



Flood risk, water and environment

Flood Risk Assessment AEG0842_M24_Rochdale_07

Site Address: Borrowdale Road
Rochdale
M24 5GQ

UK Experts in Flood Modelling, Flood Risk
Assessments, and Surface Water Drainage Strategies



Flood risk, water and environment

Document Issue Record

Project: Flood Risk Assessment

Prepared for: Rochdale Borough Council

Reference: AEG0842_M24_Rochdale_07

Site Location: Borrowdale Road, Rochdale, M24 5GQ

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Summary

Development Description	Existing	Proposed
Development Type	A greenfield site	The construction of 30no. dwellings with the accommodation mix consisting of dwellings, houses and apartments
EA Vulnerability Classification	Less Vulnerable	More Vulnerable
Ground Level	The topographic survey shows the ground elevations where the proposed units are to be located vary from approximately 132.95m AOD to 127.76m AOD.	N/A ²
Level of Sleeping Accommodation	N/A ²	N/A ²
Impermeable Surface Area	N/A ¹	Increase over pre-developed site
Surface Water Drainage	N/A ¹	Surface Water Drainage Strategy recommended
Site Size	2.8ha	No change
Risk to Development	Summary	Comment
EA Flood Zone	Flood Zone 1	
Flood Source	Low risk of flooding to development from all sources	
SFRA Available	Bury, Rochdale and Oldham Strategic Flood Risk Assessment (2009)	
Management Measures	Summary	Comment
Ground floor level above extreme flood levels	Yes	Development considered to be at low risk from all sources
Safe Access/Egress Route	Safe access/egress available	Development considered to be at low risk from all sources, therefore safe access/egress from the site is possible in all modelled events
Flood Resilient Design	Not required	Development considered to be at low risk from all sources
Site Drainage Plan	SuDS should be included in the proposals	Increase in impermeable area

Flood Warning & Evacuation Plan	Not required	Development considered to be at low risk from all sources
Offsite Impacts	Summary	Comment
Displacement of floodwater	None	Development considered to be at low risk from all sources
Increase in surface run-off generation	Yes	SuDS should be included in the proposals
Impact on hydraulic performance of channels	No	Not located near watercourse/river

¹ not required for this assessment

² data not available.

1. Introduction

- 1.1. Aegaea were commissioned by Rochdale Borough Council to undertake a Flood Risk Assessment (FRA) to facilitate a planning application for the proposed development. This FRA has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance.
- 1.2. This FRA is intended to support a full planning application and as such the level of detail included is commensurate and subject to the nature of the proposals.

Site Overview

- 1.3. The site of the proposed development is Borrowdale Road, Rochdale, M24 5GQ (Figure 1).

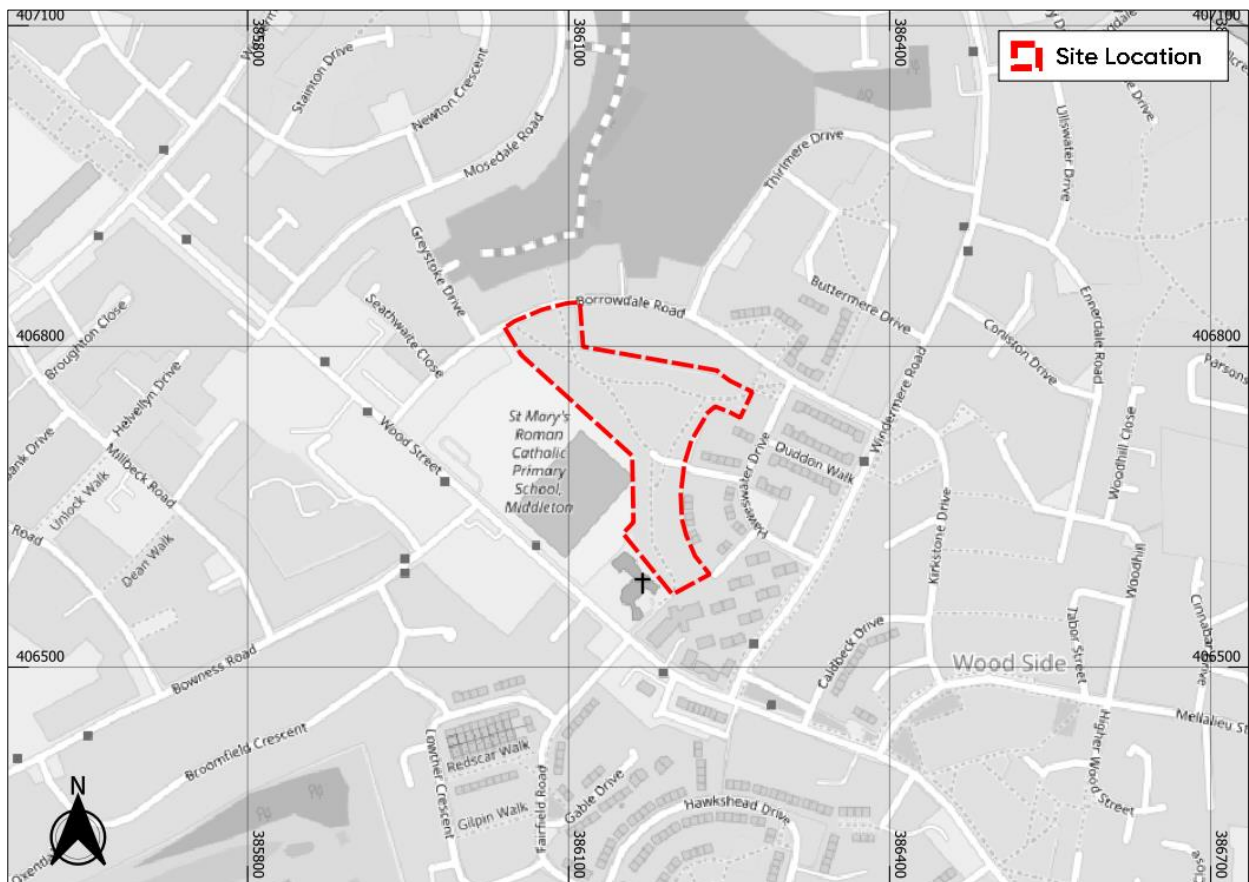


Figure 1: Site Location. (© Environment Agency, Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © <https://www.openstreetmap.org> and contributors)

- 1.4. The existing site is a greenfield site. The proposed development comprises the construction of 30no. dwellings with the accommodation mix consisting of dwellinghouses and apartments. Development proposals are included in Appendix A.
- 1.5. A topographic survey has been undertaken for the site which is included in Appendix B. The topographic survey shows the ground elevation of the site vary between approximately 121.13 metres Above Ordnance Datum (mAOD) to 133.02mAOD. The area where the proposed units

are to be located is in the northern part of the site where land levels vary from approximately 132.95m AOD to 127.76m AOD.

