



Flood Risk Assessment for Planning

May 2024

Our reference:

94322-Wales-DnnsonAv

Prepared for:

NW Design & Build Ltd

Location:

25 Dennison Avenue
Manchester
M20 1AE



Document Issue Record

Project: Flood Risk Assessment for Planning
Client: NW Design & Build Ltd
Application: Erection of outbuilding to provide garden annexe
Location: 25 Dennison Avenue Manchester M20 1AE
Our reference: 94322-Wales-DnnsonAv
Version: v1.0 160524

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1. Key Facts

1.1 Flood Risk Posed:

- EA Flood Zone 2 (Medium).
- The risk would appear to be predominantly fluvial and originate from both the Chorlton Platt Gorse which is located 550m to the north west of the site and the Cringle Black Brook which is within a culvert at its closest point to the site, 137m to the north of the site.
- The Environment Agency has provided modelled flood data from the Cringle Brook 2017 model.
- Comparison of the undefended 1:100 year of 31.85m AOD and 1:100 year plus allowance for climate change (70%) of 31.85m AOD with topographic site levels in the area of the proposed garden annexe (34.12m AOD to 34.18m AOD) indicates that the area is above these flood levels and therefore flood free during these events.
- The site is not located within a functional floodplain and there are no Flood Storage Areas located in close proximity to the site.
- No EA formal flood defences in the area.
- The EA have no records of historical flooding having affected the site.
- The EA Risk of Flooding from Surface Water Map suggests that the site lies in an area of "Low" to "Medium" risk from surface water, while the area of the proposed garden annexe is at "Very Low" risk from surface water flooding.
- Risk of reservoir, groundwater and sewer surcharge flooding would appear to be low.

1.2 Flood Risk Mitigation:

- The proposed application is for the erection of outbuilding to provide garden annexe – minor residential extension.
- No additional residential units will be created as part of the development - the annex will remain part of the main property (extension of the existing property), and will not be able to be sold or rented as a separate dwelling for the lifetime of the development.
- The additional footprint created by the development will not exceed 250m².
- The development is considered to fit within the EA Standing Advice for vulnerable developments in Flood Zone 2.
- In order to meet the EA Standing Advice, given the planning constraints at the site – according to the applicant the garden annex cannot be greater than 2.5m in height as it is within 2m of a neighbours boundary therefore the floor levels cannot be raised to meet the minimum requirement therefore extra flood resistance and resilience measures will be included up to 600mm.

- Internal access will be maintained from the ground floor to the property's first floor.
- Flood proofing of the development will be incorporated as appropriate.
- Post development, there will be no unacceptable loss of fluvial floodplain storage.
- The applicant will register with the Environment Agency Floodline Alert/Warnings Direct service.
- Due to the scale of the development, a full Surface Water Drainage Strategy is not required at this stage of planning.

Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

2. Introduction

Unda Consulting Limited have been appointed by NW Design & Build Ltd (hereinafter referred to as “the applicant”) to undertake a Flood Risk Assessment for the proposed development at 25 Dennison Avenue, Manchester M20 1AE (hereinafter referred to as “the site”). The FRA has been undertaken in accordance with the National Planning Policy Framework (NPPF) and the associated technical guidance.

The site appears to be located within Flood Zones 2 as defined by the Environment Agency (EA) on their Flood Map for Planning. Under the National Planning Policy Framework (NPPF), a FRA is required if a proposed development:

- includes building or engineering works in Flood Zone 2 or 3;
- includes building or engineering works on land classified by the Environment Agency as having critical drainage problem;
- changes the use of land or buildings in a location at risk of flooding from rivers or the sea, or with critical drainage problems;
- changes the use of land or buildings in a way that increases the flood vulnerability of the development where it may be subject to other sources of flooding;
- is larger than 1 hectare.

The assessment should demonstrate to the Local Planning Authority (LPA) and EA how flood risk will be managed now and over the development’s lifetime, taking climate change into account, and with regard to the vulnerability of its potential users.

- whether the proposed development is likely to be affected by current or future flooding from any source;
- whether it will increase flood risk elsewhere;
- whether the measures proposed to deal with these effects and risks are appropriate.

3. Existing Situation

3.1 Site Usage:

The site consists of an existing residential dwelling. The site is understood to have lawful planning permission for residential use.

Existing plans are provided in the report Appendix.



Figure 1: Aerial photograph of site and surrounding area (Source: Google Earth)

3.2 Topography:

Environment Agency LiDAR has been used to assess the topography across the site and wider area. Light Detection and Ranging (LIDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground surface. Up to 100,000 measurements per second are made of the ground, allowing highly detailed terrain models to be generated at high spatial resolutions. The EA's LIDAR data archive contains digital elevation data derived from surveys carried out by the EA's specialist remote sensing team. Accurate elevation data is available for over 70% of England. The LiDAR technique records an elevation accurate to $\pm 0.3\text{m}$ every 2m. This dataset is derived from a combination of the full dataset which has been merged and re-sampled to give the best possible coverage. The dataset can be supplied as a Digital Surface Model (DSM) produced from the signal returned to the LIDAR (which includes heights of objects, such as vehicles, buildings and vegetation, as well as the terrain surface) or as a Digital

Terrain Model (DTM) produced by removing objects from the Digital Surface Model. 1.0m horizontal resolution DTM LiDAR data has been used for the purposes of this study.

Topographic levels across the site are shown to vary between approximately 34.00mAOD at the front of the site, and approximately 34.13mAOD at the rear of the site.

The ground topography in the area of the proposed garden annexe is approximately 34.12m AOD to 34.18m AOD.

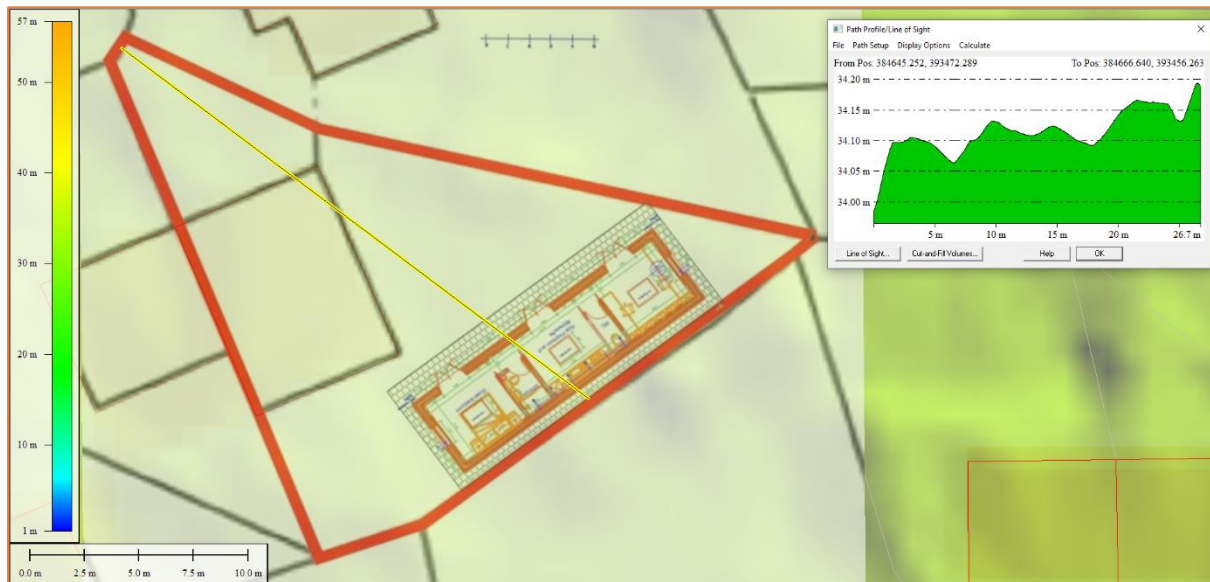


Figure 2: LiDAR DTM showing topographic levels across the site. Transect (inset) runs from northwest to southeast (Source: EA LiDAR, OS Mapping, Planstobuildit)

