

|                    |                                                     |
|--------------------|-----------------------------------------------------|
| JBA Project Code   | 2026s0316                                           |
| Project            | Ten Acre Wood - FCA                                 |
| Client             | Andrew Hall                                         |
| Day, Date and Time | 2 March 2026                                        |
| Author             | George Baker BEng, FCIWEM, C.WEM, CEnv, IEng, AIEMA |

---

## 1 Introduction

JBA Consulting (JBA) have been commissioned to prepare a Flood Consequences Assessment (FCA) Statement to accompany a planning application for the proposed development of a garage and garden studio at Ten Acre Wood, Margam.

## 2 Development proposals

The proposed householder development will consist of two elements, as described below:

1. **Garage.** A new detached garage will partially replace an existing garage to the north of the property. The new garage will be approximately 100% larger than the original garage. The garage finish floor level will be set slightly below the natural ground level of the area. The new garage footprint will be approximately 60m<sup>2</sup>.
2. **Garden Studio.** A new garden studio is proposed for the western corner of the property. The 20m<sup>2</sup> building will be set almost flush with existing ground levels.

## 3 Policy context

This FCA statement follows the Welsh Government guidance on development and flood risk set out in the Technical Advice Note 15: Development, Flood Risk and Coastal Erosion (TAN-15).

TAN-15 Section 15.6 specifically establishes the requirements for applications for extensions and householder development, such as proposed at Ten Acre Wood:

*“There will be no requirement to justify the location of householder development but if such minor works are likely to have an adverse effect the full consequences of the development will need to be appraised. The planning authority should inform the developer or applicant in such circumstances to provide a Flood Consequences Assessment”.*

On this basis, Section 10 of TAN15, which is concerned with justifying the location of development, is not applicable.

Notwithstanding this point, as the site is situated in Flood Zone 3, the applicant submitted with the application a copy of the FCA previously prepared by JBA in support of the redevelopment of the main residence. Submission of this FCA (or any FCA) was not necessary, unless specifically requested by the Local Planning Authority. However, as it was submitted, it was reviewed and commented upon by Natural Resources Wales (Ref. AS-297172-F3N3), who raised concerns as to its relevance and appropriateness.

Specifically, NRW's main concern was that adequate consideration be given to the potential for the development to increase flood risk elsewhere. This FCA statement seeks to address these concerns.

## 4 Flood Risk Information

### 4.1 Watercourses

The site is not crossed by any watercourses. To the east of the site the River Nant Cwm Philip, which is designated as an ordinary watercourse. This watercourse flows in a southerly direction through Fuzemill Pond, approximately 500m from the site. The Upper Mother Ditch, another ordinary watercourse, is located approximately 900m west of the site, although at a significantly lower elevation. The Eglwys Nunydd Reservoir is located 657m west from the site, as shown in Figure 4-1, again this feature is well below the level of the site.

The site is not protected by any flood defences.