- 1.6. Environment Agency Light Detection and Ranging (LiDAR) data Digital Terrain Model (1m resolution) has been utilised to visualise the topography of the site in relation to the surrounding area (Figure 2). Analysis of topographic levels indicates that the site generally slopes with a fall to the south-east.

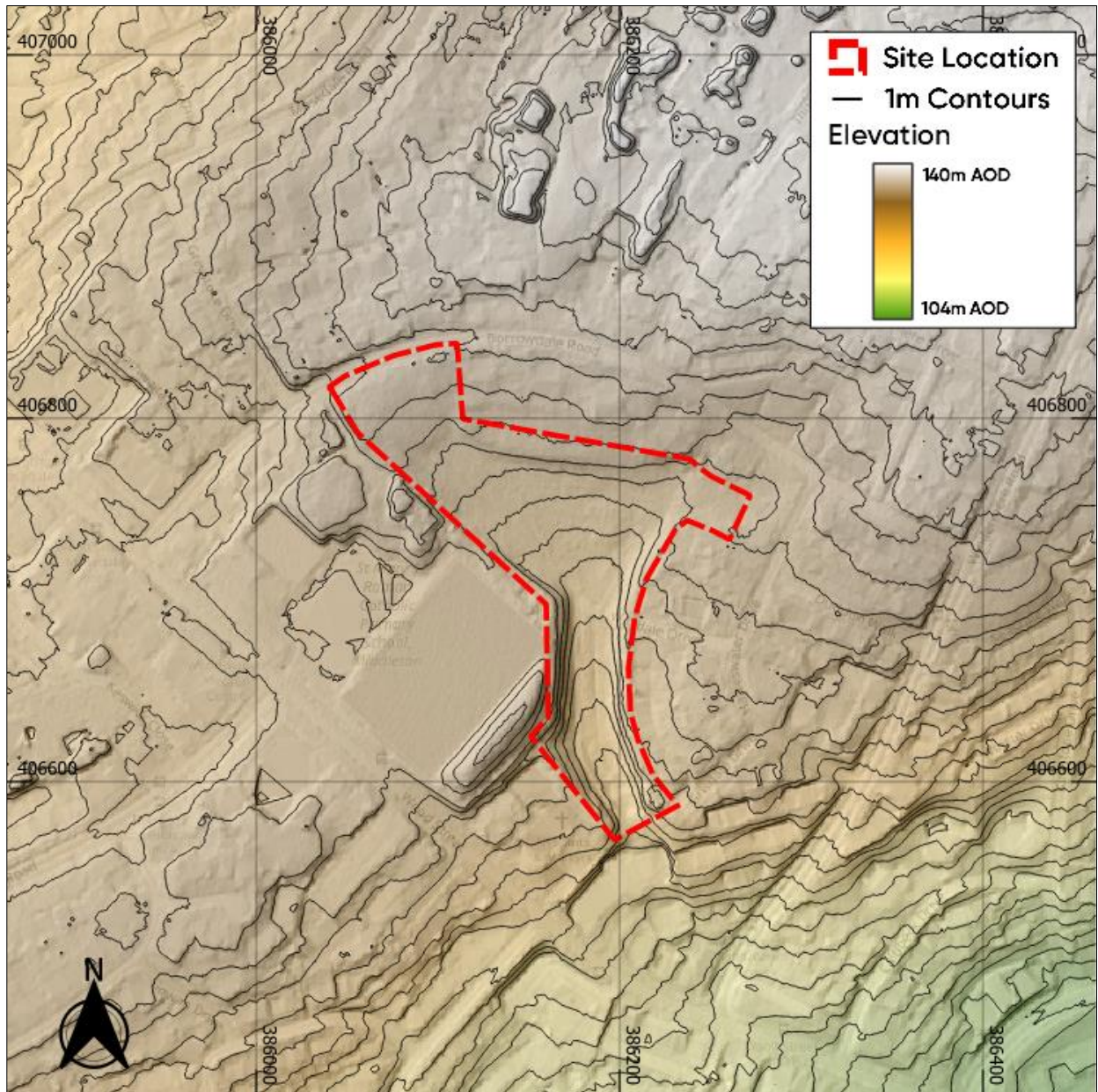


Figure 2: Site Topography. (© Environment Agency, Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © <https://www.openstreetmap.org> and contributors)

- 1.7. Rochdale Borough Council is the Local Planning Authority (LPA) for the site, and also the designated Lead Local Flood Authority (LLFA). The site sits within the Environment Agency's Greater Manchester Merseyside and Cheshire region.

Planning Policy and Guidance

1.8. UK government planning guidance states¹ that an FRA is required for sites which are:

- *In Flood Zone 2 or 3 including minor development (in terms of flood risk) and change of use*
- *More than 1 hectare in Flood Zone 1*
- *Less than 1 ha in Flood Zone 1, including a change of use in development type to a more vulnerable class (for example from commercial to residential), where they could be affected by sources of flooding other than river and the sea (for example surface water drains or reservoirs)*
- *In an area within Flood Zone 1 which has critical drainage problems as notified by the Environment Agency*

1.9. The site is located within Flood Zone 1 on land greater than 1ha and therefore an FRA has been prepared for the site.

1.10. The objective of this FRA is to demonstrate that the proposals are acceptable in terms of flood risk. This report summarises the findings of the study and specifically addresses the following issues in the context of the current legislative regime:

- Fluvial flood risk
- Surface water flood risk
- Risk of flooding from other sources

¹ <https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications#when-you-need-an-assessment>

2. Planning Policy

National Planning Policy Framework

- 2.1. Inappropriate development in a flood risk area could pose significant risk in terms of personal safety and damage to property for the occupiers of the development or for people elsewhere. The approach taken in the assessment of flood risk at the planning stage is set out in national, regional, and local planning policy and associated guidance. This section summarises the key policies and guidance relevant to the proposed development.
- 2.2. The National Planning Policy Framework² (NPPF) (DLUHC, 2021) which includes UK Government policy on development and flood risk states:

“159. Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.

167. When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:

- a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;*
- b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*
- c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;*
- d) any residual risk can be safely managed; and*
- e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.*

- 2.3. Footnote 55 of the NPPF states:

“A site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a

² <https://www.gov.uk/guidance/national-planning-policy-framework>, last updated July 2021

strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.“

2.4. Flood Zones in England are defined as follows:

Table 1: Flood Zone Definitions

Flood Zone	Definition
Zone 1 Low Probability	Land having less than 1 in 1,000 annual probability of river or sea flooding (all land outside Zones 2 and 3).
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding.
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding.
Zone 3b The Functional Floodplain	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

- 2.5. An FRA should be appropriate to the scale, nature, and location of the development. It should identify and assess the risk from all sources of flooding to and from the development and demonstrate how any flood risks will be managed over the lifetime of the development.
- 2.6. An assessment of hydrological impacts should be undertaken, including to surface water runoff and impacts to drainage networks in order to demonstrate how flood risk to others will be managed following development and taking climate change into account.
- 2.7. The Planning Practice Guidance, which was substantially revised in March 2015 in relation to drainage, requires that sustainable drainage systems (SuDS) should be considered and included where practicable, in line with Defra Technical Standards³.

