4.0 RISK MANAGEMENT

4.1 Introduction

It is In this flood zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development and the use of flood mitigation measures.

A number of techniques and mitigation strategies to manage and reduce the overall flood risk in the area will be used. This will ensure the development will be safe and there is:

- Minimal risk to life;
- Minimal disruption to people living and working in the area;
- Minimal potential damage to property;
- Minimal impact of the Proposed Development on flood risk generally; and;
- Minimal disruption to natural heritage.

The flood risk at the Site will be reduced by using a number of risk management measures to mitigate and reduce the overall flood risk at the Site.

4.2 Finished Floor Levels

The finished floor level of the building will be set at the existing finished floor levels which are between 110 and 220mm above the external ground levels at 8.90 to 9.01mAOD. It is recognised however that owing to limited headroom constraints, massing, planning policy and Building Regulations it is considered impractical to raise the finished floor levels further. Therefore, in order to mitigate against this, it is recommended that the occupants of the Site are sign up to receive flood warnings from Natural Resources Wales, a Flood Warning and Evacuation Plan to a safe area away from the building during times of flood is developed.

A combination of resistance (proofing) and resilience measures will be included to provide further protection. This is discussed below.

4.3 First Floor Accommodation

Accommodation is located on the first floor as well as the ground floor of the building, although the first floor is not part of this planning application. This will allow occupants to retreat to higher floor levels if needed. The levels of the first floor are located a minimum of 2.50m above the ground floor finished floor level well above any floodwater levels. This provides a 'safe haven' above any floodwater levels.

This will enable rapid escape should flooding occur which is unlikely. The upper floors are accessed via internal stairs and are sufficient in size to safely house occupants of the building. The 'safe haven' will only be required in very extreme events or if a flood warning has not been received.

4.4 Flood Resilience and Resistance

The development of the layout should always consider that the Site is potentially at risk from an extreme event and as such the implementation of flood resilience and resistance methods should be assessed. Flood resilient and resistant measures will be used, including:

- Flood barriers will be used on external doors.
- Sealant will be used around external doors and windows.
- All external doors and windows will be constructed from hard wearing materials with flood seals.
- All electrics wiring, switches, sockets, socket outlets etc. to be located a minimum of 450mm above the finished floor level which provides a further freeboard above the floodwater levels.

4.5 Flood Warning and Evacuation Plan

A Flood Warning and Evacuation Plan (FWEP) 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.

The FWEP is a 'living' document and therefore should be periodically reviewed and updated to provide advice and guidance to occupants in the event of an extreme flood. The Flood Plan will therefore reduce the vulnerability of the occupants to flooding and makes them aware of the mechanisms of flooding at the Site. A Flood Warden will be designated from the occupants of the Site who will monitor flood levels and keep occupants and visitors informed and will decide whether to initiate the FWEP.

The Site is located in a flood risk area; therefore, the Site will participate in Natural Resources Wales flood warning telephone service. The Site will register contact details with the Natural Resources Wales Flood Warnings Service in order to receive Flood Warnings.

Natural Resources Wales operate a free flood warning service providing alerts by phone, text or email when flooding is anticipated providing an opportunity for owners to take necessary precautions, giving enough time for the building to be safely evacuated and mitigation measures to be put in place.

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.

Natural Resources Wales uses Flood Warnings Codes. They can be issued in any order, usually ending with an 'all clear'. They are issued by Natural Resources Wales through their website and Floodline Warning Direct. The flood warning will be passed onto the occupiers and visitors of the Site verbally, by telephone and/or in person. It will be ensured that everyone receives the flood warnings when required.

The mechanism for flooding from tidal flooding is generally prolonged episodes of high sea levels, which affords good time for flood warnings to be issued. The likelihood of a rapid water level rise and possible rapid inundation of urban areas posing a risk to life is considered to be minimal with a forewarning of two (2) days of a pending flood event.

The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2. The speed of inundation and rate of floodwater rise would be low.

In order for the following evacuation procedures to be effective:

- The Site will register contact details with the Natural Resources Wales Flood Warning Service (Floodline 0345 988 1188) in order to receive Flood Warnings/Alerts.
- The flood warning will be passed onto the occupants and visitors of the Site verbally, by telephone and/or in person. It will be ensured that everyone receives the flood warnings when required.

The following flood evacuation procedures have been developed for the Site, so that the Site is safe during a flood.

Flood Alert

'Flooding of low-lying land and roads is expected. Be aware, be prepared, watch out!'. The Natural Resources Wales will issue a Flood Alert status when flooding is possible, based upon weather and river/sea conditions.

