

# Llantarnam Primary School Flood Consequences Assessment

**Version 1**

**May 2023**

**Prepared for:**  
**Blaenau Gwent County Borough Council**  
**Municipal Offices**  
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# Contract

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This report describes work commissioned by Blaenau Gwent County Borough Council, by an instruction dated 10th February 2023. Charlotte Lickman and Hannah Booth of JBA Consulting carried out this work.

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# 1 Introduction

JBA Consulting were commissioned by Blaenau Gwent County Borough Council (in collaboration with Torfaen County Borough Council) to prepare a Flood Consequences Assessment (FCA) in support of a planning application for a new 3G pitch at Llantarnam Primary School. This FCA demonstrates the suitability of the proposed development and assesses the impact of floodwater displacement at the site.

## 1.1 FCA Requirements

This FCA follows Welsh Government guidance on development and flood risk set out in the Technical Advice Note 15: Development and Flood Risk (TAN-15). Where appropriate, the following aspects of flood risk should be addressed in all planning applications over their expected lifetime:

- The likely mechanisms of flooding
- The likely sources of flooding
- The depths of flooding through the site
- The speed of inundation of the site
- The rate of rise of flood water through the site
- Velocities of flood water across the site
- Overland flow routes
- The effect of access and egress and infrastructure, for example, public sewer outfalls, combined sewer outflows, surface water sewers and effluent discharge pipes from wastewater treatment works
- The impact of development in terms of flood risk on neighbouring properties and elsewhere on the floodplain

## 2 Site description

### 2.1 Site summary

The proposed development site is approximately 2.76 ha in size and is currently undeveloped land used as a sport playing field at Llantarnam Primary School, Llantarnam, as shown in Figure 2-1. The school is located to the east of the proposed development site, along with associated playing fields. The north of the site is bound by existing residential development, and to the west by a small area of greenfield land used for agricultural grazing, beyond which is residential development. The south of the site is bound by a mixture of commercial and industrial development. Access to the proposed development site can be obtained from the north east via James Prosser Way which is linked to Llantarnam Road.

Table 2-1 contains further details of the proposed development site.

Table 2-1 Site Summary

Site name	Llantarnam Primary School
Site area	2.76ha
Existing land use	Sports playing field
Purpose of development	Sports facility - 3G pitch
OS NGR	ST 30135 93437
Local Planning Authority	Torfaen County Borough Council
Lead Local Flood Authority	Torfaen County Borough Council



Figure 2-1 Site Location

## 2.2 Site topography

A topographic survey of the site was instructed by Hywel John Surveys Ltd in July 2019 and is contained in Appendix A. Furthermore, Natural Resources Wales (NRW) 1m LiDAR has been used to provide an alternative illustration of the topography of the site, as shown in Figure 2-2.

The site is relatively flat with a gentle slope in a general south easterly direction. Highest ground levels are present in the northwest at approximately 39.91m AOD. Ground levels fall to approximately 38.28m AOD in the south western corner of the site.



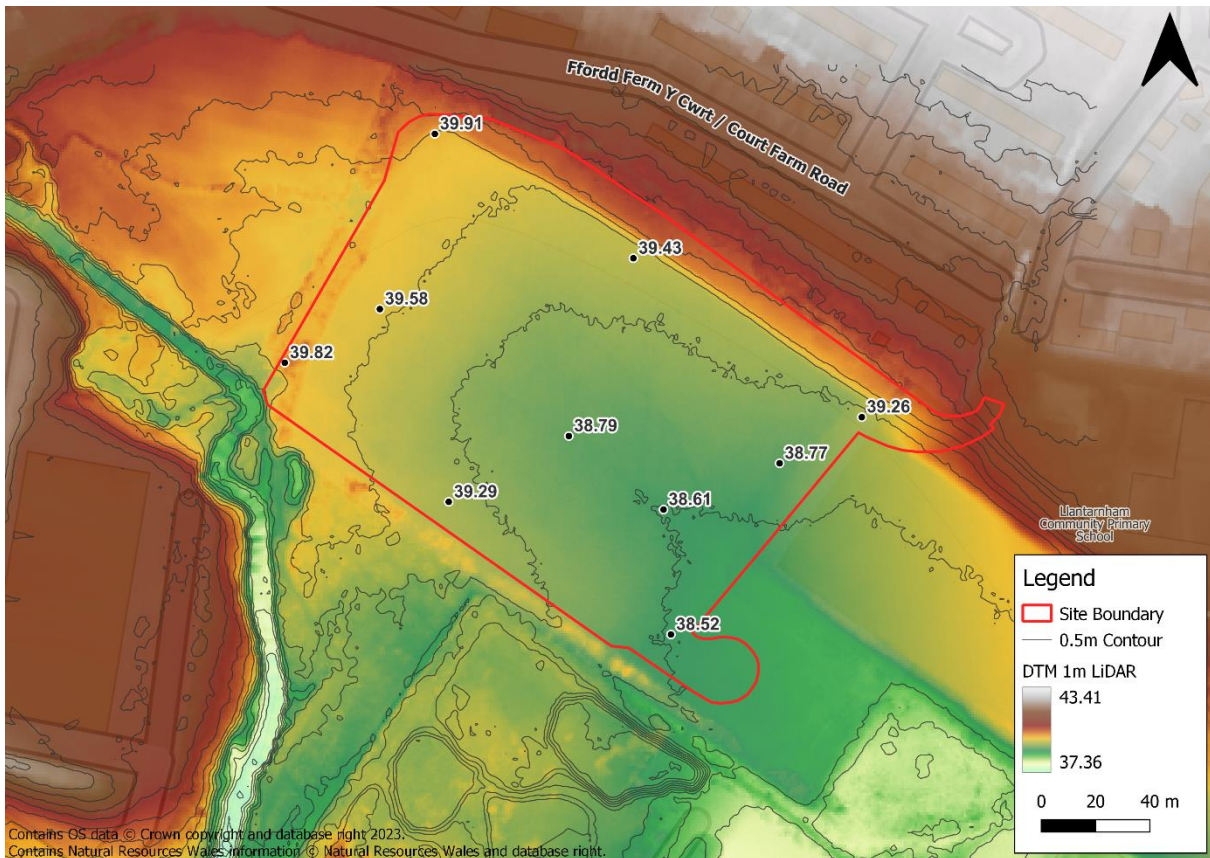


Figure 2-2 Site topography

### 2.3 Soils and geology

In accordance with the British Geological Survey (BGS) GeoIndex<sup>1</sup>, bedrock at the site is described as Raglan Mudstone Formation - mudstone and sandstone, interbedded. Superficial deposits are classified as Alluvium - clay, silt, sand, and gravel.