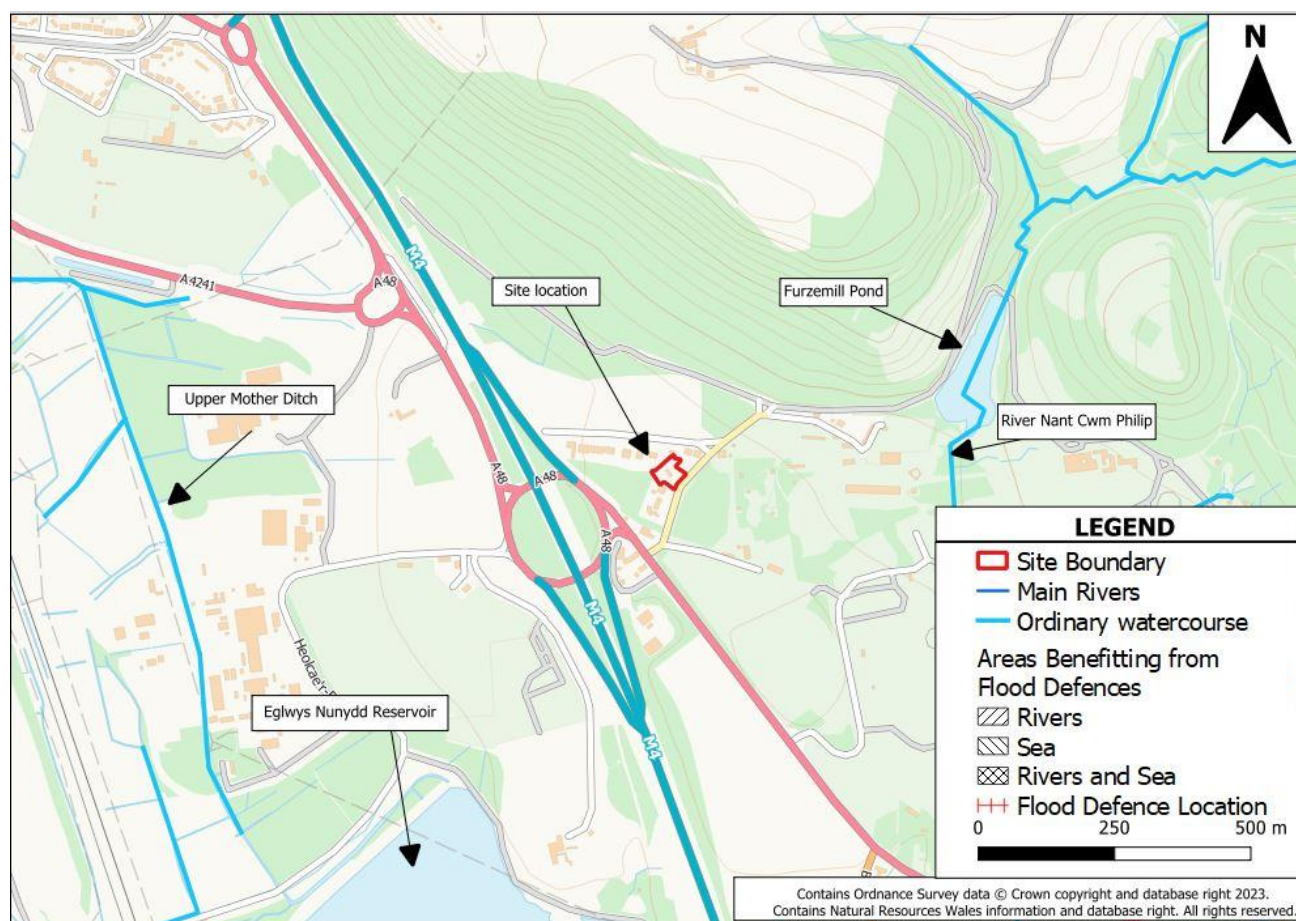


Figure 4-1 Nearby Watercourse and Flood Defence

## 4.2 Topographical information

Topographical survey of the site is shown on the application drawings. Additionally, NRW 1m LiDAR has been used to illustrate the topography of the site and surrounding area, as shown in Figure 4-2. This data shows that the site gently slopes from the south-east to the northwest.

