NENE VALLEY
Transport Planning

APRIL 18, 2024

FLOOD CONSEQUENCE ASSESSMENT

153 Commercial Rd, Newport

NENE VALLEY TRANSPORT PLANNING CONSULTANTS LTD

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INTRODUCTION

1.1. Nene Valley Transport Planning Consultants Ltd (NVTP) has been commissioned by RBM Management to conduct a Flood Consequence Assessment (FCA) to accompany a planning application for the development of a shop unit and four studio flats at the site of former 153 Commercial Road, Newport.

1.2. This flood risk assessment is prepared in accordance with the requirements of the Welsh Government planning policy. Zones of flood risk have been identified through Development Advice Maps (DAMs) included with the Technical Advice note 15 (TAN 15) Development and Flood Risk guidelines published in July 2004. Updated DAMs are available on the Natural Resources Wales (NRW) website

1.3. As will be detailed within this report the site is located within Flood Zone B on the Natural Resource Wales (NRW) Development Advice Map (DAM) and Flood Zone 3 on the NRW Flood Map for Planning.

1.4. Given the classification, the primary driver for this report is to ensure the proposed development is suitable to the location and whether suitable measures can be incorporated to ensure that the development is as safe as possible. This is aligned to the objectives of the Welsh Government's Planning Policy Wales, Edition 11, February 2021

PLANNING REQUIREMENT BACKGROUND

National Policy

2.1 Flood risk in Wales is considered through the following documents: planning process in the Planning Policy for Wales (PPW) (Edition 11, February 2021) and TAN15 which provides technical guidance and supplements PPW

- Planning policy for Wales (PPW, edition 11 February 2021)
- Technical Advice note 15 (TAN 15)
- Welsh National Marine Plan

2.2 The aim of the TAN 15 is:

"It provides a framework within which the flood risks arising from rivers, the sea and surface water, and the risk of coastal erosion can be assessed. It also provides advice on the consequences of the risks and adapting to and living with flood risk"

2.3 This flood risk assessment is prepared in accordance with the requirements PPW and TAN 15. In order for planning authorities to make informed decisions on the development of sites in areas at risk of flood, PPW requires the developer to carry out A Flood Consequence Assessment

Local Policy

The following local policy documents were considered as part of the preparation for this flood risk assessment:

- Newport Adopted local plan (2011-2026)
- Newport Local Development plan (January 2016)

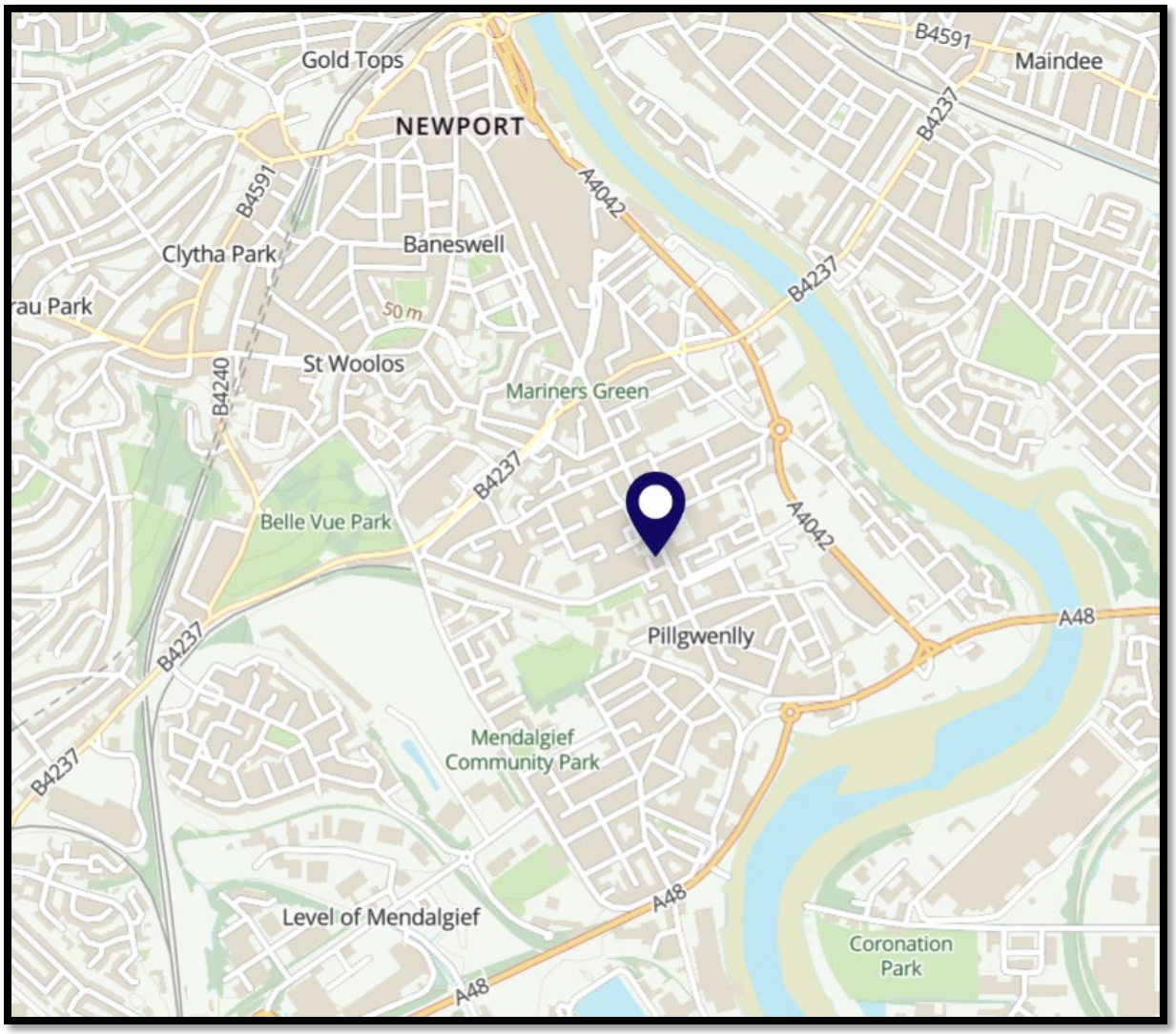
DEVELOPMENT PROPOSALS

Site Location

3.1 The site is located at the site of the former 153 Commercial Road, Newport

3.2 The site has an OS grid Ref: ST 31515 87089 and is centred around OS co-ordinates: 51°34'43"N 2°59'23"W

FIGURE 1 SITE LOCATION



3.3 The development will consist of a new shop unit and a total of four flats. The ground floor will consist of a 76.5m2 shop unit, the first floor will consist of two flats (33.5m^2 and 41.5m^2 respectively), the second floor will also consist of two flats (33.5m^2 and 41.5m^2 respectively)

3.4 The local and national planning policy context for the development have been examined and audited to determine the framework within which the proposal will be located

3.5 In the absence of topographical survey data of the site; LiDAR data to metres Above Ordnance Datum (m AOD) has been extracted from NRWs DataMapWales online service in the form of a 1m resolution Digital Terrain Model (DTM) to determine levels on-site and in the surrounding catchment area.

3.6 The site is situated at a level of 10.25 metres Above Ordnance Datum (mAOD) and the proposed finished flood level will be at a minimum of 10.40 mAOD.

