Aval Consulting Group.

Level 2 Flood Risk Assessment

10 Bayford Road, Littlehampton BN17 5HL

Whaleback Planning and Design

January 2022

Aval Consulting Group.

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B	07 January 2022	PR	PR	AC	Final

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ARUN DISTRICT COUNCIL LU/18/22/PD

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1. Executive Summary

Aval Consulting Group Limited has been commissioned Whaleback Planning and Design ('the client') to provide a Flood Risk Assessment in relation to a planning application at 10 Bayford Road, Littlehampton BN17 5HL.

The proposal is for the change of use of the ground floor café to a one-bedroom flat, with no changes to the first and second floors.

The site is within a Flood Zone 3 and hence, a full Level 2 Flood Risk Assessment has been carried out. Both the Sequential and Exception Tests will be carried out as per the local authority's Strategic Flood Risk Assessment (SFRA) and the NPPF guidance. An evacuation plan has also been discussed.

The proposed development will also include information on surface water management and SuDS for the proposed development in order to reduce surface water discharge.

2. Introduction

2.1 Overview

AVAL Consulting Group Limited (ACL) has been commissioned by the client to produce a Flood Risk Assessment at 10 Bayford Road, Littlehampton BN17 5HL. This is to accompany the planning application to the Local Authority for consent to undertake the proposed work.

This report will state the Flood Zone the development is located in and demonstrate the proposed development would be suitable under both the Sequential and Exception Tests. An evacuation plan will also be discussed.

The site drawings are presented in Appendix A.

2.2 Site Location and Details

Figure 2.1 shows the proposed site location. The surroundings of the proposed development are a mix of residential and commercial. The site is bounded by residential developments to the north and south, Evans Gardens to the east and Bayford Road to the west.

Figure 2.1: Proposed site location (Source: Google Maps)

2.3 Proposed Development and Vulnerability Classification

The proposal is for the change of use of the ground floor café to a one-bedroom flat, with no changes to the first and second floors.

The site is located at an approximate height of 3m AOD.

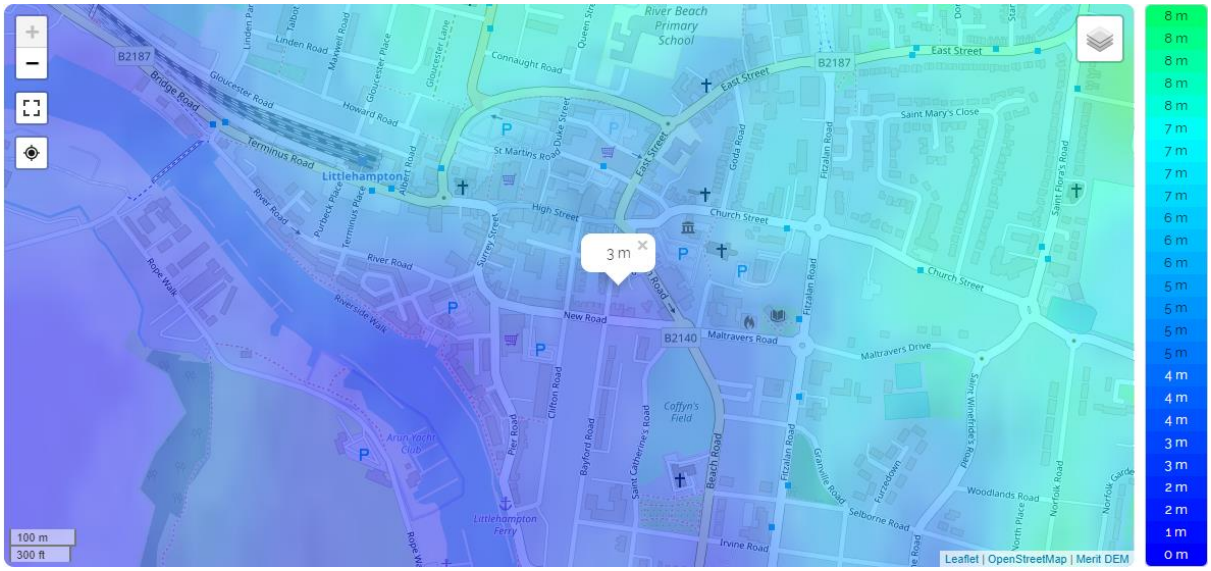

Figure 2.2: Topography of Proposed Site (Source: topographic-map.com)

As per the National Planning Policy Framework, the proposed residental flat will be under the **'More Vulnerable'** classification.

3. Relevant Standards and Policies

This section summarises all legislation, policy, statutory and non-statutory guidelines relevant to the proposed development. That also includes all the latest regional and local planning policy guidance specifically applicable to the proposed development.

3.1 The National Planning Policy Framework (NPPF)

The latest National Planning Policy framework (NPPF) was published on 20th July 2021. The NPPF is supported by technical guidance set out within the Planning Practice Guidance for Flood Risk and Drainage, including the classification of the site vulnerability and the requirement do an Exception Test in relation to the Flood Zone and Vulnerability Classification.

One of the key aims of the NPPF is to ensure that flood risk is taken into account at all stages of the planning process to avoid inappropriate development in areas at risk of flooding and to direct development away from areas of highest risk.

It advises that where new development is necessary in areas of higher risk, flood mitigation resilience and resistance measures should be incorporated which can include but not limited to a higher finished floor level, installing flood boards and moving electrical points above. The developments upstream of the proposed development should also be taken into the consideration of flood risk.

The NPPF's flood risk advice is all set out in Chapter 14 of the Framework document, meeting the challenge of climate change, flooding and coastal change.

3.2 Flood and Water Management Act 2010

The Flood and Water Management Act 2010 received Royal Assent on 8th April 2010. This Act provides duties on the Environment Agency, Local Authorities, Developers and other bodies to manage flood risks. The Act has significant planning and design implications for Developers.

It should be noted that these standards and procedures are being reviewed by the respective regulatory bodies and third parties against the requirements imposed by the Flood and Water Management Act 2010. The advice and recommendations provided may change when associated regulations have been issued in order to implement the full scope of the Act.

3.3 Arun District Council 2018 Adopted Local Plan

Arun District Council has a policy regarding Flood Risk within their July 2018 Adopted Local Plan. Policy W DM2: Flood Risk states:

"Development in areas at risk from flooding, identified on the latest Environment Agency flood risk maps and the Council's Strategic Flood Risk Assessment (SFRA) , will only be permitted where all of the following criteria have been satisfied:

> *a. The sequential test in accordance with the National Planning Policy Guidance has been met.*

b. A site specific Flood Risk Assessment demonstrates that the development will be safe, including access and egress, without increasing flood risk elsewhere and reduce flood risk overall.

c. The sustainability benefits to the wider community are clearly identified.

d. The scheme identifies adaptation and mitigation measures.

e. Appropriate flood warning and evacuation plans are in place; and

f. New site drainage systems are designed to take account of events which exceed the normal design standard i.e. consideration of flood flow routing and utilising temporary storage areas.

