

External Daylight Study

Client: Butler Architects Ltd
10 Wesgate
Scotton, Gainsborough
DN21 3QX

Site Details: 40 Exeter Road
Scunthorpe
North Lincolnshire
DN15 7AX

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Report Details:

Prepared by	Checked by	Date	Job Number
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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: 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)

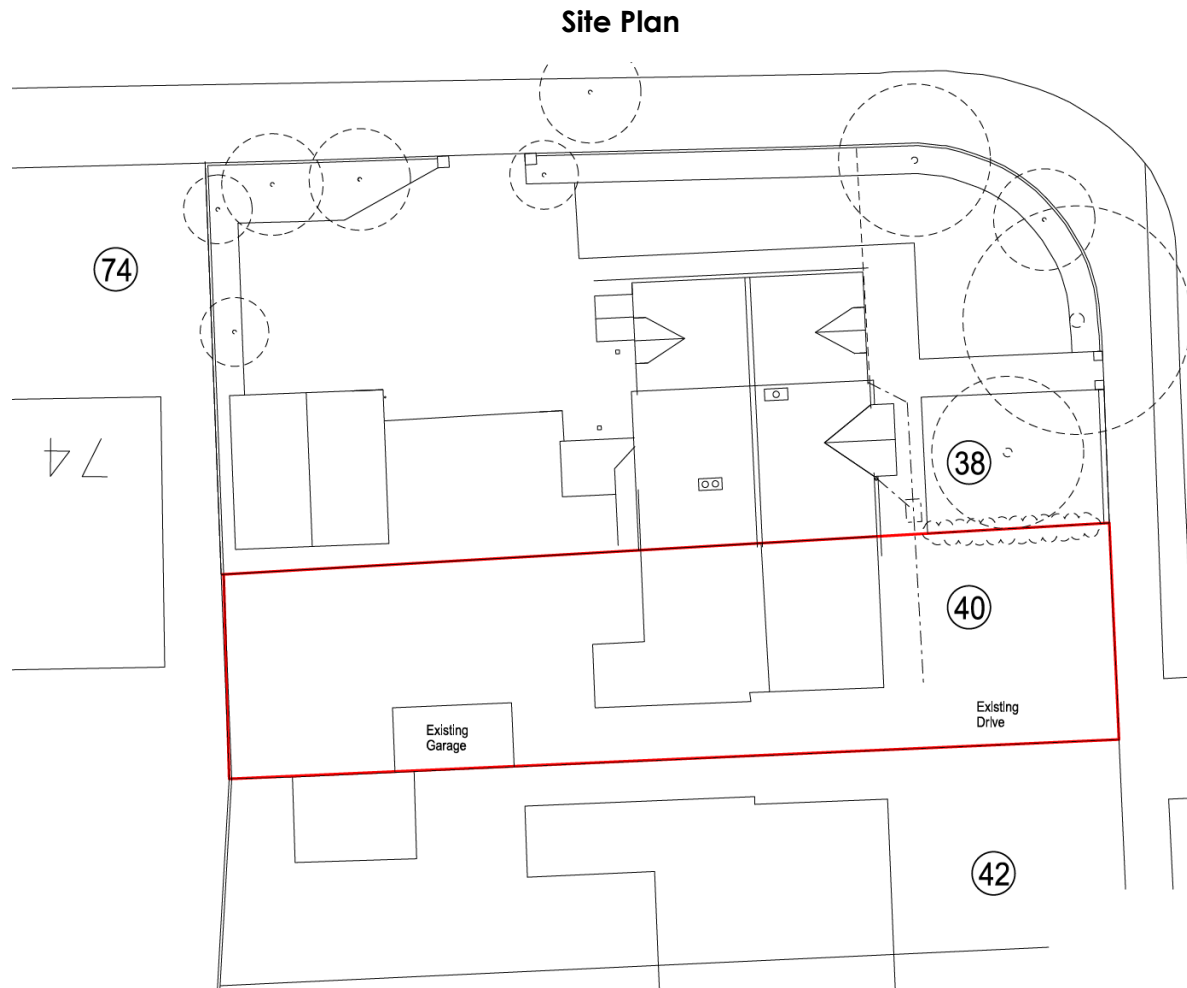
APSH is a measure of the amount of potential direct sunlight that is available to a given surface. Only windows which face within 90 degrees of due south need to be assessed. BRE Guidance states that windows should continue to receive in excess of 80% of their pre-development value, **or** 25% of available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

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 to erect a two-storey and single-storey extension to the rear of No.40 Exeter Road.



3. Modelling the site & Window Schedule

A 3D model is created of the proposed development, the existing development and all relevant surrounding buildings and obstructions 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 Digest 209, 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:

- Existing & Proposed Plans
- Elevations and photographs of the neighbouring dwelling – No.38 Exeter Road
- Existing and Proposed Sketch Up model of the massing
- Google Earth/Bings Maps

The purpose of this report is to assess the potential impact that the proposed new extensions may have on the surrounding neighbouring dwellings in terms of daylight and sunlight. Site analysis has identified one neighbouring dwelling that may experience an impact from the proposed development, that dwelling being No.38 Exeter Road which sits adjacent to the proposed development.

