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ENVIRONMENTAL ASSESSMENT

Flood Risk Assessment 6657

12 Omer Drive, Manchester, M19
2JN

Document Issue Record

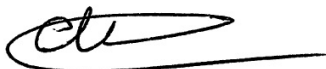
Project: Phase 1 Flood Risk Assessment

Prepared for: Junaid Ahmad

Reference: 6657

Site Location: 12 Omer Drive, Manchester, M19 2JN

Proposed Development: It is understood that the development is for the construction of a side extension to an existing residential dwelling to provide greater habitable space.

Consultant		Date	Signature
Author	Eleanor Hall	20/01/2022	
Document Check	Debra Griffin	26/01/2022	
Authorisation	Oliver Harvey	02/02/2022	
Updates	Eleanor Hall	26/10/2022	

Updates in line with the Planning Practise Guidance (2022) for flood risk and coastal change.

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Contact Us:

Telecom House,
125-135 Preston Road
Brighton
BN1 6AF

www.ambiental.co.uk

UK Office: +44 (0) 1273 006 900

Telecom House,
125-135 Preston Road
Brighton
BN1 6AF

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1. Summary

- 1.1 Ambiental Environmental Assessment has been appointed by Junaid Ahmad to undertake a National Planning Policy Framework (NPPF) compliant Flood Risk Assessment (FRA) for the proposed development at 12 Omer Drive, Manchester, M19 2JN.
- 1.2 The site is currently a residential dwelling. It is understood that the development is for the demolition of the garage and the construction of a side extension to an existing residential dwelling to provide greater habitable space.
- 1.3 An EA Main River, Cringle Brooke is located approximately 270m north of the site, Cringle Brook is also located approximately 231m west of the site.
- 1.4 The Environment Agency detailed river network data set has been shown in Figure 7 and demonstrates that there is a culverted watercourse located in close proximity to the Application Site. Aerial imagery of the Application Site shown in Figure 2 indicates that there is no open watercourse near the site. Therefore, the nearby watercourse is considered to be culverted and should not impact the development.
- 1.5 With reference to the Environment Agency (EA) Flood Map for Planning, the proposed development is located within Flood Zone 2. The proposed development is considered “More vulnerable” under the NPPF.
- 1.6 The proposed development is for the construction of an extension to the existing dwelling to provide greater habitable space and therefore there will be no change in vulnerability classification post-development.
- 1.7 The Environment Agency’s standing advice should be followed if you’re carrying out a flood risk assessment for a development classed as:
 - **a minor extension (household extensions or non-domestic extensions less than 250 square metres) in Flood Zone 2 or 3;**
- 1.8 Minor Developments Standing Advice states; use the advice for minor extensions to complete an assessment for a minor extension in Flood Zone 2 or 3. A minor extension is a household or non-domestic extension with a floor space of no more than 250 square metres.
- 1.9 The Exception Test is not required to be passed; however, the development should be implemented in line with current flood risk guidance to minimise flood risk and be implemented in a sustainable manner in line with the Environment Agency’s standing advice for minor extensions.
- 1.10 It is assumed that there is existing surface water drainage infrastructure associated with the existing residential dwelling. It is proposed to manage the small increase in surface water runoff as a result of the proposed extension as per the existing arrangements on site.
- 1.11 It is recommended that residents are aware of the EA Flood Information service which identifies whether any flood warnings or alerts have been issued for a specific postcode or place in England or Wales: <https://flood-warning-information.service.gov.uk/>.
- 1.12 During periods of bad weather, site users should monitor local weather reports and sign up for the Met Office UK weather warnings. Warnings can be monitored through an Apple/Android app, Twitter or directly via emails. Further information can be found at <https://www.metoffice.gov.uk/>.
- 1.13 In summary:

- The proposed development is for the construction of an extension to an existing dwelling to provide greater habitable space. It should be considered to be a minor extension (<250m²) and an extension of the existing residential use on site.
- Finished floor levels of the proposed extension and converted garage are to be set no lower than existing, in line with EA guidance for minor developments.
- No history of flooding from any source.
- In order to provide betterment flood evacuation and warning procedures will be formalised.

1.14 Following the guidelines contained within the NPPF, the proposed development is considered to be suitable assuming appropriate mitigation (including adequate warning procedures) can be maintained for the lifetime of the development.

Table 1 Summary of flood risk, impacts and proposed flood mitigation measures.

N/A¹ not required for this assessment; N/A² data not available.

Development Description	Existing	Proposed
Development Type:	Residential Dwelling	The proposed development is for the demolition of the garage to build a side extension to an existing residential dwelling to provide greater habitable space.
Number of Bedrooms:	3	2 bedrooms (5 bedrooms in total post development)
EA Vulnerability Classification:	More Vulnerable	More Vulnerable
Ground Floor Level:	N/A ²	Topographic levels vary between approximately 42.44m AOD and 42.87m AOD.
Level of Sleeping Accommodation:		The plans shows that the bedrooms will be on the first floor.
Impermeable Surface Area:	N/A ²	Proposed extension will be less than 250m ² and considered a minor development under the NPPF. The increase in built footprint and impermeable surface areas on site could be considered negligible as a result of the proposed development.
Surface Water Drainage:	N/A	Recommended that surface water runoff from proposed extension is discharged via existing surface water drainage. Betterment of surface water drainage on site could be implemented through small scale SuDs.
Site Size:		Redline Boundary- Approximately 297m ²
Risk to Development	Summary	Comment
EA Flood Zone:	2	Cringle Brook an EA River is located approximately 270m north of the site, Cringle Brook is also located approximately 231m west of the site. Given that proposals are for a 'Minor Development', Ambiental have taken a qualitative approach and recommended that the proposed development abide by the EA Standing Advice for Minor Developments. A recorded flood event took place approximately 0.5km away from site in 2001 due to an obstruction/blockage of the river channel. Manchester, Salford and Trafford Level 1 SFRA (2010) and Level 2 SFRA (2011).
Flood Source:	Fluvial	
1:100 Year Flood Level		
1:100 Year Flood Level & Climate Change		
1:1000 Year Flood Level		
Recorded Flood Events in Area:	Yes	
Recorded Flood Events at Site:	No	
SFRA Available:	Yes	
Management Measures	Summary	Comment
Ground floor level above extreme flood levels:		No modelled flood levels for proposed extension to be constructed no lower than ground levels of existing dwelling in accordance with the EA Standing Advice for minor developments.
Safe Access/Egress Route:	Yes	See section 7
Flood Resilient Design:	Yes	See section 7
Site Drainage Plan:	Discharge via existing	Recommended that surface water runoff from proposed development is discharged via existing surface water drainage system of dwelling.
Flood Warning & Evacuation Plan:	No	The proposed site is not located in an EA Flood alert and Warning Service area.
Offsite Impacts	Summary	Comment
Displacement of floodwater:	No	Proposal is for minor development (<250m ²) and existing dwelling is in Flood Zone 2, so development should not displace floodwater.
Increase in surface run-off generation:	Negligible	Any increase in surface water runoff from proposed extension is discharged via existing surface water drainage system of dwelling.
Impact on hydraulic performance of channels:	None	Proposed development should not affect nearby watercourse.

2. Development Description and Site Area

Proposed Development and Location

- 2.1 The proposed development is located at 12 Omer Drive, Manchester, M19 2JN (Figure 1 and Figure 2).
- 2.2 The site is currently a residential dwelling. It is understood that the development is for the construction of a side extension to an existing residential dwelling to provide greater habitable space.
- 2.3 The topographic levels on site vary from approximately Topographic levels vary between approximately 42.44m AOD and 42.87m AOD according to LiDAR data.

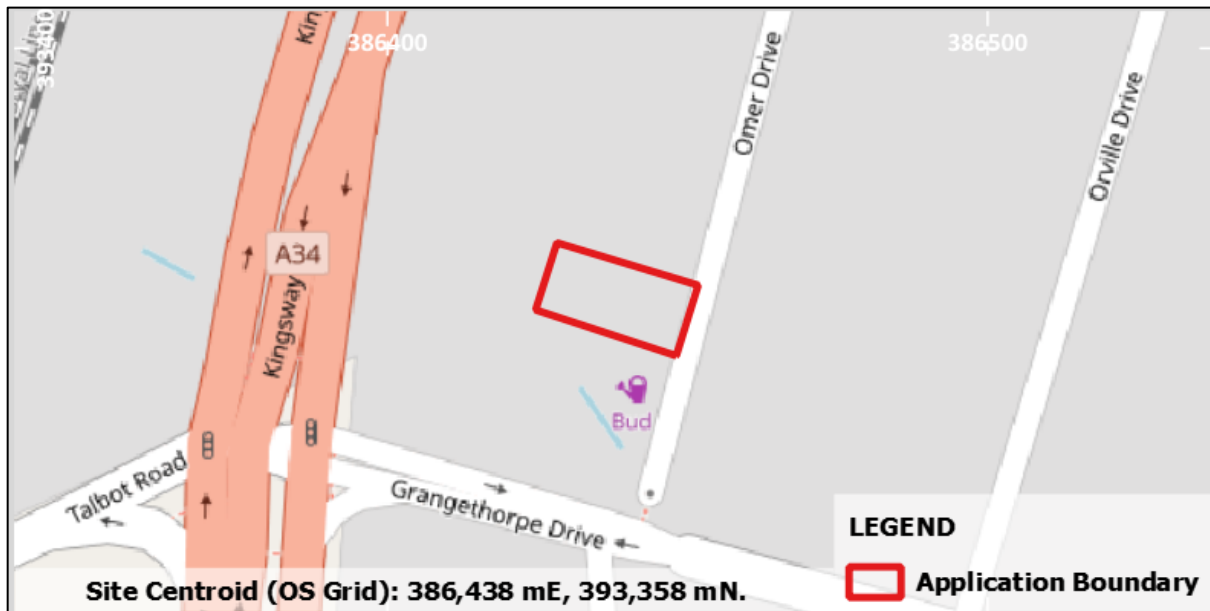


Figure 1 Location Map, identifying the location of the proposed development (Source: OS)



Figure 2 Aerial Location Map (Source Google Maps)



Figure 3 Contour Map (Source LiDAR)

Vulnerability Classification

- 2.4 The EA Flood Map for Planning demonstrates that the proposed development lies within Fluvial Flood Zone 2 with a medium probability of between a 1 in 100 (1%) and 1 in 1,000 (0.1%) of river flooding in any year.
- 2.5 According to NPPF guidelines, the existing site is classified as 'More Vulnerable'. Post-development, the NPPF vulnerability is unchanged compared to the existing situation.

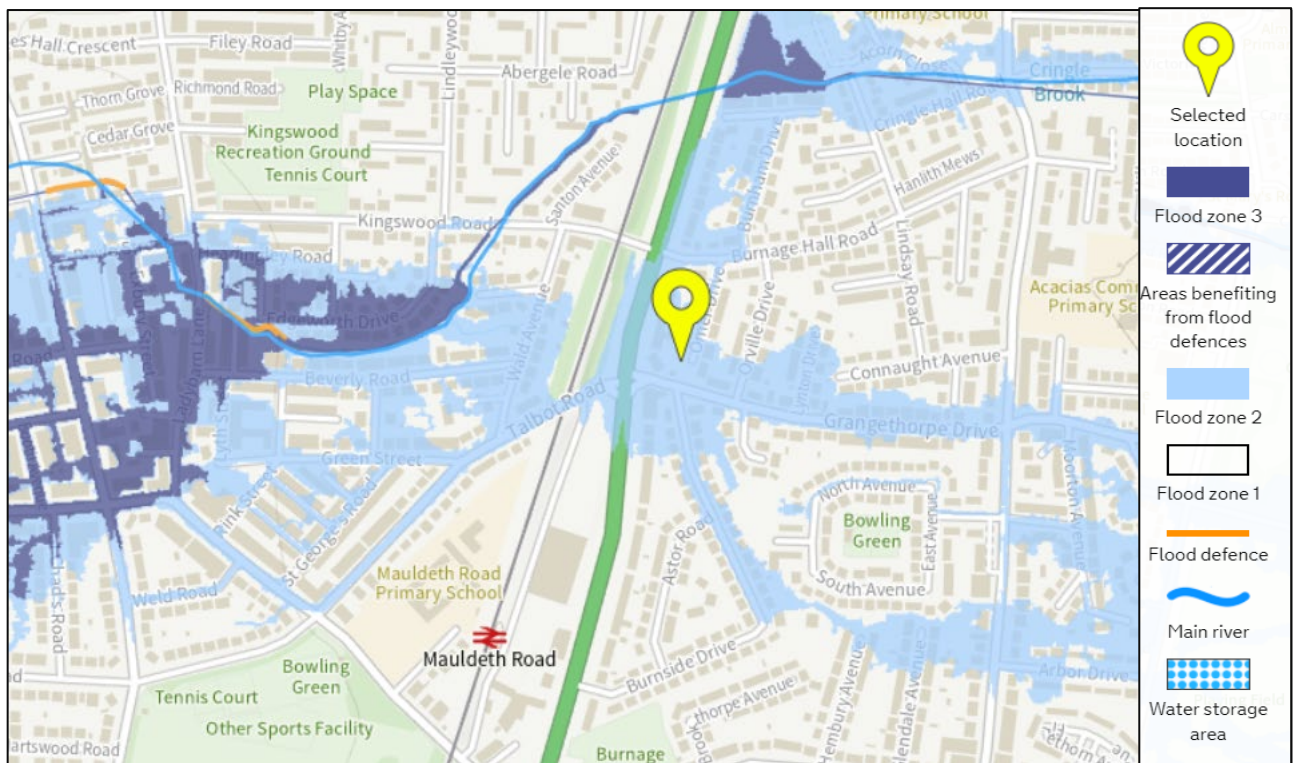


Figure 4 EA Flood Map for Planning (Source Environment Agency)

Geology

- 2.6 The British Geological Survey (BGS) Geology of Britain Viewer indicates that the bedrock underlying the site is Manchester Marls Formation comprising Mudstone (Figure 5).
- 2.7 The British Geological Survey (BGS) Geology of Britain Viewer indicates that the superficial deposits underlying the site are Till, Devensian comprising diamicton (Figure 6).

