Flood Warning and Evacuation Plan (FWEP) For:

170 – 172 Commercial Road

Newport

NP20 2PL

Prepared for:

S&B Developments Ltd

September 2024

19861 – FWEP - 01

Vale Consultancy

CONSULTING CIVIL & STRUCTURAL ENGINEERS

VALE CONSULTANCY
29 Bocam Park | Old Field Road
Pencoed | Bridgend | CF35 5LJ

VALE CONSULTANCY
CONSULTING CIVIL & STRUCTURAL ENGINEERS

T 01656 863794
E enquiries@vale-consultancy.co.uk
W http://vale-consultancy.co.uk

Document Control

Project	**170-172 Commercial Road , Newport**
Client	**S&B Developments Ltd**
Vale Consultancy Ref:	**19861 – FWEP-01**

Document Checking:

Prepared By: L Davies **Signed:** 

Checked By: R Peskett **Signed:** 

Verified By: P Graham **Signed:** 

Issue	Date	Status
01	**25/09/2024**	**First Issue**
02		
03		

Contents

1 SITE DETAILS 4

1.1 SITE LOCATION 4
1.2 FLOOD RISK 4
1.3 FLOOD RISK MITIGATION 8

2 PLANNING PROCEDURE 9

2.1 ROLES 9
2.2 REVIEWING AND UPDATING THE PLAN 9

3 FLOOD WARNINGS 10

3.1 ENVIRONMENT AGENCY FLOOD ALERT AND FLOOD WARNING AREAS 10
3.2 NATURAL RESOURCES WALES FLOOD WARNING CODES 10

4 FLOOD RESPONSE 11

4.1 EVACUATION ROUTE(S) AND SAFE REFUGE 11
4.2 SITE RE – OCCUPATION 11
4.3 GENERAL ADVICE 12

Appendices

APPENDIX A: FLOOD RISK CHECKLIST 13

APPENDIX B: ROLE AND RESPONSIBILITIES OF RELEVANT AGENCIES 14

Limitations

This FWEP is prepared in support of a planning application and is for exclusive benefit of *The Client*. It may not be assigned to or relied upon by third party without the agreement of Vale Consultancy in writing. Vale Consultancy retains all copyright and other intellectual property rights in the document and its contents unless transferred by written agreement between Vale Consultancy and The Client.

All comments and proposals contained in this report, including any conclusions, are based on information available to Vale Consultancy during investigations. The conclusions drawn by could therefore differ if the information is found to be inaccurate or misleading. Vale Consultancy accepts no liability should this be the case, nor if additional information exists or becomes available with respect to this scheme.

Except as otherwise requested by the client, Vale Consultancy is not obliged to and disclaims any obligation to update the report for events taking place after: -

The date on which this assessment was undertaken, and the date on which the final report is delivered.

Vale Consultancy makes no representation whatsoever concerning the legal significance of its findings or the legal matters referred to in the following report.

All the Natural Resources Wales (NRW) mapping data used is under special license. Data is current as of *September 2024* and is subject to change.

The information presented and conclusions drawn are based on statistical data and are for guidance purposes only. The study provides no guarantee against flooding of the study site or elsewhere, nor of the absolute accuracy of water levels, flow rates and associated probabilities.

Purpose of the report

Vale Consultancy has been instructed by *The Client* to prepare a Flood Warning and Evacuation Plan (FWEP) for 170 – 172 commercial road ("the site"). The FWEP has been informed by an FCA prepared by Vale Consultancy in July 2024 (19861 – FCA – R01) and any other documents referenced therein, which accompanied the planning application for the aforementioned site.

The aim of the Flood Warning and Evacuation Plan is to ensure that residents, occupants, employees and visitors are aware of the flood risk, the procedures that should be followed if flooding is expected or has occurred and to reduce the risk to life and property

The document includes a Flood Checklist (Appendix A). The Flood response Manager should ensure that a Flood Checklist is completed to ensure that the risk to property and life can be minimised.

