Flood Risk Assessment

29 Ormskirk Road, Knowsley, Prescot, L34 8HB

08 May 2026

Brittany and Angus Clayson

ASHFIELD
SOLUTIONS GROUP

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Distribution

Client	Brittany and Angus Clayson
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Executive Summary

Ashfield Flood Risk Solutions ("Ashfield") were commissioned by BCAE Architects on behalf of Brittany and Angus Clayson ("the client") to undertake a Flood Risk Assessment ("FRA"), for 29 Ormskirk Road, Knowsley, Prescot, L34 8HB ("the site"). This report has been prepared in support of a planning application for a single-storey rear extension at the site.

The Environment Agency (EA) Risk of Flooding from Rivers and Sea (RoFRS) mapping indicates that there is a low annual probability of fluvial flooding shown to encroach upon the northern elevation of the proposed development to depths of less than 0.2m. When accounting for climate change, there is a medium annual probability of flooding shown to encroach upon the northern elevation of the proposed development to depths of less than 0.2m. Flood model data was requested from the EA to inform this report; however, at the time of writing, a response was yet to be received. Once a response has been received, Ashfield will update this report accordingly. The risk to the site from fluvial flooding is Low in the present day and Low to Moderate when accounting for climate change.

The EA Risk of Flooding from Surface Water (RoFSW) mapping indicates that there is a low annual probability of surface water flooding shown to encroach upon the eastern elevation of the proposed development, to depths of less than 0.2m, in both the present day and when accounting for climate change. Surface water flooding has occurred within the wider area in which the site is located in 2004; however, there are no reportable incidents of flooding identified at the site during this incident. The overall risk of surface water flooding affecting the site is Low.

The bedrock beneath the site comprises Chester Formation – Sandstone. This is a classified as a 'Principal' aquifer which usually provide a high level of water storage. The bedrock is overlain by Till, Devensian – Cobbly gravelly sandy clay. This is classified as a Secondary (undifferentiated) aquifer. From a review of borehole records within the vicinity of the site, groundwater was not encountered. Furthermore, there are no reportable incidents of groundwater flooding located at or within the vicinity of the site. The risk of groundwater flooding affecting the site is Low.

The risk of flooding from artificial sources is also Low, with the risk of flooding from tidal sources and reservoir failure deemed Negligible.

Based on the EA vulnerability classification system, the proposed development would be classed as more vulnerable. Based on the vulnerability classification and proposed development's location within Flood Zones 1 and 2, this development is deemed appropriate, and the exception test is not required.

The Finished Floor Level (FFL) of the proposed extension will be approximately 42.12mAOD, which will match the existing building. This provides a 0.2m freeboard above the 1 in 100 year plus climate change fluvial flood event. It is not practical to raise floor levels higher than the floor level of the current building; therefore, flood resilience and resistance measures are recommended to a level of 42.22mAOD to provide a total freeboard of 0.3m above the design flood level. Such measures include the use of flood resilient construction materials, flooring and wall finish, elevating electrical sockets, fitting Non-Return Valves (NRVs), sealing all duct and cable entry points and the use of anti-flood airbricks where required.

This report therefore meets the aims as set out in Section 1.2 and concludes that the proposed development:

- Is suitable in the location proposed and will be adequately flood resistant and resilient;
- Is unlikely to place additional persons at risk of flooding, and will offer a safe means of access and egress; and,
- Is unlikely to increase flood risk elsewhere as a result of the proposed development through the loss of floodplain storage, impedance of flood flows or increase in surface water runoff.

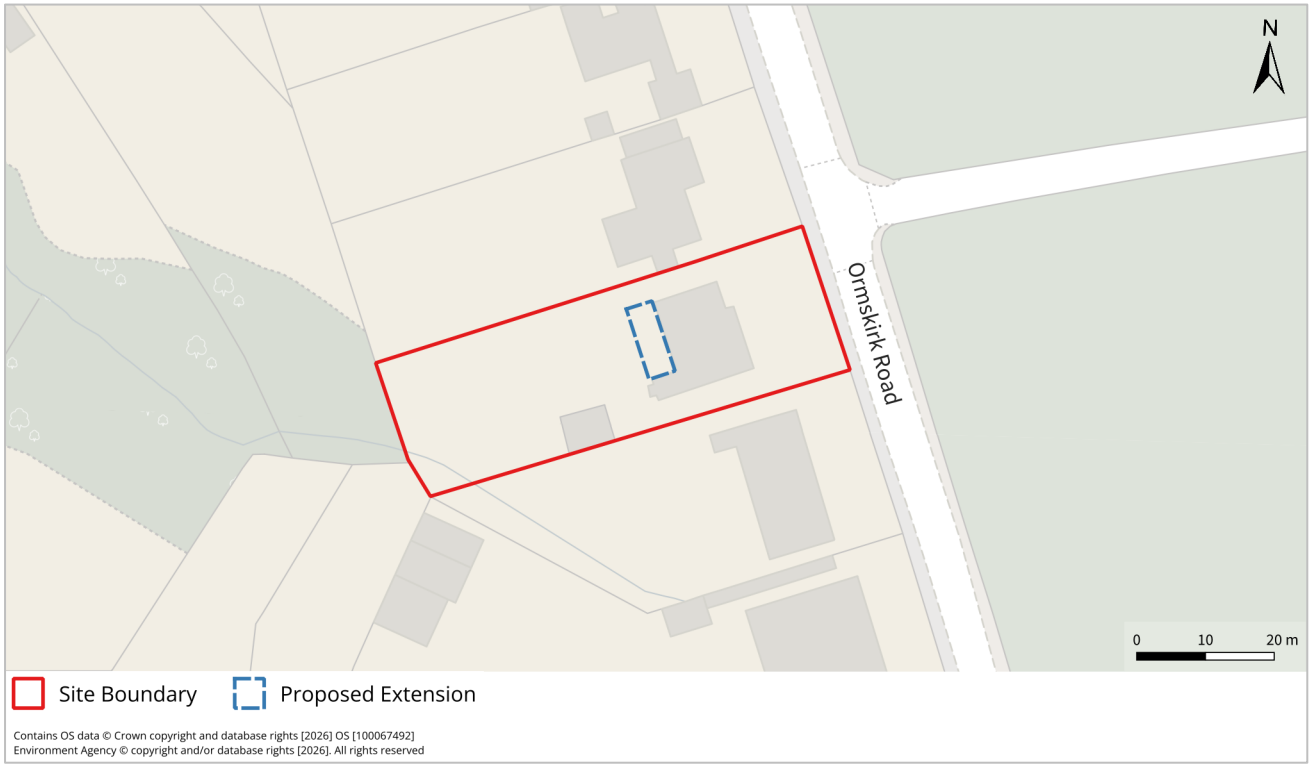
1 Introduction

1.1 Authorisation and Context

Ashfield Flood Risk Solutions ("Ashfield") were commissioned by BCAE Architects on behalf of Brittany and Angus Clayson ("the client") to undertake a Flood Risk Assessment ("FRA"), for 29 Ormskirk Road, Knowsley, Prescot, L34 8HB ("the site"). The site location is illustrated in Figure 1. No site visit was undertaken as part of this commission.

This report has been prepared in support of a planning application for a single-storey rear extension at the site. The existing and proposed plans can be seen within Appendix A and Appendix B for context and will be discussed further in Section 1.3. The details of standard limitations of this report are included within Section 1.5.

Figure 1 - Site Location



1.2 Aim and Objectives

This assessment provides a site-specific appraisal of flood sources, hazards, and mitigation options, aligned with current technical guidance. It follows the National Planning Policy Framework (NPPF) as the core framework for evaluating and managing flood risk. The objectives of this assessment are:

- Assess whether the proposed development is likely to be affected by flooding now and in the future because of Climate Change;
- Provide an assessment of the vulnerability of the proposed development and its suitability in relation to the identified flood risk, in accordance with the National Planning Policy Framework (NPPF) and local authority guidance;
- Provide an opinion of the likely impacts of the development on flooding elsewhere; and,

- Where required, present flood mitigation measures necessary to keep the proposed development and occupants safe.

1.3 Development Proposals

As shown in Appendix B, the proposed development comprises a single-storey rear extension. The proposed extension will comprise a dining room and bar at the rear of the existing building.

The existing building has a footprint of 175m^2 and the proposed building will have a total footprint of 215m^2. This is an increase of 40m^2.

1.4 Information Sources

To prepare this FRA, the following information sources and general guidance documents have been used:

- National Planning Policy Framework (NPPF), Flood Risk and Coastal Change Planning Practice;
- Existing Site Plan (Drawing No. E001) – BCAE Architects, April 2026;
- Existing Floor Plans (Drawing No. E100) – BCAE Architects, April 2026;
- Proposed Site Plan (Drawing No. PL001) – BCAE Architects, April 2026;
- Proposed Floor Plans (Drawing No. PL100) – BCAE Architects, April 2026;
- Knowsley Metropolitan Borough Council Preliminary Flood Risk Assessment (PFRA) – Knowsley Metropolitan Borough Council, June 2011;
- Metropolitan Borough PFRA Addendum – Metropolitan Borough, December 2017;
- Liverpool City Region Combined Authority Strategic Flood Risk Assessment (SFRA) – JBA Consulting, November 2023;
- Knowsley Metropolitan Borough Council Local Flood Risk Management Strategy (LFRMS) – Knowsley Metropolitan Borough Council, October 2017;
- 1m resolution LiDAR data – downloaded online May 2026;
- Environment Agency interactive flood maps – accessed online May 2026; and,
- British Geological Survey (BGS) Drift & Geology Maps – accessed online May 2026.

1.5 Report Limitations

This assessment of flood risk is based on the latest available open government flood mapping data. The site boundary has been supplied by the client and the assessment of risk is based on this. This report has been prepared with due care and diligence in accordance with industry best practice and guidance. The conclusions are valid only to the extent that the information provided to Ashfield was accurate and complete at time of receipt.

2 Site Overview

2.1 Site Setting

The site is located in the postcode L34 8HB and occupies an area of approximately 0.2 hectares (ha). The site is located in the eastern region of the village of Knowsley. The site comprises a residential dwelling and garden; and is accessed from Ormskirk Road to the east. Surrounding land uses are summarised in Table 1.