The reports prepared as part of the criteria above must take into account contingency allowances, taking climate change into account as set out in Flood Risk Assessments:climate change allowances section of the NPPG.

In locations where strategic flood defence or resilient and resistant construction measures are necessary within the site itself, proposals will be required to demonstrate how measures have been incorporated as an intrinsic part of the scheme in a manner which is compatible with the latest Strategic Flood Risk Assessment.

All development proposals must take account of relevant Surface Water Management Plans, Catchment Flood Management Plans and related Flood Defence Plans and strategies such as the Lower Tidal River Arun Strategy. The council may require financial contributions from development on sites where measures to address flood risk or to improve the environmental quality of watercourses have been identified by these Plans and Strategies."

3.4 Arun District Council Level 1 Strategic Flood Risk Assessment

The Level 1 Strategic Flood Risk Assessment provides maps of flood zones, highlights the requirement and procedure for the Sequential and Exception tests, as well as states any historic flooding which can help in the analysis of a proposed development. This will be used in order to progress through this report.

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4. Description of Study Area

The proposed development is located within a Flood Zone 3 area as per the Environmental Agency's Flood Zone Map. Figure 4.1 shows the proposed development in terms of Flood Zone 2 and 3 using ArcGIS layers from the Environmental Agency.

Figure 4.1: Flood Zone Area (Source: ArcGIS Layer from the EA)

In terms of the risk of flooding from Surface Water and the River/Seas, part of the proposed development is at a high risk of river/sea and at a high risk of surface water flooding as shown in Figures 4.2 and 4.3.

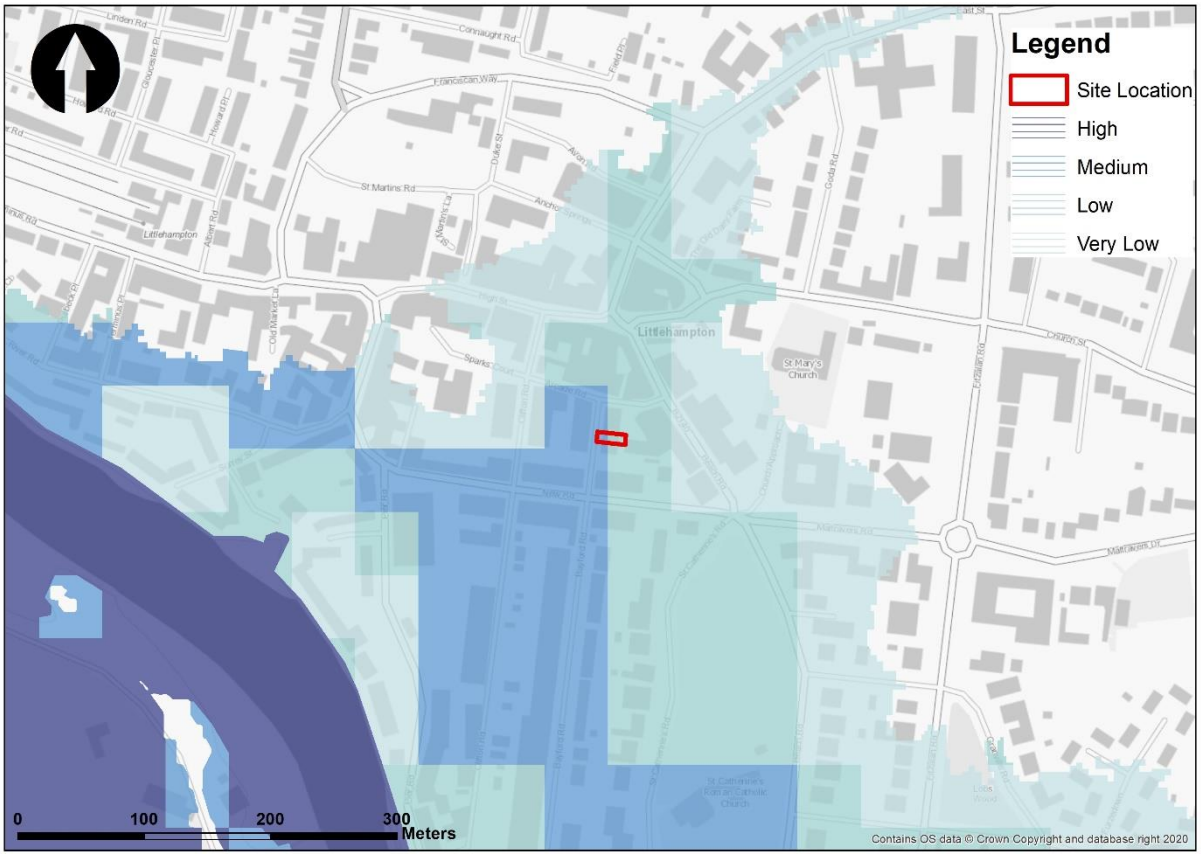

Figure 4.2: Extent of Flooding from River or the Seas (Source: ArcGIS Layer from the EA)