1 Site Details

1.1 Site Location

The site is located east of Alma Street, north of Francis Street and west of Commercial Road at Ordnance Survey National Grid Reference ST 314 872. The site is located approximately 500 m west of the River Usk.

Figure 1 : Satellite Imagery of Existing Site

1.2 Flood Risk

The Flood Map for Planning indicates that the site is located in an area at risk of flooding.

According to the NRW records, there are no historical records or incidents of flooding at the site, neither within the vicinity.

The nearest watercourse is the River Usk which is located approximately 500m east from the site, flowing from north to south. The River Usk is tidally influenced in this location, joining the Severn Estuary just to the south of Newport.

There are no other surface water features within the vicinity.

The candidate site falls within Zone B on the Welsh Government DAM and Flood Zone 3 (Sea/Tidal) on the Flood Map for Planning.

The Environment Agency's Coastal Flood Boundary Conditions for the UK: 2018 Update, provides modelled peak tidal levels in vicinity to the development site:

- 1 in 200 (2017) AEP event 8.43 m AOD
- 1 in 1,000 (2017) AEP event 8.81 m AOD

TAN15 requires an allowance for climate change to be made. Using the allowance set out in Welsh Government Guidance and a development lifetime of 100 years (PPG – Flood Risk and Coastal Change para. 006), this allowance has been calculated as 1.13 m (70th percentile; 70P) and 1.53 m (95th percentile; 95P). The peak still tidal level for the 1 in 200 AEP event and 1 in 1000 AEP event plus climate change (2124) is therefore estimated to be 9.56 m AOD (70P) , 9.96 m AOD (95P) , 10.04 m AOD (70P) and 10.34 m AOD (95P).

The Welsh Government climate change guidance is based on UK Climate Projections (UKCP18) data and states "as a minimum, development proposals should be assessed against the relevant regional 70th percentile to inform design levels. An assessment should also be made against the 95th percentile to inform mitigation measures, access and egress routes and emergency evacuation plans".

NRW have provided Vale Consultancy with the latest flood modelling for the Newport area being the Newport_5_V8.0_2022 which included tidal data from the Caldicot & Wentlooge Coastal Study (2015). Peak still tidal levels have been provided by the Environment Agency from the Newport_5_V8.0_2022 model for the defended and undefended scenarios up to 2121. Given there is residential development on the first floor, the site is assumed to have a development lifetime lifespan of 100-years, although in reality this lifespan will likely be lower.

<u>Defended</u>

1 in 200 year (2021) – No flooding

1 in 1000 year (2021) – No Flooding

1 in 200 year (2121) - 9.28 m AOD

1 in 1000 year (2121) – 9.76 m AOD

<u>Undefended</u>

1 in 200 year (2021) - No flooding

1 in 1000 year (2021) - No Flooding

1 in 200 year (2121) - 9.27 m AOD

1 in 1000 year (2121) - 9.77 m AOD

Given the lifetime expectancy of the development is 100 years, this data is 3 years short with the climate change calculations. Therefore, the Newport_5_V8.0_2022 has been used for the present day 1 in 200 (2021) and 1 in 1000 (2021) with UKCP climate change projections being used for the 1 in 200 and 1 in 1000 AEP (70 + 95P) events (2124). This approach uses the best available data possible, and follows the guidance of NRW on the application of climate change allowances (CCA).

The respective data shows that the design tidal flood level for the present day 1 in 200 and 1 in 1000 AEP events (2124), the site is not expected to flood. However, during the 1 in 200 AEP event (70P) and 1 in 1000

(70P) AEP events the site could potentially flood by depths of up to 1.0 m and 1.48 m respectively on the ground floor of the building with inundation in the service area potentially reaching depths of up to 0.98 m and 1.46 m respectively. The car parking area could potentially flood by depths in the region 1.46 – 2.84 m.