3 Technical Standards Accessed Online

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/415773/sustainable-drainage-technical-standards.pdf

Unitary Development Plan

- 2.8. The Unitary Development Plan adopted in 2006 by the Local Planning Authority, Rochdale Metropolitan Borough Council, sets out the policies for development in the local area. Policy EM/7 'Development and Flood Risk' states:

Development will not be permitted in areas identified as flood plains, or other areas where development could contribute to increased flood risk, unless an appropriate flood risk assessment has been carried out and all of the following criteria are met:

- a) It will not increase the risk of flooding within the flood plain or in adjoining areas by reducing flood storage capacity, increasing flows within a flood plain or through the additional discharge of surface water;*
- b) It will not itself be at risk from flooding;*
- c) Appropriate sustainable drainage systems are used;*
- d) Adequate access adjacent to the water course for maintenance is provided;*
- e) Existing or proposed flood defences are protected;*
- f) It would not result in extensive culverting; and*
- g) Flood defence works required as a consequence of development are provided at the developer's expense.*

Flood defences and related engineering works must also ensure that recognised ecological, geomorphological, archaeological, landscape and recreational interests associated with a water course or adjacent areas are fully taken into account and appropriate mitigation provided. The sequential test approach and principles set out in PPG 25 'Development and Flood Risk' will be followed in considering development proposals.

Core Strategy

- 2.9. The Core Strategy adopted in 2016 by the Local Planning Authority, Rochdale Metropolitan Borough Council, sets out the policies for development in the local area. Policy G8 - Managing water resources and flood risk states:

We will ensure that new development (including flood risk mitigation measures) does not lead to any form of increased flooding locally or further downstream, does not impede natural water and flood risk management, is not detrimental to existing or potential flood storage areas, contributes where possible to alleviating existing flood risk, is itself well protected from flood risk and ensures prudent use of water resources. We will require:

- a. Compliance with a 'sequential' approach to new development and flood risk, directing development away from areas of high risk, in accordance with the National Planning Policy Framework;*

b. Full regard to and compliance with the advice of the Environment Agency (or equivalent agency) and the objectives and priorities for flood risk management set out in the Local Flood Risk Management Strategy, including any mitigation measures recommended for particular sites;

c. Full regard to the published evidence of local flood risk and its significance as included in Strategic Flood Risk Assessments, Surface Water Management Plans and other recognised sources of flood risk data and the production of additional Flood Risk Assessments (FRAs) as appropriate;

d. Incorporation of appropriate measures for the management of surface and flood water, including flood storage areas, Sustainable Urban Drainage Systems (SUDS) and the protection of 'overland flow paths';

e. Compliance with any Surface Water Management Plan or drainage strategies produced, such as for the identified critical drainage areas of Littleborough and Heywood;

f. The avoidance of culverting, and support the opening up of existing culverts wherever possible;

g. The incorporation of measures for the conservation of water to minimise potable water consumption, including rainwater collection measures, which should be integral to the design of buildings and spaces;

h. Development that does not directly or indirectly lead to pollution of existing water resources such as watercourses and groundwater or the derogation of the quantity of groundwater;

i. The incorporation of measures to improve water quality; and

j. The taking of opportunities to improve the habitat value of watercourses and water bodies.

In addition, we will identify additional flood storage areas which will be protected from development

Sequential and Exception Tests

- 2.10. The Sequential and Exception Tests are applied in specific cases defined by UK Government policy. Their purpose is to drive development to areas of low flood risk and to support developments which improve flood risk for developments in areas at risk of flooding.
- 2.11. The development site is located in Flood Zone 1 which is the lowest risk category, and therefore is considered to be located in a sequentially preferable location and therefore the Sequential Test and Exception Test are not required to be applied.

Summary

- 2.12. This flood risk assessment has been prepared with due consideration to the above local and national policy.

3. Consultation and Review

Documents and Online Mapping

- 3.1. Local Governments and Lead Local Flood Authorities provide documents which contain data and policies on flood risk and new development in their areas. These documents are introduced and briefly summarised below. For the purposes of this FRA, these documents have been reviewed for relevant information and any relevant data is discussed within the appropriate sub heading of this report.
- 3.2. The following sources of information have been reviewed for this assessment:
- Flood Map for Planning on the Environment Agency website <https://flood-map-for-planning.service.gov.uk/>
 - Long Term Flood Risk Information on the Environment Agency website <https://www.gov.uk/check-long-term-flood-risk>
 - National Planning Policy Framework (NPPF) (Department for Levelling Up, Housing and Communities, 2021)
 - Planning Practice Guidance - Flood Risk and Coastal Change (Department for Levelling Up, Housing and Communities, 2022)
 - Geoindex Onshore (British Geological Survey, 2022)
 - Unitary Development Plan (Rochdale Borough Council, 2006)⁴
 - Adopted Core Strategy (Rochdale Borough Council, 2016)⁵
 - Bury Rochdale and Oldham Strategic Flood Risk Assessment (2009)⁶
 - Greater Manchester Surface Water Management Plan (AGMA, 2012).
 - Rochdale Borough Council Local Flood Risk Management Strategy (Rochdale Borough Council, 2014)⁷

Strategic Flood Risk Assessment (SFRA)

- 3.3. The SFRA, published in 2009 provides the evidence base for the Local Plan and guidance for consideration when determining planning applications. The SFRA seeks to place new development into areas of lower flood risk taking into account current flood risk, future flood risk, and the effect a proposed development would have on the risk of flooding.

⁴ www.rochdale.gov.uk/downloads/file/559/rochdale-borough-unitary-development-plan

⁵ <https://www.rochdale.gov.uk/downloads/file/405/core-strategy>

⁶ <https://www.rochdale.gov.uk/downloads/file/542/preliminary-flood-risk-assessment>

⁷ www.rochdale.gov.uk/downloads/file/808/flood-risk-management-strategy

- 3.4. The SFRA mapping is not available online and has been requested from Rochdale Borough Council.

Local Flood Risk Management Strategy (LFRMS)

- 3.5. The Local Flood Risk Management Strategy sets out roles and responsibilities for flood risk management, assesses the risk of flooding in the area, where funding can be found to manage flood risk, and the policies, objectives and actions of the Lead Local Flood Authority.
- 3.6. The Rochdale LFRMS will be used within this report to identify any flood management infrastructure and historic incidences of flooding.