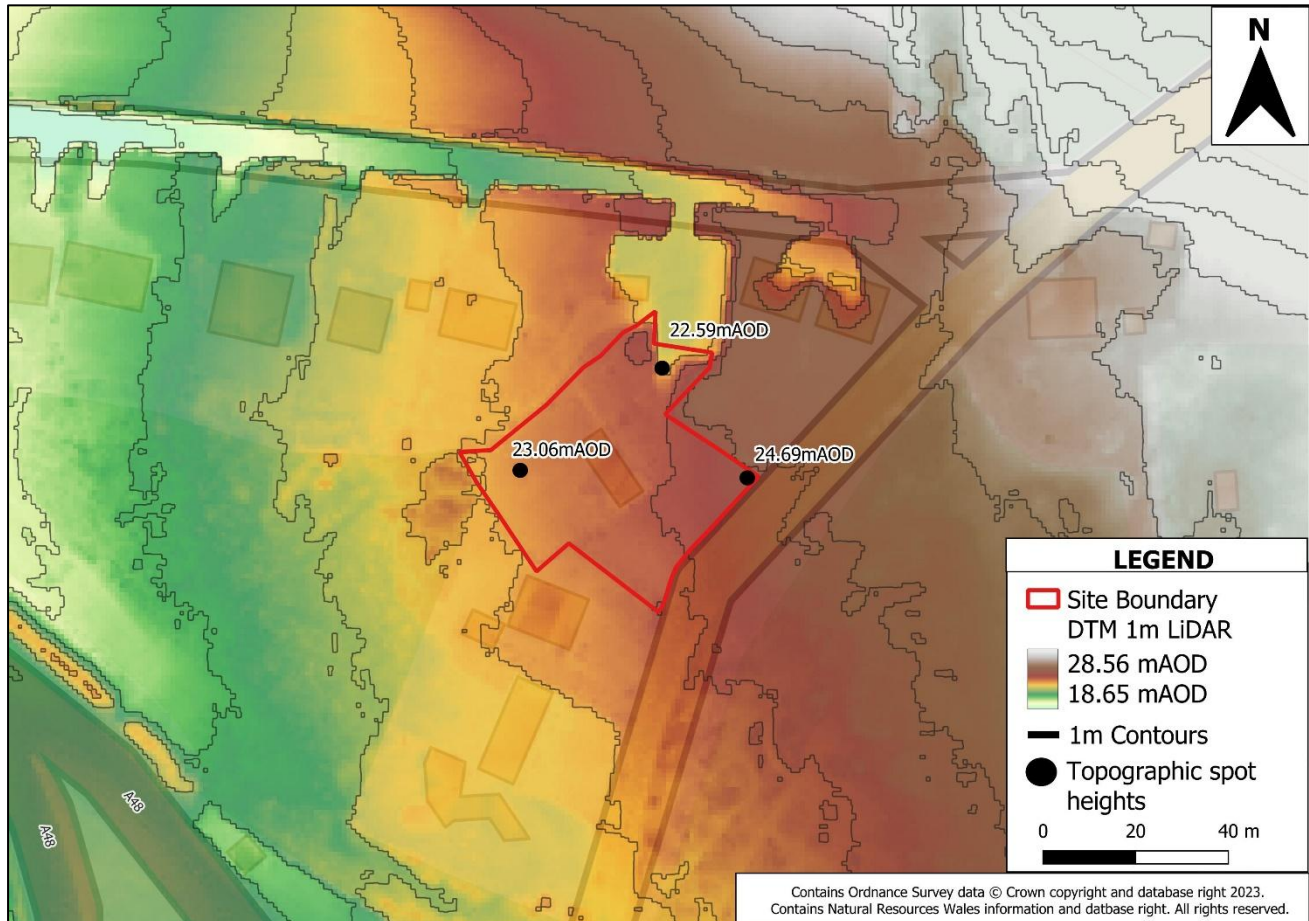


Figure 4-2 LiDAR Topographic data from NRW (1m resolution) with point measurements from the topographic survey

The lowest ground level (~22.3mAO) is located in the vicinity of the proposed garage, to the north of the site. This discreet area has clearly been artificially lowered to accommodate the existing garage units in the area and is noticeably lower than the surrounding ground levels. The proposed finished floor level (FFL) of the garage is 22.34mAO, which is generally consistent with levels in the area. The new garage will require additional ground lowering to the immediate south of the garage to accommodate the larger building footprint and transition access levels.

Ground levels in the vicinity of the garden studio are typically in the region of 23.0mAO.

