

MERIDIAN

CIVIL ENGINEERING CONSULTANCY

LAND ADJACENT TO 9 ADDISON ROAD
SANDFIELDS, PORT TALBOT
SA12 6HJ

FLOOD CONSEQUENCES ASSESSMENT

DECEMBER 2024

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Client : Piku Das

Rev	Date	Prepared by	Checked by	Approved by
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1.0 INTRODUCTION

- 1.1 Meridian Civil Engineering Consultancy LTD (MCEC) has been instructed by Piku Das to prepare a site-specific Flood Consequence Assessment (FCA) for the development being carried out at the Land adjacent to 9 Addison Road, Sandfields, Port Talbot, SA12 6HJ.
- 1.2 It is understood that the proposed development is for the construction of a new residential property, along with new off-street parking and associated relandscaping. Sleeping accommodation is shown at first floor only.
- 1.3 The British Geological Survey (BGS) Geology of Britain Viewer indicates that the bedrock underlying the site consists of South Wales Middle Coal Measures Formation – Mudstone, Siltstone and Sandstone (Source: BGS). Superficial deposits underlay the site consist of Blown Sand – Sand.
- 1.4 In accordance with the TAN15 Development Vulnerability Categories, this development is classed as 'Highly Vulnerable' as it is a residential development.
- 1.5 According to the Natural Resources Wales (NRW) Flood Map for Planning the site is located within Flood Zone 2 for sea flood zones and an area benefitting from tidal flood defences. The Flood Risk Assessment Wales map indicates the development location to be within an area at Very Low risk of flooding from the sea. Very Low means that each year, this area has a chance of flooding less than 0.1% (1in1000yr). This takes into account the effect of any flood defences that may be in this area. Flood defences reduce, but do not completely stop the chance of flooding as they can be overtopped or fail.
- 1.6 According to the Natural Resources Wales (NRW) Flood Map for Planning the site is located within Flood Zone 2 for river flood zones. The Flood Risk Assessment Wales map indicates the development location to be at very low risk of flooding from rivers. Very low risk means that each year, this area has a chance of flooding less than 0.1% (1in1000yr).
- 1.7 According to mapping published by the NRW the site is shown to be within an area at very low risk of surface water flooding. Very low risk means that each year this area has a chance of flooding of less than 0.1%. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.
- 1.8 According to the Neath Port Talbot County Council SFCA, the risk of flooding from groundwater is possible within the Council. There is limited data on which areas within the council are at risk of ground water flooding but as there is no below ground development proposed in the plans the risk of groundwater flooding can be considered to be low.
- 1.9 Due to the limited flood risk to the site, residual risks are limited to overland flow from an exceedance event, blockage and potential surface water risk.
- 1.10 As such it is recommended that the finished floor levels of the new buildings are raised a minimum of 300mm above existing external ground levels to mitigate risks from overland flow from exceedance or blockage events. All sleeping accommodation is sited at first floor.
- 1.11 The development site is currently greenfield, and so the proposed development will contribute to an increase in the overall discharge managed by surface water sewage systems.
- 1.12 It is recommended the client integrates sustainable drainage into the scheme, in line with current best practice and sustainable guidance, to reduce risks to others as a result of development. Given the presence of sands, shown by the BGS records, on site it is assumed infiltration of surface runoff may be viable. A full surface water SUDS strategy is outside the scope of this report but the use of permeable surfacing is proposed on the architectural plans.
- 1.13 This report has been produced broadly in accordance with the Technical Advice Note 15 (TAN 15): Development and Flood Risk, and Neath Port Talbot County Borough Council SCFA and local guidance.

2.0 POLICY COMPLIANCE

2.1 The purpose of this assessment is to demonstrate that the development proposal outlined above can be satisfactorily accommodated without worsening flood risk for the area and without placing the development itself at risk of flooding, as per the:

- Technical Advice Note (TAN 15): Development and Flood Risk
- Neath Port Talbot County Borough Council SFCA and local guidance

3.0 SITE LOCATION

3.1 The proposed development is being carried out at the land adjacent to 9 Addison Road, Sandfields, Port Talbot, SA12 6HJ.

