Flood Warning and Evacuation Plan

Prepared for:
Domville Properties Ltd

December 2020

Location:
34A High Street
Northwood
Middlesex
HA6 1BN

Our reference:
89932-100920-Mialex-HighSt-FWEP

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Document Issue Record

Project:	Flood Warning and Evacuation Plan
Client:	Domville Properties Ltd
Location:	34A High Street, Northwood, Middlesex HA6 1BN
Application:	Change of use from Class B1a Office to Class C3 Dwelling houses
Our reference:	89932-Mialex-HighStreet-FWEP
Version:	FWEPv1.0 071220

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Contents

Introduction

Unda Consulting Limited have been appointed by Domville Properties Ltd (hereinafter referred to as "the applicant") to undertake a Flood Warning and Evacuation Plan in support of the residential development at the site 34A High Street, Northwood, Middlesex HA6 1BN (hereinafter referred to as "the site"). The purpose of the study is to support a planning application for the proposed development.

The plan has been informed in part by the Flood Risk Assessment report carried out for planning by Unda Consulting Ltd. Those seeking a more technical appraisal of the flood risk posed to this site should consult the Flood Risk Assessment.

Document Control

This plan is owned, maintained and updated by the householder; whether or not the template was provided by or on behalf of the developer.

It is recommended that the plan is reviewed:

- On first occupation;
- Every 3 years thereafter;
- As a result of lessons learnt;
- Following change of ownership or modification of the premises; or
- Following change to the Flood Warning process.

Instructions to Developer:

You are required to provide a copy of this report to property owners and to encourage them to complete the Flood Warning & Evacuation Plan; providing necessary supporting material that should include everything under Flood Risk below.

Instructions to Homeowners:

In all cases homeowners are encouraged to complete a FWEP as soon as possible after occupation.

Objectives:

The objectives of this plan are:

- To encourage residents to sign up to Weather Warnings;
- To ensure homeowners are aware of any residual flood risk;
- That preventative measures are identified to further reduce risk;
- To ensure that occupants receive the necessary weather warnings;
- That occupants respond to weather warnings appropriately; and
- That occupants establish procedures to effect a timely evacuation and place of refuge.

Information about Flood Risk:

Developing a flood response plan is predicated on an understanding of the historical and residual risk, this can be obtained from:

- Historical Flood data (sources of risk), can be obtained from;
    - The developer
    - Environment Agency
    - Local Authority
- A Flood Risk map, obtained from;
    - The developer
    - Environment Agency
    - Local Authority
- Estimated Flood Depth; and frequency / probability; and
- Soft measures to mitigate flood risk.

All of this information is contained within the Flood Risk Assessment Report.

Location and Geography

Site Location and Usage:

The proposed planning application is for the Change of use from Class B1a Office to Class C3 Dwelling houses.

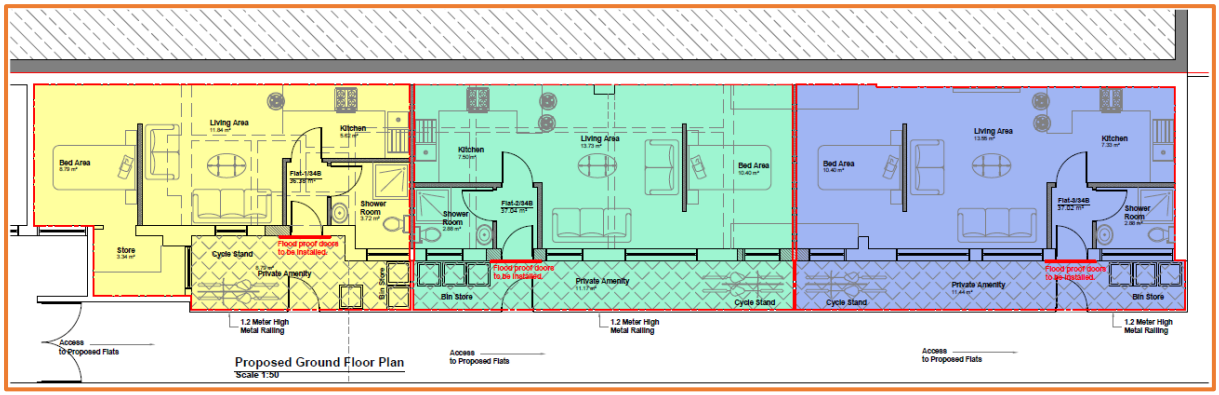


Figure 1: Proposed Ground Floor Plan (Source: Multi Creation)

Site Geography and 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 +/-5cm to 15cm with spatial resolutions ranging from 25cm to 2 metres. This dataset is derived from a combination of the EA's 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. 1m horizontal resolution DTM LiDAR data has been used for the purposes of this study.

Data suggests that the ground topography on site ranges from approximately 65.80mAOD to 66.50mAOD, with the site sloping generally down from east to west.

Figure 2: Aerial view of the site and immediate surrounding area (Source: Google Earth)

The British Geological Survey (BGS) Map indicates that the bedrock underlying the site is Lambeth Group – Clay, Silt and Sand. No superficial deposits are shown to underlie the site.

The soil type in the area taken from the UKSO Website is relatively deep soils with Prequaternary Marine / Estuarine Sand and Silt soil parent material, and a soil texture of Clayey Loam to Silty Loam.

Summary of Flood Risk

Environment Agency 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

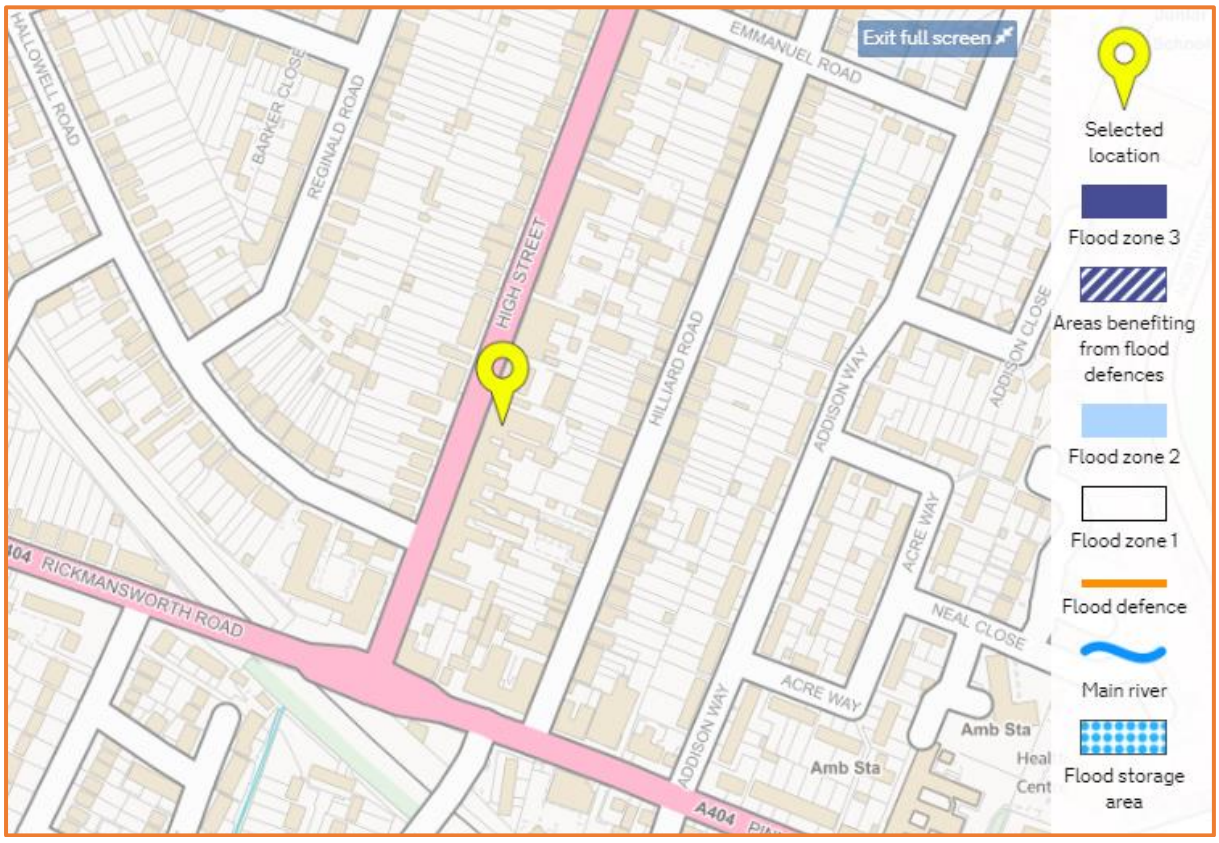


Figure 3: Environment Agency Flood Map for Planning (Rivers and Sea) (Source: EA)

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.

The site is located within Flood Zone 1 (Low Probability), which means it is defined as land having a less than 1:1000 annual probability of river or sea flooding.

However, the site is located within an area at potential risk of surface water flooding, and as such the planning application submitted is required to be accompanied by a FRA which shows that the development can be achieved in a sustainable manner, with an overall reduction of flood risk to the site and surrounding area.

Alternative Flood Zone mapping is also available from the West London Strategic Flood Risk Assessment (SFRA), where an additional Flood Zone 3a is defined for Surface Water – based on the modelled 1:100 year (1% chance) risk of flooding from surface water extent.

Figure 4: West London SFRA Flood Zone 3a Surface Water mapping (Source: West London SFRA)

Fluvial / Tidal:

The site is situated entirely within Flood Zone 1. Flood Zone 1 is defined as land having a less than 1:1000 annual probability of river or sea flooding.

Flood defences:

There are no flood defences in the vicinity of the site. The site is situated entirely within Flood Zone 1 at low risk of fluvial or tidal flooding.

Historical flood events:

No records of flooding at the site previously have been provided.

Pluvial (Surface Water):

Pluvial flooding is the term used to describe flooding which occurs when intense, often short duration rainfall is unable to soak into the ground or to enter drainage systems and therefore runs over the land surface causing

flooding. It is most likely to occur when soils are saturated (or baked hard) so that they cannot infiltrate any additional water or in urban areas where buildings tarmac and concrete prevent water soaking into the ground. The excess water can pond (collect) in low points and result in the development of flow pathways often along roads but also through built up areas and open spaces. This type of flooding is usually short lived and associated with heavy downpours of rain.

The potential volume of surface runoff in catchments is directly related to the size and shape of the catchment to that point. The amount of runoff is also a function of geology, slope, climate, rainfall, saturation, soil type, urbanisation and vegetation.

Pluvial flooding can occur in rural and urban areas, but usually causes more damage and disruption in the latter. Flood pathways include the land and water features over which floodwater flows. These pathways can include drainage channels, rail and road cuttings. Developments that include significant impermeable surfaces, such as roads and car parks may increase the volume and rate of surface water runoff.

Urban areas which are close to artificial drainage systems, or located at the bottom of hill slopes, or in valley bottoms and hollows, may be more prone to pluvial flooding. This may be the case in areas that are down slope of land that has a high runoff potential including impermeable areas and compacted ground.

Pluvial flooding can affect all forms of the built environment, including:

- Residential, commercial and industrial properties;
- Amenity and recreation facilities; and
- Infrastructure, such as roads and railways, electrical infrastructure, telecommunication systems and sewer systems.