## 4.3 Availability of Flood Modelling Data

In September 2023, NRW accepted a Flood Map Challenge (FMC) prepared by JBA for Margam, a study area that included the Ten Acre Wood site. Through the FMC process the modelling has been thoroughly reviewed by NRW and adopted in their Flood Map products, such as the Flood Map for Planning. This modelling has been used to inform this FCA.

The FMC was based on NRW's 2015 1D/2D linked ESTRY-TUFLOW hydraulic model of Margam to provide an improved understanding of fluvial flood risk from the Afon Cynffig and Ty Du watercourse as well as assessing the impact of tidal flooding from the Bristol channel. A summary of the updates made to the model for the FMC are listed below:

- Utilise the latest TUFLOW executable.
- Reduce the 1D timestep.
- Update the bridge structures to use the ESTRY 'BB' bridge unit.
- Update the schematisation of the culvert structures that could impact floodplain conveyance.
- Update the inflow boundaries with a new hydrological assessment.
- Update the tidal boundary conditions.
- Update the tidal climate change allowances.
- Update the Ty Du reservoir schematisation.
- Update the base LIDAR data.
- Update 2D Materials layer.

### 4.3.1 1% AEP plus climate change event

As shown in Figure 4-3, the proposed development site is generally predicted to flood to very shallow depths in the 1% (1in100) AEP plus Climate Change event. Flooding occurs from the Furzemill Pond and flows in a westerly direction towards the proposed development site, as shown in Figure 4-4.

Flood depths are greatest (~0.40m) in the vicinity of the new garage due to the artificial depression in the landform in this area. The maximum flood level at the proposed garage in this event is 22.83mAOD. Therefore, with a FFL of 22.34mAOD, the garage is predicted to flood to a depth of 0.48m.

Flood depths in the vicinity of the garden studio are predicted to reach a negligible maximum depth of less than 4cm in this event. This is far less than the depth of rainfall that when occur in such a flood event.