Table 1 - Surrounding land uses

North	Residential properties
South	
West	
East	Ormskirk Road and agricultural land

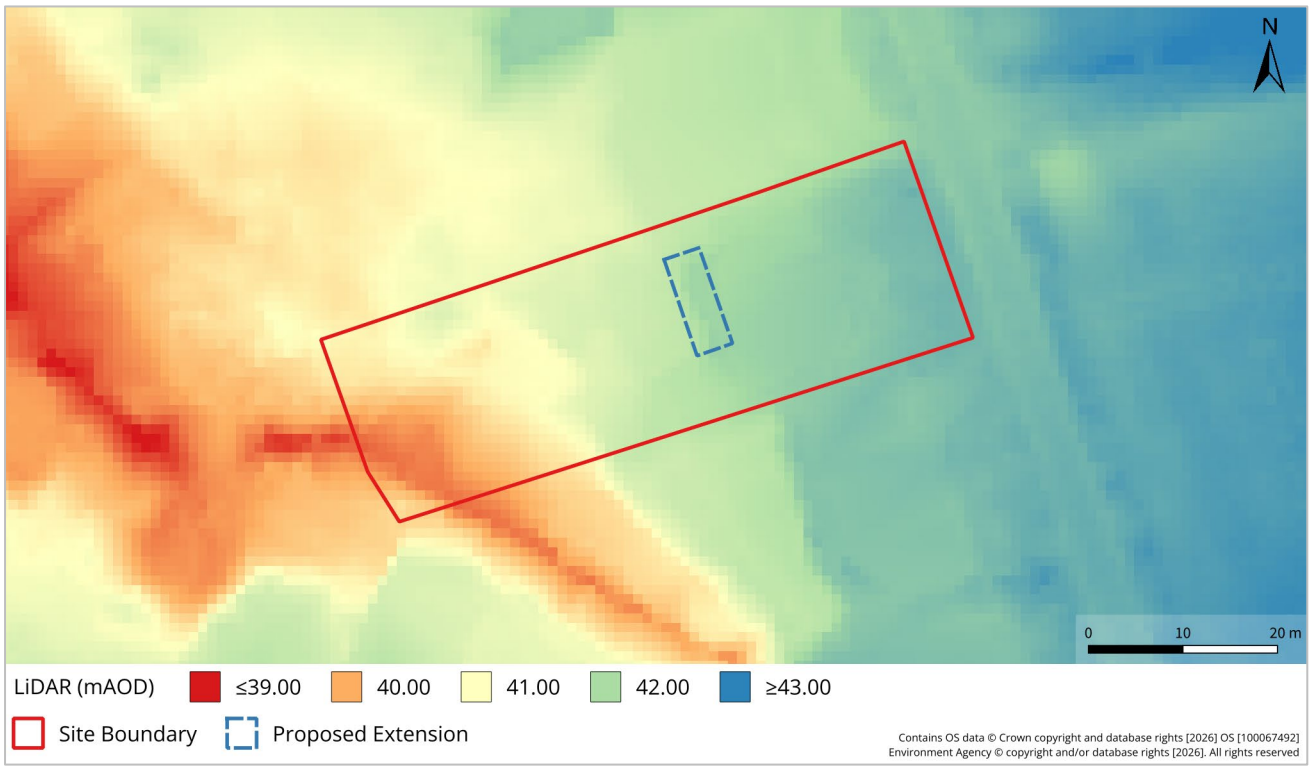
2.2 Site Topography

1m resolution Light Detection and Ranging (LiDAR) data has been downloaded for the site and local area. A visual illustration of the LiDAR is presented in Figure 2.

The LiDAR data indicates that ground levels within the site generally slope down from the east towards the west. The greatest ground level (42.49mAOD) is located in the north-east corner of the site, within the grassed area of the driveway. The lowest ground level (39.50mAOD) is located along the western boundary of the site, to the north of an unnamed river located in the south-west region of the site (discussed further in Section 2.3). This is a difference in ground levels of 2.99m across the site.

The client confirmed that the Finished Floor Level (FFL) of the proposed extension will be 0.4m above the existing external ground level, which will match the FFL of the existing building. The lowest LiDAR derived ground level within the location of the proposed development shown to be at risk of fluvial flooding (discussed further in Section 4.2 of this report) is 41.72mAOD. The FFL is therefore assumed to be 42.12mAOD. The FFL of the proposed extension will be considered further in Section 5 of this report.

Figure 2 - LiDAR Derived Ground Levels



2.3 Local Hydrology

The nearest Environment Agency (EA) designated Main River to the site is an unnamed tributary of the Croxteth Brook, located within the south-west region of the site. This flows towards the south-west before its confluence with the Croxteth Brook approximately 1.6km to the south-west of the site.

There are no ordinary watercourses located within 250m of the site. Local hydrological features are illustrated in Figure 3 for reference.

The proposed development is located 7.5km to the north of the tidal extent of the Mill Brook.

The site is located within the Alt and Crossens Management Catchment, which is located within the North West River Basin District.

Figure 3 - Local Hydrology

2.4 Local Drainage

At the time of writing, no drainage plans had been made available to Ashfield for review. It is likely that the existing site is served by separate below ground surface water and foul water drainage systems, which connect to the public sewers in Ormskirk Road to the east. The client informed Ashfield that the proposed development will utilise the existing drainage.

3 Past Flooding

3.1 National Records

The EA Recorded Flood Outlines dataset is a compilation of historical flood events that have occurred across England over the past century. Figure 4 indicates that the site is not located within any outlines from this dataset.

The nearest recorded flood outline is located approximately 5.3km north-east of the site. Flooding occurred at this location in June 2000, attributed to an obstruction/blockage along the Reeds Brook.

Figure 4 - EA Recorded Flood Outlines

3.2 Local Authority and Strategic Flood Information

Table 2 - Information sources used

Information Source	On Site	Within 250m
PFRA (2011)	-	-
PFRA Addendum (2017)	-	-
SFRA (2023)	-	-
Local Flood Risk Management Strategy (2017)	-	-

Upon review of the local authority and strategic flood information (Table 2), there have been no reportable instances of flooding recorded at, or within the vicinity of, the site.

3.3 Additional Information

A news article published in 2004 indicates that surface water flooding occurred along Ormskirk Road in August 2004[1]. Surface water runoff from the Lord Derby's Knowsley estate resulted in flooding of homes along Ormskirk Road. However, there are no reportable incidents of flooding identified at the site during this incident.

Historic Flooding Summary

The EA Recorded Flood Outlines dataset indicates the site is not within a recorded flood outline. The nearest recorded flood outline to site is located approximately 5.3km to the north-east, attributed to an obstruction/blockage along the Reeds Brook. No evidence of flooding at or within close vicinity of the site was found from review of local authority and strategic flood information. A news article published in 2004 indicates that surface water flooding occurred within the wider area in which the site is located in August 2004; however, there are no reportable incidents of flooding identified at the site during this incident.

[1] https://www.liverpoolecho.co.uk/news/liverpool-news/floods-misery-for-estate-neighbours-3541492

4 Flood Risk Evaluation

The following sections provide an evaluation of the flood risk posed to the site. Consideration is given to the severity of flood risk to the site as a whole, making use of existing flood mapping, local strategic studies and available topographic information.

4.1 Tidal Flood Risk

Tidal flood risk affects coastlines, estuaries, and tidal rivers, often during high tides or heavy rain. These floods can cover low-lying land or overwhelm defences. As discussed in Section 2.3, the site is located approximately 7.5km north of the tidal extent of the Mill Brook.

> **Tidal Risk Summary**
>
> In summary, the overall risk to the site from tidal flooding is Negligible. No further consideration is deemed necessary as part of this report.

4.2 Fluvial Flood Risk

Fluvial flood risk comes from rivers and streams when they overflow, usually after heavy rain or long periods of wet weather. As discussed in Section 2.3, the nearest Main River to the site is an unnamed tributary of the Croxteth Brook, located within the south-west region of the site.

Flood Defences

The nearest flood defences to the site are located within the south-west region of the site. This is identified to comprise natural high ground, that has a Standard of Protection (SoP) up to a 1 in 50 year flooding event.

Hazard Assessment – Present Day

This section considers the Risk of Flooding from Rivers and Sea (RoFRS) dataset. This is a probabilistic national dataset that shows the likelihood of flooding at a property or location. It combines national-scale models, local model outputs (where available), and flood defence information. Crucially, it doesn't just assume defences always work — it considers their Standard of Protection and their condition. Assets in poorer condition have a higher probability of failure, which is captured using fragility curves (showing how likely a defence is to fail under certain water levels). The result is a risk category (very low, low, medium, high).

The Risk of Flooding from Rivers and Sea (RoFRS) mapping (Figure 5) indicates there is a low (≥0.1% - <1%) annual probability of internal flooding from fluvial sources at the proposed development. This is shown to encroach upon the northern elevation of the proposed development only. The rest of the proposed development is not located within an area at risk of flooding from fluvial sources. Figure 6 provides further indication of the annual probability of specific depths.