For a full target study location and window receptor schedule please see below.

Target Study Location

No.38 Exeter Road



(Google Earth Image)

Development Site – No.40 Exeter Road

Window Schedule

No.38 Exeter Road



W2 – The client has confirmed that this window serves a WC – therefore 'non-habitable'

As can be seen, there are 3 relevant habitable windows identified that may be affected from the proposed development in terms of daylight and sunlight located to No.38 Exeter Road.

Remaining Windows within the target study area

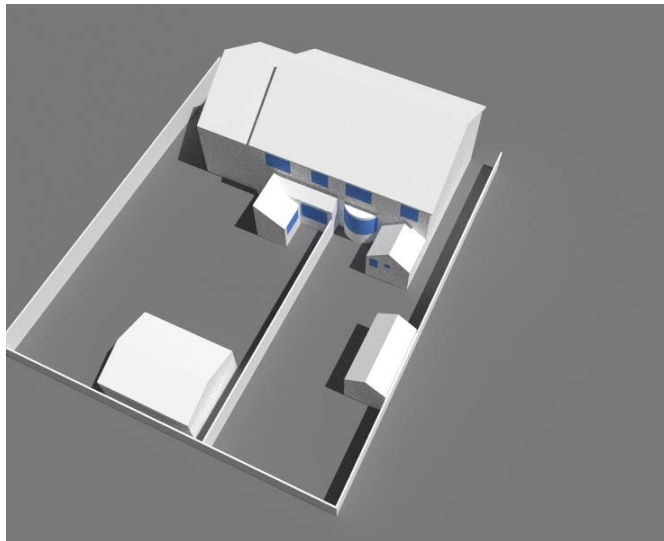
All windows assessed are considered 'worst case', therefore, where window receptors meet requirements in accordance with BRE Guidelines, any other windows within the vicinity that sit at a further distance or higher elevation than those that meet requirements will also pass by default.

4. Vertical Sky Component Analysis

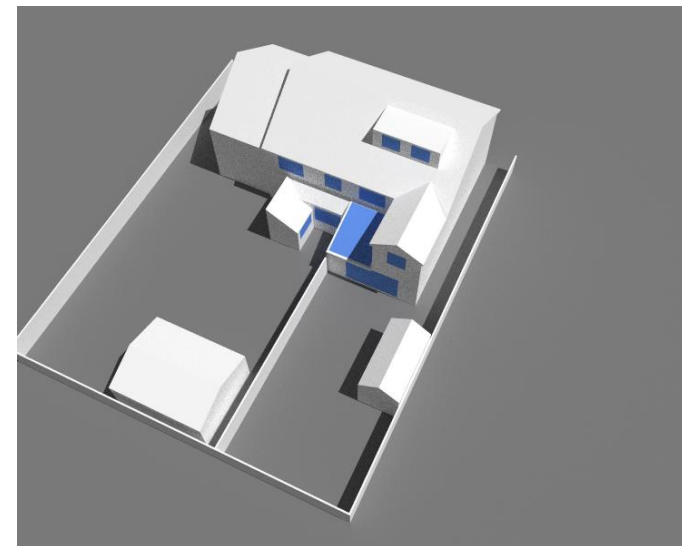
Stage 1 of the analysis is to model the existing site condition and then the proposal in 3 dimensions, thus allowing us to analyse the current situation and compare with relative ease the proposed situation.

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 target area of study from the surrounding landscape and taken a screen shot which is displayed below.

Existing Site



Proposed Site



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.

Receptors	Existing (%)	Proposed (%)	Retained (%)
1	35.88	30.62	85%
2	'Non-habitable'		
3	35.88	38.23	99%
4	38.53	37.49	97%

Vertical Sky Component Analysis Summary

As can be seen above, all habitable receptors tested retain over 80% of their former daylighting value and therefore satisfy the recommended levels of change in daylight according to BRE Guidelines.

When we apply the scale of impact as detailed in section 5, page 11 of this report, we can see that these window receptors may experience a '*Negligible Impact*' in terms of daylight

Receptor Notes

As previously stated, 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.

7. Annual Probable Sunlight Hours Results

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.

All receptors tested face in a westerly direction and are therefore exempt from the APSH/WPSH analysis for planning purposes.

8. Conclusion

There are proposals to erect a two-storey and single-storey extension to the rear of No.40 Exeter Road.

Using industry standard methodology, we have made numerical analysis to assess the potential impact of the proposed development on the neighbouring properties with regard to daylight and sunlight. The main criteria used in this analysis to show compliance is the Vertical Sky Component for the effect on a neighbouring dwelling's habitable windows.

Where windows have not been assessed, they are deemed to be either unaffected by the proposed development or achieve the required levels of daylight and sunlight by default or serve non habitable spaces.