Be prepared to act on your flood plan. At this stage occupants and visitors should make themselves aware of the Flood Plan and evacuation routes. Prepare a flood kit of essential items. Monitor local water levels and the flood forecast.

Contact Natural Resources Wales Floodline on 0345 988 1188 to get more information should be contacted to get more information, periodically and listen to and watch for weather and flood warnings on local radio and television stations.

Flood Warning

'Flooding of homes and businesses is expected. Act now!'. The Flood Warning alert will be issued when water levels are rising and further rain is expected. The Site will be evacuated. Move family, pets and valuables to a safe place.

Safe access and egress, including emergency access can be maintained for vehicles and/or by foot. Water, electricity and gas supplies should be located and switched off before evacuating. Contact Natural Resources Wales Floodline on 0845 988 1188 to get more information should be contacted to get more information, periodically and listen to and watch for weather and flood warnings on local radio and television stations.

Severe Flood Warning

'Severe Flooding is expected. There is extreme danger life and property. Act now!'. If the Site has not already been evacuated it will be evacuated immediately. Co-operate with the emergency services and call 999 if immediately in danger. Safe access and egress, including emergency access can be maintained for vehicles and/or by foot.

Contact Natural Resources Wales Floodline on 0845 988 1188 to get more information should be contacted to get more information, periodically and listen to and watch for weather and flood warnings on local radio and television stations.

Warning No Longer in Force

'Flood Watches or Flood Warnings are no longer in force for this area'. Occupants and visitors should contact the LPA to check that it is safe to return to the Site. Please be careful water may be around for several days. If there is any doubt that appliances may be water damaged they must be checked before switching the power or gas back on. Contact your insurance company as soon as possible to get their approval before arranging any clean-up or repairs.

4.6 Safe Access and Egress Route

Access routes should be such that occupants can safely access and exit their dwellings in design flood conditions. These routes must also provide the emergency services with access to the development during a flood event and enable flood defence authorities to carry out any necessary duties during the period of flood.

The Site is one of the last places in the area to flood and remains flood free when other areas close by are flooded. The Site is at such a ground level that it would only flood in the most extreme flood events; the Site will remain flood free for the vast majority of flood events during the lifetime of the Proposed Development.

Safe access and egress routes, including emergency access can be maintained for vehicles and/or by foot via Cardiff Road to the south west and then via Belle Vue Lane to the south, as shown in Figure 13. Flood defences protect the Site from flooding from the River Usk with a SoP of 1 in 200 years. Natural Resources Wales data shows that the Site will not be inundated with floodwater during the defended/undefended/breach 1 in 200 year and 1 in 1000 year events. The Site is shown to be flood free during the defended/undefended/breach 1 in 1000 year event, the flood risk posed to the Site is less than 1 in 1000 years.

The Site is located close to the edge of the floodplain hence a very short distance to travel to be outside of the floodplain, the risk of which is further reduced given the shallow depths and long time to inundation based on Natural Resources Wales speed of flooding in all events.

The likelihood of a rapid water level rise and possible rapid inundation of urban areas posing a risk to life is considered to be minimal with a forewarning of two (2) days of a pending flood event. The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2. This would allow safe access and egress from the as per Natural Resources Wales guidance using the route shown in Figure 13.

Given that the Site is located within a flood warning area, Site users would be aware of the flood risk and should have more than sufficient time to evacuate the Site before flooding of the access road would be expected. Therefore, the lead time of the flooding will provide Site users with more than ample time to evacuate the Site and seek safe refuge outside the floodplain. People should make their way to areas outside of the flood zone. In the event of a Flood Warning, vital belongings, including waterproof clothing, necessary medication and essentials for infants and children will be collected. It should be ensured that all occupiers and visitors to the Site are accounted for, and then exit the Site.