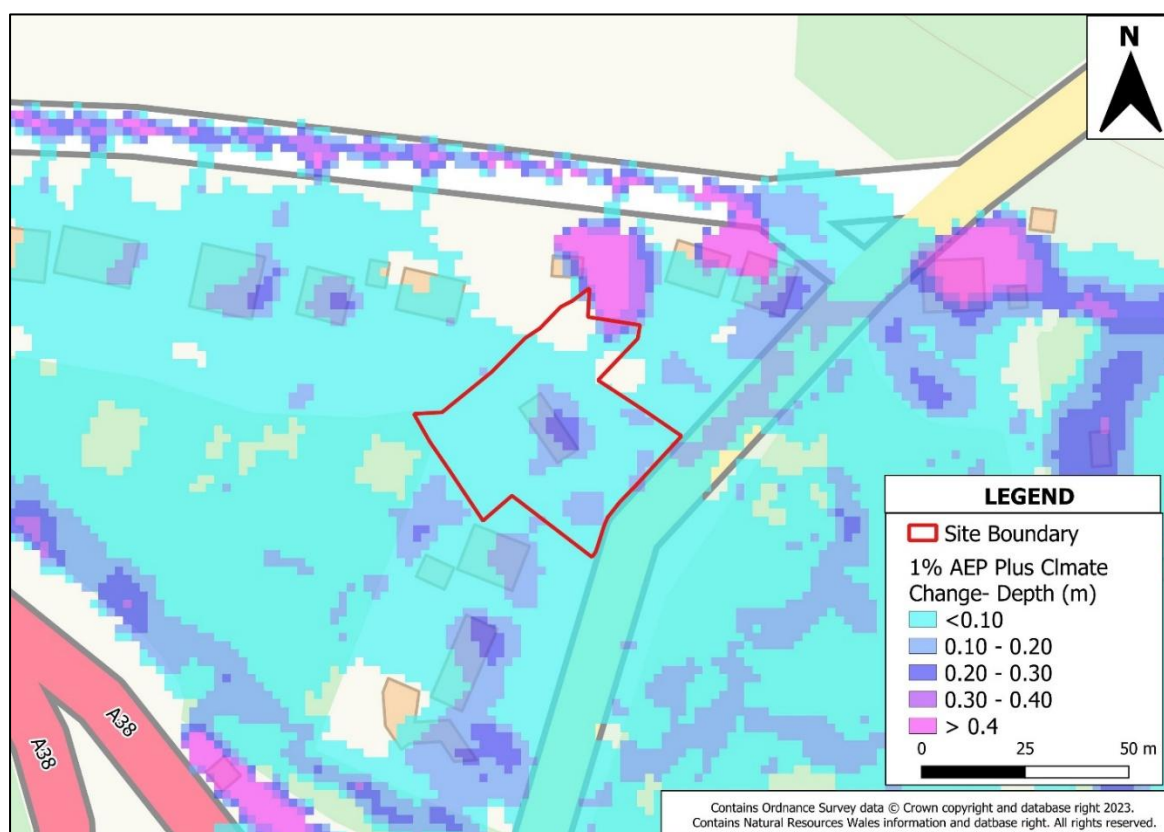


Figure 4-3 1% AEP plus Climate Change flood depths (m)