3.7 Appendix 1 shows details of the development plans

3.8 The Welsh Government Development Advice Map (DAM) has been developed for land use planning purposes. It is based on Natural Resource Wales' extreme flood outlines and the British Geological Survey drift data. The DAM should be used alongside Planning Policy Wales and Technical Advice Note (TAN) 15 to direct new development with respect to flood risk. Together, they form a precautionary framework to guide planning applications.

3.9 The DAM is used as a screening tool by Local Authorities to understand where further assessment of flooding may be needed. The DAM has not been updated since 2020 and no further updates are planned due to implementation of the forthcoming and revised TAN15 at some point, in the future. Implementation of the new / forthcoming TAN15 is in a transitionary phase.

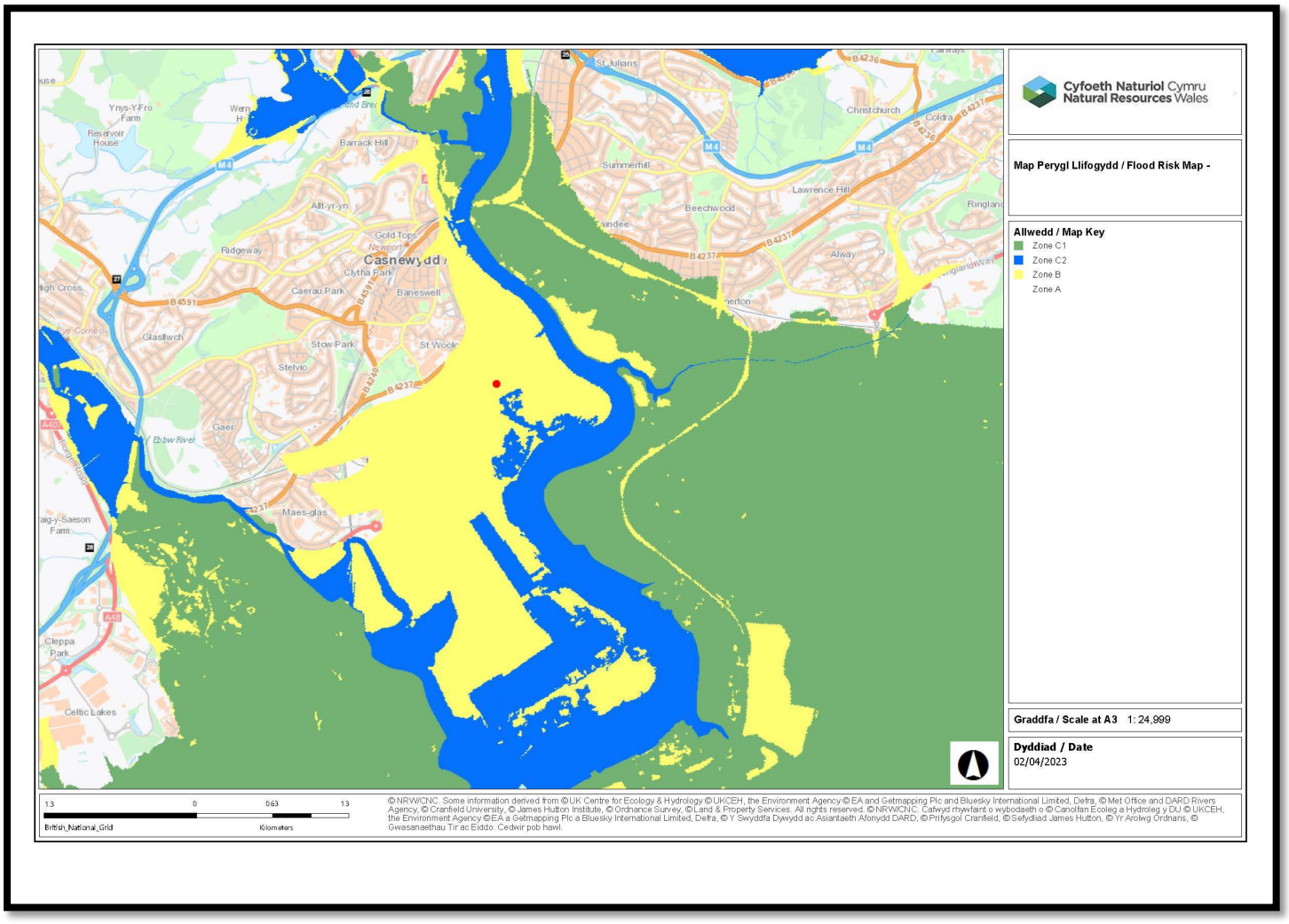
3.10 The site is located within Flood Zone B on the Natural Resource Wales (NRW) Development Advice Map (DAM) and Flood Zone 3 on the NRW Flood Map for Planning.

3.11 Table 4 below summaries the TAN15 Flood zones

TABLE 1 TAN15 FLOOD ZONES

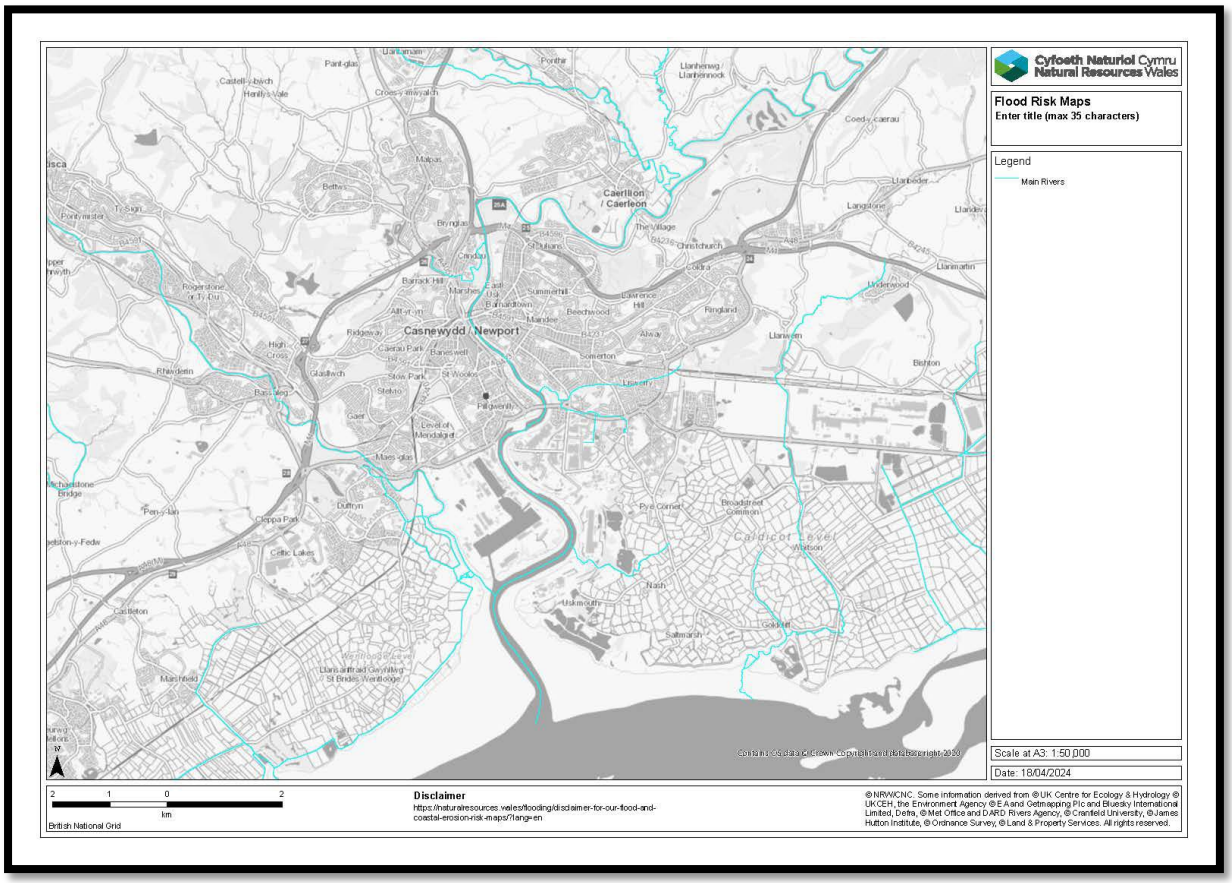
Description of Zone	Zone	Use within the precautionary Framework
Considered to be at little or no risk of fluvial or tidal/coastal flooding.	A	Used to indicate that justification test is not applicable and no need to consider flood risk further.
Areas known to have been flooded in the past evidenced by sedimentary deposits.	B	Used as part of a precautionary approach to indicate where site levels should be checked against the extreme (0.1%) flood level. If site levels are greater than the flood levels used to define adjacent extreme flood outline there is no need to consider flood risk further.
Based on Environment Agency extreme flood outline, equal to or greater than 0.1% (river, tidal or coastal)	C	Used to indicate that flooding issues should be considered as an integral part of decision making by the application of the justification test including assessment of consequences.
Areas of the floodplain which are developed and served by significant infrastructure, including flood defenses.	C1	Used to indicate that development can take place subject to application of justification test, including acceptability of consequences.
Areas of the floodplain without significant flood defense infrastructure.	C2	Used to indicate that only less vulnerable development should be considered subject to application of justification test, including acceptability of consequences. Emergency services and highly vulnerable development should not be considered.