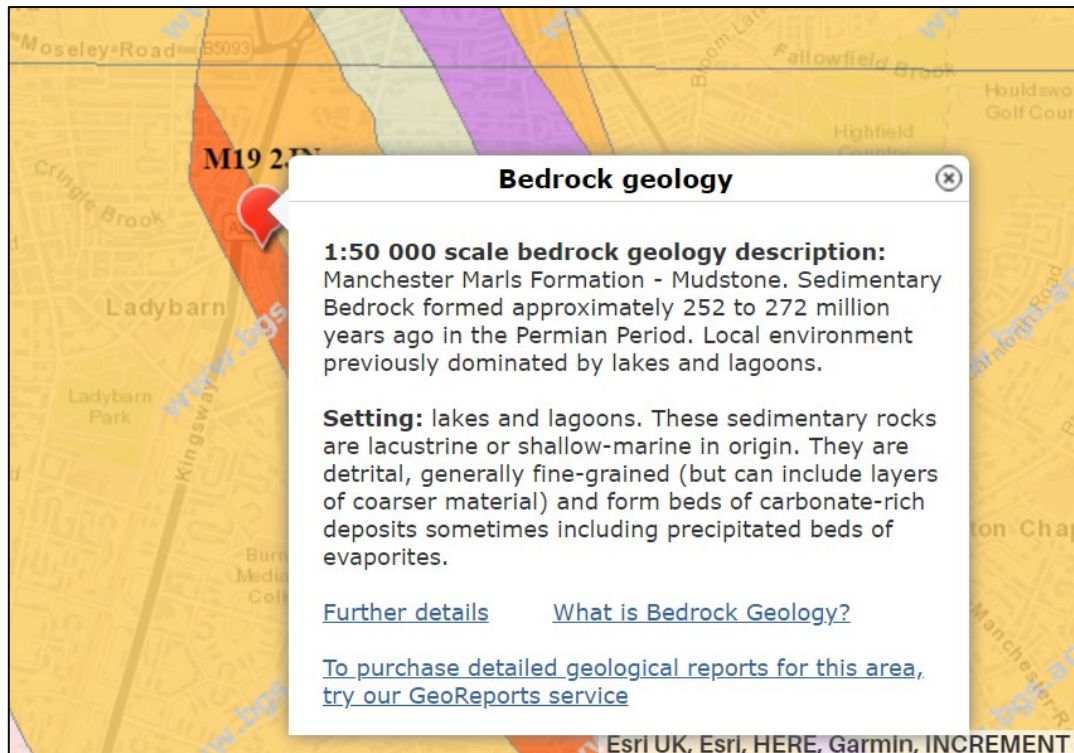


Figure 5 Bedrock Geology Map (Source British Geological Survey)

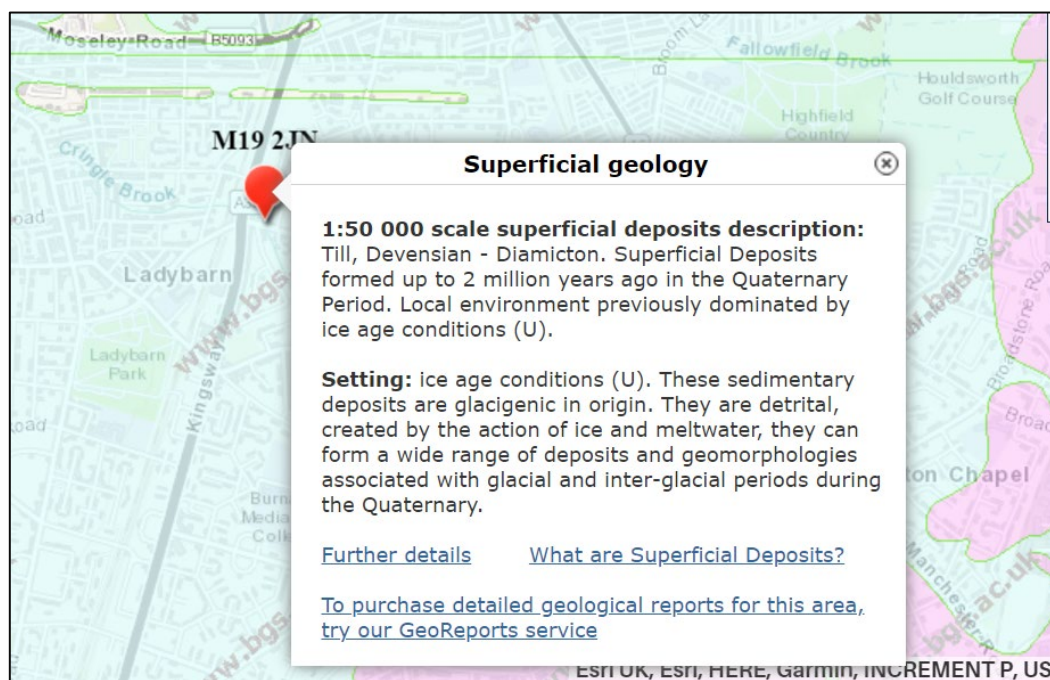


Figure 6 Superficial Bedrock Map (Source British Geological Survey)

3. Sequential Test/Exception Test

- 3.1 Under the NPPF, all new planning applications should undergo a *Sequential Test*. This test should be implemented by local planning authorities with a view to locating particularly vulnerable new developments (e.g., residential, hospitals, mobile homes etc.) outside of the floodplain.
- 3.2 The Flood Risk and Coastal Change Planning Practice Guidance (PPG) Sequential Test: Flood Risk Vulnerability and Flood Zone 'Compatibility' Table is reproduced below:

Table 2 The Sequential Test: Flood Risk Vulnerability and Flood Zone 'incompatibility' Table as specified by NPPF (2022).

Flood Risk Vulnerability Classification		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test Required	✓	✓
	Zone 3a†	Exception Test Required†	✓	✗	Exception Test Required	✓
	Zone 3b Functional Floodplain	Exception Test Required*	✓*	✗	✗	✗

Key: ✓ Exception test is not required ✗ Development should not be permitted

- 3.3 Notes to table 2 (Paragraph: 079 Reference ID: 7-079-20220825) “†” *In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.*
- 3.4 “*” *In Flood Zone 3b (functional floodplain) essential infrastructure that has passed the Exception Test, and water-compatible uses, should be designed and constructed to:*
- *remain operational and safe for users in times of flood;*
 - *result in no net loss of floodplain storage;*
 - *not impede water flows and not increase flood risk elsewhere.*
- 3.5 Using the principles of the Sequential Test outlined above, the proposed development is “More Vulnerable”. The site is located within Flood Zone 2 (as defined by the EA) and therefore, under the NPPF, does not require the application of the Exception Test.
- 3.6 It should also be noted that paragraph 027 of the NPPF (2022) states: Applications for some minor developments, *a pragmatic approach needs to be taken where proposals involve comparatively small extensions to existing premises (relative to their existing size), where it may be impractical to accommodate the additional space in an alternative location.* Therefore, as the proposed development is for a minor extension to the existing site, a sequential test is not required.
- 3.7 The Exception Test is therefore not required to be passed; however, the development should be implemented in line with current flood risk guidance to minimise flood risk and be implemented in a sustainable manner. A minor extension is a household or non-domestic extension with a floor space of no more than 250 square metres.

- 3.8 As such, the planning application submitted is required to be accompanied by an FRA following EA standing advice which shows that the development can be achieved in a sustainable manner, with an overall reduction in flood risk to the site and surrounding area.

4. Site Flood Hazards

Sources of Flooding

- 4.1 The proposed development is located within Flood Zone 2 (medium risk of flooding) and is considered to be 'More vulnerable' according to NPPF guidelines. Table 3 summarises the potential sources of flooding to the site:

Table 3 Summary of flood sources

Source	Description
Fluvial/Tidal	Low to moderate Risk
Surface	Low to moderate Risk
Groundwater	Moderate Risk
Sewer	Low to Moderate Risk

Mechanisms and History of Flooding

- 4.2 The EA Flood Map for Planning demonstrates the site to be located within Flood Zone 2 (medium risk of flooding). It is important to note that the EA Flood Map for Planning shows only the potential floodplain; the mitigating effects of any flood defences currently in place are not considered.

Fluvial/Tidal

- 4.3 An EA main river Cringle Brook is located approximately 270m north of the site, Cringle Brook is also located approximately 231m west of the site.
- 4.4 The EA provided flood data from the Cringle Brook 2017 model. Analysis of the 2D nodes shows the site would remain unaffected by flooding for all present day scenarios.
- 4.5 Analysis of the climate change scenarios shows the 2D nodes adjacent to the site have a flood level of 4.24mAOD for the 1:100+30%CC scenario, 4.28mAOD for the 1:100+35%CC scenario and 4.60mAOD for the 1:100+70%CC scenario.
- 4.6 Comparison with topographic levels on site (between 42.44m AOD and 42.87m AOD) shows that the site is topographically higher than the 1:100+30% and 1:100+35% scenarios. The site may be partially affected during the 1:100+70%CC scenario, however flood depths may be a maximum of 0.16m.
- 4.7 It should be noted that based on the updated climate change guidance, the appropriate allowance for the Upper Mersey Management Catchment is +41%. No modelling exists for this scenario currently.
- 4.8 Given the proposed development if for a minor extension to the existing residential dwelling, a qualitative approach has been taken within this report. As such, it is recommended that Finished Floor Levels (FFL'S) of the proposed extension are set no lower than those of the existing dwelling.
- 4.9 EA historic flood records indicate that the site of the proposed development and the surrounding area has not been affected by flooding in the past.
- 4.10 The Environment Agency detailed river network data set has been shown in Figure 7 and demonstrates that there is a culverted watercourse located in close proximity to the Application Site. Aerial imagery of the

Application Site shown in Figure 2 indicates that there is no open watercourse near the site. Therefore, the nearby watercourse is considered to be culverted and should not impact the development.

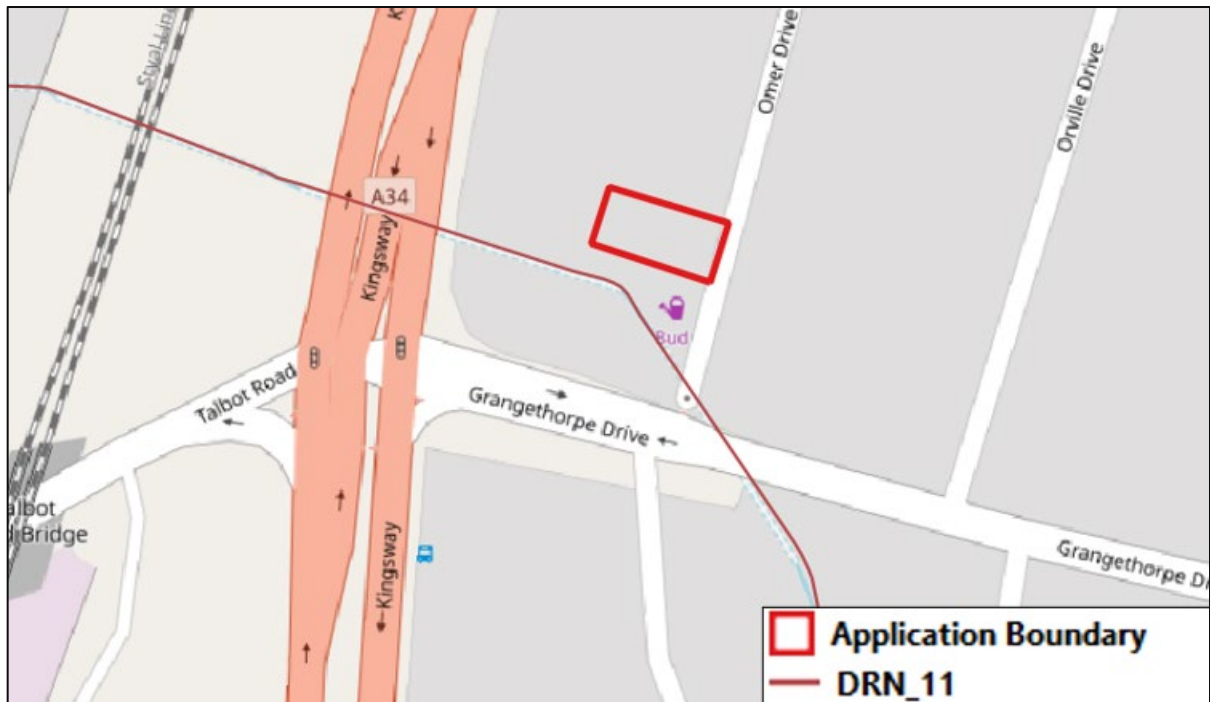


Figure 7: Environment Agency Detailed River Network Map

Surface Water (Pluvial)

- 4.11 The Environment Agency Flood Risk from Surface Water web site shows the proposed development to be within an area of 'Low' risk of flooding from surface water (Figure 8). Areas identified to be at 'Low' risk have a 0.1% to 1% annual risk of flooding from this source. There are also pockets of the local area at medium risk and high risk of surface water flooding in close proximity to the site along Kingsways and Grangethorpe Drive. Areas identified as being at 'Medium risk' from surface water have a 1% to 3.3% annual risk of flooding from this source. Areas identified as being at 'High risk' from surface water has a greater than 3.3% annual risk of occurring.

