



For: NEXUS ST.MARKS CHURCH LTD

TERM Engineering Ref: 1064/01

Date: July 2025

Brook Hey Drive, Knowsley

Flood Risk Assessment

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1.0 Introduction

This Flood Risk Assessment has been prepared by TERM Engineering for NEXUS ST.MARKS CHURCH LTD to be used for submission to the Local Authority as part of the planning application for 90 new dwellings spread over 4 blocks on the proposed Brook Hey Drive site in Knowsley

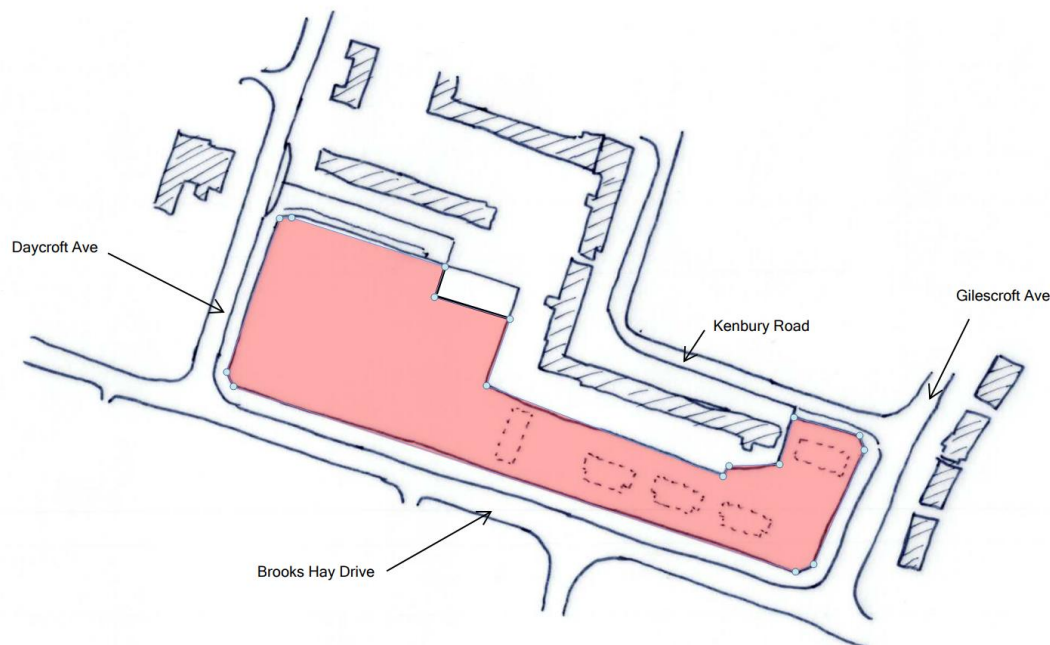
This report considers the requirements of the Government's National Planning Policy Framework (NPPF), through

- i) Assessing if the proposed development is likely to be affected by flooding.
- ii) Assessing if the proposed development is appropriate for the site.
- iii) Detail any measures necessary to mitigate any identified flood risk to ensure that the proposed development and occupants would be safe, and that the flood risk would not be increased elsewhere

2.0 Site Information

2.1 Site Location

The Brook Hey Drive site is bounded by Brook Hey Drive to the South, Gilescoft Avenue to the East, Deycroft Avenue to the West and Daycroft Walk and Kenbury Road to the North. It was formally occupied by the St Marks Church on the West of the site, which has been demolished. On the East side of the site there are 5 partially constructed residential buildings.