Figure 5 - RoFRS Present Day

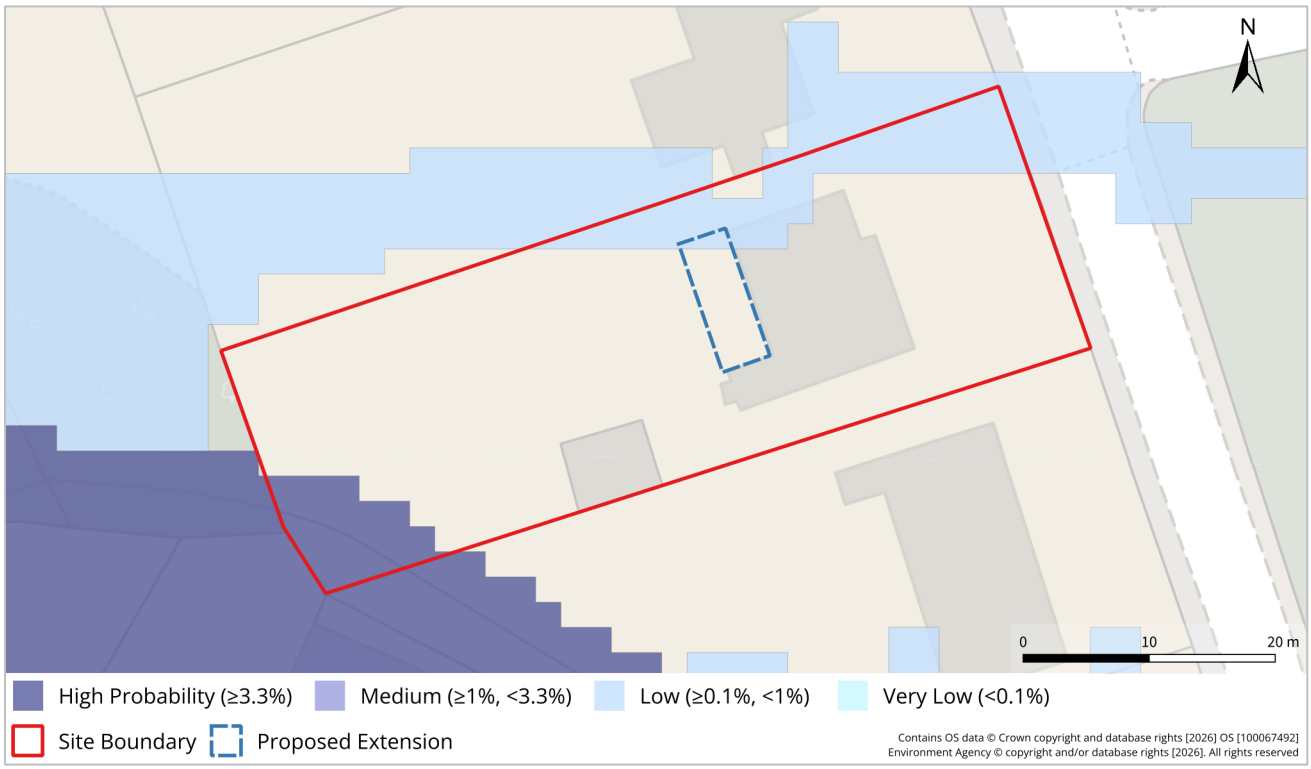
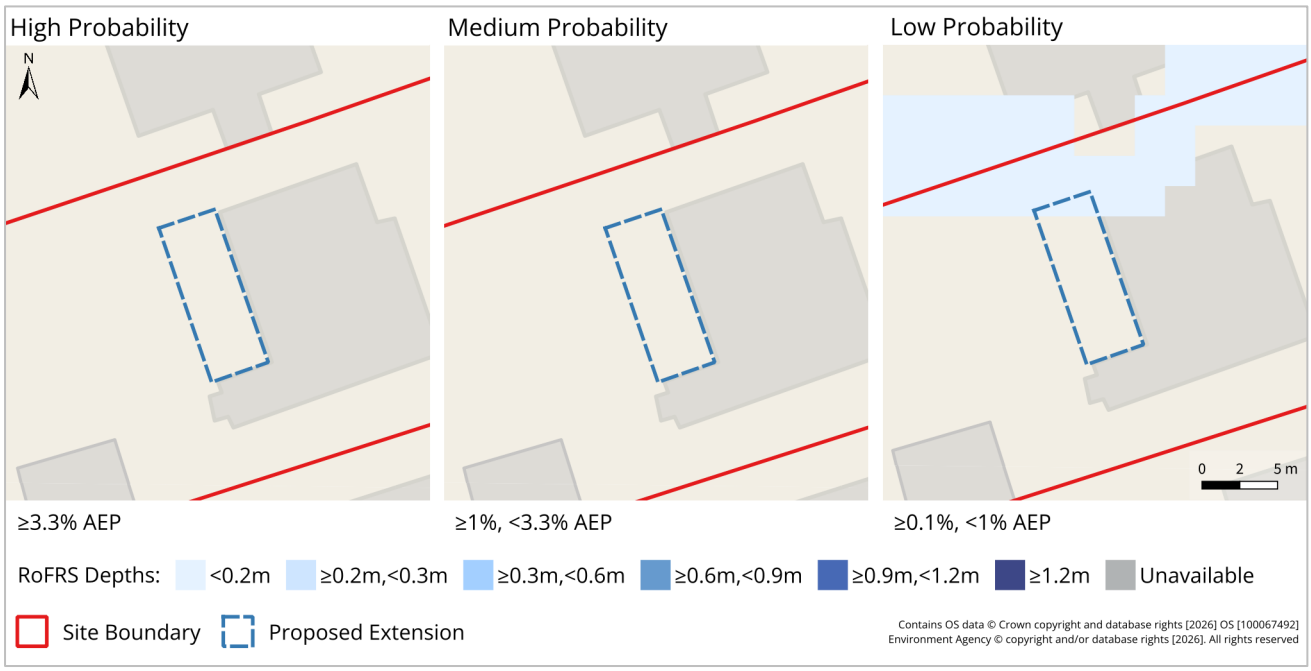


Figure 6 - Annual probability of flooding to specific depths in the present day



The maximum fluvial flood depth is projected to be less than 0.2m during a low probability scenario, affecting the northern elevation of the proposed development only. This is also the most likely flood impact.

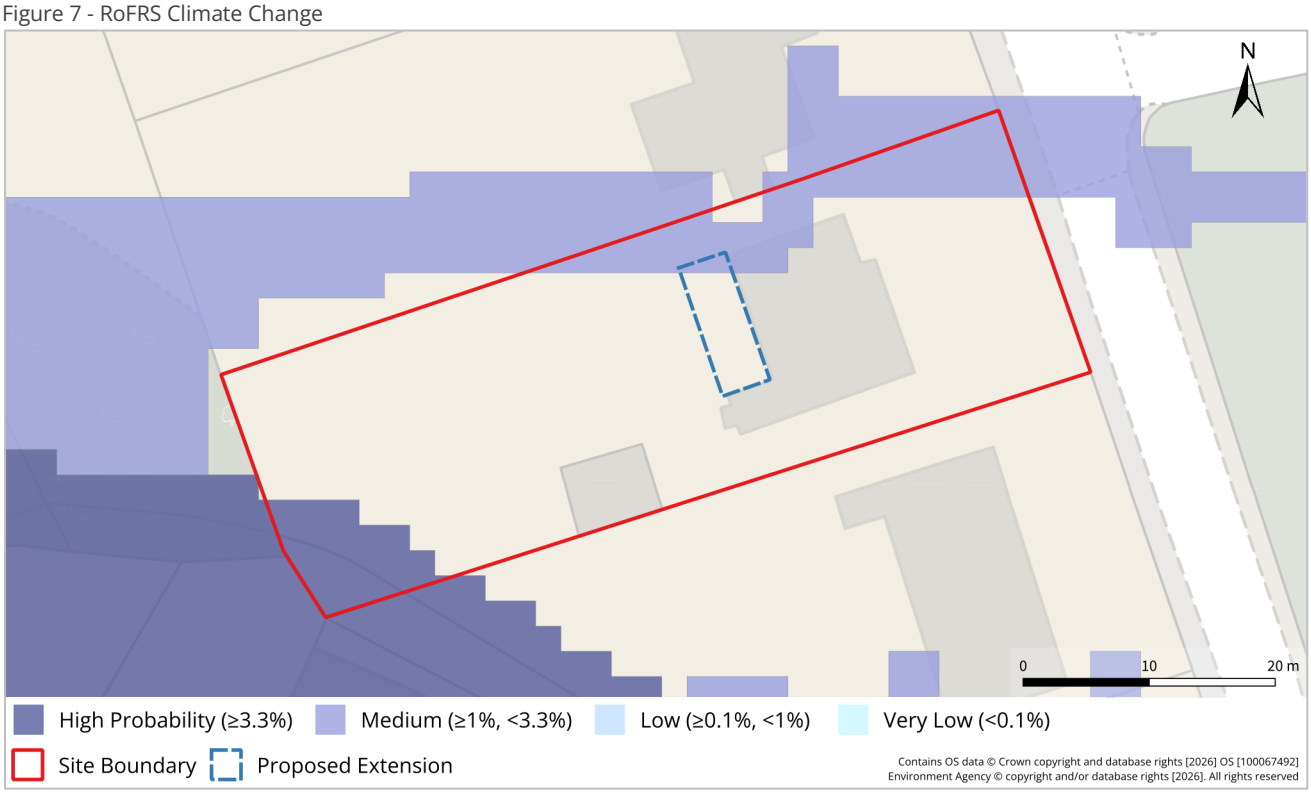
Hazard Assessment – Future

This section considers the potential impacts of climate change on fluvial flood risk. The projected flood depths are based on the latest UK Climate Projections (UKCP18) from the Met Office, using a high greenhouse gas emissions

pathway (RCP 8.5). The scenarios applied here are centred on the 2050s epoch and use allowances that account for increased river flows and, where relevant, higher sea levels[2].

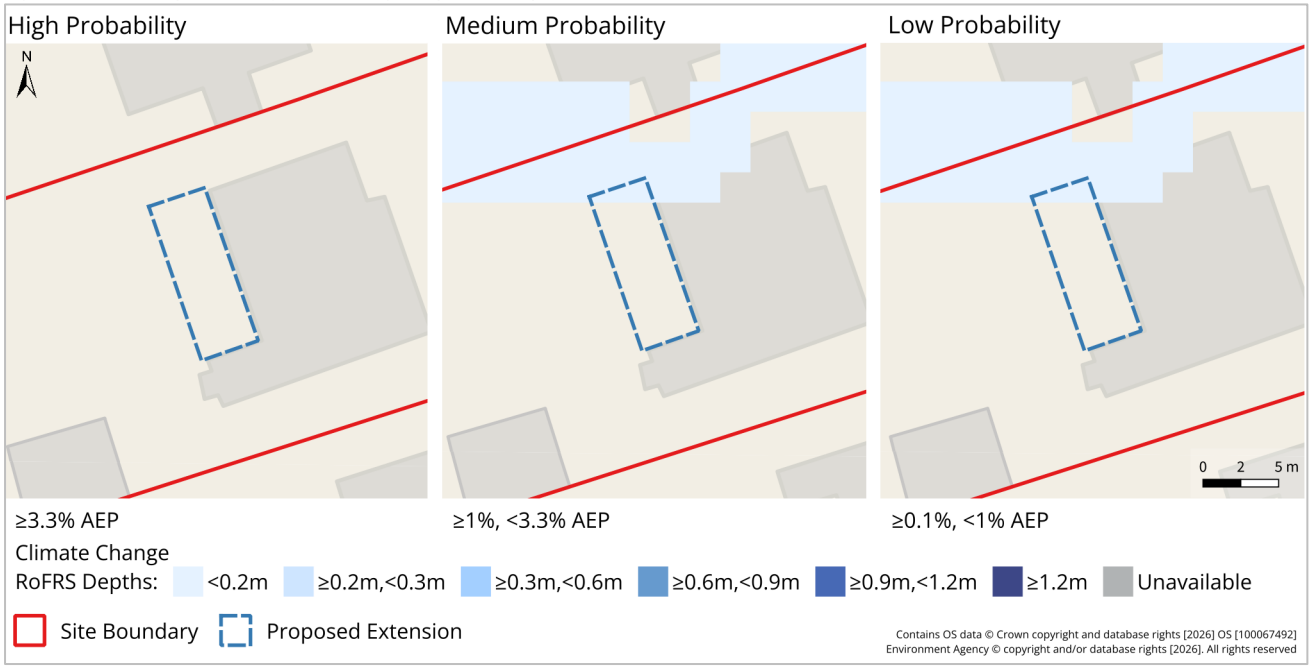
The RoFRS climate change mapping (Figure 7) indicates there is a medium (≥1% - <3.3%) annual probability of internal flooding from fluvial sources in the future at the proposed development. This is shown to encroach upon the northern elevation of the proposed development only. The rest of the proposed development is not located within an area at risk of flooding from fluvial sources in the future. Figure 8 provides further indication of the annual probability of specific depths.

