
External Daylight and Sunlight Study

Client: Springdene Nursing and Care Homes Ltd
10 Crescent Road
Enfield
Middlesex
EN2 7BL

Site Details: 170 Fortis Green
London
N10 3PA

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Report Details:

Prepared by	Checked by	Date	Job Number
Nicholas Gardner	Peter Kinsella	29.09.2023	11412 Rev0

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1. Introduction & Methodology

The daylight study is to ensure the comfort, health and safety of building occupants as well as visitors and others within the vicinity of the building is acceptable. It is also to enhance the quality of life in dwellings by recognising those that encourage a healthy and safe internal environment for occupants.

Using industry standard methodology as prescribed by BRE and British Standard guidance and in line with the BRE Guide: BRE BR 209 2022 Edition and BS EN 17037, we have made numerical analyses to ensure compliance with the recommended levels of change in daylight.

The main criteria used in this analysis to show compliance is the:

Vertical Sky Component (VSC)

VSC measures the general amount of light available on the outside plane of the window as a ratio (%) of the amount of total unobstructed sky viewable following introduction of visible barriers such as buildings. The maximum value is just under 40% for a completely unobstructed vertical wall.

The relevant BRE recommendations for daylight and sunlight are:

The Vertical Sky Component measured at the centre of a window should be no less than 80% of its former value, where the window(s) do not meet this criteria, BRE Guidelines states that if the VSC at the centre of a window is more than 27% of available light, then the diffuse daylighting will not be adversely affected.

Annual Probable Sunlight Hours (APSH)

APSH is a measure of the amount of potential direct sunlight that is available to a given surface. Only windows which face within 90 degrees of due south need to be assessed. BRE Guidance states that windows should continue to receive in excess of 80% of their pre-development value, **or** 25% of available hours over a year / 5% of hours in winter to be considered well - lit **or** if the window has a reduction in sunlight received over the whole year less than 4% of annual sunlight hours.

The BRE Guidance is not an instrument of planning policy; therefore, whilst the methods given are technically robust, some level of flexibility should be applied where appropriate.

We must stress that despite the methodology used above and the results that are drawn from it provide helpful guidance to consultants and planning officials, these are purely advisory, how the results are interpreted may depend on the complexity and context of the development as a whole.

2. Proposed Development

There are proposals for a rear extension over four floors to an existing care home at 170 Fortis Green, London, N10 3PA.

Proposed Site Plan



3. Modelling the site & Window Schedule

An analysis model is created of the proposed development and the existing development allowing analysis, calculations are then run. The outputs of those calculations can be exported numerically. Using the BRE guidance which gives absolute figures for the acceptable percentage of daylight and sunlight, we can then establish if the proposal will have the required daylighting levels stipulated by BRE guidelines.

It is important to note that not all nearby features have been modelled, only those that will affect the daylighting, in accordance with BRE recommendations.

The reference document for this analysis, BRE BR 209 2022 Edition and BS EN 17037, provides the methodology for undertaking the calculations as well as benchmark figures for the acceptable reduction in the daylight/sunlight.

In order to complete an accurate model of the existing and proposed site we have used a combination of the following plans and information. These consist of:

- Existing and Proposed plans
- Google/Bing Maps
- Site visit conducted on 20.09.2019 @ 2pm

The purpose of this report is to assess the potential impact that the proposed new rear extension may have on the immediate surrounding neighbouring dwellings in terms of daylight and sunlight. There are three neighbouring dwellings that have been identified for analysis, those being No.8-10 Firemans Cottages, the houses located at 'Jubilee Court' and a neighbouring dwelling located in 'Tetherdown'. All surrounding neighbouring dwellings are considered the 'worst case' buildings due to their proximity to the proposed development/extension. Therefore, if they are deemed to continue to receive acceptable levels of daylight in accordance with BRE Guidelines, then the remaining buildings that site at a further distance will also by default.

For a full location and window schedule please see below.

Target Study Area

No.8-10 Firemans Cottages

Jubilee Court

Dwelling at 'Tetherdown'

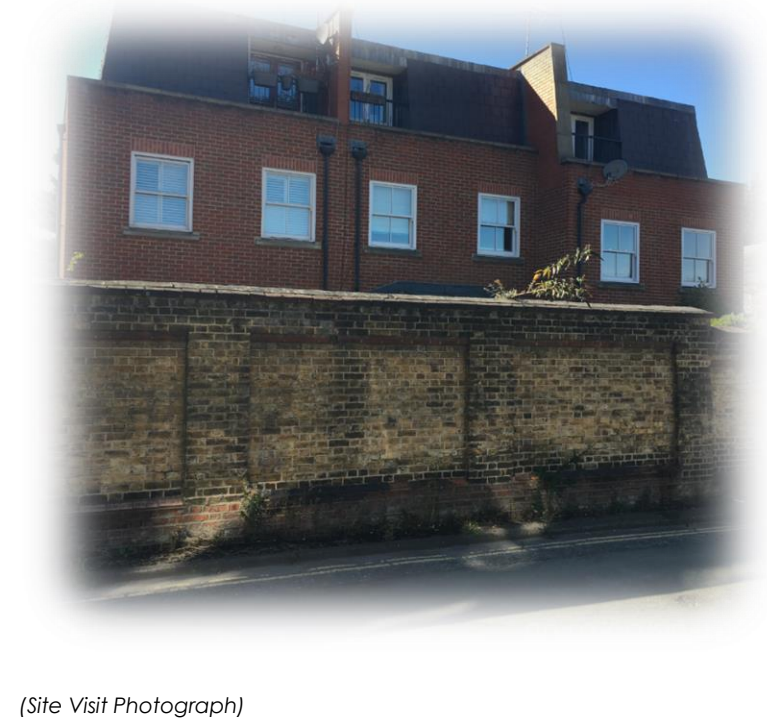
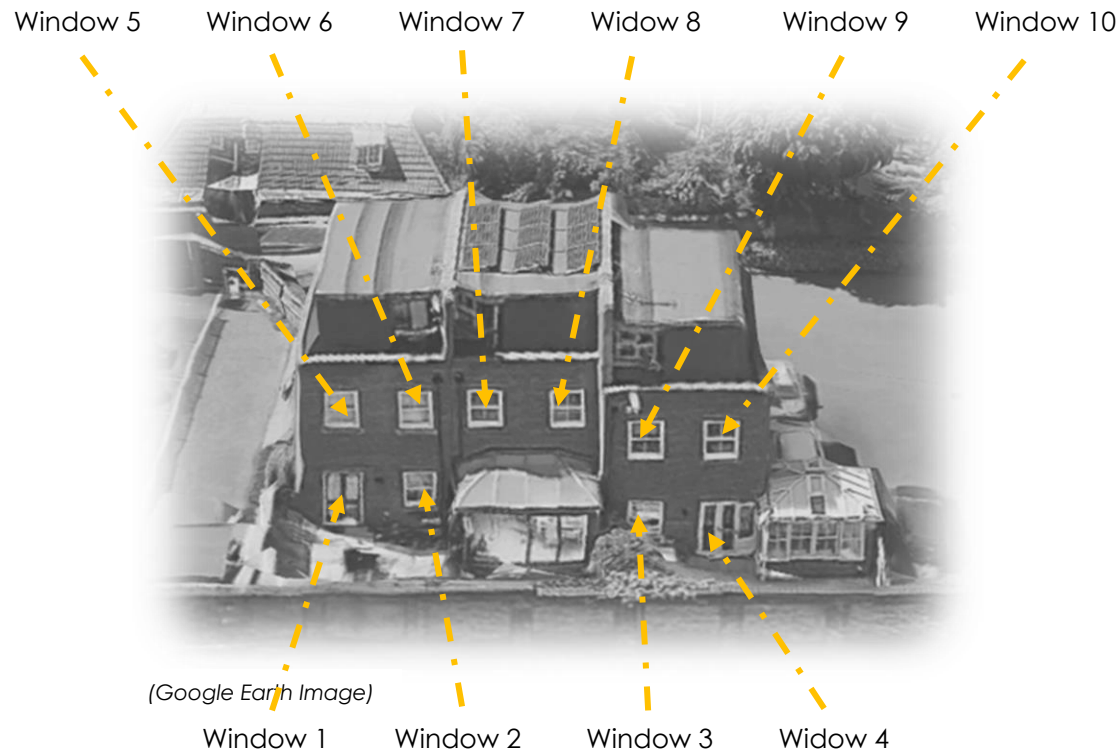