The Cranfield University Soilscales viewer<sup>2</sup>, describes the underlying strata as slightly acid loamy and clayey soils with impeded drainage.

### 2.4 Nearby watercourses

Figure 2-3 shows that Dowlais Brook, an NRW Main River, is located to the south west of the proposed development site and flows in a general south easterly direction. The Afon Lwyd, another NRW Main River and tributary of the River Usk, flows approximately 430m to the north east of the site in a south easterly direction. Approximately 2.5km to the east of the site the Dowlais Brook converges with the Afon Lwyd.

1 Geology of Britain viewer - British Geological Survey (bgs.ac.uk)

2 Soilscales soil types viewer - Cranfield Environment Centre. Cranfield University (landis.org.uk)

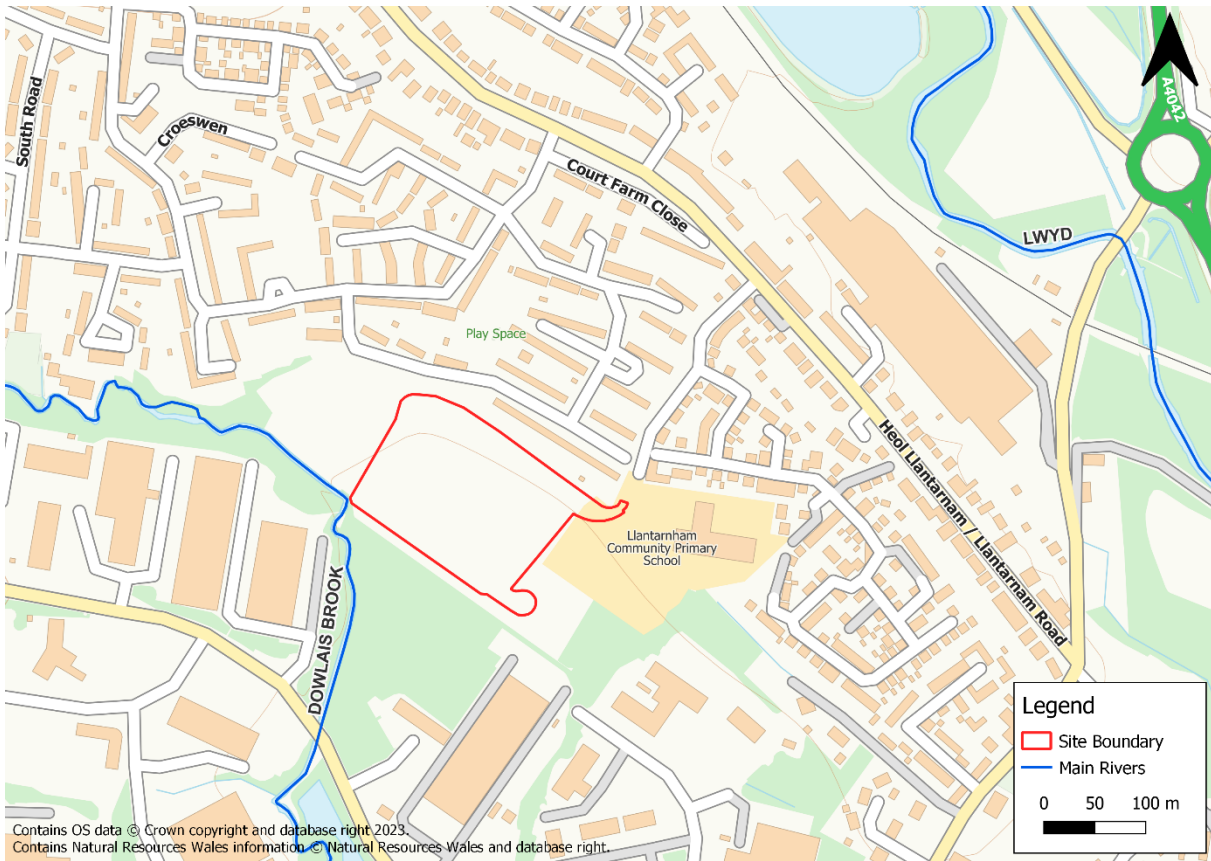


Figure 2-3 Nearby watercourses

## 2.5 Development proposal

Development proposals for the site are for the construction of a 3G pitch with associated car parking, vehicle access, and sports changing facilities within the playing field at Llantarnam Primary School. The development proposals are shown in Figure 2-4 and contained in Appendix B. In addition to this, Sustainable Drainage Features (SuDS) features across the site are being incorporated as part of flood mitigation and management of water displacement as a result of the pitch construction.



Figure 2-4 Development proposal

## 3 Planning Policy and flood risk

### 3.1 Planning context

Planning Policy Wales (PPW) sets out the main planning policies required by the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy and improve the social, economic, environmental, and cultural wellbeing of Wales as set out in the Wellbeing of Future Generations Act 2015.

Technical Advice Note (TAN-15) introduced by the Welsh Government in 2004, provides technical guidance relating to development planning and flood risk in Wales. The initial requirements of TAN-15 are to identify the vulnerability classification(s) and flood zones relevant to the proposed development, and to apply this information to the application of the justification tests.

An update for TAN-15 was released in October 2021. However, Welsh Government have since suspended the implementation of the new TAN-15 with the implementation date currently unknown. Although the new TAN-15 is not a material consideration, Welsh Government and NRW advise that some consideration is given to the Flood Map for Planning (FMfP) as best available information. Therefore, where a site is located in a FMfP flood risk zone it is recommended that an FCA is carried out.