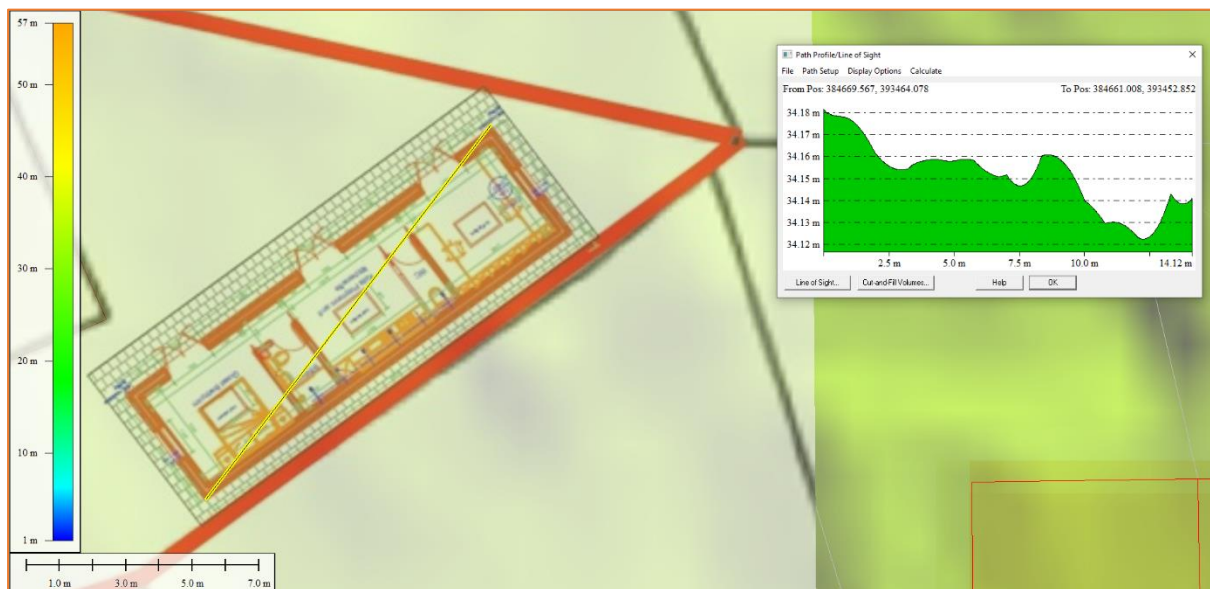


Figure 3: LiDAR DTM showing topographic levels across the area of the proposed garden annexe. Transect (inset) runs from northeast to southwest (Source: EA LiDAR, OS Mapping, Planstobuildit)

3.3 Geology and Soil:

The British Geological Survey (BGS) Map indicates that the bedrock underlying the site is Wilmslow Sandstone Formation - Sandstone. Sedimentary Bedrock formed approximately 247 to 252 million years ago in the Triassic Period.

The British Geological Survey (BGS) Map indicates that the superficial deposits underlying the site is Till, Devensian - Diamicton. Superficial Deposits formed up to 2 million years ago in the Quaternary Period.

The soil type taken from the UK Soil Observatory website is relatively deep soils from Deep Glacial Till soil parent material with a Loam to Clayey Loam soil texture.

4. Development Proposal

The proposed application is for the erection of outbuilding to provide garden annexe – minor residential extension.

The applicant has confirmed that the annex will remain part of the main property (extension of the existing property), and will not be able to be sold or rented as a separate dwelling for the lifetime of the development.

Development plans are provided in the report Appendix.

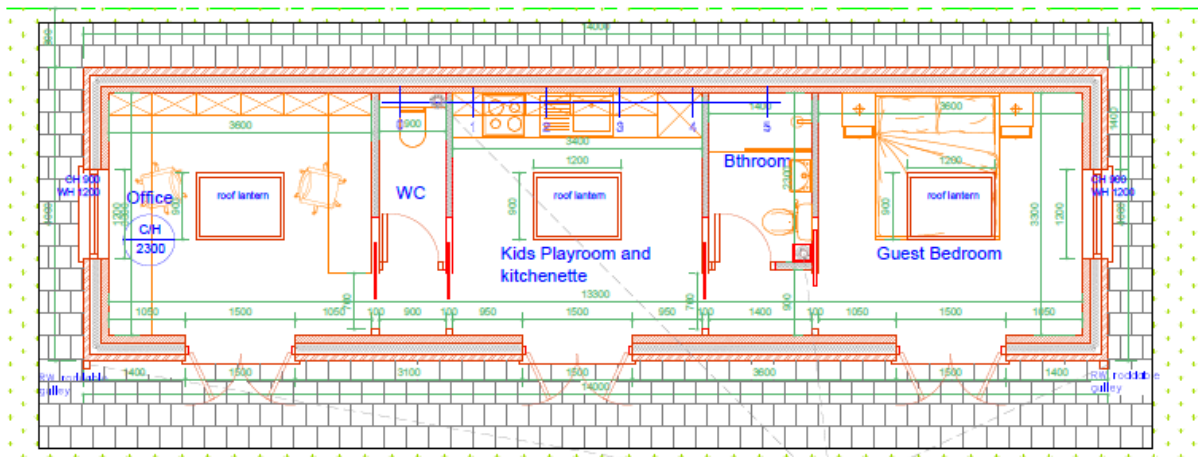


Figure 4: Proposed floor plan (Source: Planstobuildit)

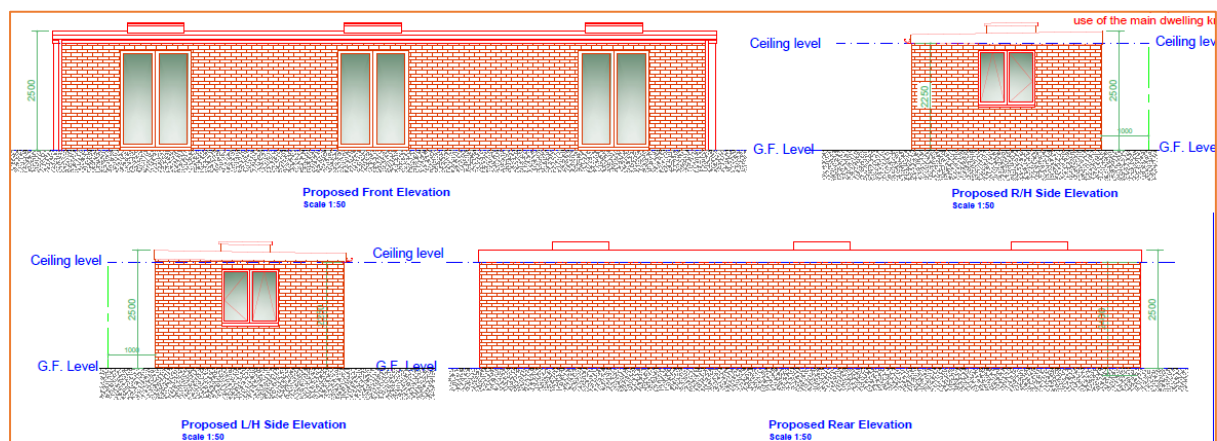


Figure 5: Elevation plans (Source: Planstobuildit)

5. Assessment of Flood Risk

5.1 Flood Zones:

Within planning, Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. They are shown on the Environment Agency's Flood Map for Planning (Rivers and Sea), available on the Environment Agency's website.

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3)
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or Land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	This zone comprises land where water has to flow or be stored in times of flood. 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)

Table 1: Flood Zones

The Flood Zones shown on the Environment Agency's Flood Map for Planning (Rivers and Sea) do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding.