The respective data shows that during the 1 in 200 AEP event (95P) and 1 in 1000 (95P) AEP events, flooding could occur to depths of up to 1.40 m and 1.88 m respectively on the ground floor of the building with depths in the service area potentially reaching depths of up to 1.38 m and 1.86 m respectively. The car parking area could potentially flood by depths in the region 1.86 – 3.24 m.

The HVD on the first floor will be raised to a minimum of 10.86m AOD which provides a freeboard of 0.52 m AOD above the 1 in 1000 AEP event (95P) (2124) design flood level (DFL) and will therefore remain flood-free.

A comparison between the undefended and defended modelled scenarios indicates that the flood levels show very minimal variation between the undefended and defended model runs. Thus, suggesting / indicating that the site does not benefit from defences and therefore not at risk of breach. The site is not shown to fall within a TAN15 Defended Zone or Zone C1 which corroborates the above.

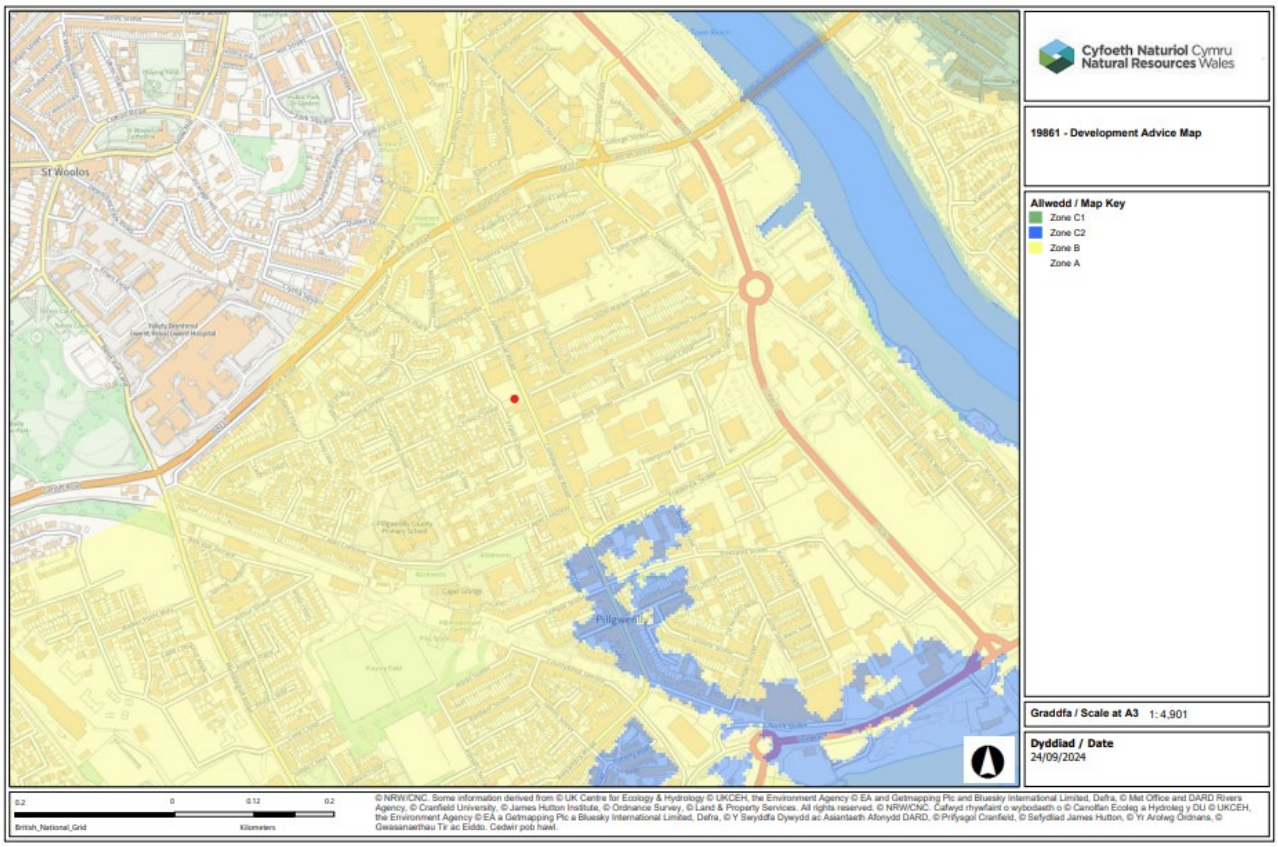


Figure 2: Development Advice Map

VALE CONSULTANCY
29 Bocam Park | Old Field Road
Pencoed | Bridgend | CF35 5LJ

VALE CONSULTANCY
CONSULTING CIVIL & STRUCTURAL ENGINEERS

T 01656 863794
E enquiries@vale-consultancy.co.uk
W http://vale-consultancy.co.uk