Site Location Plan

2.2 Topography

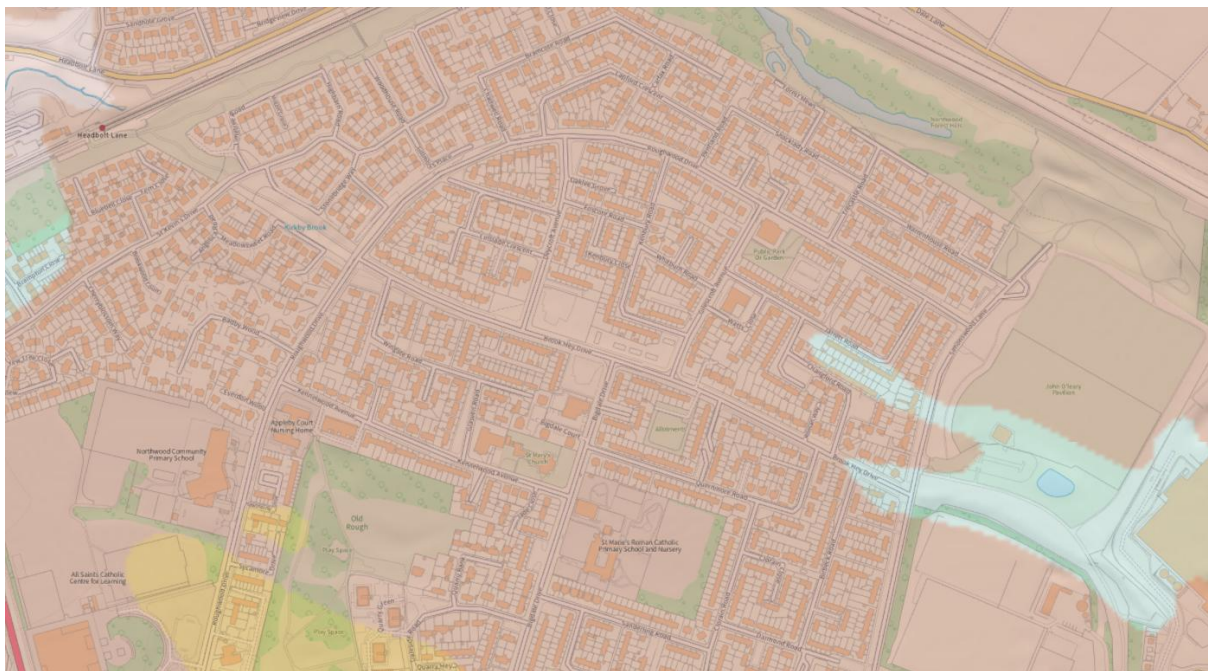
Topographic levels to meters Above Ordnance Datum (m AOD) have been derived from a site survey included in Appendix 1.

The existing site has a very slight fall in levels in a Westerly direction, from a peak level of 32.9m AOD on the eastern side of the site to 31.48m on the western side of the site.

A water course has been culverted along the line of Brook Hey Drive to the South of the site. This watercourse emerges from the culvert around 500m to the East, where it flows to the West and South. Local surface water drains connect directly into the culverted water course.

2.3 Geology

Geological information available from the British Geological Society (BGS) indicates the local geology will consist of made ground overlying sands, overlying sandstone bedrock. The closest borehole log to the site suggests the sandstone will be around 10m below ground level.



A site investigation comprising a series of 5-6 m window samples was carried out on the Eastern end of the site, and found that there were varying layers of made ground, sands and peat overlaying a layer of Clay. See the table below.

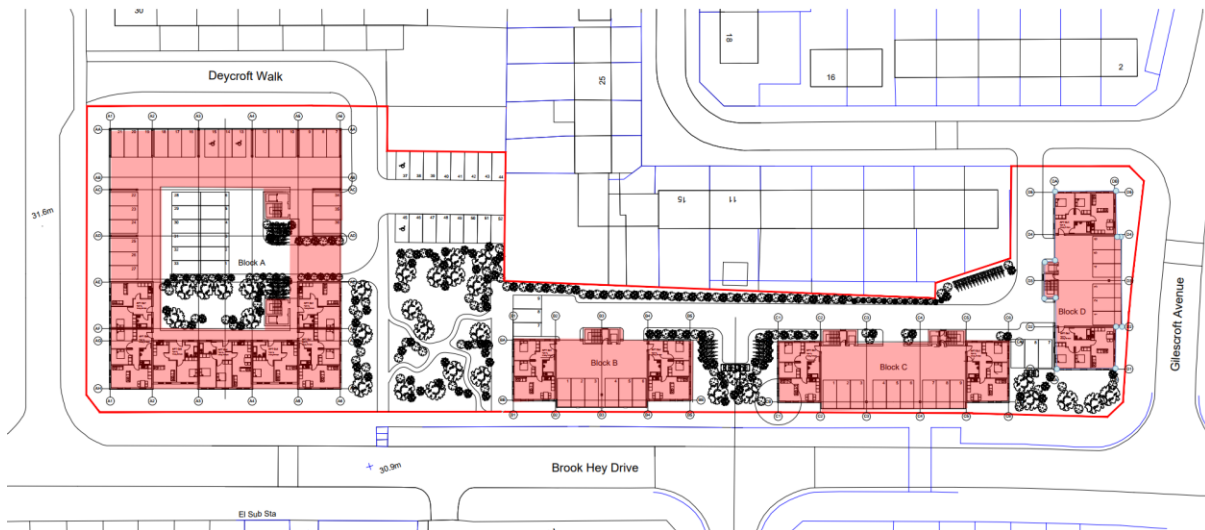
Table 3: Summary of Ground Conditions Encountered