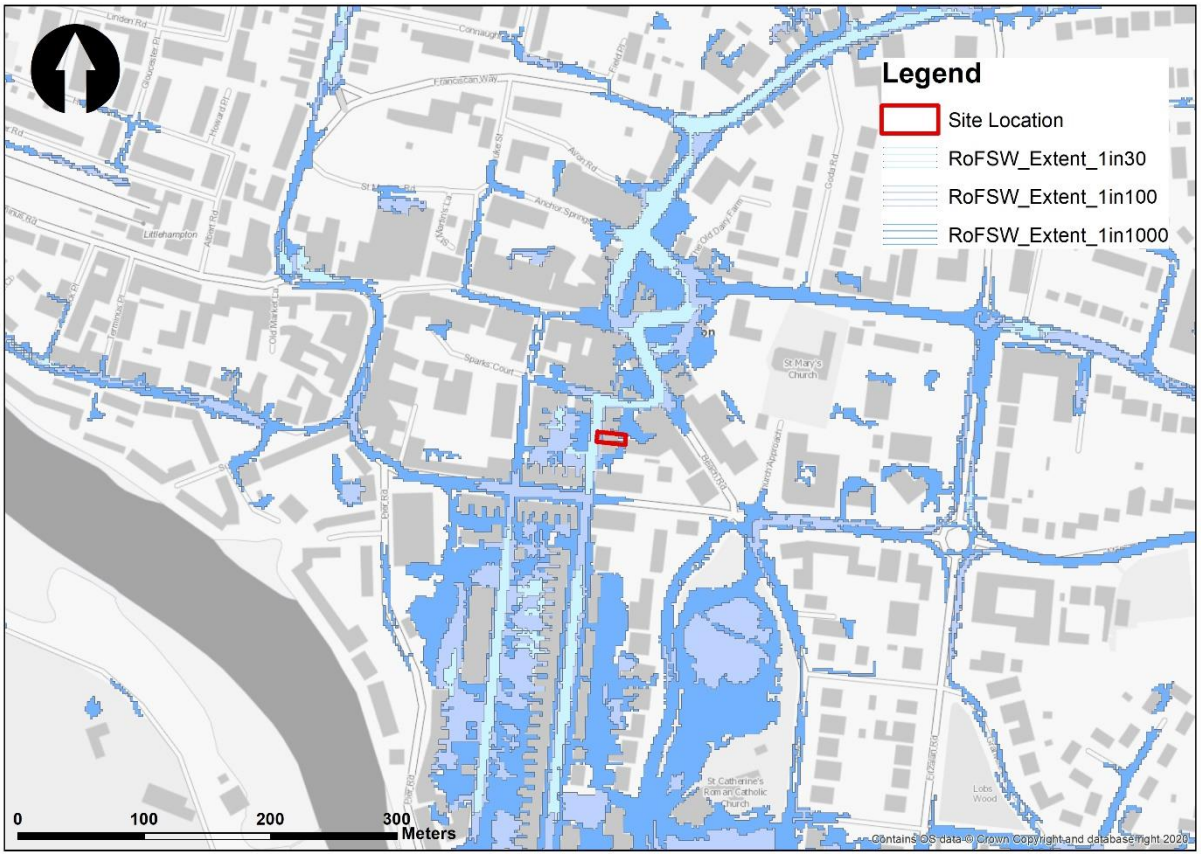

Figure 4.3: Extent of Flooding from Surface Water – High Risk (Source: ArcGIS Layer from the EA)

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The nearest watercourse is the River Tyne which is located beside the proposed development.

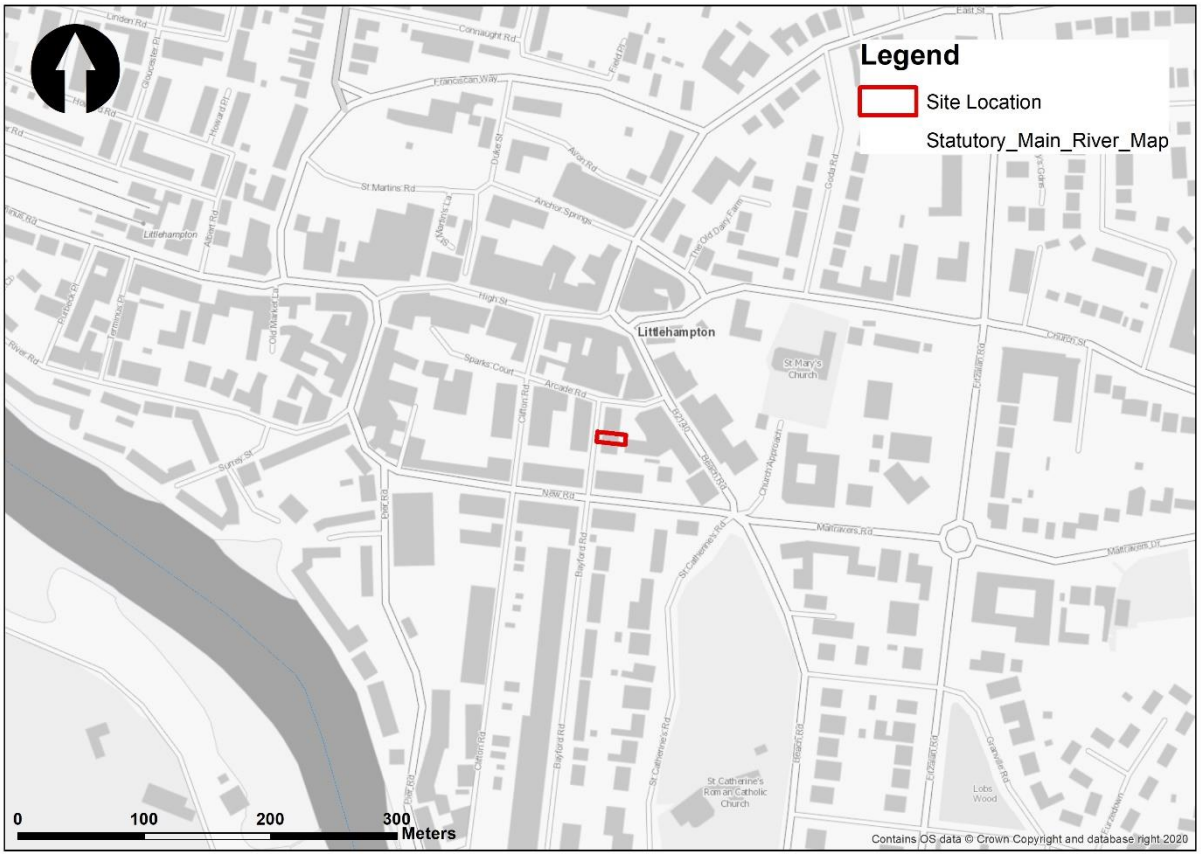

Figure 4.4: EA Watercourses (Source: ArcGIS Layer from the EA)

The proposed development is approximately 3m AOD, with the BGS geology maps indicating bedrock geology of Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation and Portsdown Chalk Formation (undifferentiated) – Chalk with superficial deposits of Raised Beach Deposits, 1 - Sand and Gravel.

As per the local authority's SFRA, the immediate vicinity of the site has experienced previous flooding. There have been surface water, tidal and an unknown source of flooding.

