

**SCREENING AND SCOPING REPORT: 'LAND STABILITY'**

**Proposed development:**

**70 CHURCHWAY, LONDON, NW1 1LT**

The site



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<b>Rev 0</b>	<b>10 October 2013</b>	<b>First issue</b>	<b>Keith Gibbs</b> BSc, MSc, FGS	<b>Alan Watson</b> BSc [Eng], CEnv, CEng, MICE
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**APPENDIX**

- Proposed development drawings
- Existing site plan
- Location plan

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## **BASEMENT IMPACT ASSESSMENT REPORT - LAND STABILITY 70 CHURCHWAY, LONDON NW1 1LT**

### **1.0 INTRODUCTION**

Consideration is being given to redevelopment of the site which will involve demolition of the existing two storey building and the construction of a new three storey residential apartment building. As part of the scheme a new single level basement is also to be excavated beneath the full footprint of the new building which will also incorporate a small garden. Revised drawings detailing the proposed Redesign Option- basement scheme are included in the Appendix to this report [Ref 1512/230/A, 231/A, 233/A and 241/A, dated March 2016].

This report presents the potential impact relating to the proposed subterranean development in terms of 'land stability' as presented in the guidance documents published by Arup 2010: 'Camden geological, hydrogeological and hydrological study: Guidance for subterranean development', Issue01 dated November 2010 and CPG4, 'Basements and Lightwells', published by Camden Council.

The Land stability report is to form an addendum to ESI Limited's report, 'Basement impact assessment: hydrology and hydrogeology' [Ref. 61840R1, dated October 2013].

This Report has been prepared for the benefit of the Client and associated parties directly involved with the design and construction of the project under direction of the Client. No reliance can be assumed by others without written agreement from Soil Consultants Limited.

### **2.0 SITE DESCRIPTION**

The site of our investigation comprises the existing terraced property, No 70 Churchway in the Euston district of the London Borough of Camden, at postcode NW1 1LF [OS Grid Ref. TQ 29774 82854].

The site is approximately rectangular on plan with the existing two storey building occupying the whole of the property. The site is about 5.5m wide at the Churchway frontage and measures about 25m to the rear boundary. The property is surrounded by further residential / office and commercial properties.

The site is on ground that is generally level and lies at an approximate elevation of +20mOD. There are no trees within a relevant distance of the site.

### 3.0 STAGE 1 - SCREENING

The purpose of the screening stage is to determine whether a full Basement Impact Assessment is required and CPG4 provides flowcharts for each of the three disciplines [Groundwater Flow, Land Stability and Surface Flow/Flooding] for this purpose, identifying a series of questions. An answer of 'Yes' or 'Unknown' will require progression to Stage 2 of the CPG4 categories. Answers of 'No' indicate that no further investigation is generally required - these answers require written justification. The purpose of this section is to present the screening stage for the Land Stability discipline.

#### 3.1 Land Stability

The screening stage for slope stability has been considered as set out in Figure 2 of CPG4 Camden Council, 2010 [Slope stability screening flowchart] and the results have been tabulated in Table 1 below. Responses of note are as follows:

- ✚ Question 7 [shrink/swell] is answered 'Unknown'. Although the London Clay is expected to be the shallowest strata present [Question 5 - yes]. Notwithstanding the 'normal' seasonal movement of the soils, the absence of any nearby trees would suggest that related shrink/swell concerns should not be an issue and the answer would likely be 'No'. However, this cannot be fully addressed without an intrusive ground investigation and this question is considered further in Stage 2.
- ✚ Question 9 [historical workings] and Question 10 [aquifer depth], are answered 'Unknown'. These cannot be fully addressed without an intrusive ground investigation and this question is considered further in Stage 2.
- ✚ Question 12 [adjacent to highway and pedestrian right of way], Question 13 [differential foundation depths] are answered 'Yes' and are considered further in Stage 2.

All other questions are answered 'No' and supporting evidence supplied as required.

