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**Proposed Alterations at
10 Mariners Quay
Littlehampton
BN17 5DA**

Flood Risk Assessment

10 September 2015

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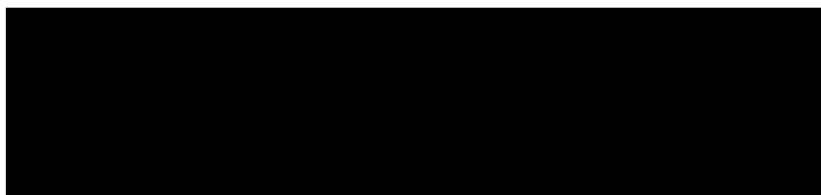
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Appendix A – Existing and proposed plans and elevations of the dwelling

Version	Date	Circulation	Description of Amendments
1.0	10 September 2015	Planning	

Report Prepared by:



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*Proposed alterations at 10 Mariners Quay, Littlehampton, BN17 5DA
Flood Risk Assessment
10 September 2015*

Introduction

This site specific Flood Risk Assessment (FRA) has been undertaken to accompany a planning application for proposed alteration to an existing dwelling at 10 Mariners Quay, Littlehampton, BN17 5DA which is indicated on the Environment Agency flood maps to be located within a Flood Zone 3 but with tidal flood defence protection.

This FRA has been prepared in accordance with the National Planning Policy Framework - 2012 (NPPF) and with the National Planning Practice Guidance - 2014.

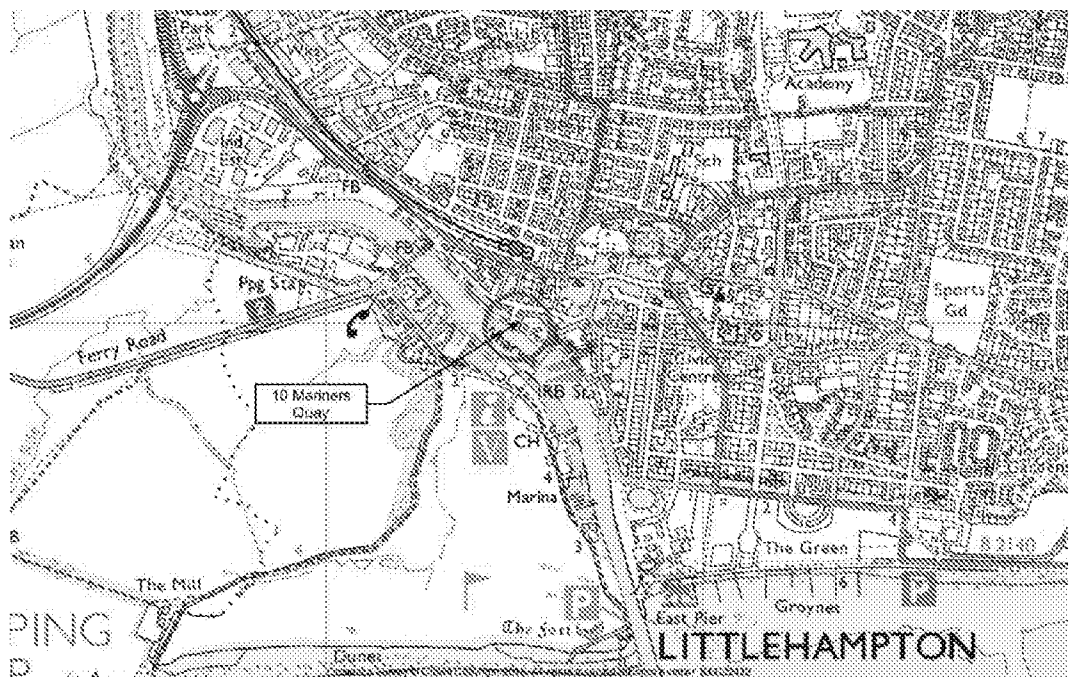
In preparing this FRA reference has been made to the Arun District Council Strategic Flood Risk Assessment (SFRA) dated 2008 as prepared by consultants, Capita Symonds.

Development Description

The proposed alterations to the existing property comprise filling in of an external area at ground floor level within the footprint of the building, extension of decking within the rear garden, conversion of a bedroom at ground floor level into a reception room, remodelling the room layouts at first and second floor levels and addition of accommodation within the roof to form a third floor. Existing and proposed plans and elevations of the dwelling are presented in Appendix A.

The site may be located by Ordnance Survey grid reference E502500m, N102005m. The following figures show the location of the site and aerial view.

Figure 1 - Site Location



*Proposed alterations at 10 Mariners Quay, Littlehampton, BN17 5DA
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Figure 2 – Site Location Aerial View



Site Assessment – Sources, Mechanisms and Pathways of Flooding

This flood risk assessment has considered the six possible sources of flooding: Tidal (Seas); Fluvial (Rivers); Surface Water; Groundwater; Sewers and Infrastructure Failure.

The detailed site assessment is as follows:

Tidal and Fluvial

Tidal flooding occurs by the sea or estuary and can be due to breach or over topping of flood defences, wave action and fluvial flows due to tide locking.