(Google Earth Image)

Development Site – No.170 Fortis Green

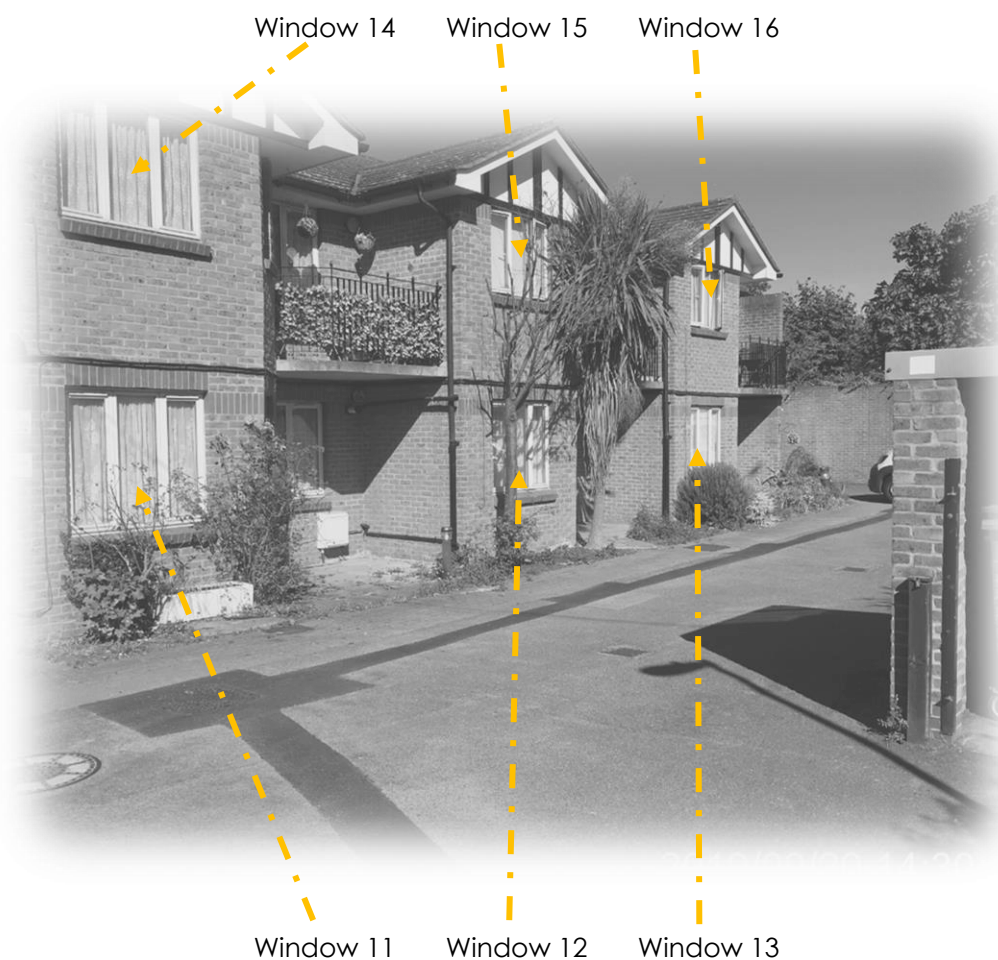
Window Schedule

No.8-10 Firemans Cottages – North East Elevation



As can be seen above, there are 10 relevant window receptors to be analysed located to 'No.8-10 Firemans Cottages'.

Jubilee Court – South East Elevation



As can be seen above, there are six relevant window receptors to be analysed located to the south east elevation of 'Jubilee Court'.

Dwelling at 'Tetherdown' – South - West Elevation



As can be seen above, there are three relevant window receptors to be analysed located to the south west elevation of the dwelling located at 'Tetherdown'.

As can be seen, there are 19 relevant window receptors of concern that may experience an impact in terms of daylight and sunlight from the proposed development.

- Receptors 1-10 located to the front / north - east elevation of 'No.8 – No.10 Firemans Cottages'
- Receptors 11 - 16 located to the front / south - east elevation of Jubilee Court
- Receptors 17 - 19 located to the south - west elevation of 'Tetherdown'

Remaining Windows within the target study area

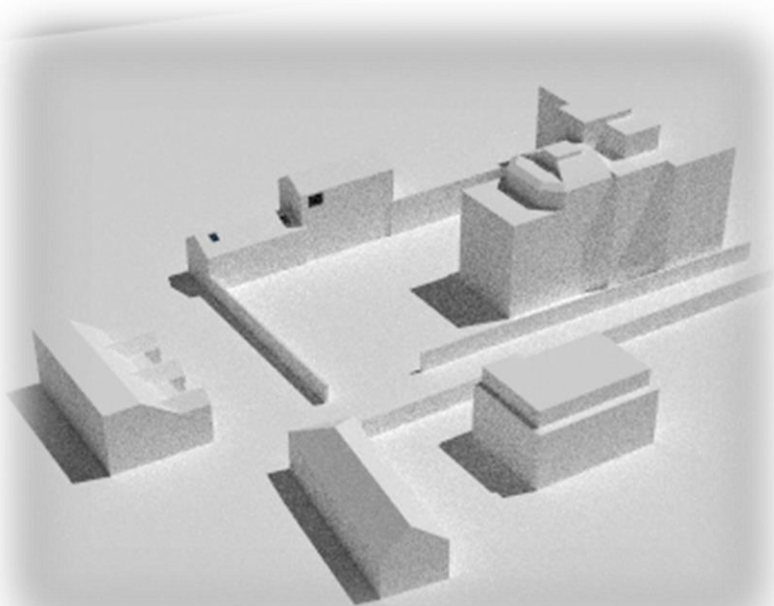
All windows assessed are considered 'worst case', therefore, where window receptors meet requirements in accordance with BRE Guidelines, any other windows within the vicinity that sit at a further distance or higher elevation than those that meet requirements will also pass by default. Where nearby windows have not been labelled, they have either been identified as un-affected from the proposed development due to having superior daylighting qualities as those labelled, at a distance and elevation that they will be unaffected from the proposed development or they serve non-habitable spaces such as bathrooms, stairways etc.