3.2 It is understood that the proposed development is for the construction of a new residential property, along with new off-street parking and associated relandscaping. Architectural plans are included in Appendix I.

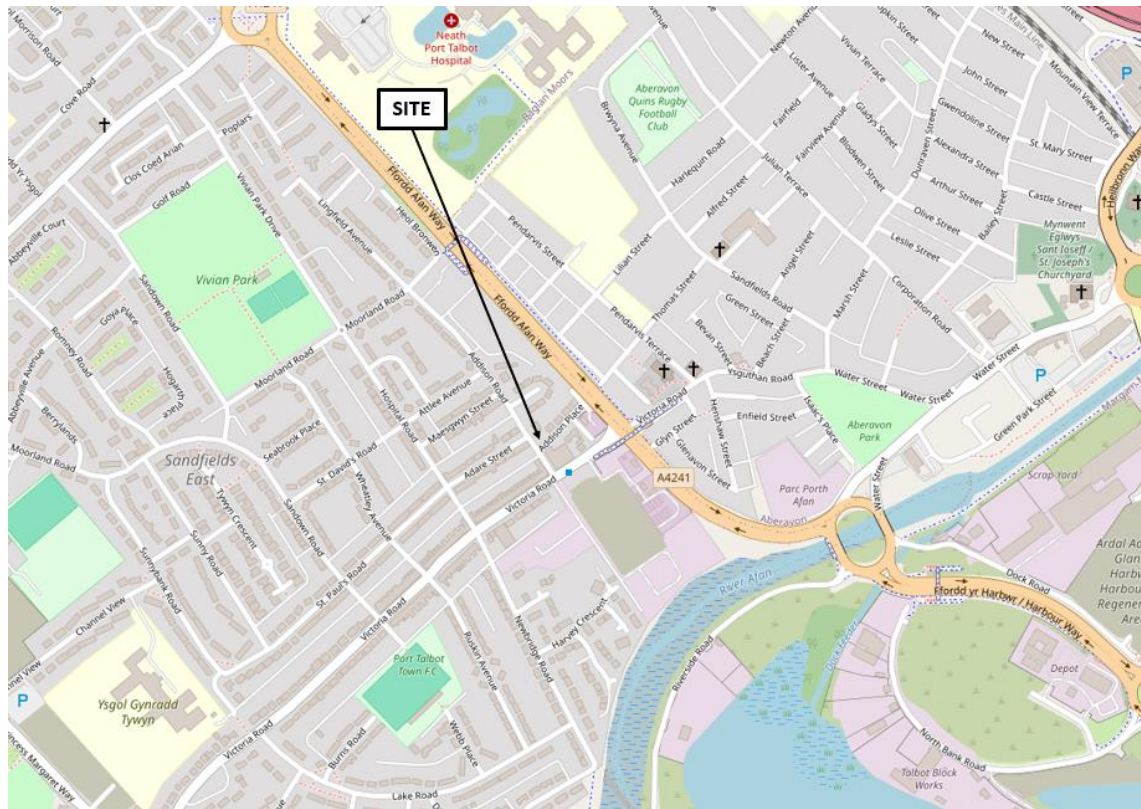


Figure 1 - Site location plan

4.0 GEOLOGY AND INFILTRATION POTENTIAL

- 4.1 The British Geological Survey (BGS) Geology of Britain Viewer indicates that the bedrock underlying the site consists of South Wales Middle Coal Measures Formation – Mudstone, Siltstone and Sandstone (Source: BGS). Superficial deposits underlay the site consist of Blown Sand – Sand.