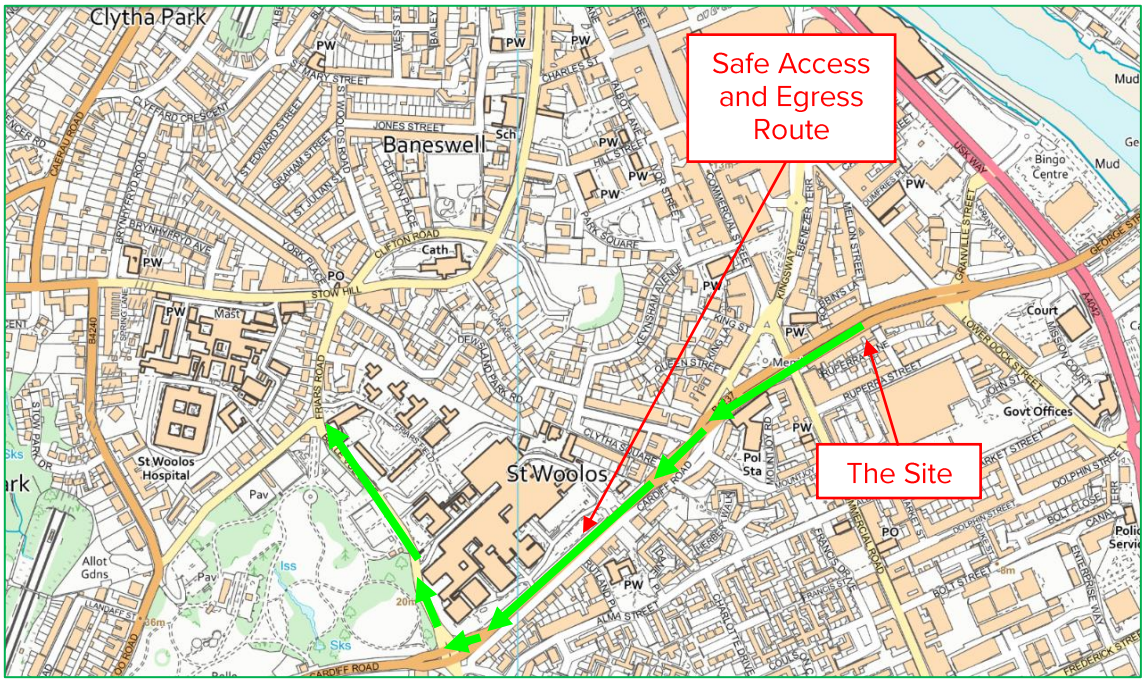

Figure 13 - Safe Access and Egress Route

4.7 Residual Risk

The Site can be justified in accordance with TAN15 as it can be demonstrated that the consequences of flooding can be managed down to a level which is acceptable for the nature and type of Site. The mitigation measures detailed above show that the flood risk can be effectively managed and therefore the consequences of flooding are acceptable.

5.0 JUSTIFYING THE LOCATION OF THE DEVELOPMENT

5.1 Justification Test

The Justification Test sets out the details required to justify siting a new development in an area believed to be at risk of flooding and is defined in Section 6 of TAN15. The required criteria a site / development must fulfil are:

i) its location in zone C is necessary to assist, or be part of, a local authority regeneration initiative or a local authority strategy required to sustain an existing settlement; or

ii) its location in zone C is necessary to contribute to key employment objectives supported by the local authority, and other key partners, to sustain an existing settlement or region;

and

iii) it concurs with the aims of PPW and meets the definition of previously developed land; and,

iv) the potential consequences of a flooding event for the particular type of development have been considered, and in terms of the criteria contained in sections 5 and 7 and appendix 1 found to be acceptable.

The Proposed Development has been assessed against the requirements of the Justification Test.

Criterion i

- The DAM shows that the Site is located within Zone B - Areas known to have been flooded in the past evidenced by sedimentary deposits. However, it has been concluded that the Site has not historically flooded in the recent past and this designation is based solely on sedimentary deposits. The FMfP shows that the Site is located within Flood Zone 3 with a 1 in 200 (0.5%) chance of flooding from the sea in a given year, including the effects of climate change.
- The Proposed Development is classified as 'highly vulnerable'. However, it should be noted that the first floor of the building is already classified as 'highly vulnerable', being of residential use.
- The Site has been designated as suitable in size and location to accommodate the Proposed Development. The Proposed Development will provide improved residential uses 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 and employment uses. 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.
- The Council's objectives are to sustain and enhance the vitality and viability of the region, and to ensure a wide range of residential uses 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.

- 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.

- The Site proposals cannot be located in another site elsewhere. There are no alternative sites available to develop. 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.

Criterion ii

TAN15 states that a development will be justified if it complies with either criteria (i) or (ii). The Proposed Development complies with criterion (i) it is not necessary to consider criterion (ii).

Criterion iii

Previously developed land is defined in Planning Policy Wales (PPW) as:

"...that which is or was occupied by a permanent structure (excluding agricultural or forestry buildings) and associated fixed surface infrastructure."

The Site is designated as previously developed land.

Criterion iv

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.