4. Vertical Sky Component Analysis

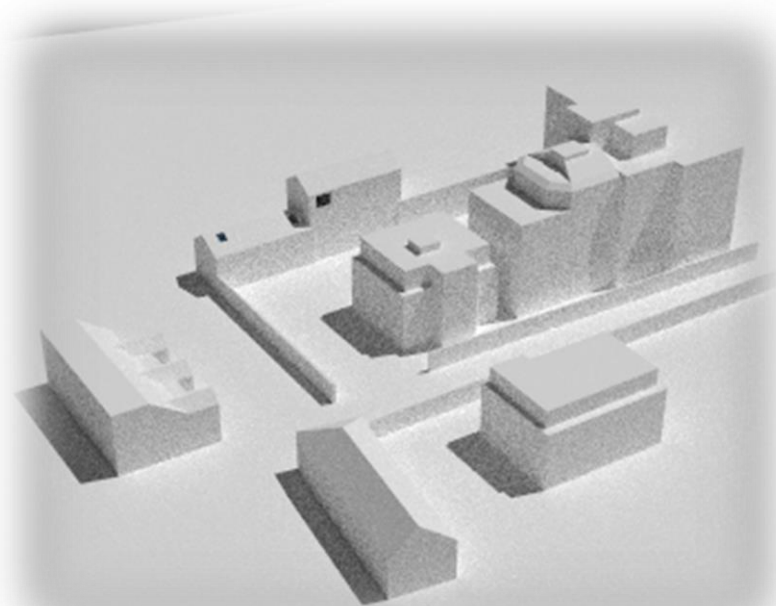
Stage 1 of the analysis is to model the existing site condition and then the proposal in 3 dimensions, thus allowing us to analyse the current situation and compare with relative ease the proposed situation.

The 3D model that has been created is then imported into specialist daylight analysis software from which calculations are then run for both the existing and proposed. We have isolated the dwellings of concern and taken a screen shot which is displayed below.

Existing Conditions



Proposed Conditions



5. Vertical Sky Component Benchmark & Results

As previously stated, even though the benchmark figures provided by BRE may provide helpful guidance to consultants and planning officials, these are purely advisory, how the results are interpreted may depend on the complexity and context of the development as a whole. Locations that may be considered dense urban areas or City Centre developments are often exposed to larger constraints in comparison to low-rise suburban areas, with that said, there is a higher scope for potential obstructions and loss of daylight in these areas. Higher density developments, such the one in question, generally experience lower daylight and sunlight levels.

Interpretation of the scale of impact

As discussed, the windows of the neighboring dwelling may or may not achieve the targets set by BRE, however, what BRE does not provide is an idea of the significance that these results will have on the assessed neighboring dwellings. Therefore, using professional experience, if we apply a scale to judge the implication these results may have on the dwelling, we can better understand the impact that may be experienced. The scale below is based on the BRE baseline target of 80% daylight retention.

Scale of Impact

Where the loss of daylight and sunlight fully meets the BRE Guidance Values, the impact is assessed as **Negligible**

Where the loss of daylight and sunlight is reduced within 20 – 35% of the BRE Guidance Values, the impact is can be classed as **Minor**

Where the loss of daylight and sunlight is reduced within 35 – 50% of the BRE Guidance Values, the impact is can be classed as **Moderate**

Where the loss of daylight and sunlight is reduced within 50 – 100% of the BRE Guidance Values, the impact is can be classed as **Major**

**The guidance above has been taken from BRE daylight and sunlight book for the nature and scale section 5. Ref: Site Layout Planning for Daylight and Sunlight, Appendix 1 Environmental Impact Assessment, page 73.*

6. Vertical Sky Component Analysis Results

The Vertical Sky Component has been calculated for the openings labelled in section 3 of this report for both the existing and proposed conditions. As previously stated, these window receptors are considered 'worst case', therefore, any other windows that sit at a greater distance or higher elevation than those that have passed the analysis within this report, under BRE Guidelines, will also pass by default.

Vertical Sky Component Results Summary (Numerical Results Appendix C)

The results show that all receptors tested meet and are in excess of minimum requirements in accordance with BRE Guidelines.

When we apply the scale of impact as detailed in section 5, page 13 of this report, we can see that these window receptors may experience a '*Negligible*' impact in terms of daylight.

7. Annual Probable Sunlight Hours Results (Numerical Results Appendix D)

As stated in section 3 of this report, APSH is a measure of the amount of potential direct sunlight that is available to a given surface. Only windows which face within 90 degrees of due south need to be assessed. BRE Guidance states that windows should continue to receive in excess of 80% of their pre-development value, **or** 25% of available hours over a year / 5% of hours in winter to be considered well - lit **or** if the window has a reduction in sunlight received over the whole year less than 4% of annual sunlight hours.

The results show that all window receptors tested that are subject to the APSH / WPSH analysis meet the minimum criteria for sunlight hours both annually and in the winter months and therefore satisfy BRE Guidelines.

8. Conclusion

As previously stated, there proposals for the rear extension over four floors to an existing care home at 170 Fortis Green, London, N10 3PA.

This report has been carried out to assess the potential impact that the proposed extension may have on the immediate surrounding neighbouring dwellings in terms of daylight and sunlight. The three dwellings identified for analysis being No.8-10 Firemans Cottages, Jubilee Court and 'Tetherdown'.

Using industry standard methodology, we have made numerical analysis to calculate the recommended levels of change in daylight for the window receptors detailed in section 3 of this report which are located to these dwellings.

The main criteria used in this analysis to show compliance is the Vertical Sky Component (VSC) and Annual Probable Sunlight Hours (APSH) for the effect on a neighbouring dwelling's habitable windows.