As a result of the above, both the DAM and FMfP are considered as part of this FCA, although the policy that has been applied is the current (2004) version of TAN-15.

### 3.2 Vulnerability classification

TAN-15 assigns one of three flood risk vulnerabilities to a development as shown in Table 3-1. Sports facilities are not explicitly classified in the flood risk vulnerabilities in TAN-15. Therefore, the development is classified as 'Other'. Section 5.3 and Section 9 of TAN-15 identifies that there are developments which do not fit into the three main vulnerability categories as shown in Table 3-1. Section 11.21 of TAN-15 states that:

*'Proposals for public space, outdoor recreational uses and agricultural developments are likely to be acceptable in all areas where there is a risk of flooding. However ancillary buildings or structures required for these uses, which are subject to prior approval, may not be acceptable in accordance with Section 7'.*

As 'other' development the Justification Tests of TAN-15 do not apply, and whilst consideration should be given to the Acceptability Criteria of TAN-15, the key consideration should be not to increase flood risk elsewhere.

Table 3-1 Development categories as defined by TAN-15

Development category	Type
Emergency services	Hospitals, ambulance stations, fire stations, police stations, coastguard stations command centres, emergency depots and buildings used to provide emergency shelter in time of flood.
Highly vulnerable development	All residential premises (including hotels and caravan parks), public buildings (e.g. schools, libraries, leisure centres), especially vulnerable industrial development (e.g. power stations, chemical plants, incinerators) and waste disposal sites.
Less vulnerable development	General industrial, employment, commercial and retail development, transport and utilities infrastructure, car parks, mineral extraction sites and associated processing facilities, excluding waste disposal sites.

### 3.3 Development Advice Map classification

The Development Advice Map (DAM) created by Welsh Government is used to trigger different planning actions based on a precautionary assessment of flood risk. Figure 3-1 shows that the site is predominantly located in Zone C2 which classifies areas of the floodplain without significant flood defence infrastructure.

Along the southern boundary of the site Zone B is present. Zone B is classified as areas known to have been flooded in the past evidenced by sedimentary deposits. A small area of the site in the north east is shown to be categorised as Zone A, which is considered to be at little or no risk of fluvial or tidal flooding.

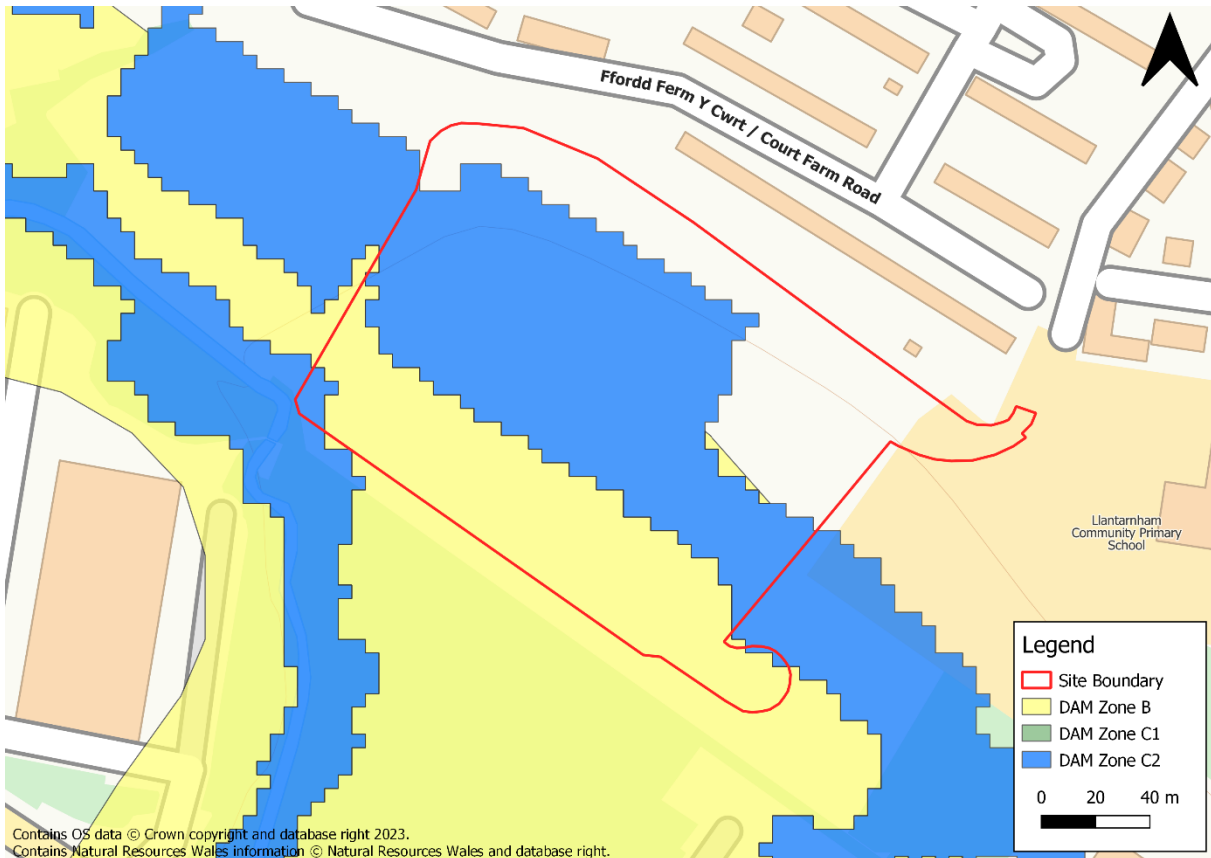


Figure 3-1 Development Advice Map

### 3.4 Flood Map for Planning Classification

The Flood Map for Planning is used to trigger different planning actions in support of the updated TAN-15, anticipated to be implemented in 2024. Although the updated TAN-15 is not material consideration, the new Flood Map for Planning is useful in that it shows the flood risk allowing for climate change over a 100-year lifetime of development.

#### 3.4.1 Flood Map for Planning - Rivers

The proposed development is predominantly located in Flood Zone 2 of the Flood Map for Planning for Rivers, as shown in Figure 3-2. Flood Zone 2 shows areas which have between a 1 in 1000 (0.1%) and 1 in 100 (1%) chance of flooding in any given year, including climate change.