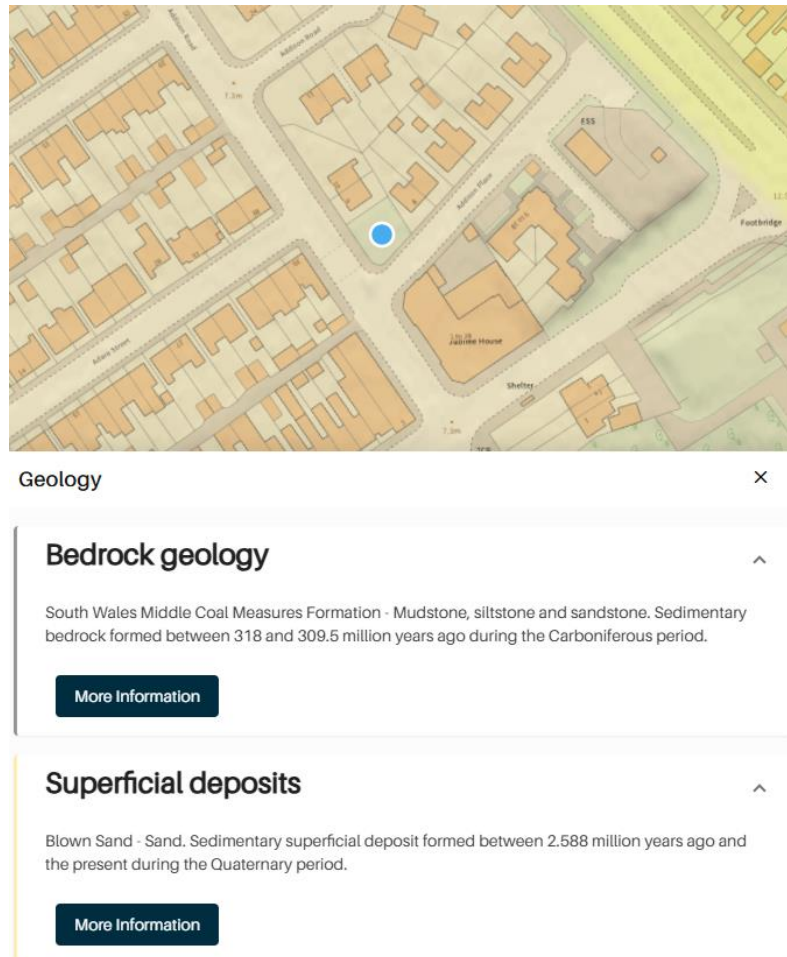


Figure 2: BGS geology map extract

5.0 SEQUENTIAL TEST/EXCEPTION TEST

- 5.1 According to the NRW Flood Map for Planning the site is located within Flood Zone 2 and an area benefitting from tidal flood defences.
- 5.2 In accordance with the TAN15 Development Vulnerability Categories, this development is classed as 'Highly Vulnerable' as it is a residential development.
- 5.3 The consequences of flooding on this development are likely to be limited to impact upon lives through the limitation on accessibility and ground floor damage caused by onsite inundation. This will be limited to events beyond the design flood (1in200yr for tidal, 1in100yr for pluvial) as the site is protected by coastal flood defences and is located in an area considered to be at low risk of sea flooding shown on mapping published by NRW.

6.0 CLIMATE CHANGE ALLOWANCES

- 6.1 Making an allowance for climate change in the design of surface water drainage systems will help to minimise vulnerability and provide resilience to flooding and coastal change in the future. Climate Change allowances vary across the UK subject to catchment conditions and are based on climate change projections and different scenarios of carbon dioxide (CO₂) emissions to the atmosphere.
- 6.2 As the development has a lifespan of 100 years, the upper climate change allowance for the site to be applied to peak rainfall intensity, in accordance with TAN15, should be 40%.
- 6.3 For the peak river flow allowances for the site, in accordance with TAN15 guidance, the central allowance of 30% should be applied to river flow events as the climate change allowance within the West Wales River Basin District.