Conclusion

The development proposals should be considered by the LPA to satisfy the Justification Test as set out in TAN15.

5.2 Assessment of Acceptability Criteria

New development should be directed away from Zone C and towards suitable land in Zone A, otherwise to Zone B, where river or coastal flooding will be less of an issue. However, in some areas where developable land is in short supply, there can be an overriding need to build in areas that are at risk of flooding.

There are indicative frequency threshold of flooding below which flooding of developed may not be allowed (see Table A1.14 of TAN15) and flood consequences during an extreme flood (see Table A1.15 of TAN15). Planning Appeal Reference: APP/G6935/A/20/3258002 confirms that the these should only be taken as indicative and are not prescriptive.

The Proposed Development is classified as 'highly vulnerable'. However, it should be noted that the first floor of the building is already classified as 'highly vulnerable', being of residential use.

Flood defences protect the Site from flooding from the River Usk with a SoP of 1 in 200 years. Natural Resources Wales data shows that the Site will not be inundated with floodwater during the defended/undefended/breach 1 in 200 year and 1 in 1000 year events. The Site is shown to be flood free during the defended/undefended/breach 1 in 1000 year event, the flood risk posed to the Site is less than 1 in 1000 years.

The mechanism for flooding from tidal flooding is generally prolonged episodes of high sea levels, which affords good time for flood warnings to be issued. The likelihood of a rapid water level rise and possible rapid inundation of urban areas posing a risk to life is considered to be minimal with a forewarning of two (2) days of a pending flood event.

The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2.

Summary

It should be taken into account that flooding of the Site would only occur as a result of overtopping of the defences, causing tidal inundation, which is highly unlikely. The flood defences in the vicinity of the Site are significant structures that protect the area from flooding. Although the defences have a 1 in 200 year SoP, as with any flood defences have been they designed to be structurally sound during an exceedance event and this is the purpose of the Natural Resources Wales inspection and maintenance programme to maintain structures to their target condition grade. Therefore, overtopping and/or breaching of the defences is very unlikely.

It is considered that the Proposed Development has been elevated as far as is practicable, accounting for Site constraints. The finished floor levels will be set at the existing finished floor levels. In order to be wholly compliant with A1.14 and A1.15 of TAN15 the finished floor levels would have to be raised by a considerable amount. This level of raising is not considered feasible and/or appropriate in this case.

Flood defences protect the Site from flooding from the River Usk with a SoP of 1 in 200 years. There is no reason to assume that the flood defences will not be maintained in the future. Natural Resources Wales have previously suggested otherwise without providing any evidence to support their case, in fact in as stated above, it is reasonable to assume that the flood defences would be maintained and improved in line with sea level rise in the future.

The finished floor levels have been raised as much as possible and the consequences of flooding are low and acceptable when assessed against the criteria within Sections 5 and 7 of Appendix 1 of TAN15.

A1.14 of TAN15 should be read in the context of the TAN and national flood risk policy, and not in isolation. For example, we draw your attention to the Dear CPO letter from 9 January 2014 which states *"Consequently, in order to ensure that insurance cover will be obtainable, new developments should only be permitted in a flood risk area where it can be made safe, resistant and resilient to flooding for a given flood event (e.g. 1 in 100 chance or 1 in 200 chance of occurring in any year), and does not increase flood risk elsewhere."*

The values provided within TAN15 are not definitive; that they are indicative and reflect conditions in which, given the presence of adequate warnings and preparation, appropriately

equipped personnel could undertake emergency activities. It has been suggested previously by Natural Resources Wales that within TAN15 it is stated that the that the design event is the breach or overtopping event, this incorrect, TAN15 makes no mention of the breach or overtopping event.

Therefore, the indicative requirements of A1.14 and A1.15 of TAN15 are passed. The development proposals should therefore be considered by the LPA to satisfy the Acceptability Criteria as set out in TAN15. The Site can be justified in accordance with TAN15 as it can be demonstrated that the consequences of flooding can be managed down to a level which is acceptable for the nature and type of Site. The mitigation measures detailed above show that the flood risk can be effectively managed and therefore the consequences of flooding are acceptable.

6.0 SUMMARY AND CONCLUSIONS

6.1 Introduction

This report presents an FCA in accordance with TAN15 for the Proposed Development at 64 George Street, Newport, NP20 2AA.

This FCA identifies and assesses the risks of all forms of flooding to and from the development and demonstrates how these flood risks will be managed so that the development remains safe throughout the lifetime, taking climate change into account.