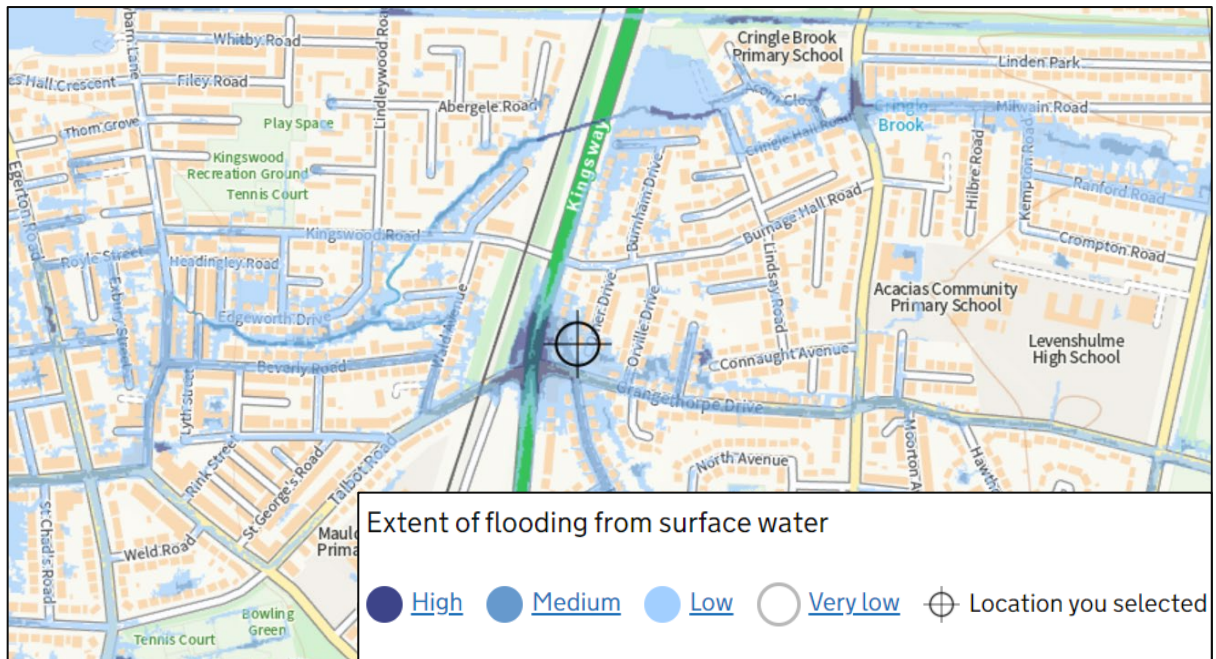


Figure 8 EA Surface Water Flood Map (Source Environment Agency)

- 4.12 The EA Surface Water Flood Depth Map for the High-Risk Scenario indicates that the proposed development is not affected in this event (Figure 9).
- 4.13 The EA Surface Water Flood Depth Map for the Medium Risk Scenario indicates that the proposed development may experience flood levels of less than 300mm in this event to the rear of the garden. A Medium Risk Scenario has a 1% to 3.3% annual risk of occurring (Figure 10).



Figure 9 1:30 Year Surface Water Flood Map (Source Environment Agency)

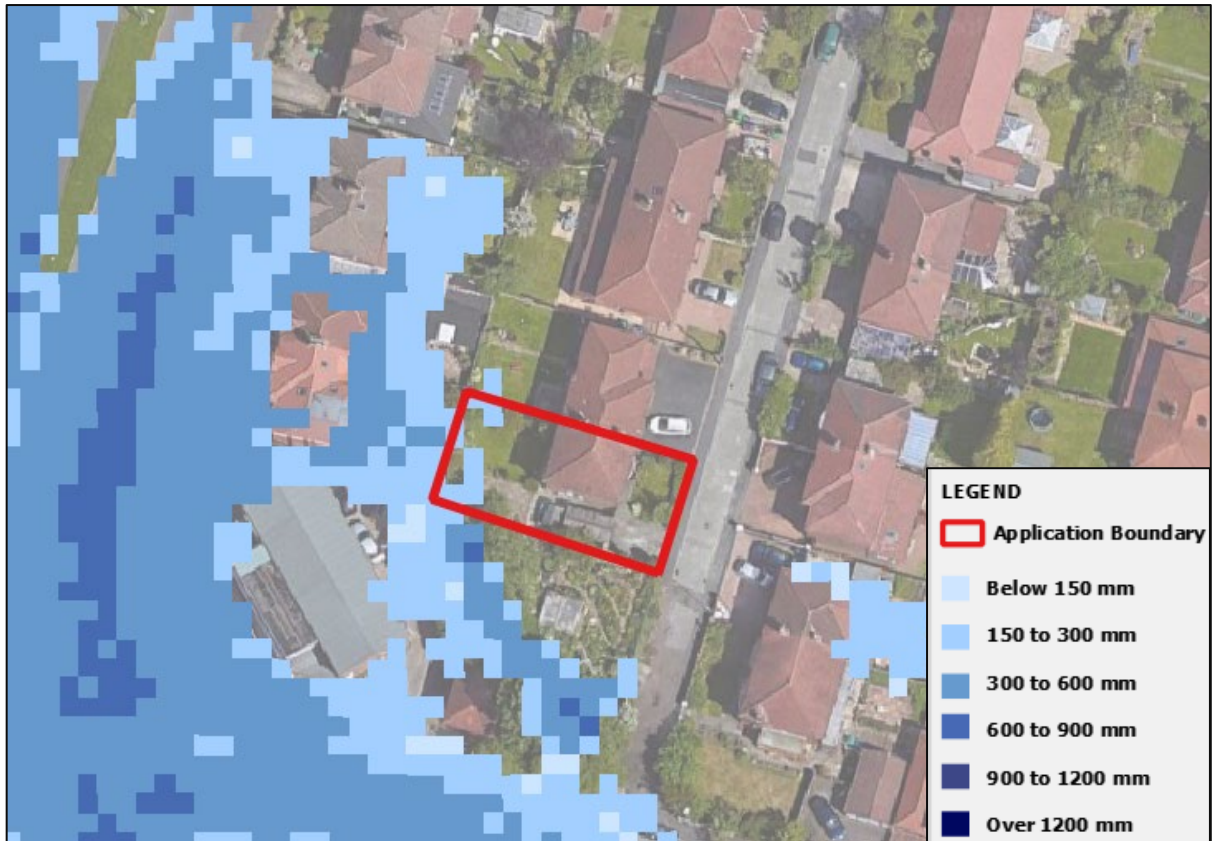


Figure 10 1:100 Year Surface Water Flood Map (Source Environment Agency)

- 4.14 The EA Surface Water Flood Depth Map for the Low-Risk Scenario indicates that the proposed development may experience flood depths of up to 900mm to the rear of the garden. The residential dwelling and proposed extension could experience flood depths of up to 600mm. A Low-Risk Scenario has a 0.1% to 1% annual risk of occurring (Figure 11).

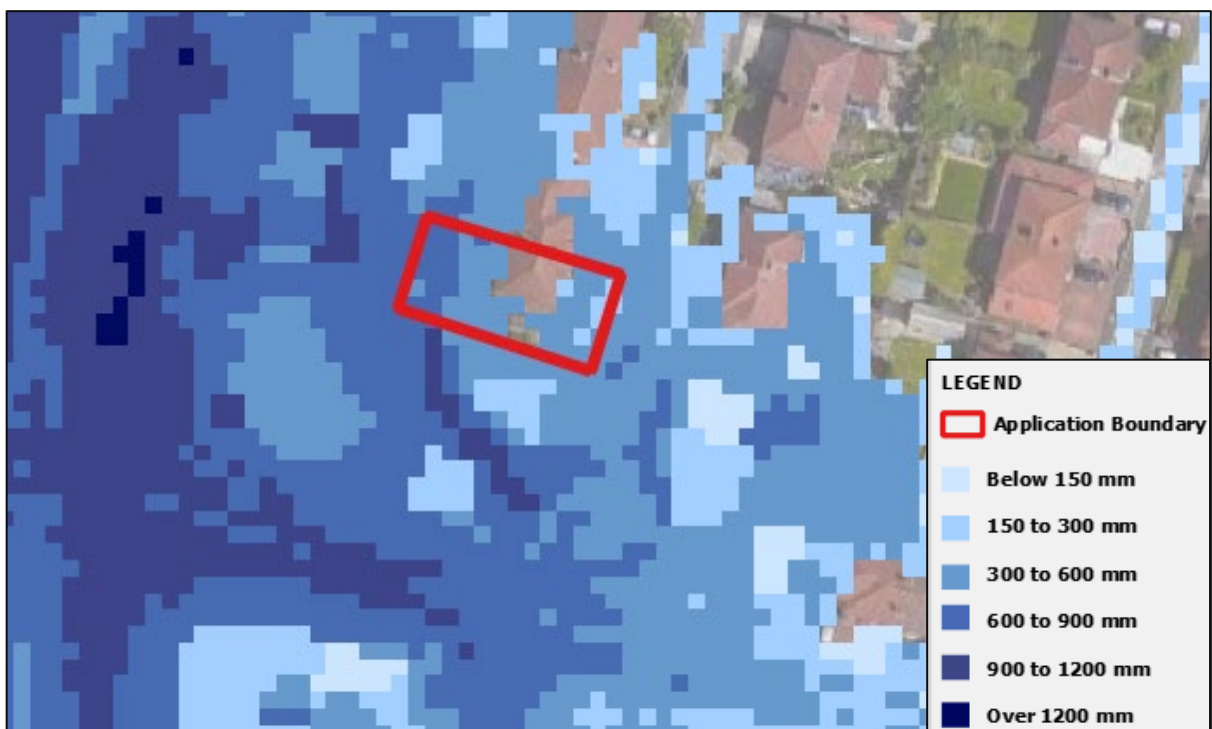


Figure 11 1:1000 Year Surface Water Flood Map (Source Environment Agency)

- 4.15 As such, it can be considered that the proposed development is at low to moderate risk from surface water flooding.

Groundwater

- 4.16 The British Geological Survey (BGS) Geology OF Britain Viewer indicates that the bedrock underlying the site is Manchester Marls Formation comprising Mudstone (Source: BGS). This formation is considered to be a Secondary 'B' aquifer (Source EA; Magic Map online resource). A secondary 'B' aquifer has low permeability but within limited groundwater available in fissures or thin geological horizons.
- 4.17 The British Geological Survey (BGS) Geology of Britain Viewer indicates that the superficial deposits underlying the site are Till, Devensian comprising diamicton. This formation is a Secondary (undifferentiated) aquifer (Source: EA; Magic Map online resource). A Secondary (undifferentiated) aquifer is permeable, supporting water supplies at a local scale and may contribute to base flow of rivers and/or low permeability but with limited groundwater available in fissures or thin geological horizons.
- 4.18 The BGS Susceptibility to Groundwater Flooding (Figure 12) mapping demonstrates the redline application boundary lies wholly within an area with 'potential for groundwater flooding to occur at the surface' (Figure 12).



Figure 12 Groundwater Susceptibility Map (Source British Geological Survey)

- 4.19 It can be considered that the proposed development is at **moderate risk** of groundwater flooding.
- 4.20 The site is not within an EA groundwater Source Protection Zone.

Sewer

- 4.21 As indicated in the Manchester, Salford, Trafford Level 2 SFRA (2011), United Utilities sewer flood records and modelled data were not made available in the timescales for this project.
- 4.22 The Manchester, Salford, Trafford Level 2 SFRA (2011) 5.1 states

Development has the potential to cause an increase in impermeable area, an associated increase in surface water runoff rates and volumes, and a consequent potential increase in downstream flood risk due to overloading of sewers, watercourses, culverts and other drainage infrastructure.

It should be borne in mind that the sewer network in places across the Greater Manchester area was designed to drain less development than exists today. Development (both planned for and urban creep) has increased the coverage of impermeable surfaces and added flow over time and the network is known to be at capacity in many places. The frequent localised flooding experienced in many parts of Greater Manchester, and Salford particularly in this study area, is testament to this problem.

- 4.23 In the absence of data, it is indicated in the SFRA report that the risk of sewer flooding has been assessed alongside surface water flood models, and that the same method should be used when assessing risk of sewer flooding in site-specific flood risk assessments. Given that the proposed extension is located in an area of low to medium risk, the risk of sewer flooding to the proposed development could be low to moderate.
- 4.24 Any new sewer connection created as part of the proposed development proposals should be first agreed with the local sewer provider and fitted with non – return valves to mitigate the risk of sewer flooding.

Surface Water Drainage Strategy

- 4.25 In order to mitigate flood risk posed by the proposed development, adequate control measures are required to be considered. This will ensure that surface water runoff is dealt with at its source and the flood risk on/off site is not increased over the lifetime of the development.
- 4.26 Under the NPPF, following development, surface water runoff rates should be equivalent to (or below) the existing site run-off rate for all events up to the 1 in 100-year storm event, with an allowance for climate change.
- 4.27 It could be recommended that small scale SuDs are added to the design of the proposed development. It could be suggested that a rain garden or water butt are implemented to help manage surface water runoff.