7.0 SOURCES OF FLOODING

7.1 Tidal

- 7.1.1 According to the Natural Resources Wales (NRW) Flood Map for Planning the site is located within Flood Zone 2 for sea flood zones (figure 3) and an area benefitting from tidal flood defences (figure 4).
- 7.1.2 The Flood Risk Assessment Wales map indicates the development location to be within an area at Very Low risk of flooding from the sea (figure 5). Very Low means that each year, this area has a chance of flooding less than 0.1% (1in1000yr). This takes into account the effect of any flood defences that may be in this area. Flood defences reduce, but do not completely stop the chance of flooding as they can be overtopped or fail.
- 7.1.3 As such it is recommended that the finished floor levels of the new buildings are raised a minimum of 300mm above existing external ground levels to mitigate risks from potential tidal flooding. All sleeping accommodation is proposed to be sited at first floor so residents would have safe refuge should a breach event occur.

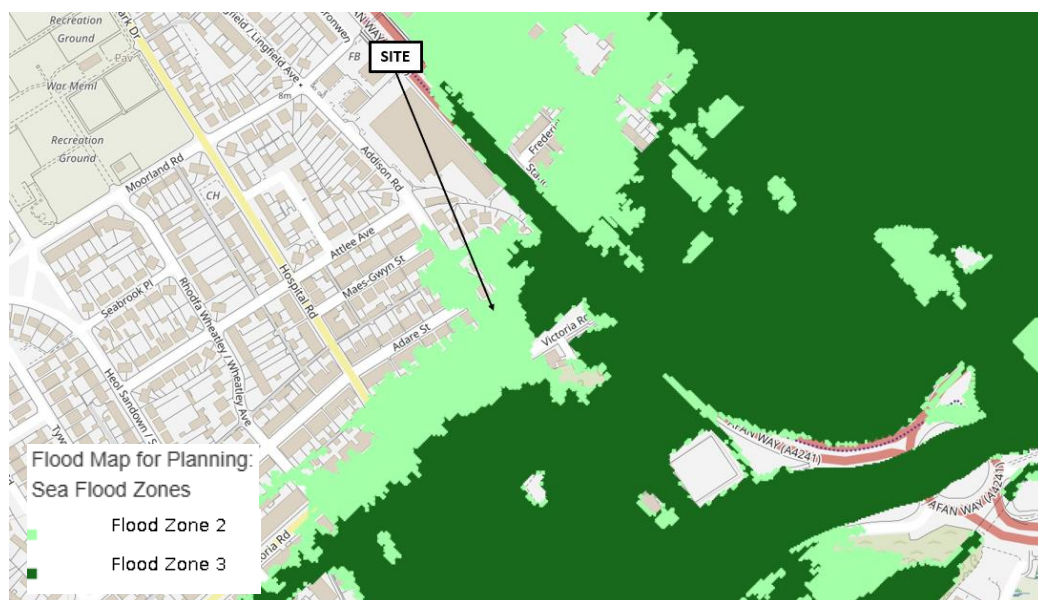