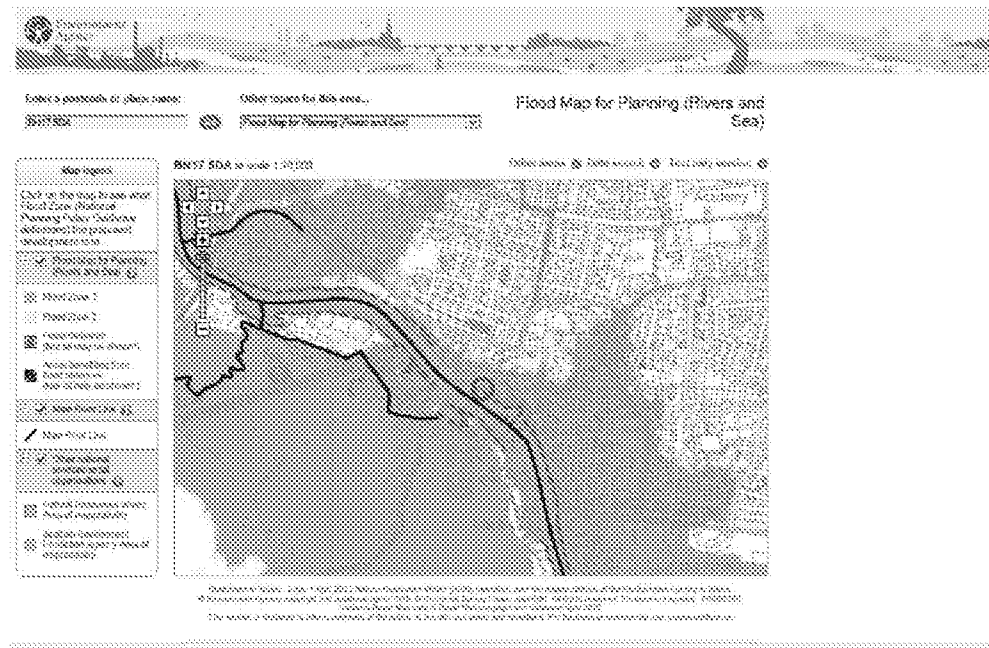
Fluvial flooding is due to out-of-bank flow, overtopping or breach of river defences and blockages to culverts, flood channel or flood corridors.

In accordance with the National Planning Practice Guidance – 2014, Flood Zones and Flood Risk Tables, Table 2: Flood Risk Vulnerability Classification – buildings used for dwelling houses have a flood risk vulnerability classification of 'more vulnerable'

The property formed part of a development of 14 three bedroom houses which received planning consent from Arun District Council under Planning Consent LU/283/97 dated 21 April 1999. Condition 16 of the consent required that the slab levels of the house be above the maximum flood level.

The following figure show the Environment Agency flood map with the site located within the red circle.

Figure 3 – Flood Map – Rivers and Sea



The site is located within a Flood Zone 3 which is land assessed as having a 1 in 100 or greater annual probability of river flooding and 1 in 200 or greater annual probability of sea flooding in any year. The EA flood maps do not take into account the effect of flood defences which are protecting this site.

Map C1-F 'Actual River Climate Change Extents With Defences' contained with the SFRA indicates that the property is outside of the river flood risk but Map C1-T 'Actual Sea Climate Change Extents With Defences' indicates that the property is at risk for the 2056 and 2106 scenarios however the ground floor of the property is already raised to mitigate against any risk.

SFRA map D4 'Estimated Standard of Protection' indicates that the flood defences adjacent the site offer a 75 year design standard.

Surface Water Runoff

Sheet runoff from adjacent land (urban and rural) can result in local surface water flooding.

The British Geological Survey 'Geology of Britain' web viewer indicates that the site is underlain by superficial deposits of River Beach Deposits - comprising sand and gravel over bedrock deposits of Lewes Nodular Chalk Formation comprising chalk.

Impermeable clay soils can cause sheet runoff (flash floods). As permeable soils are found at the site location and not clay it is considered that there is a 'very low probability' of flooding by surface water runoff from the surrounding area and as the development is adjacent the River Arun any flows would be directed to the river.

Groundwater

The level of groundwater rises during wet winter months, and fall again in the summer as water flows out into rivers. In very wet winters, rising water levels may emerge to the surface and lead to flooding of normally dry land. This is most likely to occur in low-lying areas underlain by permeable rock (aquifers).

The site is located over permeable rocks and soils and superficial and bedrock aquifers. The area is identified in the SFRA on Map G1 at risk from groundwater flooding. However, the existing dwelling has a raised ground floor level and as it is adjacent to the tidal River Arun any groundwater that emerged at ground level would be able to flow to the river.

Sewers

Combined, foul or surface water sewers can surcharge due to insufficient capacity causing flooding of the surface depending upon the ground topography. Surface water sewers are now required to be designed not to flood for 1 in 30 year storm events but the older sewer networks may not have this level of capacity. Foul sewers can flood in periods of intense rainfall due to connection of surface water to the system.

No historical flooding incidents caused by flooding by sewers in the locality have been established so there is a 'low probability' of flooding caused by sewers.

Infrastructure Failure

Flooding due to infrastructure failure could be due to reservoirs, canals, industrial processes, burst water mains, blocked sewers or failed pumping stations.

No artificial sources of flooding have been identified i.e. reservoirs etc. that may have influence on the site. Therefore, there is a 'low probability' of flooding due to infrastructure failure.

The property is shown to be located in Flood Zone 3 related to tidal and fluvial flooding of the adjacent River Arun but otherwise has a 'low probability' of flooding from other sources. When the dwelling was constructed the floor level was set above the maximum flood level. There is a residual risk that the maximum flood level may be raised due to climate change.

The existing bedroom at ground floor level is to be moved to a higher level in the property (with only occasional use of the reception room as sleeping accommodation) and risk to sleeping occupants from a flash flood are reduced. The upper floors of the property provide a place of safety above any flood waters.