Records of Historical Flooding

- 4.28 The proposed development site has not been affected by flooding in the past (Figure 13).
- 4.29 The closest recorded flood outline took place approximately 0.5km west of the site and was due to a blockage/drainage of the river channel in 2001.



Figure 13 Historic Flood Map (Source Environment Agency)

5. Probability of Flooding

Flood Zones

- 5.1 According to the EA Flood Map for Planning, the site is located within Flood Zone 2 (medium risk of flooding).
- 5.2 The EA Flood Map for Planning has been produced in part using a relatively coarse, national scale flood modelling strategy, and in part by detailed modelling. It is important to note that only the potential floodplain is modelled; **the mitigating effects of any flood defences currently in place are not considered.** For reference, the definition of the NPPF flood risk zones is included below.

Table 4 Definition of the NPPF Flood Zones. (Source EA)

Zone	Description
1	Low Probability. Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
2	Medium Probability. Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map)
3a	High Probability. Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea. (Land shown in dark blue on the Flood Map)
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)

Climate Change on Site

- 5.3 Climate Change is likely to increase the flow in rivers, raise sea levels and increase storm intensity.
- 5.4 The Environment Agency have provided peak river flow allowances which show the anticipated changes to peak river flow by management catchment.
- 5.5 The proposed development falls into the Upper Mersey Management Catchment area.
- 5.6 The central allowance (2080 epoch) in Table 5 shows that there could be a peak river flow increase of 41% in the Upper Mersey management catchment area.

Table 5 Climate Change Peak River Flow for Upper Mersey Management Catchment Area.

	Central	Higher	Upper
2020s	13%	17%	27%
2050s	22%	31%	51%
2080s	41%	53%	85%

- 5.7 Pluvial Climate Change Allowances are determined by the predicted increase in peak rainfall intensity. These are determined by regional variations, which are based on the management catchments. Management catchments are sub-catchments of river basin districts. Table 6 presents the Peak Rainfall Intensity climate change allowances.
- 5.8 The guidance also sets out which climate change allowance should be used for different development lifetimes [19]. This guidance is outlined below:

Development with a lifetime beyond 2100

- 5.9 This includes development proposed in applications or local plan allocations.
- 5.10 For flood risk assessments and strategic flood risk assessments assess the upper end allowances. You must do this for both the 1% and 3.3% annual exceedance probability events for the 2070s epoch (2061 to 2125).
- 5.11 Design your development so that for the upper end allowance in the 1% annual exceedance probability event:
- there is no increase in flood risk elsewhere
 - your development will be safe from surface water flooding

Development with a lifetime of between 2061 and 2100

- 5.12 For development with a lifetime between 2061 and 2100 take the same approach but use the central allowance for the 2070s epoch (2061 to 2125).
- 5.13 Development with a lifetime up to 2060
- 5.14 For development with a lifetime up to 2060, take the same approach but use the central allowance for the 2050s epoch (2022 to 2060).

Exceptions

- 5.15 In some locations the allowance for the 2050s epoch is higher than that for the 2070s epoch. If so, and development has a lifetime beyond 2061, use the higher of the two allowances.
- 5.16 The Application Site is located in the Upper Mersey management catchment, climate change allowances are based on a 1981 to 2000 baseline. The 2070, 30 Year Central Climate Change allowance for peak rainfall intensity is 30%. The 2070, 100 Year Central Climate Change allowance for peak rainfall intensity is 30%.

Table 6: Peak rainfall intensity allowance in small catchments

Management catchment name	2050s central for 30yr RP	2050s upper end for 30yr RP	2050s central for 100yr RP	2050s upper end for 100yr RP	2070s central for 30yr RP	2070s upper end for 30yr RP	2070s central for 100yr RP	2070s upper end for 100yr RP
Upper Mersey	20%	35%	25%	40%	30%	40%	30%	45%

Small catchments are less than 5km² or urban drainage catchments (based on a 1981 to 2000 baseline)

6. Residual Risks

Identification of Residual Risks

6.1 Residual risks are those remaining after applying the sequential approach to the location of development and taking mitigating actions. Examples of residual flood risk include:

- the failure of flood management infrastructure such as a breach of a raised flood defence, blockage of a surface water conveyance system, overtopping of an upstream storage area, or failure of a pumped drainage system.
- failure of a reservoir, or
- a severe flood event that exceeds a flood management design standard, such as a flood that overtops a raised flood defence, or an intense rainfall event which the drainage system cannot cope with.

Defence Breach

6.2 With reference to the EA Flood Map for Planning, the proposed site is not located within an area benefitting from defences. As such, there is no residual risk of flooding from breach or overtopping of defences.

Reservoir Failure

6.3 The EA Risk from Reservoir Map demonstrates the site to be in an area with the potential of reservoir flooding. In the unlikely event that a reservoir dam fails, a large volume of water would escape at once with little or no warning (Figure 14).

6.4 According to the EA, there has been no loss of life in the UK from reservoir flooding since 1925. All large reservoirs must be inspected and supervised by reservoir panel engineers as detailed by the enforcement authority for the Reservoirs Act 1975 in England. The EA are responsible to ensure that reservoirs are inspected regularly, and essential safety work carried out. As reservoir flooding is unlikely and the modelled flood depths are based on the worst-case scenario, flooding from this source may be considered as a relatively low risk.

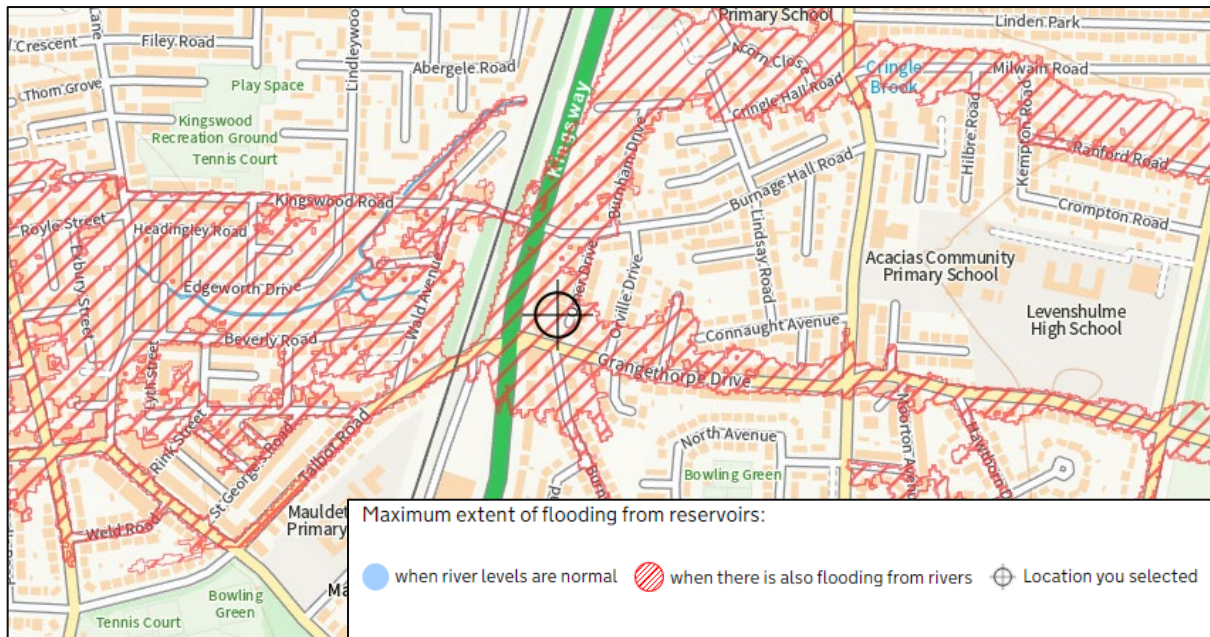


Figure 14 Reservoir Flood Map (Source Environment Agency)

7. Flood Risk Management Measures

Flood Risks

- 7.1 As discussed above, the FRA will be required to comply with relevant EA Standing Advice (Minor Developments Standing Advice) which states:

Use the advice for minor extensions to complete an assessment for a minor extension in flood zone 2 or 3. A minor extension is a household or non-domestic extension with a floor space of no more than 250 square metres.

Make sure the floor levels are either no lower than existing floor levels or 300 millimetres (mm) above the estimated flood level. If they are not, ask your local planning authority if you also need to consider extra flood resistance and resilience measures.

Show how you're going to ensure the development is not flooded by surface water. An example of this could be to divert surface water away from the property or by using flood barriers.

- 7.2 It should be noted that the risk of flooding to the site is generally considered to be low to moderate and is located in Flood Zone 2. As such, the following mitigation measures are recommended to be incorporated into the proposed development:

- Finished floor levels of the proposed extension and converted garage are to be set no lower than the existing floor levels.
- Damp proof membrane should be incorporated into the design of the extension to minimise the passage of water.
- Non-return valves on any new sewer connections to prevent back flow.
- Solid (i.e. concrete floors) where possible to facilitate cleaning/drying.
- Exterior ventilation outlets, utility points and air bricks to be fitted with removeable waterproof covers.

- The site owner and residents to sign up to the EA Flood Warning/Alert Service and have an evacuation plan.

7.3 It is recommended that residents are aware of the EA Flood Information service which identifies whether any flood warnings or alerts have been issued for a specific postcode or place in England or Wales: <https://flood-warning-information.service.gov.uk/>.

7.4 During periods of bad weather, site users should monitor local weather reports and sign up for the Met Office UK weather warnings. Warnings can be monitored through an Apple/Android app, Twitter or directly via emails. Further information can be found at <https://www.metoffice.gov.uk/>.

Flood Warning Service

7.5 The EA operates a 24-hour telephone service on 0345 988 1188 that provides frequently updated flood warnings and associated floodplain information. Further information can be found on www.environment-agency.gov.uk/floodline. Floodline Warnings Direct is a free service operated by the EA that provides flood warnings direct to occupants by telephone, mobile phone, fax or pager.

7.6 The proposed development site is not located within an EA Flood Warning Service Area shown in Figure 15.

7.7 The proposed development is not located in a flood warning area, it is recommended that upon the event of a flood safety is sought by finding refuge in flood zone 1.

7.8 If flood waters exceed 25cm, it is recommended that safety is sought in the upper levels of the residential dwelling.



Figure 15 Flood Warning Map (Source Environment Agency)

Flood Evacuation Plan

7.9 Mauldeth Road Primary School is in walking distance of the proposed development and is in Flood Zone 1 (Figure 16).

7.10 The address is: Mauldeth Rd, Withington, Manchester M14 6SG

7.11 It is recommended that you exit the property and walk south on Omer Drive and turn right onto Grangethrope Drive. Then continue onto Talbot Road and walk approximately 0.4km and then turn left

onto Mauldeth Road and walk approximately 0.1km and then turn left onto Aubrey Road and Mauldeth Road Primary School is straight ahead.

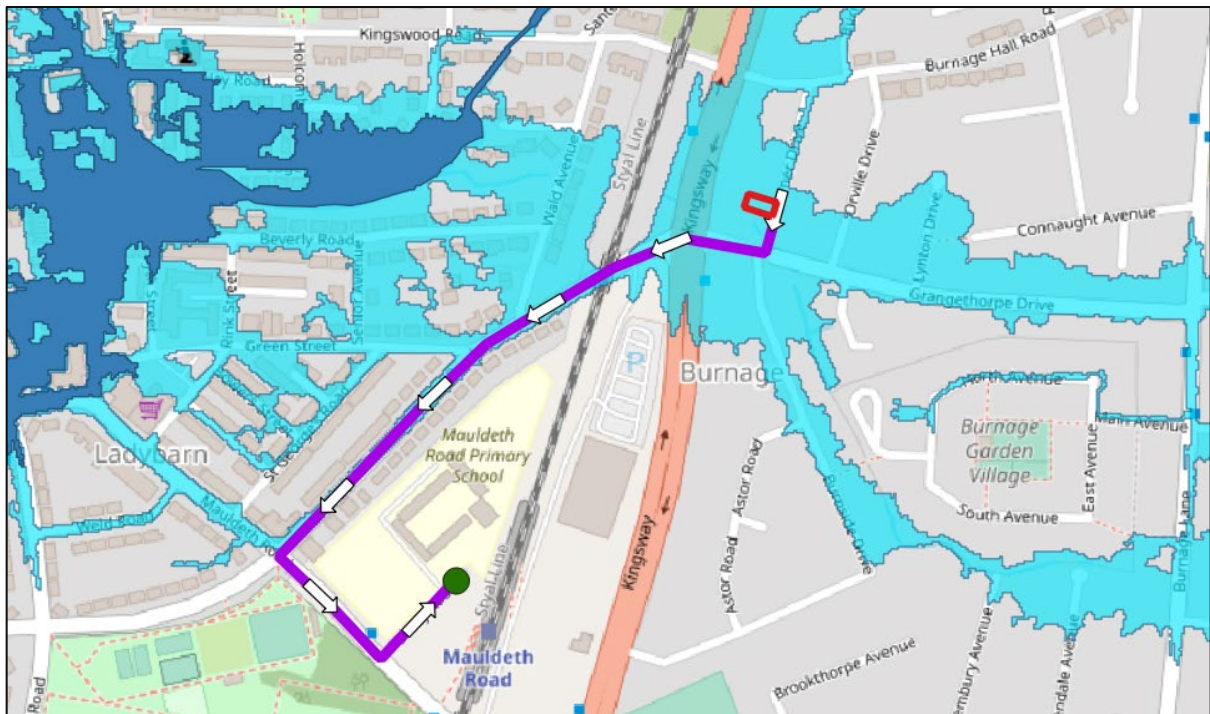


Figure 16 Proposed Evacuation Map

8. Off Site Impacts

Impact to Flood Risk Elsewhere

- 8.1 The existing site comprises of a residential dwelling. It is understood that the development is for the demolition of the garage and the construction of a side extension to an existing residential dwelling to provide greater habitable space.
- 8.2 The proposed development is considered a 'Minor Development'.
- 8.3 According to the NPPG, minor developments are unlikely to raise significant flood risk issues unless:
- *They would have an adverse effect on a watercourse, floodplain or its flood defences.*
 - *They would impede access to flood defence and management facilities, or*
 - *Where the cumulative impact of such developments would have a significant effect on local flood storage capacity or flood flows.*
- 8.4 Given that the proposed extension will be less than 250m² and is in Flood Zone 2, there should be no displacement of floodwaters as a result of the development.