**Table 1: Impact of proposed basement works on Land Stability**

Impact question	Answer	Justification	Reference
1] Does the existing site include slopes, natural or man-made greater than 7 degrees [approximately 1 in 8]?	No	No significant apparent slope indicated by survey plans	Slope angle map Arup figure 16
2] Will the proposed re-profiling of landscaping at site change slopes at the property boundary to more than 7 degrees?	No	There are no plans to alter these site levels	Site plans / proposed development plans

Impact question	Answer	Justification	Reference
3] Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7 degrees?	No	Available survey information shows no other slopes greater than 7 degrees within a relevant distance	Slope angle map Arup figure 16
4] Is the site within a wider hillside setting in which the general slope is greater than 7 degrees?	No	Map review and assessment of slope angles from survey data.	Slope angle map Arup 2010 figure 16
5] Is the London Clay the shallowest stratum at the site?	Yes	Available data shows the London Clay to be the shallowest strata, though some made ground and unmapped superficial soils may also be present.	BGS Published Geology
6] Will any trees be felled as part of the proposed development and/or any works proposed within any tree protection zones where trees are to be retained?	No	Trees are not present on [or within an influencing distance from] the site.	Site plans and public domain photographs
7] Is there a history of seasonal shrinkage/swelling subsidence to the local area, and or evidence of such effects at the site?	Unknown	The London Clay is generally classified as a soil with a high shrinkage/volume change potential. However, this stratum may not have been adversely affected because trees are not present with an influencing radius of the site. Notwithstanding the effects of root growth, clay soils could be affected seasonally and affect foundations if these are very shallow.	Previous ground investigations in the London Clay Public domain photographs and survey plans
8] Is the site within 100m of a watercourse or a potential spring line?	No	See comments in report presented by ESI Limited.	ESI Report
9] Is the site within an area of previously worked ground?	Unknown	Published geological data suggests worked ground nearby to the W/SW but not beneath the site, so confirmation will be required by intrusive investigation.	BGS Published Geology and Aruo 2010 figure 16
10] Is the site within an aquifer? If so; will the proposed basement extend beneath the water table such that dewatering may be required during construction?	Unknown	The BGS map shows the site be underlain by the London Clay which is normally classified as "Unproductive".  A perched water table may be present in any permeable layers of made ground or other superficial soils.  A determination of whether ground water will be encountered during the basement excavation can only be confirmed following intrusive investigations.	BGS Published Geology / ESI Report
11] Is the site within 50m of the Hampstead Heath Ponds?	No	See comments in report presented by ESI Limited.	Ref Fig 14 Arup 2010

Impact question	Answer	Justification	Reference
12] Is the site within 5m of a highway or pedestrian right of way?	Yes	Churchway pavement along north-western boundary.	Site plans
13] Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	Yes	Basement retaining walls are likely to extend below founding levels to adjacent properties.  The movement expected from a properly constructed and supported wall should be relatively small.	Proposed development plans
14] Is the site over [or within] the exclusion zone of any tunnels, e.g. railway lines?	No	None within relevant distance of the site. Nearest underground tunnels are located about 90m to south and run in an approximate SW to NE direction.  Nearest over ground railway lines are about 200m to the west.	Site location maps

#### 4.0 STAGE 2 - SCOPING

The purpose of Stage 2 is to assess the potential impacts of the proposed scheme that Stage 1 has indicated require further consideration.

These are addressed below for each of the relevant disciplines.

##### 4.1 Land Stability

As discussed in Section 3.1 soil volume change [Question 7] is unlikely to be a significant issue as there are no nearby trees and the new founding depth for the proposed basement will be about 3.0m to 3.5m below ground level so well below the influence of vegetation.

The matter of previously worked ground [Question 9] presents a potential impact as there may be Made Ground below the existing building footprint. The presence of such soils and any dewatering of any contained ground water will need to be addressed by a later intrusive investigation.

The depth of the aquifer in relation to the basement [Question 10] is assessed further by ESI within their Basement Impact Report.

With regard to the impact on adjacent highways / pedestrian right of way [Question 12], the proposed basement extension will abut the front of the site along Churchway. This means that there will be a new excavation within influencing distance of the Churchway footpath which should be considered during the design of future intrusive ground investigation and during design and construction of the basement structure.

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The differential depth of the proposed foundations in relation to neighbouring properties [Question 13] is such that underpinning of party wall foundations may be required and this will need to be discussed as part of a later ground investigation report.