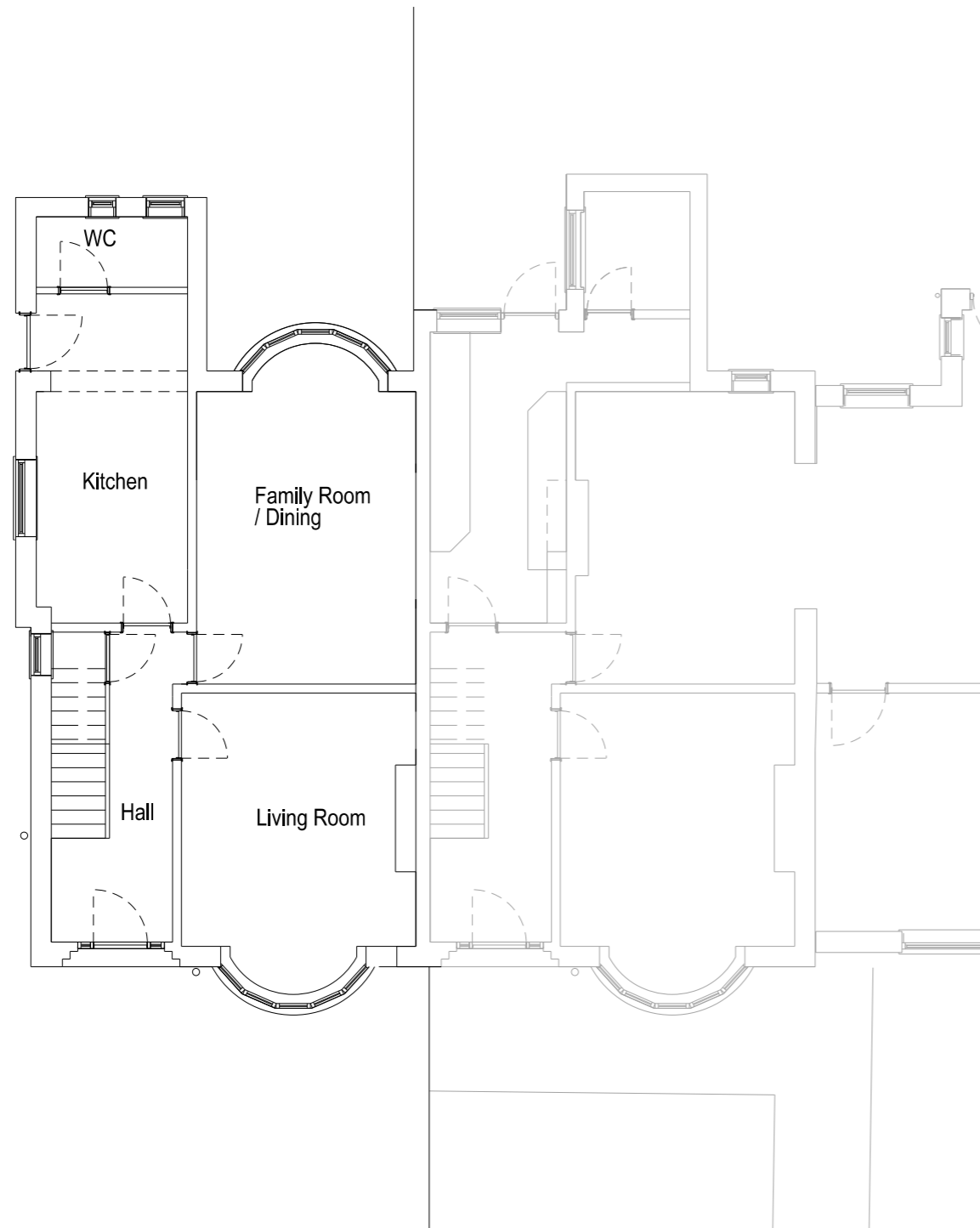
The analysis has shown that all receptors tested meet the minimum requirements in accordance with BRE Guidelines and may experience a *Negligible* impact in terms of daylight from the construction of the proposed development.

Therefore, from a planning perspective, the development is considered acceptable in terms of daylight and sunlight.