Generation of Runoff

- 8.5 In order to mitigate flood risk posed by the proposed development, adequate control measures are required to be considered. This will ensure that surface water runoff is dealt with at its source and the flood risk on/off site is not increased over the lifetime of the development.
- 8.6 The footprint of the proposed extension will total less than 250m² and will not create a new residential unit. Finished Floor Levels of the proposed extension will be set no lower than ground levels of the existing dwelling. As such, the proposal could be considered a 'Minor Development' under the NPPF.
- 8.7 Small Scale SuDs such as a water butt or rain garden could be implemented into the design of the development.

9. Conclusion

- 9.1 Ambiental Environmental Assessment has been appointed by Junaid Ahmad to undertake a National Planning Policy Framework (NPPF) compliant Flood Risk Assessment (FRA) for the proposed development at 12 Omer Drive, Manchester, M19 2JN.
- 9.2 The site is currently a residential dwelling. It is understood that the development is for the demolition of the garage and the construction of a side extension to an existing residential dwelling to provide greater habitable space.
- 9.3 An EA Main River, Cringle Brooke is located approximately 270m north of the site, Cringle Brook is also located approximately 231m west of the site.
- 9.4 The Environment Agency detailed river network data set has been shown in Figure 7 and demonstrates that there is a culverted watercourse located in close proximity to the Application Site. Aerial imagery of the Application Site shown in Figure 2 indicates that there is no open watercourse near the site. Therefore, the nearby watercourse is considered to be culverted and should not impact the development.
- 9.5 With reference to the Environment Agency (EA) Flood Map for Planning, the proposed development is located within Flood Zone 2. The proposed development is considered “More vulnerable” under the NPPF.
- 9.6 The proposed development is for the construction of an extension to the existing dwelling to provide greater habitable space and therefore there will be no change in vulnerability classification post-development.
- 9.7 The Environment Agency’s standing advice should be followed if you’re carrying out a flood risk assessment for a development classed as:
- **a minor extension (household extensions or non-domestic extensions less than 250 square metres) in Flood Zone 2 or 3;**
- 9.8 Minor Developments Standing Advice states; use the advice for minor extensions to complete an assessment for a minor extension in Flood Zone 2 or 3. A minor extension is a household or non-domestic extension with a floor space of no more than 250 square metres.
- 9.9 The Exception Test is not required to be passed; however, the development should be implemented in line with current flood risk guidance to minimise flood risk and be implemented in a sustainable manner in line with the Environment Agency’s standing advice for minor extensions.
- 9.10 It is assumed that there is existing surface water drainage infrastructure associated with the existing residential dwelling. It is proposed to manage the small increase in surface water runoff as a result of the proposed extension as per the existing arrangements on site.
- 9.11 It is recommended that residents are aware of the EA Flood Information service which identifies whether any flood warnings or alerts have been issued for a specific postcode or place in England or Wales: <https://flood-warning-information.service.gov.uk/>.
- 9.12 During periods of bad weather, site users should monitor local weather reports and sign up for the Met Office UK weather warnings. Warnings can be monitored through an Apple/Android app, Twitter or directly via emails. Further information can be found at <https://www.metoffice.gov.uk/>.
- 9.13 In summary:

- The proposed development is for the construction of an extension to an existing dwelling to provide greater habitable space. It should be considered to be a minor extension (<250m²) and an extension of the existing residential use on site.
- Finished floor levels of the proposed extension and converted garage are to be set no lower than existing, in line with EA guidance for minor developments.
- No history of flooding from any source.
- In order to provide betterment flood evacuation and warning procedures will be formalised.

Following the guidelines contained within the NPPF, the proposed development is considered to be suitable assuming appropriate mitigation (including adequate warning procedures) can be maintained for the lifetime of the development.

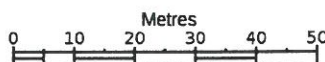
Appendix I - Site Plans



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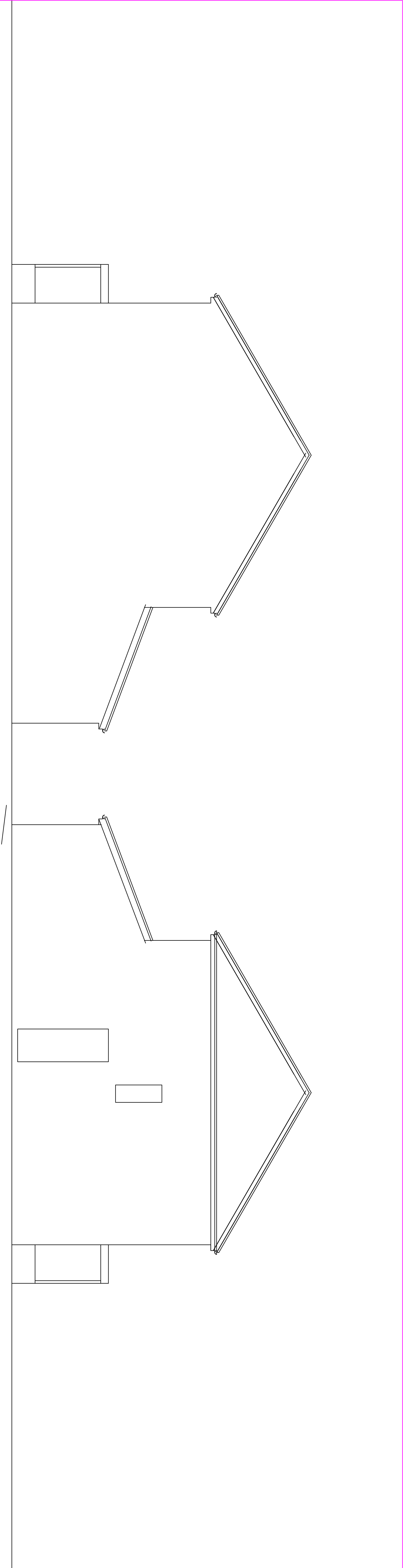


1:1250



Supplied by: **Stanfords 16 Mar 2015**
Stanfords Ordnance Survey Partner
Licence: 100035409
Order Licence Reference: OI831343
Centre coordinates: 386516 393444

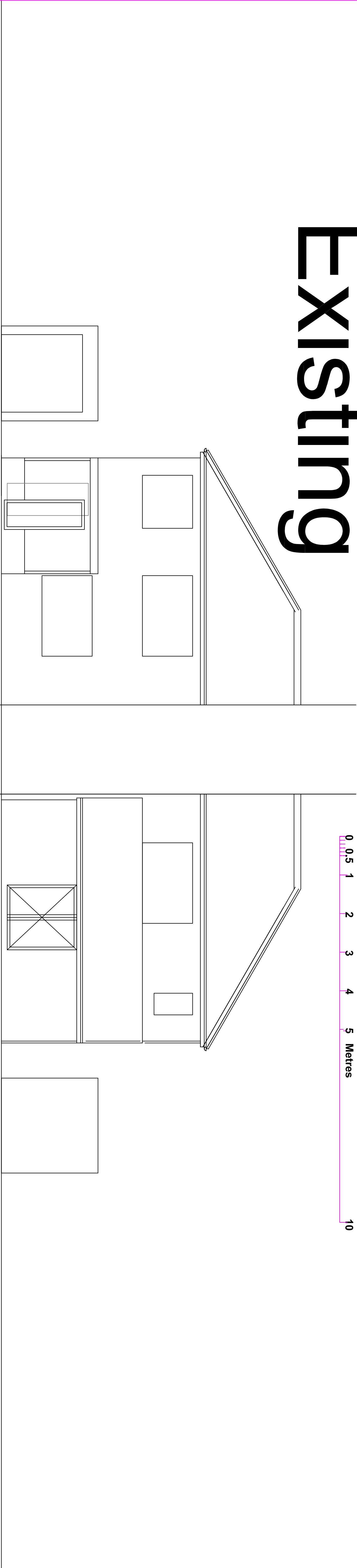
12 Omer Drive
Manchester
M19 2JN



Inside Flank

Outside Flank

Existing

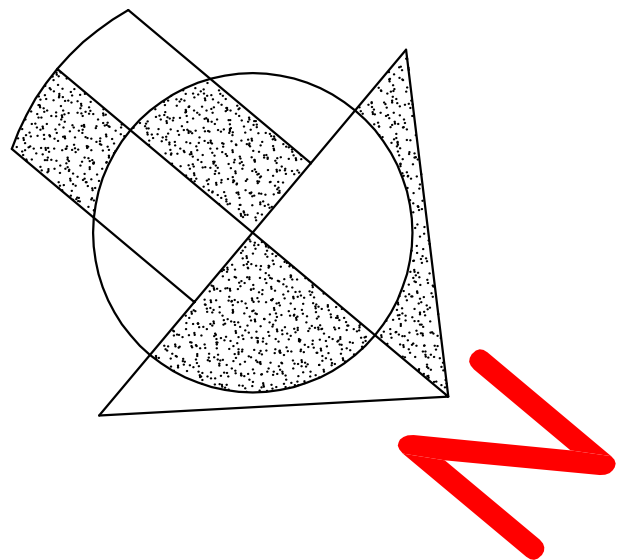


Front

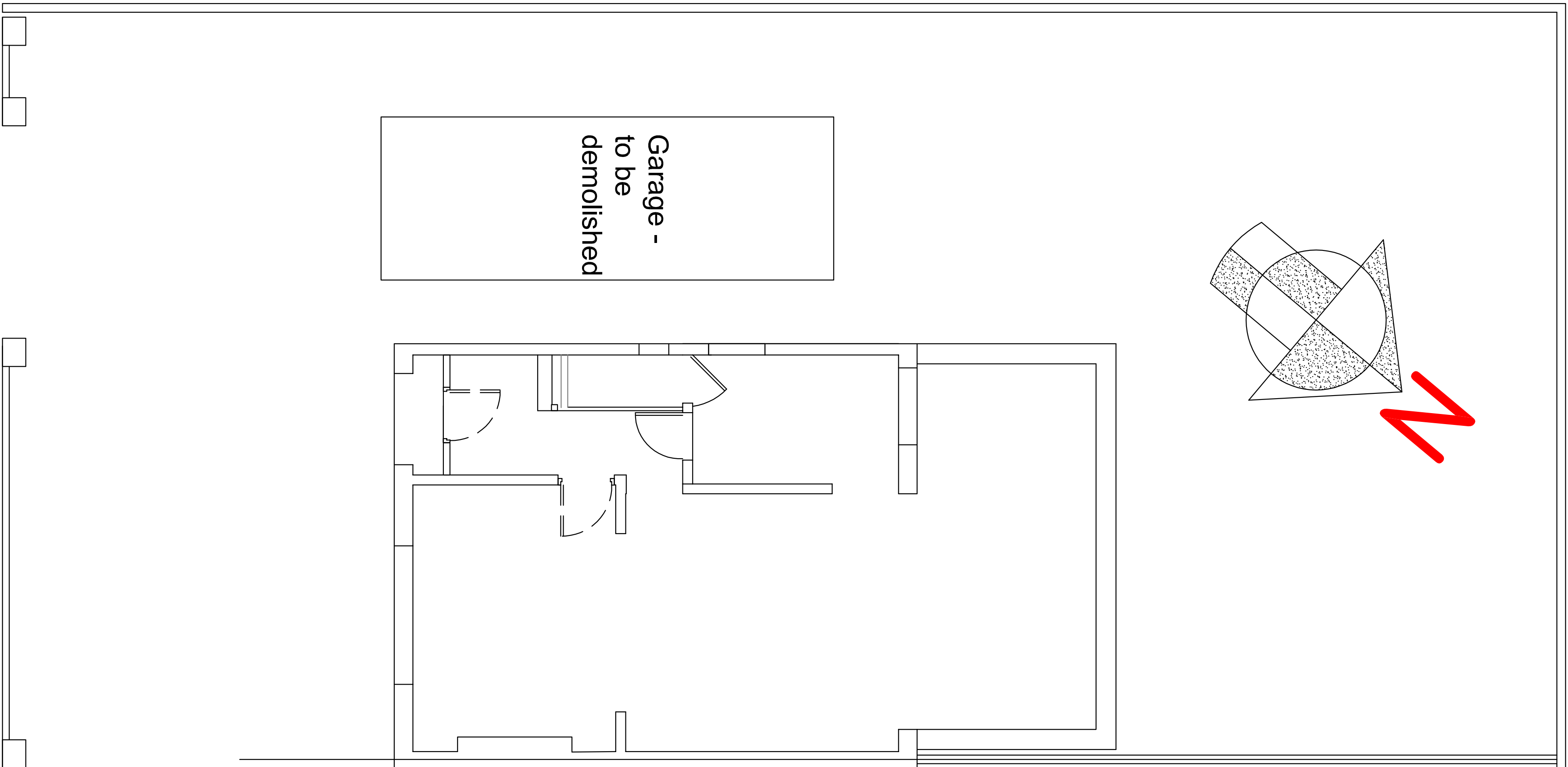
Rear

No.	Revision/Issue	Date

F SUMMERFIELD Chartered Consulting Civil, Structural & Municipal Engineer, Party Wall Surveyor (part of member list) 216 Heston Moor Road, Stockport, SK4 0JL Tel: 0161-431 1881 • Mobile: 07803-229927 • Fax: 0161-431 0786. Web Site: http://www.fsummerfield.co.uk Email: info@fsummerfield.co.uk	Project Name and Address	Sheet
	12 Omer Drive	17.01.14
	Burnage Manchester Plank Two Storey Extension Existing Plans	Date 18.09.20
Scale 1:100 @ A3	03	Rev 0