This type of flooding is usually short-lived and may only last as long as the rainfall event. However occasionally flooding may persist in low-lying areas where ponding occurs. Due to the typically short duration, this type of flooding tends not to have consequences as serious as other forms of flooding, such as flooding from rivers; however it can still cause significant damage and disruption on a local scale.

The EA Surface Water Flood Map (and the West London Strategic Flood Risk Assessment Risk of Flooding from Surface Water mapping) suggests that the site is at a “Low”, “Medium” and “High” risk of flooding from surface water.

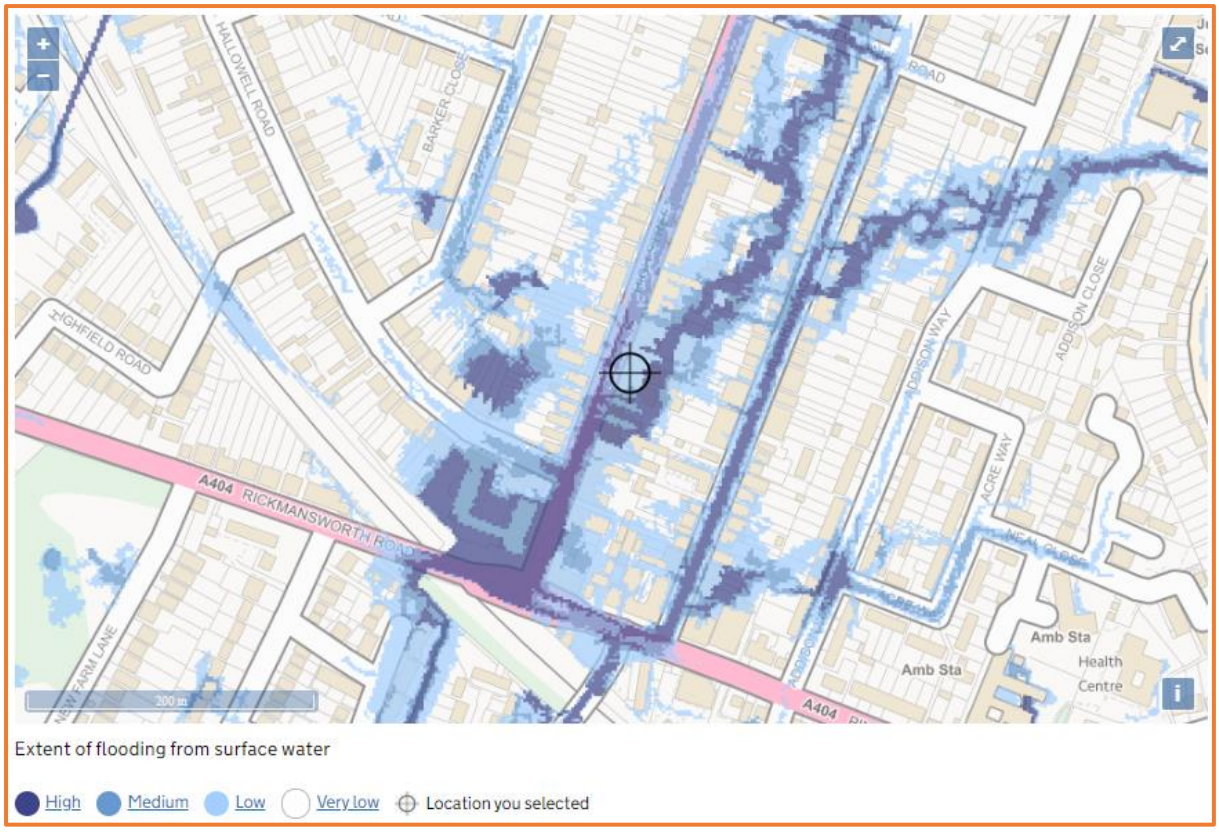


Figure 5: Extract from Environment Agency Surface Water Flood Map (Source: EA)

The EA has also produced surface water flood depth mapping for the 1 in 30 year (High Risk), 1 in 100 year (Medium Risk) and 1 in 1000 year (Low Risk) scenarios (high risk, medium risk and low risk respectively).

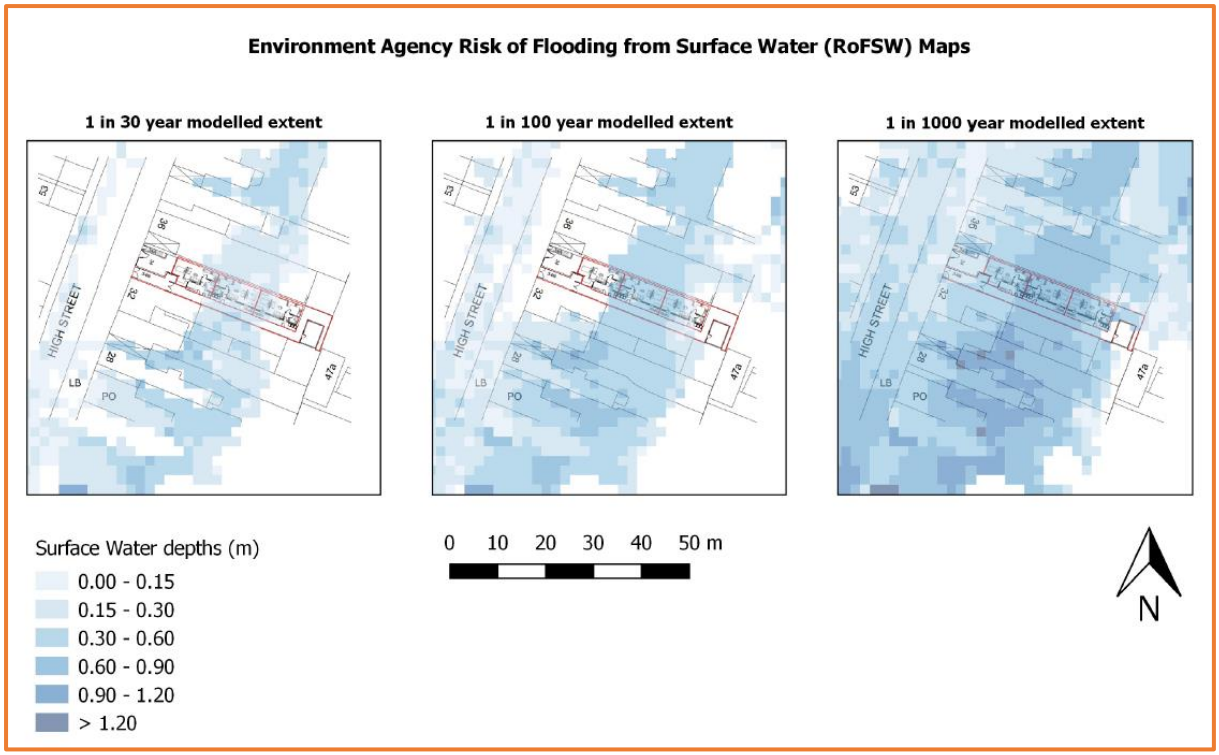


Figure 6: Environment Agency Risk of flooding from Surface Water Flood Depth Maps for High (1:30yr), Medium (1:100yr) and Low (1:1000yr) modelled events (Source: EA)

The Environment Agency risk of flooding from surface water maps show that for the key 1:100 year (1% chance) surface water event, the maximum depth of flooding on site is 0.30m to 0.60m.

For the 1:30 year surface water event, the maximum depth of flooding on site is 0.15m to 0.30m. For the 1:1000 year surface water event, the maximum depth of flooding on site is 0.60m to 0.90m.

The proposal is for the change of use of the existing building, as such there will be no increase in built footprint and therefore no loss of potential surface water storage. Floodplain compensation is therefore not required.

No records of surface water flooding the vicinity of the site have been provided. The Hillingdon Surface Water Management Plan shows no recorded surface water flood incidents in the vicinity of the site.

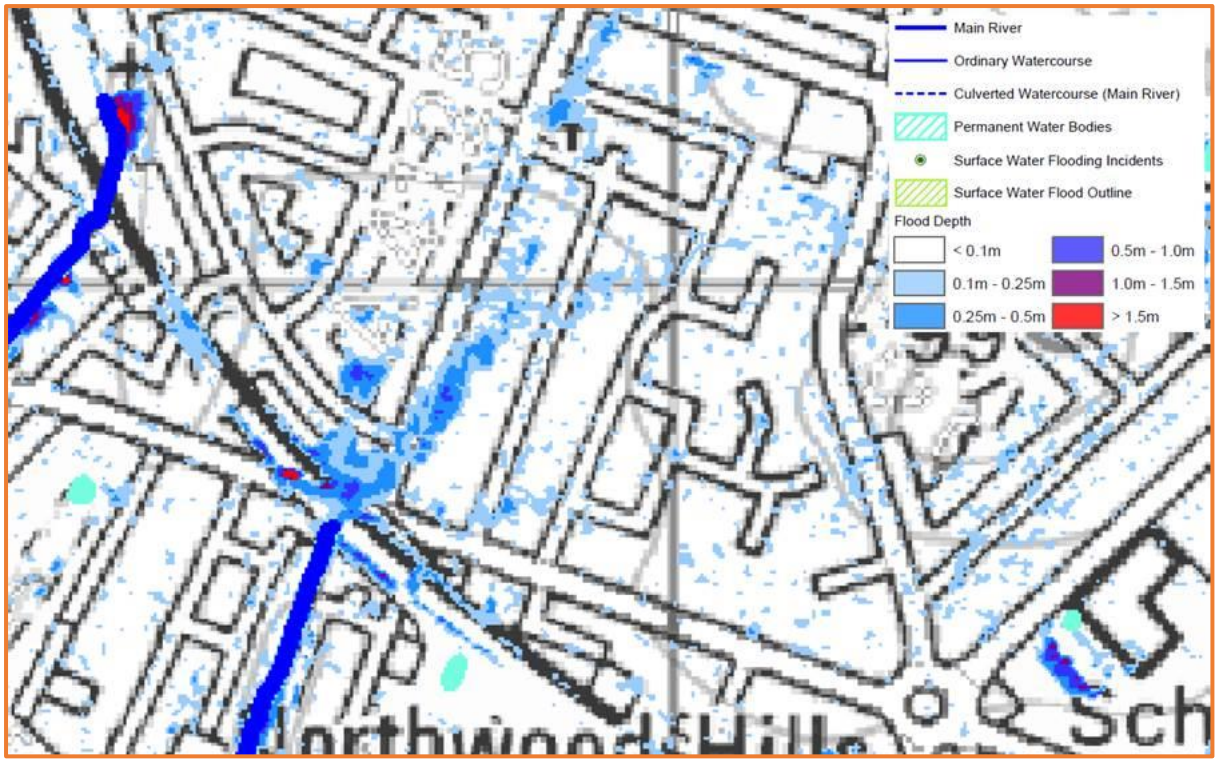


Figure 7: Hillingdon Surface Water Management Plan 1:100 year depths, and recorded surface water flooding incidents (Source: Hillingdon Surface Water Management Plan)

Hillingdon Council has stated that there are a number of residential and commercial premises which have been flooded in this area, which confirms the indicative surface water modelling risks.