FIGURE 2 DEVELOPMENT ADVICE MAP



3.12 The closest watercourse to the site is the river Usk which is located approximately 640m to the west of the site. There are no other watercourses evident either on, or within the vicinity of the site. The area has a higher average rainfall figure of 1400mm. Derived from the Flood Studies Report (FSR) rainfall ratio, the typical rainfall profile for the region, in common with much of South Wales, is a low intensity, long duration event commensurate with frontal weather systems. However, short duration high intensity rainfall events can also be experienced, particularly during the summer months.

FIGURE 3 MAIN RIVER DESIGNATIONS



ASSESSMENT OF FLOOD RISK AND IMPACT

4.1 This section will assess Development advice mapping, historical flood mapping, Flood risk zones and areas benefiting from flood defence. When considering flood risk, the most vulnerable land use must be considered. As the proposed development includes residential use is classified as a 'Highly vulnerable development' according to Technical Advise Note 15 (TAN 15 2004)

4.2 The assessment is carried out in accordance with TAN 15, which provides technical guidance in relation to development and flooding, TAN 15 supplements planning policy Wales in this regard. TAN 15 development advice maps and Natural Resources Wales (NRW) flood maps and data have been considered within this report

4.3 The mapping and data used to compile this report This is considered to provide the latest information, in terms of flood classification areas, and may be used to inform Flood Consequence Assessments for proposed development since December 2021. Natural Resources Wales have been granted authority by Welsh Government to consider the Flood map for planning data in addition to the Development advice map flood zone classifications when reviewing submitted FCA reports

4.4 All sources of flooding have been considered, these are; fluvial (river) flooding, tidal (coastal) flooding, groundwater flooding, surface water (pluvial) flooding, sewer flooding and flooding from artificial drainage systems/infrastructure failure.

4.5 Projections of future climate change, in the UK, indicate more frequent, short-duration, high intensity rainfall and more frequent periods of long duration rainfall. Guidance included within TAN15 recommends that the effects of climate change are incorporated into FCA. Recommended precautionary sensitivity ranges for peak rainfall intensities and peak river flows are outlined in the CL-03-16 - Climate change allowances for Planning purposes.

Tidal Flooding

4.6 Figure 4, the NRW flood map for planning shows the site to be located in Flood zone 3 for Sea/ Tidal flooding, this assumes natural prevailing conditions (no flood defences) the site is considered to be at more (>) than 0.5% (1 in 200) chance of flooding from the sea in a given year, including the effects of climate change.

4.7 However the site is served by significant flood defence infrastructure, this is confirmed in Figure 5. Flood defences found along the River Usk and its tidal tributaries in the Newport City Council authority area and around its coastline are maintained by NRW. As a result of these flood defences, a significant part of the tidal floodplain in Newport is categorised as a TAN-15 Defended Zone. Therefore, all forms of development are possible if the requirements of the Justification Test can be satisfied.