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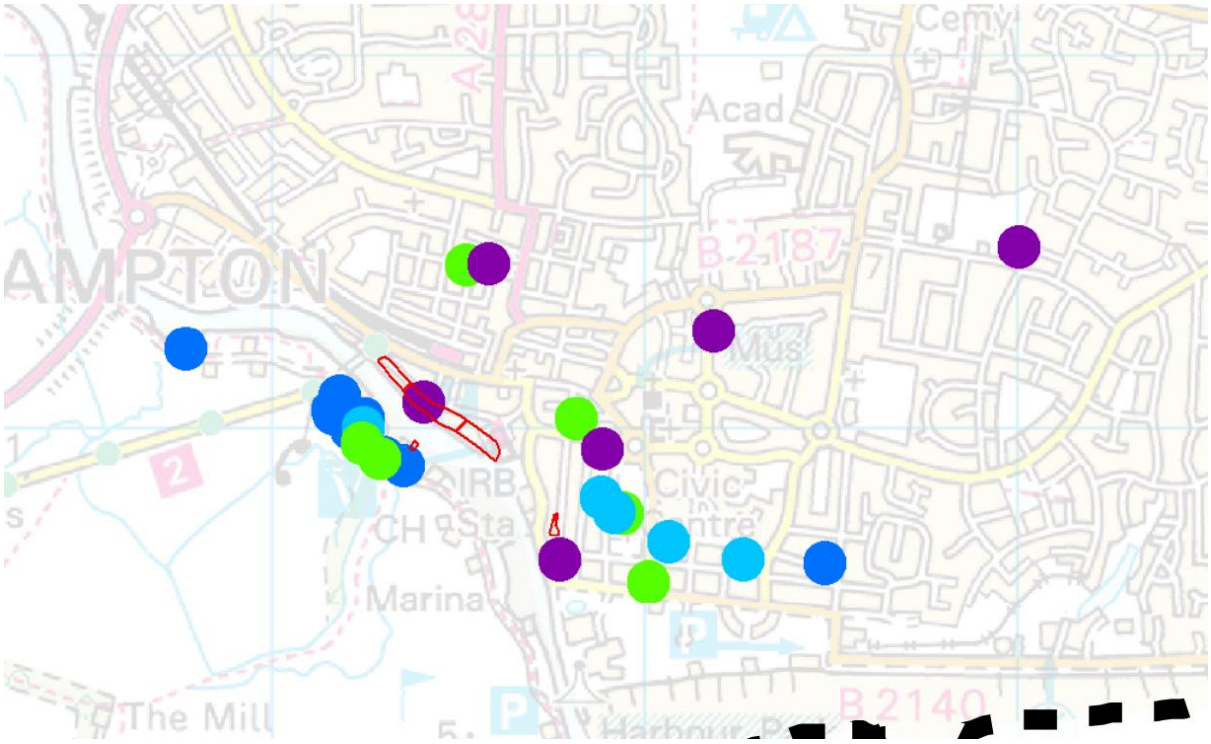

Figure 4.5: Historic Flooding (Source: Arun District Council Strategic Flood Risk Assessment Appendix H)

5. Assessment Of Flood Risk

5.1 River/Sea Flooding Flood Risk

Information relating to flood risk at the site has been obtained via the Environmental Agency's online flood mapping tool and GIS layer. Figure 4.2 in Section 4 shows the extent of flooding from the river or the seas.

It can be seen that the extent of flooding from the river or the seas is high risk.

5.2 Surface Water Flood Risk

Surface water flooding is defined as flooding resulting from rainfall-generated overland flow before runoff enters any watercourse or sewer.

It is usually associated with high-intensity rainfall events but can also occur with low-intensity rainfall or melting snow where the ground is saturated, frozen, developed or otherwise has low permeability resulting in overland flow and ponding in depressions in the topography. Large catchment areas are particularly prone to this type of flooding.

The Environmental Agency Flood Maps show the site has a high risk of surface water flooding.

The proposed new development is proposed to be served by a new surface water drainage network and has been designed to accommodate surface water flows within the site for up to and including the 100 year plus 40% climate change storm event.

5.3 Flooding from Other Sources

Non-natural or artificial sources of flooding can include reservoirs, lakes and canals etc.

At least 75% or more of the area analysed, which contained the proposed site location, is susceptible to groundwater flooding.

5.4 Historical and Anecdotal Flooding Information

As stated in Section 4, the immediate vicinity of the site has experienced a previously recorded flooding and can be seen in Figure 4.5.

5.5 Sequential Test

As the principle of a dwelling in the location is granted by permitted development rights via the GDPO, which only requires a consideration of flooding risks in relation to the building, a Sequential Test is therefore not required.

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6. Management of Flood Risk

This section will explain how the proposed development will reduce the flood risk within the site and within the surrounding areas of the site.

6.1 Residual Risk

The primary residual risk that would remain at the site would be the drainage of surface water. Flood Mitigation and Management details will be given in Section 6.3. However, other residual risks remain such as a breach of a raised flood defence, blockage of a surface water conveyance system, overtopping of an upstream storage area, or failure of a pumped drainage system; failure of a reservoir; or a severe flood event that exceeds a flood management design standard, such as a flood that overtops a raised flood defence, or an intense rainfall event which the drainage system cannot cope with.

In order to further reduce the risk of surface water flooding within the proposed development, Sustainable Urban Drainage Systems would need to be installed to either safely discharge the surface water or to temporarily store the surface water for future use or discharge. This can be in the form but are not limited to, permeable paving, green roofs or rainwater harvesting.

6.2 Exception Test

The National Planning Policy Framework sets out the different conditions in terms of the vulnerability of the development and the flood zone and accordingly sets out the requirements to do an Exception Test. The table below describes the conditions required for an Exception Test.

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	×	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	×	×	×

Key: ✓ Development is appropriate.
× Development should not be permitted.

As stated in Section 5.5, principle of a dwelling in the location is granted by permitted development rights via the GDPO, which only requires a consideration of flooding risks in relation to the building, an Exception Test is therefore not required

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6.3 Evacuation Plan and Flood Management/Mitigation Measures

As the proposed development only includes the internal conversion of the existing development at the site, it is very likely that defence infrastructure would already be in place such as a raised Finished Floor Level and the installation of Flood Boards/Doors to prevent any flooding from entering the development.

Current finished floor levels at the site are 255mm at the front of the site and 120mm at the rear. The proposed development will include a 300mm Raised Finished Floor Levels across the entire ground floor. Flood boards and doors will be installed within the floor to prevent floodwater from entering the rooms.

Electrical connection and socket points can also be placed above the floor on the walls to prevent any damage to the development or to the residents.

As stated in Section 6.1, SuDS can help in reducing the effect of flooding within the site and also upstream of the development site. Storage of surface water for future use or a controlled discharge of surface water can help in the reduction of flooding upstream of the proposed development.

The proposed development site is within the Environmental Agency's Flood Warning System. Staff and uers of the proposed development would be able to sign up to the Warning System and be alerted to any potential flooding ahead of the event.

The evacuation plan would consist of the residents evacuating the proposed development site once the Environmental Agency alert has been received. All residents would need to be aware of the EA's Flood Warning System and sign up for the alerts upon initially using the proposed development. If the most severe warning appears, residents would have to call 999 if in immediate danger.