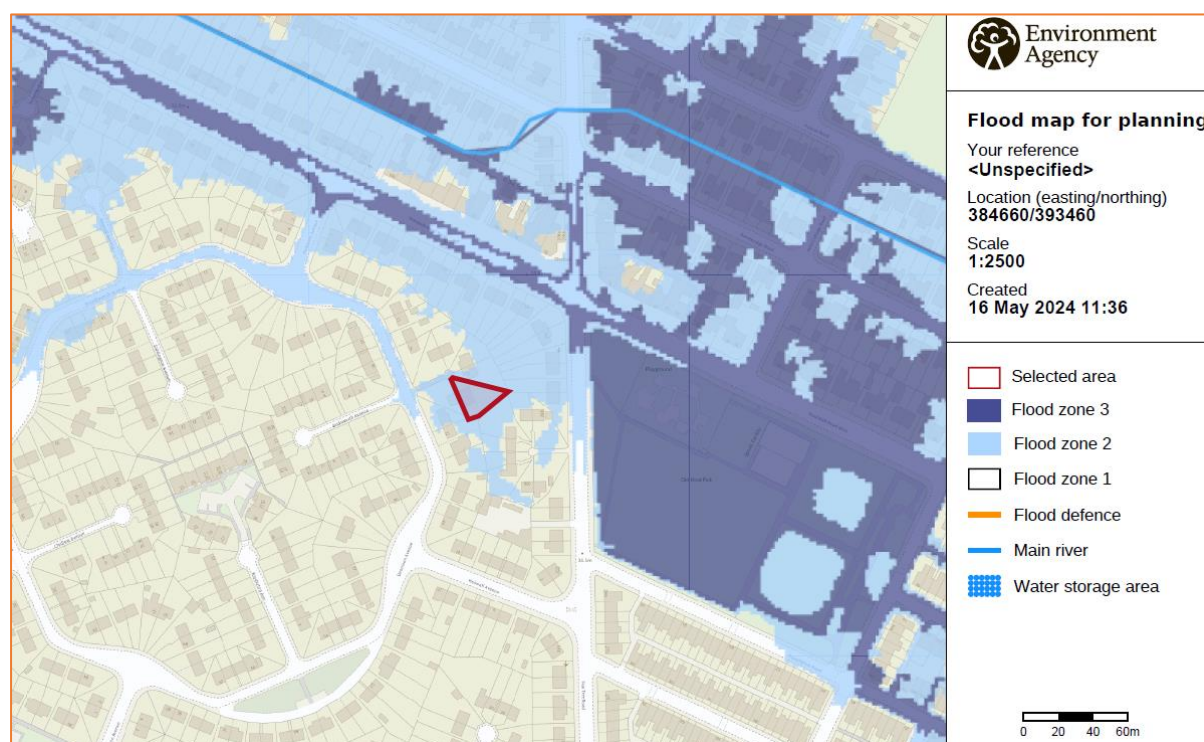


Figure 6: Environment Agency Flood Map for Planning (Rivers and Sea) (Source: EA)

The site is located with Flood Zone 2 (Medium Probability), which means it is defined as land having between a 1 in 100 and 1 in 1,000 annual probability of river and sea flooding

The risk would appear to be predominantly fluvial and originate from both the Chorlton Platt Gorse which is located 550m to the north west of the site and the Cringle Black Brook which is within a culvert at its closest point to the site, 137m to the north of the site.

5.2 Fluvial (Chorlton Platt Gorse / Cringle Black Brook)

The Chorlton Platt Gore is 4.79km in length and covers a catchment area of 11.64km². It is heavily modified along its length and is designated as a Main River by the Environment Agency. It forms part of the Upper Mersey catchment and flows in a westerly direction in an open channel.

5.2.1 Modelled flood levels and extents:

The Environment Agency has provided modelled flood data from the Cringle Brook 2017 model.

The site is shown to be outside the 1:100 year undefended modelled flood extent, but within the 1:1000 year undefended modelled flood extent.

The site is located within Flood Zone 2 and is classified as “more vulnerable”. The Flood Risk Assessments: climate change allowances guidance – updated May 2022, states that the Central climate change allowance should be applied for peak river flow allowances. The site falls within the Upper Mersey Management Catchment, where the Central climate change allowance for the 2080's is a 41% increase in river flows.

Node ea013_0238_CRIN01_0050d is the closest in channel node to the site which is deemed the most appropriate for the assessment. Of importance is the undefended 1:100 year of 31.85m AOD and 1:100 year plus allowance for climate change (70%) of 31.85m AOD.

Comparison of the undefended 1:100 year of 31.85m AOD and 1:100 year plus allowance for climate change (70%) of 31.85m AOD with topographic site levels in the area of the proposed garden annexe (34.12m AOD to 34.18m AOD) indicates that the area is above these flood levels and therefore flood free during these events.

5.2.2 Functional Floodplain:

This zone comprises land where water is required to flow or be stored in times of flood. The functional floodplain designation encompasses land which would flood with an annual probability of 1 in 30 (3.33%) or greater in any year; and includes areas of land required for water conveyance routes.

The site is not located within a functional floodplain.

5.2.3 Flood Storage Areas:

Flood Storage Areas are areas that act as a balancing reservoir, storage basin or balancing pond. Their purpose is to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel. It may also delay the timing of a flood peak so that its volume is discharged over a longer time interval. Flood storage areas do not completely remove the chance of flooding and can be overtopped or fail in extreme weather conditions.

According to Environment Agency data, there are no Flood Storage Areas located in close proximity to the site.

5.2.4 Flood Defences:

Flood defences are typically raised structures that alter natural flow patterns and prevent floodwater from entering property in times of flooding. They are generally categorised as either 'formal' or 'informal' defences. A 'formal' flood defence is a structure that was built specifically for the purpose of flood defence, and is maintained by its respective owner, which could be the Environment Agency, Local Authority, or an individual. An 'informal' flood defence is a structure that has not been specifically built to retain floodwater, and is not maintained for this specific purpose, but may afford some protection against flooding.

Asset inspections are undertaken on average every six months, although some critical assets are assessed on a more regular basis. It is possible that adjacent assets are inspected on different dates, which may result in two assets of a similar state of repair having different condition ratings. It is unclear when both assets were last inspected.

Condition ratings of assets may also be affected by the time of year the surveys are conducted, as vegetation may obscure the asset in the summer months, or accessibility may be an issue during winter months. These factors would not usually affect the recorded condition rating of an asset unless the asset is on a borderline between two ratings.

According to the EA there are no Environment Agency maintained raised defences that defend the site directly.

5.2.5 Residual risk (breach or overtopping of flood defences):

Breaching of flood defences can cause rapid inundation of areas behind flood defences as flow in the river channel discharges through the breach. A breach can occur with little or no warning, although they are much more likely to concur with extreme river levels or tides when the stresses on flood defences are highest. Flood water flowing through a breach will normally discharge at a high velocity, rapidly filling up the areas behind the defences, resulting in significant damage to buildings and a high risk of loss of life. Breaches are most likely to occur in soft defences such as earth embankments although poorly maintained hard defences can also be a potential source of breach.

Overtopping of flood defences occurs when water levels exceed the protection level of raised flood defences. The worst case occurs when the fluvial or tidal levels exceed the defence level as this can lead to prolonged flooding. Less severe overtopping can occur when flood levels are below defence levels, but wave action causes cyclic overtopping, with intermittent discharge over the crest level of the defence. Flood defences are commonly designed with a freeboard to provide protection against overtopping from waves. The risk from overtopping due to exceedance of the flood defence level is much more significant than the risk posed by wave overtopping. Exceedance of the flood defence level can lead to prolonged and rapid flooding with properties immediately behind the defences at highest risk.

No flood defences act to defend the site from direct inundation, meaning there is negligible residual risk from beach and overtopping of flood defences.

5.2.6 Historical flood events:

The EA hold records of historic flood events from rivers and the sea. The EA map flooding to land, not individual properties. Their historic flood event record outlines are an indication of the geographical extent of an observed flood event. Their historic flood event outlines do not give any indication of flood levels for individual properties. They also do not imply that any property within the outline has flooded internally.

The EA have no records of historical flooding having affected the site.

5.3 Pluvial (Surface Water):

Pluvial (surface water) flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead.

In 2013 the EA, working with Lead Local Flood Authorities (LLFAs), produced an updated Flood Map for Surface Water. It is considered to represent a significant improvement on the previous surface water flood maps available, both in terms of method and representation of the risk of flooding. The modelling techniques and data used are considerably improved, and also incorporated locally produced mapping where this is available to represent features best modelled at a local scale.