## 5.0 CONCLUSIONS

From the available information we consider that the impact on baseline conditions from the proposed development should be **LOW**, but that this should be supported by implementation of a ground investigation and an appropriate construction methodology and action plan of measurement, monitoring and response. The works must be undertaken by reputable specialists, potential movements due to construction must be assessed, and the temporary and permanent works must be adequately designed, with due consideration to the geology and hydrogeology of the site and surrounding areas.

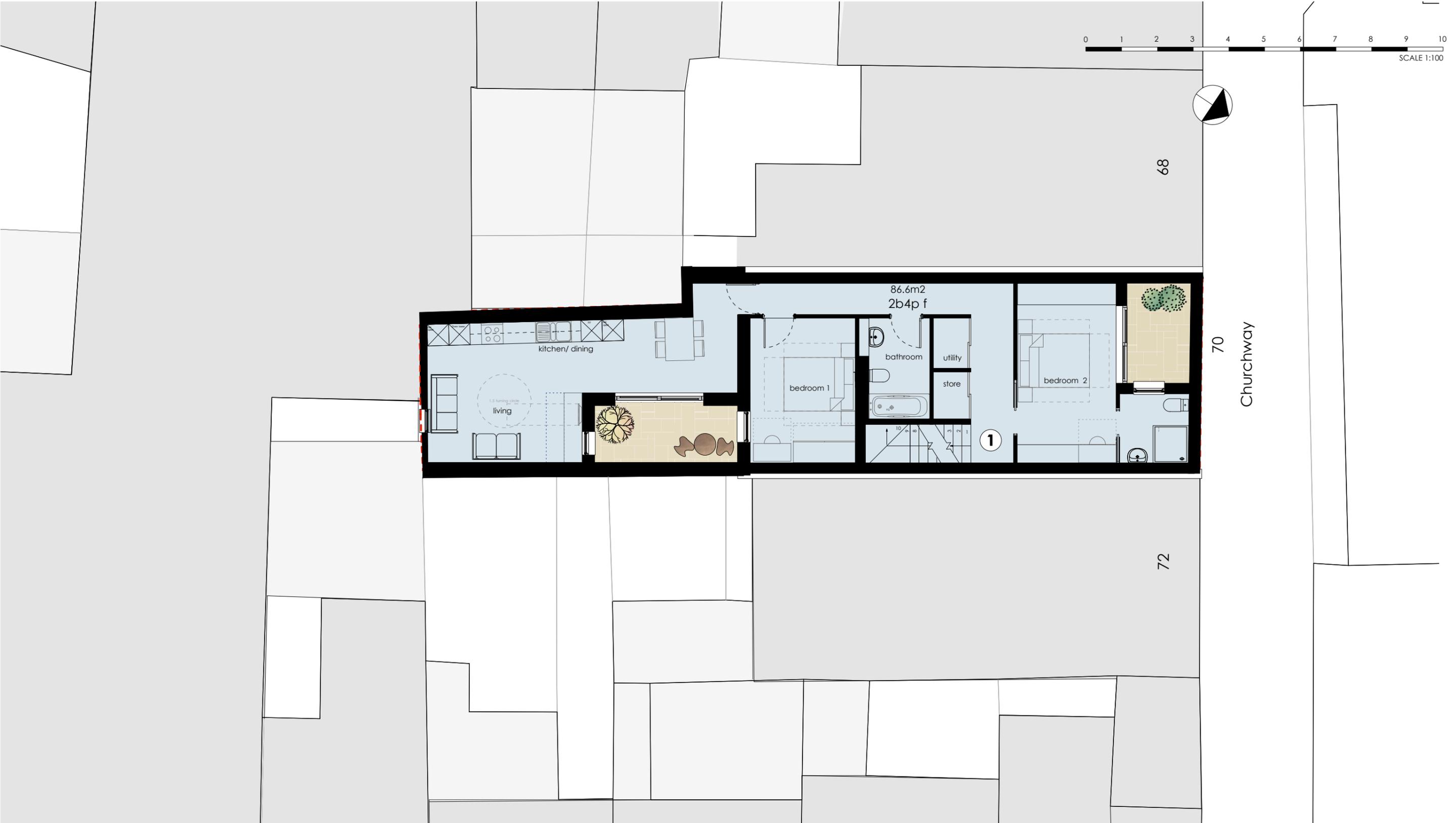
We conclude that for the proposed basement construction, it should certainly be possible to design the construction methods to ensure that ground movements do not adversely affect either adjacent properties or infrastructure.