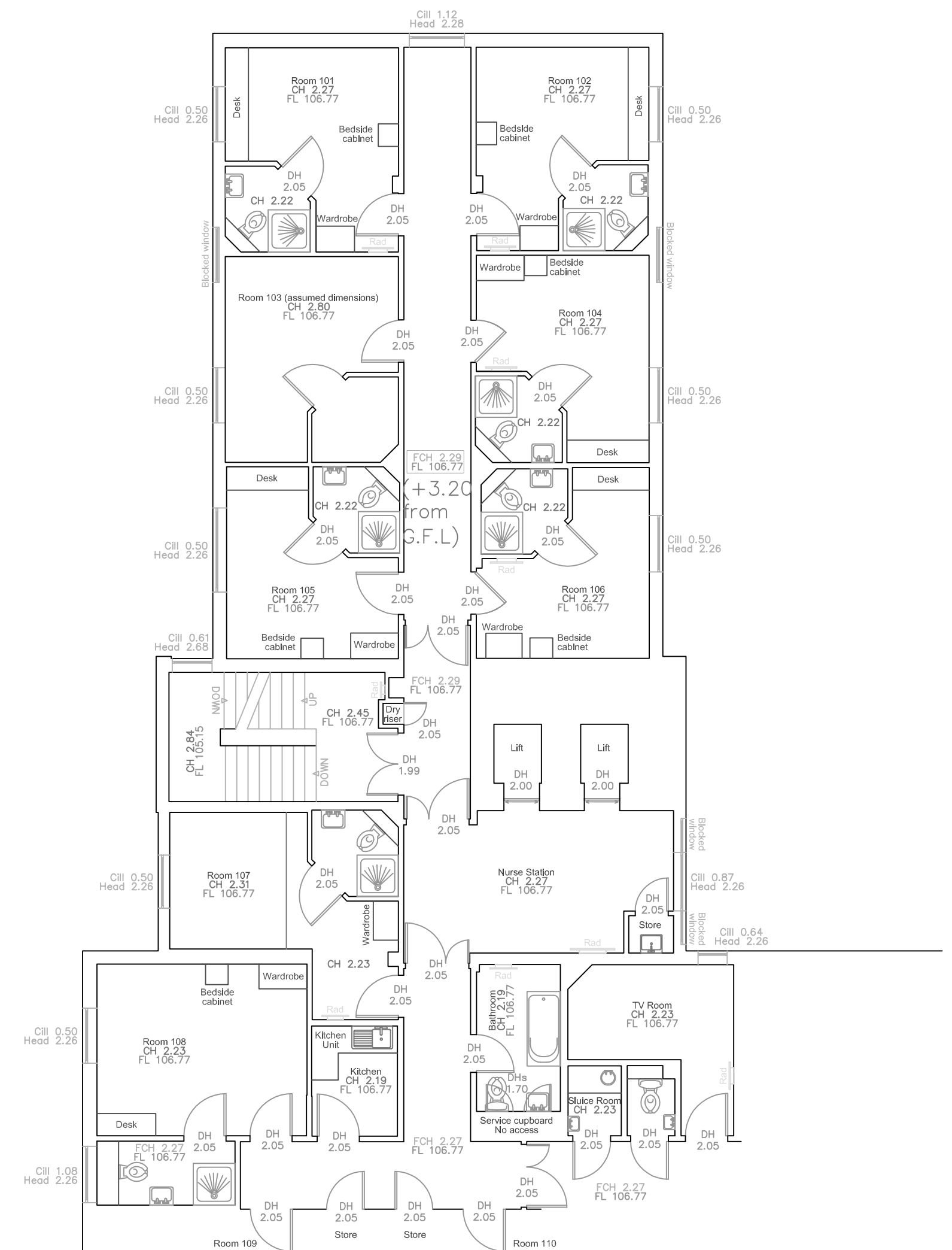
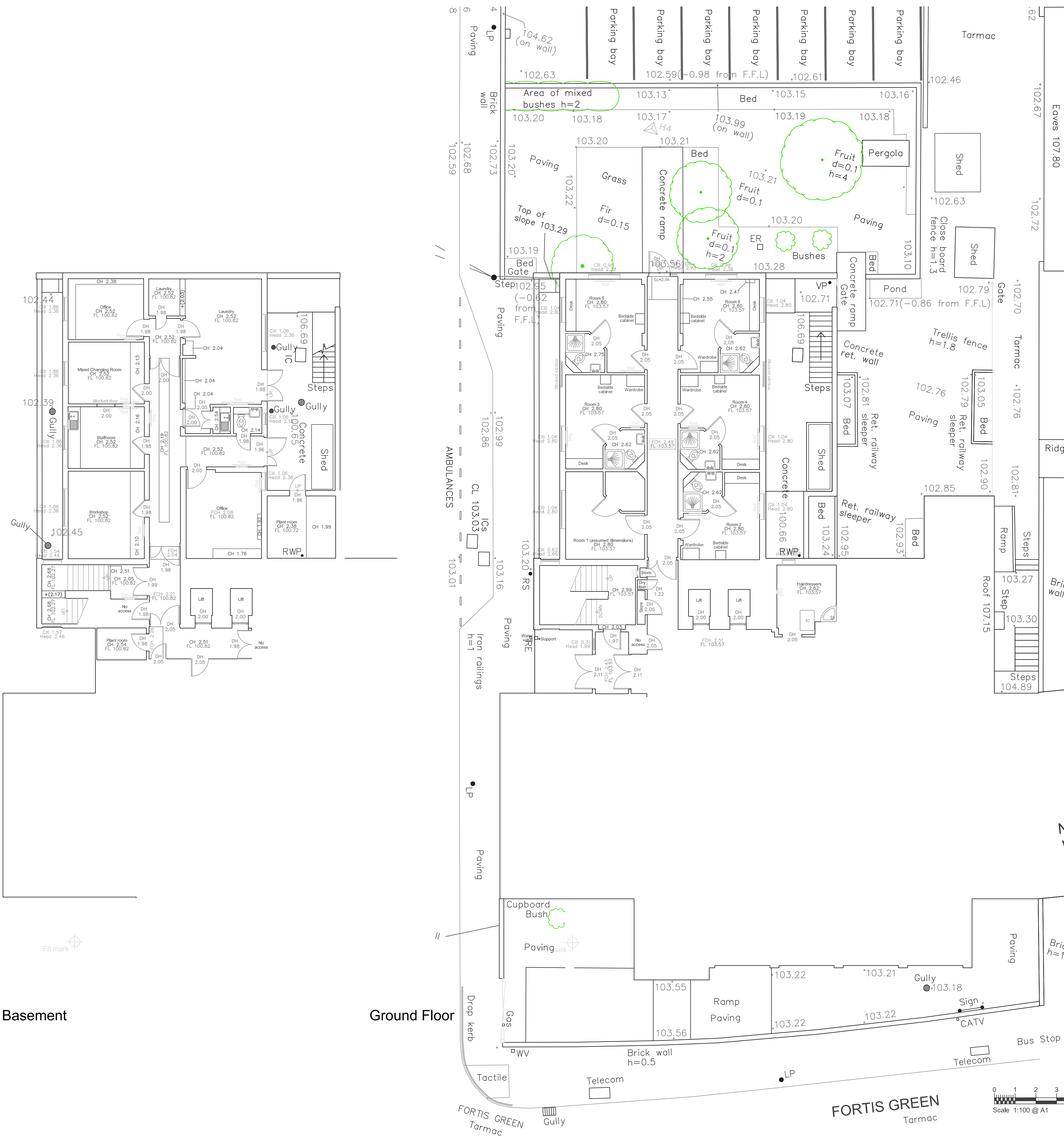
The results have shown that the effect on the window receptors detailed in section 3 of this report meet the minimum requirements as set by BRE Guidelines and may only experience a '*Negligible*' adverse impact in terms of daylight and sunlight.