The Flood Map for Surface Water assesses flooding scenarios as a result of rainfall with the following chance of occurring in any given year (annual probability of flooding is shown in brackets):

- High: Greater than or equal to 3.3% (1 in 30) chance in any given year (3.3%)
- Medium: Less than 3.3% (1 in 30) but greater than or equal to 1% (1 in 100) chance in any given year
- Low: Less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance in any given year
- Very Low: Less than 0.1% (1 in 1,000) chance in any given year

Please note that the EA do not consider this information suitable to be used to identify the risk to individual properties or sites. It is useful to raise awareness in areas which may be at risk and may require additional investigation.

The EA Risk of Flooding from Surface Water Map suggests that the site lies in an area of "Low" to "Medium" risk from surface water, while the area of the proposed garden annexe is at "Very Low" risk from surface water flooding.

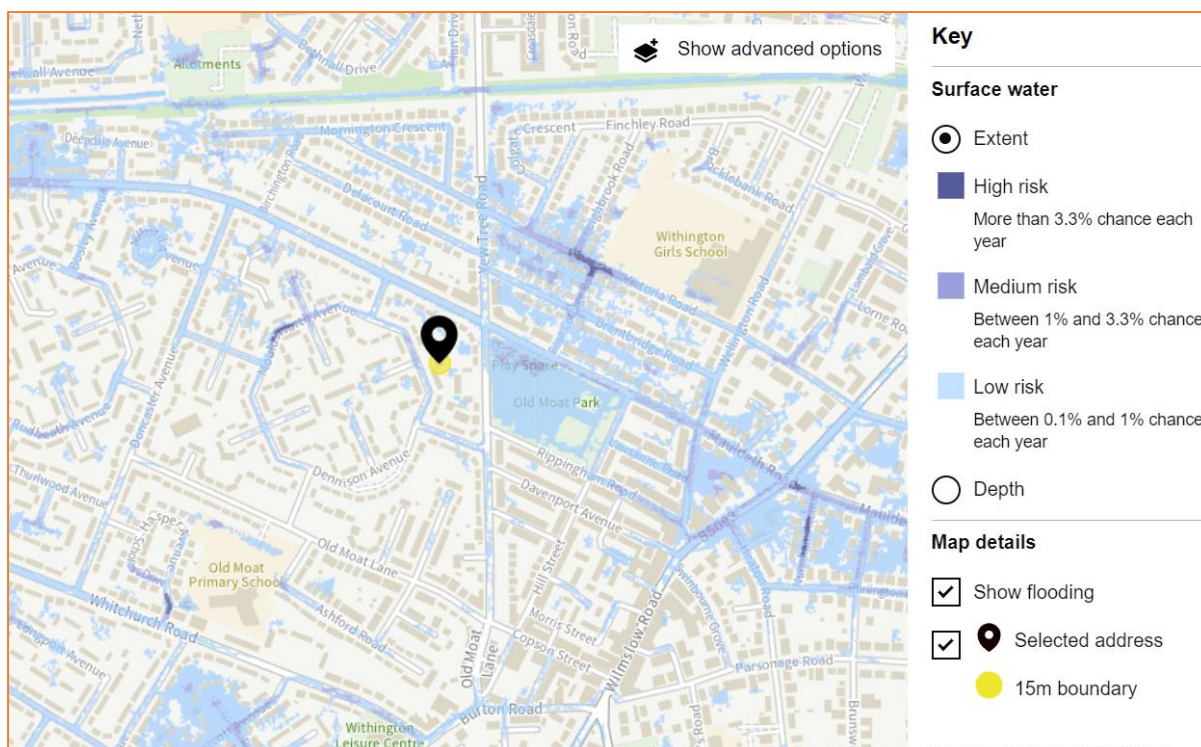


Figure 7: Extract from Environment Agency Surface Water Flood Map (Source: EA)

5.4 Groundwater:

Groundwater flooding occurs as a result of water rising up from the underlying rocks or from water flowing from abnormal springs. This tends to occur after much longer periods of sustained high rainfall. Higher rainfall means more water will infiltrate into the ground and cause the water table to rise above normal levels. Groundwater tends to flow from areas where the ground level is high, to areas where the ground level is low. In low-lying areas, the water table is usually at shallower depths anyway, but during very wet periods, with all the additional groundwater flowing towards these areas, the water table can rise up to the surface causing groundwater flooding.

Groundwater flooding is most likely to occur in low-lying areas underlain by permeable rocks (aquifers). These may be extensive, regional aquifers, such as chalk or sandstone, or may be localised sands or river gravels in valley bottoms underlain by less permeable rocks. Groundwater flooding takes longer to dissipate because groundwater moves much more slowly than surface water and will take time to flow away underground.

According to the EA, flooding from groundwater is unlikely in this area.

No further information has been provided to suggest that the site has flooded from groundwater flooding previously.

5.5 Sewer Surcharge:

Sewer flooding occurs when the sewer network cannot cope with the volume of water that is entering it. It is often experienced during times of heavy rainfall when large amounts of surface

water overwhelm the sewer network causing flooding. Temporary problems such as blockages, siltation, collapses and equipment or operational failures can also result in sewer flooding.

All Water Companies have a statutory obligation to maintain a register of properties/areas which have reported records of flooding from the public sewerage system, and this is shown on the DG5 Flood Register. This includes records of flooding from foul sewers, combined sewers and surface water sewers which are deemed to be public and therefore maintained by the Water Company. The DG5 register records of flood incidents resulting in both internal property flooding and external flooding incidents. Once a property is identified on the DG5 register, water companies can typically put funding in place to address the issues and hence enable the property to be removed from the register. It should be noted that flooding from land drainage, highway drainage, rivers/watercourses and private sewers is not recorded within the register.

No information has been provided to suggest that the site itself has flooded as a result of sewer surcharge.

5.6 Other Sources:

Reservoirs with an impounded volume in excess of 25,000 cubic metres (measured above natural ground level) are governed by the Reservoirs Act and are listed on a register held by the Environment Agency. The site is inside the maximum inundation extent on the EA Reservoir Inundation Map when there is also flooding from rivers. The EA also advise on their website that reservoir flooding is extremely unlikely. There has been no loss of life in the UK from reservoir flooding since 1925. All major reservoirs have to be inspected by specialist dam and reservoir Engineers. In accordance with the Reservoirs Act 1975 in England, these inspections are monitored and enforced by the EA themselves. The risk to the site from reservoir flooding is therefore minimal and is far lower than that relating to the potential for fluvial / tidal flooding to occur. The Environment Agency Reservoir Flood Map illustrates the largest area that might be flooded if the storage area were to fail and release the water it is designed to hold during a flood event.

Records of flooding from reservoirs and canals are erratic as there is no requirement for the Environment Agency to provide information on historic flooding from canals and raised reservoirs on plans. In particular, the NPPF does not require flood risk from canals and raised reservoirs to be shown on the Environment Agency flood zones.

Overflows from canals can be common as they are often fed by land drainage, and often do not have controlled overflow spillways. Occasionally, major bank breaches also occur, leading to rapid and deep flooding of adjacent land.