Figure 7 - RoFRS Climate Change



[2] Central allowance for fluvial flows (2040–2069, '2050s epoch') and higher central allowance for coastal flooding (2036–2065)

Figure 8 - Annual probability of flooding to specific depths in the future



The maximum fluvial flood depth is projected to be less than 0.2m during a medium probability scenario in the future, affecting the northern elevation of the proposed development only. This is also the most likely flood impact.

Enhanced Flood Model Data

Flood model data was requested from the EA to inform this report; however, at the time of writing, a response was yet to be received. Once a response has been received, Ashfield will update this report accordingly.

Fluvial Risk Summary

The EA RoFRS mapping indicates that there is a low annual probability of fluvial flooding at the proposed development in the present day. However, this is shown to encroach upon the northern elevation of the proposed extension only, to depths of less than 0.2m. When accounting for climate change, there is a medium annual probability of flooding shown to encroach upon the northern elevation of the proposed development to depths of less than 0.2m. There are no reportable incidents of fluvial flooding identified at or within the vicinity of the site. Flood model data was requested from the EA to inform this report; however, at the time of writing, a response was yet to be received. In summary, the overall risk to the site from fluvial flooding is Low in the present day and Low to Moderate when accounting for climate change. Further considerations are made within Section 5 to help mitigate against this identified risk in the long-term.

4.3 Surface Water Flooding

Surface water flooding occurs when local drainage networks are overwhelmed during an extreme rainfall event, causing water to flow over the surface and follow gravity to the lowest point where it often pools. Surface water flood maps rely on simplified modelling, which can misrepresent risk at the scale of a single site. This report adds contextual interpretation to provide a more accurate, site-specific view.

Hazard Assessment – Present Day

The Risk of Flooding from Surface Water (RoFSW) mapping (Figure 9) indicates there is a low (≥0.1% - <1%) annual probability of flooding from surface water shown to encroach upon the eastern elevation of the proposed development. The rest of the proposed development is not shown to be located within an area at risk of surface water flooding. Figure 10 provides further indication of the annual probability of specific depths.

Figure 9 - RoFSW Present Day

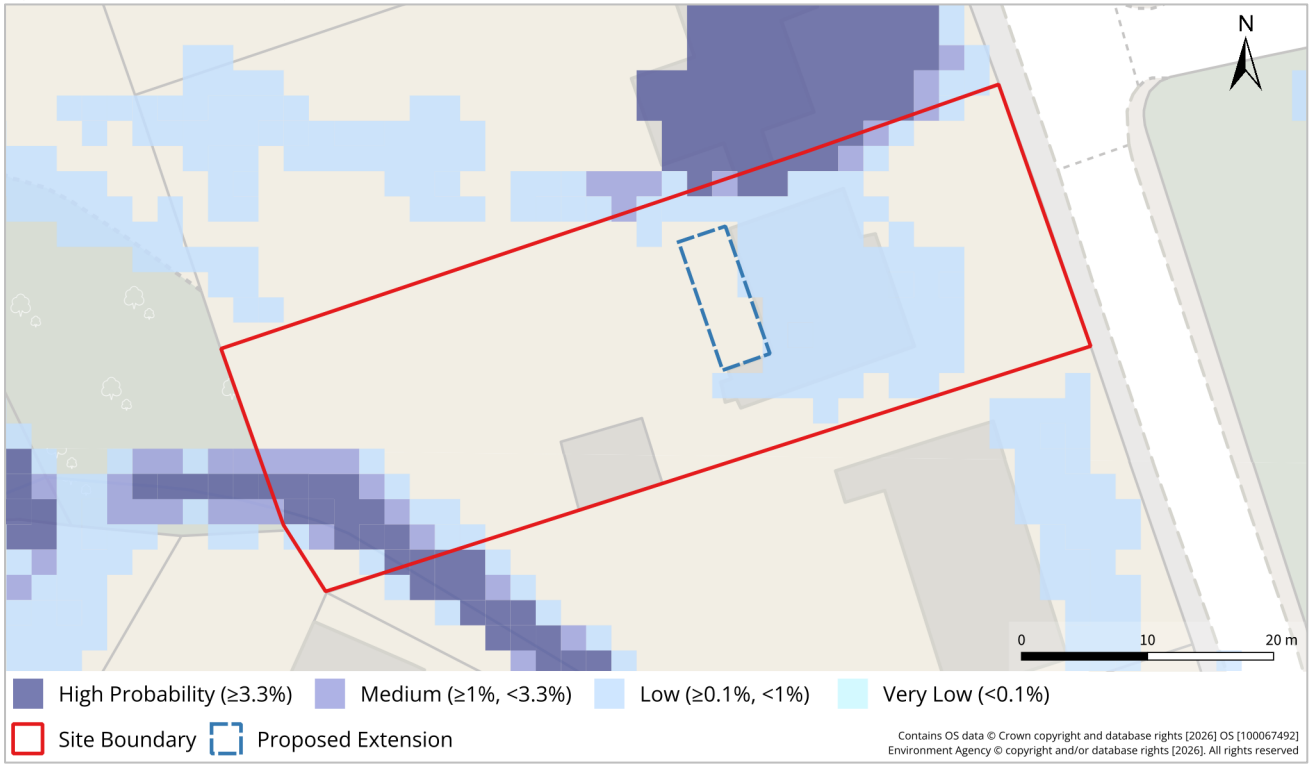
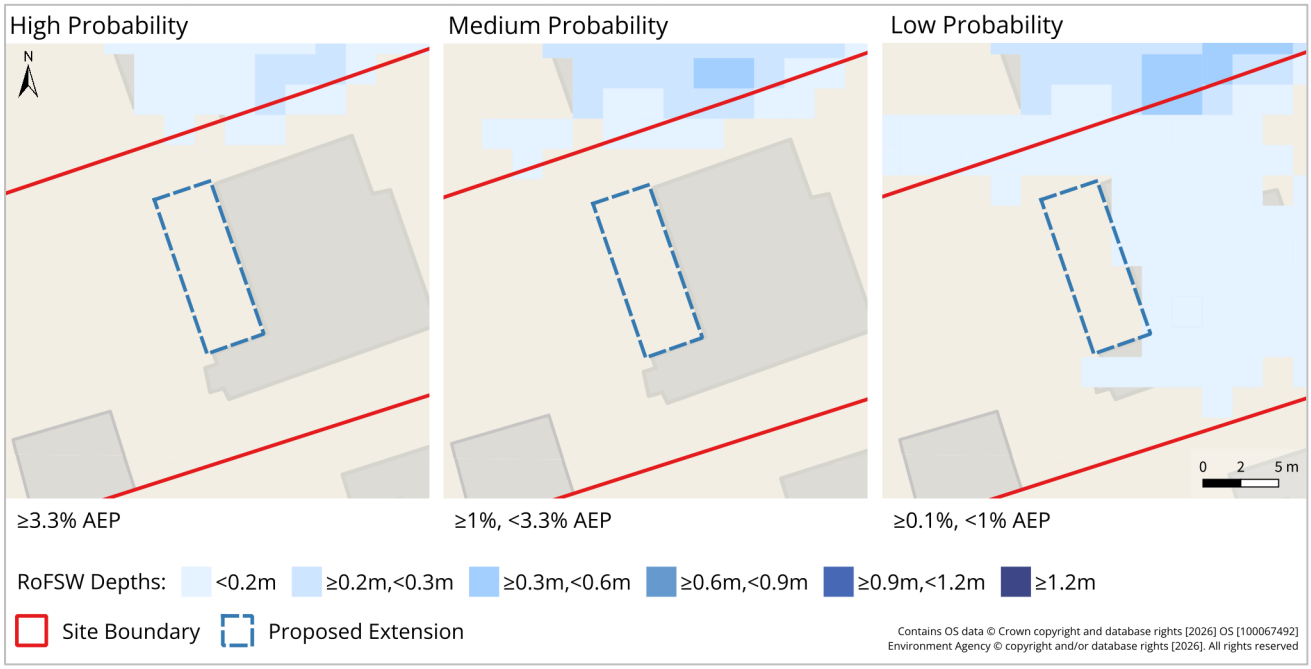


Figure 10 - Annual probability of flooding to specific depths in the present day



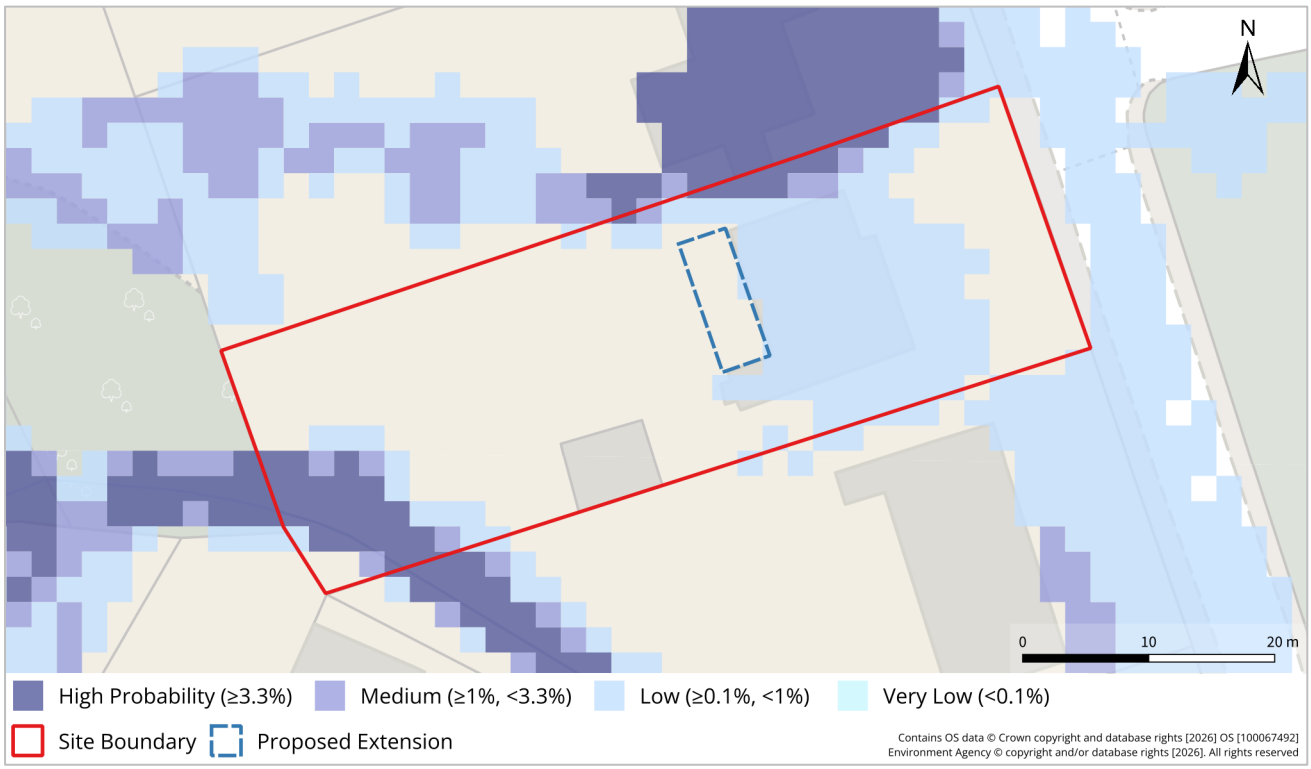
The maximum surface water flood depth is projected to be less than 0.2m during a low probability event, affecting the eastern elevation of the proposed development only. This is also the most likely flood impact.