Figure 3 – NRW Sea Flood Zone map extract

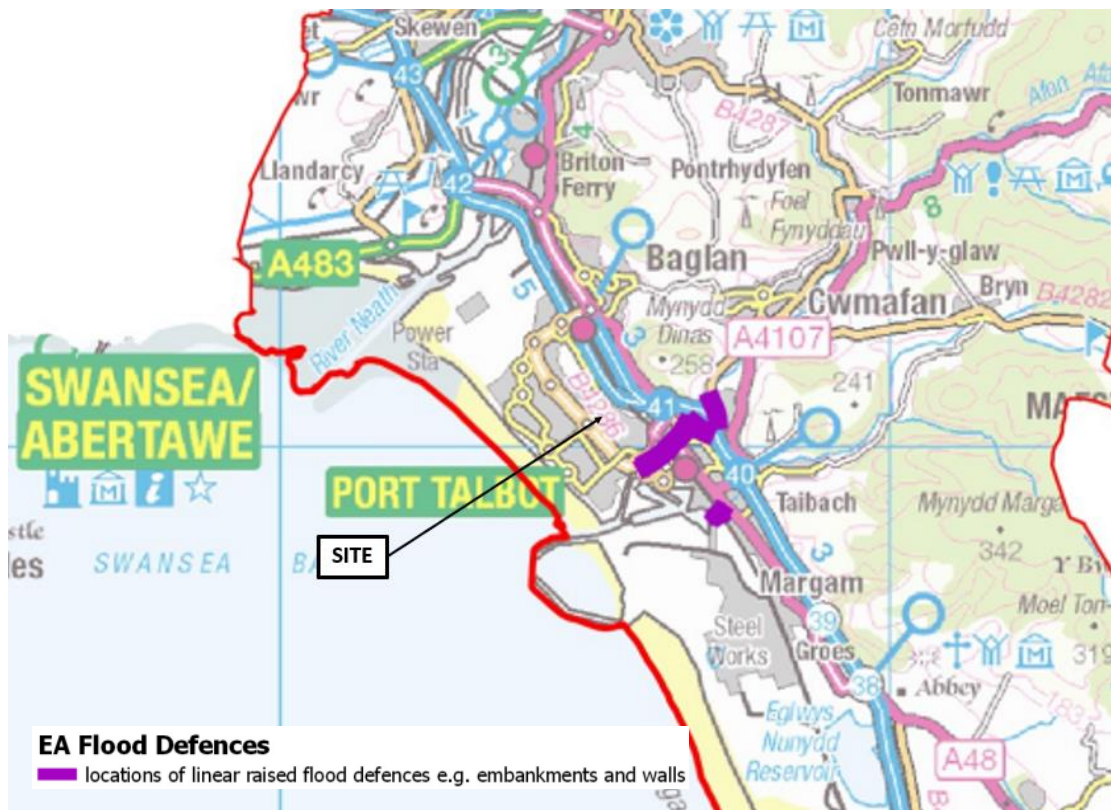


Figure 4 – Location of Flood Defences map extract



Figure 5 – NRW Flood Risk from the Sea map extract

7.3 Surface Water

7.3.1 According to mapping published by the NRW the site is shown to be within an area at very low risk of surface water flooding. Very low risk means that each year this area has a chance of flooding of less than 0.1%. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.



7.4 Groundwater

According to the Neath Port Talbot County Council SFCA, the risk of flooding from groundwater is possible within the Council. There is limited data on which areas within the council are at risk of ground water flooding but as there is no below ground development proposed in the plans the risk of groundwater flooding can be considered to be low.

7.5 Historic Flood

Mapping published in the Neath Port Talbot County Borough Council SFCA shows the area of the proposed development to not be within historic flood extents.