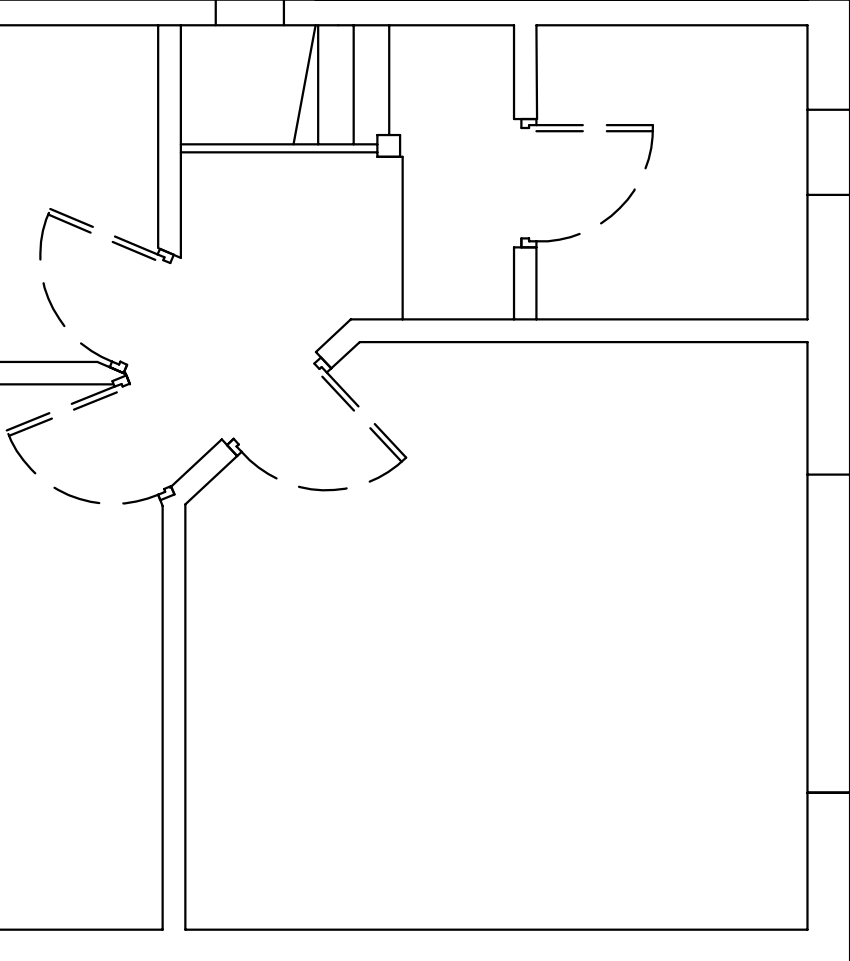


Garage -
to be
demolished

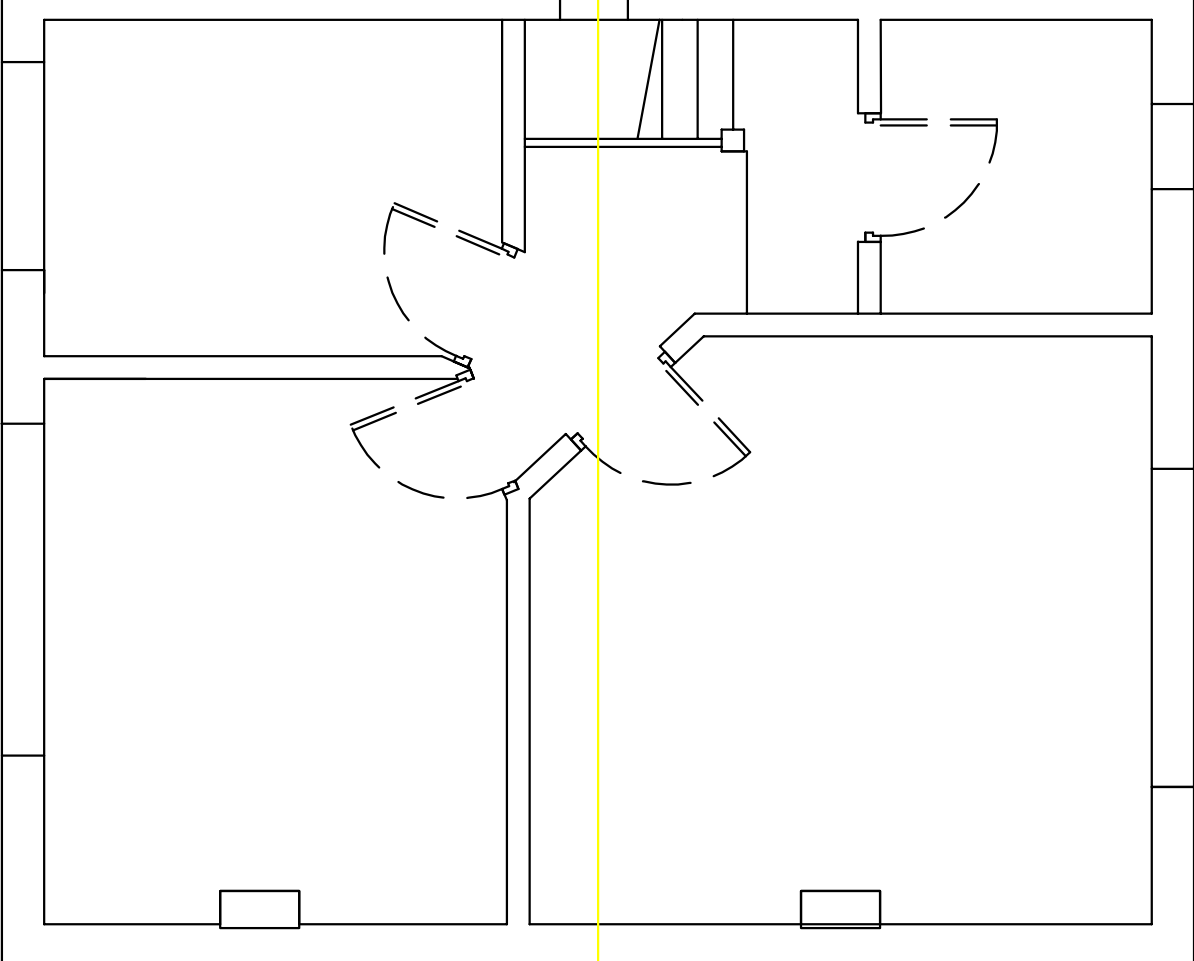


Existing Ground floor
and Site Plan

No.	Revision/Issue	Date

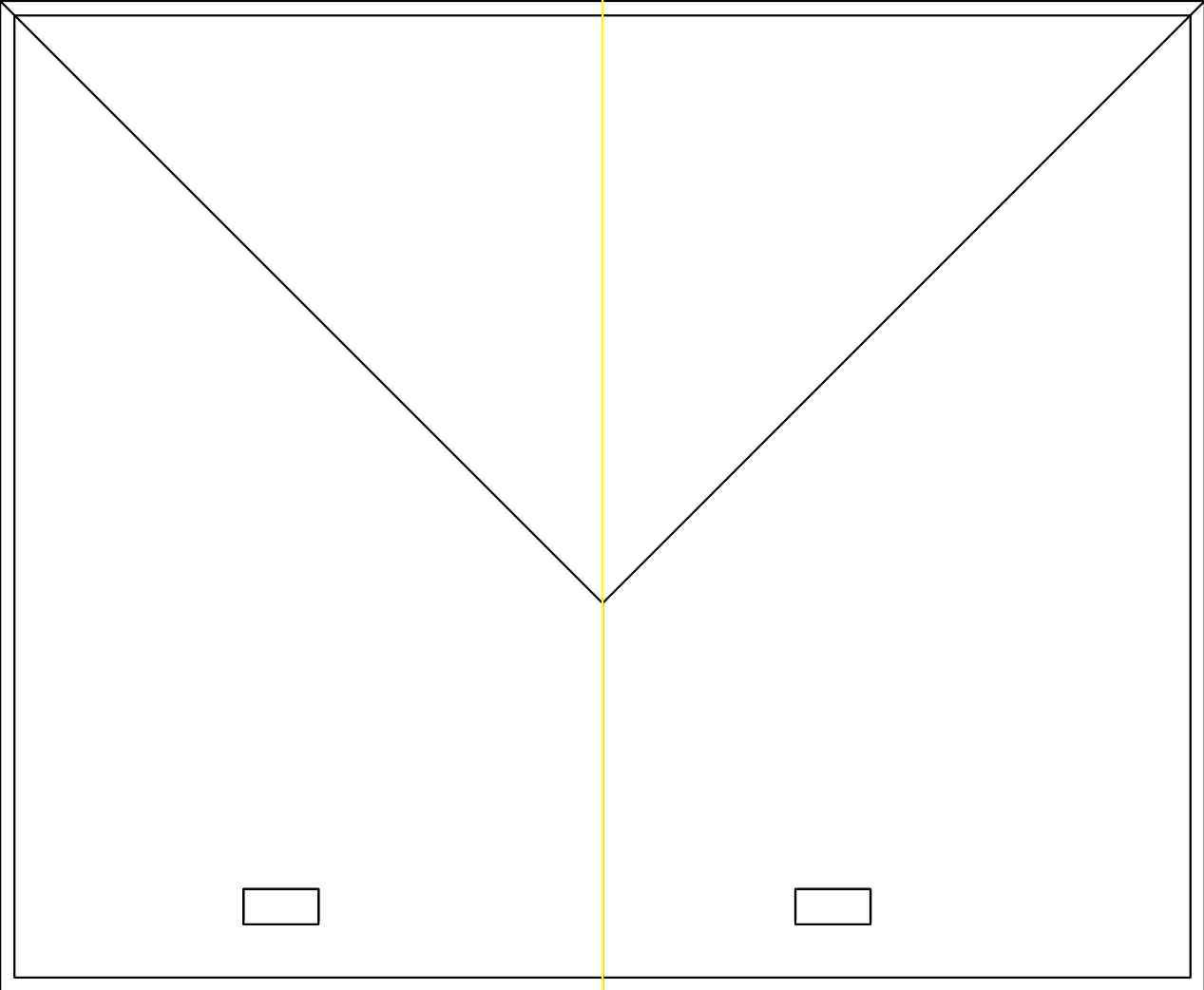


Existing First floor



Existing First floor

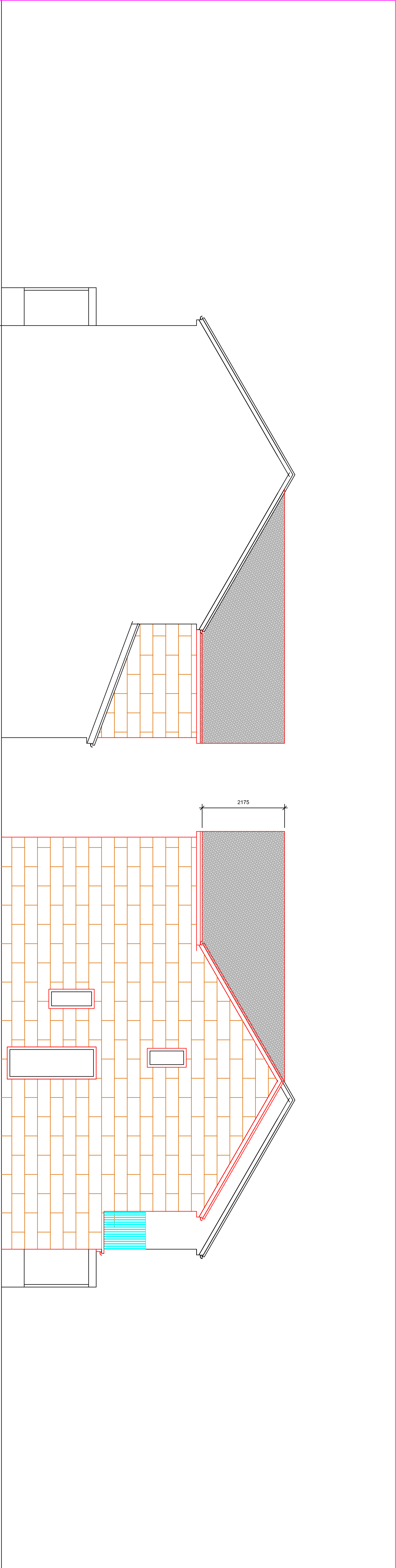
Existing Roof



F SUMMERFIELD
Incorporating Crag and Ashurst
Chartered Consulting Civil, Structural & Marine Engineer,
Party Wall Surveyor, (part of Topham Ltd)
216 Hutton Moor Road, Stockport, SK4 4PL
Tel: 0161 434 1881 • Mobile: 07962 290627 • Fax: 0161 434 0786
Web Site: <http://www.sophia.co.uk/engfloor> email: f@engfloor.co.uk

