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FLOOD CONSEQUENCE ASSESSMENT

FOR

PROPOSED DEVELOPMENT

AT

**CARDIFF EDGE LIFE SCIENCES PARK
LONGWOOD DRIVE
CARDIFF
CF14 7YT**

FOR

HSRE-TRINITY CARDIFF EDGE LIMITED

AUGUST 2022

REPORT REF: 2441-FCA001

CIVIL/STRUCTURAL ENGINEERS | DEVELOPMENT CONSULTANTS | PROJECT MANAGERS

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REPORT No. 2441-FCA001

TITLE: FLOOD CONSEQUENCE ASSESSMENT

CLIENT: OSBORNE + CO.

DATE: 5TH AUGUST 2022

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Associate

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Managing Director

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1.0 INTRODUCTION

- 1.1 BJB Consulting has been commissioned by HSRE-Trinity Cardiff Edge Limited to undertake a Flood Consequence Assessment (FCA) for the proposed development located at Cardiff Edge Life Sciences Park in Longwood Drive Cardiff CF14 7YT
- 1.2 The FCA will investigate and highlight potential flood risks that may exist on and around the site in relation to the proposed development. Any proposed mitigation measures will comply with the recommendations in Technical Advice Note 15, Development and Flood Risk (TAN 15) published by the Welsh Government, and Natural Resource Wales (NRW) guidance.
- 1.3 The comments given in this report and the opinions expressed are subject to BJB Consulting Service Constraints provided in Appendix A.

2.0 SITE LOCATION AND DESCRIPTION

- 2.1 The site location plan showing the extent of the overall site boundaries can be seen in Figure1.
- 2.2 The site is located in the Whitchurch area of Cardiff, approximately 6.7 km northwest of Cardiff city centre. The site comprised a commercial park 50m east of the River Taff, 100m south of the M4 motorway and 350m southwest of the M4-A470 junction. The site is roughly rectangular and covers approximately 12 hectares.
- 2.3 The topographical survey has recorded the existing site levels which vary from 30m AOD in southeast corner of the site, 29m at the northern entry and exit access gates and 26m AOD at the southwest entry and exit access to the site.
A copy of the survey is included in Appendix B.
- 2.4 The Development Advice Map (DAM) considers the site to be within Flood Zone A, an area considered to be at little or no risk of fluvial or tidal/coastal flooding. An extract of the DAM can be seen in Appendix C.
- 2.5 Extract of NRW's flood maps of fluvial, small watercourses & surface water and coastal flood risk are shown in Appendices D, E, & F respectively. These maps demonstrate that the flood risk in the vicinity of the proposed development is little to no risk.



Figure 1 – Site Location Plan

3.0 PROPOSED DEVELOPMENT

- 3.1 The proposed development consists of a new two storey office/laboratory building and a new two storey multi-use hub building (café/gym/workspace) with associated parking and landscaping. A copy of the Architect's proposed site plan is included in Appendix G.
- 3.2 To facilitate early delivery and enable the science park to be more attractive for future/current tenants, an early, Full Application for an office/laboratory building and a hub are being progressed. A subsequent Outline Application to include the whole park and associated improvements will be submitted at a later date.
- 3.3 This report is to assess the flood risk associated with the development of the existing brownfield site within the existing life sciences estate.
- 3.4 The existing greenfield discharge rates and current discharges from the existing building with results shown in Appendices H & J.
- 3.5 Both proposed buildings will generate surface water which will be required to be attenuated to the current greenfield and brownfield runoff.
- 3.6 The proposed development will follow current Welsh Government and local authority SAB guidance in relation to an acceptable surface water drainage scheme.
- 3.7 Surface water will be collected, treated and attenuated prior to discharge into the existing surrounding below ground drainage system which serves the wider estate surface water catchment with the final discharge into the River Taff to the west of the site.
- 3.8 The proposed development will be designed to collect, attenuate and discharge storm water events up to and including 100 year event with a 40% allowance for future climate change.
- 3.9 Initial preliminary attenuation volume calculations have been prepared and contained in Appendix K which will be developed in detail when the detailed design is commissioned by the client.
- 3.9 An initial pre-application has been submitted to SAB and recommendations for dealing with the surface water has been received and will be followed for the detailed design of the drainage system.

4.0 FLOOD ZONE DEFINITION

- 4.1 The current NRW Development Advice Map (Appendix B) indicates that the site is within Zone A – Areas considered to be at little or no risk of fluvial or tidal/coastal flooding.
- 4.2 As set out in Planning Policy Wales TAN 15: Development & Flood Risk, flood zones are defined within the following Figure 2.