4. Sources of Flood Risk

Fluvial Flood Risk

- 4.1. Flooding from watercourses arises when flows exceed the capacity of the channel, or where a restrictive structure is encountered, resulting in water overtopping the banks into the floodplain.
- 4.2. There are no main rivers or ordinary watercourses in the vicinity of the site.
- 4.3. The EA's Flood Map for Planning shows the site is located in Flood Zone 1 which is defined as having less than a 0.1% probability of flooding in any year. The site is located more than 1.2km from Flood Zone 2.
- 4.4. There are no historic incidents of flooding recorded at the site by the EA's mapping.
- 4.5. Based on the information above, the site is considered to be at low risk of fluvial flooding.

Tidal Flooding

- 4.6. Tidal flooding occurs when a high tide and high winds combine to elevate sea levels. An area behind coastal flood defences can still flood if waves overtop the defences or break through them. Tidal flooding can also occur a long way from the coast by raising river levels. Water may overtop the riverbank or river defences when tide levels are high.
- 4.7. The site is a significant distance from any tidal source and above the anticipated extreme tidal levels, even when considering the impacts of climate change. The risk of flooding from tidal sources is considered low.

Canals

- 4.8. The Canal and River Trust (CRT) generally maintains canal levels using reservoirs, feeders, and boreholes and manages water levels by transferring it within the canal system.
- 4.9. Canals were not detected within 1000m of the site.
- 4.10. The risk of flooding from canals is therefore considered to be low.

Pluvial Flood Risk

- 4.11. Pluvial flooding can occur during prolonged or intense storm events when the infiltration potential of soils, or the capacity of drainage infrastructure is overwhelmed leading to the accumulation of surface water and the generation of overland flow routes.
- 4.12. The following definitions of the annual surface water flood risk labels are given by the EA:
 - 'High Risk'; >3.3% AEP (annual probability greater than 1 in 30).
 - 'Medium Risk'; 3.3% to 1.1% AEP (annual probability between 1 in 30 and 1 in 100).

- 'Low Risk'; 1% to 0.1% AEP (annual probability between 1 in 100 and 1 in 1000).
- 'Very Low Risk'; <0.1% AEP (annual probability less than 1 in 1000).

4.13. Examination of EA's Flood Risk from Surface Water mapping (Figure 3) overlain onto the topographic data (LiDAR) shows that there is a flow route through the south-eastern part of the site. The area where the proposed development is located is at 'very low' risk (<0.1% AEP) of surface water flooding.

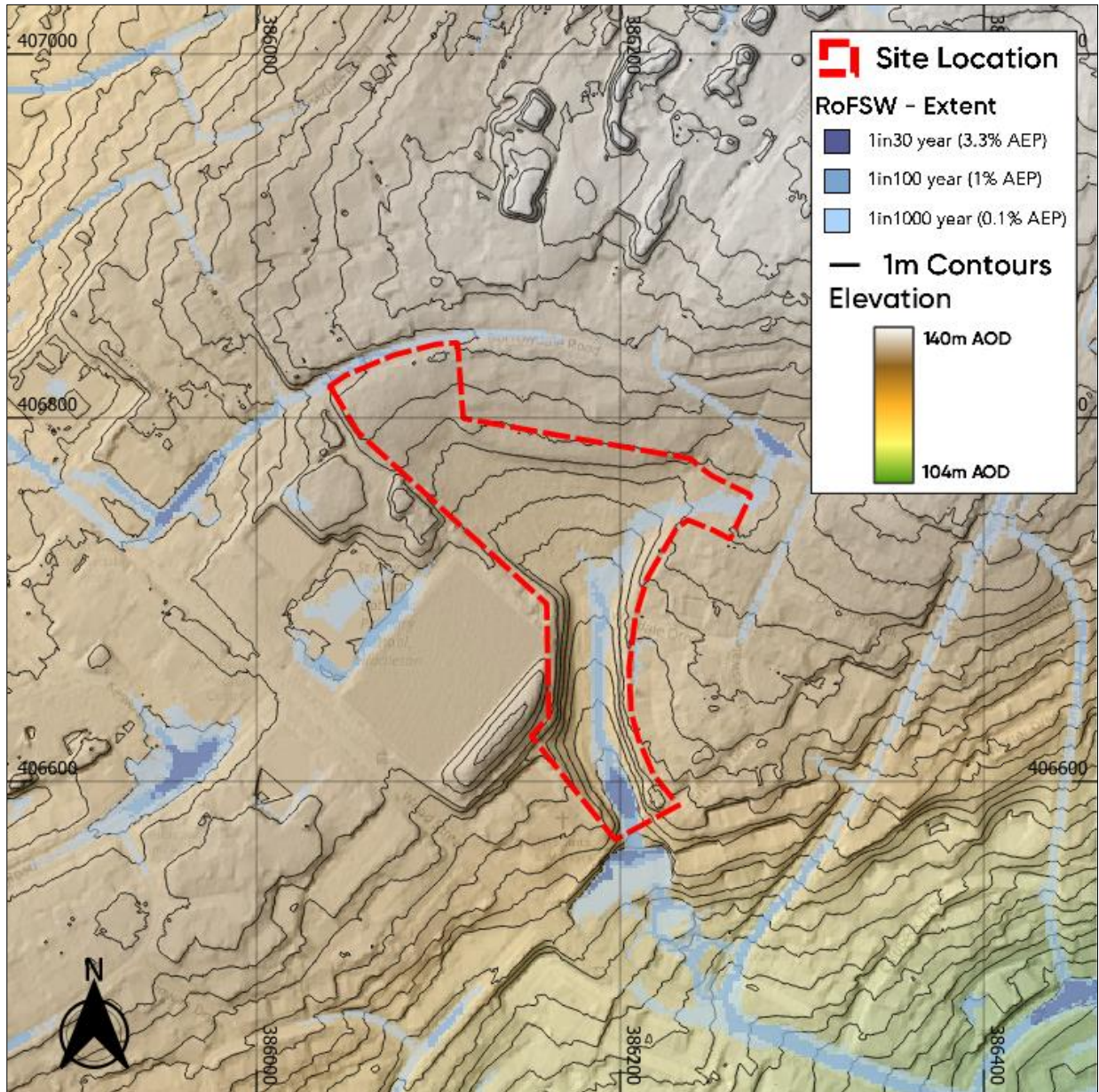


Figure 3: EA Surface Water Flood Risk Mapping overlain on 1m resolution LiDAR mapping (© Environment Agency, Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © <https://www.openstreetmap.org> and contributors)

4.14. Under the 'high risk' (3.3% AEP) event (Figure 4), the mapped flood extent is restricted to the southern corner of the site.