Hole	Depth to Stratum (m bgl)				GROUNDWATER (m bgl)
	MADE GROUND	SAND	PEAT	CLAY	
WS01	GL-1.30	1.30-1.95	1.95-2.05	2.05-6.00+	-
WS02	GL-3.50	-	-	3.50-5.00+	-
WS03	GL-1.20	1.20-1.90 2.00-2.30 3.00-4.70	1.90-2.00	2.30-3.00 4.70-5.00+	-
WS04	GL-1.50	-	-	1.50-5.00+	-
WS05	GL-1.50	-	-	1.50-6.00+	-
WS06	GL-0.80	0.80-2.40 2.70-2.90	2.40-2.70	2.90-5.00+	-

No ground water was encountered in any of the window samples during the investigation.

2.4 Proposed Development

It is proposed to develop the site with 4 blocks of residential houses, with a total of 90 dwellings.



Proposed site plan showing accommodation blocks

3.0 Sources of flood Risk

3.1 Fluvial and Tidal Flooding

The current EA Flood Map for Planning (Figure 3) shows the entire site to be within Flood Zone 1 (Low Risk),

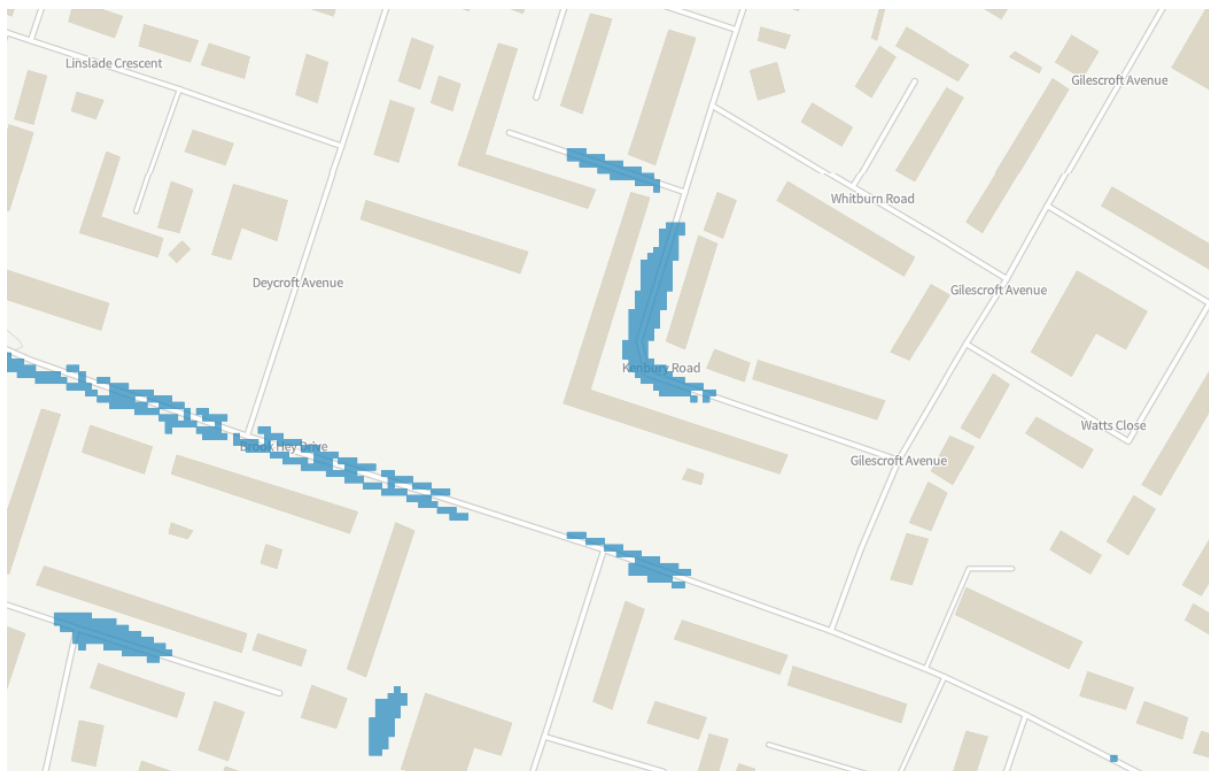


EA Fluvial and Tidal Flood Mapping extract

3.1 Surface Water flooding

Surface water, or pluvial, flooding, occurs when drainage systems have insufficient capacity to cope with the volume of rainfall. This often occurs when the capacity of the surrounding drainage network is reached. Surface water flows generated by such events follow the general topography and lead to localised ponding/flooding.