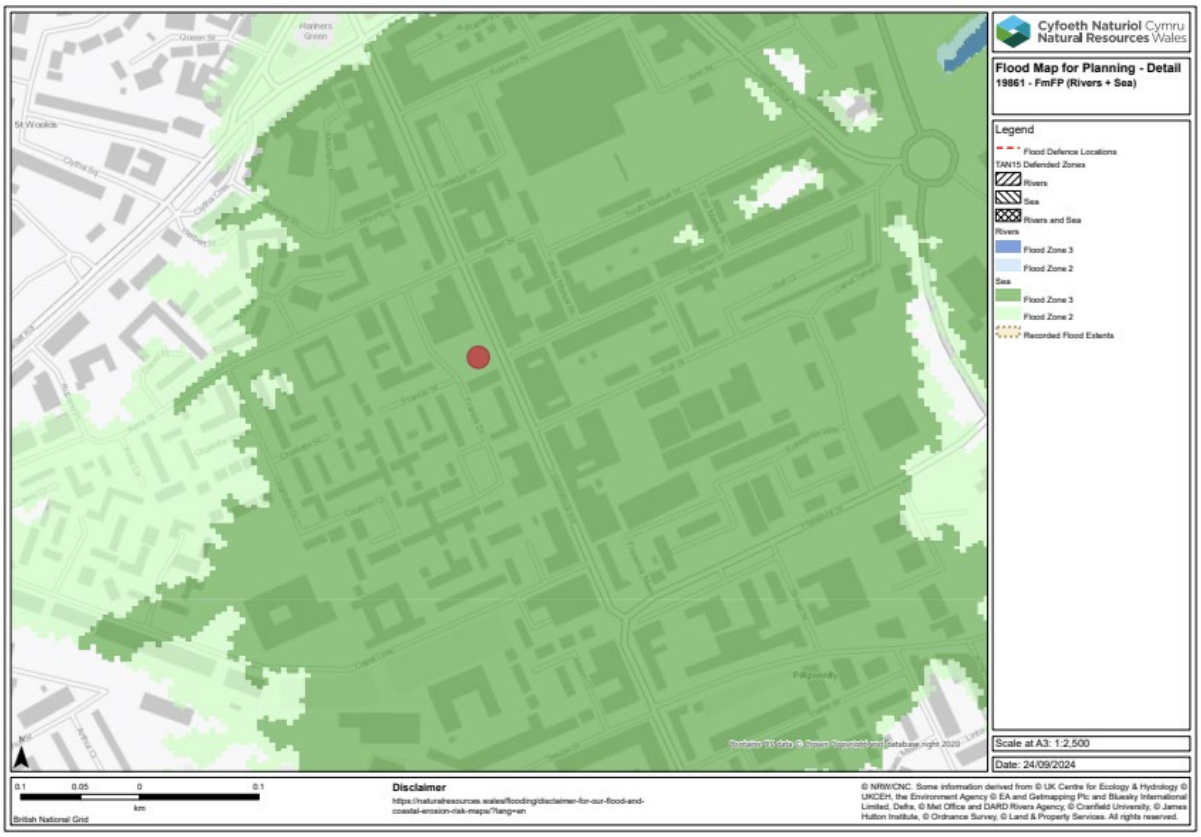


Figure 3: Flood Map for Planning – Rivers and Sea

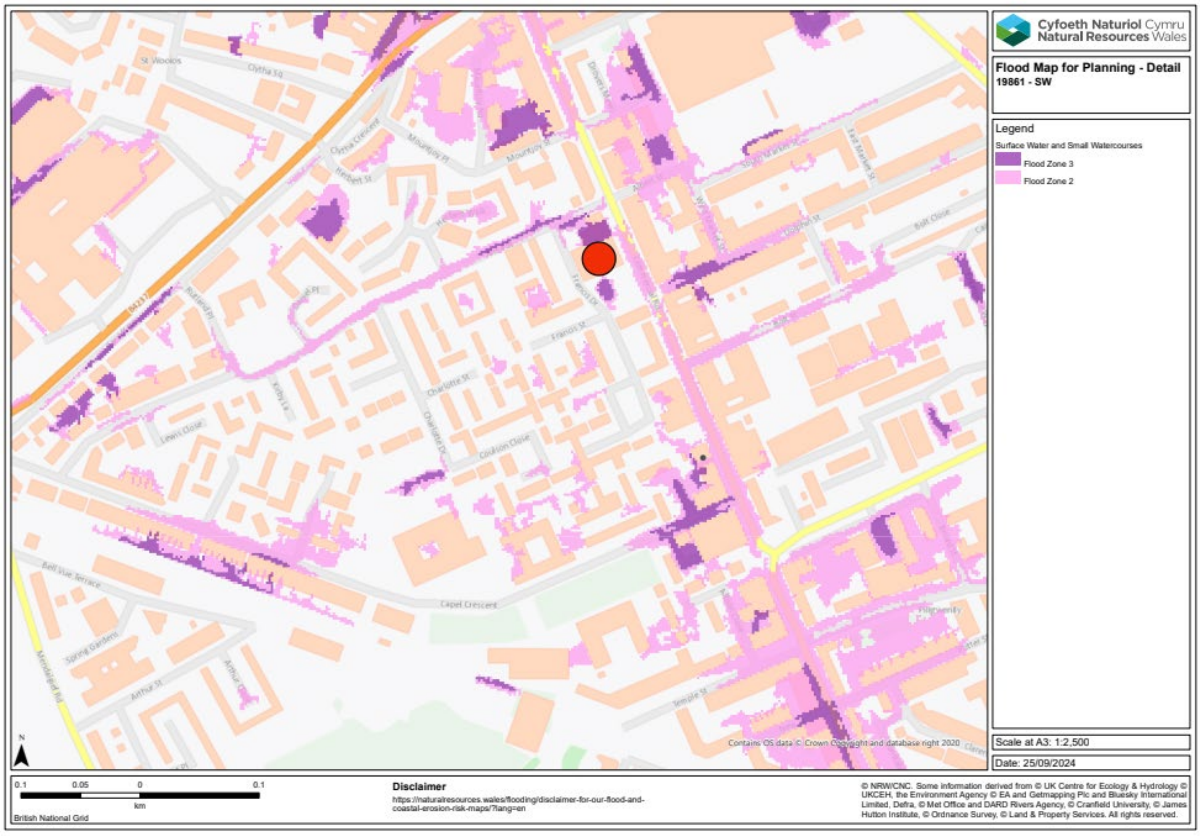


Figure 4: Flood Map for Planning – Surface Water and Small Watercourses

1.3 Flood Risk Mitigation

Mitigation measures should be installed as a precautionary measure in case of the site flooding during extreme events and / or in the highly unlikely event of a breach / failure of flood defences.

The proposed development is fully compliant with Sections A1.14 and A1.15 of TAN15.