Project Name and Address
12 Omer Drive
Burnage
Manchester
Plank Two storey Extension
Existing layouts

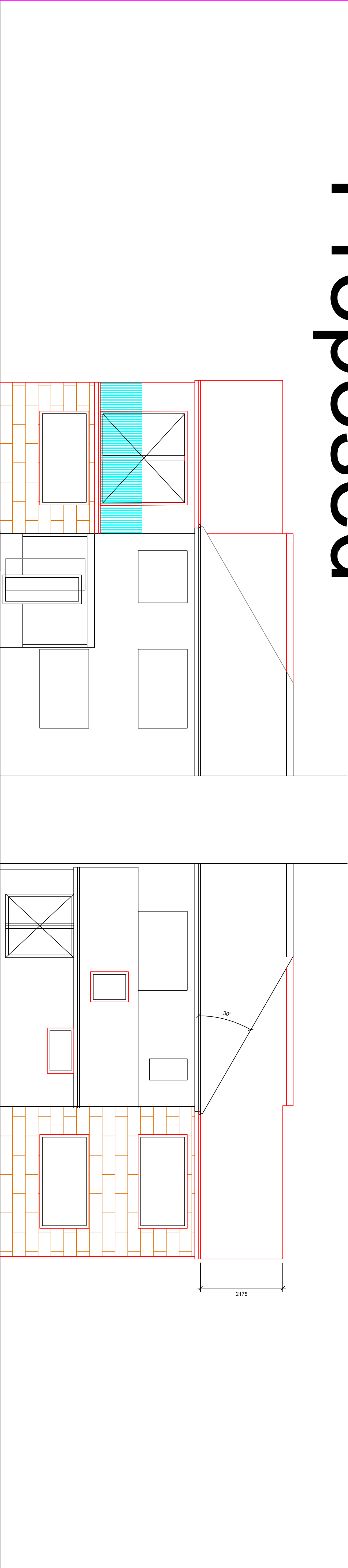
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Date	18.09.20	01
Scale	1:100 @ A3	Rev 0



Inside Flank

Outside Flank

Proposed



Front

Rear

Rev C

Balcony shown

17/02/21

Rev B	Roof line amended	15/01/21
Rev A	Made to client spec.	24/11/20
No.	Revision/Issue	Date

F SUMMERFIELD
Incorporating Crag and Ashurst
Chartered Consulting Civil, Structural & Marine Engineer,
Party Wall Surveyor (part of Topham Ltd)
216 Herring Moor Road, Salford, SK4 4PL
Tel: 0161 443 1881 • Mobile: 07962 290627 • Fax: 0161 443 0786
Web Site: <http://www.salford.co.uk/engineer> email: f@sumfield.co.uk

Project Name and Address

12 Omer Drive
Burnage
Manchester
Flank Two storey Extension
Proposed Plans

Project

17.01.14

Drawn

18.09.20

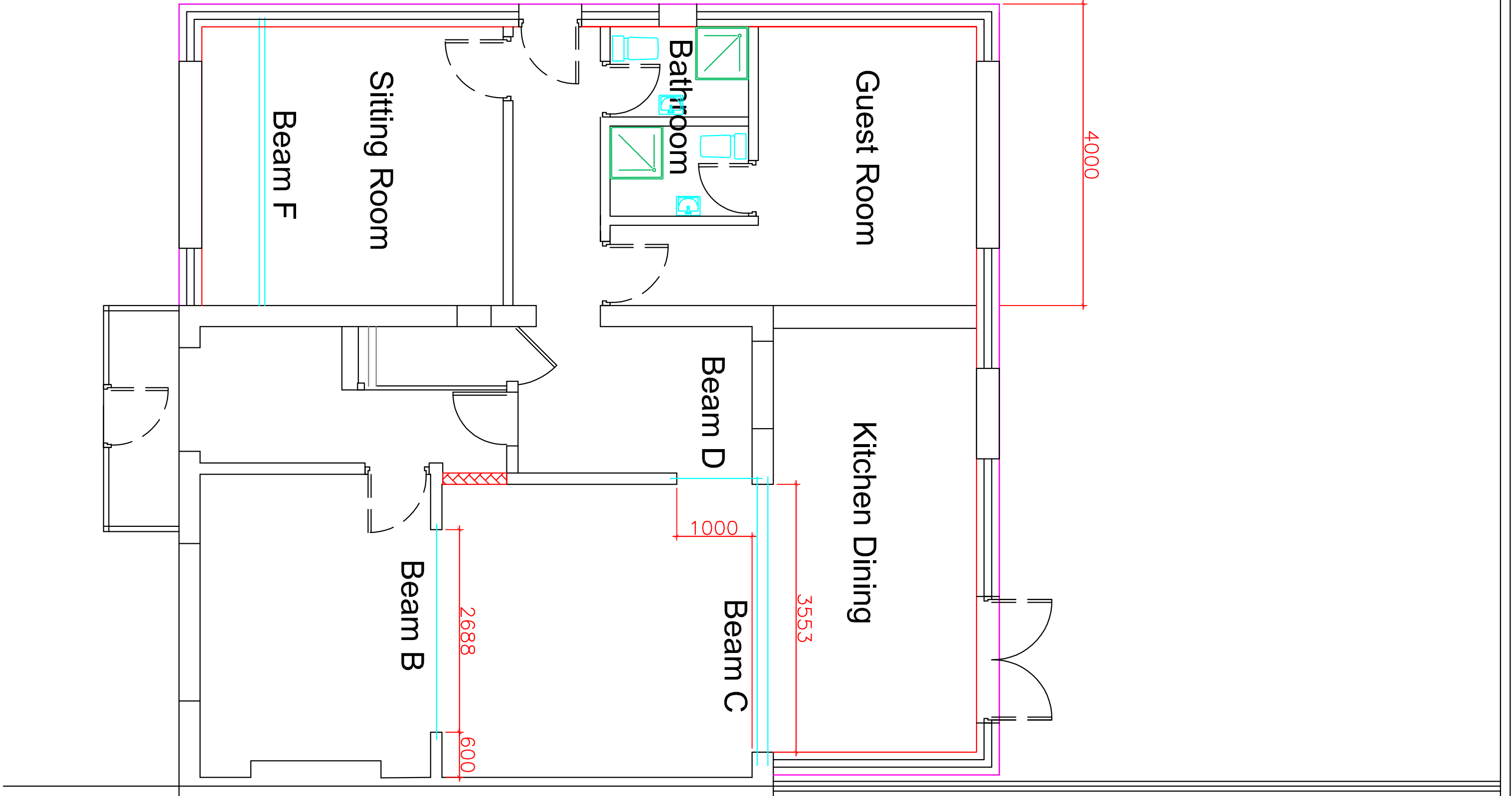
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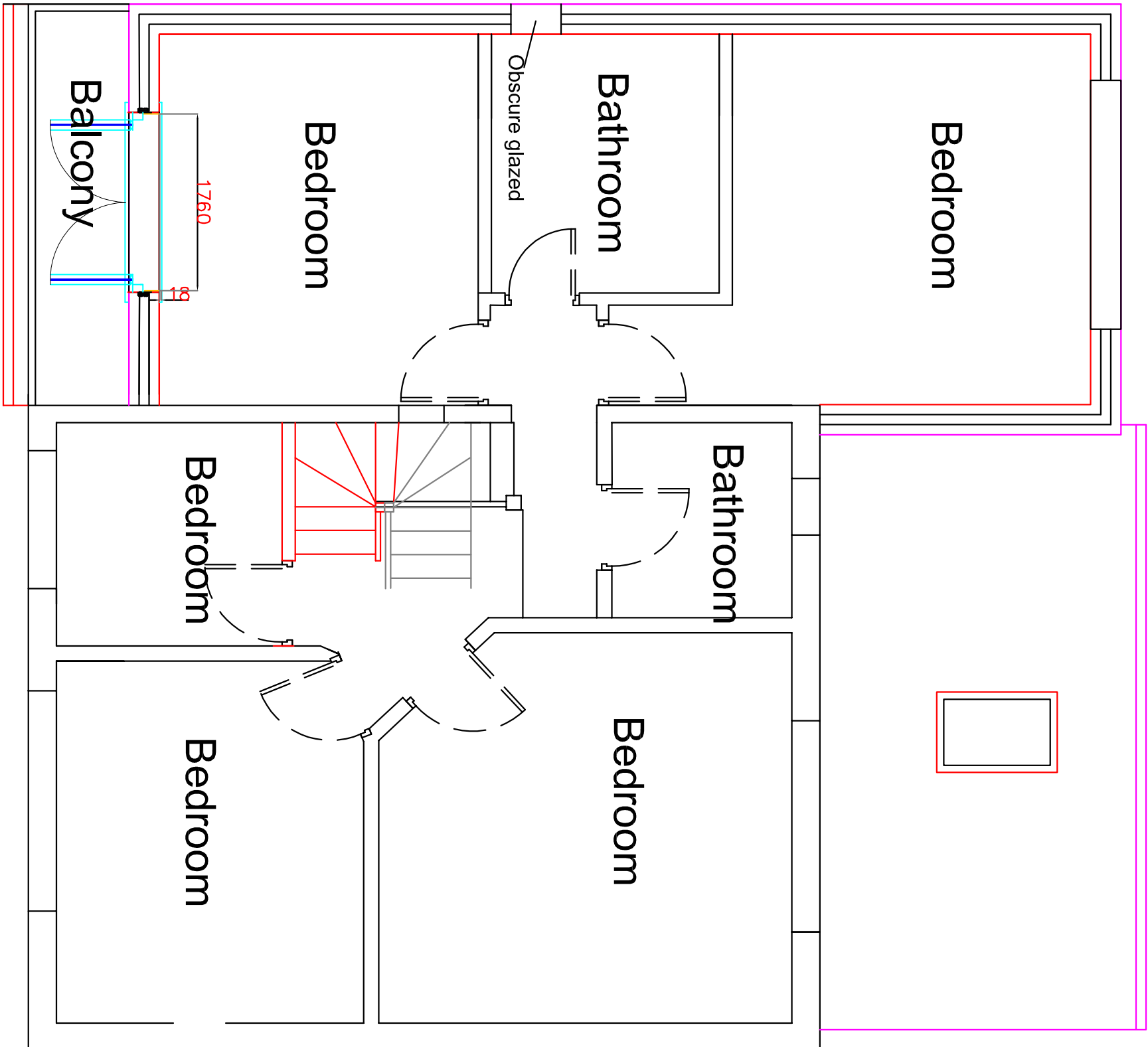
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04