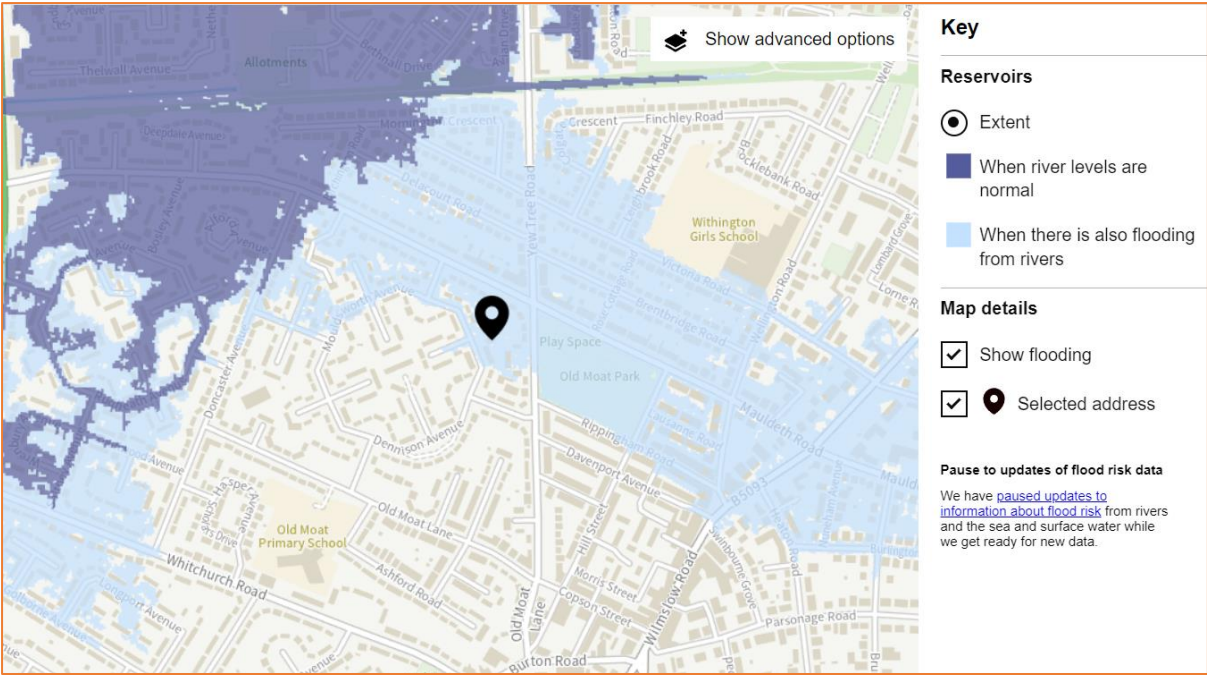


Figure 8: Maximum extent of flooding from reservoirs (Source: EA)

6. Flood Risk Management

6.1 Vulnerability to flooding:

The NPPF classifies property usage by vulnerability to flooding.

The existing site usage is classified as "more vulnerable" throughout, as it is a residential property.

Post development, the site will remain "more vulnerable", as the application is for the erection of outbuilding to provide garden annexe.

The applicant has confirmed that the annex will remain part of the main property (extension of the existing property), and will not be able to be sold or rented as a separate dwelling for the lifetime of the development.

6.2 EA Standing Advice:

The EA Standing Advice guidance for vulnerable (for example, more vulnerable, less vulnerable and water compatible) development in Flood Zone 2 states that finished floor levels should be a minimum of whichever is higher of 300mm above the:

- average ground level of the site
- adjacent road level to the building
- estimated river or sea flood level

If you cannot raise floor levels to meet the minimum requirement, you will need to:

- raise them as much as possible
- consider moving vulnerable uses to upper floors
- include extra flood resistance and resilience measures

As such, given the planning constraints at the site – according to the applicant the garden annex cannot be greater than 2.5m in height as it is within 2m of a neighbours boundary therefore the floor levels cannot be raised to meet the minimum requirement therefore extra flood resistance and resilience measures will be included up to 600mm.

6.3 Physical Design Measures:

The development is considered to follow the EA Standing Advice for vulnerable development therefore to help protect against flooding during extreme events, the applicant has agreed to implement flood resistant design measures into the proposal, in consultation with the Local Authority building control department.

The EA Standing Advice states that the design should be appropriately flood resistant and resilient by:

- using flood resistant materials that have low permeability to at least 600mm above the estimated flood level;
- making sure any doors, windows or other openings are flood resistant to at least 600mm above the estimated flood level;
- using flood resilient materials (for example lime plaster) to at least 600mm above the estimated flood level;
- by raising all sensitive electrical equipment, wiring and sockets to at least 600mm above the estimated flood level;
- making it easy for water to drain away after flooding such as installing a sump and a pump
- making sure there is access to all spaces to enable drying and cleaning;
- ensuring that soil pipes are protected from back-flow such as by using non-return valves.

As such, the following measures are recommended where they can practically and feasibly be implemented:

- Closed-cell foam used in wall cavities;
- Waterproof ground floor internal render;
- Exterior ventilation outlets, utility points and air bricks fitted with removable waterproof covers;
- Ground floor electrical main ring run from 600mm above finished ground floor level;
- Electrical incomer and meter situated 600mm above finished ground floor level;
- Boilers, control and water storage / immersion installed 600mm above finished ground floor level;
- Gas meter installed at 600mm above finished ground floor level;
- Raised wiring and power outlets at least 600mm above finished ground floor level;
- Plumbing insulation of closed-cell design;
- Non-return valves fitted to all drain and sewer outlets;
- Manhole covers secured;
- Anti-syphon fitted to all toilets;
- Kitchen units of solid, water resistant material;
- Use of MDF carpentry (i.e. skirting, architrave, built-in storage) avoided at ground floor level;

It is also recommended that self-closing air bricks and demountable flood defence barriers to defend ground level doorways and low windows up to 600mm above finished ground floor level are installed.

6.4 Safe Escape and Flood Action Plan:

The NPPF requires a route of safe escape for all residents and users to be provided from new residential properties in Flood Zone 3. Safe escape is usually defined as being through slow moving flood water no deeper than 25cm.

However, it should be noted that the proposed application is for the construction of a residential extension. No additional or new units or dwellings will be created as part of the development. The applicant has confirmed that the annex will remain part of the main property (extension of the existing property), and will not be able to be sold or rented as a separate dwelling for the lifetime of the development. Safe escape is not a requirement under the EA Standing Advice guidance is for domestic extensions.

Residents and users should follow the warning and evacuation procedure detailed in the following section.

6.5 Flood Warning:

The EA is responsible for issuing flood warnings. Flood warnings are issued to the emergency services and local authorities. Both private individuals and organisations can sign-up to receive warnings via phone, text or email. This system of receiving warnings is currently voluntary.

Advice regarding severe flood warnings will generally be given during weather forecasts on local radio and TV. In the case of extreme events, warnings can also be disseminated via door to door visits by the police or locally appointed flood wardens.

The EA issue flood warnings/alerts to specific areas when flooding is expected. It is recommended that the applicant registers online with the free Environment Agency Floodline Warnings/Alert Direct service at www.gov.uk/sign-up-for-flood-warnings to receive flood warnings by phone, text or email.

The flood warning service has three types of warnings that will help you prepare for flooding and take action:

Flood Warning	Flood Alert	Flood Warning	Severe Flood Warning
			
What it means?	Flooding is possible. Be prepared.	Flooding is expected. Immediate action required.	Severe flooding. Danger to life.
When it's used?	Two hours to two days in advance of flooding.	Half an hour to one day in advance of flooding.	When flooding poses a significant threat to life.
What to do?	Be prepared to act on your flood plan. Prepare a flood kit of essential items. Monitor local water levels and the flood forecast on our website.	Move family, pets and valuables to a safe place. Turn off gas, electricity and water supplies if safe to do so. Put flood protection equipment in place.	Stay in a safe place with a means of escape. Be ready should you need to evacuate from your home. Co-operate with the emergency services. Call 999 if you are in immediate danger.

Table 3: EA Flood Warning Service

6.6 Flood Plan:

It is recommended that the applicant and future owners, occupiers and Landlords of the property prepare a flood plan to protect life and property during a flood event:

Before a flood:

- Prepare and keep a list of all your important contacts to hand or save them on your mobile phone.
- Think about what items you can move now and what you would want to move to safety during a flood.
- Know how to turn off electricity and water supplies to the site.
- Prepare a flood kit of essential items and keep it handy. It can include copies of important documents, a torch, a battery-powered or wind-up radio, blankets and warm clothing, waterproofs, rubber gloves and a first aid kit including all essential medication.

During a flood:

- Activate the evacuation plan and evacuate the site.
- Remove cars from the site if there is sufficient warning and the water levels are not rising rapidly.
- Switch off water and electricity for the site.
- Tune into your local radio station on a battery or wind-up radio.
- Listen to the advice of the emergency service and evacuate if told to do so.

- Avoid walking or driving through flood water. Six inches of fast-flowing water can knock over an adult and two feet of water can move a car.

After a flood:

- If you have flooded, contact your insurance company as soon as possible.
- Take photographs and videos of your damaged property as a record for your insurance company.
- If you don't have insurance, contact your local authority for information on grants and charities that may help you.
- Flood water can contain sewage, chemicals and animal waste. Always wear waterproof outerwear, including gloves, wellington boots and a face mask.
- Have your electrics and water checked by qualified engineers before switching them back on.