6.2 Flood Risk

The Site is unlikely to flood except in extreme conditions. The primary, but unlikely, flood risk to the Site is from tidal flooding from the River Usk. The Site is located within Zone B - Areas known to have been flooded in the past evidenced by sedimentary deposits. The Site is located within FMfP Flood Zone 3 for tidal flooding, with a 1 in 200 (0.5%) annual probability of flooding from the sea in a given year, including the effects of climate change.

However, the Site is protected against tidal flooding by flood defence measures which provide a 1 in 200 year SoP and the Site has no history of flooding. The Proposed Development is classified as 'highly vulnerable' however, it should be noted that the first floor of the building is already classified as 'highly vulnerable', being of residential use.

Defended Scenario

Flood defences protect the Site from flooding from the River Usk with a SoP of 1 in 200 years. Natural Resources Wales data shows the Site has a very low risk of tidal flooding with a chance of flooding of less than 1 in 1000 (0.1%) years. The Site will not be inundated with floodwater during the defended 1 in 200 year and in 1000 year events. The Site is shown to be flood free during the defended 1 in 1000 year event, the actual flood risk posed to the Site is less than 1 in 1000 years.

It is only when climate change is considered that the area may be inundated with floodwater. The Site may be inundated with floodwater to a maximum depth of 0.38m during the defended 1 in 200 year in 2115 event and to a maximum depth of 0.80m during the defended 1 in 1000 year in 2115 event. During the defended 1 in 200 year in 2124 event the Site may be inundated with floodwater to a maximum depth of 0.45m and during the defended 1 in 1000 year in 2124 event to a maximum depth of 0.87m. However, it is reasonable to assume that the existing flood defences will not only be maintained but will be upgraded in the future to maintain the design SoP i.e. 1 in 200 years.

Undefended Scenario

Natural Resources Wales data shows that the Site will not be inundated with floodwater during the undefended 1 in 200 year and 1 in 1000 year events. The Site is shown to be flood free during the undefended 1 in 1000 year event, the residual flood risk posed to the Site is less than 1 in 1000 years.

It is only when climate change is considered that the area may be inundated with floodwater. The Site may be inundated with floodwater to a maximum depth of 0.72m during the undefended 1 in 200 year in 2115 event and to a maximum depth of 1.37m during the undefended 1 in 1000 year in 2115 event. During the undefended 1 in 200 year in 2124 event the Site may be inundated with floodwater to a maximum depth of 0.79m and during the undefended 1 in 1000 year in 2124 event to a maximum depth of 1.44m. However, it is

reasonable to assume that the existing flood defences will not only be maintained but will be upgraded in the future to maintain the design SoP i.e. 1 in 200 years.

Breach Scenario

Natural Resources Wales data shows that the Site will not be inundated with floodwater during the breach 1 in 200 year and 1 in 1000 year events. The Site is shown to be flood free during the breach 1 in 1000 year event, the residual flood risk posed to the Site is less than 1 in 1000 years.

It is only when climate change is considered that the area may be inundated with floodwater. The Site may be inundated with floodwater to a maximum depth of 0.39m during the breach 1 in 200 year in 2115 event and to a maximum depth of 0.81m during the breach 1 in 1000 year in 2115 event. During the breach 1 in 200 year in 2124 event the Site may be inundated with floodwater to a maximum depth of 0.46m and during the breach 1 in 1000 year in 2124 event to a maximum depth of 0.88m. However, it is reasonable to assume that the existing flood defences will not only be maintained but will be upgraded in the future to maintain the design SoP i.e. 1 in 200 years.

Summary

The mechanism for flooding from tidal flooding is generally prolonged episodes of high sea levels, which affords good time for flood warnings to be issued. The likelihood of a rapid water level rise and possible rapid inundation of urban areas posing a risk to life is considered to be minimal with a forewarning of two (2) days of a pending flood event.

The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2.

It can be concluded that tidal flooding from the River Usk poses a low risk to the Site. Therefore, the risk of flooding from the River Usk is considered to be of medium significance. A secondary flooding source has been identified which may pose a low significant risk to the Site. This is:

- Surface Water Flooding

The flooding sources will only inundate the Site to a relatively low water depth and water velocity, will only last a short period of time, in very extreme cases and will not have an impact on the whole of the Proposed Development Site. The risk from all sources will be further mitigated by using a number of risk management measures to manage and reduce the overall flood risk at the Site.

The building is existing and no land raising will occur across the Site and the development will not impede the movement of floodwater across the Site. The Proposed Development will have no impact on the movement of floodwater across the Site.