The Hillingdon Flood Investigation Report from 23rd June 2016 states that flooding occurred along Northwood High Street, where surface water flooding occurred due to overwhelming of the drainage system by heavy rainfall, and water built up on the road and along a private access track. 3 properties were reported to have flooded internally, with the flooding duration of one evening. The history of flooding prior to this event is reported to be in 2006 approximately, and another event previous to that. After a short intense period of rainfall, lasting for approximately an hour, the surface water sewers were overwhelmed causing the roads to flood.

The site is not reported to have flooded in any of these recorded flood events.

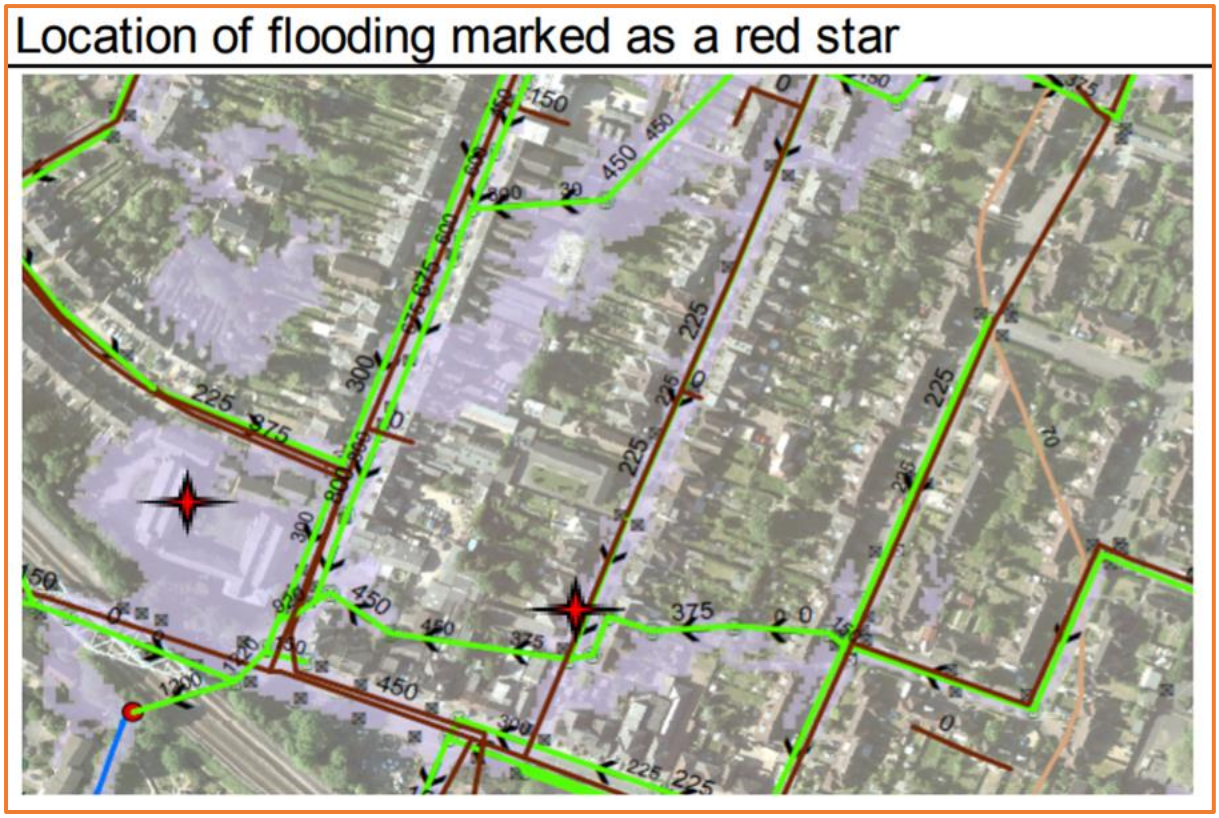


Figure 8: Location of properties reported flooded during 2016 flood event (Source: Hillingdon Flood Investigation Report 23 June 2016)

FD2320 analysis of flood escape route:

The flood hazard along an escape route can be calculated using flood depth, flood velocity and an associated debris factor using the FD2320 analysis.

To calculate a hazard rating using FD2320 along the escape route, both flood depth and flood velocity are required.

The Environment Agency Risk of Flooding from Surface Water data includes flood depth, flood velocity and flood hazard data.

As can be seen from the flood hazard mapping for the 1:100 year event (Medium Risk), the entire escape route (exit the site to the High Street, and then travel north along the High Street (A4125), which becomes Church Road, and then travel west along Green Lane (A4125), and then north along Watford Road (B469) is shown to be outside of areas of Extreme, Significant, Moderate and Low flood hazard.

As such, for the modelled 1:100 year surface water event safe escape can be provided.

Figure 9: Environment Agency Risk of Flooding from Surface Water flood hazard mapping, for the 1:100 year event (Source: EA).

The Hillingdon Surface Water Management Plan also provided flood hazard mapping for the 1 in 100 plus climate change chance of rainfall event occurring in any given year (1% AEP + CC).

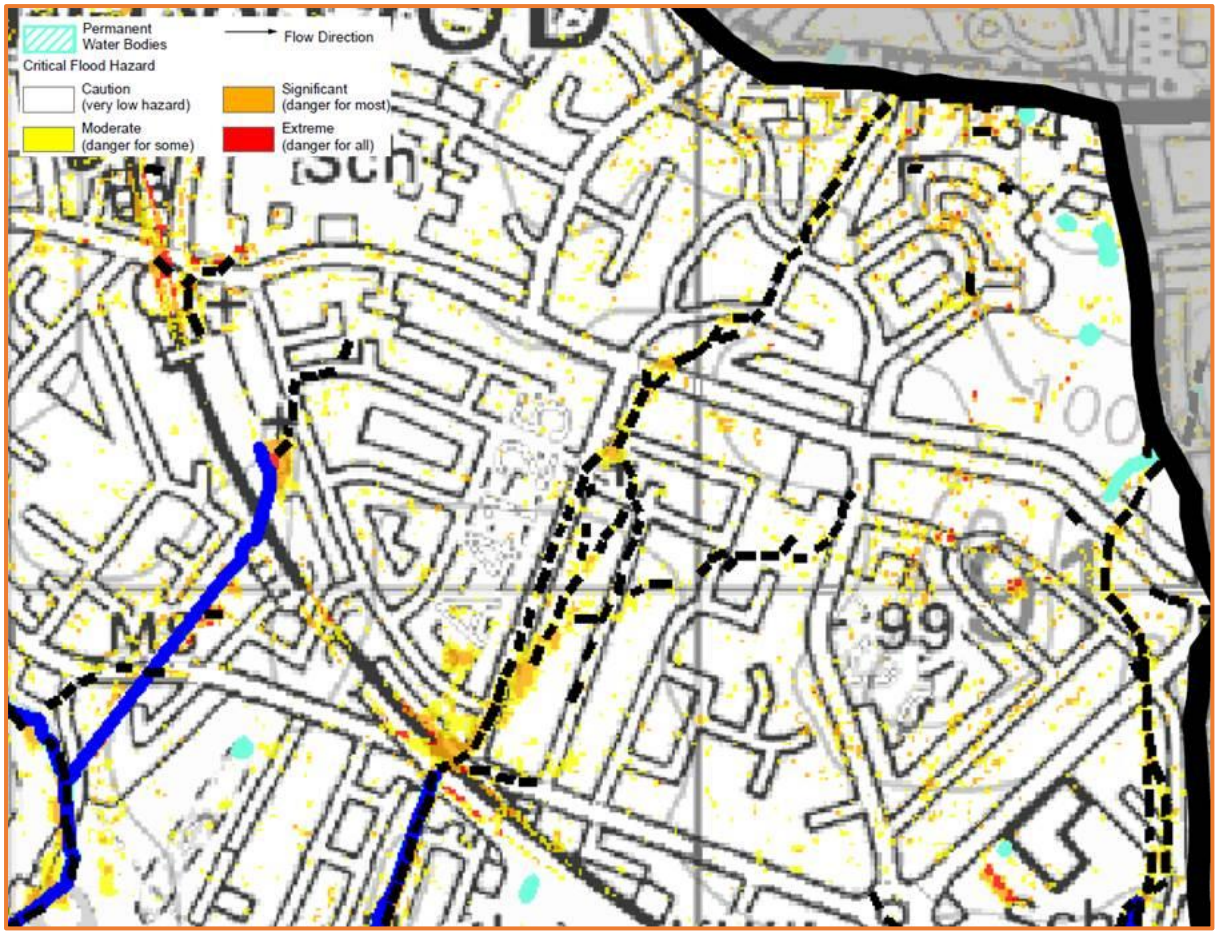


Figure 10: Hillingdon 1:100yr+CC flood hazard mapping (Source: Hillingdon Surface Water Management Plan)

The 1:100 year plus climate change surface water flood hazard mapping shows the escape route as described above) is shown to be outside of areas of Extreme, Significant, Moderate and Low flood hazard.

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.

No information has been provided to suggest that a groundwater incident has occurred at the site, and the West London SFRA mapping indicates that the site lies within an area with a less than 25% susceptibility to groundwater flooding. The site is shown to be outside of areas identified as having an increased potential for elevated groundwater.

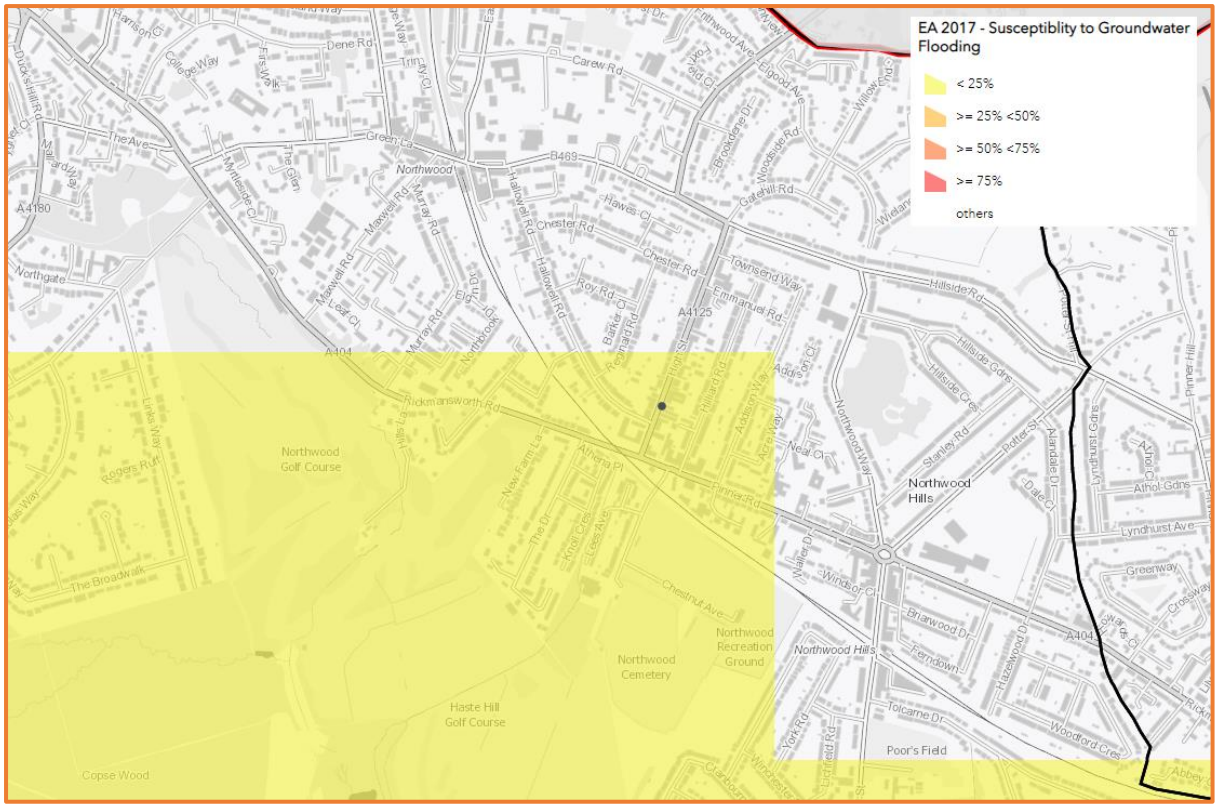


Figure 11: West London SFRA Susceptibility to Groundwater Flooding Map (Source: West London SFRA)

The site is also shown to be within a Source Protection Zone II – Outer Protection Zone.