All Flood Doors need to be fully closed to prevent any water from entering into the development.

Residents would have to then travel north along East Street where flooding is less likely to occur and is uphill from the proposed development. Alternatively, residents can temporarily stay on the highest point of the proposed development (roof) until rescue services arrive.

Appendix B includes the warning codes used by the Environmental Agency with further information on required actions. A personal flood plan is also provided for staff members to fill in and act upon under any potential flooding events.

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7. Surface Water Management

The National Planning Policy Framework 2021 (NPPF) and accompanying Planning Practice Guidance indicate surface water run-off should be controlled as near to its source as possible through a sustainable drainage approach to surface water management.

Consideration should therefore firstly be given to using sustainable urban drainage (SuDS) techniques including soakaways, infiltration trenches, permeable pavements, grassed swales, ponds and wetlands to reduce flood risk by attenuating the rate and quantity of surface water run- off from a site. This approach can also offer other benefits in terms of promoting groundwater recharge, water quality improvement and amenity enhancements. The NPPF sets out a hierarchy for the disposal of surface water which encourages a SuDS approach, which will be mentioned in Section 7.4.

7.1 Climate Change

There are indications that the climate in the UK is changing significantly and it is widely believed that the nature of climate change will vary greatly by region. Current expert opinion indicates the likelihood that future climate change would produce more frequent short duration and high intensity rainfall events with the addition of more frequent periods of long duration rainfall.

The Environment Agency has highlighted the climate change allowance for all proposed developments as described in Section 7.2

7.2 Small and Urban Catchment Climate Change Growth

The table below highlights the potential climate change expected in the future.

Applies across all of England	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Upper end	10%	20%	40%
Central	5%	10%	20%

As this development is for residential use, **a climate change growth factor of 40% is proposed** to be used for the surface water runoff calculations.

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7.3 Proposed Restricted Discharge Rates

As the site is very likely to have it's own drainage system, it is recommended to restrict the proposed surface water discharge rate to a maximum of half of the existing discharge rate with an agreement to Southern Water.

Flow control devices such as Hydrobrakes or Orifice plates can be used to limit the rate of discharge.

7.4 Methods of Surface Water Management

As set out within the NPPF 2021, there are four methods that have been reviewed for the management and discharge of surface water for the site which are detailed below; these may be applied individually or collectively to form a complete strategy. They should be applied in the order of priority as listed:

- Discharge via infiltration;
- Discharge via watercourse;
- Discharge via a dedicated public surface water system; and
- Discharged via a combined sewer.

Discharge via Infiltration

The first consideration for the disposal of surface water is infiltration. There is no easement of 5m available from both the proposed development and the neighbouring developments. The Flood Zone and the high risk of surface water flooding also does not allow for an infiltration discharge to take place.

Therefore, a discharge via infiltration is not possible.

Discharge to a Watercourse

Where infiltration techniques are not considered or not feasible, suitable a connection to a watercourse is the preferred option. The nearest watercourse is not in close proximity and the flooding risk is too high and therefore discharge into the watercourse is not a viable option.

Discharge to a Dedicated Surface Water Sewer

The next method is to discharge through the existing drainage network towards a surface water sewer. There are no dedicated surface water sewers within close vicinity of the proposed development as per the Southern Water maps. Therefore, a discharge via a dedicated surface water public sewer is not possible.

Discahrge to a Combined Sewer

The only possible method is to discharge the surface water is via the combined sewer. This is likely the current method of discharging surface water from the existing site and as the physical structure is not being changed as part of the proposed development, it is likely this will stay the same.

A CCTV survey is recommended to confirm that the surface water from the existing development does discharge into the combined sewer.

8. SuDS Appraisal and Proposed SuDS for Development

8.1 SuDS- General

Whilst the temporary storage volumes will be provided within an oversized pipework, the means by which the surface water is both stored and conveyed to the attenuation system should also incorporate various forms of Sustainable Drainage Systems (SuDS) where possible in accordance with the Environmental Agency's general guidance and the National Planning Policy Framework.

Appropriately designed, constructed and maintained, SuDS are more sustainable than conventional drainage systems. Their benefits in general terms are summarised below.

SuDS can:

- Reduce run-off surface water flow-rates and/or volumes and hence reduce the risk of flooding;
- Encourage natural groundwater re-charge;
- Reduce pollutant concentrations in storm water;
- Provide habitats for wildlife.

8.2 SuDS Appraisal

There are many site-specific factors which will influence the choice of any single or combination of SuDS device used within a development. The primary factors are:

- Whether the development is domestic, commercial or industrial;
- Whether the underlying ground is contaminated. If so, infiltration systems (soakaways) will most probably not be permitted;
- Whether the underlying ground is permeable enough for infiltration systems (soakaways) to be considered;
- Whether the groundwater levels are deep enough for infiltration systems (soakaways) to be considered;
- Whether the site is steeply sloping and its general topography;
- The availability of space inside the development for each potential SuDS facility;

Health and Safety aspects should the development be likely to be inhabited or used by children.

8.3 Types of SuDS with Respect to Proposed Development

As part of the design for this development, SuDS have been incorporated wherever practicably feasible. Based on local and regional policy, where there is a net increase in impermeable area, at least one 'at source' SuDS measure is to be provided to assist with reducing the volume of run-off.

Considering the volume of surface water discharging from the site will be higher than the existing situation, given the increase in impermeable area, a primary SuDS measure is proposed.

The primary SuDS elements proposed for this development are outlined below:

8.3.1 Rainwater Harvesting

This includes installing water butts at the base of the development to temporarily store the water for either future use or for a controlled discharge through the method identified in Section 7.4.

8.3.2 Oversized Pipes/Gutters

Slightly oversized pipes can also help in the temporary storage of surface water but can also help in the discharge of surface water from the roof without any major blockages. Gutters can also help take more surface water from the roof into the oversized pipes, thus reducing the pressure on the attenuation storage crates which can then be made smaller.

9. Summary

The proposed development site is located within Flood Zone 3, with a high risk of river/sea flooding and a high risk of surface water flooding.

As the principle of a dwelling in the location is granted by permitted development rights via the GDPO, which only requires a consideration of flooding risks in relation to the building, both the Sequential and Exception Tests were not required to be carried out.

An evacuation plan was explained, with residents encouraged to sign up to the Environment Agency's Flood Warning Services which can then help plan any evacuations with prior notice of any potential flooding.

Flood Mitigation measures such as a 300mm higher Finished Floor Level, installation of Flood Boards and a higher positioning of electrical sockets on the walls will be implemented as part of the proposed development.

The proposed development would include SuDS such as rainwater harvesting and oversized pipes/gutters to limit the flooding both within and upstream of the development. The surface water would be discharged via the ideal method identified in Section 7.4.