Additional internal alterations that should be introduced where practically possible to the development include:

- Raised electronic control units and sockets
- Install smart air bricks or air brick covers
- Provide low level flood guards on all access points
- Use plastic and stainless-steel fixtures and fittings and avoid wooden alternatives • Use solid flooring (tiled, resin, concrete) at lower ground level, where possible
- Ensure that with the time afforded by advance warning, evacuation of site via safe egress and removal of valuables from the building can be implemented
- Clearance of the existing surface water drainage system to improve drainage of the site and follow necessary maintenance procedures (to new & existing SW drainage) to ensure that the system functions to optimum capacity
- The predicted depths, rise, speed of inundation and velocities are likely to satisfy the TAN 15 suggested tolerable conditions for more extreme events
- Use robust flood resistant construction techniques as far and as much is practically possible.

All construction methods to be inherently flood resilient. For example, polished concrete floors preferable to plasterboard. It is helpful to refer to *BS85500: 2015, Flood resistant and resilient construction. Guide to improving the flood performance of buildings*.

If you live in a flood risk area, or you have flooded before, consider getting a chartered surveyor to carry out a flood survey. This will tell you where flood water might enter your property, how fast it will flow and where it could cause the worst damage. The surveyor can then use this information to help you choose the best flood protection for your property.

Ensure to choose BSI kitemark certified flood protection products that meet the British standard for quality and safety. You can also follow the guidance and checklists in the property resilience Code of Practice to make sure the survey, installations or building work are completed to the correct standard.

<u>Check Insurance</u>

- Confirm you are covered for flooding (ask your insurance provider, landlord or letting agent);
- Find out if the policy replaces new for old, and if it has a limit on repairs;
- Don't underestimate the value of your contents;
- Take photos of your property and make a list of your belongings to help with future potential insurance claims.

Flood Alerts and Warnings

Flood Alerts and Warnings do not cover this area. Should flood warnings and alert cover the site in the future; Site owners, employees and any other potential occupants should register to receive flood alerts and where possible, Flood Warnings. Flood Warnings Direct is a free service that provides prior warnings of a fluvial flood event. Areas at risk of flooding from rivers (fluvial) and the sea (tidal) are warned, which relies on direct measurements of rainfall, river levels, tide levels, in-house predictive models, rainfall data and information from the Met Office. This service operates 24 hours / day 365 days a year. If flooding is forecast, warnings are issued using a set of easily recognisable codes.

2 PLANNING PROCEDURE

2.1 Roles

Details Regarding the roles and responsibilities of the emergency responders are provided in Appendix B.

The responsibility for flood preparedness and response rests with the Flood Response Manager. It is assumed that the Flood Response Manager would be the manager of the site.

The general responsibilities of the Flood Response Manager are:

- Register with the Natural Resources Wales Floodline;
- Prepare a flood kit including key documents and resources. This should be stored safely and securely and monitored quarterly;
- Review the Flood Emergency and Management Plan quarterly to ensure details are up to date. This should specifically include a review of the flood checklist (Appendix A);
- Ensure all employees are aware of the Flood Emergency and Management Plan

2.2 Reviewing and Updating the Plan

Apart from the routine checking undertaken by the Flood Response Manager, we would recommend that the Flood Warning and Evacuation Plan is independently reviewed to ensure the plan remains effective.

3 FLOOD WARNINGS

3.1 Environment Agency Flood Alert and Flood Warning Areas

The site is not included within the Natural Resources flood alert and flood warning areas:

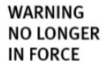
3.2 Natural Resources Wales Flood Warning Codes

Natural Resources Wales issues flood warnings using the following codes:

Flood Alert (Flooding is Possible - Be Prepared): Issued when flooding of recreational land, car parks and minor roads from rivers is possible. A Flood Alert covers a relatively large area. The purpose of a Flood Alert is to alert people that flooding is possible and that people residing in and businesses located in areas at risk should be prepared to act on their Flood Plan.