The overall direction of the movement of water will be maintained within the developed Site and surrounding area. The conveyance routes (flow paths) will not be blocked or obstructed. There will be no increase in the floodwater levels due to the Proposed Development. The Site proposals have been shown to be in accordance with A1.12 of TAN15.

6.3 Risk Management

The flood risk at the Site will be reduced by using a number of risk management measures to manage and reduce the overall flood risk at the Site. Measures used:

Finished Floor Levels: The finished floor level of the building will be set at the existing finished floor levels which are between 110 and 220mm above the external ground levels at 8.90 to 9.01mAOD. It is recognised however that owing to limited headroom constraints, massing, planning policy and Building Regulations it is considered impractical to raise the finished floor levels further. Therefore, in order to mitigate against this, it is recommended that the occupants of the Site are sign up to receive flood warnings from Natural Resources Wales, a Flood Warning and Evacuation Plan to a safe area away from the building during times of flood is developed.

A combination of resistance (proofing) and resilience measures will be included to provide further protection. This is discussed below.

First Floor Accommodation: Accommodation is located on the first floor as well as the ground floor of the building, although the first floor is not part of this planning application. This will allow occupants to retreat to higher floor levels if needed. The levels of the first floor are located a minimum of 2.50m above the ground floor finished floor level well above any floodwater levels. This provides a 'safe haven' above any floodwater levels.

This will enable rapid escape should flooding occur which is unlikely. The upper floors are accessed via internal stairs and are sufficient in size to safely house occupants of the building. The 'safe haven' will only be required in very extreme events or if a flood warning has not been received.

Flood Resilience and Resistance: Flood resilient and resistant measures will be used, including:

- Flood barriers will be used on external doors.
- Sealant will be used around external doors and windows.
- All external doors and windows will be constructed from hard wearing materials with flood seals.
- All electrics wiring, switches, sockets, socket outlets etc. to be located a minimum of 450mm above the finished floor level which provides a further freeboard above the floodwater levels.

Flood Warning and Evacuation Plan: A Flood Warning and Evacuation 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.

Safe Access and Egress Route: The Site is one of the last places in the area to flood and remains flood free when other areas close by are flooded. The Site is at such a ground level that it would only flood in the most extreme flood events; the Site will remain flood free for the vast majority of flood events during the lifetime of the Proposed Development.

Safe access and egress routes, including emergency access can be maintained for vehicles and/or by foot via Cardiff Road to the south west and then via Belle Vue Lane to the south. Flood defences protect the Site from flooding from the River Usk with a SoP of 1 in 200 years. Natural Resources Wales data shows that the Site will not be inundated with floodwater during the defended/undefended/breach 1 in 200 year and 1 in 1000 year events. The Site is shown to be flood free during the defended/undefended/breach 1 in 1000 year event, the flood risk posed to the Site is less than 1 in 1000 years.

The Site is located close to the edge of the floodplain hence a very short distance to travel to be outside of the floodplain, the risk of which is further reduced given the shallow depths and long time to inundation based on Natural Resources Wales speed of flooding in all events.

The likelihood of a rapid water level rise and possible rapid inundation of urban areas posing a risk to life is considered to be minimal with a forewarning of two (2) days of a pending flood event. The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2. This would allow safe access and egress from the as per Natural Resources Wales guidance.

Given that the Site is located within a flood warning area, Site users would be aware of the flood risk and should have more than sufficient time to evacuate the Site before flooding of the access road would be expected. Therefore, the lead time of the flooding will provide Site users with more than ample time to evacuate the Site and seek safe refuge outside the floodplain. People should make their way to areas outside of the flood zone. In the event of a Flood Warning, vital belongings, including waterproof clothing, necessary medication and essentials for infants and children will be collected. It should be ensured that all occupiers and visitors to the Site are accounted for, and then exit the Site.

6.4 Justifying the Location of the Development

The development proposals should be considered by the LPA to satisfy the Justification Test and Acceptability Criteria as set out in TAN15.

6.5 Conclusion

In conclusion, the Proposed Development would be expected to remain dry in all but the most extreme conditions. Providing the recommendations made in this FCA are instigated, flood risk from all sources would be minimised, the consequences of flooding are acceptable and the development would be in accordance with the requirements of TAN15.

This FCA demonstrates that the Proposed Development would be operated with minimal risk from flooding, would not increase flood risk elsewhere and is compliant with the requirements of TAN15. The development should not therefore be precluded on the grounds of flood risk.

01686 668957 • info@krsenviro.com • www.krsenviro.com