Drainage Strategy – Surface Water

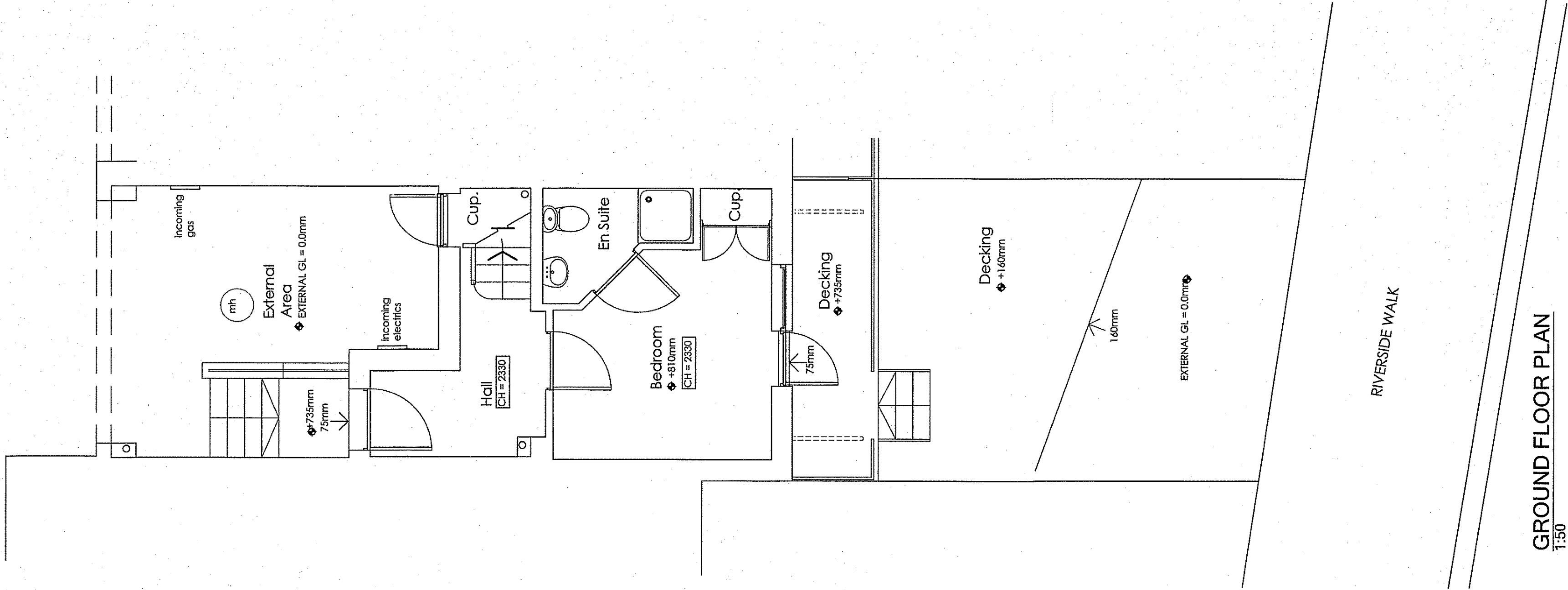
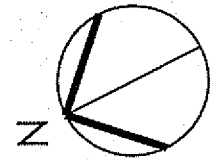
There are to be no alterations to the areas of impermeable roof and hard paved areas and no surface water drainage works are therefore envisaged. There is no increased risk of flooding on or off the site due to the proposed alterations.

Conclusions

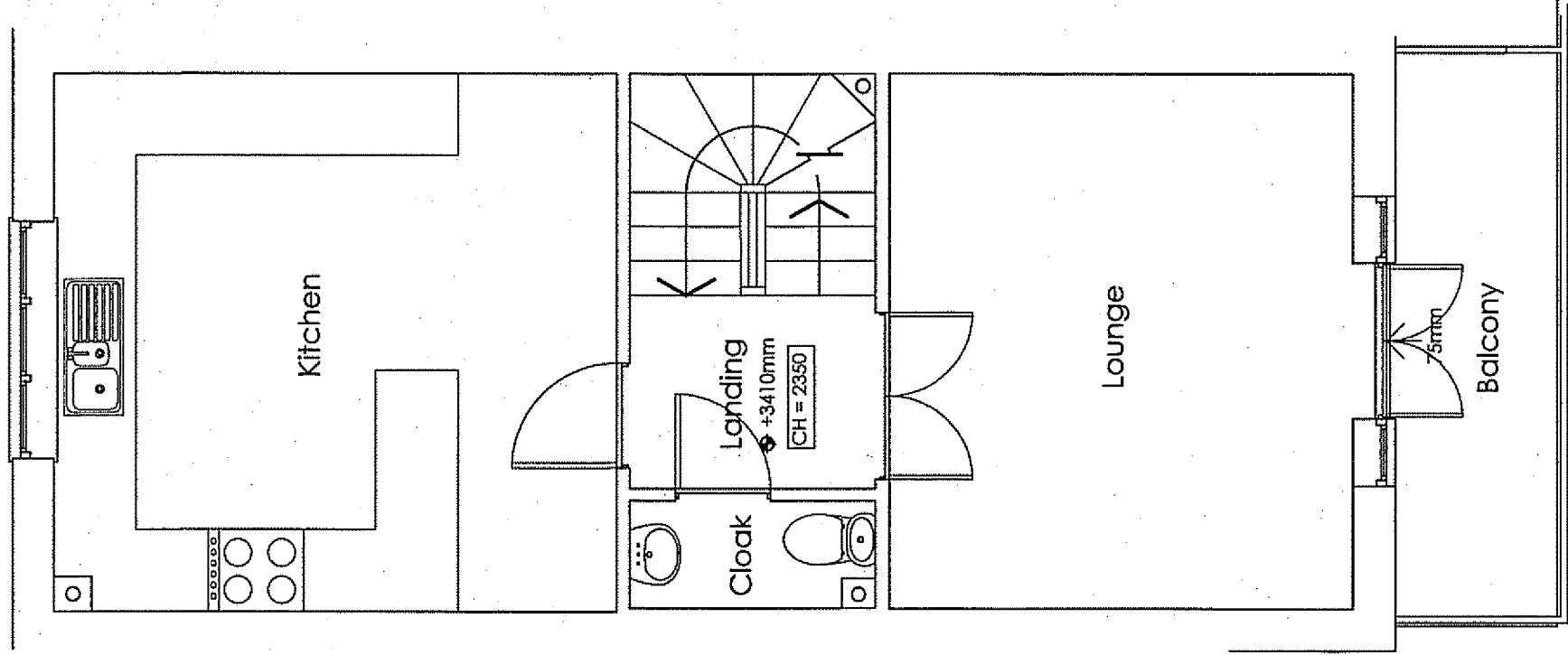
- The proposed alterations to the existing property comprise filling in of an external area at ground floor level within the footprint of the building, extension of decking within the rear garden, conversion of a bedroom at ground floor level into a reception room, remodelling the room layouts at first and second floor levels and addition of accommodation within the roof to form a third floor.
- The site of the property is shown to be located in Flood Zone 3 related to tidal and fluvial flooding of the adjacent River Arun but otherwise has a 'low probability' of flooding from other sources. When the dwelling was constructed the floor level was set above the maximum flood level. There is a residual risk that this maximum flood level may be raised due to climate change.
- The existing bedroom at ground floor level is to be move to a higher level in the property (with only occasional use of the reception room as sleeping accommodation) and risk to sleeping occupants from a flash flood are reduced. The upper floors of the property provide a place of safety above any flood waters.
- There are to be no alterations to the areas of impermeable roof and hard paved areas and no surface water drainage works are therefore envisaged. There is no increased risk of flooding on or off the site due to the proposed alterations.