Flood Warning (Flooding is Expected - Immediate Action Required): Issued when flooding of homes and businesses, rail infrastructure and roads is forecast. Flood Warnings cover smaller geographical areas.

Severe Flood Warning (Severe Flooding - Danger to Life): Severe Flood Warnings cover the same geographical area as a Flood Warning. A Severe Flood Warning is issued when actual flooding has occurred posing a significant risk to life and/or widespread disruption to communities. The conditions on the ground expected during a Severe Flood Warning are deep and fast flowing water, potentially with debris.



Warning No Longer in Force (No Further Flooding Expected): Issued when a Flood Warning or Severe Flood Warning is no longer in force and when the risk of flooding has passed, and when river/sea levels have dropped back below the Flood Warning trigger level. It may be the case that there may still be standing floodwater or property flooding, so care will still need to be exercised.

4 FLOOD RESPONSE

The following procedures should only be followed if it is safe to do so. At no time should the Flood Response Manager put their life or anyone's life at risk.

4.1 Evacuation Route(s) and Safe Refuge

It is recommended that the site is evacuated by the route shown in Figure 4 by heading south on Commercial Road and leading west along Capel Crescent. Then it is expected to turn right onto Mendalgiel Road and then join the B4237, heading west outside the Flood Zone 2 /3 extents.