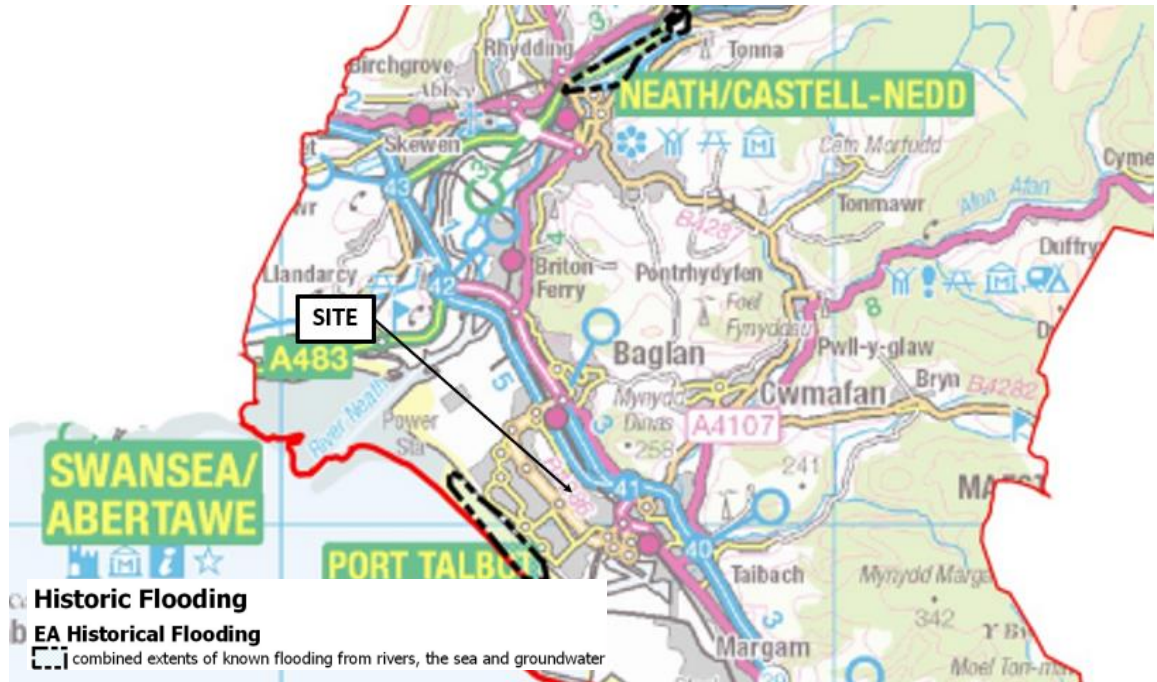


Figure 13 – Neath Port Talbot County Borough Council SFCA – Historic Flooding map extract

7.6 Reservoir

7.6.1 Mapping provided by the NRW shows that the site is located in an area not at risk of flooding from reservoirs.



Figure 14 – NRW Flood Risk from Reservoirs map extract

7.6.2 In the unlikely event that a reservoir dam fails, a large volume of water would escape at once, with little or no warning. According to the EA, there has been no loss of life in the UK from reservoir flooding since 1925. All large reservoirs must be inspected and supervised by reservoir panel engineers as detailed by the enforcement authority for the Reservoirs Act 1975 in England. The EA are responsible to ensure that reservoirs are inspected regularly, and essential safety work carried out.

7.6.3 As such flooding from this source could be seen as being low.

8.0 RESIDUAL RISKS

- 8.1 Due to the limited flood risk to the site, residual risks are limited to potential defence breach, overland flow from an exceedance event, blockage and potential surface water risk.
- 8.2 The site is shown in low risk areas of flooding from tidal sources so risk from breach may be low. However it is recommended that the finished floor levels of the new buildings are raised a minimum of 300mm above existing external ground levels to mitigate risks from breach, overland flow and from exceedance or blockage events.

9.0 OFFSITE IMPACTS

- 9.1 The development site is currently greenfield, and so the proposed development will contribute to an increase in the overall discharge managed by surface water sewage systems.
- 9.2 It is recommended the client considers the use of sustainable drainage to reduce offsite flow from the site where feasible.
- 9.3 Given the presence of sands, shown by the BGS records, on site it is assumed infiltration of surface runoff may be viable. A full surface water SUDS strategy, or SAB application, is outside the scope of this report but the use of permeable surfacing is proposed on the architectural plans.

10.0 FLOOD RISK MANAGEMENT MEASURES

- 10.1 Given the proposed development site is situated in an area at a low risk of flooding flood management measures are limited.
- 10.2 It is recommended the client integrates sustainable drainage into the scheme, in line with current best practice and sustainable guidance, to reduce risks to others as a result of development. Given the presence of sands, shown by the BGS records, on site it is assumed infiltration of surface runoff may be viable. A full surface water SUDS strategy is outside the scope of this report but the use of permeable surfacing is proposed on the architectural plans.
- 10.3 Given there is potential for flooding risk on site it is recommended that the finished floor levels of the new buildings are raised a minimum of 300mm above existing external ground levels to mitigate risks from overland flow from exceedance or blockage events.
- 10.4 The property owner and/or any tenant should sign up to the relevant NRW flood warning and alert services if living at the property. Should an alert or warning be raised this will give the opportunity for the residents to protect the dwelling or evacuate as necessary.