The development is accessible for emergency access and egress during times of extreme flooding as no potential flooding is evident on any of the access routes.

It can therefore be concluded that the proposed development meets the local and national policy.

Appendices

Appendix A: Existing and Proposed Site Plan
Appendix B: Warning Codes and Personal Flood Plan
Appendix C: Southern Water Asset Map

Appendix A: Existing and Proposed Site Plan

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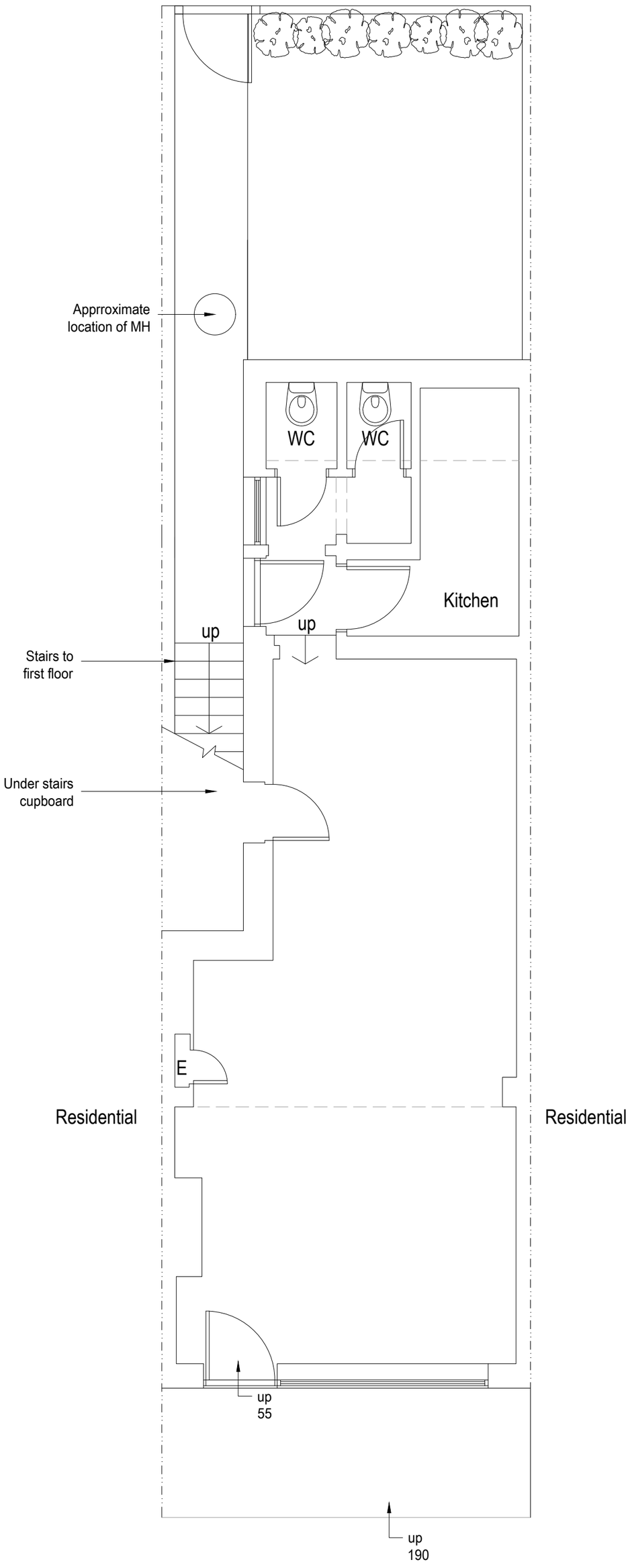
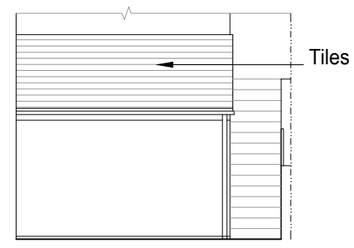
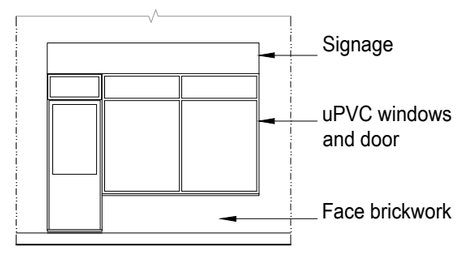