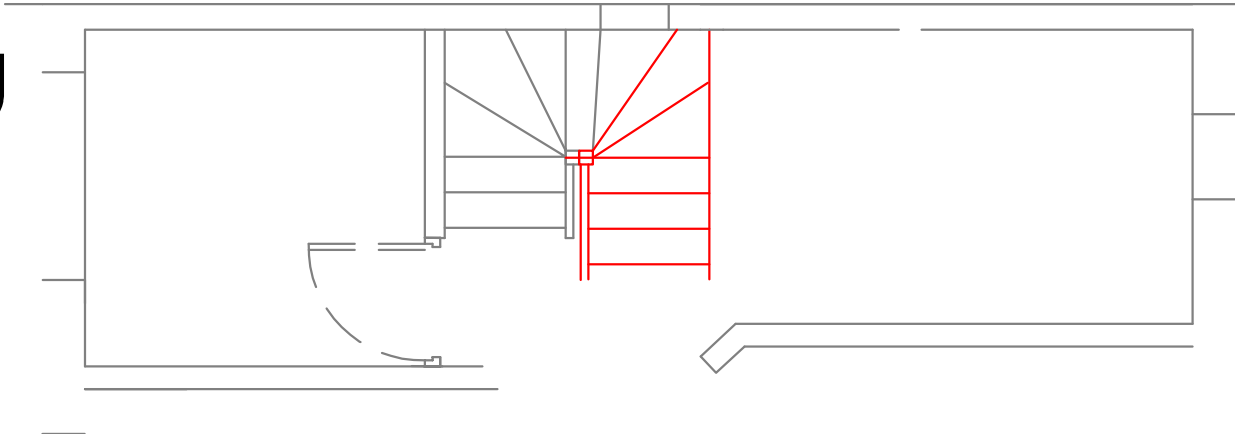
Rev C



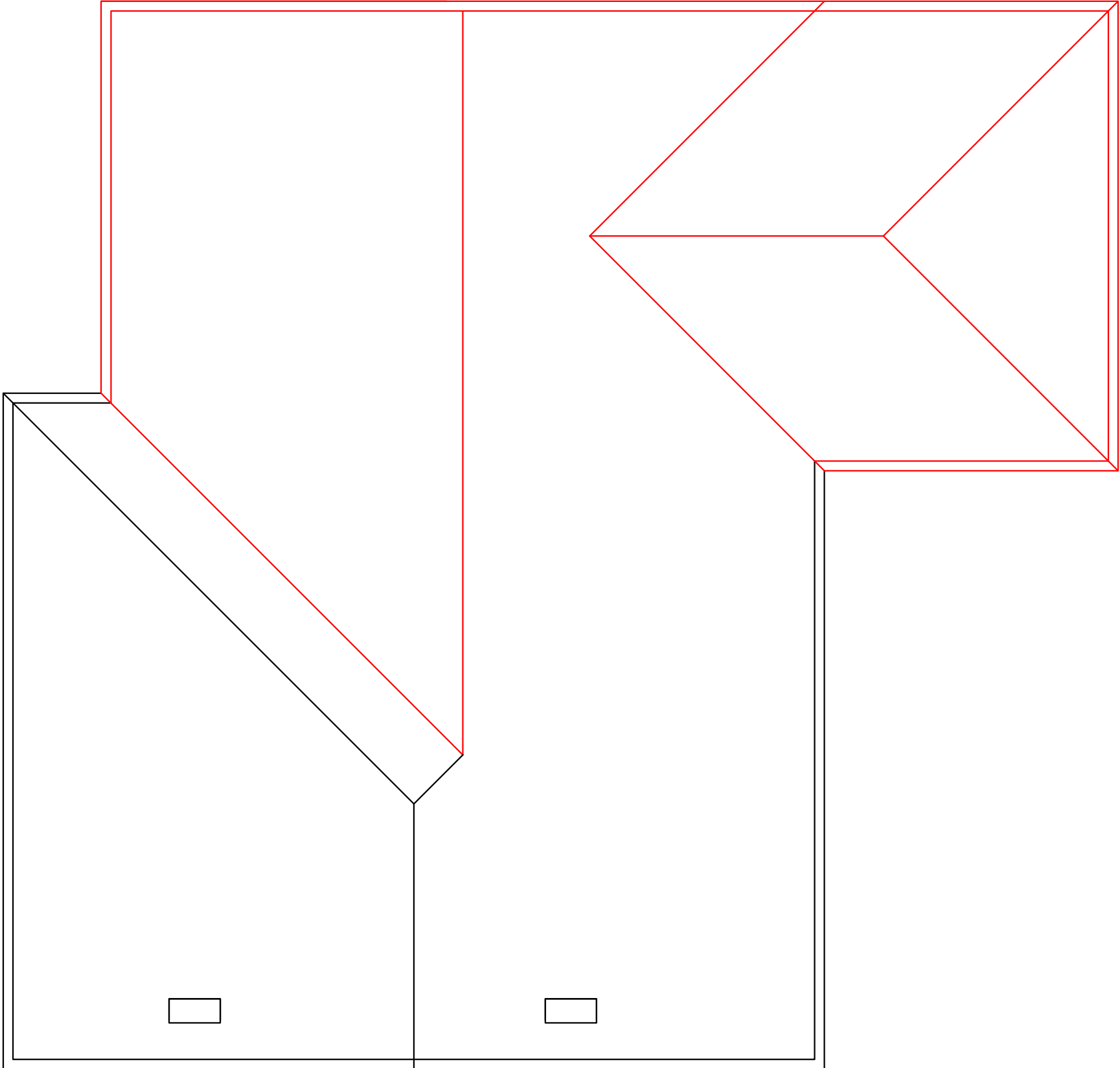
Proposed First floor



Proposed
Schematic up to
Second floor



Proposed Roof



Proposed Ground floor

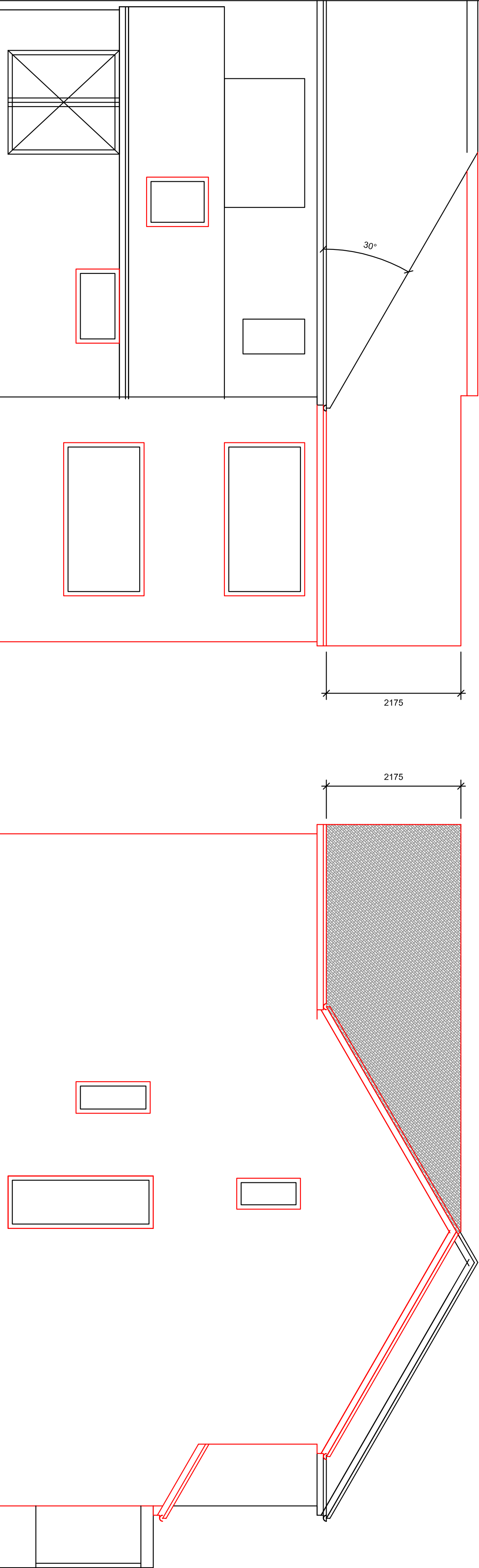


Rev A	Made to client spec.	24/11/20
No.	Revision/Issue	Date

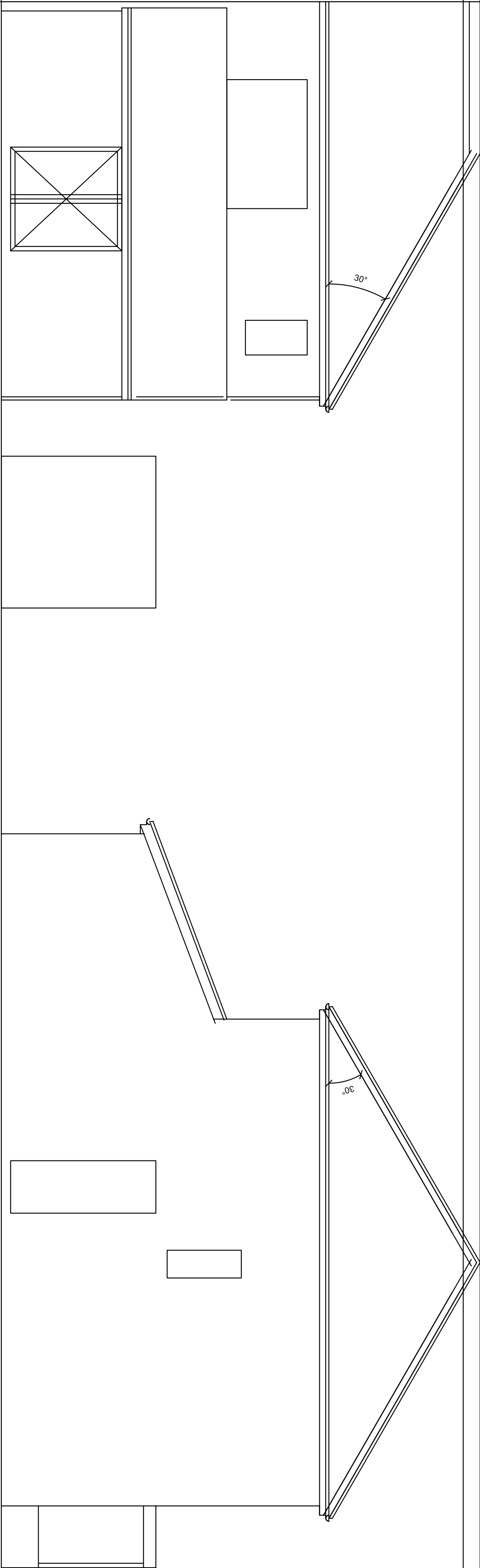
F SUMMERFIELD
Incorporating Crag and Associates
Chartered Consulting Civil, Structural & Marine Engineer,
Party Wall Surveyor, (part of Topham Ltd)
216 Herring Moor Road, Salford, SK4 4PL
Tel: 0161 441 1881 • Mobile: 07962 290627 • Fax: 0161 431 0786
Web Site: <http://www.salford.co.uk/cragphor-consult>

Project Name and Address
12 Omer Drive
Burnage
Manchester
Flank Two storey Extension
Proposed Plans and site plan

Project	17.01.14	Sheet
Date	18.09.20	02
Scale	1:100 @ A3	Rev A



Rear
Outside Flank



Rear
Outside Flank

Comparisons

Project Name and Address		Project		Sheet	
F SUMMERFIELD		17.01.14		05	
Incorporating: Crag and Ashurst		Date		Rev 0	
Chartered Consulting Civil, Structural & Marine Engineer		03.12.20			
Party Wall Surveyor (Part of England Ltd)		Scale			
216 Herring Moor Road, Salford, SK4 4PL		1:100 @ A3			
Tel: 0161 441 1881 • Mobile: 07962 290627 • Fax: 0161 441 0786					
Web Site: http://www.splm.co.uk enquiries email: info@splm.co.uk					
Revision/Issue		Date			
Mod to client spec.		24/11/20			
Rev A					
No.					

Appendix II - EA Data



- Site Location
- Model Measurements
- 2D Measure
- Main River
- Areas Benefiting
- Flood Zone 3
- Flood Zone 2

					Undertended															Defunded															
Map Reference	Model Node Reference	Easting	Northing	Data	20 % AEP (1 in 5 year)	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	4 % AEP (1 in 25 year)	3.33 % AEP (1 in 30 year)	2 % AEP (1 in 50 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 30% increase flow	1 % AEP (1 in 100 year) + 35% increase flow	1 % AEP (1 in 100 year) + 70% increase flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1 % AEP (1 in 1000 year) + 30% increase flow	20 % AEP (1 in 5 year)	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	4 % AEP (1 in 25 year)	3.33 % AEP (1 in 30 year)	2 % AEP (1 in 50 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 30% increase flow	1 % AEP (1 in 100 year) + 35% increase flow	1 % AEP (1 in 100 year) + 70% increase flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1 % AEP (1 in 1000 year) + 30% increase flow			
1	ea013_0238_CRIND1_3109	387099	390621	Modelled Water Level (m aodN)	47.56	47.76	47.89	47.92	47.96	48.10	48.24	48.31	48.51	48.53	48.60	48.44	48.70	48.79	47.56	47.76	47.89	47.92	47.96	48.10	48.24	48.31	48.51	48.53	48.60	48.44	48.70	48.79			
				Modelled Flow (cumecs)	2.41	3.02	3.41	3.50	3.57	3.67	3.67	3.69	4.37	4.43	4.46	4.35	4.43	4.52	2.41	3.02	3.41	3.50	3.57	3.67	3.67	3.69	4.37	4.43	4.46	4.35	4.43	4.52			
2	ea013_0238_CRIND1_2642	386993	390649	Modelled Water Level (m aodN)	43.04	43.40	43.62	43.67	43.74	43.93	44.09	44.18	44.59	44.64	44.86	44.41	44.99	45.10	43.04	43.40	43.62	43.67	43.74	43.93	44.09	44.18	44.59	44.64	44.86	44.41	44.99	45.10			
				Modelled Flow (cumecs)	2.41	3.01	3.40	3.49	3.60	3.91	4.18	4.33	4.96	5.13	5.85	4.67	6.39	7.16	2.41	3.01	3.40	3.49	3.60	3.91	4.18	4.33	4.96	5.13	5.85	4.67	6.39	7.16			
3	ea013_0238_CRIND1_2387	386351	390611	Modelled Water Level (m aodN)	41.57	41.68	41.73	41.74	41.76	41.79	41.81	41.82	41.87	41.87	41.90	41.85	41.91	41.92	41.57	41.68	41.73	41.74	41.76	41.79	41.81	41.82	41.87	41.87	41.90	41.85	41.91	41.92			
				Modelled Flow (cumecs)	2.56	3.23	3.54	3.62	3.70	3.91	4.07	4.16	4.53	4.58	4.77	4.37	4.87	4.96	2.56	3.23	3.54	3.62	3.70	3.91	4.07	4.16	4.53	4.58	4.77	4.37	4.87	4.96			
4	ea013_0238_CRIND1_1991	386008	393356	Modelled Water Level (m aodN)	39.87	39.99	40.04	40.05	40.06	40.09	40.11	40.12	40.17	40.18	40.23	40.16	40.29	40.31	39.87	39.99	40.04	40.05	40.06	40.09	40.11	40.12	40.17	40.18	40.23	40.16	40.29	40.31			
				Modelled Flow (cumecs)	3.70	4.57	5.07	5.17	5.27	5.54	5.71	5.81	6.37	6.46	7.27	6.16	9.19	10.58	3.70	4.57	5.07	5.17	5.27	5.54	5.71	5.81	6.37	6.46	7.27	6.16	9.19	10.58			
5		386403	393367	Modelled Water Level (m aodN)																													42.24	42.28	42.60
6		386417	393333	Modelled Water Level (m aodN)																													42.24	42.28	42.60
7		386448	393337	Modelled Water Level (m aodN)																													No data	42.45	42.60

Model data taken from Cringle Brook 2017

AEP - Annual Exceedence Probability

m aodN - metres above ordnance datum Newlyn

cumecs - cubic metres per second

Notes: *Climate Change Scenario - 30%, 35% and 70% increases in flow calculated for the 2080's (2070 - 2115). Please see <https://www.gov.uk/guidance/food-risk-assessments-climate-change-allowances> for more information regarding the new climate change guidance. The location of the site and the type (vulnerability) of development determine the climate change allowances to consider in any flood risk assessment.