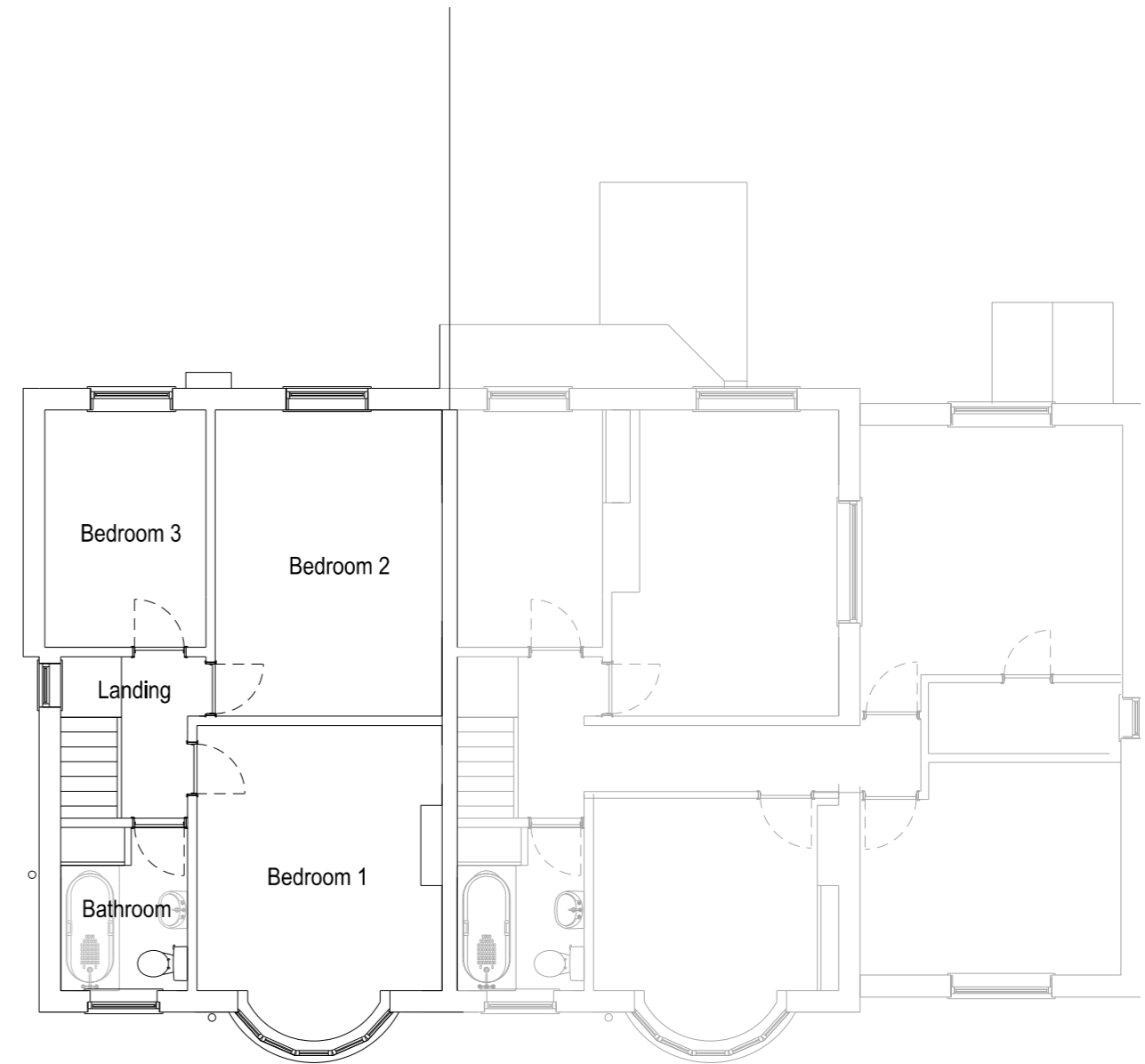
Appendices

Appendix A: No.40 Exeter Road Existing Plans

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 No dimensions are to be scaled off this drawing. All dimensions are to be verified on site.



Ground Floor Plan



First Floor Plan

<p>SCALE BAR</p>														
<p>REVISIONS</p> <p>1 - First Issue</p>														
<p>ORIENTATION :</p>	<p>CLIENT:</p> <p>Maju Khan</p>	<p>PROJECT:</p> <p>2 Storey Extension + Loft Conversion</p>												
	<p>LOCATION:</p> <p>40 Exeter Road Scunthorpe N Lincs DN15 7AX</p>	<p>DRAWING TITLE:</p> <p>Existing Plans</p>												
<table border="1"> <thead> <tr> <th>DATE:</th> <th>DRAWING No:</th> <th>Project No:</th> <th>Drawing No:</th> <th>Revision:</th> <th>SCALE:</th> </tr> </thead> <tbody> <tr> <td>APR '21</td> <td>235</td> <td>003</td> <td>01</td> <td></td> <td>1:100 @ A3</td> </tr> </tbody> </table>		DATE:	DRAWING No:	Project No:	Drawing No:	Revision:	SCALE:	APR '21	235	003	01		1:100 @ A3	
DATE:	DRAWING No:	Project No:	Drawing No:	Revision:	SCALE:									
APR '21	235	003	01		1:100 @ A3									