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 is susceptible to sewer surcharge flooding. The West London SFRA shows that Thames Water have 41-60 records of flooding from sewer flooding within the postcode area the site falls within.

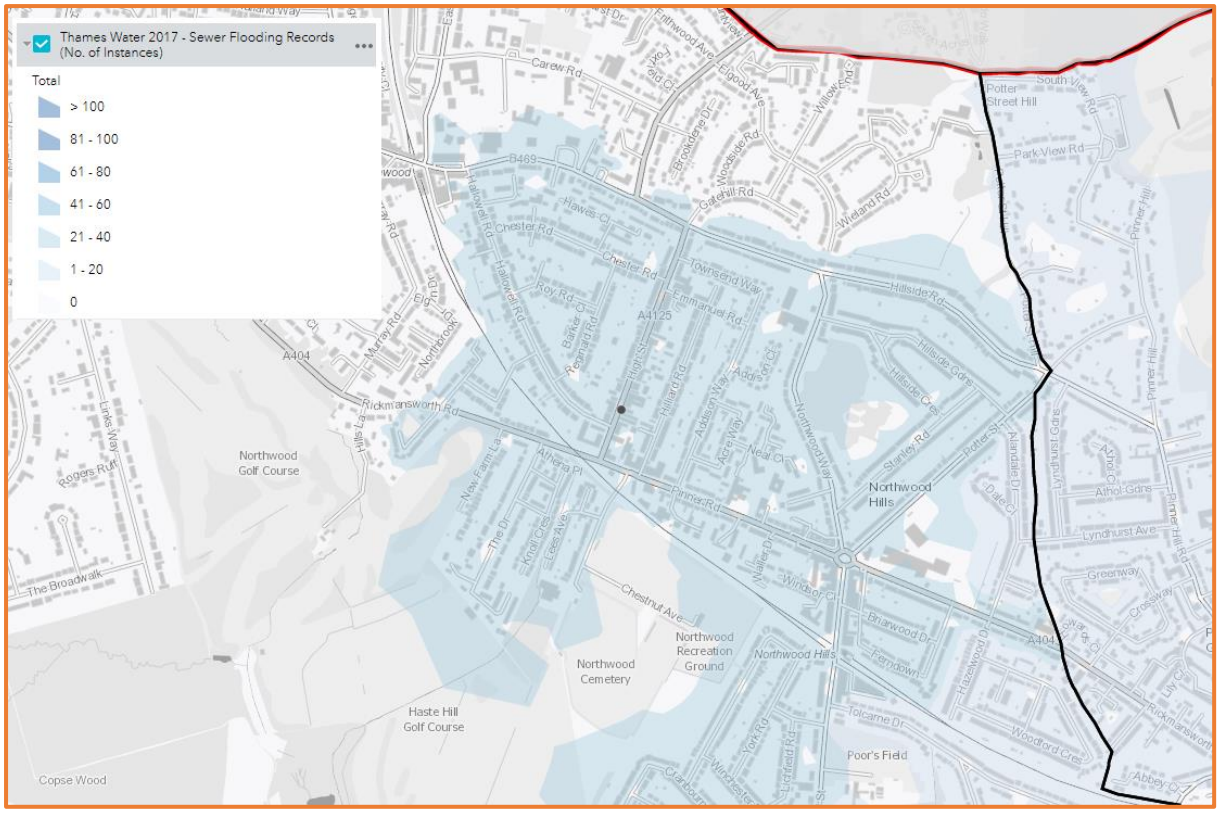


Figure 12: West London SFRA Thames Water Sewer Flooding Records Map (Source: West London SFRA)

Other Sources:

The site is situated partially within the maximum inundation extent on the EA Reservoir Inundation Map. The EA advise on their website that reservoir flooding is extremely unlikely. All major reservoirs have to be inspected by specialist dam and reservoir Engineers. 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 flooding to occur.

There do not appear to be any further artificial (man-made) sources of flood risk (such as raised canals) in the vicinity of the site.

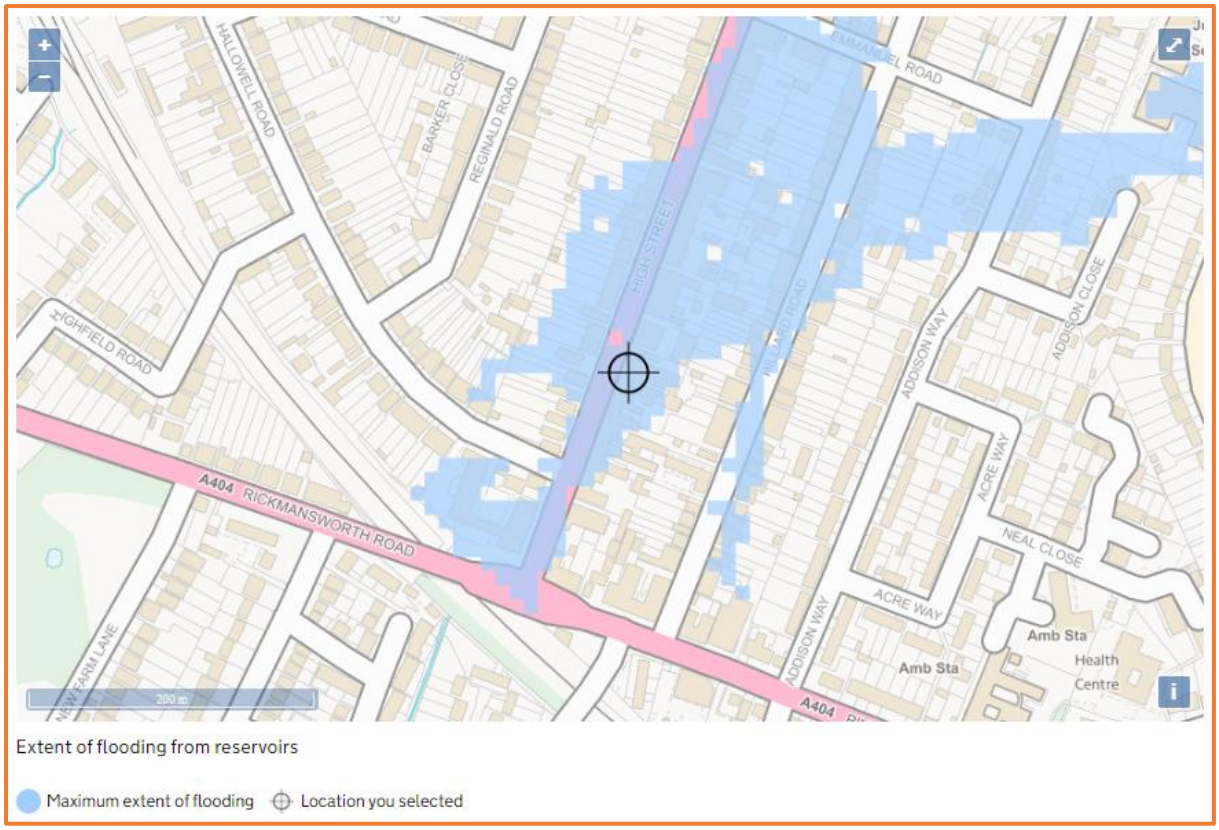


Figure 13: Extract from Environment Agency Risk of Flooding from Reservoirs Map (Source: EA)

Dangers of Floodwater

There can be significant risks from slip and trip hazards beneath the water as well as from diseases and other contaminants which will be in the water in both urban and rural environments. Vehicles can quickly become unstable in moving water - 30cm of water moving at only 6mph is enough to float the average family saloon. If you fall over in 15cm of water moving at only 6mph you are unlikely to be able to stand up again

To enter or not?

Don't enter flood water that is moving or more than 10cm (4 inches) deep.

Consider entering flood water - i.e. to protect your own property or to help others, only if:

- water is no more than 10cm deep
- water is not moving
- there is hard surface underneath - tarmac/concrete but not grass
- you can see the surface beneath the water

Keep a careful watch for hazards such as:

- raised drain covers
- open manholes
- kerbstones
- any other trip/fall hazard

and, bear in mind that water levels can change quickly and dramatically.

Cars:

If you get advance warning of flooding, it's best to move your car to higher ground to reduce the risk of costly damage or the hassle of an insurance claim.

- Only drive through water if you know that it's not too deep - generally this would mean no more than halfway up your wheels.
- Don't try driving through fast-moving water, such as at a flooded bridge approach – your car could easily be swept away.
- If you're driving and become stuck in flood water, it's generally best to stay in the car and telephone for help rather than try to get out - unless the water is shallow, stationary and you can see the ground beneath the water.
- If you return to find your car standing in flood water it's best to leave it and telephone for help or wait for the flood water to subside, rather than try to get to it and move it - unless the water is shallow, stationary and you can see the ground beneath the water.

Flood water, particularly sea water, can play havoc with vehicle electrics causing intermittent or erratic operation of lights and wipers for example. Sometimes the consequences can be more dangerous, and we've seen cases where all the airbags have deployed suddenly and without warning some time after a vehicle was recovered. If flood water has reached floor height or got inside the vehicle it's best to telephone for help before attempting to recover it.

Health risks:

Urban flood water can carry dangerous bacteria that could cause disease, particularly if drains/sewers have back-washed!

In rural areas contamination is more likely to come from agricultural chemicals and animal waste.

It's safest to assume that water is contaminated even if there's not obvious evidence such as floating or suspended sewage, oil slicks etc.

If you do enter (shallow and still) flood water it's best to wear protection such as wellington boots and to keep your hands out of the water. Wash and clean up carefully afterwards.

Floodwater facts:

- The majority of drowning deaths in the UK occur within only 3m of a safe point
- 2/3 of those who die in flood-related accidents are considered to be good swimmers
- 32% of flood-related deaths are by drowning in a vehicle
- After 20 minutes in water at 12C the temperature of the deep muscle of your forearm would drop from 37 ºC to 27ºC, leading to a 30% reduction in muscle strength.
- In water 1m deep (waist high), flows of 1m/s become challenging and by 1.8m/s (4mph) everyone will be washed off their feet.
- If the speed of the flood water doubles the force it exerts on you/your car is quadrupled
- Just 15cm of fast flowing water can knock you off your feet and be enough for you to be unable to regain your footing.
- 60cm of standing water will float your car
- Just 30cm of flowing water could be enough to move the average family car
- Just an egg cupful of water in the combustion chamber could be enough to wreck an engine
- Flood water can be contaminated and carry diseases
- Culverts are dangerous when flooded – the siphon effect of culverts can drag in pets, children and even fully grown adults.