Flood Zone 3 marginally encroaches into the south-western corner of the development. Flood Zone 3 is defined as a greater than 1 in 100 (1%) chance of flooding in any given year, including climate change. Flood Zone 3 primarily follows the watercourse corridor, and no development is sought within this small area of the site.



Figure 3-2 Flood Map for Planning - Rivers

### 3.4.2 Flood Map for Planning - Surface Water and Small Watercourses

Part of the south eastern area of the proposed development is located within Flood Zone 2 of the Flood Map for Planning for Surface Water and Small Watercourses, as shown in Figure 3-3. This is due to local a natural, localised depression in ground levels from the west to east of the site.

Flood Zone 2 represents areas which have between a 1 in 1000 (0.1%) and 1 in 100 (1%) chance of flooding in any given year including climate change. Flood Zone 3 shows areas which have a greater than 1 in 100 (1%) chance of flooding in any given year, including climate change.

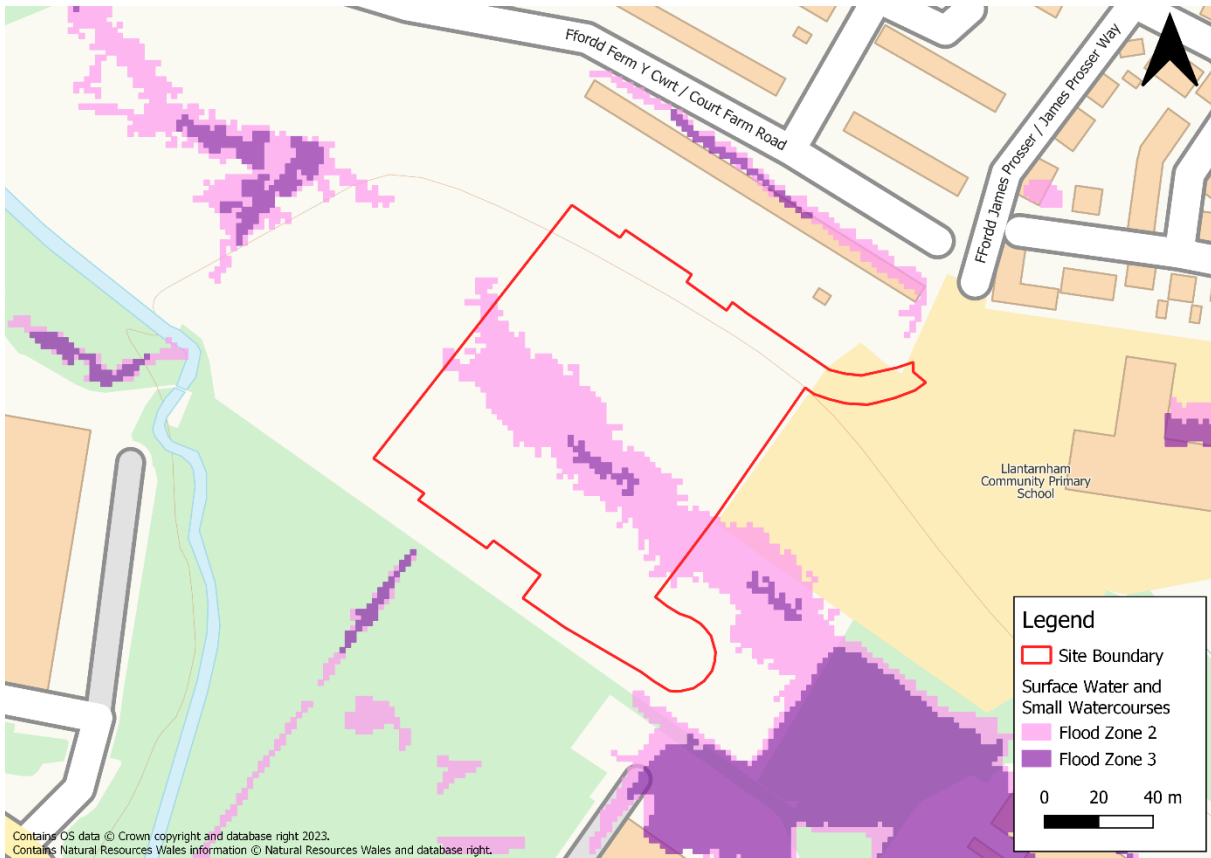


Figure 3-3 Flood Map for Planning - Surface Water and Small Watercourses



## 4 Flood Risk Assessment

This section assesses the risk to the proposed development site from all sources of flooding, the risk of increased flooding to others, and how flood risks can be managed. As a Level 1 FCA, the flood risk assessment is based solely on desk based analysis of existing flood risk data.

### 4.1 Review of existing flood data

The latest available information on flood risk at the site, published by Natural Resources Wales (NRW) is summarised in Table 4-1.

Table 4-1 Summary of flood risk

Source of Flooding	Onsite Presence	Description
Flood Risk from Rivers	✓	The majority of the site is indicated as being at low risk of fluvial flooding.
Flood Risk from the Sea	✗	The site is at very low risk of tidal flooding.
Flood Risk from Surface Water and Small Watercourses	✓	One localised area in the east of the site is shown to be at low risk of surface water and small watercourse flooding.
Flood Risk from Groundwater	✗	The site is at very low risk of flooding from groundwater.
Flood Risk from Reservoirs	✗	The site is at very low risk of flooding from reservoirs.
Flood Risk from Sewers	✗	There is no evidence to suggest the site is at risk of flooding from sewers.

### 4.2 Historical flooding

NRW's map of recorded flood extents does not show any evidence of historic flooding on site. A Section 19 Flood Investigation Report<sup>3</sup> for a flood event Cwmbran that took place in May 2014 states that the Dowlais Brook overloaded a series of culverts, resulting in the

<sup>3</sup> <https://www.torfaen.gov.uk/en/Related-Documents/Roads-Highways-and-Pavements/Drainage/Section-19-Flood-Investigation-Report-Cwmbran.pdf>

internal flooding of 25 properties in Llantarnam. However, no specific mention of the site is included.