FIGURE 4 FLOOD MAP FOR PLANNING: TIDAL

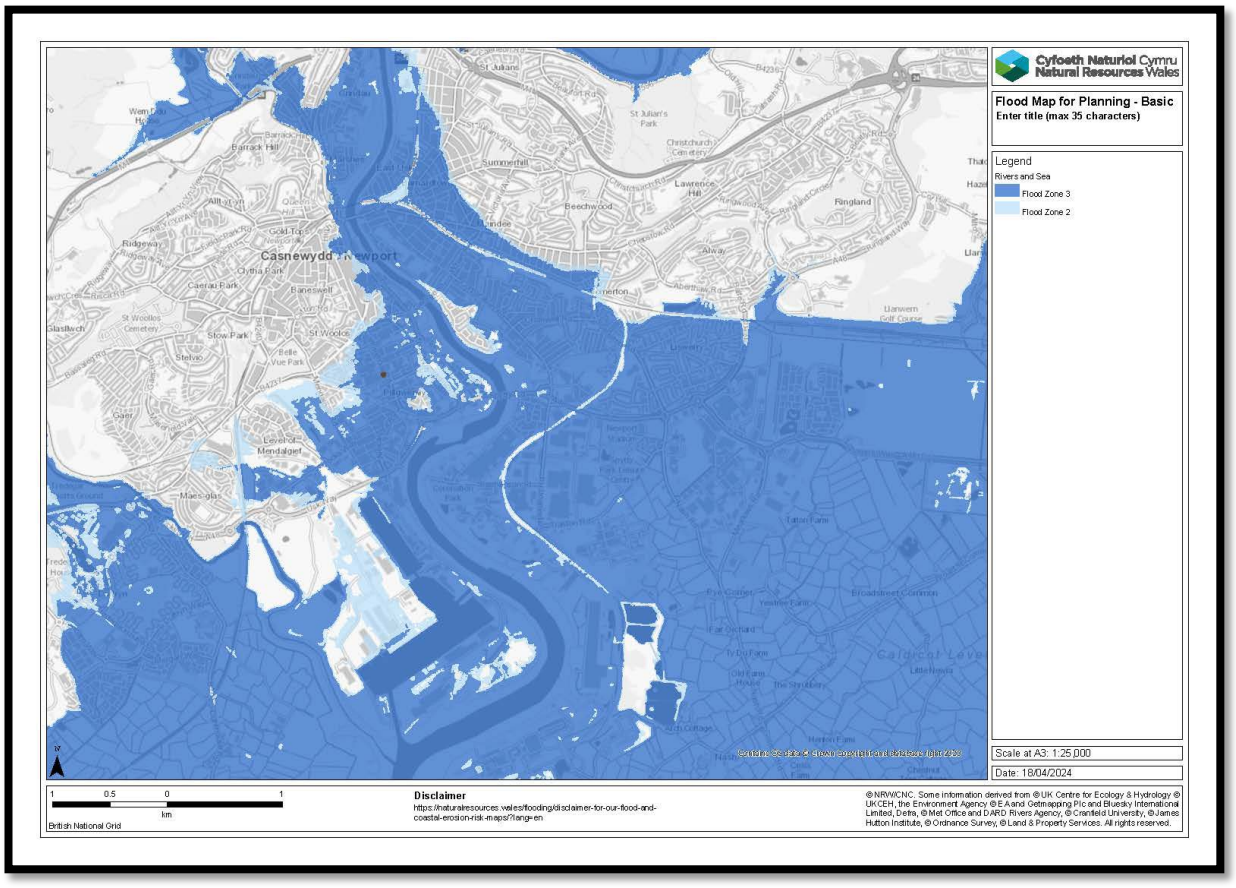
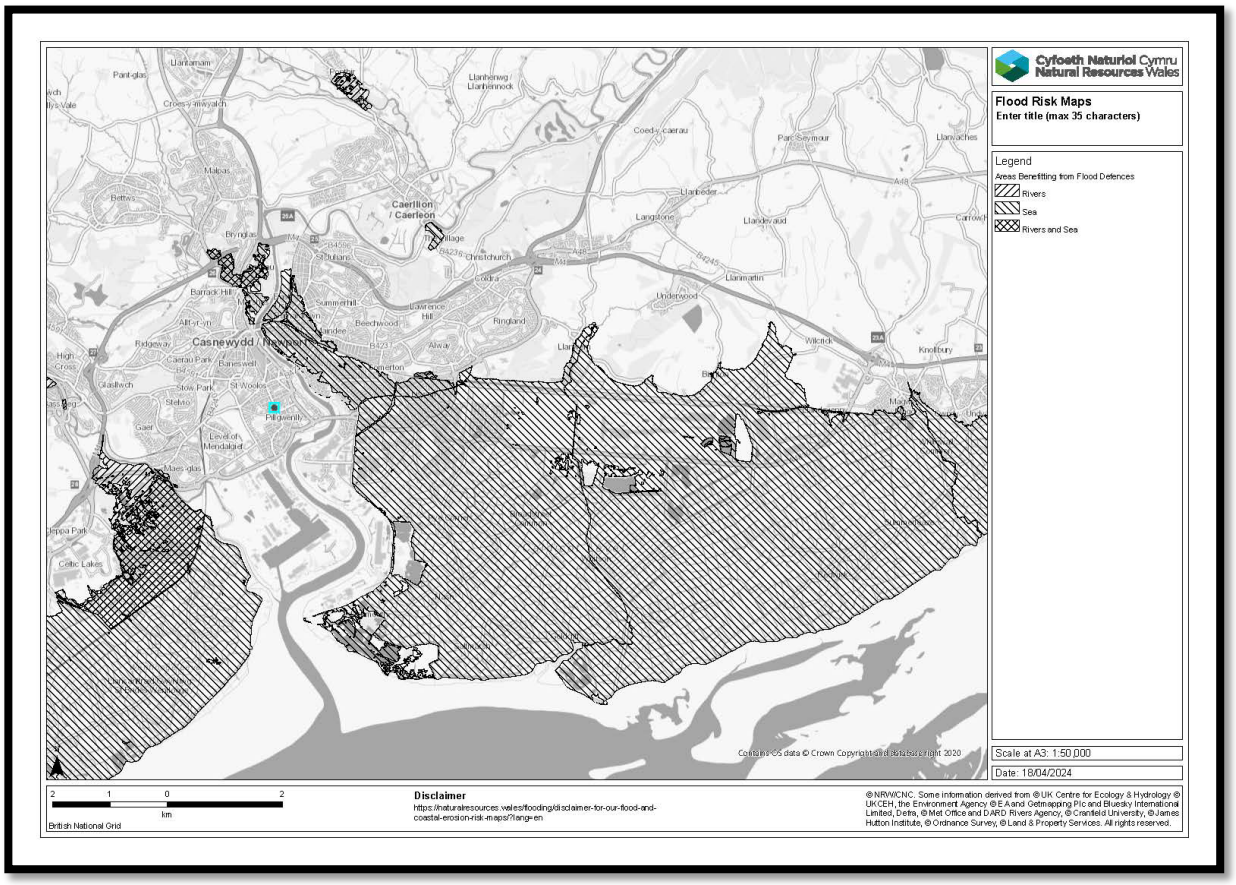


FIGURE 5 FLOOD DEFENCES



4.8 In the absence of reliable and up-to-date Product 5 & 6 Data; the UKCP18 methodology has been used to determine the potential tidal flood risk posed to the site. The updated 2018 model applies new sea level science and improvements to statistical methods to update the 'pre-existing' (2011) extreme sea levels. The science behind climate change projections for sea level rise has changed substantially in recent years. There is greater confidence in the revised projections of global mean sea level presented by UKCP18, which reflects regional variation. This guidance has been updated to reflect the higher central allowance (70th percentile) and upper end allowance (95th percentile) of RCP2 8.5. This reflects an increase in global mean surface temperature of around 4.30 C by 2100.

4.9 Table 3 of the document sets out estimates of cumulative sea level rise for each local authority area to 2100 and 2120 (to reflect the 100-year lifetime expectancy for new residential developments. The allowances are derived using the UKCP18 2100 dataset. The allowances in Table 3 are provided as a guide, with the 2100 figure currently appropriate for development with a 75-year lifetime expectancy. As a minimum, development proposals should be assessed against the relevant regional 70th percentile presented in Table 3 to inform design levels. An assessment should also be made against the 95th percentile to inform mitigation measures, access / egress routes, and emergency plans. From the updated (2018) model the current extreme sea levels for the 1 in 200 (0.5% AEP) and 1 in 1000-year (0.1%AEP) events are:

- **T200 : 8.25m AOD**
- **T1000 : 8.59m AOD.**

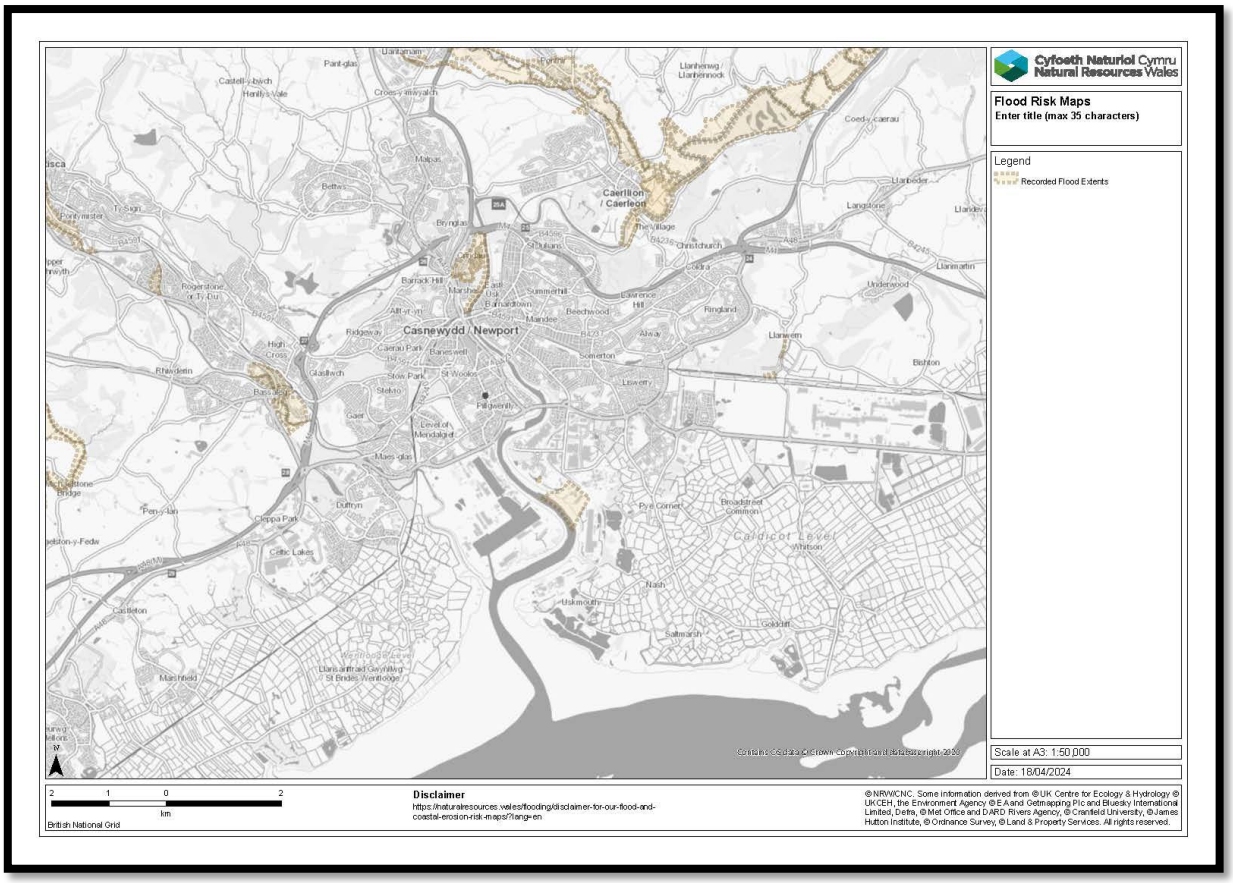
4.10 Taking into consideration climate change allowances as per NRW guidance / methodology, and a 100-year lifetime for the development, the estimated extreme sea design flood levels (DFLs) during the T200 and T1000 events are:

- **T200CC (70th %) : 9.26m AOD;**
- **T200CC (95th %) : 9.58m AOD;**
- **T1000CC (70th %) : 9.6m AOD;**
- **T1000CC (95th %) : 9.92m AOD.**

4.11 The coastal sea defences serving the site comprise an embankment which has a recorded cover level of 9.96m AOD. Thus, the formal flood defence infrastructure serving the site provides a minimum standard of protection (SOP) (of at least) commensurate to all of the DFLs up to and including the T1000CC (95th %) event.

4.12 Even if the flood defences were to fail or were breeched in an extreme and unprecedented incident; then the site would remain flood-free up to and including the T1000 + CC (95 %) event with a freeboard of approximately 0.48m (or 480mm). This has been deduced from a comparison of the DFLs and the proposed finished floor levels (FFLs).

FIGURE 6 RECORDED FLOOD EVENTS



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4.13 Figure 6 confirms that there have been no recorded flood events at the site or within the wider vicinity, furthermore There is significant third-party land / infrastructure situated between the potential source of tidal flooding and the site.

"Flood defences found along the River Usk and its tidal tributaries in the Newport City Council authority area and around its coastline are maintained by NRW. As a result of these defences, a significant part of the tidal flood plain in Newport is categorised as a TAN-15 Defended Zone. Therefore, all forms of development are possible if the requirements of the Justification Test can be satisfied."

4.14 Seeing as the site is situated in Zone B which is defined as; 'Used as part of a precautionary approach to indicate where site levels should be checked against the extreme (0.1%) flood level. If site levels are greater than the flood levels used to define adjacent extreme flood outline there is no need to consider flood risk further', then the site which is at a level of 10.25m AOD is above the 0.1% AEP tidal event including an appropriate allowance for climate change of 9.92m AOD.

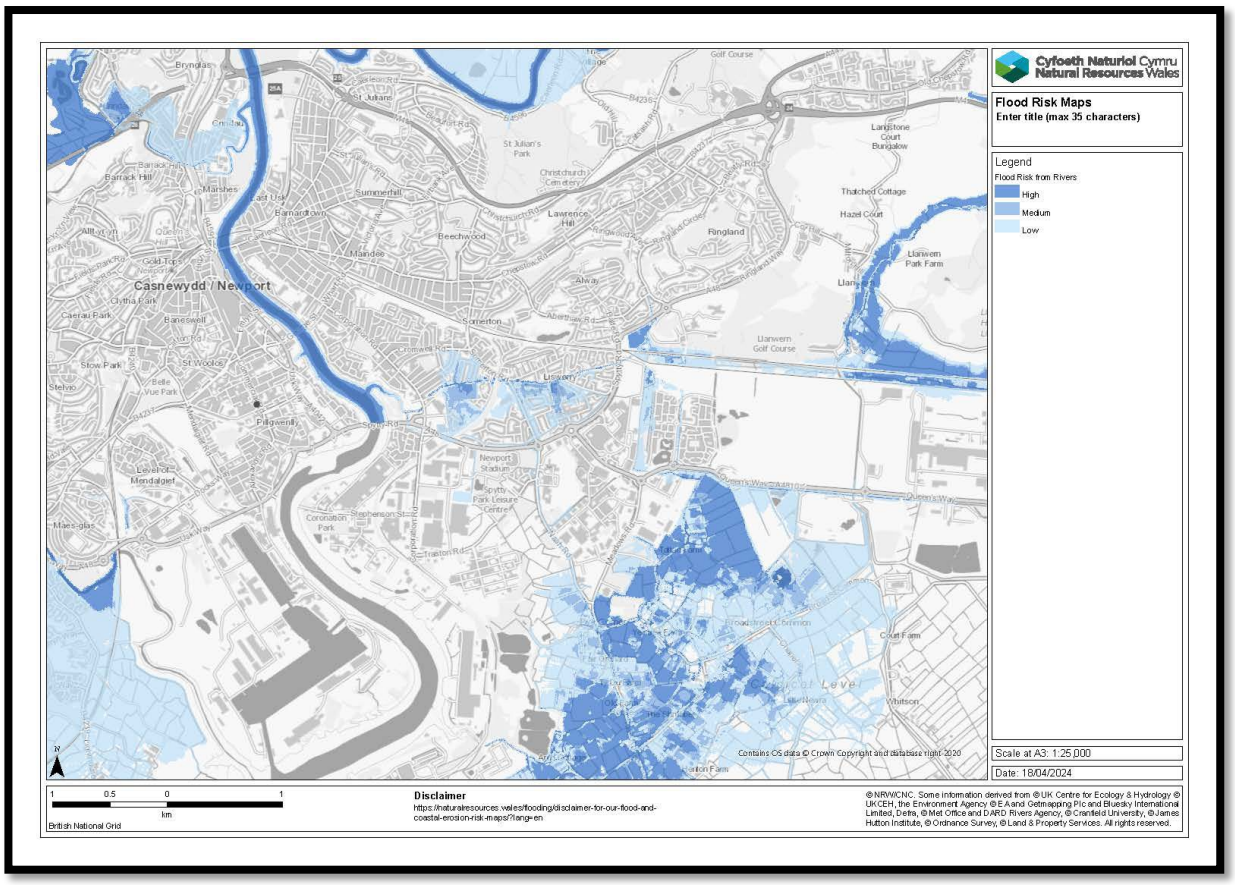
4.15 The site is considered to be at Lor risk of tidal flooding.