Met Office Weather Warnings:

As the UK's official weather service, the Met Office is responsible for issuing weather warnings, which warn of impacts caused by severe weather. The Met Office provide warnings up to seven days ahead for rain, thunderstorms, wind, snow, lightning, ice and fog.

Met Office weather warnings are available in a number of ways, which make it easy to get the very latest information wherever you are. These include the Met Office app and website, social media, email alerts, TV, radio and RSS.

It is recommended that the site owner and individual property owners and occupiers sign up to the National Severe Weather Warning Service. More information can be found here: https://www.metoffice.gov.uk/weather/guides/warnings.

The Met Office issues weather warnings, through the National Severe Weather Warning Service, when severe weather has the potential to bring impacts to the UK. These warnings are given a colour (yellow, amber or red) depending on a combination of both the impact the weather may have and the likelihood of those impacts occurring.

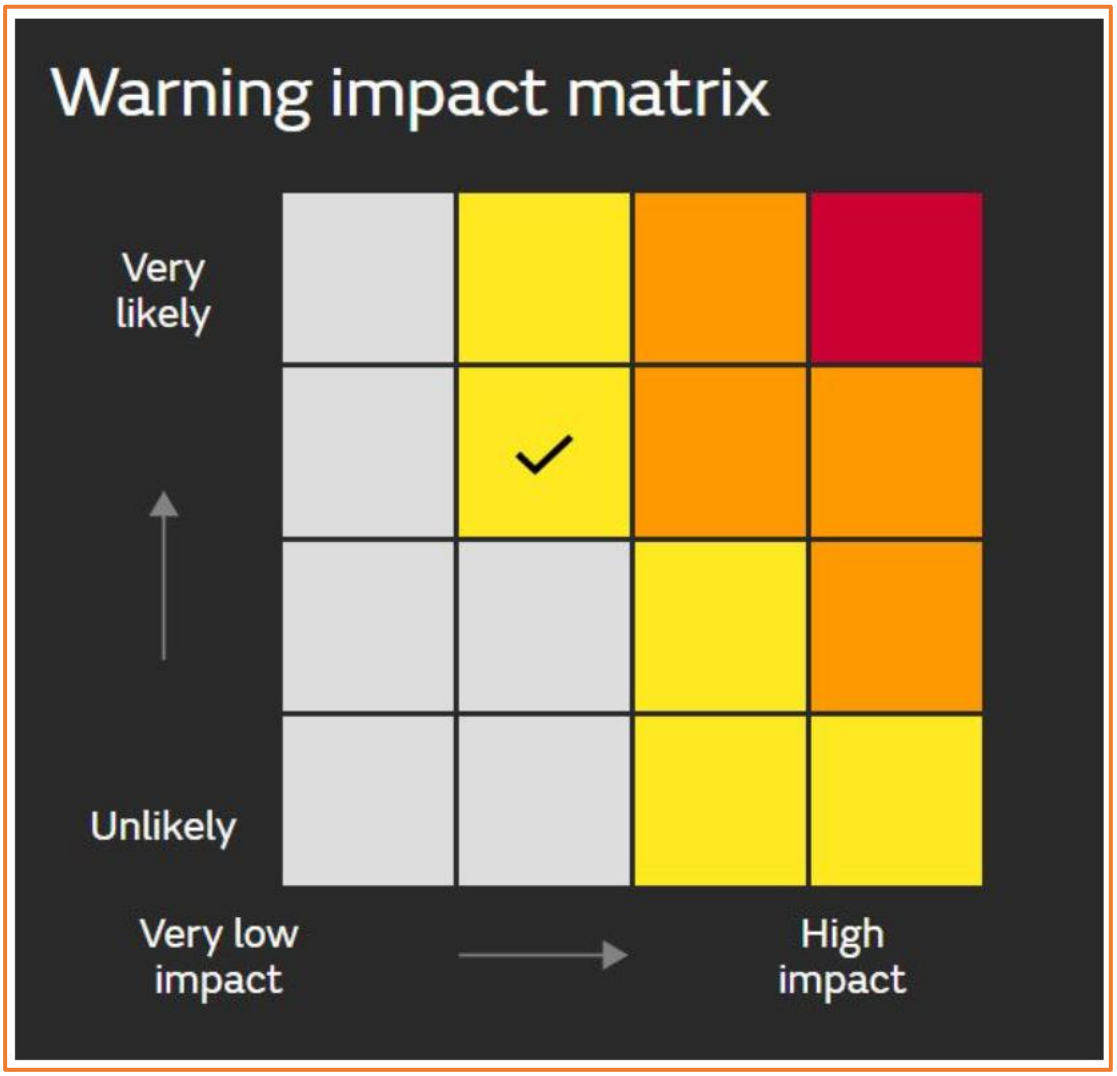


Figure 14: Met Office Weather Warning Impact Matrix (Source: Met Office)

Yellow Warning: Yellow warnings can be issued for a range of weather situations. Many are issued when it is likely that the weather will cause some low level impacts, including some disruption to travel in a few places. Many people may be able to continue with their daily routine, but there will be some that will be directly impacted and so it is important to assess if you could be affected. Other yellow warnings are issued when the weather could bring much more severe impacts to the majority of people but the certainty of those impacts occurring is much lower. It is important to read the content of yellow warnings to determine which weather situation is being covered by the yellow warning.

Amber Warning: There is an increased likelihood of impacts from severe weather, which could potentially disrupt your plans. This means there is the possibility of travel delays, road and rail closures, power cuts and the potential risk to life and property. You should think about changing your plans and taking action to protect yourself and your property. You may want to consider the impact of the weather on your family and your community and whether there is anything you need to do ahead of the severe weather to minimise the impact.

Red Warning: Dangerous weather is expected and, if you haven't already done so, you should take action now to keep yourself and others safe from the impact of the severe weather. It is very likely that there will be a risk to life, with substantial disruption to travel, energy supplies and possibly widespread damage to property and infrastructure. You should avoid travelling, where possible, and follow the advice of the emergency services and local authorities.

The Met Office also issue Flood Guidance Statements. On the day of the 2016 flood event (23rd June 2016) the following Flood Guidance Statement was issued by the Met Office:

> *"There is a MEDIUM flood risk for surface water flooding today across parts of the south-east of England including Greater London.*
>
> *Torrential, thundery downpours may affect parts of the south-east of England including Greater London this afternoon. This brings a medium likelihood of renewed and continuing significant surface water flooding impacts, giving a MEDIUM overall flood risk here"*

Flood Evacuation Plan

The decision to evacuate or take shelter in your property is ultimately for you to make having due regard to the advice/warnings and instructions of the emergency services. Where possible you should make arrangements with family or friends for shelter.

The decision to evacuate must be made to allow sufficient time to conduct the evacuation before flooding occurs. Flood waters contain hidden dangers and will impede if not prevent a safe evacuation.

Where evacuation is not a feasible option, or has been delayed, you should remain within the property; taking with you any important documents, bottled water, essential medicines and food sufficient to support you until rescue (see information related to Flood Kit).

You should not assume that the emergency services will be able to assist you with the evacuation; their focus will be directed to those in greatest need.

When to Leave your Property:

It is recommended that residents and users do not attempt to evacuate if flooding of the site has already commenced. They should seek immediate refuge within their property, call 999, and await further instruction.

The applicant has committed to installing an extensive range of additional flood mitigation measures (as outlined on Page 17 of the Flood Risk Assessment) should approval be granted, and all external doors will be replaced with Flood Proof Doors. As such, given the flashy (short duration) nature of surface water flooding, it is considered likely that the whole development will be protected from flooding for at least a 1:100 year surface water event which could results in a maximum surface water flood depth of 0.30 to 0.60m.

Evacuation Routes:

If it is decided to evacuate upon receipt of a flood warning, and no floodwaters are present within the site or on the roadway outside, leave the property and follow the agreed evacuation route.

As can be seen from the flood hazard mapping for the 1:100 year event (Medium Risk), the entire escape route (exit the site to the High Street, and then travel north along the High Street (A4125), which becomes Church Road, and then travel west along Green Lane (A4125), and then north along Watford Road (B469) is shown to be outside of areas of Extreme, Significant, Moderate and Low flood hazard.

As such, for the modelled 1:100 year surface water event safe escape can be provided.

The Hillingdon Surface Water Management Plan also provided flood hazard mapping for the 1 in 100 plus climate change chance of rainfall event occurring in any given year (1% AEP + CC).

The 1:100 year plus climate change surface water flood hazard mapping shows the escape route as described above) is shown to be outside of areas of Extreme, Significant, Moderate and Low flood hazard.

Once evacuated, residents should report to the local police that they have done so, and are no longer on site.

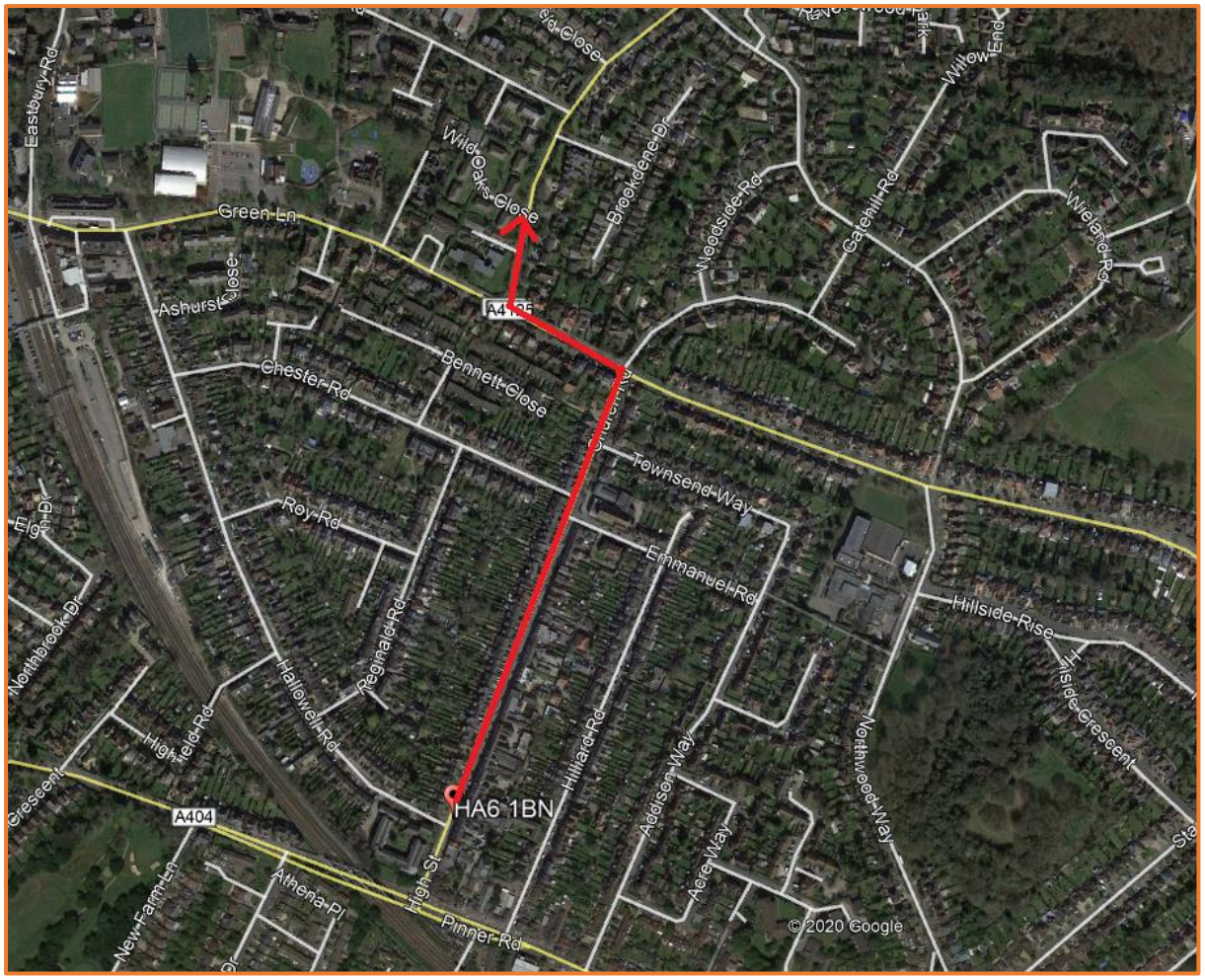


Figure 15: Proposed flood evacuation route shown by red line (Source: Google)

Safe Refuge within your Property:

It is recommended that residents and users do not attempt to evacuate if flooding of the site has already commenced. They should seek immediate refuge within their property, call 999, and await further instruction.