The EA Surface Water Flood Risk Mapping below indicates that the entirety of the site is at 'very low' risk of surface water flooding. This means there is a less than 0.1% annual chance of surface water flooding occurring.



EA Surface Water Flood Risk Mapping Extract

The map does indicate that the road network surrounding the site is bounded by land that is at 'low' risk of flooding. This means there is an annual chance of surface water flooding of between 3.3%. It should be noted that the site is elevated from the road by an embankment of around 0.5m.

Any increase in flood risk is due to the potential effects of climate change is not considered to be of a magnitude that would result in a significant increase in the risk of on-site surface water flooding, as any surface water run-off will continue to be directed away from the site.

As such, the site is at 'very low' risk of surface water flooding

3.3 Groundwater Flooding

Groundwater flooding occurs following prolonged periods of heavy rainfall in areas of granular/porous soils. This can cause the water table level to extend above ground.

However, the window sample records did not encounter any groundwater, which means it is highly unlikely that this would be an issue for this site.

3.4 Infrastructure Failure flooding

Flooding from infrastructure failure refers to the risk of flooding from man-made waterbodies and features such as sewers, reservoirs, canals, docks. Sewer flooding is typically due to heavy rainfall overwhelming the drainage system or sewer blockages. Flooding from other types of infrastructure usually results from structural failures in embankments or retaining walls etc.

The risk of sewer flooding is considered to be a 'residual' risk, as it is outside the control of the site. The emergence of water from sewerage systems is unlikely to impact the site as surcharging flows will flow along the road network in an westerly direction, following the course of the culverted brook until it emerges 500m to the West of the site

4.0 National Planning Policy Framework

4.1 Sequential and Exception Test

The NPPF Sequential Test requires that a sequential approach is followed to steer new developments to areas with the lowest probability of flooding (i.e., Flood Zone 1, then 2, then 3). This report has demonstrated that the site is entirely on land designated as Flood Zone 1 by the EA's Flood Map for Planning.

The Flood Risk and Coastal Change National Planning Practice Guidance (NPPG) states "Nor should it be necessary to apply the Sequential Test to development proposals in Flood Zone 1". The NPPG Flood Risk Vulnerability and Flood Zone Compatibility matrix (Table 3 of the NPPG) also indicates that all forms of development are "appropriate" in Flood Zone 1 without application of the Exception Test.

As such, the application of the Sequential and Exception Tests are not required in this instance.

4.2 Mitigation Measures

Whilst an Exception Test is not explicitly required under the NPPF, the following section details any measures necessary to mitigate the surface water flood risk identified, to ensure that the proposed development will be safe for its lifetime, taking into account the vulnerability of any occupants, without increasing flood risk elsewhere, akin to the requirements of section 'b' of the Exception Test, as outlined in the NPPF.

4.3 Access and Egress

Vehicular and pedestrian access to the site is from Daycroft Walk and Kenbury Road to the North of the site, with a further pedestrian access from Brook Hey Drive. Vehicles will be directed up a ramp to the surface level car park, which is raised from the roadway. Each pedestrian access is set to the pavement level, again higher than the surrounding roadway levels.

4.4 Floodplain Storage

On the basis that the site has been demonstrated to be at low risk of fluvial flooding, and therefore outside a functional floodplain, the proposed development is not considered to increase flood risk within the catchment through a loss of floodplain storage, and accordingly no further mitigation measures are required in this respect.

5.0 Summary

This Flood Risk Assessment has been prepared by TERM Engineering Ltd on behalf of the CSD Ltd in support of a planning application for a new housing development on the Brooks Hey Drive Site.

Based on current EA Flood Zone Mapping, the site has been shown to be in Flood Zone 1 (Low Risk) and is at low or negligible risk of flooding from all assessed sources.

In accordance with the NPPF and NPPG, the application of the Sequential and Exception Tests is not required.

This report therefore demonstrates that, in respect to flood risk, the proposed development of the site:

- Is suitable in this location
- Is adequately flood resistant and resilient
- Does not place additional persons at risk of flooding, and will offer a safe means of access and egress
- Will not increase flood risk elsewhere through the loss of floodplain storage or impedance of flood flows

Therefore, the application meets the flood risk requirements of the NPPF.