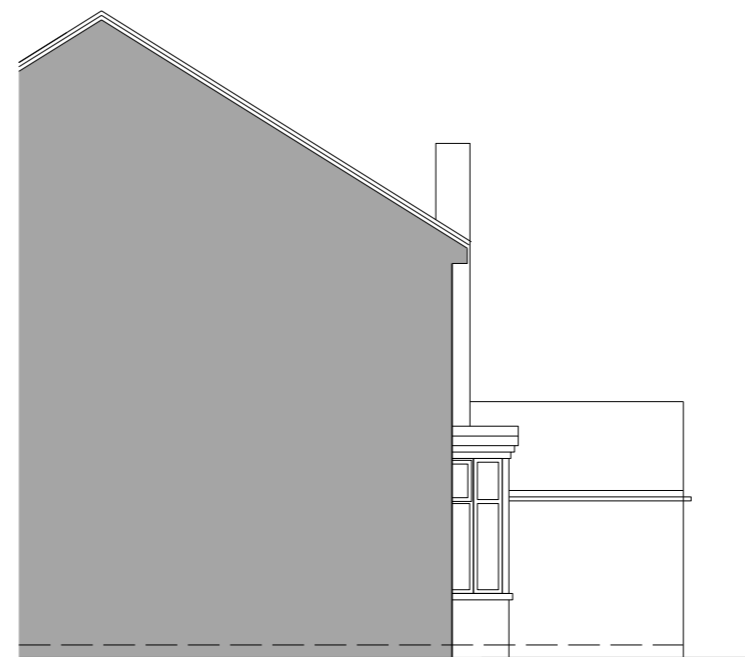
Front Elevation



Gable Elevation



Rear Elevation

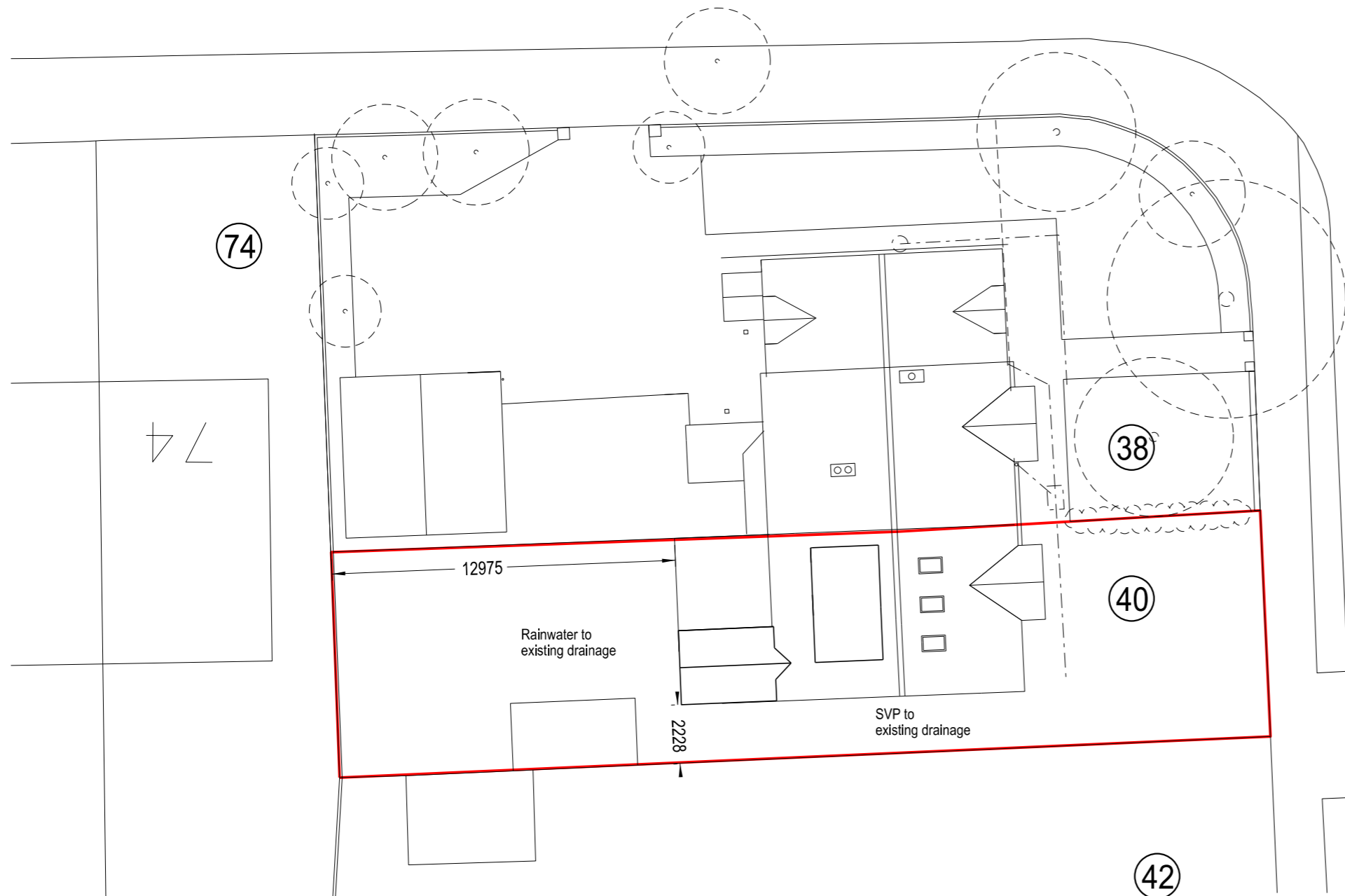


Gable Elevation

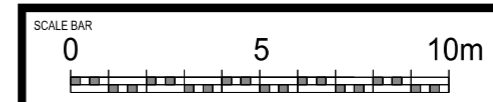
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<p>REVISIONS</p> <p>1 - First Issue</p>		<p>PROJECT:</p> <p>2 Storey Rear Extension + Loft Conversion</p>	
<p>CLIENT:</p> <p>Maju Khan</p>		<p>DRAWING TITLE:</p> <p>Existing Elevations</p>	
<p>LOCATION:</p> <p>40 Exeter Road Scunthorpe N Lincs DN15 7AX</p>		<p>DATE:</p> <p>APR '21</p>	<p>DRAWING No:</p> <p>235 - 004</p> <p>Revision:</p> <p>01</p> <p>SCALE:</p> <p>1:100 @ A3</p>