The applicant has committed to installing an extensive range of additional flood mitigation measures (as outlined on Page 17 of the Flood Risk Assessment) should approval be granted, and all external doors will be replaced with Flood Proof Doors. As such, given the flashy (short duration) nature of surface water flooding, it is considered likely that the whole development will be protected from flooding for at least a 1:100 year surface water event which could results in a maximum surface water flood depth of 0.30 to 0.60m.

To help protect against flooding during extreme events, the applicant has agreed to implement flood resistant design measures into the property, in consultation with the Local Authority building control department.

These measures will include the following:

- Waterproof ground floor internal render;
- External walls rendered resistant to flooding to first floor level;
- Exterior ventilation outlets, utility points and air bricks fitted with removable waterproof covers;
- Ground floor electrical ring run from high level (at least 600mm above ground level);

- Electrical incomer and meter situated at high level (at least 600mm above ground level);
- Boilers, control and water storage / immersion installed at high level (at least 600mm above ground level);
- Gas meter installed at high level (at least 600mm above ground level);
- Plumbing insulation of closed-cell design;
- Non-return valves fitted to all drains and sewer outlets;
- Manhole covers secured;
- Kitchen units of solid, water resistant material, and
- Use of MDF carpentry (i.e. skirting, architrave, built-in storage) avoided.

In addition, flood proof doors will be installed for all external doors. Based on the plans provided there are no low windows.

Likely duration of flooding:

The Hillingdon Surface Water Management Plan states that Flooding from land is usually short-lived and may only last as long as the rainfall event. However occasionally flooding may persist in low-lying areas where ponding occurs. Due to the typically short duration, flooding from land tends not to have as serious consequences as other forms of flooding, such as flooding from rivers or the sea however it can still cause significant damage and disruption on a local scale.

The previous recorded surface water flood event at the High Street (in 2016) reported the duration of flooding to be one evening only.

Occupants awareness of flood events:

Flood warning notices will be erected around the site to inform site users of the risk of flooding, and the flood warning and evacuation measures.

A map of the area will be displayed which highlights flood information, such as access routes and safe refuge points.

Signs should be put in prominent places around the site. For example:

- in the access pathway to the proposed flats
- on information or notice boards
- at entrance and exit points

Flood Kit

The successful implementation of any plan is dependent on all occupants being familiar with its content and to have rehearsed, where possible, the procedures contained within it. Rehearsing the plan can be made fun and educational for younger members of the family.

Resilience is achieved when individuals and communities cooperate to prepare for, respond to and recovery from emergencies. This begins with engagement with neighbours, understanding your community and culminates in a collective approach to management of risk.

There are many ways in which a resident may prepare for the potential of a flood event. The Environment Agency recommends that you create a kit of essential items and keep it to hand.

- Important documents - such as passport and insurance certificates. Some documents are expensive to replace. Having these in your kit will keep them safe and to hand.
- Torch - in case it floods at night and your power is affected.
- Radio - a wind-up or battery radio will help you monitor local news and weather broadcasts for the latest flooding situation.
- Batteries - have spare batteries available to power your torch or radio.
- Blankets or warm clothing - it may be cold and you could be without power for some time.
- First aid kit - keep a first aid kit to hand in case of minor injuries. Put any prescription medication in your kit so that you have easy access to it.
- Bottled water - flood water can contain sewage, chemicals and animal waste. Drinking bottle water will keep you hydrated and make sure your water hasn't been contaminated by the flood water

.

- Tinned food - you don't know how long the flood will last. Have tinned and non-perishable food available for you to eat.
- Personal items - some items are irreplaceable. Put items of personal value such as photos, family videos or treasured mementos in your flood kit so that they are safe.
- Mobile phone - keep a fully charged mobile with you so that you can contact people in an emergency or call for help. If your phone has Internet access you can use it to check on the latest flood situation.
- Waterproof clothing - keep wellies and rubber gloves available should you need to enter the flood water.

In a flood, you may not have time to find these essential items so it's important to prepare in advance.

Completing an individual flood plan – in light of the information in this plan - will help you decide what practical actions to take before and during a flood, which will help reduce the damage flooding could cause. A copy of the Environment Agency's personal flood plan is included in this document.

Recovery and Re-occupation of Properties

If your home is subjected to flooding, and you have evacuated, you may not be allowed to return to your home until it has been declared safe to do so. Your insurance company will provide further guidance and support.

In the event that you did not evacuate it is possible that you will now be encouraged to do so, insurance companies may insist upon it in order to ensure your protection and to effect necessary repairs.

If you have household insurance:

If you have not done so ring your insurance company immediately - they will send a loss adjuster as soon as they can (usually in a day or so).

Try to 'stop' and make a plan. e.g. photograph everything – structure, appliances, furniture and contents, watermarks etc. If you have lost your camera in the floodwater, use a cheap disposable one. If you've got a video camera use that too. If you or your family have had to move out or need to leave the area, make realistic decisions based upon the fact many houses will take six months to dry and become habitable – this is not a two week problem!

You may have to live in your house while the loss adjuster arrives and tells you what will happen. In the meantime make a list of what has been damaged and keep it somewhere safe.

Recover valuables, keepsakes etc and put them somewhere safe. Use rubber gloves when you are handing them and put them in bags or boxes in a safe place.

Your insurance company via your loss adjusters will arrange for a professional cleaning company to come and undertake all of the work in the following section or if the damage is severe appoint a 'strip out' contractor to remove flood damaged walls and floors plus damaged goods

No household flood insurance?

Local supplies of disinfectant, brushes, driers, generators, pumps, builders and tradesmen will run out very fast. Make a full list of emergency cleaning items to get ahead of the game by arranging for someone to collect these for you from perhaps well outside the local area.

What should I do first when the floodwater has gone?

When the flood water subsides it is vital to clear standing water as quickly as possible. Bricks and concrete floors soak up water relatively slowly, but conversely take months to dry out if they have been left standing in water for a long period (one inch per month). Fast action at this stage will save months of drying time later. (Very deep water however should be cleared by max. one third each day).

Get everything that is wet out of the house. Never try to vac-dry carpets where the underlay or flooring below is wet. Carpets are likely to be contaminated (just before removing them put some gloves on and cut up a small section for the loss adjuster to see).

All drying has to be done by exposing the bottom layer of the structure. Laminate floors must be taken up. Traditional floorboards should be lifted in a limited pattern to allow pumping and or ventilation of the sub floor. The boards and joists will usually dry satisfactorily.

Chipboard floors may recover but if immersed in water for several days they will swell badly and never recover and are very unsafe to walk on when wet. If they need to be scrapped then remove them immediately to aid ventilation to the joists and sub-ground below.

If scrubbing with disinfectant is needed this is the next job. It is pointless to dry concrete floors and then introduce more water in cleaning at a later date. Disinfect very thoroughly otherwise the smell will forever linger. Disinfectant will kill mould that may form as soon as 'wet areas' change to 'damp areas'. Mould and mildew are more dangerous to health than commonly perceived.

If kitchen units are wrecked (which is highly likely) then these should be dismantled also. Staircases will usually dry out but need ventilation to the underside if possible. Doors will vary in construction but once twisted will not often straighten. Removing doors will help ventilation.

Drying - ventilation, ventilation and more ventilation.

In fine weather open windows and doors to create a draft of air through the building. Incoming air will evaporate damp from surfaces and take the moisture out of the building.

Heating the house at the same time will speed the process. Hot air electric heaters are excellent since they produce moisture free heat. Propane Gas space heaters are frowned upon by many experts as the gas produces a little moisture and in the wrong hands they could be a fire risk. In my own experience they are very effective but one must appreciate fast track drying can cause cracking of plaster, twisting of door etc.

Dehumidifiers work on the principle of extracting water from the humid air of a damp building; the building must be sealed with all windows and doors closed otherwise you are effectively 'drying the outside world'. Ideally a large hire-shop dehumidifier (3ft x 2ft x 2ft) is needed in each room to be dried. The water must be collected into a five gallon barrel and not an open bucket. Dehumidifiers are slow in action and in my view best employed after much heat and ventilation drying has first been achieved.

Note, a concrete floor is truly ‘dry’ when a one metre sq polythene sheet left on the floor overnight does not have condensation under it the next morning. Whilst a house can be occupied before this point, tiles or vinyl should not be laid until this test is passed. When windows start to show less condensation drying is being effective.

Insurance

Do not wait; do not see this as an insurance 'opportunity'. Insurance Loss Adjusters will be inundated and cannot get to everyone first. They are professionals who are generally keen to help honest people. They like claimants who do everything reasonable to mitigate their own loss.

Communicate clearly and clarify what terms of reference the Insurance Company feels is reasonable. If you ‘try it on’ expect a long and stressful process. In general you will get eventually what you are due.