Hazard Assessment – Future

This section considers the potential impacts of climate change on surface water flood risk. The projected flood depths are based on the latest UK Climate Projections (UKCP18) from the Met Office, using a high greenhouse gas emissions pathway (RCP 8.5). The scenarios applied here are centred on the 2050s epoch and use allowances that account for increased peak rainfall intensity[3].

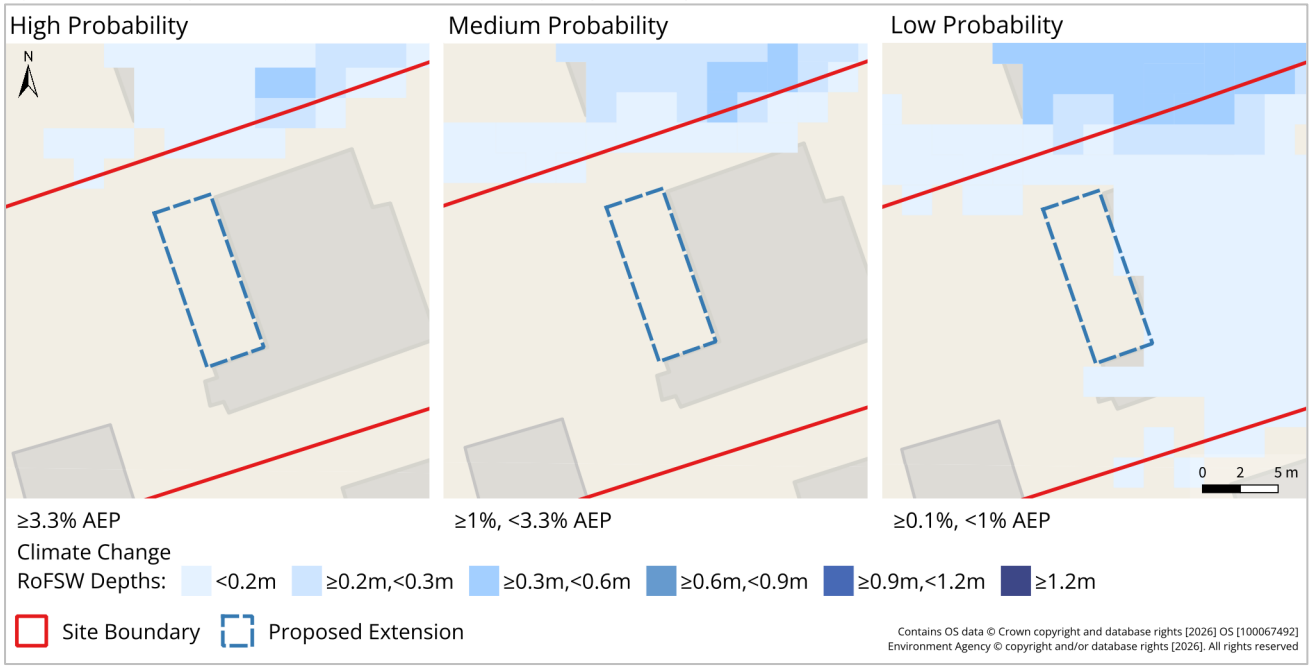
The RoFSW climate change mapping (Figure 11) indicates there is a low (≥0.1% - <1%) annual probability of flooding from surface water in the future shown to encroach upon the eastern elevation of the proposed development only. The rest of the proposed development is not shown to be located within an area at risk of surface water flooding in the future. Figure 12 provides further indication of the annual probability of specific depths.

Figure 11 - RoFSW climate change



[3] Central allowance for the 2050s epoch (2040-2060) for risk of flooding from surface water

Figure 12 - Annual probability of surface water flooding to specific depths in the future



The maximum surface water flood depth is projected to be less than 0.2m during a low probability event in the future, affecting the eastern elevation of the proposed development only. This is also the most likely flood impact.

Surface Water Risk Summary

The EA RoFSW mapping indicates that there is a low annual probability of surface water flooding shown to encroach upon the eastern elevation of the proposed development, to depths of less than 0.2m, in both the present day and when accounting for climate change. The rest of the proposed development is not shown to be located within an area at risk of surface water flooding during the present day and when accounting for climate change. A news article published in 2004 indicates that surface water flooding occurred within the wider area in which the site is located in August 2004; however, there are no reportable incidents of flooding identified at the site during this incident. The overall risk of surface water flooding affecting the site is Low. Further considerations are made within Section 5 in relation to keeping this risk to a low designation in the long-term.

4.4 Groundwater

Flooding from a groundwater source often occurs during or following a period of prolonged wet weather within areas that are low lying underlain by permeable rocks (aquifers). When aquifers are at their maximum holding potential, flooding at surface level can occur from beneath the ground.

Groundwater as a sole flooding mechanism is often regarded as low risk as it often relies on a coinciding rainfall, or flood event from an additional source to become a flood risk. The main contributory factor that will enhance the risk of groundwater flooding, is prolonged periods of high rainfall, which result in the groundwater saturation level rising to the point where it reaches the surface.

Online BGS mapping shows the bedrock geology beneath the site to comprise Chester Formation – Sandstone. This is defined by the EA as a 'Principal' aquifer. These are layers of rock or drift deposits that have high intergranular

and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.

The bedrock is overlain by Till, Devensian – Cobbly gravelly sandy clay. This is defined by the EA as a Secondary (undifferentiated) aquifer. Secondary aquifers include a wide range of rock layers or drift deposits with an equally wide range of water permeability and storage. Secondary aquifers are subdivided into two types: Secondary A and Secondary B. Secondary undifferentiated has been assigned in cases where it has not been possible to attribute either category A or B to a rock type.

The nearest borehole (Ref. SJ49NW569) to the site with the same underling geology containing groundwater information is located approximately 420m north-west of the site location, which has a depth of approximately 8.7m below ground level (bgl). Groundwater was not encountered within the borehole record.

The PFRA (2011), indicates that the site is located within an area which has been identified as being susceptible to groundwater flooding. Susceptibility does not define the likelihood of flooding, but rather the susceptibility of the underlying geology to groundwater fluctuation to ground surface.

Groundwater Summary

The bedrock beneath the site comprises Chester Formation – Sandstone. This is a classified as a 'Principal' aquifer which usually provide a high level of water storage. The bedrock is overlain by Till, Devensian – Cobbly gravelly sandy clay. This is classified as a Secondary (undifferentiated) aquifer. From a review of borehole records within the vicinity of the site, groundwater was not encountered. Furthermore, there are no reportable incidents of groundwater flooding located at or within the vicinity of the site. The overall risk of groundwater flooding affecting the site is Low. No further consideration is deemed necessary as part of this report.

4.5 Artificial Sources

Flood risk from artificial sources would include the failure of man-made drainage or water supply network. Although the likelihood of such an occurrence is highly unpredictable, it is recommended that any proposed designs for the site take into account the location of any existing below ground services, in order to avoid any inadvertent flooding taking place during the construction phase and in the future.

Upon review of the relevant online documents outlined in Section 1.4 of this report, it was indicated that there have been no reportable instances of historic sewer flooding located at or within the vicinity of the site.

Artificial Sources Summary

The overall risk of flooding from artificial sources affecting the site is Low. Further considerations are made within Section 5 in relation to keeping this risk to a low designation in the long-term.

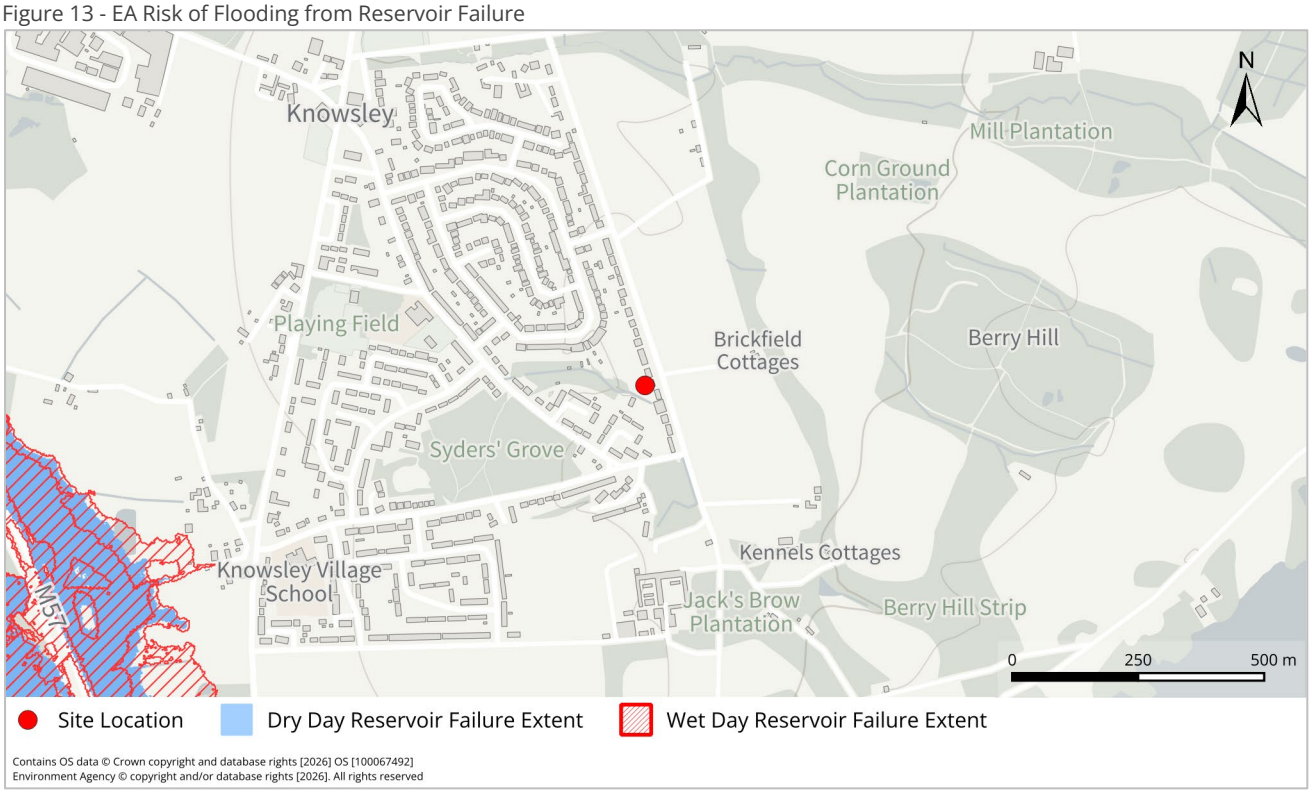
4.6 Reservoir Failure

Assessment of risk of a reservoir failure may be interpreted as the extent of flooding that would occur, should any reservoir that has a capacity larger than 25,000m^3, suffer a catastrophic failure. Mapping of this nature is described by the Environment Agency as a very worst-case scenario, with a flood event of this type being extremely unlikely to occur. The EA Risk of Flooding from Reservoir Failure mapping (Figure 13) is based on two extents:

- **Wet Day (National)** - This data shows the individual flood extents for all large, raised reservoirs in the event that they were to fail and release the water held on a "wet day" when local rivers had already overflowed their banks.
- **Dry Day (National)** - This data shows the individual flood extents for all large, raised reservoirs in the event that they were to fail and release the water held on a "dry day" when local rivers are at normal levels.