Appendix A – Existing and proposed plans and elevations of the dwelling

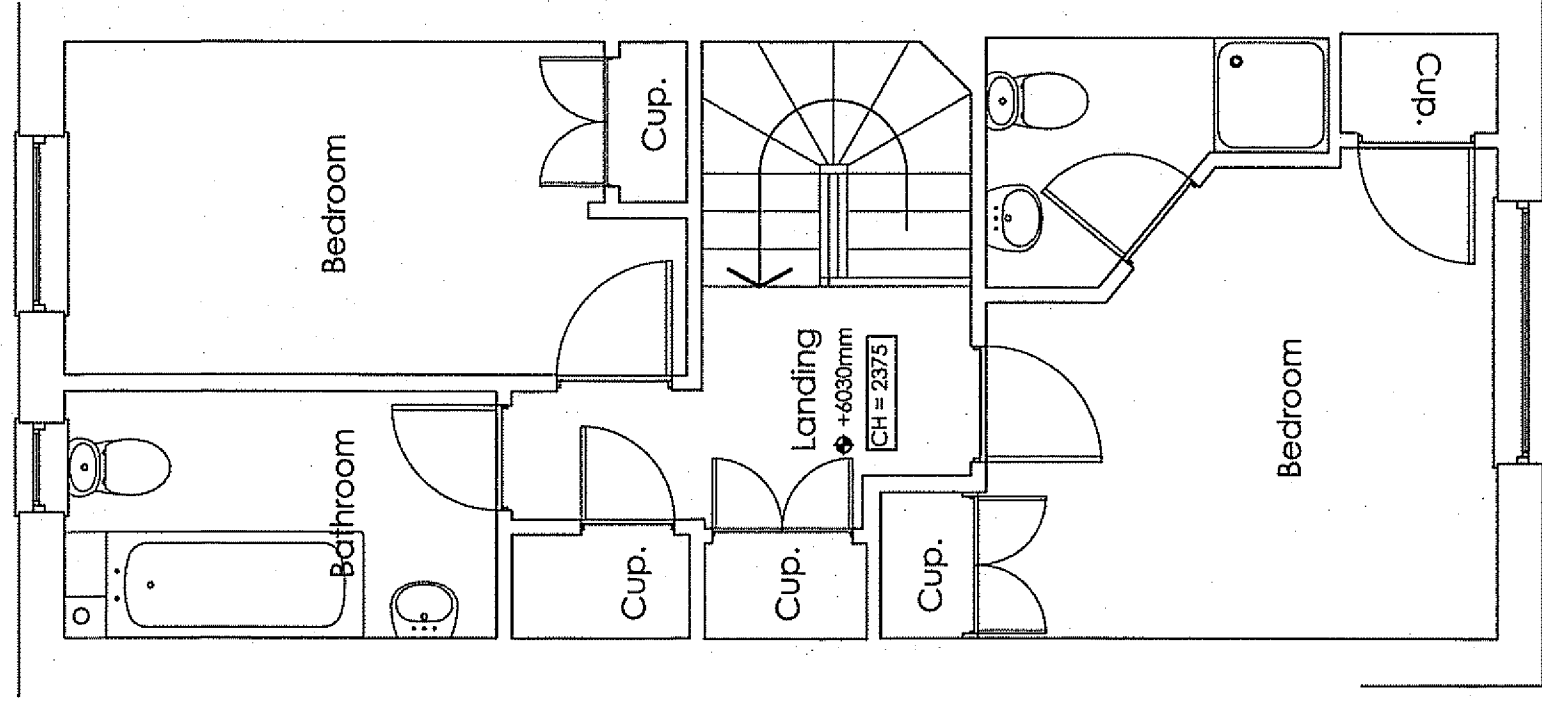
*Proposed alterations at 10 Mariners Quay, Littlehampton, BN17 5DA
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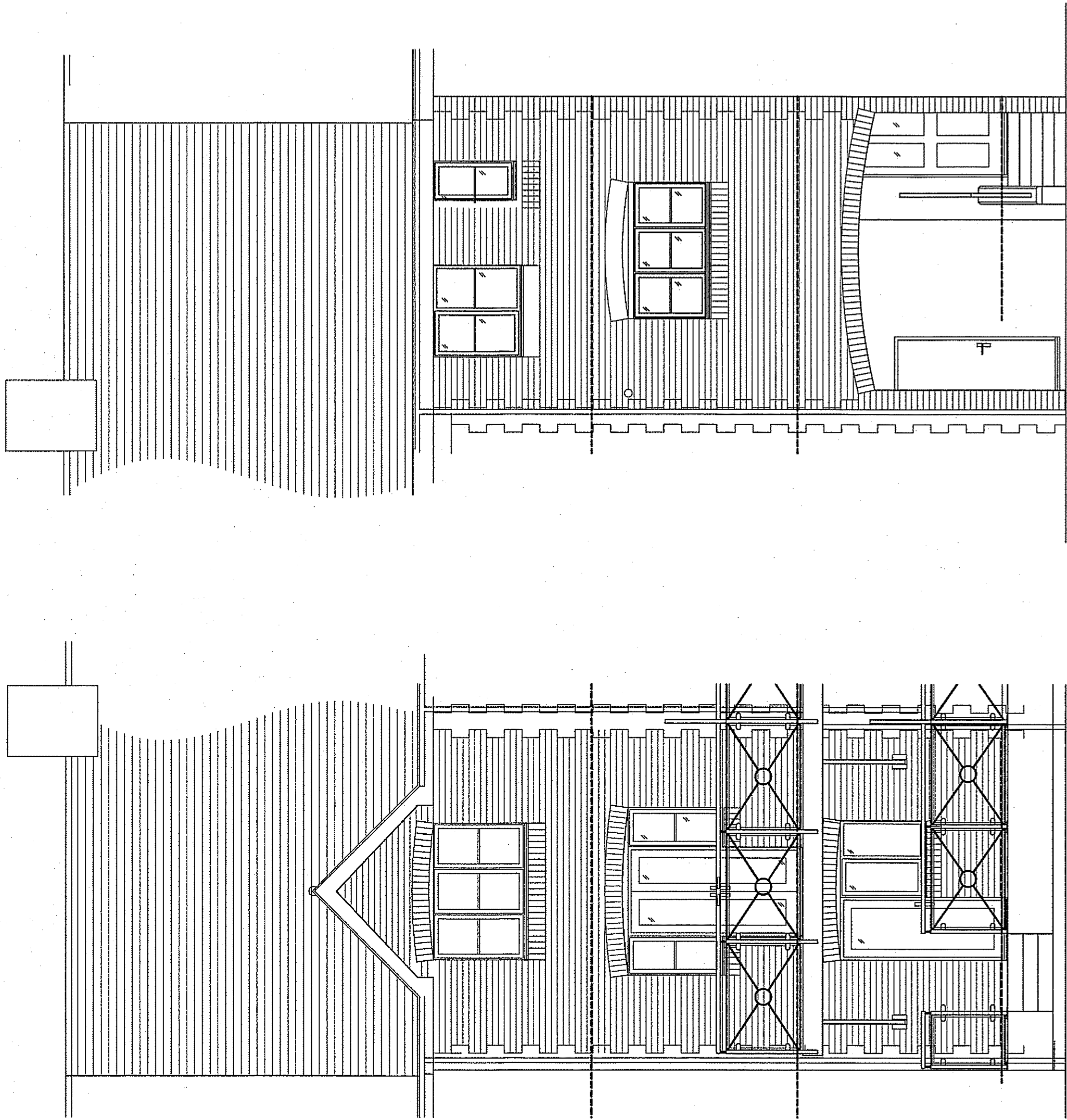
GROUND FLOOR PLAN
1:50