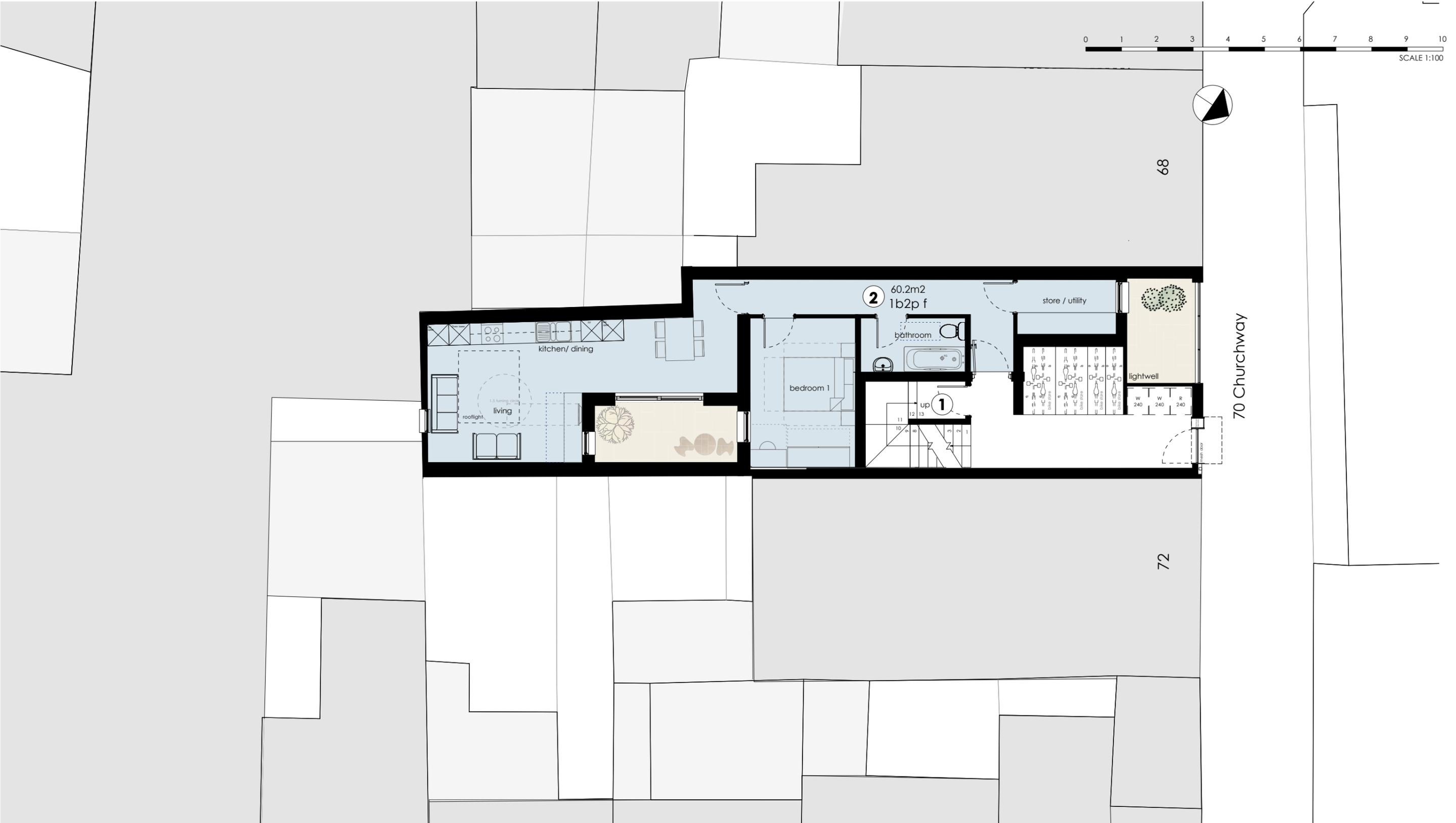
## **APPENDIX**

### **Plans**

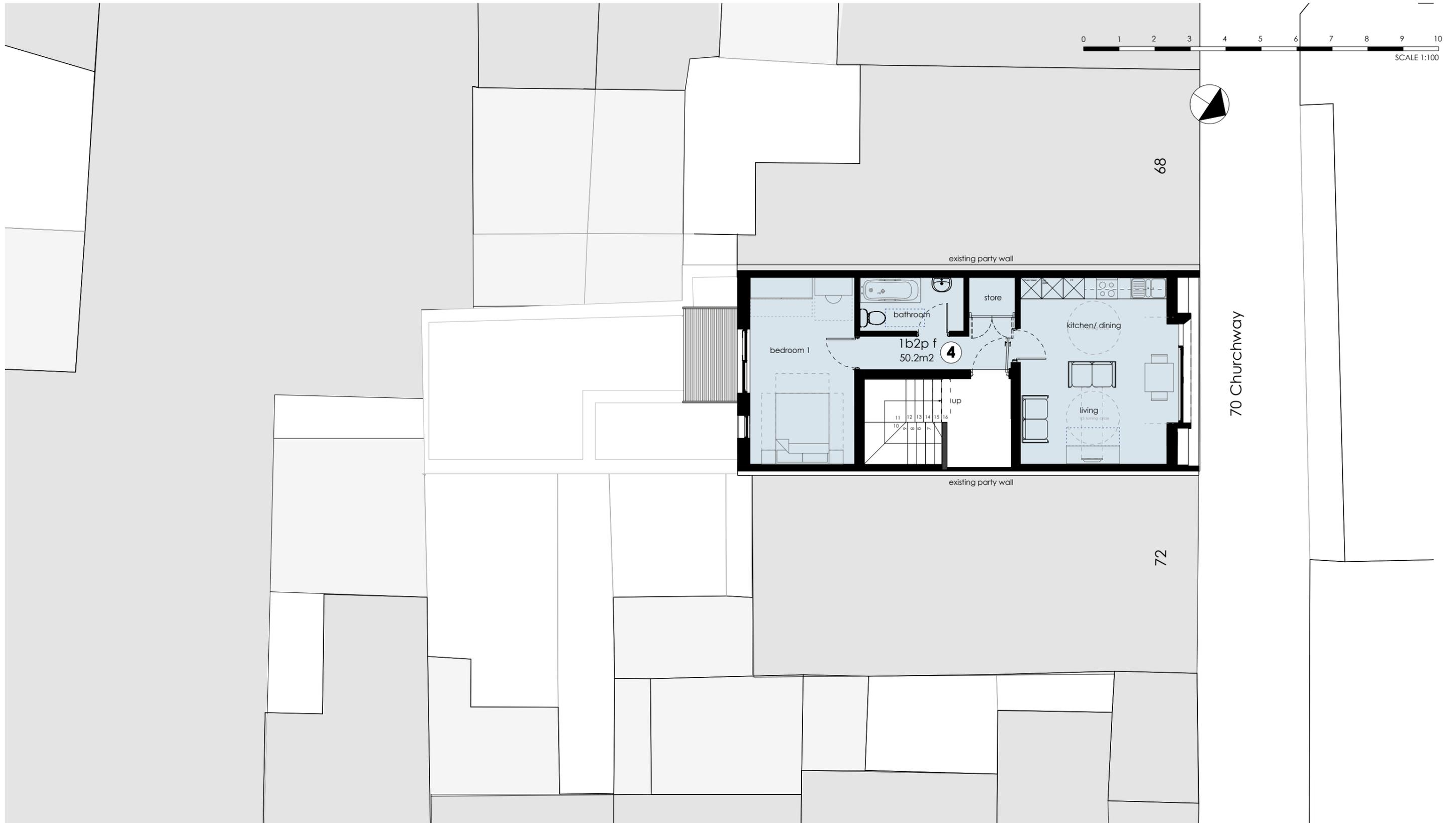
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# OPTION 2



# OPTION 2





Luna Apartments: Melbourne  
Example of glazed building with  
bronze transparent mesh screen



# OPTION 2

Site Plan



<b>DRAWN BY:</b> AJW/HR	<b>CHECKED BY:</b> AL
<b>SCALE:</b> 1:100 @ A3	<b>DRAWING STATUS:</b> Draft
<b>DATE:</b>	<b>DRAWING NO:</b> 05
<b>REV:</b>	