Prepared by Tom Roberts

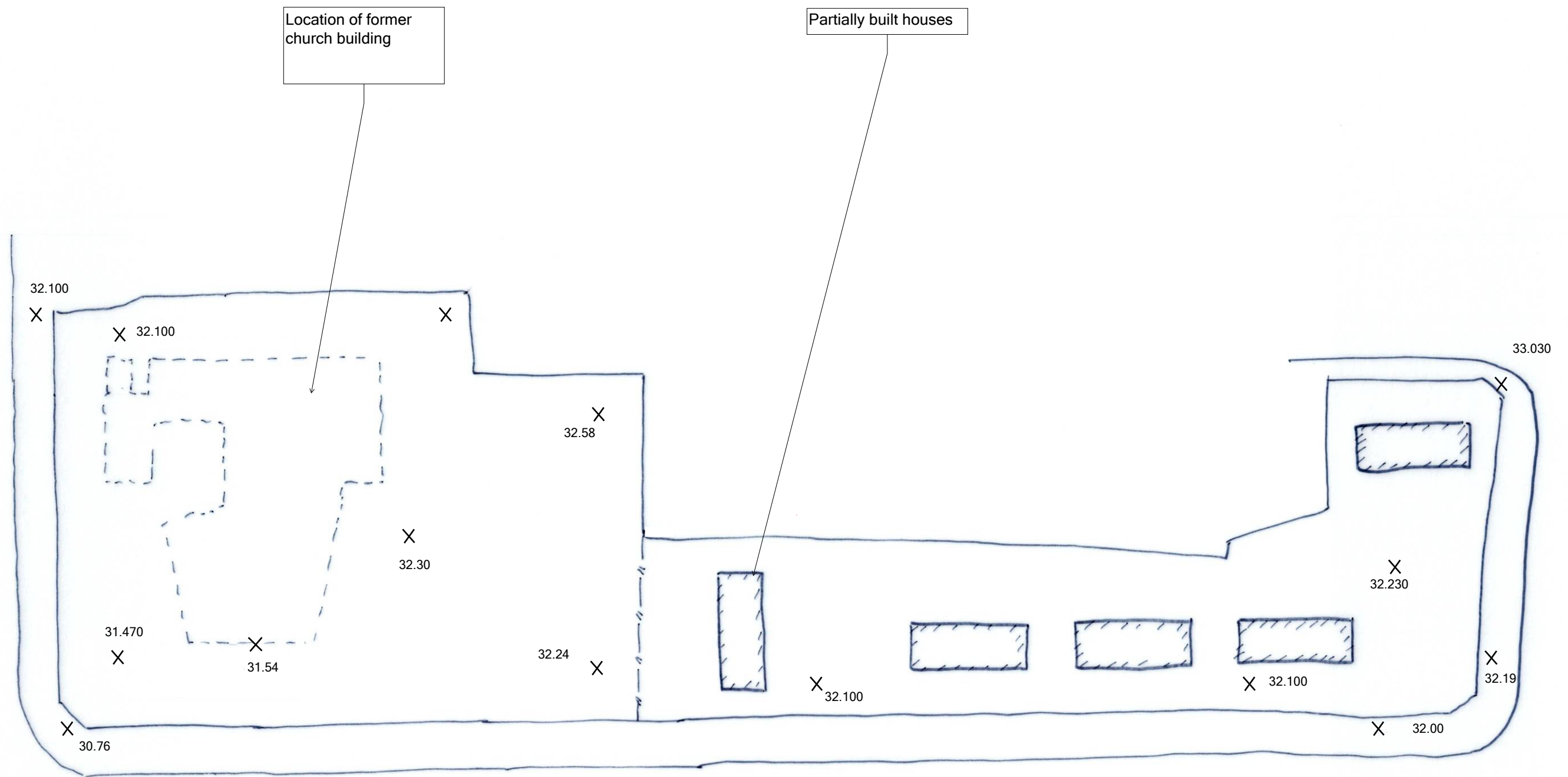
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Appendix 1 – Topographical survey