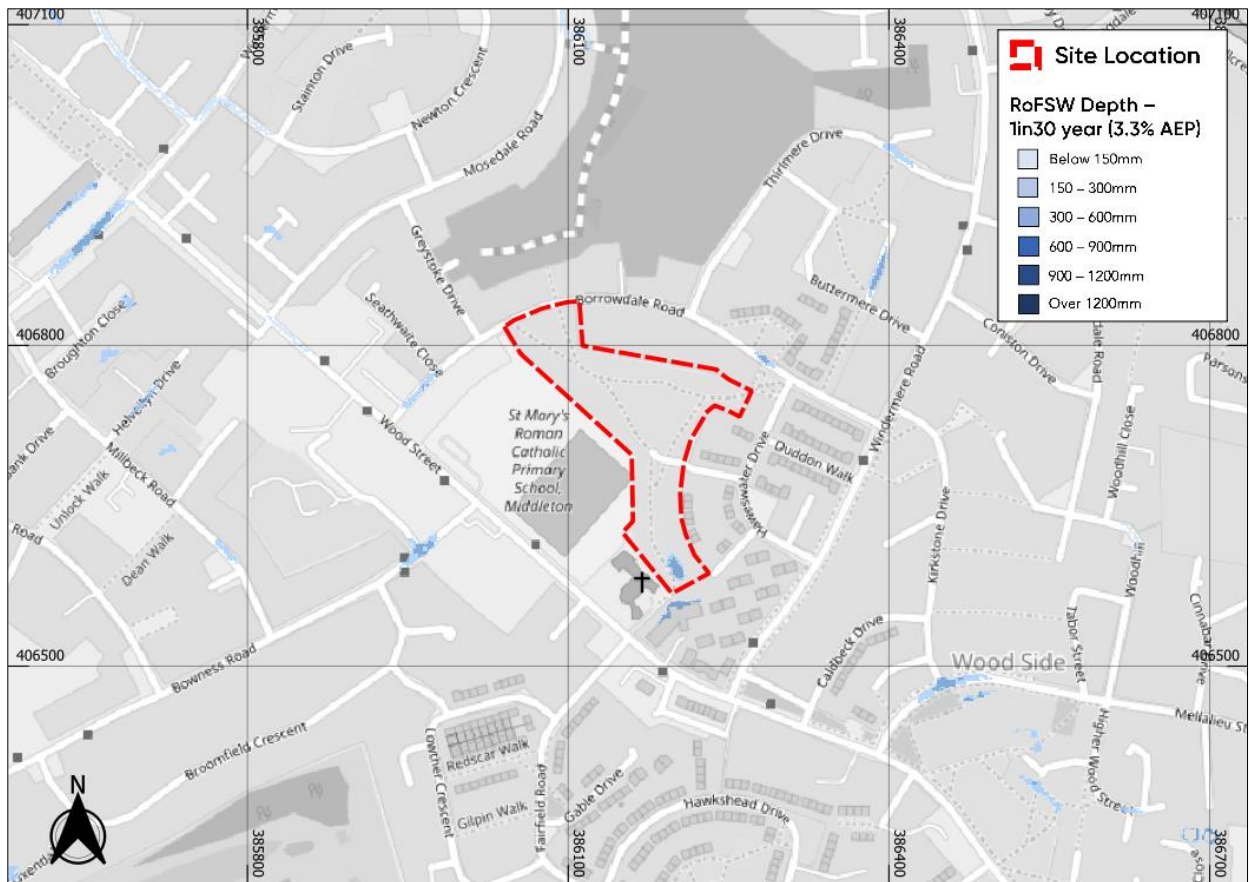


Figure 4: EA Surface Water Depth for 'High Risk' (3.3% AEP) event (© Environment Agency, Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © <https://www.openstreetmap.org> and contributors)

- 4.15. Even under the more extreme 'low risk' (0.1% AEP) event (Figure 5), floodwater is restricted to the eastern part of the site. There is no development located in the area shown to be affected by flooding from surface water during this event. The proposed access/egress route to from the development via Borrowdale Road is also unaffected under this scenario and thus safe access/egress should be possible in this event.
- 4.16. There are no historic incidences of surface water flooding noted in this area in the SFRA or SWMP.
- 4.17. The risk of flooding to the development is therefore considered to be low.