From a planning perspective, therefore, it is the conclusion of this report that the proposed development meets the recommended levels of change in accordance with BRE Guidelines and is therefore considered acceptable.

Appendices

Appendix A: Existing Plans

- Notes:
- 1 This drawing must not be scaled
 - 2 The contractor must check all levels and dimensions on site
 - 3 All works are to be to the satisfaction of Local and Statutory Authorities and in accordance with current Building Regulations and Codes of Practice



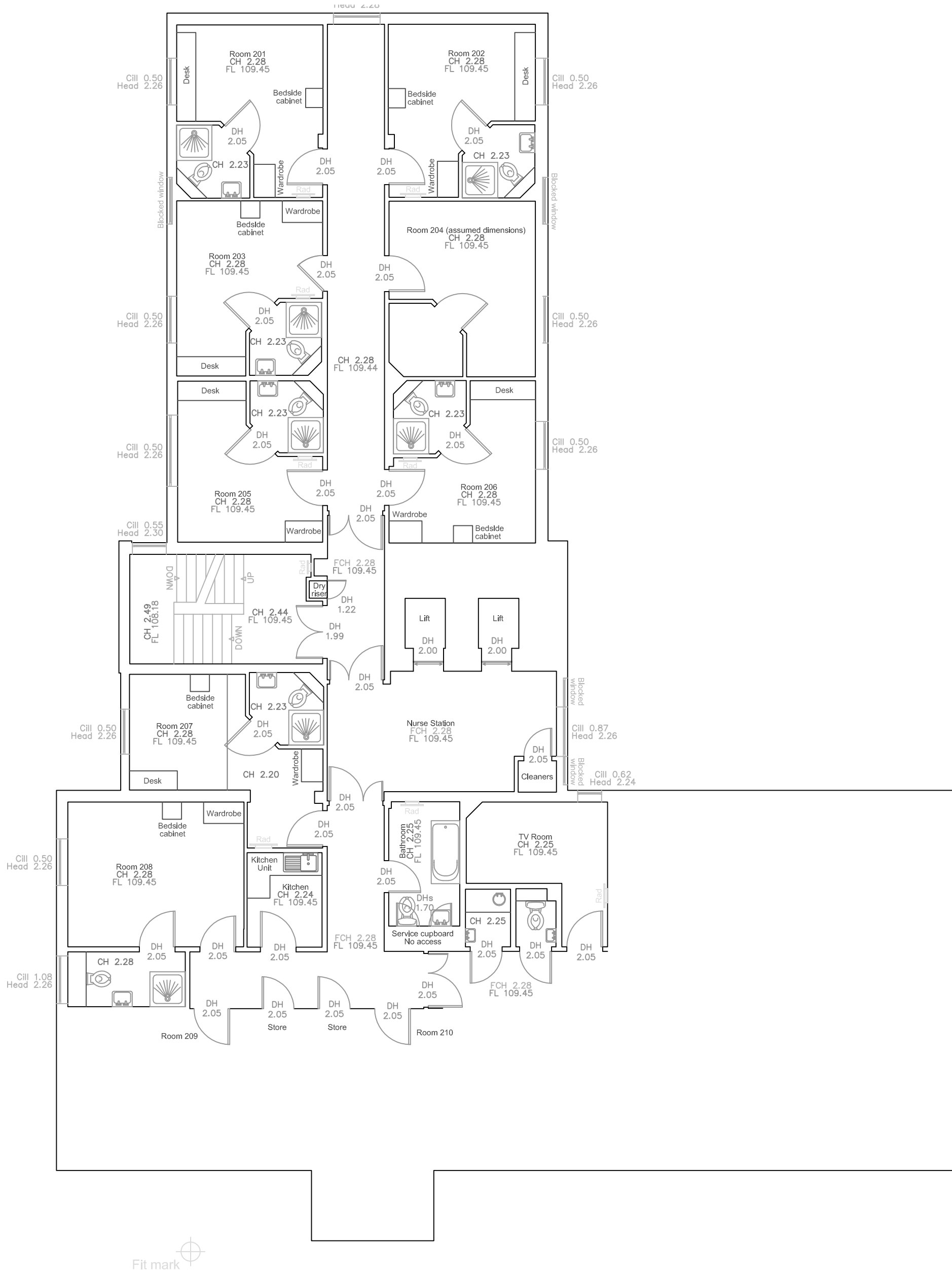
-	-	-	-
rev	note	by	date