Existing Site levels

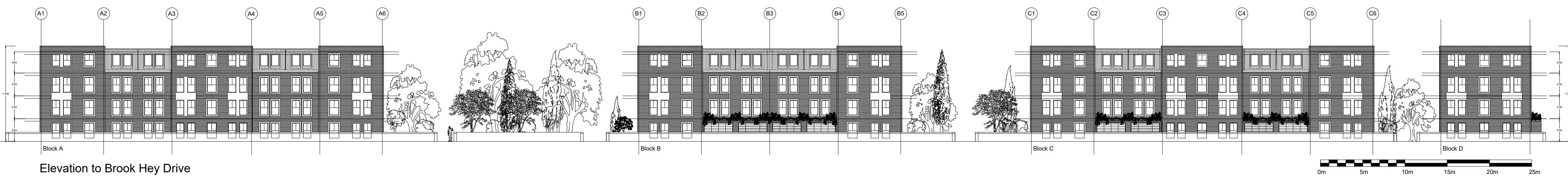
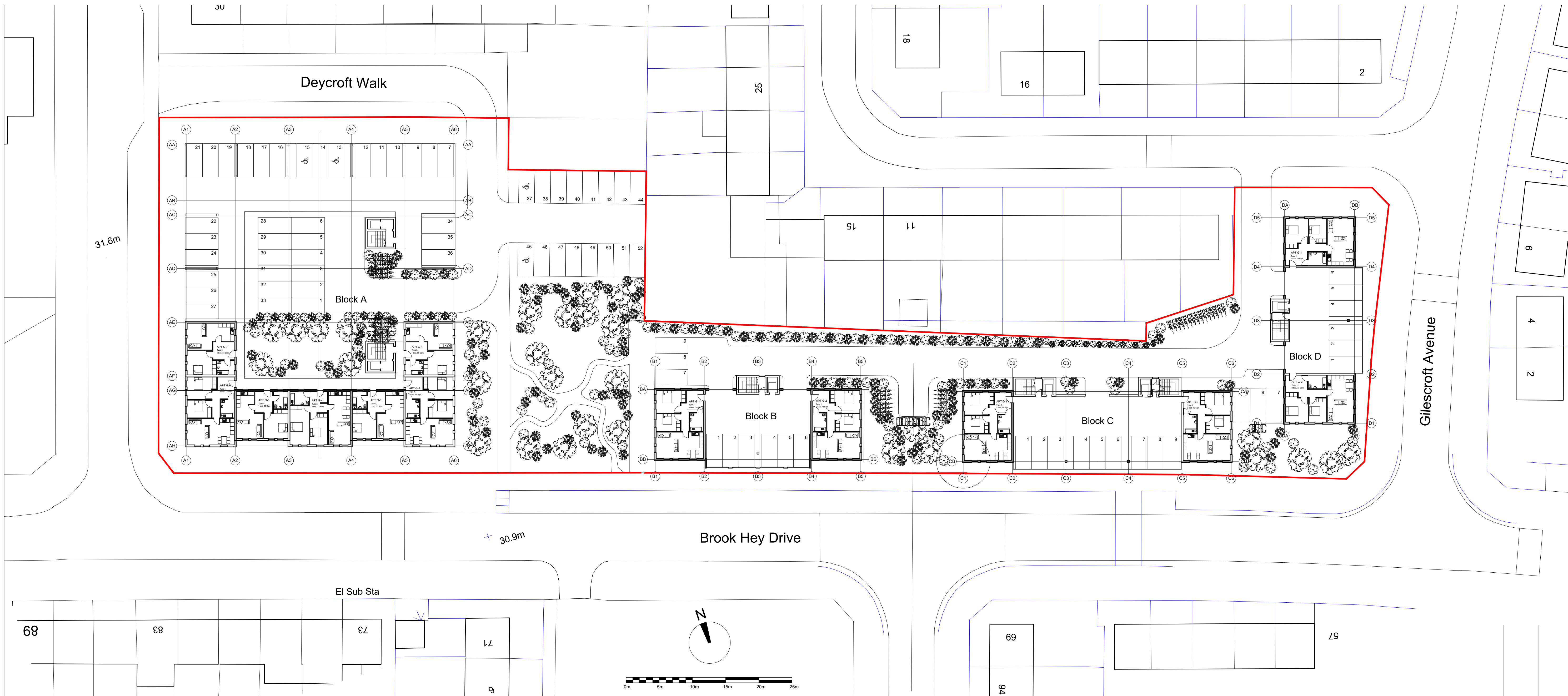
Appendix 2 – Proposed Drawing

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This drawing must be read in conjunction with all associated architect's, consultants', sub-contractors', specialists' drawings and specifications.

Do not scale from this drawing.

Notes:



Elevation to Brook Hey Drive

- 27/06/25		Originated
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REVISIONS		
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JOB TITLE		
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