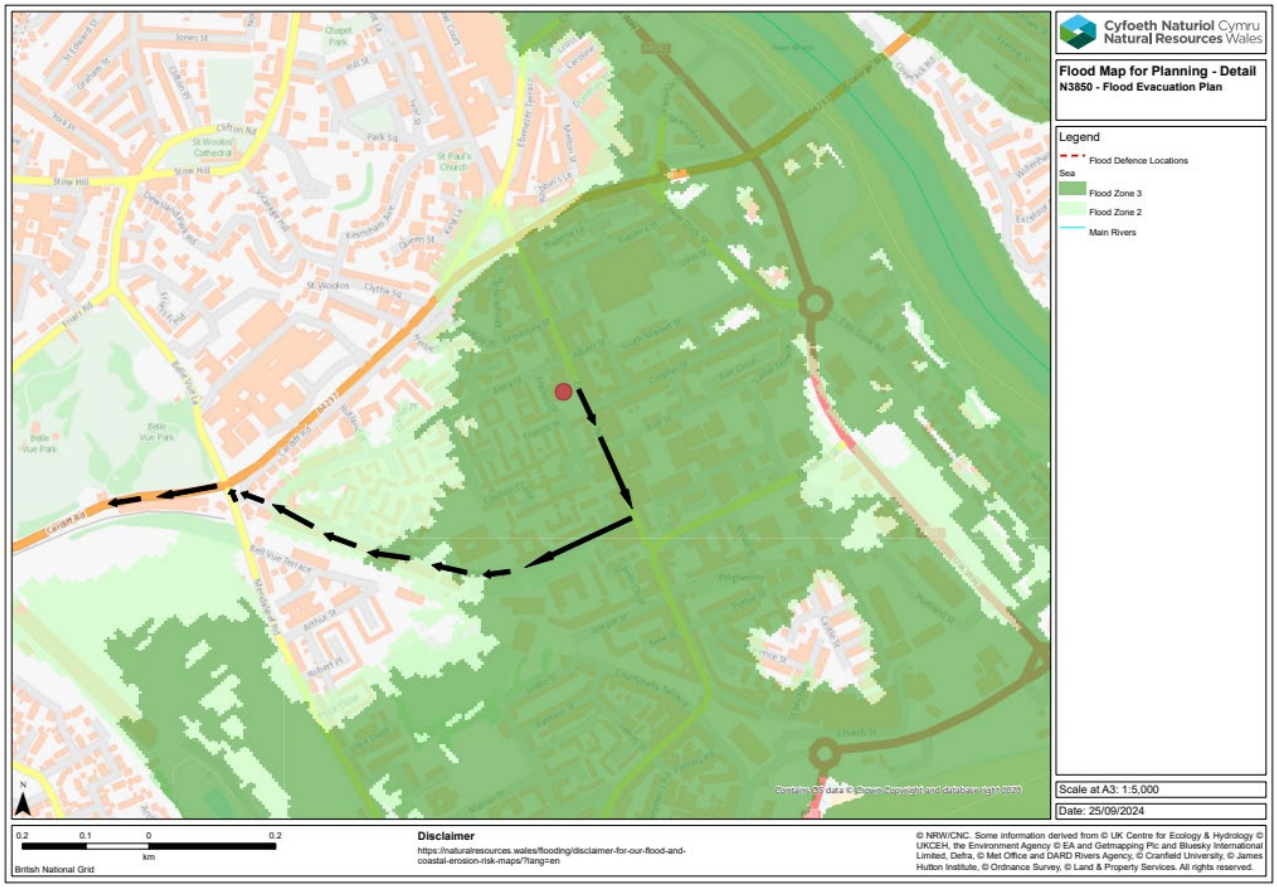


Figure 5: Flood Evacuation Plan

The evacuation route should be put on display in the car park, retail area and residential communal spaces to ensure residents, occupants, employees and visitors are familiar.

No evacuation of the site should take place when flooding has occurred or is imminent unless advised otherwise by emergency responders.

4.2 Site Re – Occupation

Once floodwater has retreated and the risk has diminished, Safe entry / re-occupation should be safely observed at all times.

If any internal flooding of the site has occurred, the owner / store manager / facilities manager should arrange for an inspection to determine the extent of any water damage and to determine whether it is safe to re-enter/re-occupy the building.

Care should be taken when re-entering any buildings as floodwater can carry deposits which may pose a hazard or obscure other hazards.

The owner / store manager / facilities manager should consult with qualified engineers to turn on public services.

4.3 General Advice

- Do not walk through flowing water
- If requirements are to walk in standing water, ensure you use a tall object (stick or pole) to survey the ground beneath you for open manholes, potholes or ditches.
- Do not drive through flooded areas of > 0.5 m in depth
- Avoid electrical cables
- Look before you step

APPENDIX A: Flood Risk Checklist

Address:
Date:

Part 1 – Contact Details

Flood Response Manager (s)

Name	Contact Number (s)	Other Information

Category 1 Responders

Responder	Telephone
Newport City Council	
Gwent Police	
South Wales Fire and Rescue Service	
Floodline	

General Contact List

Contact	Name	Telephone
Electricity Provider		
Gas Provider		
Water Company		
Telephone Provider		
Insurance Company		
	Insurance Policy Number:	

Useful Contacts

Identify people who can help you before, during or after a flood. For example:

- **Provision of flood products, provision of water pumping services**
- **Provision of emergency storage**
- **Building Services**

Company	Contact Name	Telephone

APPENDIX B: Role and Responsibilities of Relevant Agencies

Natural Resources Wales

- Issues flood warnings for flooding from rivers, sea and groundwater
- Receives and records details of flooding incidents
- Monitors the situation and advises other organisations
- Deals with emergency repairs and blockages on main rivers and structures

Local Authority (Newport City Council)

- Coordinates emergency arrangements
- Maintains safe conditions on the roads
- Puts flood warning signs on the highways
- Organises road closures and traffic diversions
- Clear blockages on highway drains

Lead Local Flood Authority (Newport City Council)

- Leads the coordination of flood risk management in the district
- Develops local flood risk management strategies for local sources of flooding
- Manages surface water and groundwater flooding
- Maintains a register of structures or features which have a significant effect on flood risk

Gwent Police

- Takes an overall coordination role during an incident

South Wales Fire & Rescue Service

- Responds to all emergency incidents when required
- Assist the public where a need is identified

Dwr Cymru Welsh Water

- Clear Blockages in public sewers
- May take action to protect property from flooding from public drains and mains supplies

Electricity, Gas and Telecommunications

- Attends to emergencies regarding network connectivity