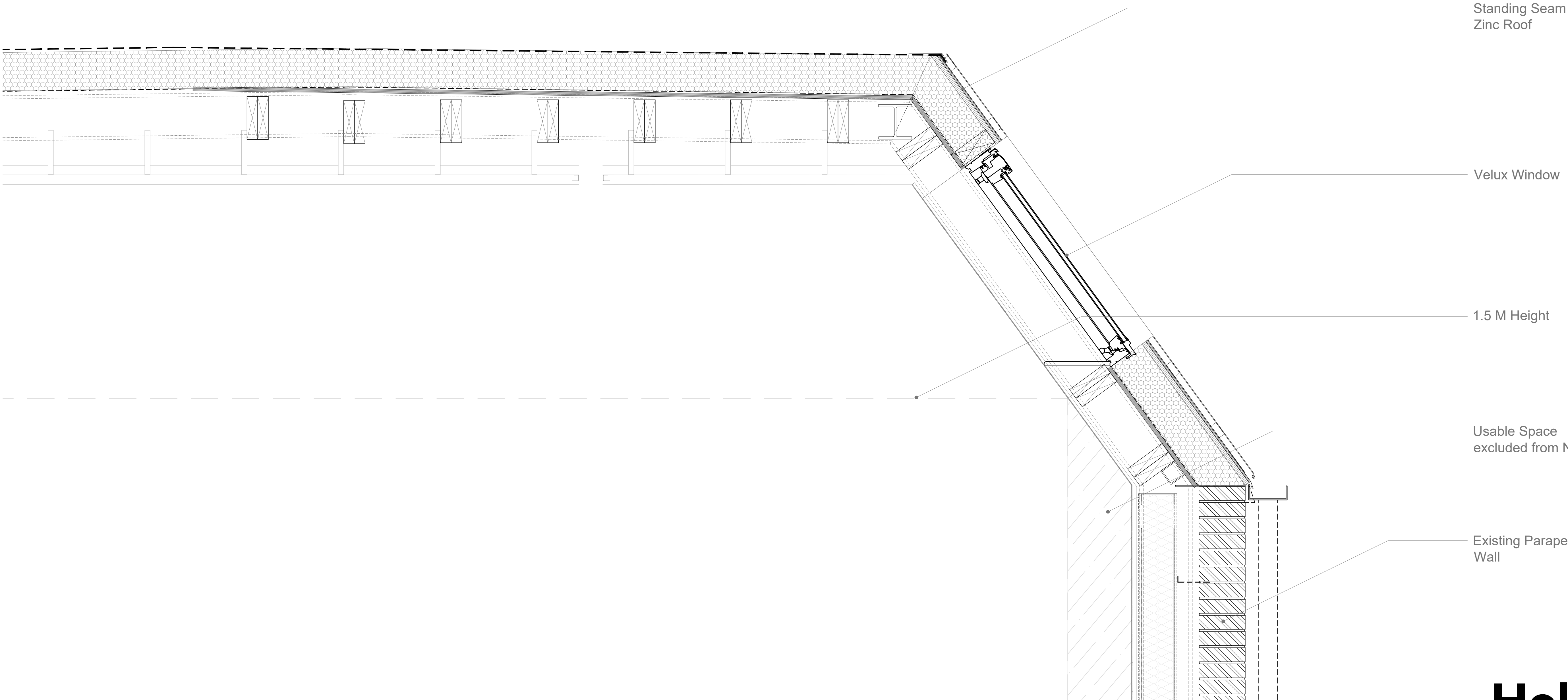
Title | DRAWING TITLE

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Scale@A1 1:100 Date | SEP.24 Drawn | AD Chk'd | MWJ

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22.0101 300.020 ----

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Title | #####
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Scale@A1 W#### Date | #####Drawn | ## Chk'd | ##

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