Key Contacts

Emergency Services

- Police 999
- Fire & Rescue Service 999
- Ambulance Service 999

Environment Agency

- Floodline (24-Hour) 0345 988 1188

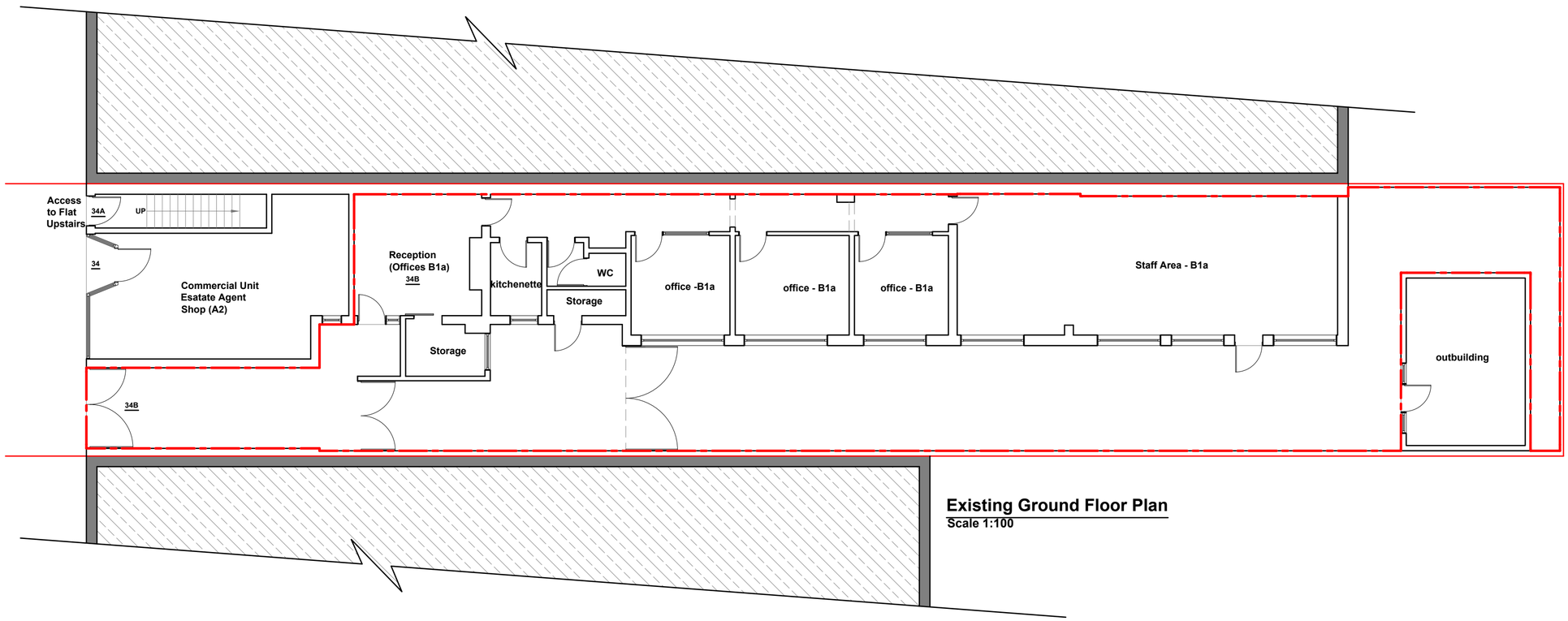
Hillingdon Council

- Out of hours emergency service: 01895 250 111

Utilities

- UK Power Networks (power cut) 0800 31 63 105 (or dial 105)
- National Gas Emergency Service (gas leak) 0800 111 999
- Thames Water 0800 714 614

Appendix A – Existing and Proposed Plans



Existing Ground Floor Plan

Scale 1:100

1:100

0 1 2 5 10 Meter

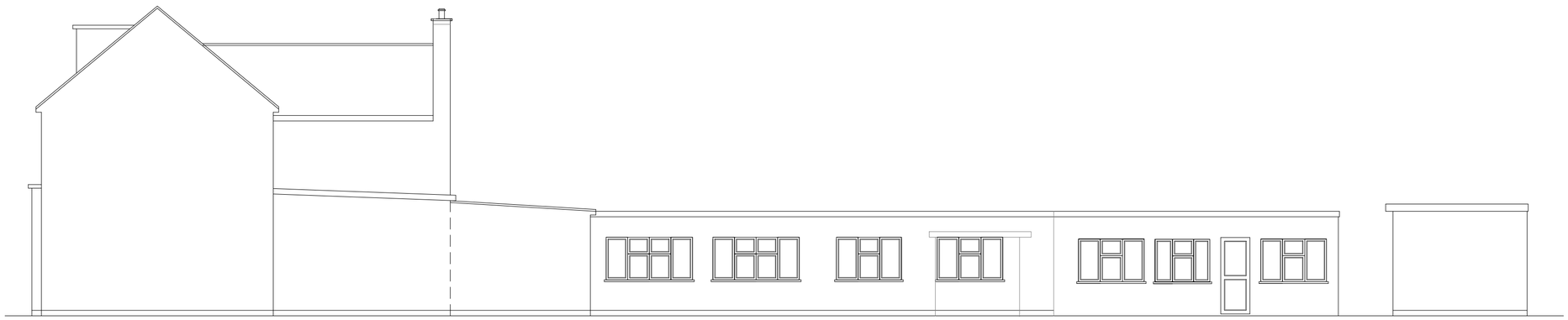
ulti reation	Project: 34A High Street Northwood Middx. HA6 1DZ	Title: Existing Floor Plans	Scale: 1:100 @ A2 Date: 17/07/2020 Drawing No.: 3281 - 01/BK Revision

239 Western Road, Southall, Middx, UB2 5HS Tel: 020 8571 1369 info@multicreation.co.uk

Existing Rear Elevation
Scale:1:100

Existing Side Elevation
Scale:1:100

Existing Front Elevation
Scale:1:100



ExistingSide Elevation
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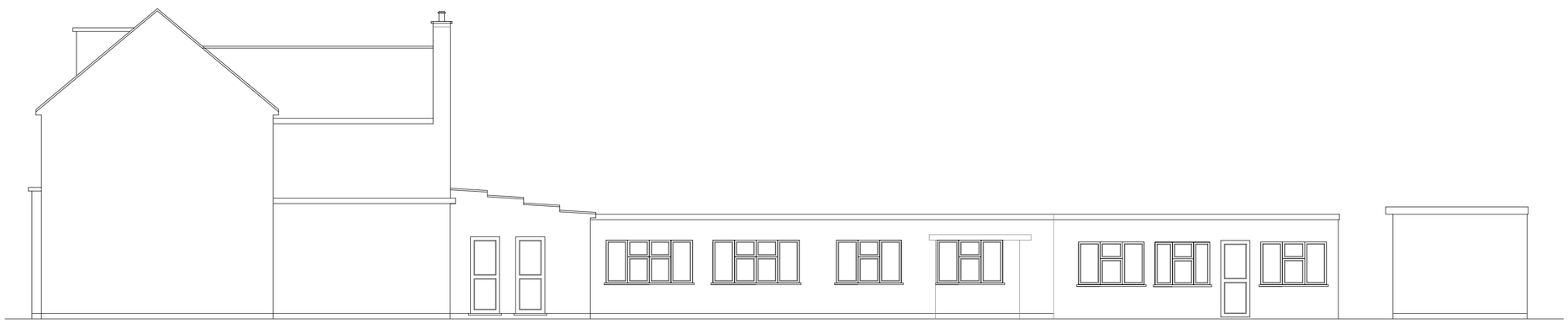


ExistingSide Elevation
Scale:1:100

1:100

0 1 2 5 10 Meter

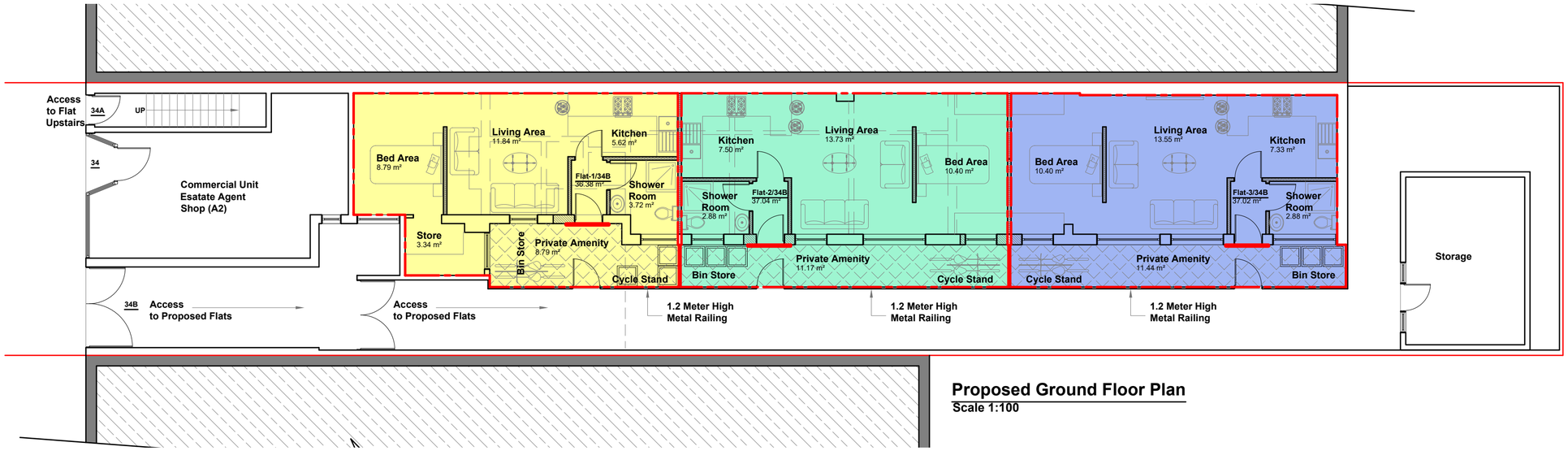
All work to comply with current building regulations and codes of practice

Do not scale from drawings all dimensions to be checked on site before the start of any work

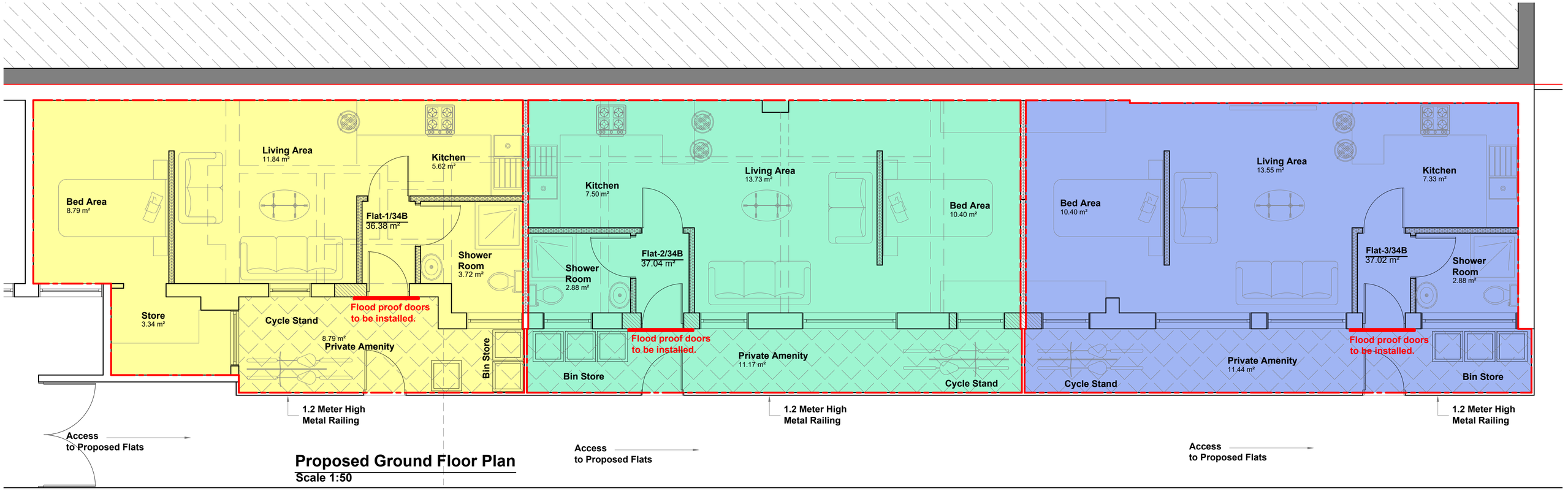
Proposed External Finish Materials to Match Existing External Finish Materials