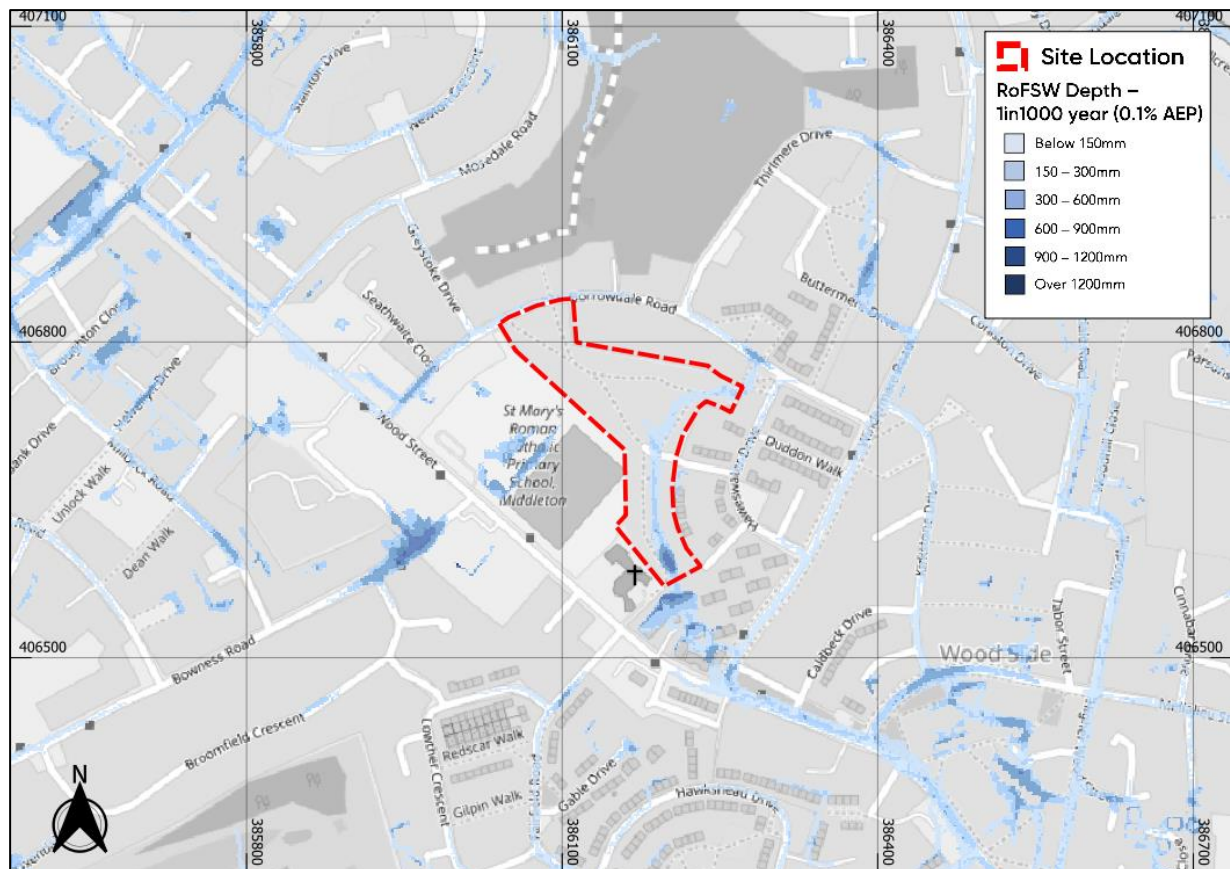


Figure 5: EA Surface Water Depth for 'Low Risk' (0.1% AEP) event (© Environment Agency, Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © <https://www.openstreetmap.org> and contributors)

Reservoirs

- 4.18. Flooding can occur from large waterbodies or reservoirs if they are impounded above the surrounding ground levels or are used to retain water in times of flood. Although unlikely, reservoirs and large waterbodies could overtop or breach leading to rapid inundation of the downstream floodplain.
- 4.19. According to the EA's Flood Risk from Reservoirs mapping (Figure 6) the site is outside flood extents in the event of reservoir flooding.

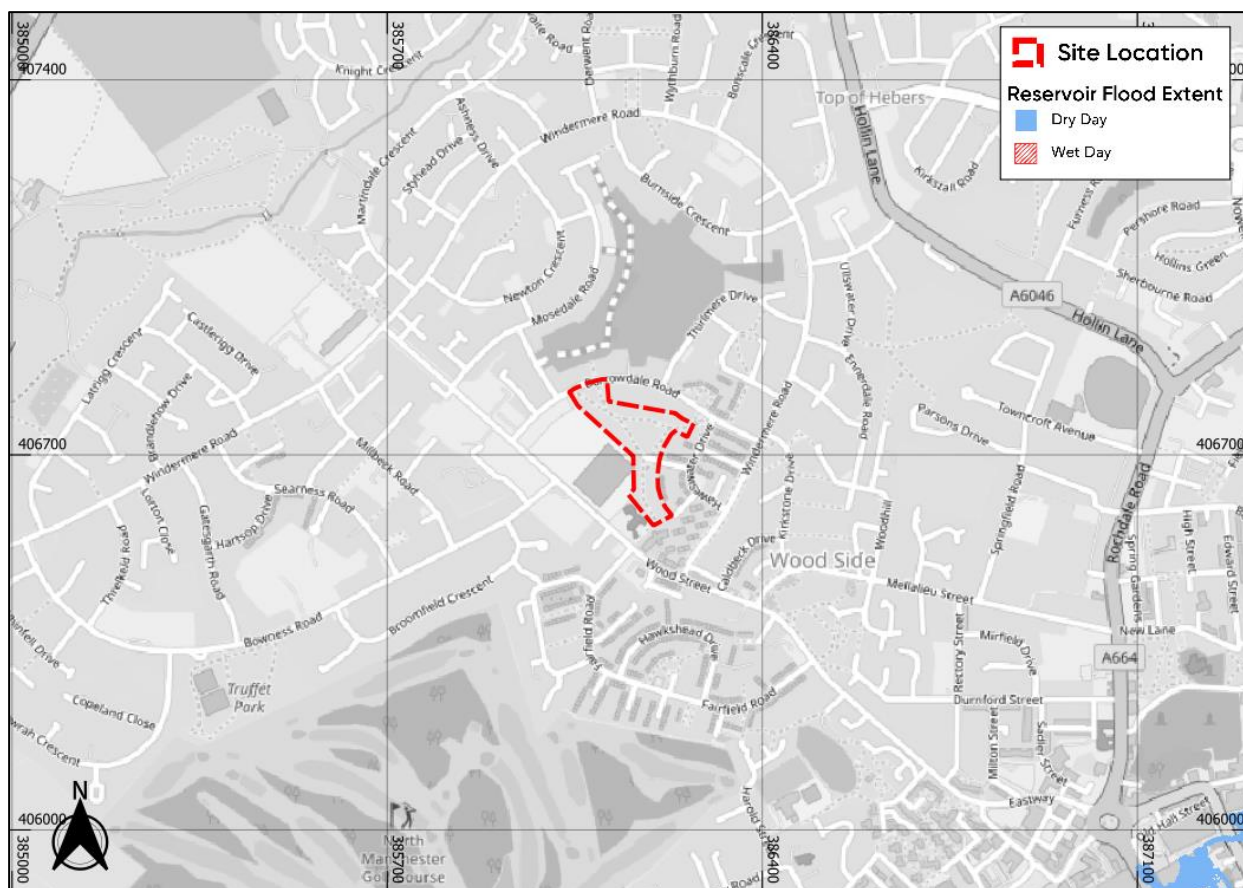


Figure 6: EA Reservoir Flood Risk Mapping. (© Environment Agency, Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © <https://www.openstreetmap.org> and contributors)

4.20. The site is therefore considered to be at low risk of flooding from reservoirs.

Groundwater

- 4.21. Groundwater flooding occurs in areas where underlying geology is permeable, and water can rise within the strata sufficiently to breach the surface.
- 4.22. The British Geological Survey's (BGS) mapping shows superficial deposits of 'Hummocky (Moundy) Glacial Deposits, Devensian' (Sand And Gravel) underlying the site. The bedrock underlying the site is 'Royley Sandstone' (Sandstone), 'Pennine Lower Coal Measures Formation' (Mudstone, Siltstone And Sandstone) and 'Hummocky (Moundy) Glacial Deposits, Devensian' (Sand And Gravel). The sand and gravel of both the bedrock geology and superficial deposits mean they may be sufficiently permeable to support groundwater.
- 4.23. This is supported by the EA's Aquifer Designation which shows the bedrock geology to be a 'Secondary A' aquifer ('permeable layers that can support local water supplies and may form an important source of base flow to rivers').
- 4.24. Historical BGS boreholes located approximately 8.4m to the south of the site showed no groundwater within the 9.6m deep borehole (SD80NE225). Another borehole located slightly further south (approximately 11.07m from the site) showed groundwater resting at 2.6m below

ground level. The borehole was drilled at a ground level of 119.8m and therefore the groundwater level identified is approximately 117.2m AOD which is approximately 10m below the lowest land level where the development is proposed (127.76m AOD).

- 4.25. There are no historic incidences of groundwater flooding noted in this area in the SFRA.
- 4.26. The risk from groundwater to the development is considered to be low.