FIRST FLOOR PLAN
1:50

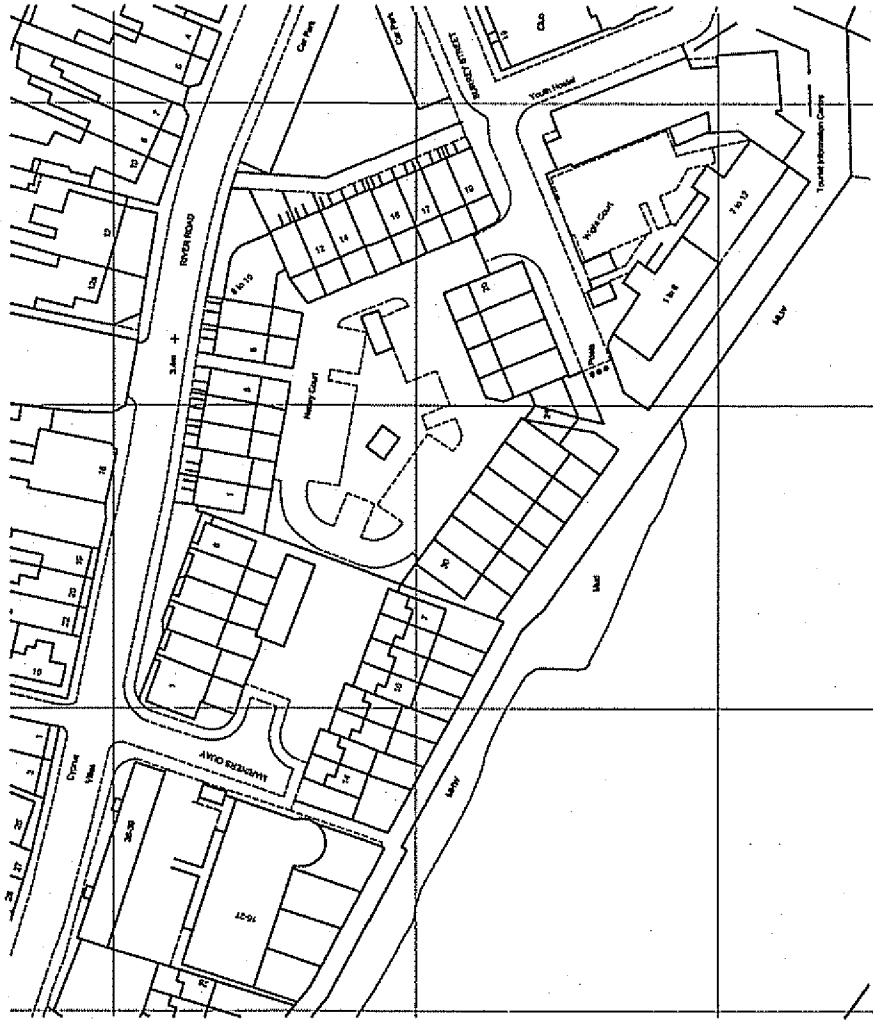


SECOND FLOOR PLAN
1:50



FRONT ELEVATION
1:50

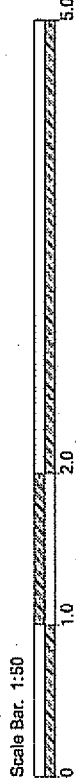
REAR ELEVATION
1:50



LOCATION PLAN
1:1250

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A 06.07.15 additional info added/reformatted