The EA Risk of Flooding from Reservoir Failure mapping shows that the site is located outside of both the wet and dry day risk in the reservoir failure extents. The nearest wet day extent is located approximately 893m to the south-west. The nearest dry day extent is located approximately 984m to the south-west.

Figure 13 - EA Risk of Flooding from Reservoir Failure



Reservoir Failure Summary

Current legislation states all reservoirs are inspected regularly and the likelihood of failure occurring is low. The overall risk of flooding from reservoir failure affecting the site is therefore Negligible. No further consideration is deemed necessary as part of this report.

4.7 Summary of Flood Sources

Table 3 provides a summary of the classification of risk to the site from all flood sources and indicates where further considerations are required in the context of the proposed development.

Table 3 - Flood Risk Summary

Flood Source	Overall Risk Classification	Additional Considerations
Tidal	Negligible	None.
Fluvial	Present Day: Low	See Section 5.

Flood Source	Overall Risk Classification	Additional Considerations
	Accounting for Climate Change: Low to Moderate	
Surface Water	Low	See Section 5.
Groundwater	Low	None.
Artificial Sources	Low	See Section 5.
Reservoir Failure	Negligible	None.

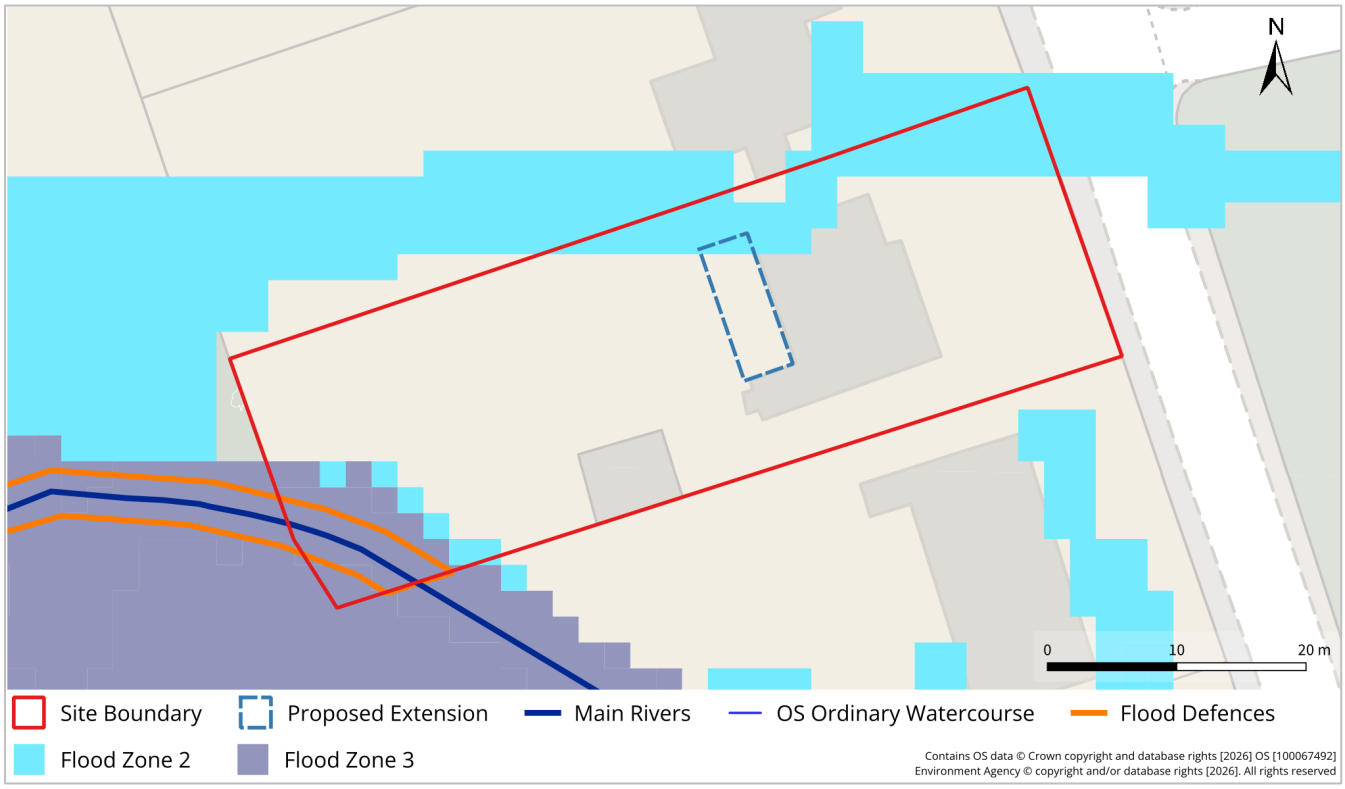
5 Flood Risk in Planning Context

The following sections describe the identified flood hazard in the context of the proposed development and provide recommendations, where required, for the mitigation or reduction of those risks to enable safe development and comply with local and national guidance.

5.1 EA Flood Map for Planning

The EA Flood Map for Planning (FMFP) (Rivers and Sea) divides the floodplain into risk-based categories and provides an indication of flood risk for the site for the purpose of planning. The EA FMFP (Figure 14) indicates that the proposed development is marginally encroached by Flood Zone 2. The majority of the proposed development is located within Flood Zone 1. The Flood Zones for planning shown the 'undefended' scenario, where any flood defences in the locality are not represented within the mapping.

Figure 14 - EA Flood Map for Planning (Rivers and Sea)



This proposed development's location in Flood Zone 1 (<0.1% AEP) and partially Flood Zone 2 (1% - 0.1% AEP) will be discussed further in context of development viability in Section 5.3.

5.2 Local Guidance

The Liverpool City Region Combined Authority SFRA (2023) does include guidance on undertaking FRAs for planning. The SFRA states that a site-specific FRA is required to demonstrate that the development will be safe for its lifetime, without increasing flood risk elsewhere. Section 5 of this FRA outlines how the proposed development meets these requirements.

5.3 Development Viability

The EA classifies different types of development according to their perceived vulnerability to flood risk. The proposed development is understood to comprise a single-storey rear extension.

Based on the EA vulnerability classification system outlined in Annex 3 of the Planning Practice Flood Risk and Coastal Change Guidance, the proposed development would be classed as more vulnerable. Based on the vulnerability classification and the proposed development's location within Flood Zones 1 and 2, this development is deemed appropriate, and the exception test is not required.

5.4 The Design Flood

The Planning Practice Guidance identifies that new developments should be designed to provide adequate flood risk management, mitigation, and resilience against the 'design flood' for their lifetime.

The source of the risk at the development is fluvial and therefore, based on government guidance, the design flood event is the 1% AEP This FRA will therefore consider the 1% AEP event for assessing flood risk to the development and potential mitigation measures. To account for climate change, this assessment also considers climate change allowances for the Alt and Crossens management catchment in line with current EA published regional allowances.

Table 4 identifies the relevant peak river flow allowances from this management catchment.

Table 4 - Peak River Flow Allowances[4]

Allowance Category	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Upper End	31%	56%	95%
Higher Central	21%	33%	58%
Central	16%	25%	44%

The proposed development is located within Flood Zones 1 and 2. The development is classified as more vulnerable and it has an anticipated lifespan (100 years) that falls within the '2080s'. Therefore, in line with the NPPF the central allowance should be considered, equating to an additional 44% on flow volumes atop of the 1% annual probability (1 in 100 year) predicted flood event.

Climate Change Summary

To ensure that the development is designed adequately for its lifetime, an allowance of 44% should be applied to the design flood (1 in 100 year event). Detailed flood model data was requested from the EA to inform this report; however, at the time of writing, a response was yet to be received. Therefore, Section 5.5 considers the EA RoFRS mapping. Once a response has been received, Ashfield will update this report accordingly.

[4] https://environment.data.gov.uk/hydrology/climate-change-allowances/river-flow

5.5 Recommendations

It is recommended that, based on the current design proposals, the following design principles should be incorporated to demonstrate its long-term resilience to flood risk. This follows a hierarchical approach considering finished floor level, external ground levels and Property Flood Resilience (PFR).

Development Levels

This FRA has been informed by government derived LiDAR data, which has informed the levels discussed in Table 5.

Table 5 - Design flood and finished levels

Design Flood Level	41.92mAOD = 1 in 100 year plus climate change depths (0.2m) + external ground levels (41.72mAOD)
Finished Floor Level	The proposed floor level of the extension will be the same as the existing ground floor. This is approximately 42.12mAOD, which provides a 0.2m freeboard above the design flood level. This also provides a 0.2m freeboard above the 0.1% plus climate change flood level. It is not practical to raise floor levels higher than the floor level of the current building; therefore, flood resilience and resistance measures are recommended to a level of 42.22mAOD to provide a total freeboard of 0.3m above the design flood level. This is discussed further below.
External Levels	External levels should be profiled away from the proposed building footprint and towards the nearest drainage point.

Flood Resilience & Resistance

The following recommendations are made to enhance the proposed developments' flood resilience and accelerate recoverability following any localised flooding. The below measures are recommended to a level of 42.22mAOD. This is 0.1m above the FFL of the proposed extension to provide an overall freeboard of 0.3m above the design flood level.

- Use of flood resilient flooring (tiled or treated hardwood) where design allows;
- Use of flood resilient wall finish internally where the design allows, using lime plaster as opposed to standard, or the use of horizontal plasterboard installation as opposed to vertical;
- Elevating electrical sockets above 42.22mAOD;
- Fit Non-Return Values (NRVs) on all foul drainage outlets;
- Sealing all duct and cable entry points up to 42.22mAOD with waterproof sealant; and,
- Use of anti-flood self-closing airbricks where airbricks are required in construction.