11.0 CONCLUSION

- 11.1 Meridian Civil Engineering Consultancy LTD (MCEC) has been instructed by Piku Das to prepare a site-specific Flood Consequence Assessment (FCA) for the development being carried out at the Land adjacent to 9 Addison Road, Sandfields, Port Talbot, SA12 6HJ.
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- 11.4 In accordance with the TAN15 Development Vulnerability Categories, this development is classed as 'Highly Vulnerable' as it is a residential development.
- 11.5 According to the Natural Resources Wales (NRW) Flood Map for Planning the site is located within Flood Zone 2 for sea flood zones and an area benefitting from tidal flood defences. The Flood Risk Assessment Wales map indicates the development location to be within an area at Very Low risk of flooding from the sea. Very Low means that each year, this area has a chance of flooding less than 0.1% (1in1000yr). This takes into account the effect of any flood defences that may be in this area. Flood defences reduce, but do not completely stop the chance of flooding as they can be overtopped or fail.
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- 11.7 According to mapping published by the NRW the site is shown to be within an area at very low risk of surface water flooding. Very low risk means that each year this area has a chance of flooding of less than 0.1%. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.
- 11.8 According to the Neath Port Talbot County Council SFCA, the risk of flooding from groundwater is possible within the Council. There is limited data on which areas within the council are at risk of ground water flooding but as there is no below ground development proposed in the plans the risk of groundwater flooding can be considered to be low.
- 11.9 Due to the limited flood risk to the site, residual risks are limited to overland flow from an exceedance event, blockage and potential surface water risk.
- 11.10 As such it is recommended that the finished floor levels of the new buildings are raised a minimum of 300mm above existing external ground levels to mitigate risks from overland flow from exceedance or blockage events. All sleeping accommodation is sited at first floor.
- 11.11 The development site is currently greenfield, and so the proposed development will contribute to an increase in the overall discharge managed by surface water sewage systems.
- 11.12 It is recommended the client integrates sustainable drainage into the scheme, in line with current best practice and sustainable guidance, to reduce risks to others as a result of development. Given the presence of sands, shown by the BGS records, on site it is assumed infiltration of surface runoff may be viable. A full surface water SUDS strategy is outside the scope of this report but the use of permeable surfacing is proposed on the architectural plans.
- 11.13 This report has been produced broadly in accordance with the Technical Advice Note 15 (TAN 15): Development and Flood Risk, and Neath Port Talbot County Borough Council SCFA and local guidance.

12.0 LIMITATIONS AND UNCERTANTIES

- MCEC have prepared this report with all reasonable skill, care and diligence. The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources.
- The opinions given in this report have been dictated by the data available in the public domain/ environmental agency for which the report was commissioned.
- Information reviewed should not be considered exhaustive and has accepted in good faith as providing true and representative data with respect to site conditions. Should additional information become available which may influence the opinion expressed in this report, MCEC reserves the right to review such information and, if warranted, to alter the opinions accordingly.
- It should be noted that any risks identified in this report are perceived risks based on the information provided to us.
- The recommendations contained in this report represent our professional opinions. These opinions were arrived at in accordance with currently accepted industry practices at this time and as such are not a guarantee that the study site is free of hazardous conditions.
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- No physical inspection of the Property/Site reported has been carried out as part of any Services offered by the company (unless it shall be expressly agreed in writing between us) and as such the Company does not warrant that all or any land uses or features whether past or current will be identified in the Services and the Services do not include any information relating to the actual state or condition of any Property/Site nor should they be used or taken to indicate or exclude actual fitness of unfitness of a Property/Site for any particular purposes nor the saleability or otherwise of the Property/Site.

APPENDIX I Architects Plans