REV DATE DETAILS

DRAWING
SURVEY DRAWINGS
plans & elevations

PROJECT
10 MARINER'S QUAY
LITTLEHAMPTON
BN17 5DA

SCALE
1:50

DATE
04.06.2015

PROJECT NO.
15.903

DRAWING NO.
01A

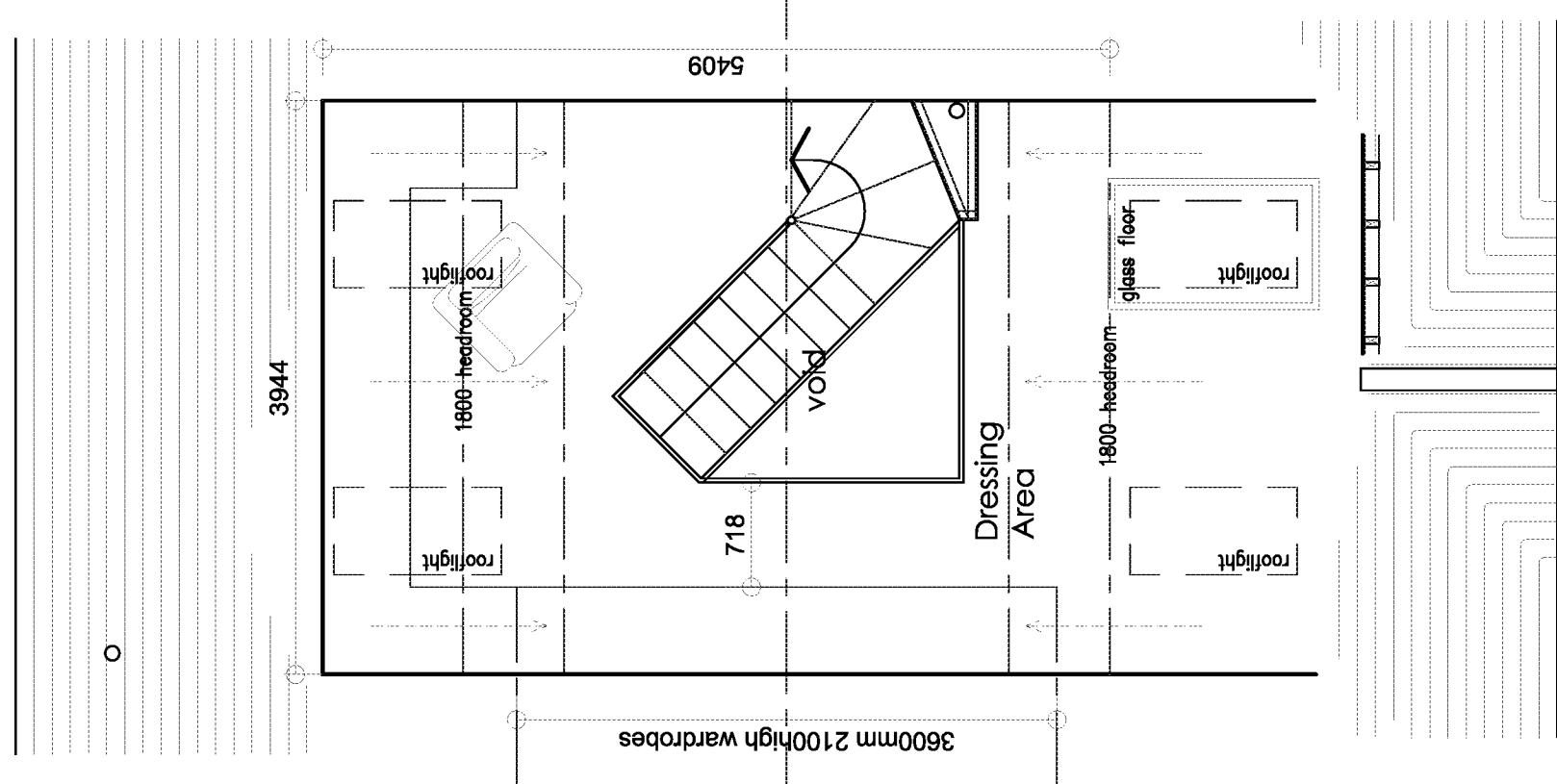
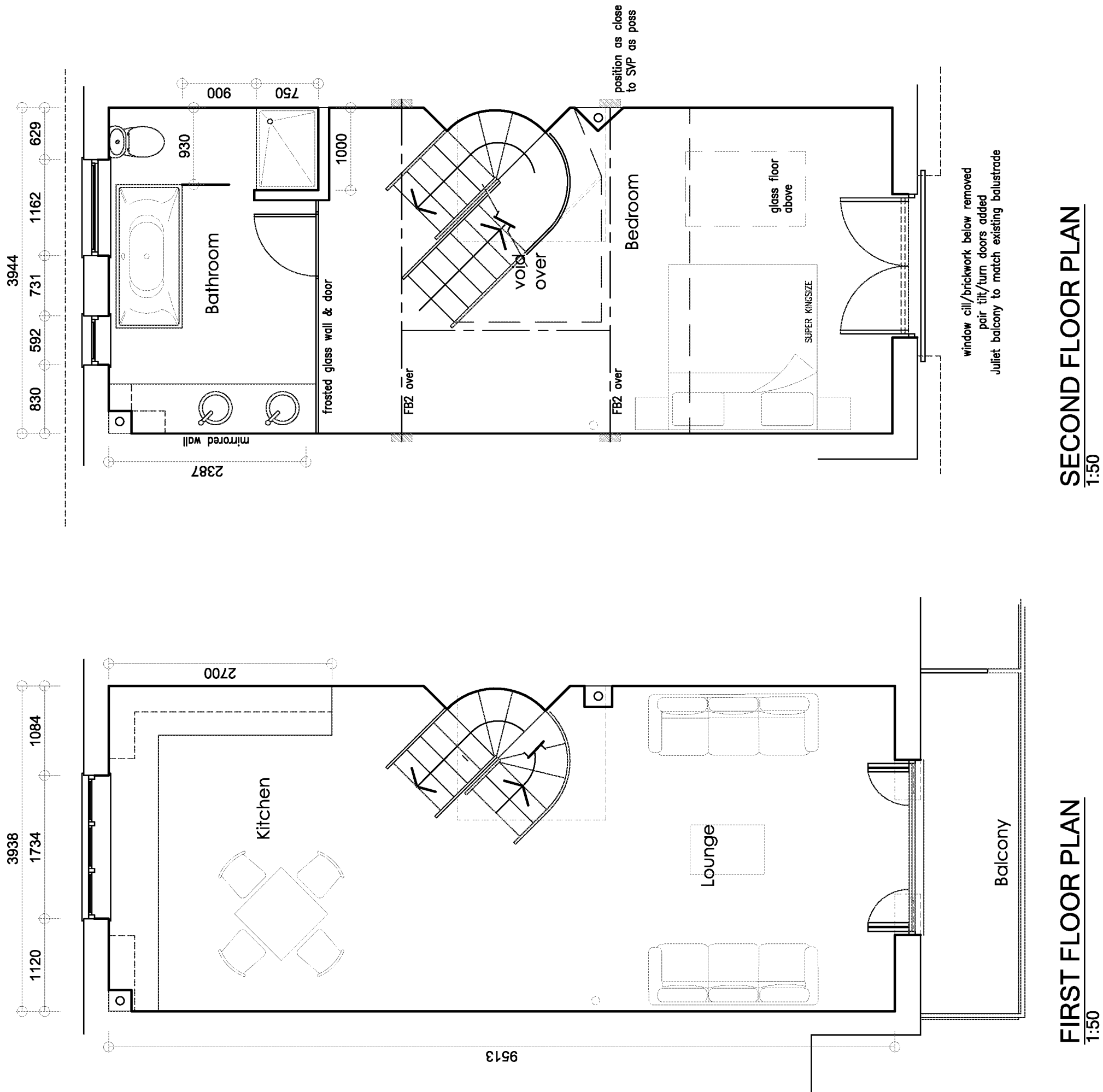
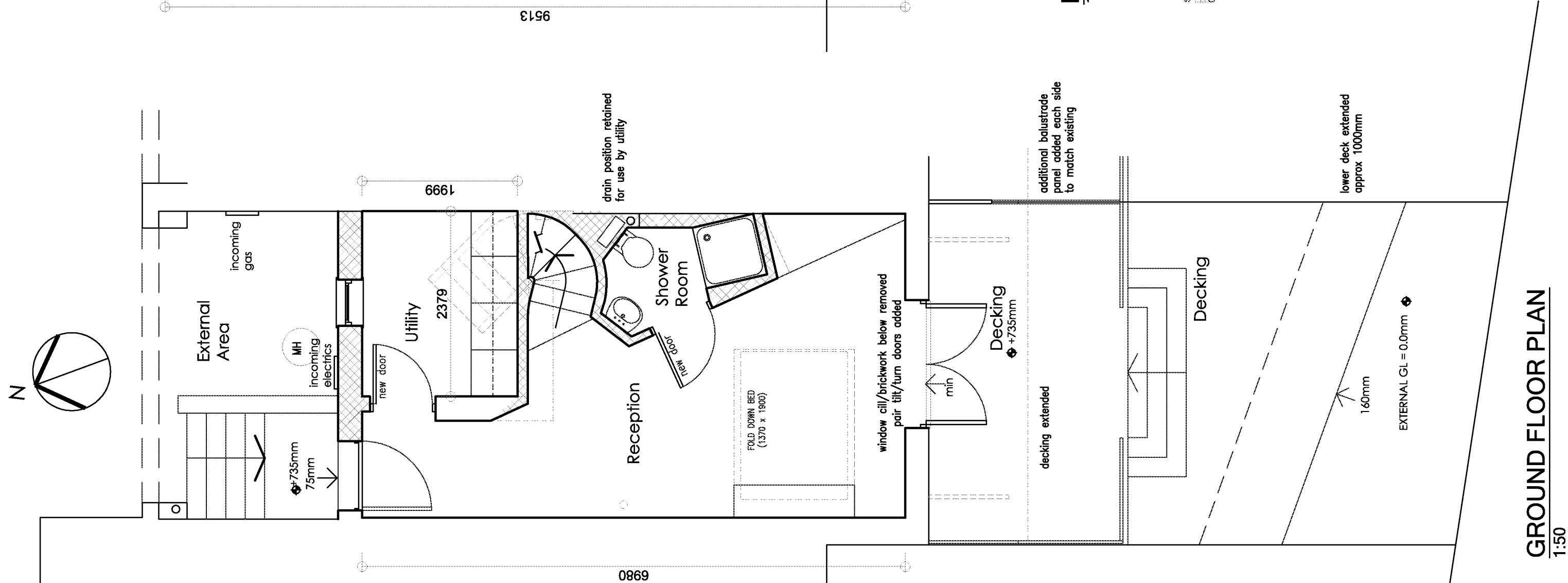
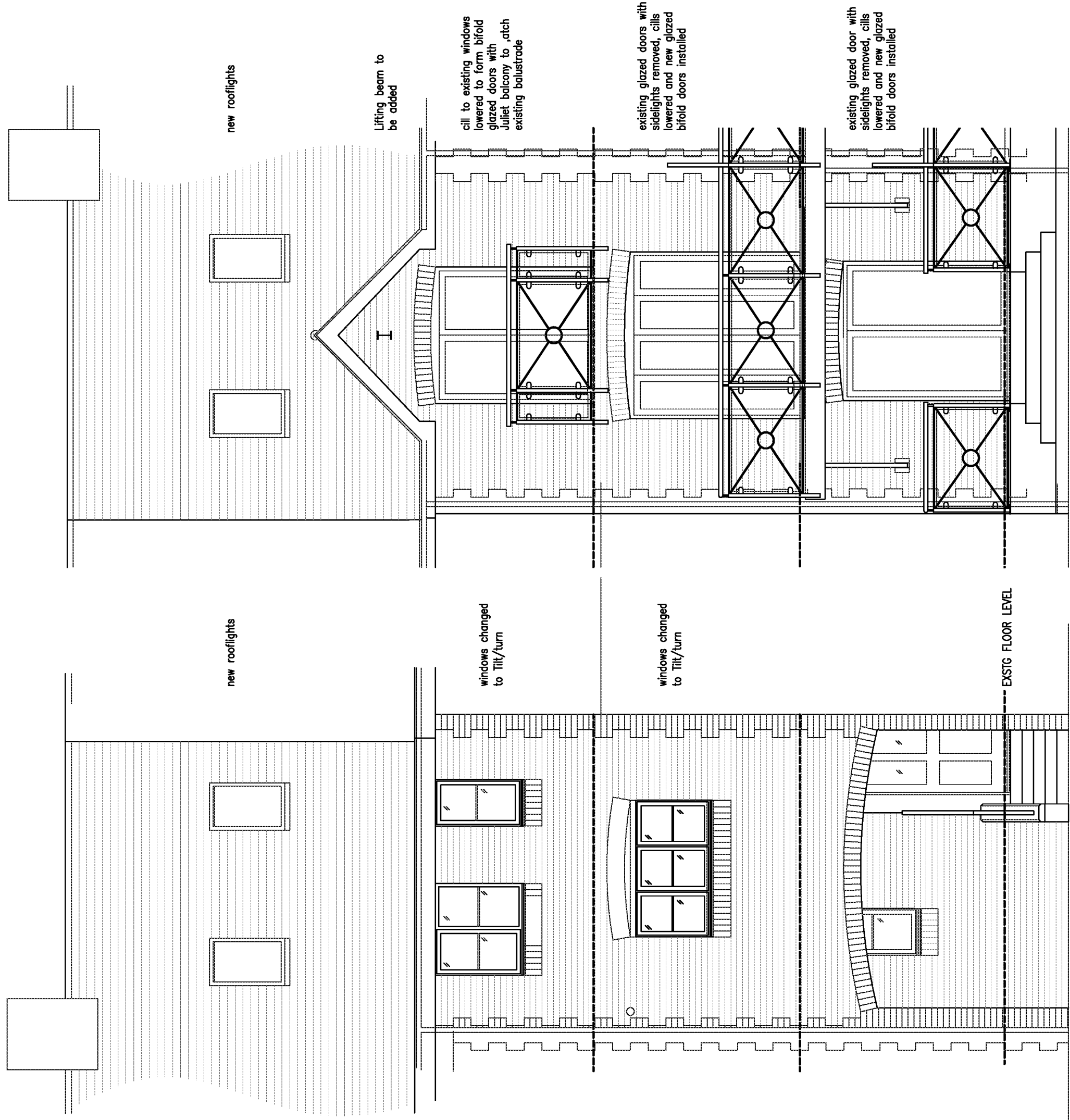