Location plan 1:1250

1:1250 0 10 20 30 40 50 60 70 80 90 100



Existing Rear Elevation 1:100



Existing Front Elevation 1:100

1:100 0 1 2 3 4 5 6 7 8 9 10m

1:50 0 1 2 3 4 5 6 7 8 9 10m

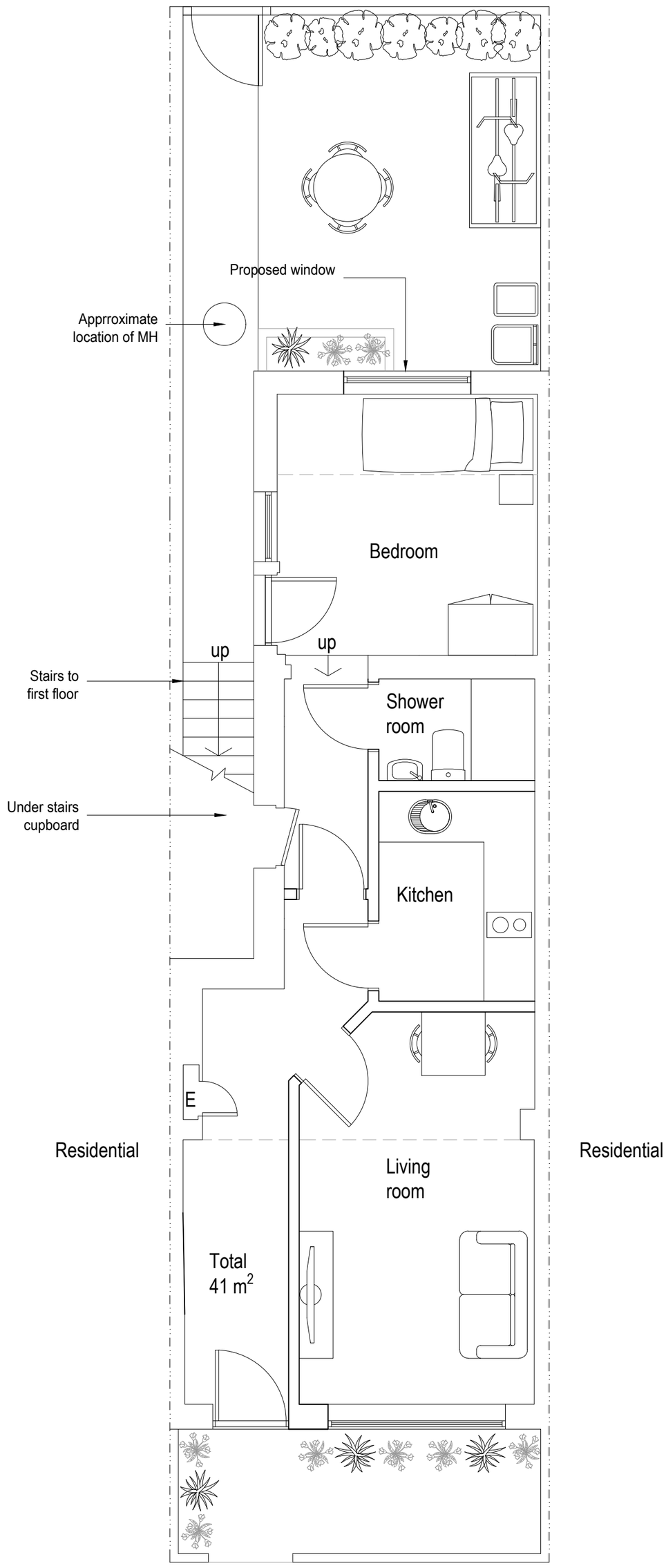
Rev A 06.01.21 Heights added
amendments

bpm Architectural Services Ltd.

client	Babbayan Investment Holding
project	10 Bayford Road Littlehampton BN17 5HL
project ref: 2588	Drawing No. 01A
drawing title	Existing plans and elevations
drawn by	L.F.
date Oct 21	scale 1:50/100@ A2
	www.bpmnet.co.uk info@bpmnet.co.uk

Do not scale off drawing, check all dimensions on site before all work is commenced

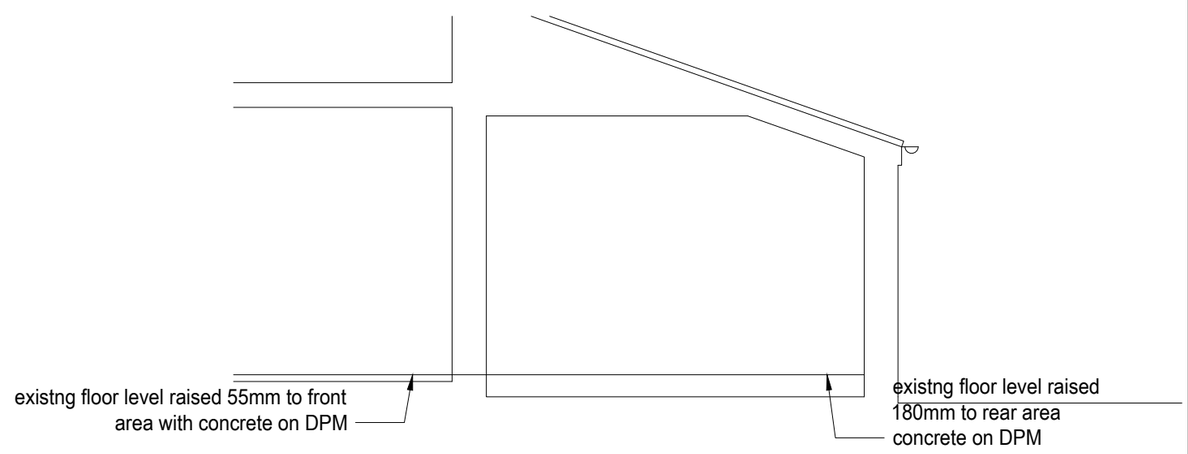
All goods materials workmanship to conform with current building regs BSS and COP's



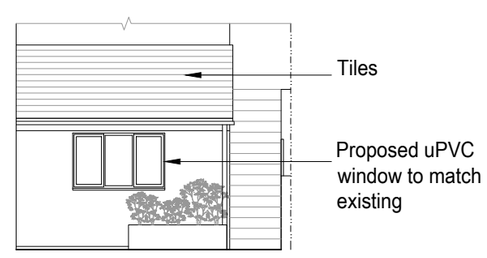
Proposed Ground Floor Plan 1:50

Block plan 1:500

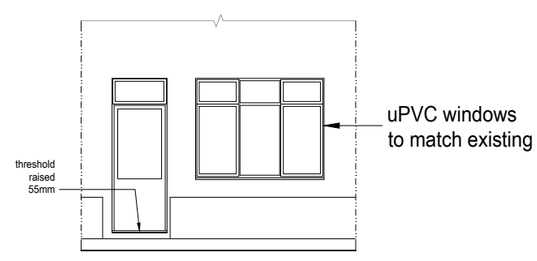
1:500 0 10 20 30 40 50m



Proposed cross section through rear 1:50



Proposed Rear Elevation 1:100



Proposed Front Elevation 1:100

1:100 0 1 2 3 4 5 6 7 8 9 10m

1:50 0 1 2 3 4 5 6 7 8 9 10m

Rev A 06.01.21 Heights added and floor raised amendments

bpm Architectural Services Ltd.

client	Babbayan Investment Holding
project	10 Bayford Road Littlehampton BN17 5HL
project ref: 2588	Drawing No. 02A
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drawn by	L.F.
date Oct 21	scale 1:50/100@ A2
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All goods materials workmanship to conform with current building regs BSS and COP's

Appendix B: Warning Codes and Personal Flood Plan

Flood Alert

Key Message: Flooding is possible. Be prepared

Timing: 2 hours to 2 days in advance of flooding

Actions: Be prepared for flooding
Prepare a flood kit of essential items
Monitor local water levels and flood forecasts

Flood Alerts are to warn people of the possibility of flooding and encourage them to be alert, stay vigilant and to make early preparations for flooding.

Flood Warning

Key Message: Flooding is expected. Immediate Action Required

Timing: Half an hour to 1 day in advance of flooding

Actions: Act now to protect your property
Block doors with flood boards or sandbags and cover airbricks and other ventilation holes
Move family, pets and valuables to a safe place
Turn off gas, electricity and water supplies if safe to do so
Keep a flood kit ready
Move cars, pets, food, valuables and important documents to safety

Flood Warnings are to warn people flooding is expected and encourage them to take immediate action to protect themselves and their property.

Severe Flood Warning

Key Message: Severe flooding. Danger to life

Timing: When flooding poses a significant threat to life and different actions are required

Actions: 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

Severe Flood Warnings are to warn people of a significant risk to life or significant disruption to communities caused by widespread or prolonged flooding, and encourage them to take immediate action to protect themselves and follow the advice of the emergency services.