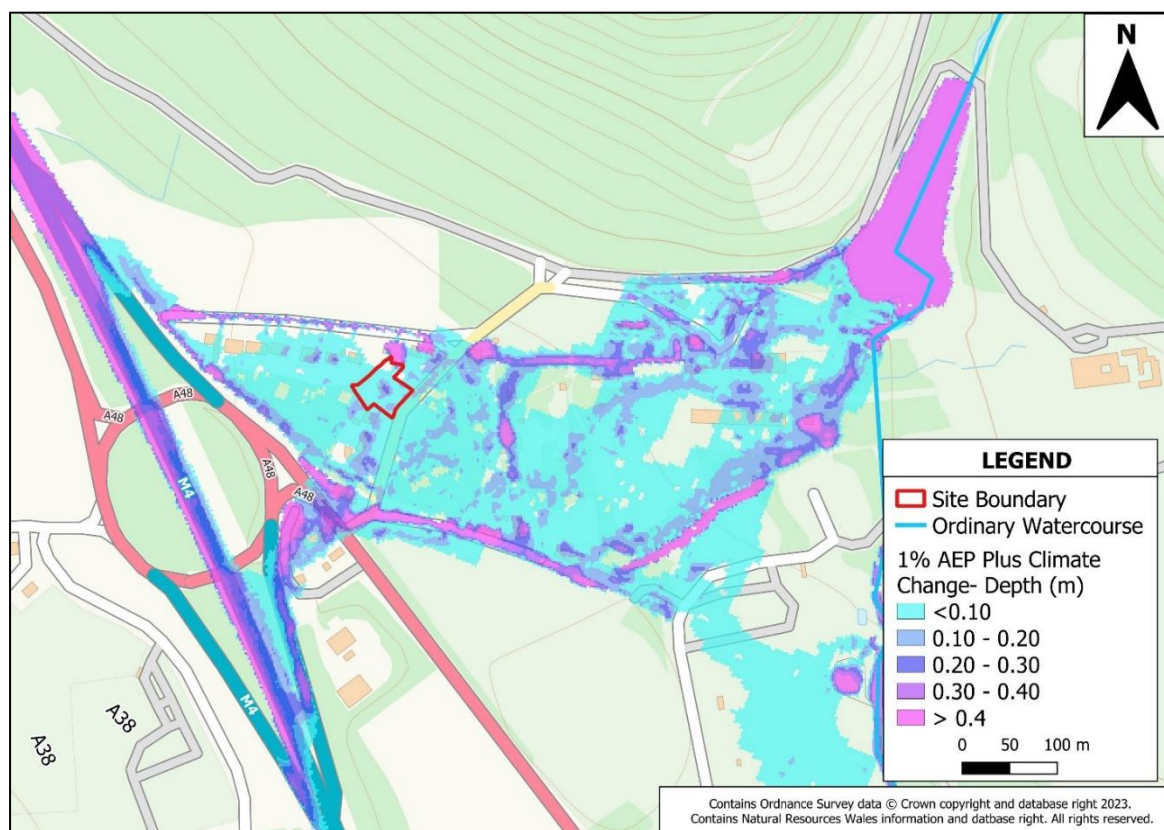


Figure 4-4 1% AEP plus Climate Change flood depths (m) - Wider view

## 4.3.2 0.1% AEP event plus climate change event

The 0.1% (1in1000) AEP plus climate change event results are generally visually indistinguishable from the 1% AEP results described previously in Section 4.3.

The flood depths at the garden studio remain less than 4cm. The flood depths and levels at the proposed garage increase by 111mm, to 0.59m and 23.10mAOD respectively.

