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Cyfoeth Naturiol Cymru
Natural Resources Wales

Ein cyf/Our ref: SE/2008/105263/AC-02/EP1-L01
Eich cyf/Your ref: H1 (63)

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24th September 2014

Annwyl Ms Christian/Dear Ms Christian

Newport Local Development Plan 2011-2026: Additional Housing Site Allocation H1 (63) Telford Depot Stage 3 SFCA (September 2014)

Thank you for your email of 9th September 2014 asking for our advice on the additional housing sites being considered for inclusion in your Council's Local Development Plan.

We note that a Stage 3 Strategic Flood Consequence Assessment (SFCA) (ref. 47069846; dated September 2014) has been prepared for Newport City Council by URS Infrastructure and Environment UK Limited, which assesses the risks and consequences of flooding at four additional housing sites.

We note that three of the additional housing allocation sites are not located in a flood risk area;

H1 (61) Postal Exchange
H1 (62) Queens Hill School
H1 (64) Uskside Paint Mills

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A fourth housing allocation H1 (63) at Telford Depot, however, is located within an area of flood risk, which is assessed in more detail in the Stage 3 SFCA.

In summary, the view of Natural Resources Wales is that the SFCA demonstrates that the proposed allocation site H1 (63) is constrained under climate change conditions (to 2111). The proposed allocation site is inundated with flood water during both the 200 year tidal event (scenario 3 (maximum depth of flooding of 0.85m at 30.5 hours); including breach scenario 6) and 1000 year tidal event (scenario 9)). Scenario 3 and 9 outcomes result in a significant flood hazard rating, that is, danger for most.

While solutions have been suggested in the SFCA to mitigate for this risk, including the raising of defences, raising ground levels and/or raising of finished floor levels (to be designed flood free and above the frequency thresholds of A1.14 of TAN15 (scenario 3)); sustainable drainage measures; and evacuation plan, the viability of mitigation measures have not been fully tested.

Our advice is that the raising of the site has the potential to result in a loss of flood storage volume and/or displacement, which could convey floodwaters (or increased floodwaters) elsewhere. The residual effects of site raising have not been established. In order to satisfy the acceptability criterion of no flooding elsewhere given in TAN15 (A1.12), the effects of flooding elsewhere where the site is raised should be assessed. Evidence should be provided to demonstrate that the proposed mitigation is feasible and deliverable without having adverse effects.

Our fuller explanation and advice is given below. We identify aspects of the SFCA in items 1-7 and our views are given in bold font;

1. The predominant flood source within this area is tidal flooding from the River Usk as opposed to fluvial flood risk.

Noted and agreed by us.

2. The lifetime of development (LOD) in the SFCA has been assessed for 100 years using a baseline year of 2111.

We note that a lifetime development factor of 97 years to 2111 has been used in the SFCA. For any future detailed assessment we recommend that the base year coincides with the timing of a planning application (the year of submission).

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3. Flood Risk - Present Day (2011)

- 1 in 200 year Tidal (Scenario 1) – No flooding is observed at the site during this event. No overtopping of the River Usk is experienced in the vicinity of the site.
- 1 in 1000 year Tidal (Scenario 4) – No flooding is observed at the site during this event. No overtopping of the River Usk is experienced in the vicinity of the site.
- 1 in 200 year Tidal: Breach (Scenario 7) – No flooding is observed at the site

We note the results of the assessment.

4. Flood Risk – Application of Climate Change (2111); (97 years lifetime)

Accounting for climate change up to 2111, the extent and depth of flooding at the allocation site is significantly increased. The entire site is inundated with flood waters during the 1 in 200 year tidal (including breach) and 1 in 1000 year tidal flood events;

- 1 in 200 year Tidal (Scenario 3) – First inundation and the maximum depth of flooding (0.85 metres) is experienced during the third tidal cycle. However, the time of first overtopping for this climate change event is during the second tidal cycle (15.5 hours).
- 1 in 1000 year Tidal (Scenario 6) – First overtopping and first inundation occurs during the second tidal cycle; however the maximum depth of flooding (2.15 metres) is not experienced until the third tidal cycle.
- 1 in 200 year Tidal: Breach (Scenario 9) – Flood water flows through the breach during the first tidal cycle; however time of first inundation does not occur until the second tidal cycle with maximum depth of flooding (1.15 metres) experienced during the third tidal cycle.

The assessment demonstrates that the requirements of TAN15 have not been complied with because the existing site is inundated with floodwaters during both the 1 in 200 year tidal (including breach) and 1 in 1000 year tidal flood events, applying a lifetime of development factor of 97 years to 2111.