Warnings no longer in force

(no icon)

Key Message: No further flooding is currently expected for your area

Timing: When river or sea conditions begin to return to normal

Actions: Be Careful. Flood water may still be around for several days and could be contaminated
If you've been flooded, ring your insurance company as soon as possible

Warnings are removed to inform people that the threat has now passed.

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

ARUN DISTRICT COUNCIL LU/18/22/PD
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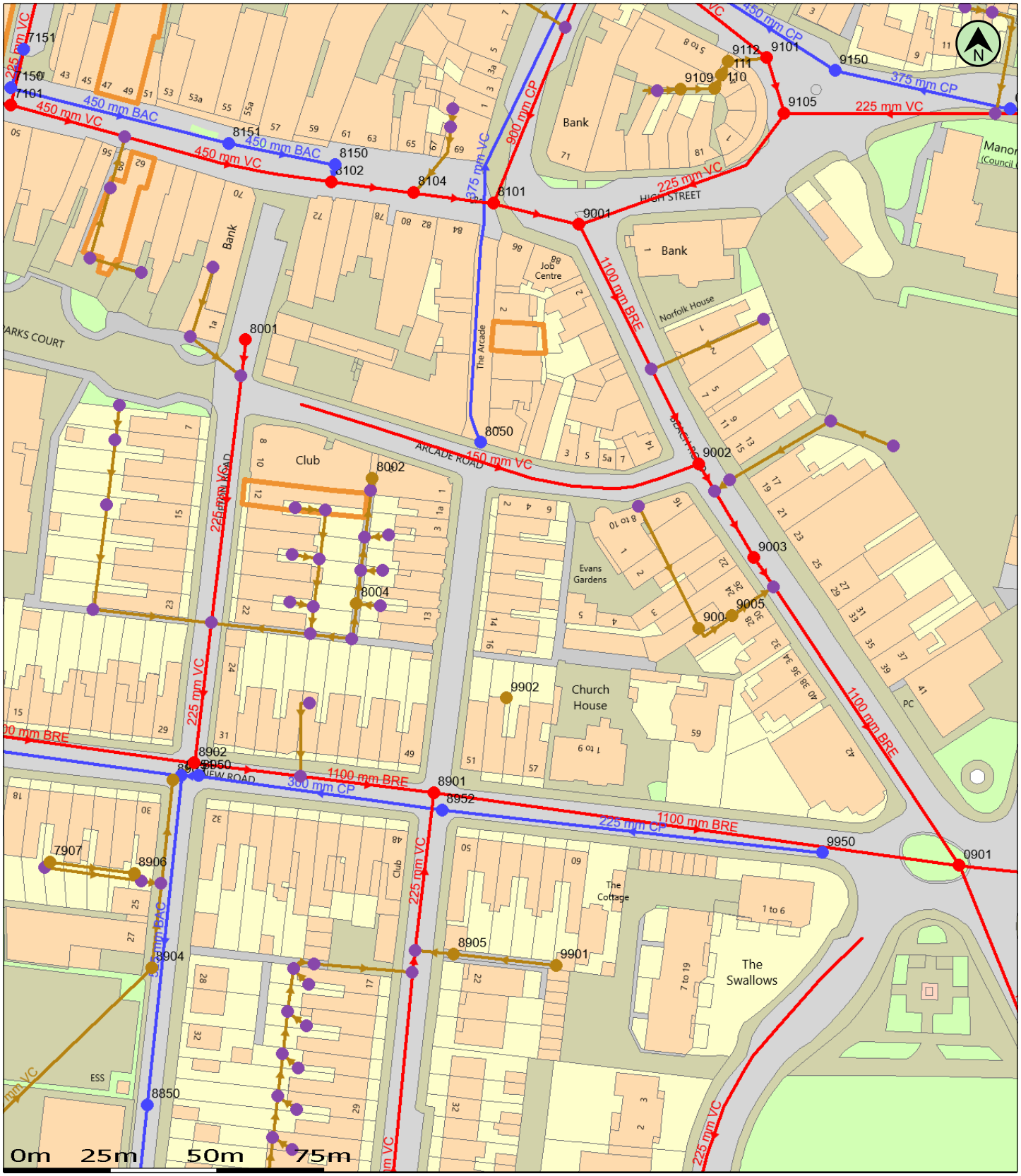
Appendix C: Southern Water Asset Map



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Data updated: 20/10/21 | Map Centre: 502901,102011 | Our Ref: 711156 - 1 | Powered by digdat

Foul Gravity Sewer
Combined Gravity Sewer
Culverted Water Course or Treated Effluent
Surface Water Gravity Sewer
Rising Main, Vacuum or Syphon
Combined Outfall
Surface Water Outfall
Foul Outfall
Surface Water Inlet
Combined Pumping Station
Surface Water Pumping Station
Foul Pumping Station
Water Treatment Works
Section 104 Area
Building Over Agreement Area
Foul Manhole
Combined Manhole
Surface Water Manhole
Side Entry Manhole, Decarcation Chamber, Dummy Manhole or Surface Water Soakaway

pratheek.ramesh@aval-group.co.uk

91746 10 Bayford

WATER for LIFE from Southern Water

The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2021 Ordnance Survey 100031673 .This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
0901	C	3.81	0.05	
7101	C	3.79	0.85	
8001	C	2.95	1.34	
8101	C	2.71	0.21	
8102	C	3.03	0.62	
8104	C	0.00	0.00	
8901	C	2.47	0.11	
8902	C	2.33	0.16	
9001	C	2.39	0.20	
9002	C	2.53	0.19	
9003	C	2.89	0.17	
9101	C	2.60	0.00	
9105	C	2.49	0.00	
7907	F	0.00	0.00	
8002	F	0.00	0.00	
8004	F	0.00	0.00	
8903	F	2.22	0.26	
8904	F	2.00	0.69	
8905	F	0.00	0.00	
8906	F	0.00	0.00	
9004	F	0.00	0.00	
9005	F	0.00	0.00	
9109	F	0.00	0.00	
9110	F	0.00	0.00	
9111	F	0.00	0.00	
9112	F	0.00	0.00	
9901	F	0.00	0.00	
9902	F	0.00	0.00	
0151	S	3.56	1.77	
7150	S	3.84	2.18	
7151	S	3.92	2.83	
8050	S	2.40	0.00	
8150	S	2.98	1.25	
8151	S	3.35	1.82	
8850	S	1.95	0.32	
8950	S	2.24	1.30	
8951	S	2.25	0.54	
8952	S	2.39	1.53	
9150	S	2.65	1.25	
9950	S	3.11	1.90	