Fluvial Flooding

4.16 The closest watercourse to the site is the river Usk which is located approximately 640m to the west of the site. This is the nearest surface water feature to the site and flows south from here before discharging into the Severn Estuary further downstream. There are no other watercourses evident either on, or within the vicinity of the site.

4.17 Figure 7 below shows that the site lies in Flood zone 1 for rivers, this can be defined as areas less than (1 in 1000) chance of flooding from rivers in a given year, including the effects of climate change'

FIGURE 7 FLOOD RISK FROM RIVERS

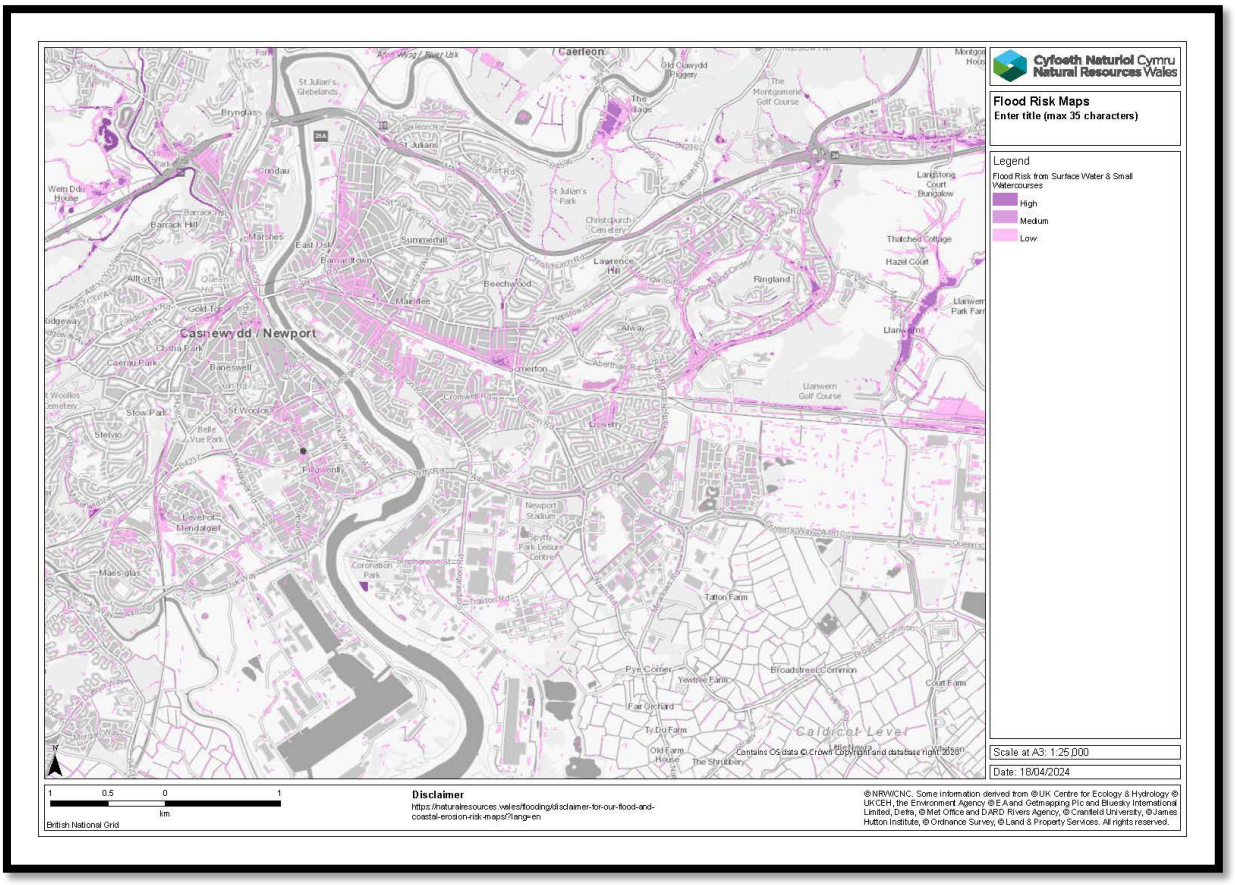


4.18 It can be concluded that the site is at a low risk of flooding from fluvial sources.

Surface water

4.19 The site is not situated near to large areas of poor permeability or areas with the geology and/or topography which may result in surface water flooding. Figure 10 below shows that the site is at a very low risk of surface water flooding with a chance of surface water flooding of less than 1 in 1000 (0.1%) years. Surface flooding poses a very low flood risk to the site therefore, the risk of flooding from surface water flooding is considered to be not significant.

FIGURE 8 FLOOD MAP FOR PLANNING: SURFACE WATER



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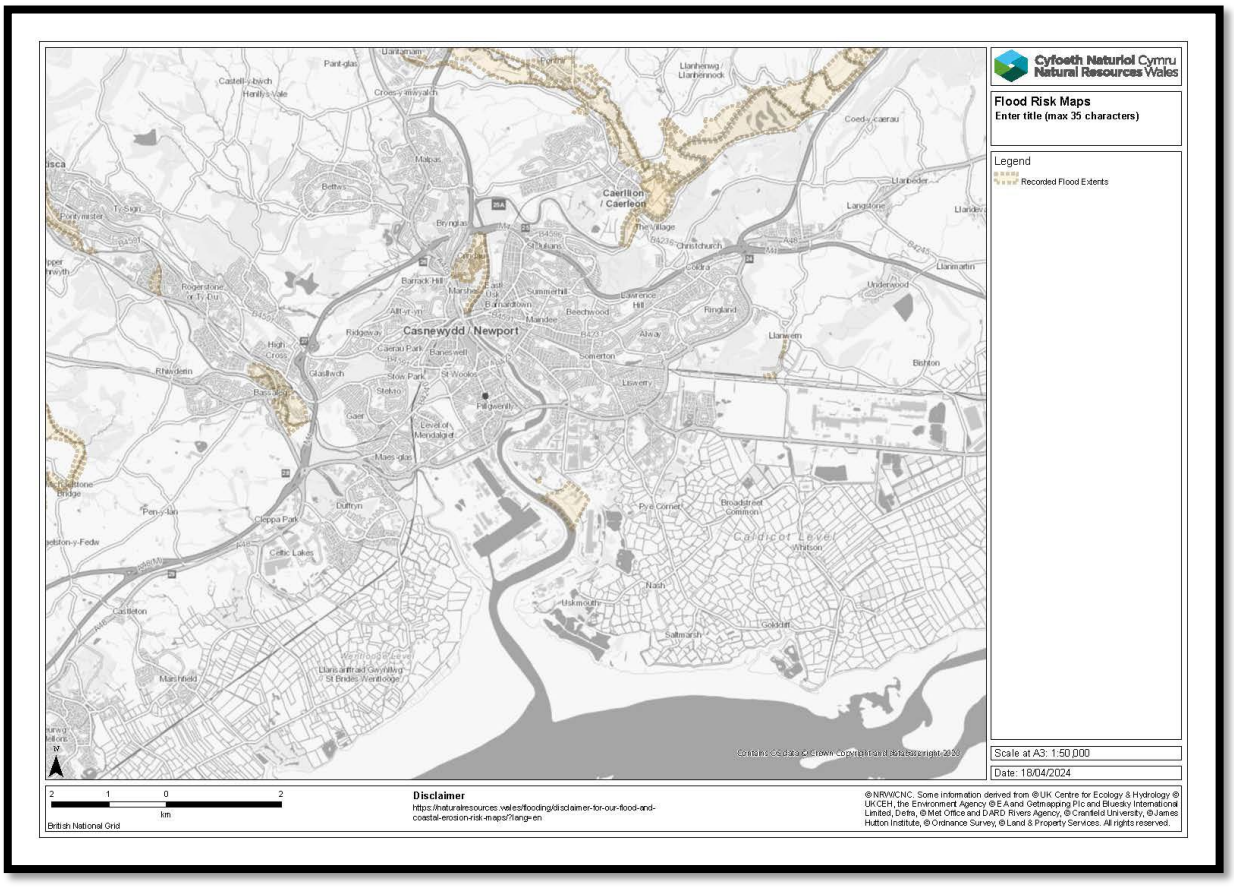
Groundwater