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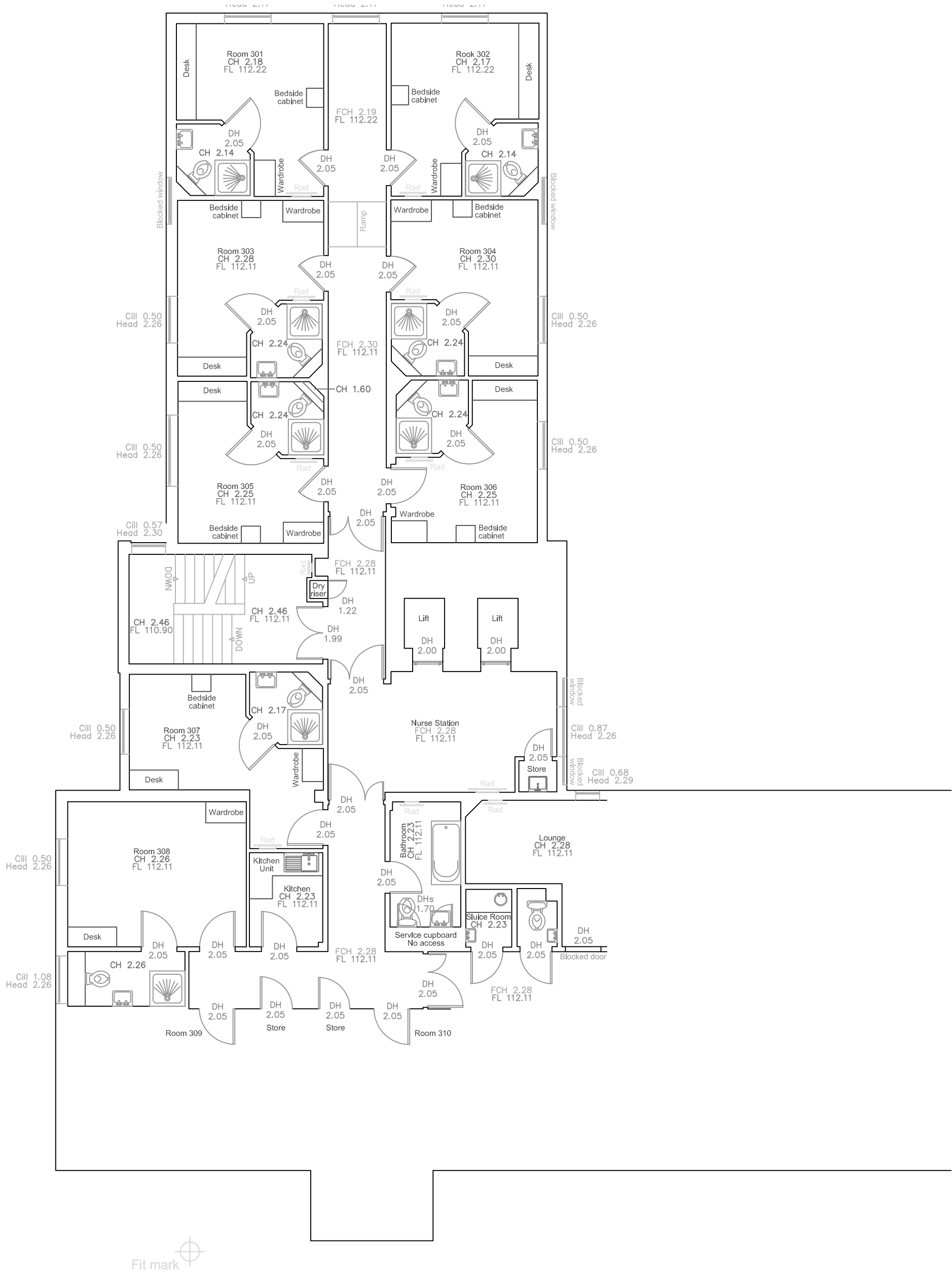
170 Fortis Green
London, N10 3PA

sheet	Plans (1 of 2) As Existing	project number	drawing number	revision
Scale	1:100 @ A1	-	02	-
Date	03/19	-	-	-
Drawn by	rk	-	-	-

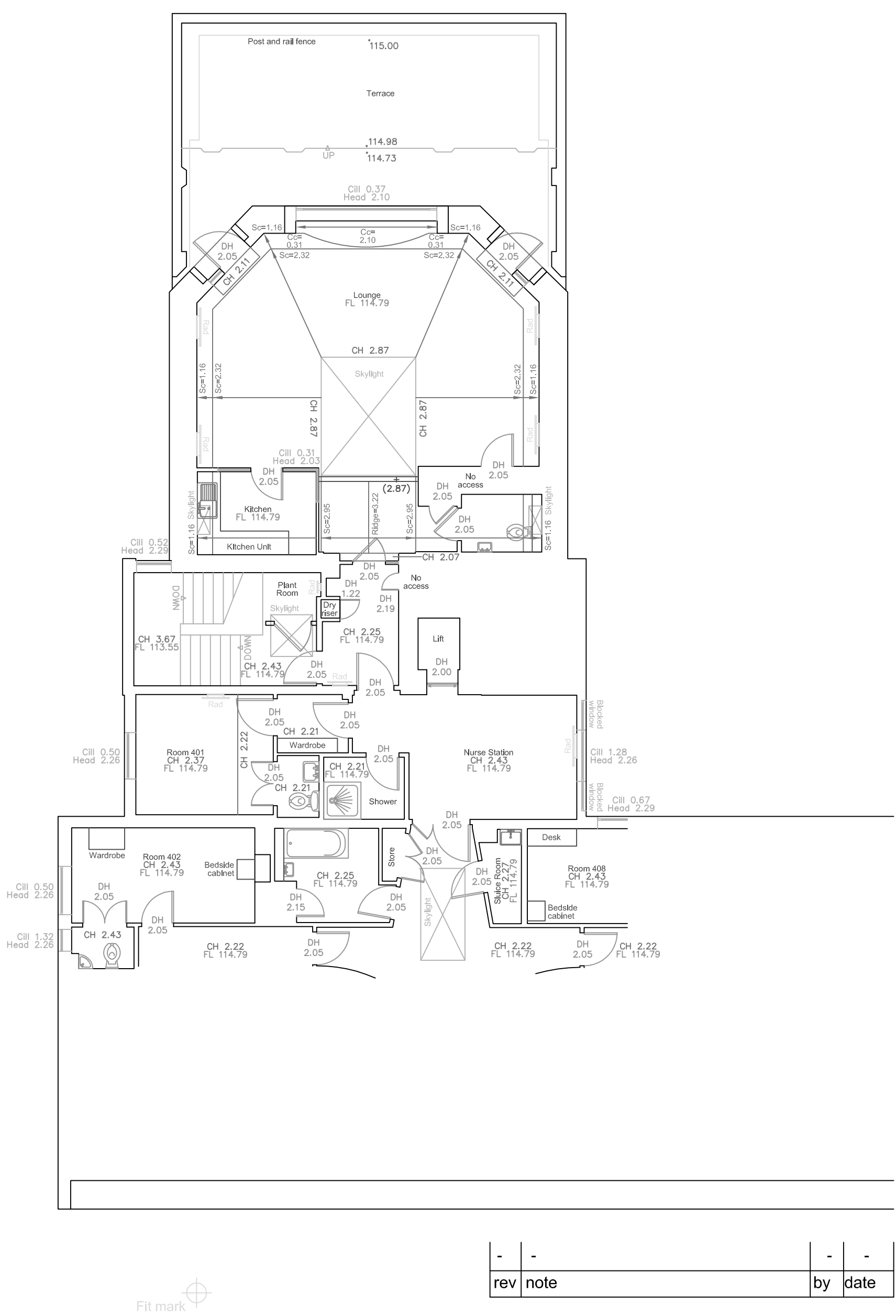
- Notes:
- 1 This drawing must not be scaled
 - 2 The contractor must check all levels and dimensions on site
 - 3 All works are to be to the satisfaction of Local and Statutory Authorities and in accordance with current Building Regulations and Codes of Practice



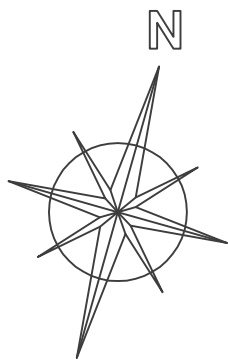
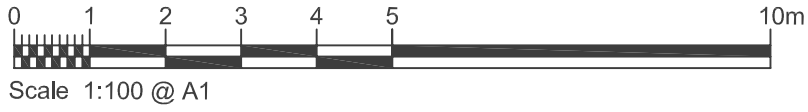
Second Floor