### 4.3 Flood Risk from Rivers

The NRW Flood Risk Assessment Wales (FRAW) map shows that a large area in the centre of the proposed development site is at **low** risk of flooding from rivers, as shown in Figure 4-1. This means that there is between a 0.1% - 1 % AEP chance of fluvial flooding at the site. The extent of the FRAW data indicates that water overflows from the Dowlais Brook and flows easterly in correlation with the decline in topography. The mapping shows that water enters the site from the west and south west, and is generally present across the centre of the site.

The remainder of the proposed development site is shown to be at very low risk of fluvial flooding, meaning that there is a less than 0.1% AEP chance of flooding from rivers in any given year.

The proposed development site is not located within an area benefitting from flood defences. To gain a better understanding of the flood risk to the site, further assessment of fluvial flood risk has been undertaken and is discussed in section 5.



Figure 4-1 FRAW - Risk of flooding from Rivers

#### 4.4 Flood Risk from the Sea

The NRW FRAW mapping shows that the site is at **very low** risk of flooding from the sea. This means that there is a less than 0.1% AEP chance of tidal flooding at the site. No figure is provided as very low risk is shown as a clear layer on the FRAW mapping.

#### 4.5 Flood Risk from Surface Water and Small Watercourses

The site is predominantly at **very low** risk of flooding from surface water and small watercourses. This means that there is a less than 0.1% AEP chance of flooding in any given year, as shown in Figure 4-2.

A small area along the western boundary of the site is shown to be at low-high risk of surface water flooding as a result of localised decrease in ground levels. However, no development is proposed in this area and the proposed development shall not result in a change in flood risk to this area.

A natural, localised depression in the centre of the site is shown to be at **low** risk of surface water flooding. This means that there is between a 0.1% - 1% AEP chance of flooding from surface water and small watercourses. Minor ground raising as a result of the pitch construction shall modify the extent of the risk of surface water and small watercourse flood risk in the south east of the site. However, it is envisaged that the risk of flooding from this source shall be managed through a series of SuDS features across the site.

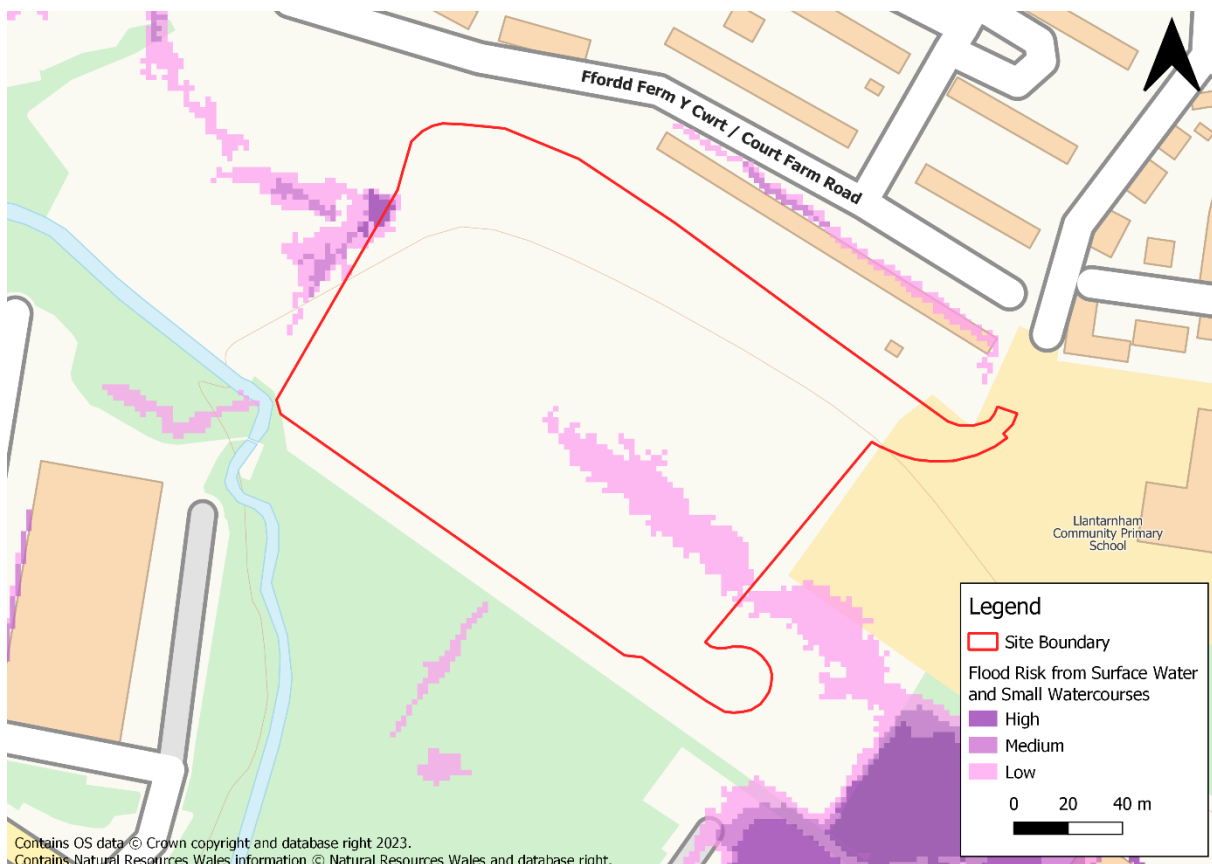


Figure 4-2 FRAW - Risk of flooding from Surface Water and Small Watercourses

#### 4.6 Flood Risk from Groundwater

Groundwater flooding is caused by unusually high groundwater levels. It occurs as excess water emerging at the ground surface or within manmade structures such as basements. Groundwater flooding tends to be more persistent than surface water flooding, in some cases lasting for weeks or months, and can result in significant damage to property. The risk of groundwater flooding depends on the nature of the geological strata underlying the site, as well as on local topography.