6.7 Off-Site Impacts:**6.7.1 Fluvial floodplain storage:**

The NPPF requires that where development is proposed in undefended areas of floodplain, which lie outside of the functional floodplain, the implications of ground raising operations for flood risk elsewhere needs to be considered. Raising existing ground levels may reduce the capacity of the floodplain to accommodate floodwater and increase the risk of flooding by either increasing the depth of flooding to existing properties at risk or by extending the floodplain to cover properties normally outside of the floodplain. Flood storage capacity can be maintained by lowering ground levels either within the curtilage of the development or elsewhere in the floodplain, in order to maintain at least the same volume of flood storage capacity within the floodplain.

In undefended tidal areas, raising ground levels is unlikely to impact on maximum tidal levels so the provision of compensatory storage should not be necessary.

For development in a defended flood risk area, the impact on residual flood risk to other properties needs to be considered. New development behind flood defences can increase the residual risk of flooding if the flood defences are breached or overtopped by changing the conveyance of the flow paths or by displacing flood water elsewhere. If the potential impact on residual risk is unacceptable then mitigation should be provided.

The site is situated in Flood Zone 2 when using the Environment Agency Flood Map for Planning (Rivers and Sea). The proposed development is considered to fit within the EA Standing Advice for vulnerable developments ('more vulnerable' development within Flood Zone 2).

6.7.2 Surface Water Drainage:

The development will utilise Sustainable drainage systems (SuDS) design in accordance with the NPPF for Planning Applications and the drainage hierarchy as follows:

1. Store rainwater for later use;
2. Infiltration techniques;
3. Attenuate rainwater by storing in tanks for gradual release;
4. Discharge rainwater direct into watercourse;

5. Discharge rainwater into surface water sewer;
6. Discharge rainwater into a combined sewer;

Due to the small scale of the development, a full Surface Water Drainage Strategy is not required at this stage of planning. However, SuDS features will be incorporated into the development where practically possible or will utilise the existing arrangement on site.

As such, any change in surface water runoff from the site will likely be negligible.

7. Sequential and Exception Test

The Sequential Test aims to ensure that development does not take place in areas at high risk of flooding when appropriate areas of lower risk are reasonably available.

The Sequential Test is applied to developments in areas identified as being at risk of any source of flooding now or in the future. The Sequential Test ensures that a sequential, risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account.

The sequential approach is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. This means avoiding, so far as possible, development in current and future medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding. Other forms of flooding need to be treated consistently with river and tidal flooding in mapping probability and assessing vulnerability, so that the sequential approach can be applied across all areas of flood risk.

The site is situated in Flood Zone 2 when using the Environment Agency Flood Map for Planning (Rivers and Sea), and in an area at “low” risk of surface water flooding. Post development, the site will remain “more vulnerable,” as the application is for the construction of a residential extension.

As such, there will be no increase in vulnerability post development.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a	Exception Test required	✗	Exception Test required	✓	✓
Zone 3b	Exception Test required	✗	✗	✗	✓

Table 4: Flood risk vulnerability and flood zone ‘compatibility’

Using the table above, the proposed application is considered to be suitable within Flood Zone 2.

The Sequential and Exception Tests do not need to be applied to minor developments and changes of use (this application is for ‘minor development’ – a residential extension).

8. Discussion and Conclusions

Unda Consulting Limited have been appointed by NW Design & Build Ltd (hereinafter referred to as “the applicant”) to undertake a Flood Risk Assessment for the proposed development at 25 Dennison Avenue Manchester M20 1AE (hereinafter referred to as “the site”). The FRA has been undertaken in accordance with the National Planning Policy Framework (NPPF) and the associated technical guidance.

The proposed application is for the erection of outbuilding to provide garden annexe – minor residential extension.

The existing site usage is classified as “more vulnerable” throughout, as it is a residential property.

Post development, the site will remain “more vulnerable”, as the application is for the erection of outbuilding to provide garden annexe.

The applicant has confirmed that the annex will remain part of the main property (extension of the existing property), and will not be able to be sold or rented as a separate dwelling for the lifetime of the development. Accordingly, it is considered that the vulnerability of the site as a whole has not increased post development.

The site is located with Flood Zone 2 (Medium Probability), which means it is defined as land having between a 1 in 100 and 1 in 1,000 annual probability of river and sea flooding

The risk would appear to be predominantly fluvial and originate from both the Chorlton Platt Gorse which is located 550m to the north west of the site and the Cringle Black Brook which is within a culvert at its closest point to the site, 137m to the north of the site.

The Environment Agency has provided modelled flood data from the Cringle Brook 2017 model.

The site is shown to be outside the 1:100 year undefended modelled flood extent, but within the 1:1000 year undefended modelled flood extent.

The site is located within Flood Zone 2 and is classified as “more vulnerable”. The Flood Risk Assessments: climate change allowances guidance – updated May 2022, states that the Central climate change allowance should be applied for peak river flow allowances. The site falls within the Upper Mersey Management Catchment, where the Central climate change allowance for the 2080's is a 41% increase in river flows.

Node ea013_0238_CRIN01_0050d is the closest in channel node to the site which is deemed the most appropriate for the assessment. Of importance is the undefended 1:100 year of 31.85m AOD and 1:100 year plus allowance for climate change (70%) of 31.85m AOD.

Comparison of the undefended 1:100 year of 31.85m AOD and 1:100 year plus allowance for climate change (70%) of 31.85m AOD with topographic site levels in the area of the proposed garden annexe (34.12m AOD to 34.18m AOD) indicates that the area is above these flood levels and therefore flood free during these events.

The site is not located within a functional floodplain and there are no Flood Storage Areas located in close proximity to the site.

There are no formal flood defences owned or maintained by the EA in the area of the site.

The EA have no records of historical flooding having affected the site.

The EA Risk of Flooding from Surface Water Map suggests that the site lies in an area of “Low” to “Medium” risk from surface water, while the area of the proposed garden annexe is at “Very Low” risk from surface water flooding.

No information has been provided to suggest that the site is susceptible to groundwater, sewer surcharge or reservoir flooding.

The proposed application is for an extension to the existing property (and will not introduce any additional or separate residential units) and internal access will be maintained from the ground floor to the first floor of the property.

Safe escape is not a requirement under the EA Standing Advice guidance is for domestic extensions.

Due to the small scale of development, a full Surface Water Drainage Strategy is not required at this stage of planning. However, SuDS features will be incorporated into the development where practically possible or will utilise the existing arrangement on site.

The applicant has confirmed that:

- The proposed application is for the erection of outbuilding to provide garden annexe – minor residential extension.
- No additional residential units will be created as part of the development - the annex will remain part of the main property (extension of the existing property), and will not be able to be sold or rented as a separate dwelling for the lifetime of the development.
- The additional footprint created by the development will not exceed 250m².
- The development is considered to fit within the EA Standing Advice for vulnerable developments in Flood Zone 2.
- In order to meet the EA Standing Advice, given the planning constraints at the site – according to the applicant the garden annex cannot be greater than 2.5m in height as it is within 2m of a neighbours boundary therefore the floor levels cannot be raised to meet the minimum requirement therefore extra flood resistance and resilience measures will be included up to 600mm.
- Internal access will be maintained from the ground floor to the property's first floor.
- Flood proofing of the development will be incorporated as appropriate.
- Post development, there will be no unacceptable loss of fluvial floodplain storage.
- The applicant will register with the Environment Agency Floodline Alert/Warnings Direct service.
- Due to the scale of the development, a full Surface Water Drainage Strategy is not required at this stage of planning.