It is recommended that the overall construction methods below ground, as well as immediately above ground level, should consider the potential for localised surface water accumulation. The type of design assurances would include less permeable building materials such as Class A engineering brick up to a level of 42.22mAOD and the most appropriate damp proof membrane.

5.6 Impact on Flooding Elsewhere

The small building footprint increase (40m^2) as a result of the development proposals is considered to have an overall negligible impact on off-site fluvial flood risk when considering the wider area in which the site is located.

The proposed extension is at the rear of the property. This area is currently impermeable; therefore, there will be no increase in hardstanding area as a result of the proposed extension and as such, no increase in surface water runoff. Furthermore, surface water will utilise the current drainage connectivity.

5.7 Safe Access and Egress

The site is an existing dwelling and as such there will be no additional people at risk or change in the vulnerability of the dwelling as a result of the extension being constructed. The majority of the access road heading northerly (Ormskirk Road) is located outside of an area projected to be at risk of fluvial flooding and surface water flooding at the design flood event. There is a small area of the road projected to be at risk of fluvial flooding during the design flood event; however, depths are shown to be less than 0.2m. Therefore, safe access and egress is achievable to the north via Ormskirk Road.

6 Conclusion

The site has been assessed for flood risk from a variety of flood sources. The risk of flooding from fluvial sources at the proposed development is Low at the present day and Low to Moderate when accounting for climate change. The risk of flooding from surface water, groundwater and artificial sources is Low, with flood risk from tidal sources and reservoir failure deemed Negligible. A Flood Risk Assessment to be used in a planning application for a development such as this, is required to comply with the defined EA standing advice.

Based on the EA vulnerability classification system, the proposed development would be classed as more vulnerable. Based on the vulnerability classification and proposed development's location within Flood Zones 1 and 2, this development is deemed appropriate, and the exception test is not required.

The FFL of the proposed extension will be approximately 42.12mAOD, which will match the existing building. This provides a 0.2m freeboard above the 1 in 100 year plus climate change fluvial flood event. It is not practical to raise floor levels higher than the floor level of the current building; therefore, flood resilience and resistance measures are recommended to a level of 42.22mAOD to provide a total freeboard of 0.3m above the design flood level. Such measures include the use of flood resilient construction materials, flooring and wall finish, elevating electrical sockets, fitting NRVs, sealing all duct and cable entry points and the use of anti-flood airbricks where required.

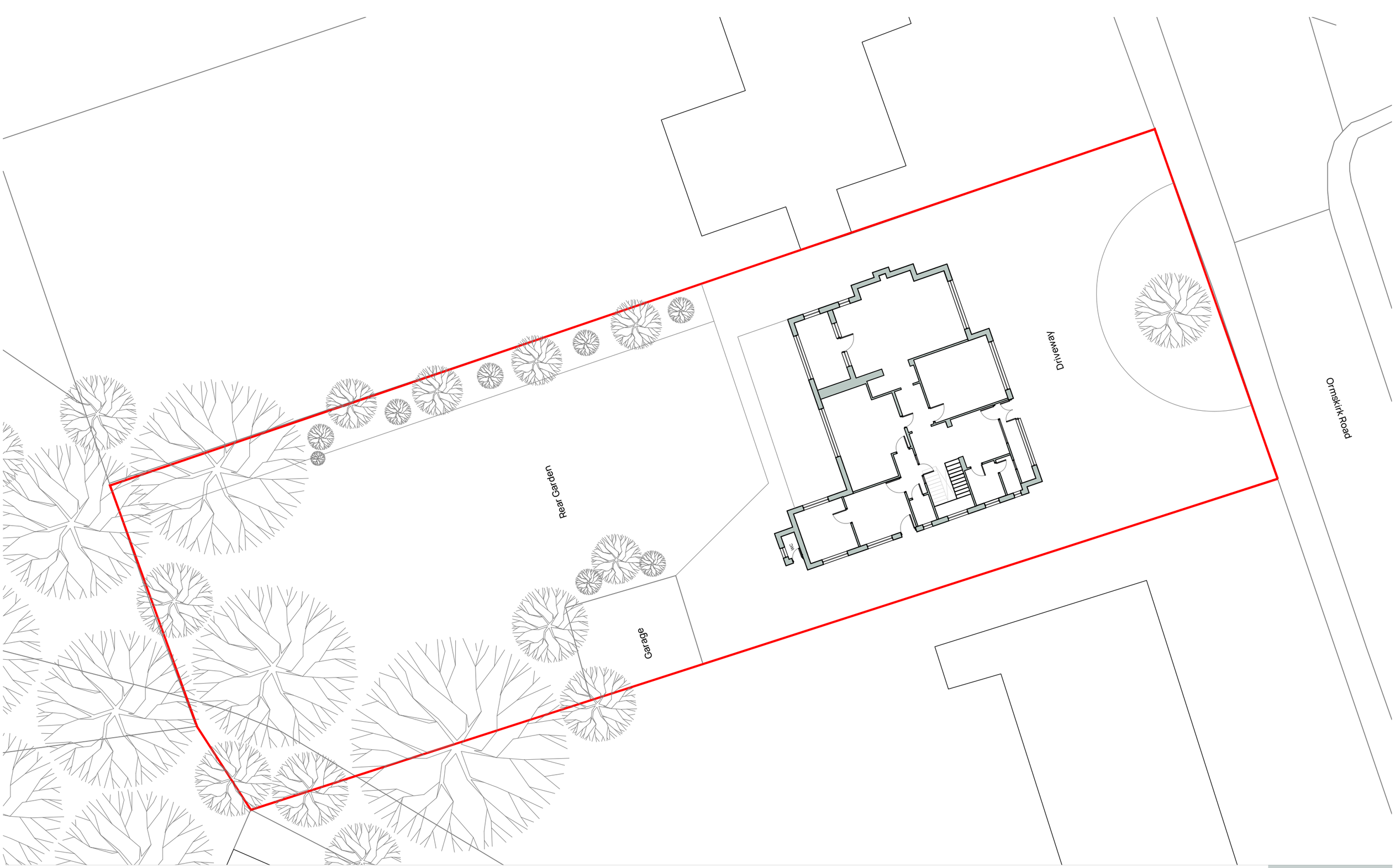
These recommendations seek to negate any outstanding flood risk in line with Communities and Local Government Guidance.

This report therefore demonstrates that the proposed development at the site:

- Is suitable in the location proposed and will be adequately flood resistant and resilient;
- Is unlikely to place additional persons at risk of flooding, and will offer a safe means of access and egress; and,
- Is unlikely to increase flood risk elsewhere as a result of the proposed development through the loss of floodplain storage, impedance of flood flows or increase in surface water runoff.

Appendices

Appendix A
Existing Plans



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revisions:

rev	date	checked by	issued by	notes
A	21/04/26	AE	JE	Planning Comments

project north:

N

key:

Application Boundary

scale bar:

0 2m 4m 10m 20m

client: Angus Clayson

project: 29 Ormskirk Road

stage: Existing

revision: A

title: Existing Site Plan

drawn by: JE

approved by: AE

date: April 2026

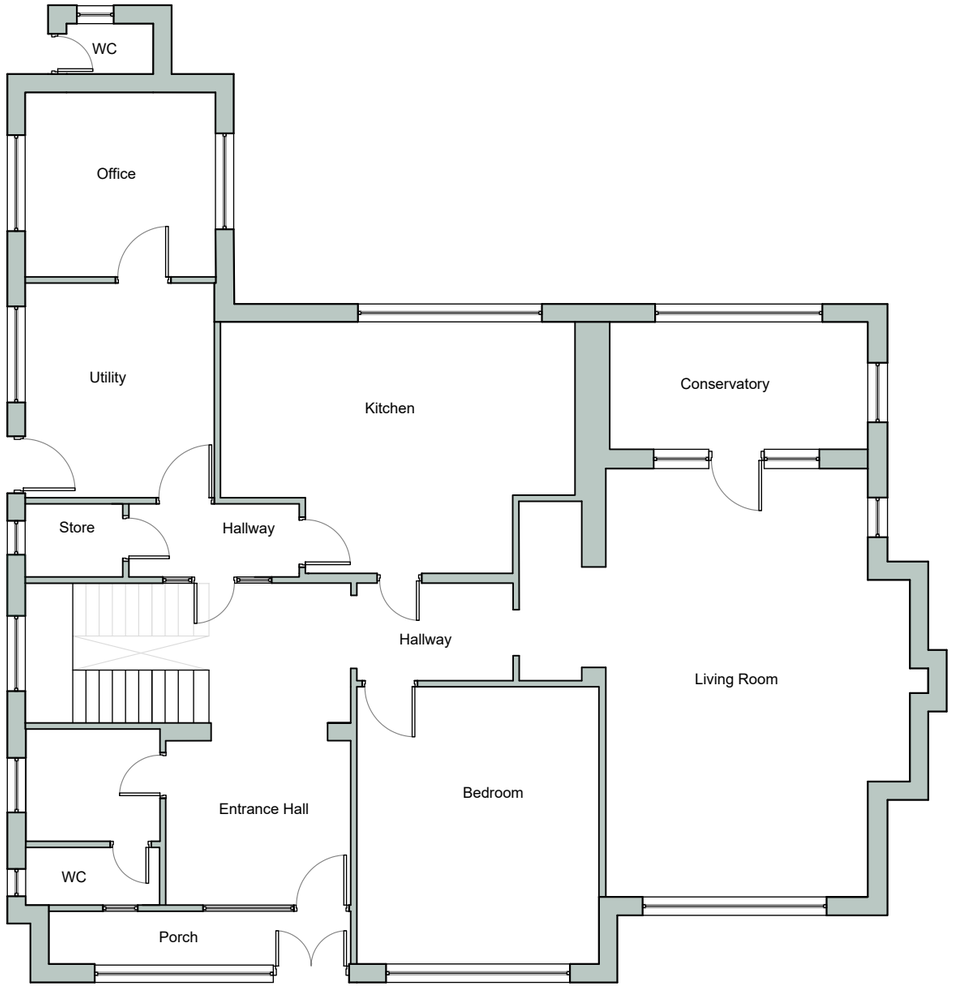
job no: 171.25

scale: 1:200@A3

drawing no.