4.21 There have been no recorded instances of groundwater flooding within the vicinity of the site

4.22 Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater is exceeded. Where groundwater flooding susceptibility is indicated, this means that given the geological conditions in the area, the groundwater flooding hazard should be considered in all land-use planning decisions.

4.23 It should be noted that groundwater flooding generally occurs slowly and would be expected to dissipate to the tidal body of water without causing nuisance for the proposed development.

FIGURE 9 RECORDED FLOOD EVENTS



4.24 There is likely to be a **negligible risk** from groundwater flooding

Other sources of Flooding

4.25 Another consideration is flooding as a result of sewer. Sewer flooding occurs when urban drainage networks become overwhelmed and maximum capacity is reached. This can occur if there is a blockage in the network causing water to back up behind it or if the sheer volume of water draining into the system is too great to be handled. Sewer flooding tends to occur sporadically in both location and time such flood flows would tend to be confined to the streets around the development.

4.26 The provision of adequate level difference between the ground floors and adjacent ground level would reduce the annual probability of damage to property from this source to 1 in 100 years or less. Sewer flooding poses a flood risk to the site therefore, the risk of flooding from sewer flooding is considered to be of low significance.

DRAINAGE IMPLICATIONS

5.1 SAB approvals have become a statutory requirement for all development within Wales, with a contraction area of greater than 100m^2. The proposed development is less than 100m^2 and therefore does not require SAB approval

5.2 The storm drainage for the existing properties discharges via a standard gravity piped network of lateral drains in the rear gardens which then connect to the 450mm public combined sewer

5.3 The existing highway is drained via gullies connecting directly to the existing 450mm public combined sewer

WATER DISPLACEMENT AND IMPACT

6.1 There will be no significant changes to the existing levels and as such there will be no additional water displaced by the development

6.2 The proposed development will incorporate drainage enhancements reducing the peak flow discharge. These proposals would therefore provide no detriment to downstream properties

MITIGATION

7.1 The goal of implementing flood risk mitigation measures is to eliminate potential flood damage and to protect the welfare of the users of the site. As the site is situated in flood zone 3 and it's proposed use as a residential development places it's classification in the 'highly vulnerable' group and emergency flood plan will be developed upon occupation of the building thus ensuring all residents are briefed

7.2 Flood resistance measures include:

- The site will have to hand temporary flood resistance measures such as flood gates or removable flood defences for all doors which will be installed before the onset of flooding
- Flood Resistant Front Door
- Non-Return Valves fitted to drainage connections
- Service Vent Covers & Seals and automatic airbricks

7.3 Flood resilience measures:

- Tiled floors with waterproof adhesive and grout
- White goods on raised plinths
- Separate electrical circuits for upper and lower floors
- Raised Electrical Sockets
- Resilient plaster or plasterboard laid horizontally
- Boiler moved to upper floor
- Safe refuge areas provided in each property above extreme flood levels

7.4 Flood warnings and flood alerts cover the area of the site, all residents will be registered to receive flood warnings and alerts. The site is covered by the River Usk, Newport NRW Flood warning area

7.5 Finished floor levels: Raising the finished floor and threshold levels of the proposed dwellings will be used to mitigate the effects of flooding at the site. In accordance with TAN15 the proposed development will have a finished floor level above that of the predicted 1 in 100 year (+25%) water level.

7.6 First floor accommodation: Occupants will have the option to retreat to higher floor levels in the unlikely event of an extreme flooding event, first floor accommodation is located approximately 2.65m above the ground floor finished floor levels. Whilst this would only be in the communal hallway it still offers residents the option in the unlikely event of flooding.

7.7 All occupants of the site will be made aware of the Natural Resources Wales Floodline telephone number and the Flood Warning Codes and their meaning. The owner of the properties will carry out the role of Flood Warden for the site and ensure they have an understanding of the flood mechanisms of the site and will ensure that the safety of the occupants and visitors will not be compromised.

7.8 Flood Plan: A Flood Plan outlining the precautions and actions you should take when a flood event is anticipated to help reduce the impact and damage flooding may cause will be developed. Sensible precautions would include raising electrical items, irreplaceable items and sentimental items off the ground or where possible moving them to a higher floor, rolling up carpets and rugs and turning off utilities. In addition, consider what actions you would take should the property need to be evacuated including access and egress routes and preparing a flood kit in advance containing warm clothing, medication, a torch, food and wellingtons.

7.9 A safe access and egress routes, including emergency access can be maintained for pedestrians via Commercial Road leading on to Alma Street or Capel Crescent both of which are identified as areas outside of all extreme flood events at higher ground away from all sources of flooding.

JUSTIFICATION TEST

8.1 The site has been designated as suitable in size and location to accommodate the proposed development. The proposed development will provide an improved residential use compared to the existing situation and will help encourage economic impetus that will in turn help deliver a stronger service function and mix of housing. The site proposals remain consistent with the relevant planning policies and are not at odds with the current use of the site and can only enhance and preserve the situation which currently exists.

8.2 The Council's objectives are to sustain and enhance the vitality and viability of the region, and to ensure a wide range of employment to which people have easy access by a range of transport therefore, improving the overall quality of life. This is underpinned by the quality of the physical environment, social well-being and economic and environmental improvements. The Council seeks to grant permission for developments that add to the vitality and viability of the region.

8.3 This site will help to regenerate the region and will help to deliver these objectives. This site will help encourage economic impetus that will in turn help deliver a stronger service function and mix of residential uses.

8.4 It is impractical to suggest that there are more suitable locations for this development elsewhere. This is the only site in the ownership of the client and therefore the only site available to them to develop. The site proposals cannot be located in another site elsewhere. There are no alternative sites available to develop.

8.5 The wider area surrounding the proposed development site is affected by a very similar, and in many cases, higher risk of flooding. The application is for a new, suitable flood-resilient design which is preferable to the existing site. The exposure of people and property will be minimised. From the above it is shown that there are overriding sustainability reasons for the development to be granted planning permission

8.6 The site is defined as previously developed land.

8.7 The potential consequences of a flooding event for the particular type of development have been considered within this FCA. This FCA details the potential consequences of flooding from all sources taking into account the proposed development type has been considered and has been found to be acceptable.

CONCLUSIONS AND RECCOMENDATIONS

9.1 The proposed development of a shop unit and four flats at the site of former 153 Commercial Road, Newport, the site previously consisted of a similar development prior to demolition

9.2 The site is situated in zone B of the NRW DAM and the NRW FMfP shows the site to fall in Flood zone 1 for Rivers and surface water and small watercourses and Flood zone 3 for Sea.