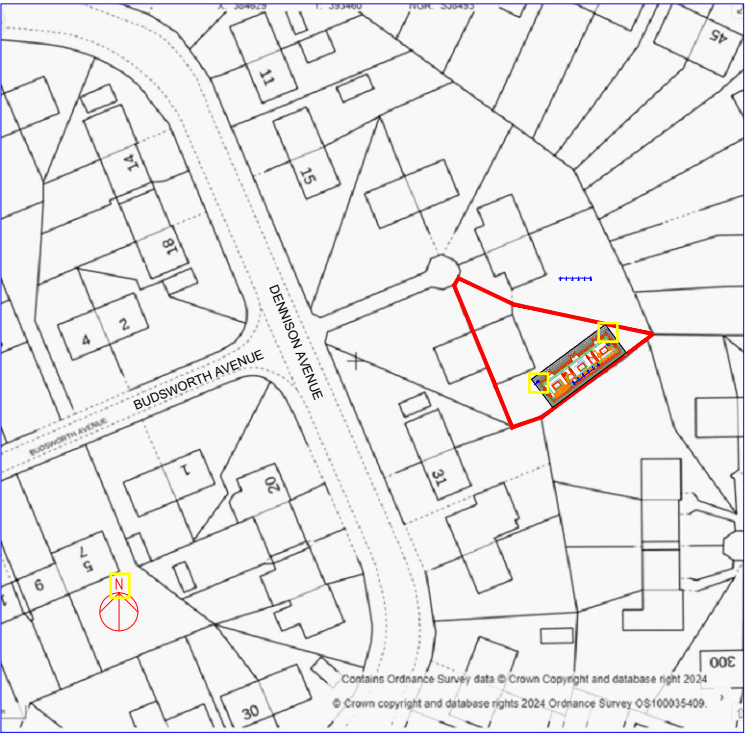
Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