The Torfaen County Borough Council Flood Risk Management Plan<sup>4</sup> states that the valley like topography within the catchment results in limited groundwater risks. This suggests that the risk of groundwater flooding at the proposed development is **very low**.

#### 4.7 Flood Risk from Reservoirs

The NRW FRAW Flood Risk from Reservoirs flood maps indicate that the proposed development site is not at risk of flooding due to reservoir failure. It can therefore be concluded that the risk of reservoir flooding at the site is **very low**.

#### 4.8 Flood Risk from Sewers

The Torfaen County Borough Council Flood Risk Management plan<sup>4</sup> does not show any evidence of historic sewer flooding on or close to the site. It can therefore be concluded that the risk of sewer flooding at the site is low.

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<sup>4</sup> <https://www.torfaen.gov.uk/en/Related-Documents/Roads-Highways-and-Pavements/Drainage/Torfaen-Flood-Risk-Management-Plan.pdf>

## 5 Detailed Assessment of Fluvial Flood Risk

Fluvial flood risk has been identified as the only significant source of flood risk to the site. Consequently, a more detailed assessment of this flood risk source has been carried out and is reported in the following section.

### 5.1 Hydraulic modelling availability

The NRW flood maps use a combination of generalised national scale modelling and detailed local models where they exist. In the case of the proposed development, the site is not covered by detailed fluvial flood modelling, and to undertake such modelling would be a disproportionate exercise. Therefore, to inform this assessment the flood depths from the National Flood Hazard Mapping have been used to generate estimated flood levels for the proposed development site.

National Flood Hazard Mapping fluvial depth grids have been utilised to assess the maximum depths across the site for the low risk scenario (the 0.1% AEP event). In addition, storage volume calculations have been undertaken in order to assess the impact of the proposed development on the displacement of flood water.

It should be recognised that this approach of taking water depths from national scale flood modelling is less reliable than detailed local flood risk modelling. However, this approach reflects the nature of the development and relatively low flood risks.

#### 5.1.1 0.1% AEP

The site is not predicted to flood in design events less than the 0.1% AEP event, as detailed in Section 4.4. Therefore the sole focus of this assessment is in relation to the 0.1% AEP.

Figure 5-1 suggests that flood risk to the proposed development site is associated with Dowlais Brook located within close proximity to the west of the site. It is envisaged that during the 0.1% AEP high flow event, water overflows from the Dowlais Brook and follows the local topography in an easterly direction through the centre of the site before ponding in a topographic depression 40m south east of the proposed development site. Flood depths are very shallow and are predicted to be less than 0.1m across the majority of the flow path with a small area in the centre of the site shown to flood to between 0.1m - 0.3m in depth, because of localised depressions in ground levels. The proposed ancillary buildings (changing rooms) in the west of the site are predicted to be flood free during the 0.1% AEP event, and the proposed access road is predicted to flood to generally less than 0.1m, which conforms with the requirements of TAN-15. Should the pitch flood in this design event, such flooding will be well within the recommended tolerable conditions of TAN-15, A1.15.

Due to the predicted shallow nature of the flood water on the site, it is unlikely the 3G pitch will flood due to modest increases in levels to account for the proposed pitch ground level. However, the development proposals have the potential to alter flow routes and displace

water on the site. To consider the potential impacts of flood water displacement, resulting from any changes on the site, further assessment has been undertaken below in Section 5.2.