9.3 The greatest threat from flooding at the site is Tidal however this FCA concludes that this is a Low/ residual risk.

9.4 The site and proposals are compliant with TAN15 including A1.14 and A1.15.

9.5 The proposals will not result in an increase in flood risk elsewhere or to third party land / infrastructure.

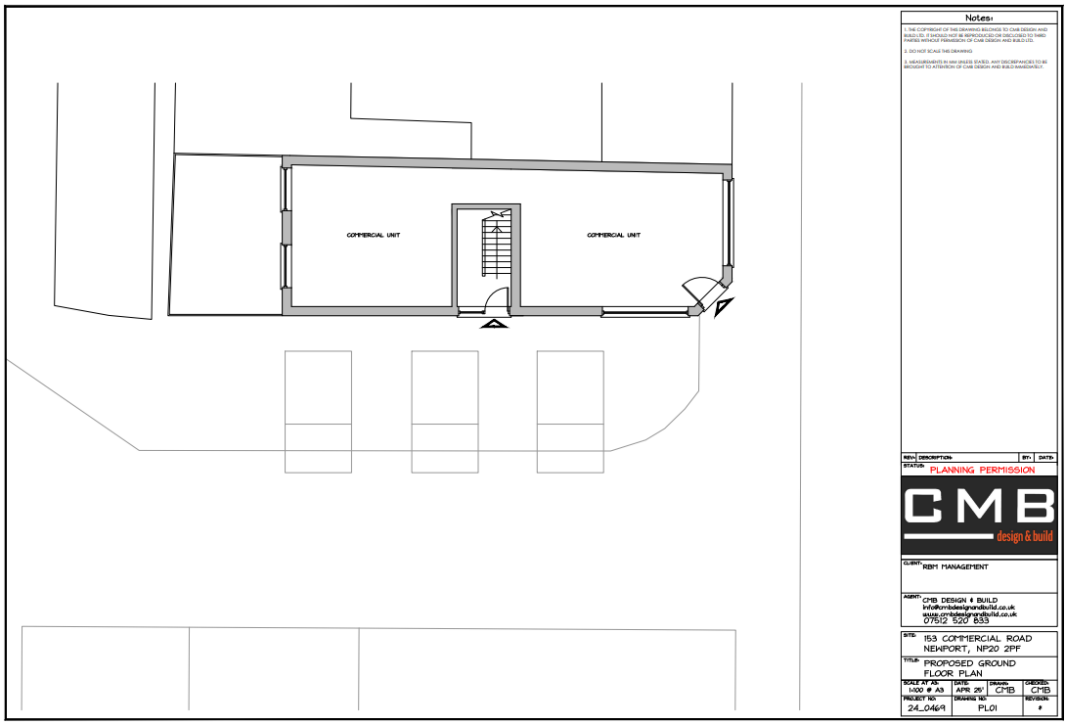
9.6 Mitigation measures and recommendations have been outlined as a matter of precaution and best practice. They should be adopted as far as is practically possible. The developer wholly accepts the flood risks and potential associated consequences.

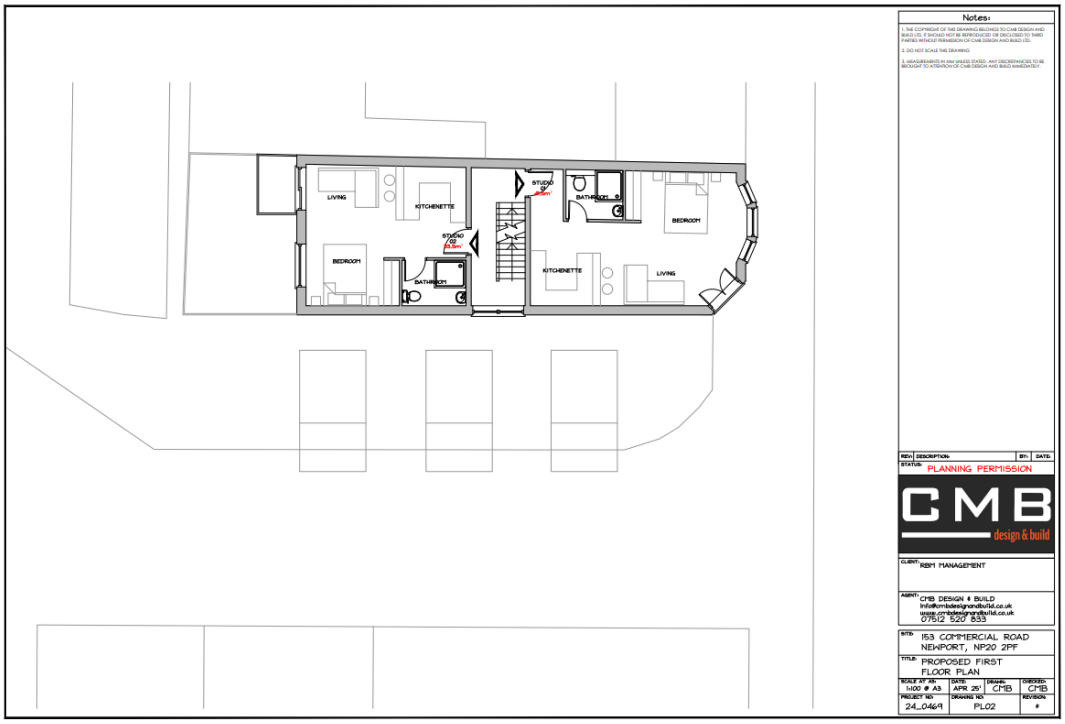
9.7 The below table provides a summary of the potential flood risk to the site

TABLE4 SUMMARY OF FLOOD RISK

Flood Source	Risk assessment
Fluvial	Low
Tidal/ Sea	Low/ residual
Surface water	Low
Ground water	Low
Sewers	Low
Other	Low

APPENDIX 1: DEVELOPMENT PLANS






Notes:
LIVING
KITCHENETTE
BEDROOM
BATHROOM
STUDIO 01
STUDIO 02
BEDROOM
BATHROOM
KITCHENETTE
LIVING
PLANNING PERMISSION
CMB
design & build
RBM MANAGEMENT
CMB DESIGN & BUILD
07512 520 833
153 COMMERCIAL ROAD
NEWPORT, NP20 2PF
PROPOSED SECOND
FLOOR PLAN
1:100 @ A3
APR 25'
CMB
CMB
24_0469
PL03


PROPOSED SIDE ELEVATION
1:100 @ A3
PROPOSED FRONT ELEVATION
1:100 @ A3
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Notes:
PLANNING PERMISSION
CMB
design & build
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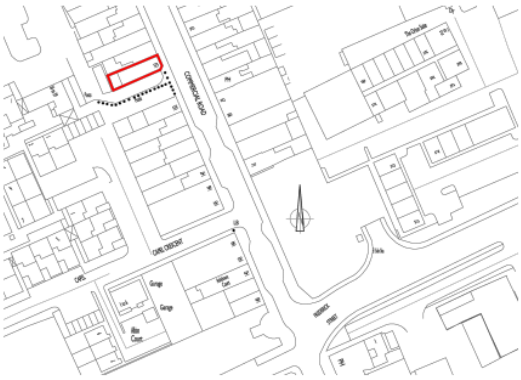

SITE LOCATION PLAN
1:1250 @ A3

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