Sewer Flooding

- 4.27. Sewers can be a cause of flooding where the drainage network has become overwhelmed, either by blockage or due to local development beyond the designed capabilities of the drainage system.
- 4.28. Given the relatively urbanised nature of the surrounding area, it is assumed that this area is served by public foul sewers. Surface water or combined sewers may also be present, though unconfirmed. It is most likely that sewers are located within the highway. Interrogation of the aerial height data reveals that land levels fall in an easterly direction along Borrowdale Road.
- 4.29. The SWMP identifies the site in a larger postcode area which has experienced 11 to 20 incidents of flooding at the time of its publication. However this area covers most of Wood Side and does not indicate the site was affected during this event. The SFRA does not identify this area as having historic incidents of flooding from sewers.
- 4.30. The development is therefore considered to be at low risk of flooding from sewers.

5. Flood Risk Mitigation

- 5.1. The site has only been shown to be affected by modelled surface water flooding with a flow path in the eastern part of the site. A sequential approach to development has been applied and development is located outside the area at risk as shown by the EA's mapping (Figure 3).
- 5.2. Flood risk from all other sources is considered to be low, therefore mitigation is not required.

Increase to Flood Risk Elsewhere

- 5.3. It has been shown that the risk of flooding to the development from all sources is considered low and therefore the development will not increase flood risk elsewhere as a result of floodwater displacement.
- 5.4. It is acknowledged that the development will increase the impermeable area within the site and therefore without mitigation could increase the rate and volume of runoff to the surrounding area. A Sustainable Drainage Systems (SuDS) strategy should be developed for the site in accordance with local and national planning policy requirements.

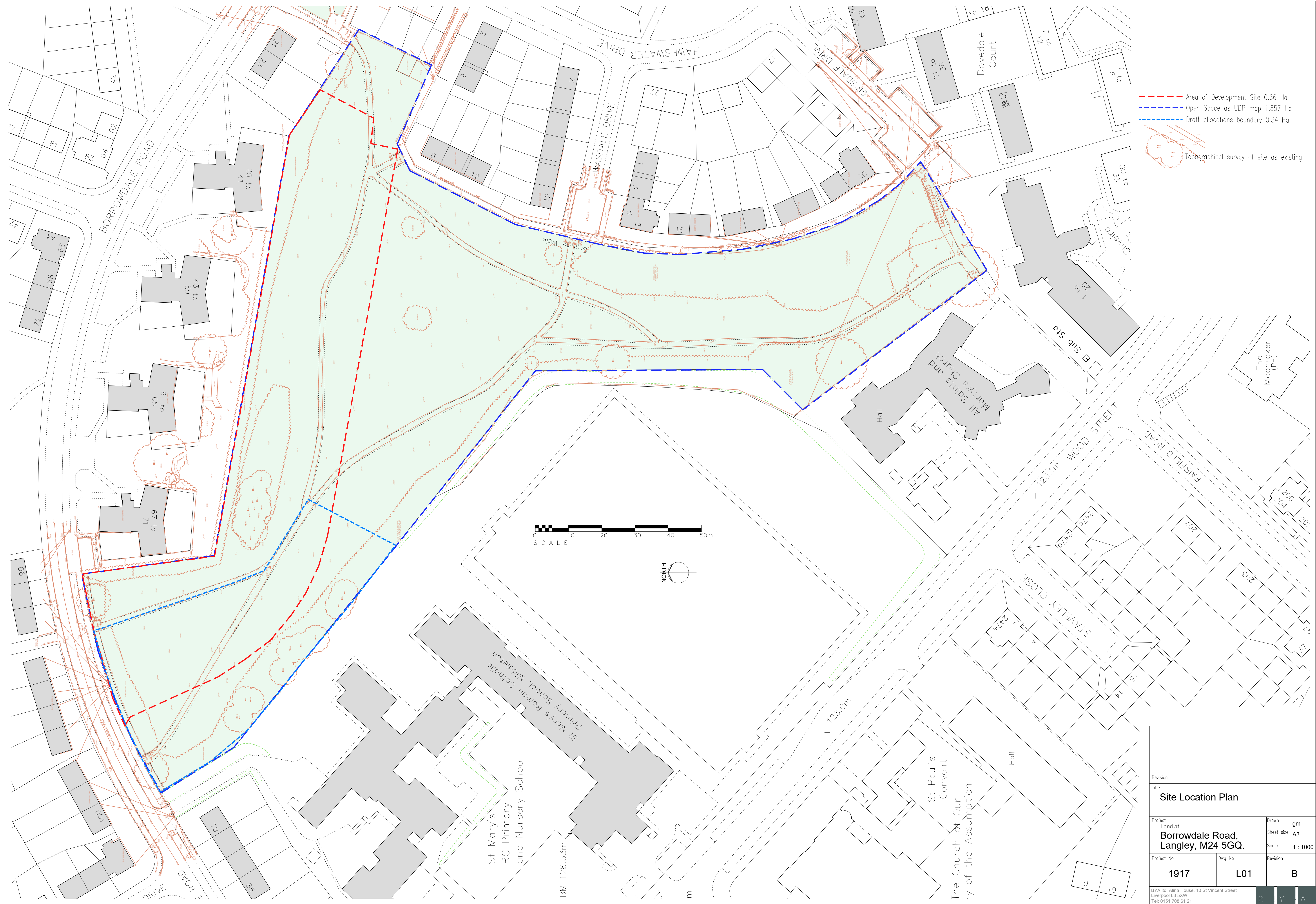
6. Conclusions

- 6.1. This FRA has been undertaken with reference to the requirements of NPPF and Planning Practice Guidance with respect to the development at Borrowdale Road, Rochdale, M24 5GQ. It has been written to support a planning application and has been prepared with due consideration to the nature of the proposed development to provide the appropriate level of detail.
- 6.2. An assessment of the risk of flooding from all sources has been undertaken as summarised below:

Source of Flooding	Flood Risk Summary
Pluvial	There is a flow path indicated by the EA's Flood Risk from Surface Water mapping, however, the proposed development is located outside of the identified modelled extent of flooding in accordance with the sequential approach to site layout. Therefore, additional mitigation is not required.
Other sources	The site is considered to be at low risk from other sources.

- 6.3. As the development will increase the impermeable area within the site it will be necessary to implement a SuDS strategy as part of the proposals to ensure the development does not increase the risk of flooding from surface water elsewhere.
- 6.4. The FRA supports the planning application and demonstrates that there is an acceptable level of flood risk to the site if the mitigation strategies recommended are implemented in the scheme. The development does not increase flood risk off site or to the wider area.
- 6.5. This Flood Risk Assessment should be submitted as part of the planning application to satisfy national and local planning policy requirements.