Third Floor



Fourth Floor



-	-	-	-
rev	note	by	date

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170 Fortis Green
London, N10 3PA

sheet	Plans (2 of 2) As Existing	project number	drawing number	revision
scale	1:100 @ A1	date	03/19	-
drawn by	rk		03	-



Front (North) Elevation

Datum 100.00m



Side (West) Elevation

- Notes:
- 1 This drawing must not be scaled
 - 2 The contractor must check all levels and dimensions on site
 - 3 All works are to be to the satisfaction of Local and Statutory Authorities and in accordance with current Building Regulations and Codes of Practice

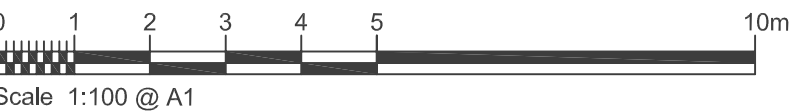


Rear (South) Elevation

Datum 100.00m



Side (East) Elevation



-	-	-	-
rev	note	by	date

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ASSOCIATES

Job: 170 Fortis Green
London, N10 3PA

scale	project number	drawing number	revision
1:100 @ A1	-	04	-
date	03/19		
drawn by	rk		

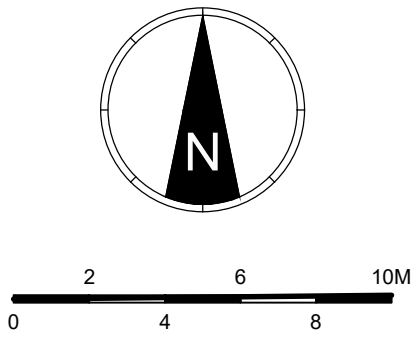
Appendix B: Proposed Plans

PROPOSED SITE PLAN



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NOTE

1. ORIGINAL SURVEY INFORMATION TAKEN FROM TOPOGRAPHICAL SURVEY DRAWING TS22-201-1 PRODUCED BY TERRAN SURVEYS. REFER TO ORIGINAL SURVEY INFORMATION FOR DETAILED LEVEL INFORMATION. SITE CO-ORDINATES ARE TO OS
2. EXTERNAL GARDEN LAYOUT SUBJECT TO INPUT FROM LANDSCAPE ARCHITECTS

KEY

[Red line]	SITE BOUNDARY 0.1002 HECTARES / 0.3959 ACRES
[Grey area]	EXISTING BUILDINGS
[Light grey area]	ROAD
[Orange area]	FOOTPATH
[Yellow grid]	PAVING SLABS
[Orange area]	PARKING
[Green area]	LAWN
[Green area]	PLANTING
[Blue area]	POND
[Green dashed line]	PROPOSED HEDGE
[Brown dashed line]	EXISTING/PROPOSED BOUNDARY/RETAINING WALL
[Black line]	CONTROLLED ACCESS POINT / FENCE LINE

P2	UPDATED STAIRCASE TO BASEMENT	LAG	06.07.23
P1	PRELIMINARY ISSUE	LAG	19.05.23
REV	DESCRIPTION	BY	DATE

PROJECT WORK STAGE

PLANNING

CLIENT

SPRINGDENE NURSING AND CARE HOMES LTD

PROJECT

SPRING LANE CARE HOME
170 FORTIS GREEN, MUSWELL HILL,
LONDON, N10 3PA

DRWG TITLE

PROPOSED SITE PLAN

PROJECT	ORIGINATOR	ZONE	LEVEL	TYPE	DIS	NUMBER
1326PL	RDT	01	XX	DR	A	1100

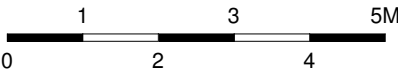
STATUS | SUITABILITY DESCRIPTION

-

DRAWN BY	DATE	SCALE	CHECKED BY
LAG	MAY 23	1:200	NS

RDT PROJECT REF.	PAPER SIZE	REVISION
1326	A1	P2

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WEST ELEVATION

P2	UPDATED MATERIAL TO TILE HANGING	LAG	??.??.??
P1	PRELIMINARY ISSUE	LAG	19.05.23
REV	DESCRIPTION	BY	DATE

PROJECT WORK STAGE
PLANNING

CLIENT
SPRINGDENE NURSING & CARE HOMES LTD.

PROJECT
**SPRING LANE CARE HOME,
170 FORTIS GREEN, MUSWELL HILL,
LONDON, N10 3PA**

DRWG TITLE
**PROPOSED
ELEVATIONS
SHEET 1**

PROJECT	ORIGINATOR	ZONE	LEVEL	TYPE	DIS	NUMBER
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STATUS
SUITABILITY DESCRIPTION

DRAWN BY	DATE	SCALE	CHECKED BY
LAG	MAY 23	1 : 100	NS

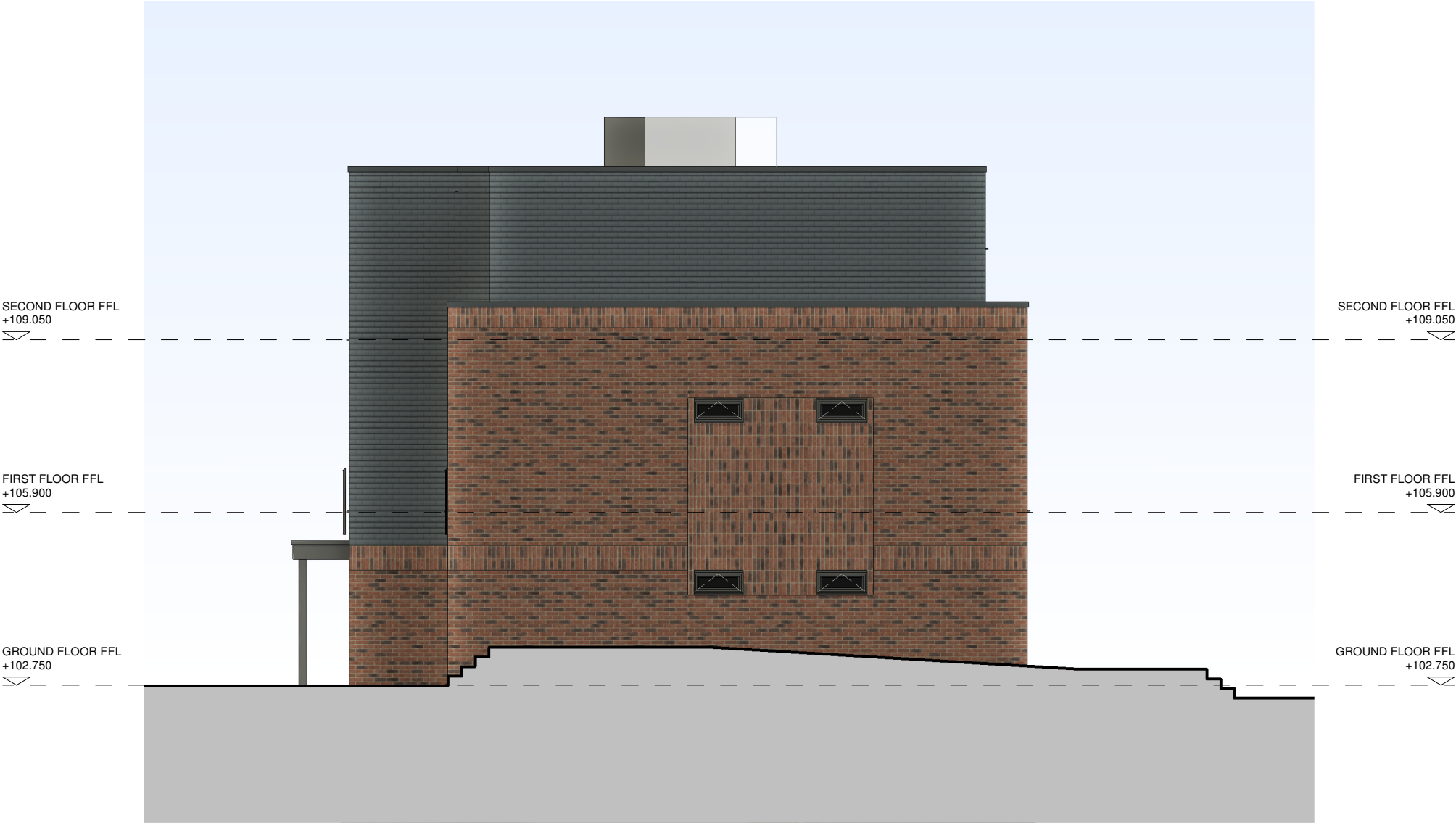
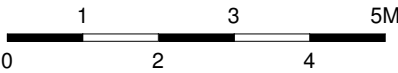
RDТ PROJECT REF.	PAPER SIZE	REVISION
1326	A3	P2