	Project: 34A High Street Northwood Middx. HA6 1DZ	Title: Existing Elevations	Scale: 1:100 @ A2 Date: 17/07/2020 Drawing No.: 3281 - 02/BK Revision

239 Western Road, Southall, Middx, UB2 5HS Tel: 020 8571 1369 info@multicreation.co.uk



Proposed Ground Floor Plan
Scale 1:100



Proposed Ground Floor Plan
Scale 1:50

Flat No.	Bedrooms	Floor Area	Amenity Area
1	Studio / 1 Per	36.38m²	8.79m²
2	Studio / 1 Per	37.04m²	11.17m²
3	Studio / 1 Per	37.02m²	11.44m²

1:100
0 1 2 5 10 Meter

1:100
0 1 2 5 10 Meter

1:50
0 1 2 5 Meter

Multi Creation	Project: 34A High Street Northwood Middx. HA6 1DZ	Title: Proposed Floor Plans	Scale: 1:100/50 @ A2 Date: 17/07/2020 Drawing No.: 3281 - 03/BK Revision A 06/11

239 Western Road, Southall, Middx, UB2 5HS Tel: 020 8571 1369 info@multicreation.co.uk

Proposed Rear Elevation
Scale:1:100

Proposed Side Elevation
Scale:1:100

Proposed Front Elevation
Scale:1:100

Proposed Side Elevation
Scale:1:100

1:100

0 1 2 5 10 Meter

All work to comply with current building regulations and codes of practice

Do not scale from drawings all dimensions to be checked on site before the start of any work

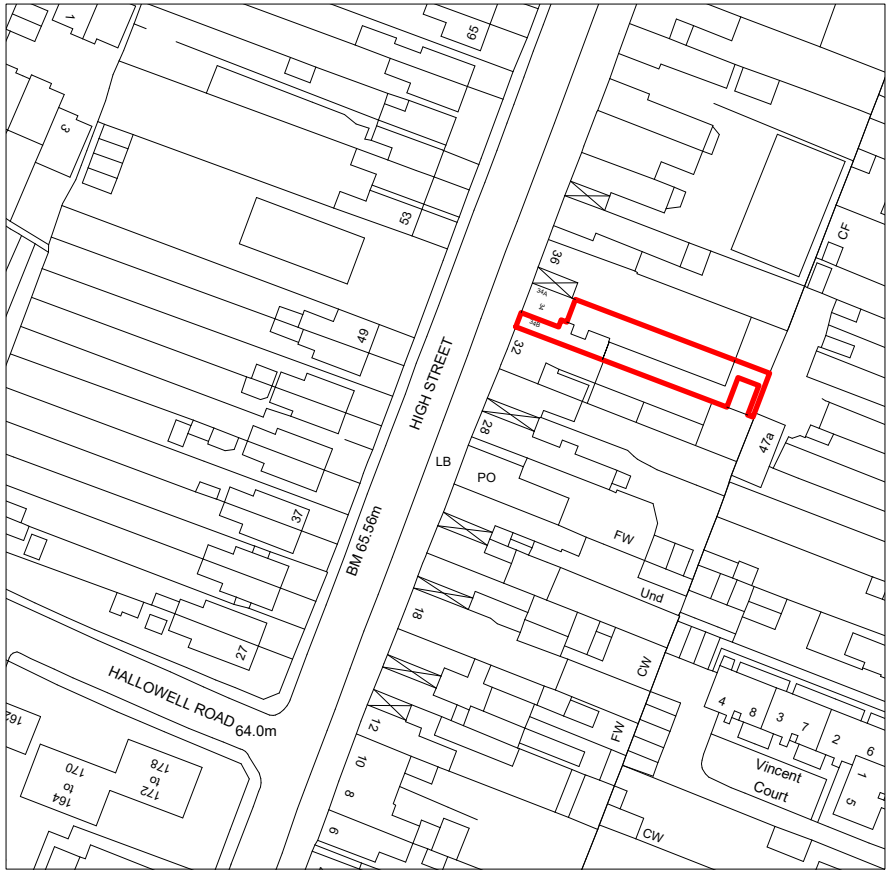
Proposed External Finish Materials to Match Existing External Finish Materials

Project:
34A High Street
Northwood
Middx.
HA6 1DZ

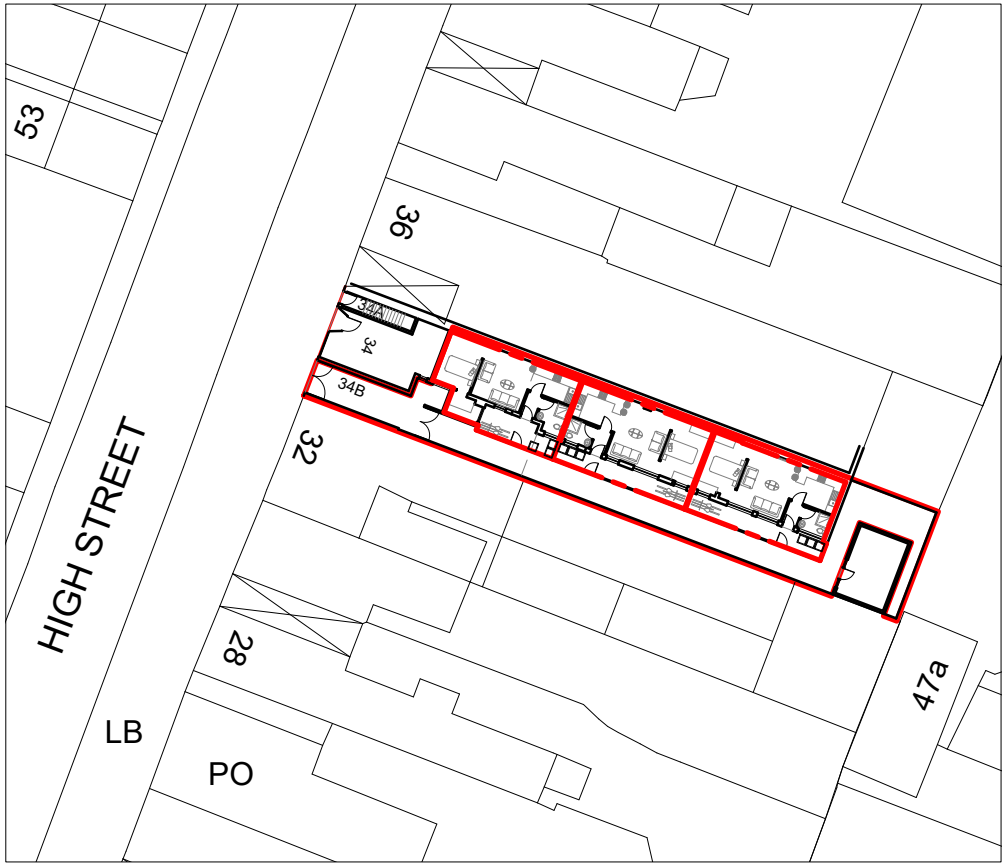
Title:
Proposed Elevations

Scale: 1:100 @ A2
Date: 17/07/2020
Drawing No.: 3281 - 04/BK
Revision

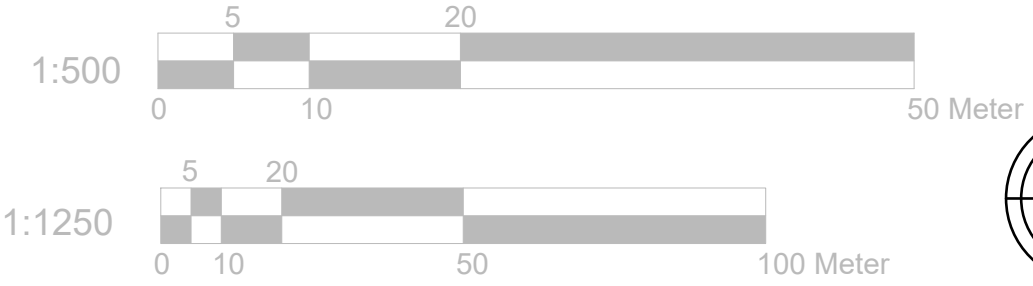
239 Western Road, Southall, Middx, UB2 5HS Tel: 020 8571 1369 info@multicreation.co.uk

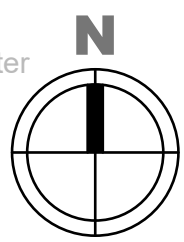


Location Plan
Scale 1:1250



Block Plan
Scale 1:500





Multi Creation	Project: 34A High Street Northwood Middx. HA6 1DZ	Title: Location Plan Block Plan	Scale: 1:500/1250 @ A4 Date: 17/07/2020 Drawing No.: 3281 - 05/BK Revision

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Appendix B – Personal Flood Plan

Personal flood plan

Name

Environment Agency

Are you signed up to receive flood warnings? ☐
If not call Floodline on 0345 988 1188 to see if your area receives free flood warnings.

Let us know when you've completed your flood plan by calling Floodline on **0345 988 1188.** This will help us learn more about how people are preparing for flooding.

General contact list	Company name	Contact name	Telephone
Floodline	Environment Agency		0345 988 1188
Electricity provider			
Gas provider			
Water company			
Telephone provider			
Insurance company and policy number			
Local council			
Local radio station			
Travel/weather info			

Key locations

Service cut-off	Description of location
Electricity	
Gas	
Water	

Who can help/who can you help?

Relationship	Name	Contact details	How can they/you help?
Relative			
Friend or neighbour			

Be prepared for flooding. Act now

Personal flood plan

What can I do NOW?

Environment Agency

- Put important documents out of flood risk and protect in polythene ☐
- Check your insurance covers you for flooding ☐
- Look at the best way of stopping floodwater entering your property ☐
- Make a flood plan and prepare a flood kit ☐
- Find out where you can get sandbags ☐
- Identify who can help you/ who you can help ☐
- Identify what you would need to take with you if you had to leave your home ☐
- Understand the flood warning codes ☐

What can you do if a flood is expected in your area?

Actions	Location
Home	
• Move furniture and electrical items to safety	
• Put flood boards, polythene and sandbags in place	
• Make a list now of what you can move away from the risk	
• Turn off electricity, water and gas supplies	
• Roll up carpets and rugs	
• Unless you have time to remove them hang curtains over rods	
• Move sentimental items to safety	
• Put important documents in polythene bags and move to safety	
Garden and outside	
• Move your car out of the flood risk area	
• Move any large or loose items or weigh them down	
Business	
• Move important documents, computers and stock	
• Alert staff and request their help	
• Farmers move animals and livestock to safety	
Evacuation - Prepare a flood kit in advance	
• Inform your family or friends that you may need to leave your home	
• Get your flood kit together and include a torch, warm and waterproof clothing, water, food, medication, toys for children and pets, rubber gloves and wellingtons	

There are a range of flood protection products on the market to help you protect your property from flood damage. A directory of these is available from the **National Flood Forum** at **www.bluepages.org.uk**

Be prepared for flooding. Act now

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