DESCRIPTION OF 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 greater than the flood levels used to define against 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 of coastal)	C	Used to indicate that flooding issues should be considered as an integral part of the decision making by the application of the justification test including assessment of consequences.
Areas of the flood plain which are developed and served by significant infrastructure, including flood defences.	C1	Used to indicate that development can take place subject to of justification test, including acceptability of consequences.
Areas of the floodplain without significant flood defence 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 – Extract TAN 15:Development of Flood Risk Description

5.0 FLOOD RISK SUMMARY

- 5.1 Surface water Flooding (Flash Flooding) – The Flood Risk Map considers the proposed development to be at little or no risk of surface water flooding.
- 5.2 Fluvial Flooding – The site is shown on the DAM to be in Zone A.
- 5.3 Coastal Flooding – The Flood Risk Map considers the proposed development to be at little or no risk of sea water flooding.

6.0 SUMMARY AND CONCLUSIONS

6.1 SUMMARY

- 6.1.1 The proposed development is situated in Flood Zone A, and area considered to be at little or no risk fluvial or tidal/coastal flooding.
- 6.1.2 There is no increase in flooding risk to the surrounding properties posed by the developed as there is no increase in discharge surface water rates from the development.
- 6.1.3 Initial pre-application with SAB have provided recommendation for dealing with the surface water generated by the proposed development.
- 6.1.4 It is proposed to utilise permeable surfacing to provide improved water quality and attenuate features.
- 6.1.5 The proposed development network will be designed to accommodate the 100 year storm event with 40% climate change allowance.
- 6.1.6 The proposed discharge rates for all storm events will not exceed the current greenfield and brownfield runoff.

6.2 CONCLUSIONS

- 6.2.1 The proposed development area is at no/low risk of flooding according to Mapping information and flood model data provided by NRW.
- 6.2.2 There is no increase in flood risk to surrounding property posed by the proposed development
- 6.2.3 Access to the propose development vis the exist8ing estate access road is demonstrated to be flood free through NRW Flood Risk maps and thus it is believed that a safe access and egress route for the development exists.

APPENDIX A

BJB CONSULTING SERVICE CONSTRAINTS

SERVICE CONSTRAINTS

This report (together the “Services”) were compiled and carried out by BJB CONSULTING LIMITED (BJB) for HSRE-TRINITY CARDIFF EDGE LIMITED (the “client”) in accordance with their instruction. The Services were performed by BJB with the reasonable skill and care ordinarily exercised by a reasonable Civil Engineer at the time the Services were performed. Further, and in particular, the Services were performed by BJB taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between BJB and the client.

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It is BJB’s understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without BJB’s review and advice shall be at the client’s sole and own risk. Should BJB be requested to review the report after the date hereof, BJB shall be entitled to additional payment at the then existing rates or such other terms as agreed by BJB and the client.

The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. This information and conclusions contained in this report should not be relied upon in the future without the written advice of BJB. In the absence of such written advice of BJB, reliance on the report in the future shall be at the client’s own and sole risk. Should BJB be requested to review the report in the future, BJB shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between BJB and the client.

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The services are based upon BJB's observations of Environment Agency Flood Maps of the Site together with BJB's interpretation of information including documentation, obtained from third parties and from the client on flooding and drainage issues relating to the Site. The Services clearly are limited by the accuracy of the information, including documentation. Further BJB was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services. BJB is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to BJB and including the doing of any independent investigation of the information provided to BJB save as otherwise provided in the terms of the contract between the client and BJB.

Any site drawings provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.

APPENDIX B

SITE TOPOGRAPHICAL SURVEY DRAWING

APPENDIX C

NATURAL RESOURCES WALES

DEVELOPMENT ADVICE MAP

APPENDIX D

NATURAL RESOURCES WALES

FLOOD RISK MAP – FLUVIAL FLOOD RISK

APPENDIX E
NATURAL RESOURCES WALES
FLOOD RISK MAP – SURFACE WATER &
SMALL WATERCOURSE
FLOOD RISK

APPENDIX F

NATURAL RESOURCES WALES

FLOOD RISK MAP – COASTAL FLOOD RISK

APPENDIX G ARCHITECT'S PROPOSED SITE PLAN DRAWING

APPENDIX H

HR WALLINGFORD GREENFIELD RUNOFF CALCULATIONS

APPENDIX J

BROWNFIELD DISCHARGE RATE OF RUNOFF CALCULATIONS

APPENDIX K

SURFACE WATER ATTENUATION CALCULATIONS