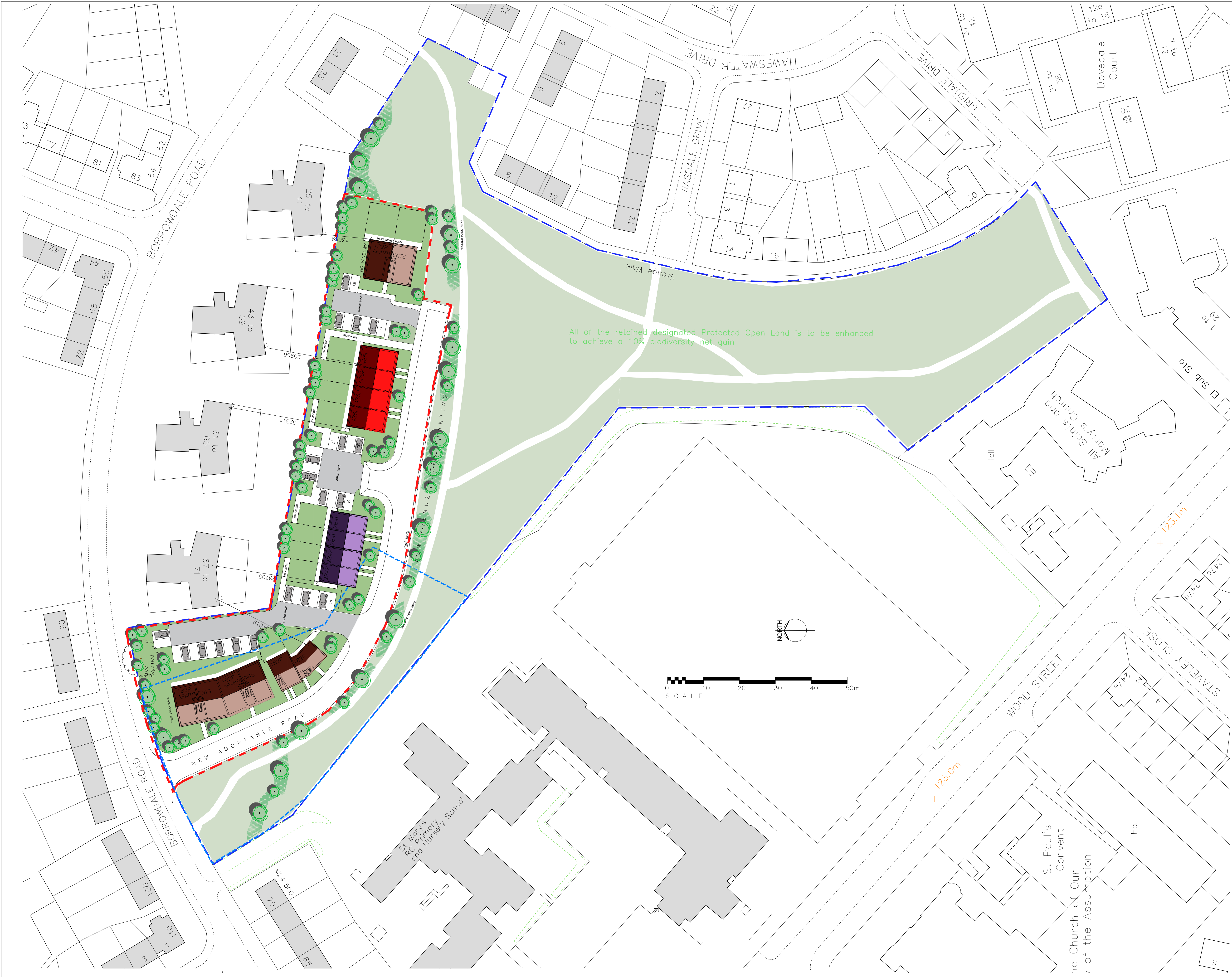
Appendix A - Development Proposals



- Area of Development Site 0.66 Ha
- Open Space as UDP map 1.857 Ha
- Draft allocations boundary 0.34 Ha

Topographical survey of site as existing

Revision			
Title			
Site Location Plan			
Project		Drawn gm	
Land at		Sheet size A3	
Borrowdale Road, Langley, M24 5GQ.		Scale 1 : 1000	
Project No	Dwg No	Revision	
1917	L01	B	
BYA Ltd, Alina House, 10 St Vincent Street Liverpool L3 5XW Tel: 0151 708 61 21			



ACCOMMODATION				
	2B4P houses	2 storey	79 sqm	04
	4B5P houses	2 storey	97 sqm	04
	1B2P apartments	3 storey	50 sqm	18
	1B2P walk ups	2 storey	50 sqm	04
TOTAL				30

- Area of Development Site 0.59 Ha
- Open Space as UDP map 1.857 Ha
- Draft allocations boundary 0.34 Ha

- Topographical survey of site as existing
- Unadopted private parking for apartments
- New planting
- New trees
- Rear and side boundaries-- 1.8m high timber fence
- Frontage boundaries incl divider-- 0.9m high steel railings
- Recycling/refuse storage facilities
- Cycle storage facilities

Title
SITE PLAN - Option H

Project	Land at Borrowdale Road, Langley, M24 5GQ.	Drawn	MS
Project No	1917	Scale	1:1000@A3 1:500@A1

Dwg No	08	Revision	F
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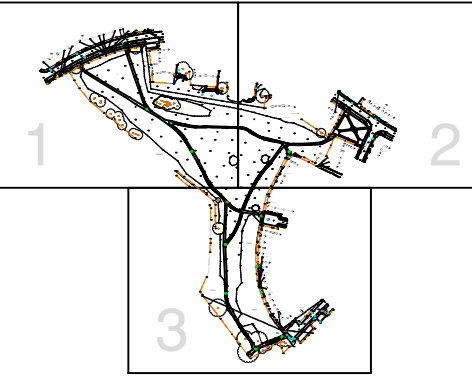
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Liverpool L3 5XW
Tel: 0151 708 61 21

BYA

Appendix B - Topographic Survey

Survey Control Markers established for Mapping purposes only and should not be used for Construction without the written approval of Survey Operations Ltd.

SURVEY STATIONS			
Name	Eastings	Northings	Height
S01	386232.08	406744.55	128.84
S02	386109.26	407895.21	129.89
S03	386147.85	406744.67	127.78
S04	386178.69	406700.95	125.35
S05	386177.18	406664.25	124.19
S06	386177.17	406621.92	122.82
S07	386203.32	406573.69	121.56
S08	386226.05	406454.89	124.70
S09	386207.98	406652.78	125.90
S10	386204.29	406645.12	126.33
S011	386208.06	406688.74	127.23



Scale(s)	1:200	Surveyor	PE
Date	JUN 18	Drawn	AS
Job Number	18C200	Checked	TP

Sheet Size & Drg Number & Revision
A0 18C200/001