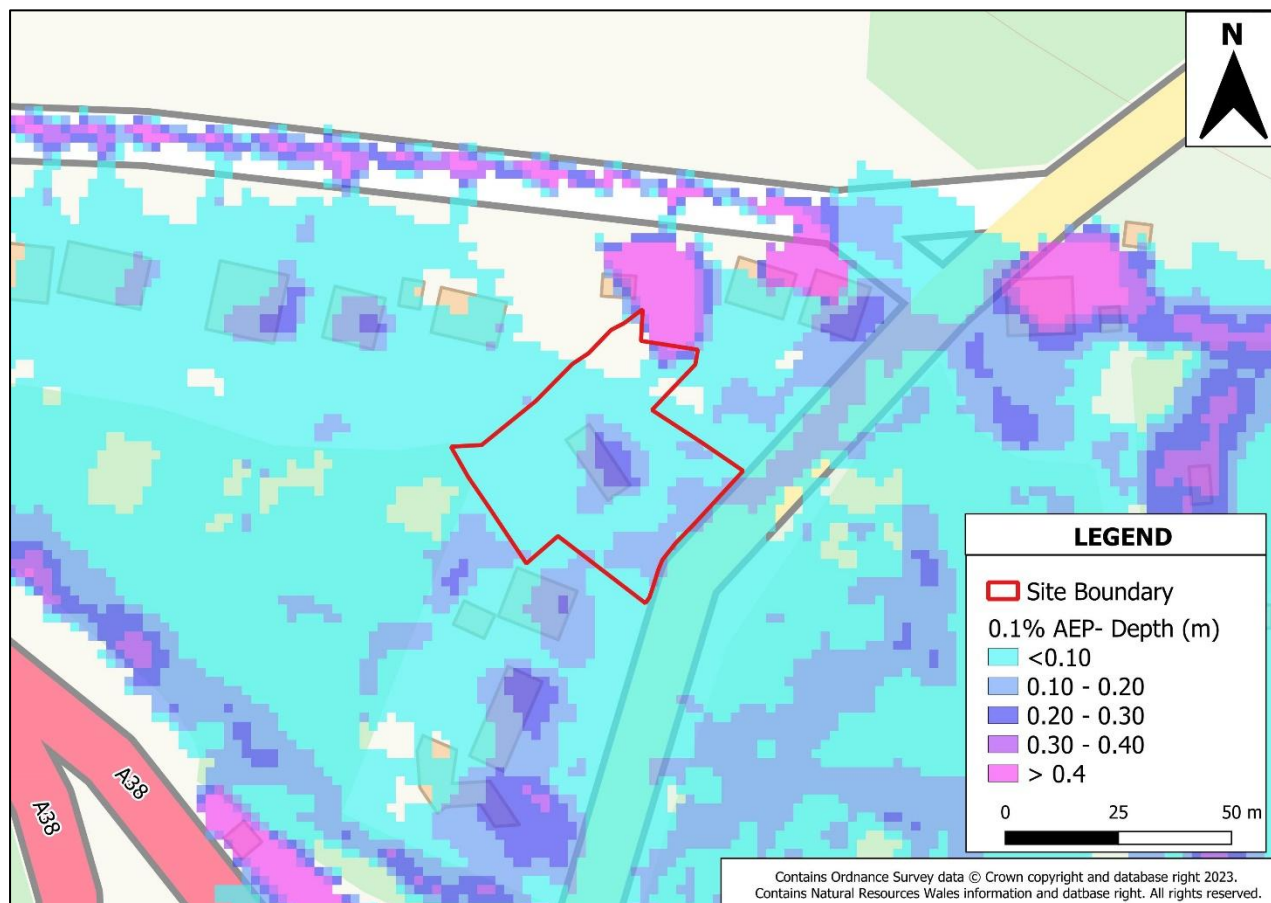


Figure 4-5 0.1% AEP plus climate change flood depths (m)

## 4.4 Impact on flood risk elsewhere

### 4.4.1 Garage

The proposed garage will replace and enlarge an existing garage structure. The garage will be located in an existing artificial depression, which will be slightly further expanded. Consequently, there will be no reduction in available flood storage, and probably a slight increase. The depressed garage area is not on a key flow path, and there is no reason to believe that the new structure would negatively effect flooding in the area by interfering with flood conveyance.

Consequently, it is concluded that the proposed garage development will not increase flood risk elsewhere.

### 4.4.2 Garden Studio

The garden studio is located in an area predicted to experience extremely shallow flooding (<4cm). If the flood risk was mapped as surface water and small watercourse flooding, the flood depths would fall below the minimum threshold for flood mapping. Nevertheless, there is the potential for the garden studio to notionally displace 0.8m<sup>3</sup> of floodwater. Such a small volume of water would have no measurable effect on flood levels outside of the property boundary. Furthermore, as shown in Figure 4-2, any downstream effects would be in a downslope direction away from neighbouring properties.

Consequently, it is concluded that the proposed garden studio development will not increase flood risk elsewhere.

## 5 Conclusion

- A householder development application has been made to construct a new detached garage and garden studio for Ten Acre Wood, Margam. The new garage will partially replace an existing garage structure.
- The proposed development is located in Flood Zone 3 of the Flood Map for Planning.
- TAN15 does not require a Flood Consequences Assessment for householder development, such as proposed at Ten Acre Wood, unless specifically requested by the Planning Authority.
- It is not necessary to justify the location of householder development (TAN15 Section 10). Although it can be necessary to consider the potential for development to increase flood risk elsewhere. This FCA Statement has been prepared to answer these concerns.
- NRW latest approved flood modelling of Margam has been used to inform an assessment of flood risk. This has found that the proposed garage is located in an artificial depression in the surrounding landform, which is predicted to make it more vulnerable to flooding, as floodwater can collect in this depression. The garden studio is located in an area that may experience negligible flood depths of less than 4cm.
- The proposed development is not particularly vulnerable to flooding. However, the applicant should consider the vulnerability of the development, particularly the garage. It is recommended that flood resilient materials are used in the fitout (eg. concrete floors, solid walls etc) and any electrics are raised above 600mm. This will minimise the impact of flooding, should it occur. The applicant acknowledges the flood risk associated with the development of their property.
- The predicted flood mechanisms have been carefully reviewed to consider the potential for the development to increase flooding elsewhere. This review has concluded that the proposals will not increase flood risk elsewhere.

## Flood Consequences Assessment Statement



- As a modest householder application, the development proposals have been found to satisfy the limited requirements of TAN15. The proposed development will not excessively increase the flood risk to the development and will not impact on flood risk elsewhere.