Appendix

- Site plan, existing and proposed plans
- EA Flood Map for Planning

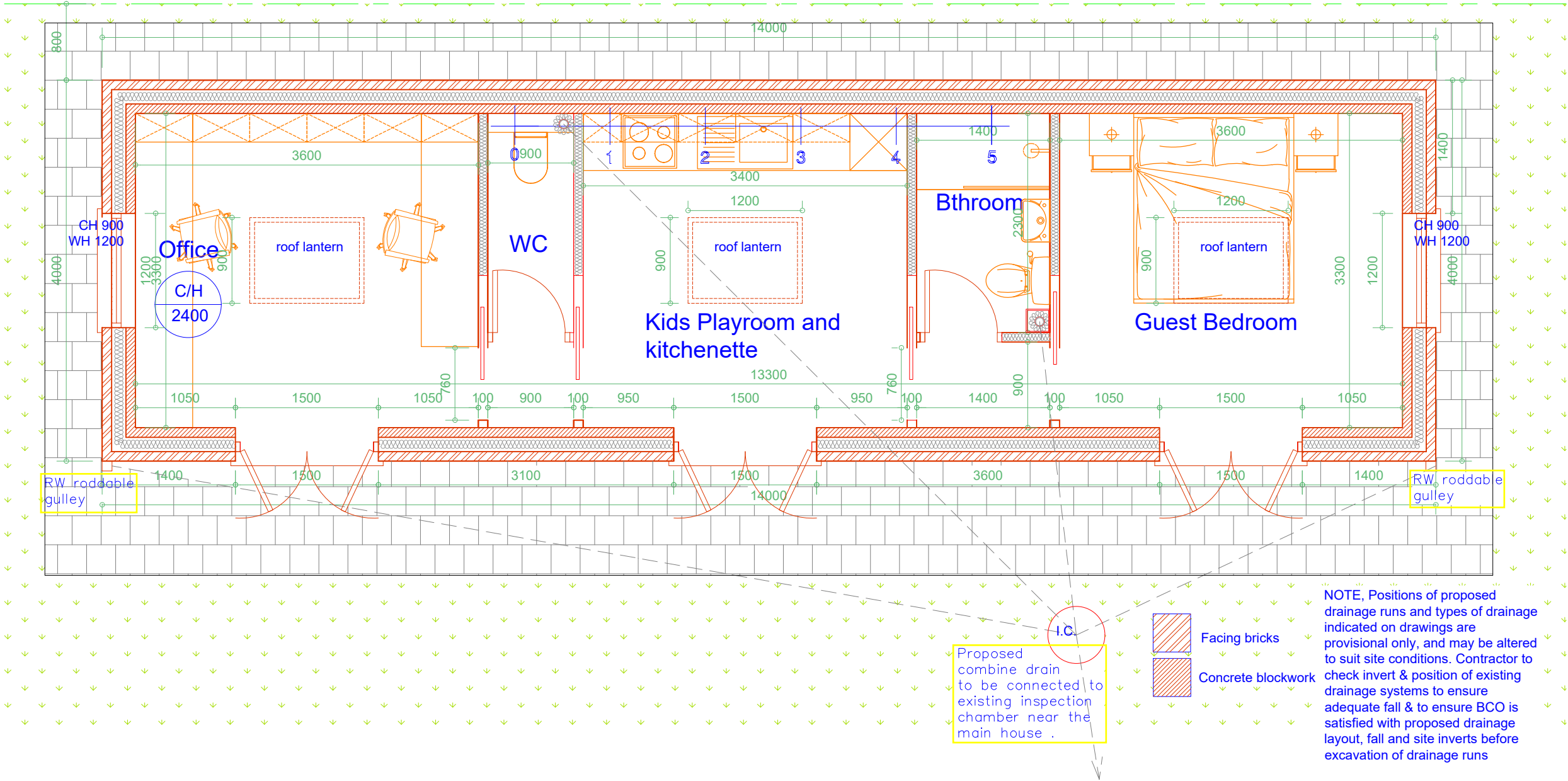


OS Map
Scale 1:500

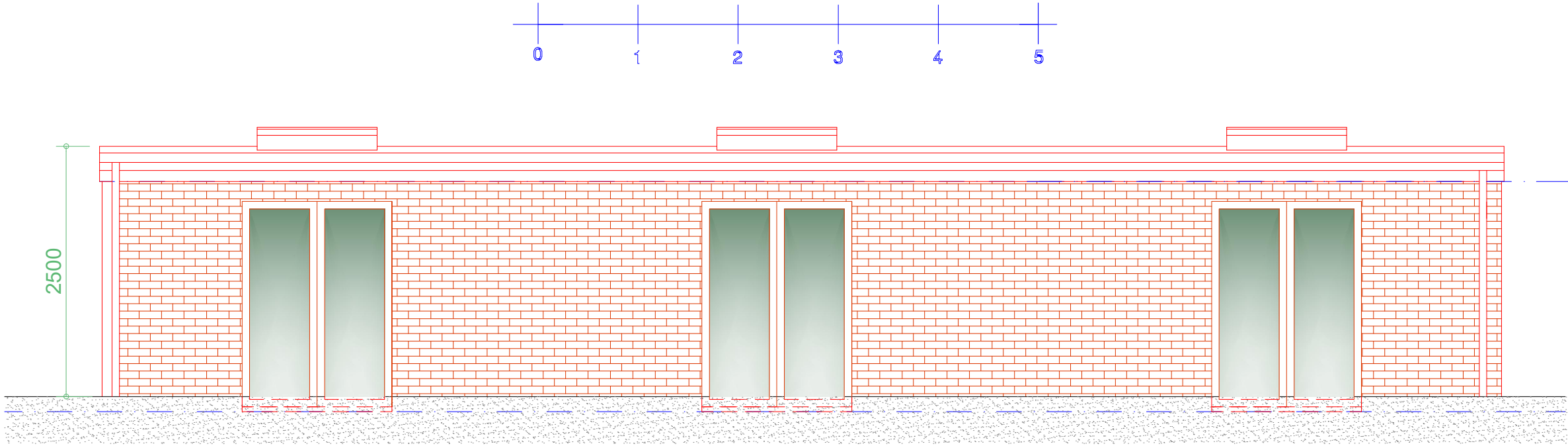


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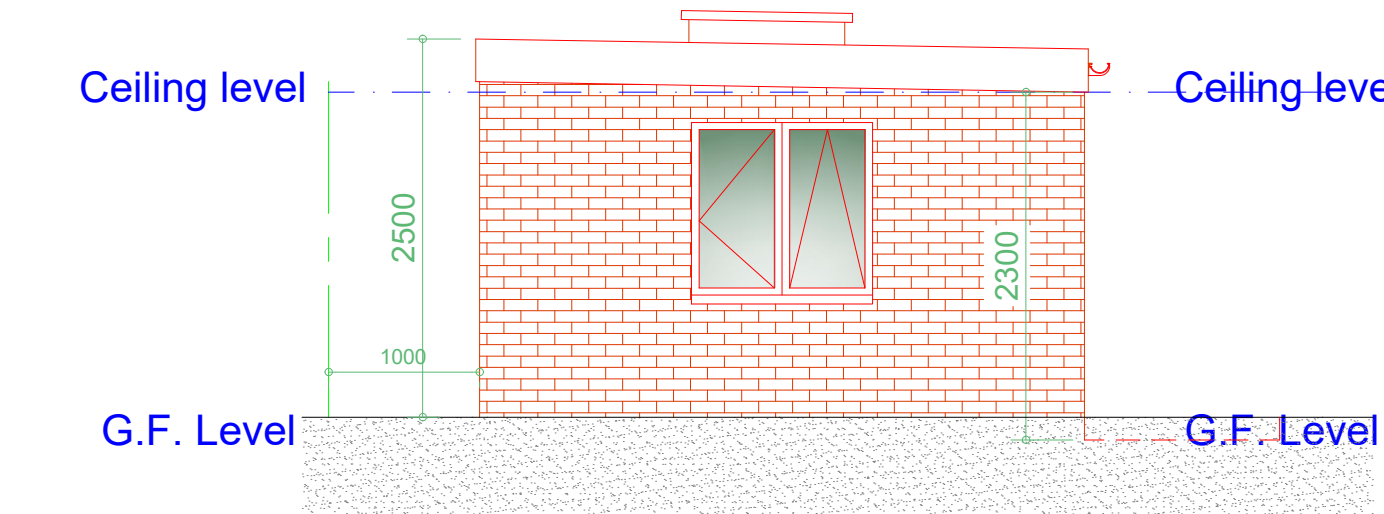
Rev	Date	Description
Issued For : INFORMATION PURPOSES ONLY		
Client		
Mr. Alex Xie		
Project		
25 Dennison Ave, Manchester. M20 1AE		
Proposed garden annex.		
Scheme - Drawing Title		
OS Map		
02	Date	05.03.24
Drawing No.	Revision	Scale
		Various @A3
		
Plans To Build It Ltd		
Tel: 0161 728 5730		
Mob: 07741175755		
www.planstobuildit.com		



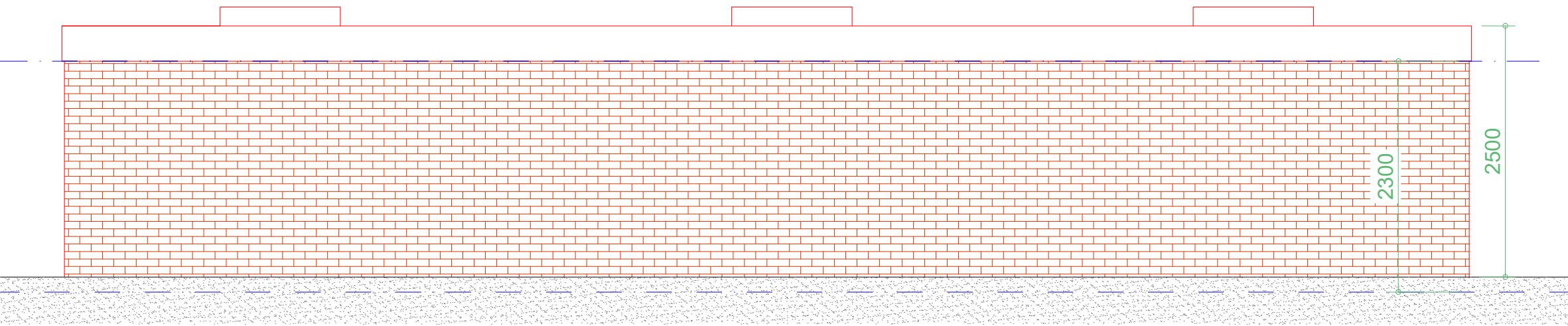
Proposed Ground Floor Plan
Scale 1:50



Proposed Front Elevation
Scale 1:50



Proposed L/H Side Elevation
Scale 1:50



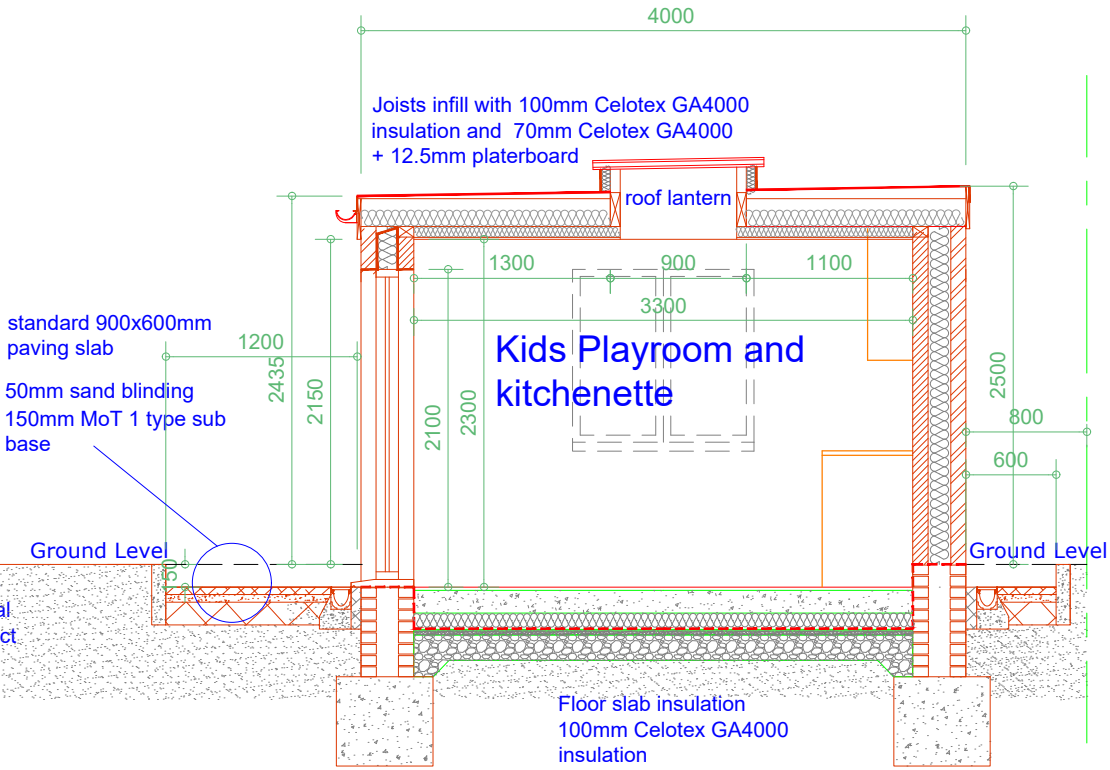
Proposed Rear Elevation
Scale 1:50

Kingspan Thermabate Cavity Wall Closers (or equivalent) will be used.

ELECTRICITY service into existing buildings., care must be taken when any excavation is taking place near these positions. Confirm position of electricity cables with UK Power Networks (plans@ukpowernetworks.co.uk) before commencing on site, position of service cable to be marked on site, and also on copy of plans.

WATER supply to be located & isolated prior to removal of any pipework, water supply pipe to be adequately protected froaccidental / wilful damage at all times, contact United Utilities 0845 746 2200

GAS service into existing buildings., care must be taken when any excavation is taking place near these positions. Confirm position of gas supply pipe with Transco 01204 - 546900, before commencing on site, position of service pipe to be marked on site, and also on copy of plans, once position of pipe has been established. IN AN EMERGENCY CALL 0800 111999 IMMEDIATELY



Proposed Section Scale 1:50

Note for Planning Department:
The Garden Annex will not be occupied at any time other than for purposes ancillary to the residential use of the main dwelling known.

Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
384660/393460

Created
16 May 2024 11:36

Your selected location is in flood zone 2, an area with a medium probability of flooding.

This means:

- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see www.gov.uk/guidance/flood-risk-assessment-standing-advice)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2022 OS 100024198. <https://flood-map-for-planning.service.gov.uk/os-terms>

Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
384660/393460

Scale
1:2500

Created
16 May 2024 11:36

-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area

0 20 40 60m