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SOUTH ELEVATION

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REV	DESCRIPTION	BY	DATE

PROJECT WORK STAGE
PLANNING

CLIENT
SPRINGDENE NURSING & CARE HOMES LTD.

PROJECT
**SPRING LANE CARE HOME,
170 FORTIS GREEN, MUSWELL HILL,
LONDON, N10 3PA**

DRWG TITLE
**PROPOSED
ELEVATIONS
SHEET 3**

PROJECT	ORIGINATOR	ZONE	LEVEL	TYPE	DIS	NUMBER
1326PL	RDT	01	ZZ	DR	A	3002

STATUS
SUITABILITY DESCRIPTION

DRAWN BY	DATE	SCALE	CHECKED BY
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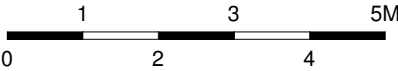
RDТ PROJECT REF.	PAPER SIZE	REVISION
1326	A3	P2



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NORTH ELEVATION

P2	UPDATED MATERIAL TO TILE HANGING	LAG	??.??.??
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REV	DESCRIPTION	BY	DATE

PROJECT WORK STAGE
PLANNING

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PROJECT
**SPRING LANE CARE HOME,
170 FORTIS GREEN, MUSWELL HILL,
LONDON, N10 3PA**

DRWG TITLE
**PROPOSED ELEVATIONS
SHEET 4**

PROJECT	ORIGINATOR	ZONE	LEVEL	TYPE	DIS	NUMBER
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STATUS
SUITABILITY DESCRIPTION

DRAWN BY	DATE	SCALE	CHECKED BY
LAG	MAY 23	1 : 100	NS

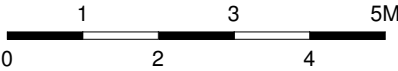
RDТ PROJECT REF.	PAPER SIZE	REVISION
1326	A3	P2



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EAST ELEVATION

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P1	PRELIMINARY ISSUE	LAG	19.05.23
REV	DESCRIPTION	BY	DATE

PROJECT WORK STAGE

PLANNING

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SPRINGDENE NURSING & CARE HOMES LTD.

PROJECT
SPRING LANE CARE HOME,
170 FORTIS GREEN, MUSWELL HILL,
LONDON, N10 3PA

DRWG TITLE
PROPOSED ELEVATIONS
SHEET 2

PROJECT	ORIGINATOR	ZONE	LEVEL	TYPE	DIS	NUMBER
1326PL	RDT	01	ZZ	DR	A	3001

STATUS	SUITABILITY DESCRIPTION

DRAWN BY LAG	DATE MAY 23	SCALE 1 : 100	CHECKED BY NS
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Appendix C: Vertical Sky Component – Numerical Results

Project Name:

No.170 Fortis Green, London, N10 3PA

Project No:

11412 - Rev0

Report Title:

Vertical Sky Component Analysis - Rev0

Date of Analysis:

29.09.2023

Vertical Sky Component - Numerical Results Rev0			
Receptor	VSC - Existing (%)	VSC - Proposed (%)	% Retained
1	28.03	25.62	91.00%
2	25.14	22.38	89.00%
3	30.93	28.32	92.00%
4	31.26	29.25	94.00%
5	34.26	33.03	96.00%
6	34.8	33.49	96.00%
7	35.28	33.92	96.00%
8	34.39	33.06	96.00%
9	36.53	35.25	96.00%
10	36.96	35.89	97.00%
11	34.1	33.57	98.00%
12	34.59	34.09	99.00%
13	34.55	34.02	98.00%
14	36.14	35.81	99.00%
15	36.46	36.17	99.00%
16	36.35	35.97	99.00%
17	91.62	91.17	100.00%
18	71.31	70.21	98.00%
19	37.12	35.81	96.00%

Appendix D: Annual / Winter Probable Sunlight Hours – Numerical Results

Project Name:

No.170 Fortis Green, London, N10 3PA

Project No:

11412 - Rev0

Report Title:

Annual Probable Sunlight Hours Analysis - Rev0

Date of Analysis:

29.09.2023

Annual Probable Sunlight Hours			
Window Receptors - Annual Hours	Existing %	Proposed %	% Retained
11	82	82	100.00%
12	80	80	100.00%
13	82	82	100.00%
14	86	86	100.00%
15	86	86	100.00%
16	87	87	100.00%
17	85	83	98.00%
18	32	29	91.00%
19	56	54	96.00%

Project Name:

No.170 Fortis Green, London, N10 3PA

Project No:

11412 - Rev0

Report Title:

Winter Probable Sunlight Hours Analysis - Rev0

Date of Analysis:

29.09.2023

Winter Probable Sunlight Hours			
Window Receptors - Winter Hours	Existing %	Proposed %	% Retained
11	25	25	100.00%
12	23	23	100.00%
13	24	24	100.00%
14	28	28	100.00%
15	28	28	100.00%
16	29	29	100.00%
17	22	20	91.00%
18	6	3	50.00%
19	18	16	89.00%