Appendix B: No. 40 Exeter Road Proposed Plans

Cliff Gardens

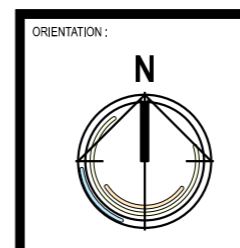
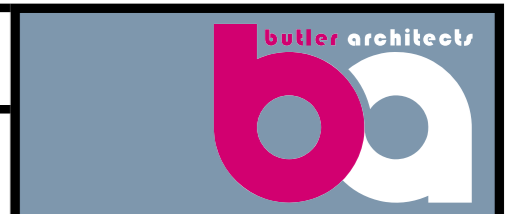


Exeter Road



REVISIONS

1 - First Issue
2 - Storey element reduced



CLIENT: Maju Khan

LOCATION: 40 Exeter Road
 Scunthorpe
 N Lincs
 DN15 7AX

PROJECT: 2 Storey Rear Extension + Loft Conversion

DRAWING TITLE: Proposed Site Plan

DATE:	DRAWING No:	Project No:	Drawing No:	Revision:	SCALE:
APR '21	235	007	02		1:200 @ A3

PROPOSED SITE PLAN 1:200 @A3

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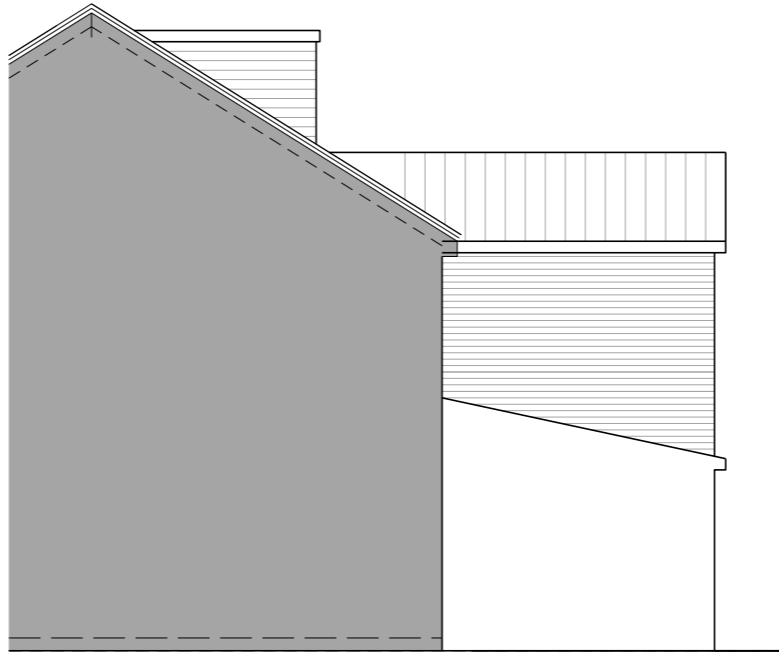
Front Elevation