**DRAWING TITLE**  
Existing Ground Floor Plan

**PROJECT TITLE**  
Redevelopment of 70 Churchway.

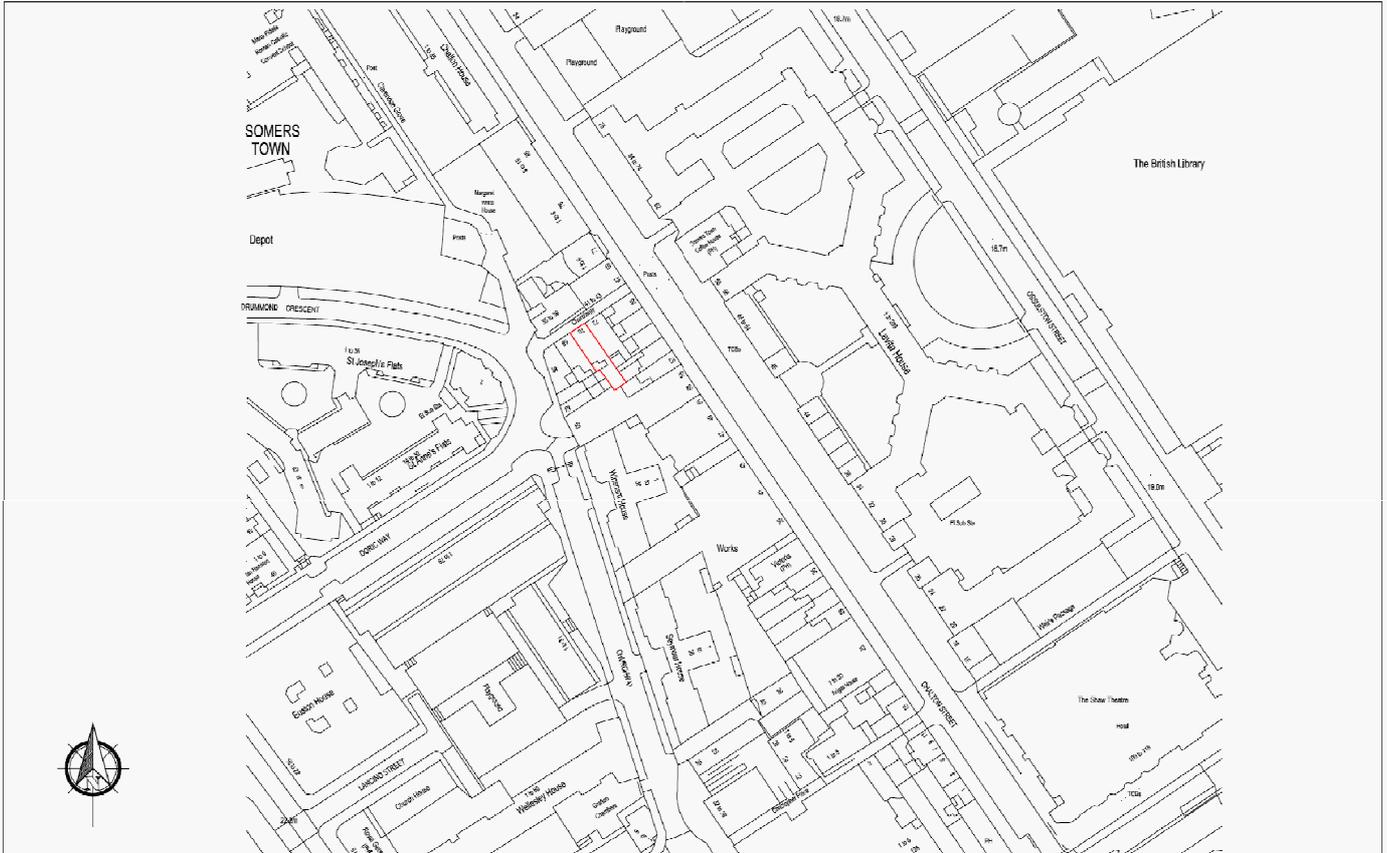
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Location Plan



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				<p>SCALE 1:1250 @A3</p>	<p>DRAWING STATUS</p>
				<p>DATE June'13</p>	<p>DRAWING NO: 01</p>

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