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5. Flood Hazard

Flood hazard maps have been provided that illustrate the low, moderate, significant or extreme hazard based on model outputs.

No flooding is experienced at the site during the present day (2011) scenarios. Therefore the proposed allocation site is considered safe in terms of tidal flood risk under present day conditions.

Over the development lifetime (2111 equating to 97 years) the 1 in 200 year tidal (Scenario 3) and 1 in 200 year tidal breach events (Scenario 9) result in a significant flood hazard, that is, danger for most (includes the general public). For the 1 in 1000 year extreme tidal event (Scenario 6) the maximum flood hazard is extreme, that is, danger for all (includes Emergency Services).

We agree that the flood hazard ratings during the events assessed in (4) above result in a significant, that is, danger for most (includes the general public) and extreme, that is, danger for all (includes Emergency Services) hazard.

6. Escape / Evacuation

To ensure escape / evacuation routes from the site are considered over the development lifetime, the 200 year tidal event (2111) (Scenario 3) flood event has been selected.

The suggested escape / evacuation route from the site to the limit of the floodplain is west along Phillip Street, north along Wharf Road (B4237) under the railway-bridge and then north along Victoria Avenue. The distance of this suggested route to the limit of the floodplain is approximately 450 metres. The maximum hazard rating along this route is significant, that is, Danger for most (includes the general public).

In the unlikely event that no prior flood warning is given, the model results indicate that from the time of first overtopping at 15.5 hours, to the time at which the escape / evacuation route is first inundated with floodwaters at 28.5 hours, a 13 hour period is available for site evacuation.

The 1 in 200 year tidal event (2111) (Scenario 3) flood event has been selected for assessing the flood hazards along the suggested escape / evacuation route. The 1 in 1000 year tidal event (Scenario 6) should be assessed in accordance with A1.15 of TAN 15.

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With respect to access and egress it is for the Local Authority to determine whether the risks and consequences of flooding can be managed in accordance with TAN15 and we would recommend that you consider consulting other professional advisors on the acceptability of a developer's proposals, on matters that we cannot advise you on such as emergency plans, procedures and measures to address structural damage that may result from flooding. We refer you to the above information and the SFCA to aid these considerations.

Please note, we do not normally comment on or approve the adequacy of flood emergency response and procedures accompanying development proposals because we do not carry out these roles during a flood. Our involvement during a flood emergency would be limited to delivering flood warnings to occupants/users.

7. Mitigation

The following considerations should be made:

- Raising of ground levels and setting of minimum finished floor level at this site would be required to ensure that the maximum flood depth threshold is not exceeded, in line with TAN15, Appendix 1. Floodplain compensation is unlikely to be required at this location due to the predominant flood source being tidal;
- Surface water management measures should include SuDS (refer to Stage 2 SFCA for general details) and consideration of potential tide locking of outfalls to the River Usk should be taken into account;
- A site evacuation plan and escape plan would be required to ensure the safety of occupiers and users.

It is recommended that a site specific Flood Consequence Assessment (FCA) will be required to support the above mitigation measures at the planning application stage.

Consultation with Natural Resources Wales and other relevant stakeholders will be required to ensure the layout and design of the site is safe for the lifetime of the development.

Ground Raising

Mitigation works to meet requirements of A1.14 of TAN 15 (designed flood free) will require raising of the existing site and setting floor levels above the design flood event, that is, the 1 in 200 year plus climate change event. This will potentially result in a loss of flood storage volume and/or displacement, which could convey floodwaters elsewhere.

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This will need to be assessed further to ensure flooding is not increased elsewhere. This is contrary to the statement in Section 4.8.1 (Bullet point 1) "*Floodplain compensation is unlikely to be required at this location due to the predominant flood source being tidal*".

Surface Water

We acknowledge and support the use of sustainable drainage schemes (SuDS). It is unlikely, however, that a new a separate surface water system with associated outfalls to the River Usk will be feasible to serve this allocation site. This is due to the existing built up area between the proposed development and the River Usk, which is already served by such infrastructure and various other statutory undertakers' services. It is essential that any surface water runoff from the new development into the existing systems is not increased and does not result in a corresponding volumetric increase, which will compromise their existing capacity.

Evacuation / Escape

Please refer to our comments in the final paragraph of item (6) above.

We trust our advice is helpful and should you require further guidance then please do not hesitate to contact us.

Yn ddiffuant / Yours sincerely

Mrs Jackie Walters
Senior Development Planning Advisor / Uwch Ymgynghorydd Cynllunio Datblygu
Cyfoeth Naturiol Cymru / Natural Resources Wales

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