Gable Elevation



Rear Elevation

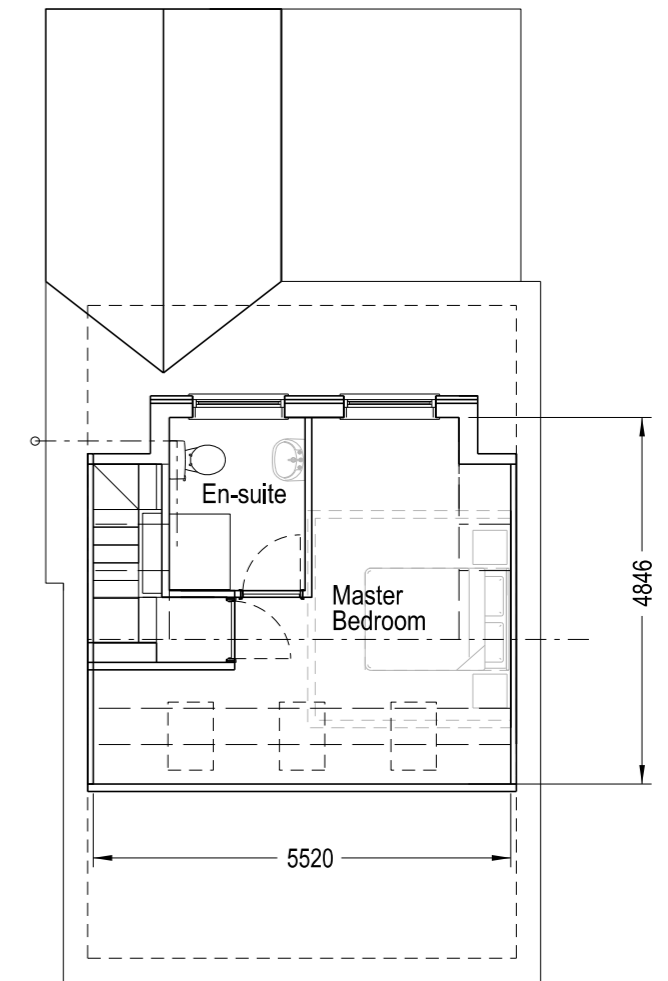
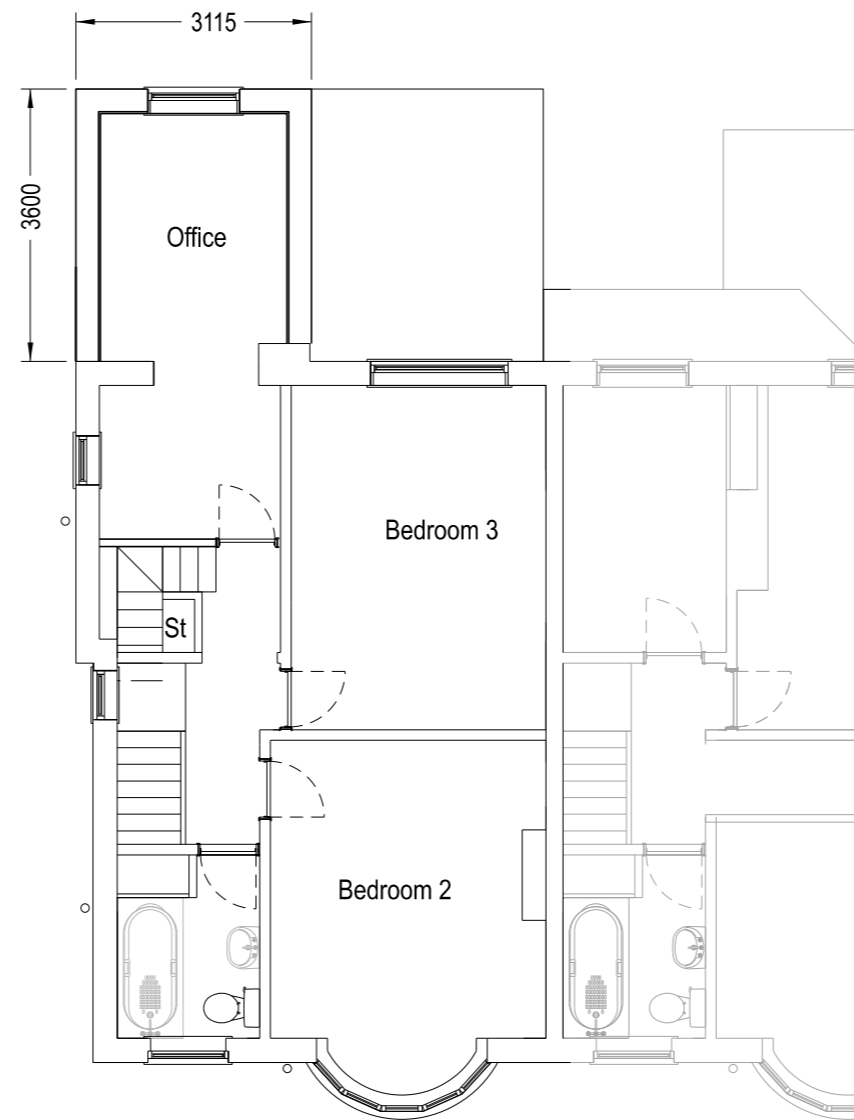
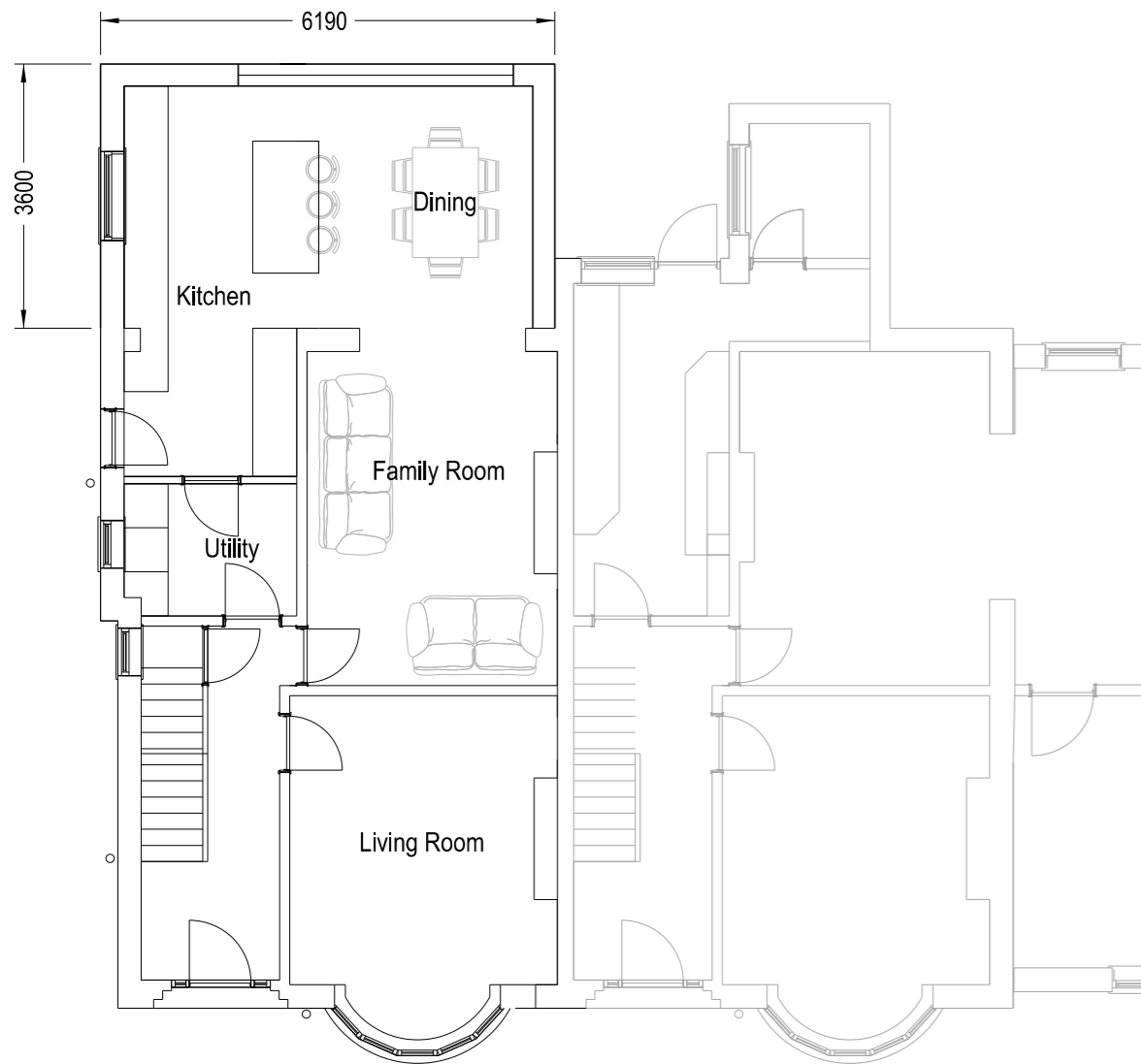