EXISTING
E001

RIBA | arb



Existing Ground Floor Plan

Scale 1:100@A3

Existing First Floor Plan

Scale 1:100@A3

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revisions:

rev	date	checked by	issued by	notes
A	21/04/26	AE	JE	Planning Comments

project north:

N

scale bar:

0 1m 2m 5m 10m

client: Angus Clayson

project: 29 Ormskirk Road

stage: Existing

revision: A

title: Existing Floor Plans

drawn by: JE

approved by: AE

date: April 2026

job no: 171.25

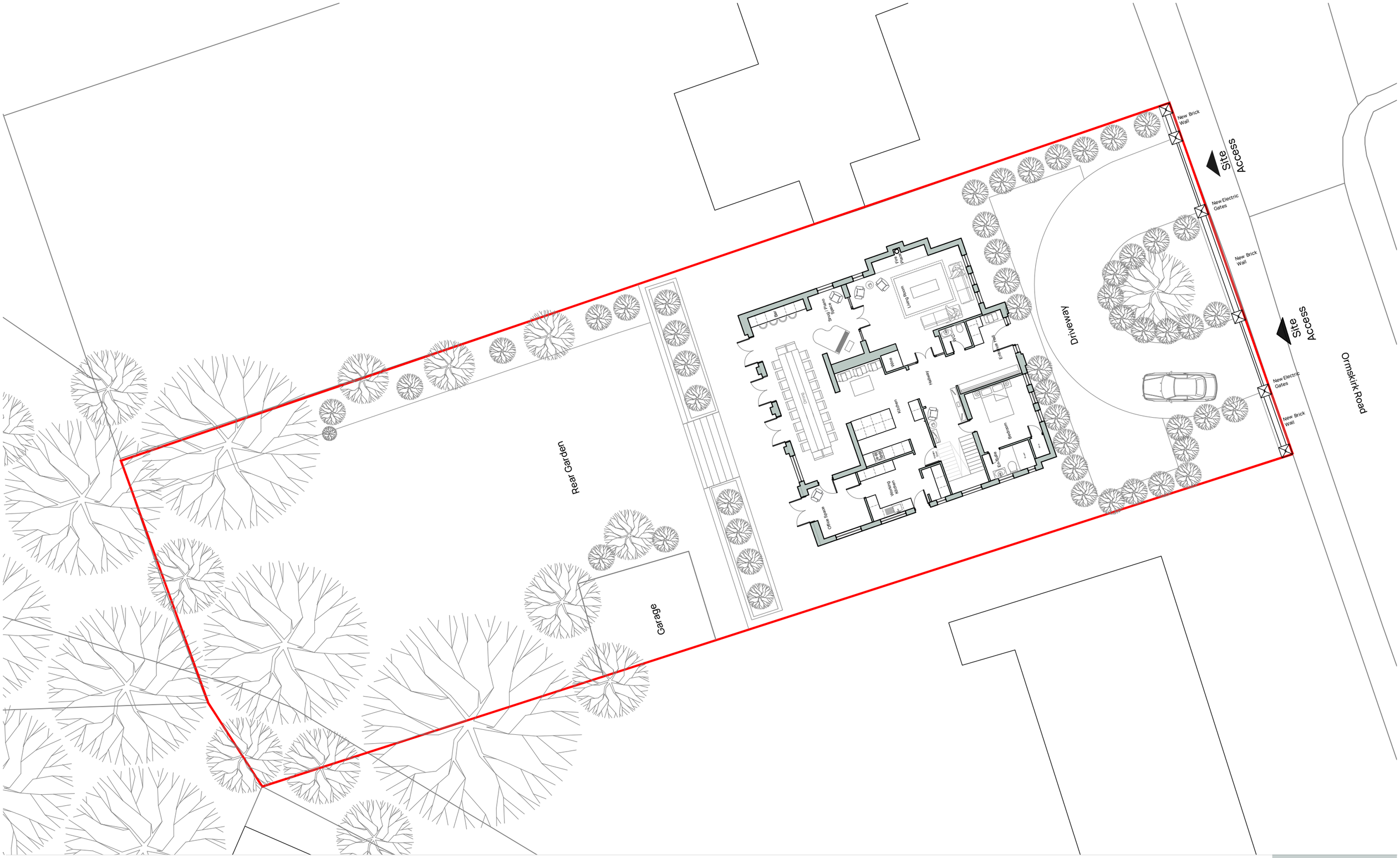
scale: 1:100@A3

drawing no.

EXISTING
E100

RIBA | arb

Appendix B
Proposed Plans



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revisions:

rev	date	checked by	issued by	notes
A	21/04/26	AE	JE	Planning Comments

project north:

N

key:

Application Boundary

scale bar:

0 2m 4m 10m 20m

client: Angus Clayson

project: 29 Ormskirk Road

stage: Planning

revision: A

title: Proposed Site Plan

drawn by: JE

approved by: AE

date: April 2026

job no: 171.25

scale: 1:200@A3

drawing no.

PRELIMINARY

PL001

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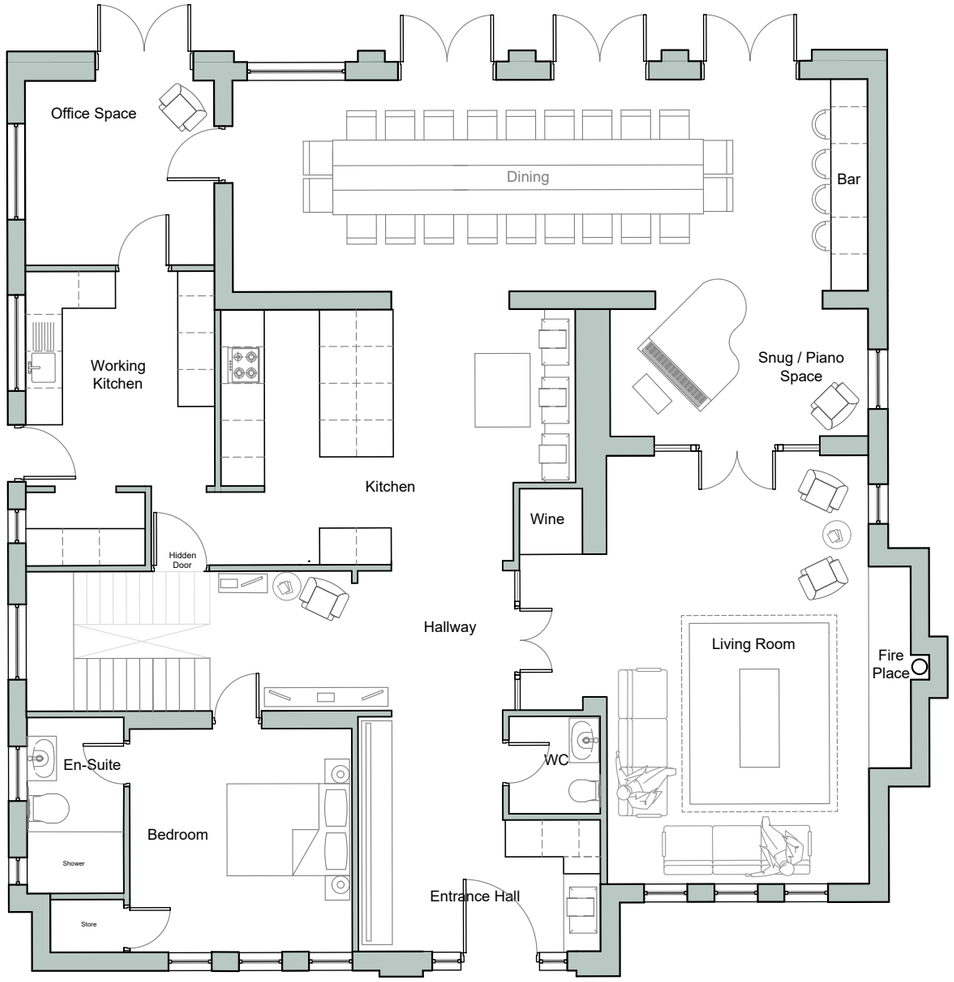
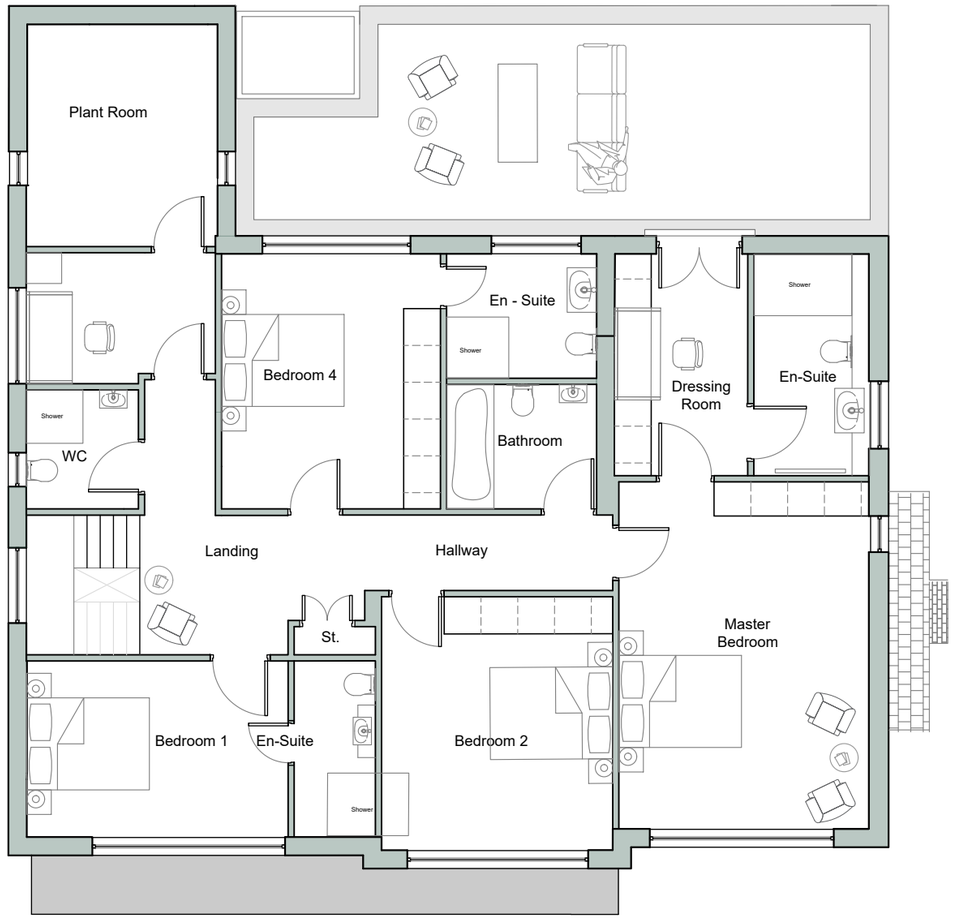


Proposed Ground Floor Plan

Scale 1:100@A3



Proposed First Floor Plan

Scale 1:100@A3

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rev	date	checked by	issued by	notes
A	21/04/26	AE	JE	Planning Comments

project north:

N

scale bar:

0 1m 2m 5m 10m

client: Angus Clayson

project: 29 Ormskirk Road

stage: Planning

revision: A

title: Proposed Floor Plans

drawn by: JE

approved by: AE

date: April 2026

job no: 171.25

scale: 1:100@A3

drawing no.

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