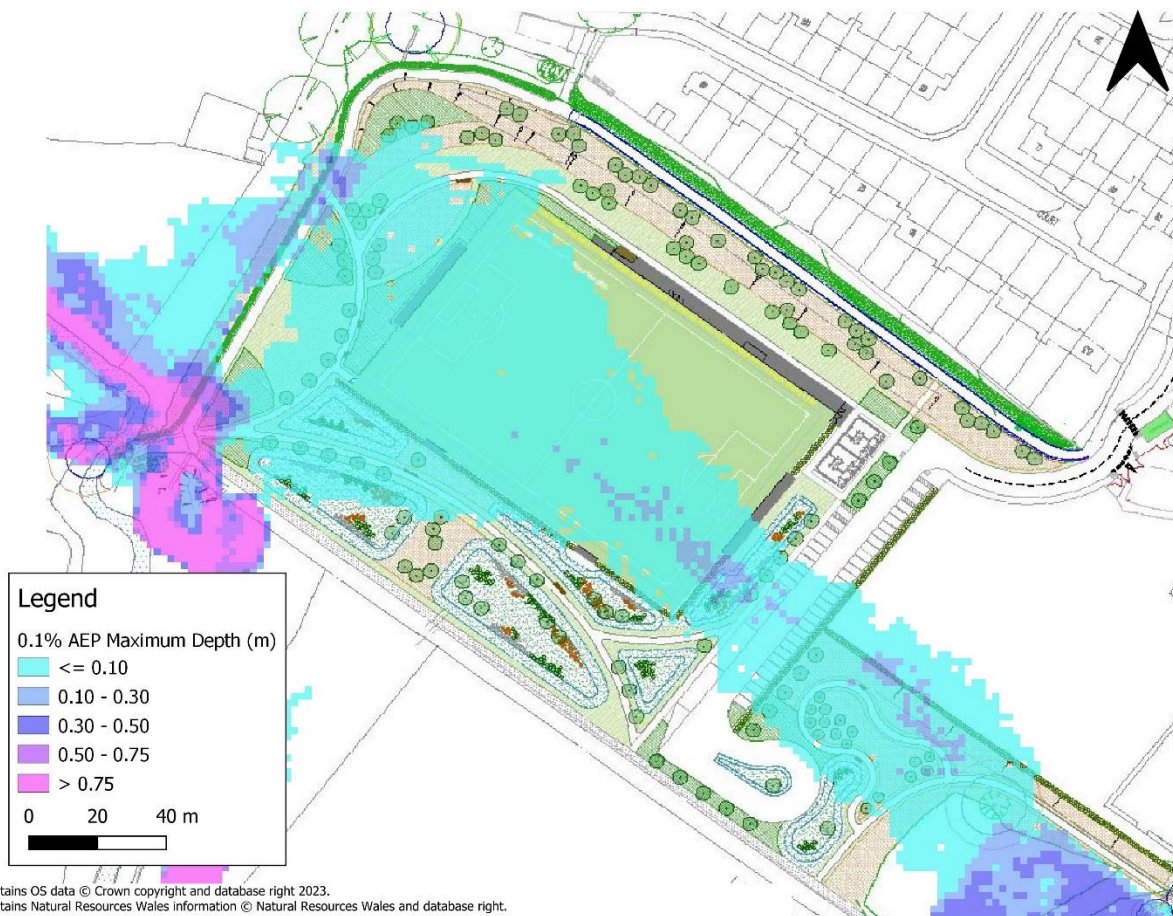


Figure 5-1 0.1% AEP flood event

## 5.2 Volume calculations

Flood volume calculations have been undertaken in order to assess the amount of flood water that will be displaced as a result of the proposed development. These results are shown in Table 5-1. It is calculated that the 3G pitch will displace approximately **226.22m<sup>3</sup>**, and the proposed access road (including other hardstanding areas) will displace **32.54m<sup>3</sup>**. This results in a total volume of **258.76m<sup>3</sup>**.

Table 5-1 Volume calculations

Area of the site	Volume of flood water (m <sup>3</sup> )
3G pitch	226.22
Road	32.54
Changing room	Flood free
<b>Total Volume displaced</b>	<b>258.76</b>

In order to manage this volume of displaced flood water, it is proposed to incorporate SuDS and flood storage landscape features across the site which shall provide above ground storage and mitigate flooding to the wider area. These features shall be incorporated to provide approximately **1553m<sup>3</sup>** of above ground storage. This will manage the displacement of floodwater whilst providing a drainage system for the site. As such, modifications to the land shall be managed through the integration of drainage assets and the site shall maintain the availability of flood water storage across the site.

## 6 Assessment of Acceptability Criteria

Table 6-1 assesses the proposed refurbishment against the acceptability requirements required to be met for the development zone.

Table 6-1 Acceptability of Criteria for TAN-15

TAN-15 Justification Criteria	Comments	Achieved
Developer is required to demonstrate that the site is designed to be flood free for the lifetime of the development for a 1 in 100 (1%) chance (fluvial) flood event including allowance for climate change in accordance with TAN-15 table A1.14.	The Flood Map for Planning indicates that the site is located within Flood Zone 2 for flooding from Rivers. This shows that the site has a less than 1 in 100 (1%) chance of flooding. The Flood Map for Planning accounts for climate change, therefore the development site is predicted to be flood free during the 1% AEP plus climate change event.	✓
The development should be designed so that in an extreme (1 in 1000 chance) event, there would be less than 600mm of water on access roads and within the property.	The proposed development will ensure that predicted flooding during the 0.1% AEP event remains below 600mm through the raising of the pitch and integration of SuDS and flood storage features across the site.  Currently, a proportion of the site across the centre floods to a maximum depth of 300mm, and is shown to be generally less than 100mm.  The proposed ancillary buildings comprising changing facilities is predicted to be flood free during all flood conditions.	✓
No flooding elsewhere.	The proposed works shall not increase flood risk elsewhere. As part of the proposal above ground SuDS and flood storage features are being incorporated to manage the displacement of	✓



TAN-15 Justification Criteria	Comments	Achieved
	<p>floodwater within the site boundary.</p> <p>Flood water shall not be displaced to the wider area as a result of the development.</p>	
<p>Flood defences must be shown by the developer to be structurally adequate particularly under extreme overtopping conditions (i.e. that flood with a 1 in 1000 chance of occurring in any given year).</p>	<p>Not applicable. The proposed development is not served by flood defences.</p>	<p>✓</p>
<p>The developer must ensure that future occupiers of development are aware of the flooding risks and consequences.</p>	<p>It is advised that the site owners sign up to the Met Office weather warnings to stay informed in the event of an extreme flood event.</p>	<p>✓</p>
<p>Effective flood warnings are provided at the site.</p>	<p>The site is not included within a Flood Warning Area. Flooding of small catchments is associated with extreme events and therefore Met Office extreme weather warnings should be used to warn of potential flooding.</p>	<p>✓</p>
<p>Escape / evacuation routes are shown to be operational under all conditions.</p>	<p>Flood free emergency vehicle access and pedestrian routes will be available under all conditions.</p>	<p>✓</p>

TAN-15 Justification Criteria	Comments	Achieved
The development is designed by the developer to allow the occupier of the facility for rapid movement of goods/ possessions to areas away from flood waters.	The proposed works are designed to be water compatible.	✓
Development is designed to minimise structural damage during a flood event and is flood proofed to enable it to be returned to its prime use quickly in the aftermath of the flood.	The proposed works are designed to be water compatible, therefore, due to the nature of the development structural damage is unlikely.	✓

## 7 Conclusions

JBA Consulting were commissioned by Blaenau Gwent County Borough Council to prepare a Flood Consequence Assessment (FCA) in support of a planning application for a new 3G pitch at Llantarnam Primary School. This FCA demonstrates the suitability of the proposed development and assesses the impact of floodwater displacement at the site.

The proposed development site is approximately 2.76 ha in size and is currently used as a sport playing field at Llantarnam Primary School, Cwmbran.

The development will include associated car parking and vehicle access, as well as sports changing facilities. In addition to this, SuDS and flood storage features across the site are being incorporated as part of flood mitigation and management of water displacement as a result of the pitch construction.

The proposed development is for sports facilities which do not directly fall into one of the three stated vulnerability classes. Section 11.21 of TAN-15 states that outdoor recreational uses are likely to be acceptable in all areas where there is a risk of flooding. Therefore, in accordance with TAN-15, the Justification test does not apply. An assessment of the acceptability of the consequences of flooding is however required.

The site is predominantly located in Zone C2 which classifies areas of the floodplain without significant flood defence infrastructure.

The Flood Map for Planning indicates that approximately half of the site is located within Flood Zone 2 for Rivers and Flood Zone 2 for Surface Water and Small Watercourses. A small, localised depression is shown to be located in Flood Zone 3 of the FMfP Surface Water and Small Watercourses.

The site is at little or no risk of tidal, groundwater, sewer, or reservoir flooding.