Gable Elevation

Materials	
Walls -	Metric red brickwork to compliment existing
Roof -	Slate Tiles
Fascias + Soffits Gutter and RWP	All Fascias, soffits to be Black UPVC All gutter and RWP's to be Black UPVC
Windows / Doors -	White UPVC - For style see elevation.

<p>SCALE BAR</p> <p>0 1 2 3 4 5m</p>															
<p>REVISIONS</p> <p>1 - First Issue</p> <p>2 - 2 storey element amended</p> <p>3 - Height and size of 2 storey element amended</p>		<p>PROJECT:</p> <p>2 Storey Rear Extension + Loft Conversion</p>													
<p>CLIENT:</p> <p>Maju Khan</p>		<p>DRAWING TITLE:</p> <p>Proposed Elevations</p>													
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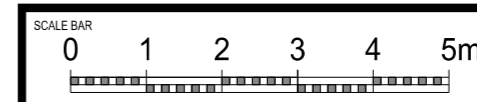
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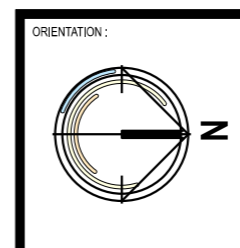
Ground Floor Plan

First Floor Plan

Attic Plan



- REVISIONS
- 1 - First Issue
 - 2 - Second floor plan amended
 - 3 - Floor plan amended



CLIENT: Maju Khan
 LOCATION: 40 Exeter Road
 Scunthorpe
 N Lincs
 DN15 7AX

PROJECT: 2 Storey Rear Extension + Loft Conversion
 DRAWING TITLE: Proposed Plans
 DATE: MAR '21
 DRAWING No: 235
 Drawing No: 005
 Revision: 03
 SCALE: 1:100 @ A3