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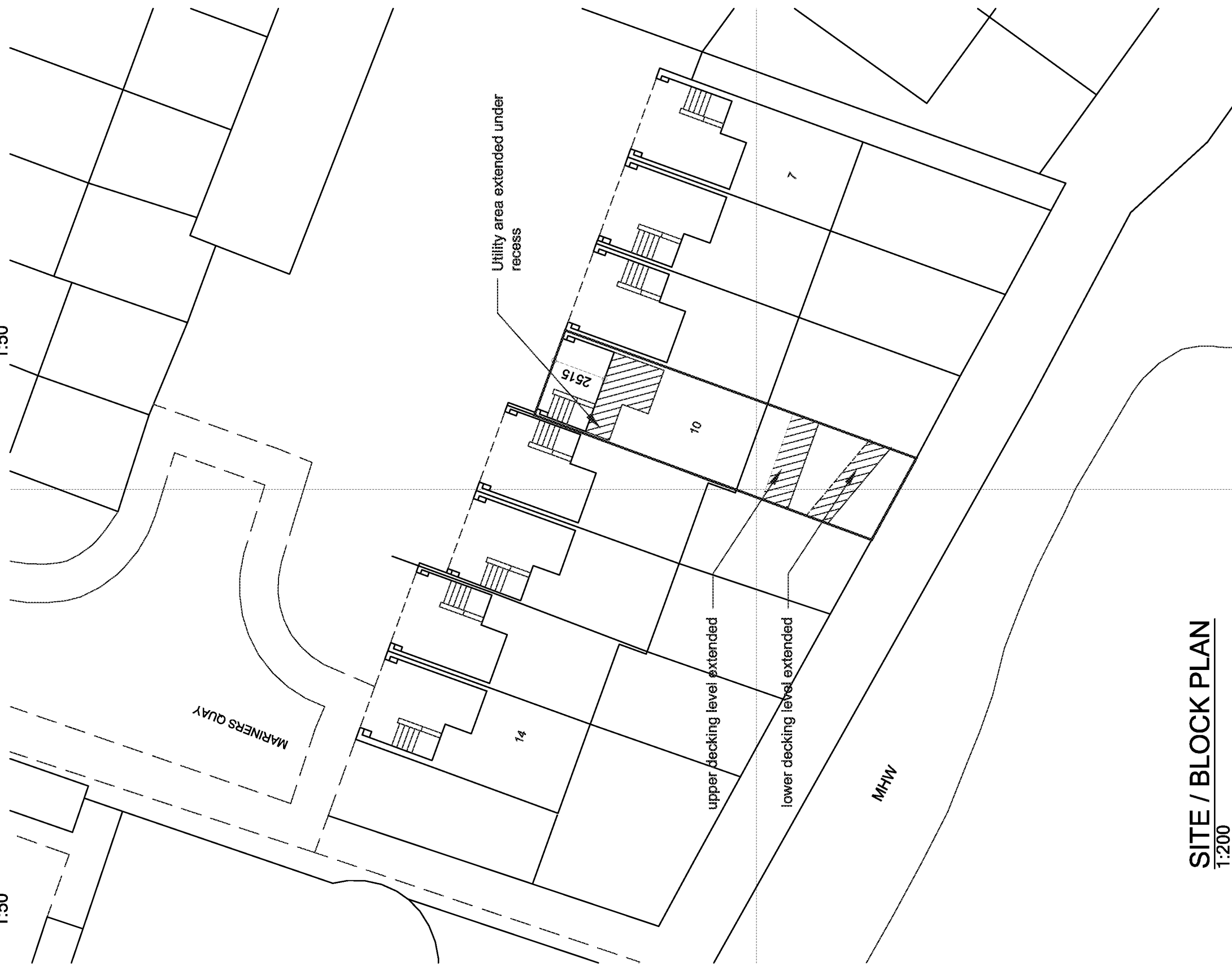
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THIRD FLOOR PLAN
1:50

SECOND FLOOR PLAN

FIRST FLOOR PLAN
1:50



SITE / BLOCK PLAN
1:200



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LOCATION PLAN
1:1250

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B	21/8/15	extended decking areas shown at 1:200
A	21/8/15	Rooflights added / boundary 'bolded' on site plan
REV	DATE	DETAILS

DRAWING

PLANNING APPLICATION

Proposed plans & elevations

PROJECT
10 MARINER'S QUAY
LITTLEHAMPTON
BN17 5DA

SCALE
as shown@A1

DATE
Aug 2015

PROJECT NO.
15.903

DRAWING NO.
TP01B

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