The NRW FRAW mapping indicates that the site is predominantly at **very low** risk of surface water and small watercourse flooding. A small area along the western boundary of the site and a natural, localised depression in the centre of the site is shown to be at low risk of surface water flooding. This means that there is between a 0.1% - 1% AEP chance of flooding from surface water and small watercourses.

The NRW FRAW mapping shows that a proportion of the centre of the site is at low risk of flooding from rivers, meaning that there is between a 0.1% - 1% AEP chance of flooding in any given year. The remainder of the site is at very low risk of flooding from fluvial sources.

The FRAW dataset uses generalised national scale modelling, which has been used to inform the assessment of fluvial flood risk to the site. National Flood Hazard Mapping fluvial depth extents have been used to assess the maximum flood depths across the site during the low, medium, and high risk flooding scenarios.

The Flood Map for Planning indicates that a proportion of the site is located within Flood Zone 2 for Rivers, which indicates that there is a less than 1 in 100 (1%) chance of flooding

in any given year, including climate change. Therefore, it is predicted that the site shall remain flood free during the 1% AEP plus climate change event.

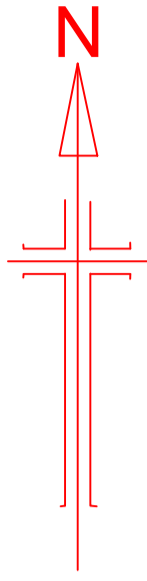
During the 0.1% AEP event, flooding is predicted to occur across the centre of the site, predominantly to depths less than 0.1m. A small area is shown to flood to between 0.1m-0.3m due to localised topographic depressions. The proposed changing facilities are predicted to be flood free during all events.

In addition, storage volume calculations have been undertaken in order to consider the impact of the proposed development on the displacement of flood water. It has been calculated that the proposed development shall displace a total of 258.76m<sup>3</sup> of flood water. As part of the development proposals, approximately 1553m<sup>3</sup> of above ground storage is proposed in order to manage the displacement of flood water and mitigate flooding to the wider area. As such, it is not envisaged that the proposed development shall impact flood risk elsewhere.

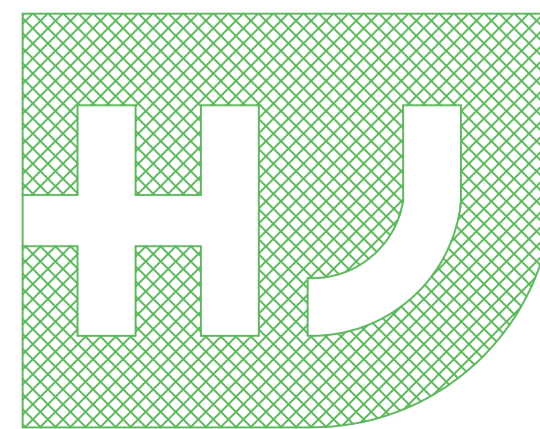
The proposed development satisfies the requirements of the Acceptability Criteria of TAN-15 (2004).

It is concluded that on the grounds of flood risk, the proposed development site is compliant with the aims and objectives of Planning Policy Wales and TAN-15.

# A Topographic Survey



SURVEY STATIONS			
Name	Easting	Northing	Height
STN2	329764.279	193476.597	46.198
STN1	329759.905	193453.005	46.208



Hywel John Surveys Ltd  
 39 St Cadoc Road  
 Heath  
 Cardiff CF14 4ND  
 Tel: 02920 613495  
 Mob: 07738679348  
 Email: [hywel@hyweljohnsurveys.co.uk](mailto:hywel@hyweljohnsurveys.co.uk)  
 Web: [www.hyweljohnsurveys.co.uk](http://www.hyweljohnsurveys.co.uk)

**Abbreviations**

BD: Bollard	RW: Retaining Wall	RS: Road Sign
ER: Earth Rod	PR: Post & Rail	IR: Iron Railings
DP: Drain Pipe	BT: British Telecom	WL: Wall
TR: Traffic Lights	PW: Post & Wire	EL: Eaves Level
FH: Fire Hydrant	IC: Inspection Cover	RL: Ridge Level
GY: Road Gully	ST: Stop Tap	TH: Threshold
MH: Manhole	GV: Gas Valve	FL: Floor Level
LP: Lamp Post	WM: Water Meter	PB: Post Box
BH: Borehole	CB: Crash Barrier	BN: Bin

Topographical Survey  
 Levels related to OS using GPS equipment

Issue	Remarks	Date
A	Survey extended on school grounds	06/01/20

Project  
 Oakfield Park  
 Llantarnum

Client  
 Torfaen Council

Drawn: HJ	Date: 01/07/19
Scale: A1 1 : 500	Drawing Number: 6319

## B Development Proposal

Jubilee Park

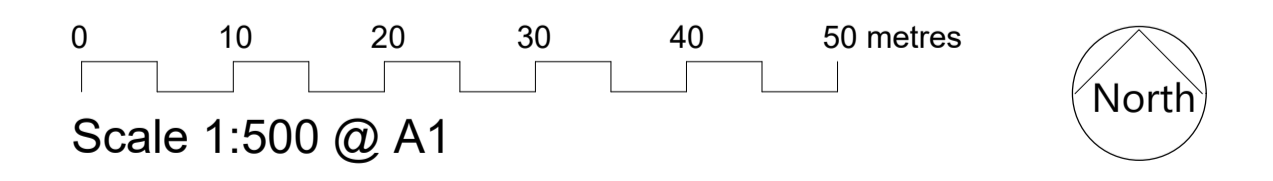
Landscape Strategy LA.1

DRAFT



Key

- Tarmac path
- Tree planting (root barriers to be provided as necessary)
- Hedge
- Native shrubs
- Specimen shrubs / hazel coppice
- Species-rich grass / wildflowers within SuDS, suitable for damp conditions
- Species-rich grass / wildflowers / long grass
- Amenity grass, kept short
- Bench
- Play boulders within SuDS
- Logs / stepping logs within SuDS for informal play



TC23136\_LA1 v8.dwg 09 May 2023



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