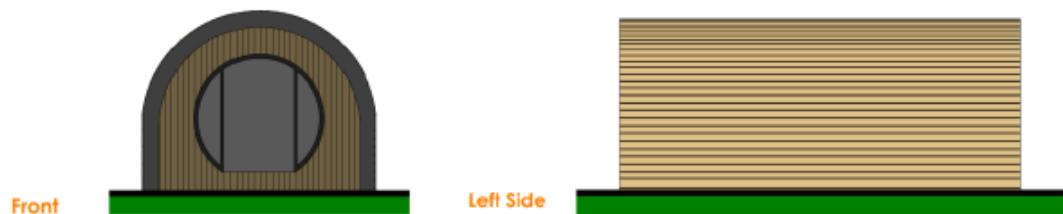
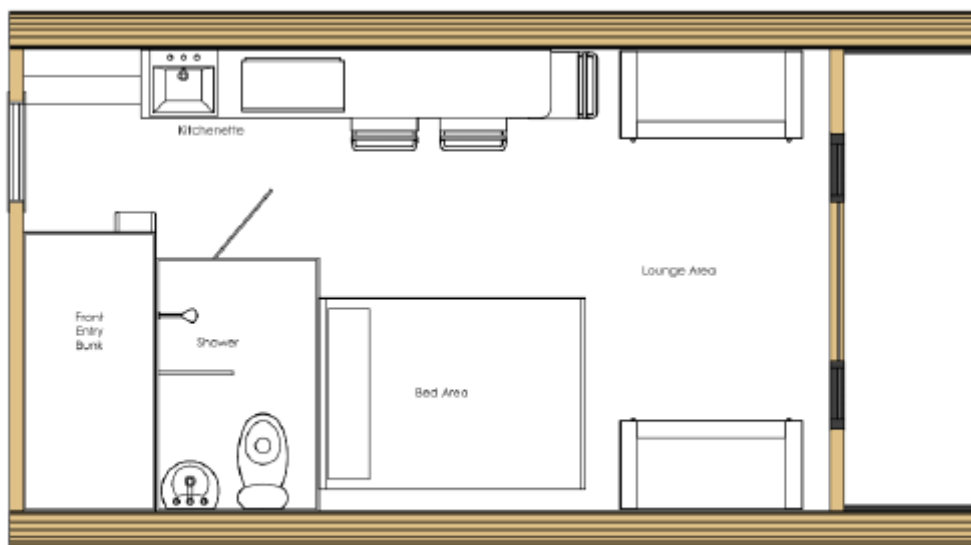


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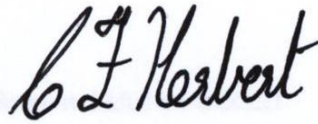
Abergarwed Tourism Park Flood Consequence Assessment Report



February 2026
Final

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Signed 

Date February 2026

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1 INTRODUCTION

It's proposed to develop a Tourism Park at the former Abergarwed Service Station by installing 13 lodges, 8 accommodation pods, and a shower block. In addition, it is proposed to convert an existing shed into an information centre housing a meet and greet area, a play area and an ancillary shop. There are concerns, however, that the site could be at risk of flooding with a small area, on the eastern side of the site, located within a Zone 2 flood area, as shown on the Surface Water and Small Watercourse Flood Map For Planning (see Figure 1.1). This would suggest that the area is expected to be flood free during a 1 in 100 year event but could be at risk during the 1 in 1000 year event, taking 100 years of climate change into consideration.

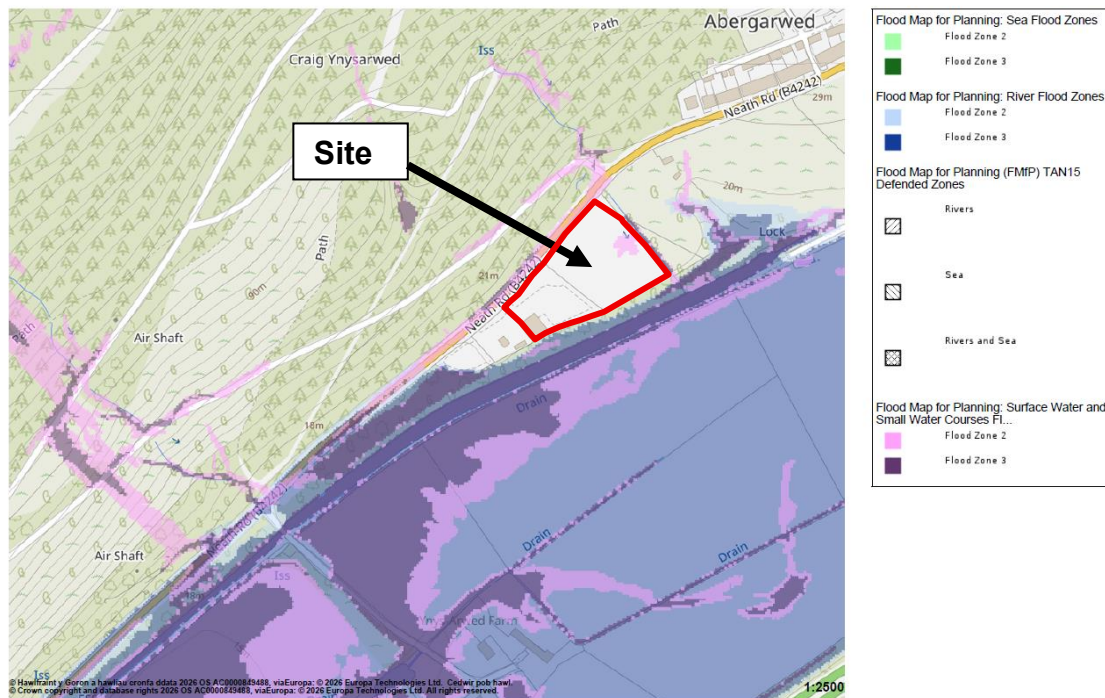


Figure 1.1 Surface Water and Small Water Courses Flood Map For Planning

The prime objective of the Flood Consequences Assessment is to develop an appreciation of:

- The risk and consequences of flooding on the development; and
- The risk and consequences (i.e. the overall impacts) of the development on flood risk elsewhere.

The assessment should consider a range of potential flooding scenarios including a 1 in 1000 year event with an allowance for climate change in line with current Welsh Government guidance.

This assessment will help the planning authority determine whether the risk and consequences of flooding are acceptable and can be managed over the lifetime of the development. The assessment will also establish whether appropriate measures can be incorporated into the design to ensure that the risk to life, damage to property and disruption to people are minimised and that there is no increase in the risk of flooding elsewhere.

The National Strategy recognises that many communities are located in areas at higher risk from flooding. TAN 15 recognises that these communities must be allowed to adapt, change, and regenerate in the knowledge of what the science is showing. Nevertheless, development and redevelopment should be avoided where there is a risk of being impacted by **coastal erosion**.

The Flood Maps For Planning are based on the Flood Risk Assessment Maps (see Figure 1.2) plus 100 years of climate change. The maps adopt the precautionary principle and are based on the best known information available at the time. However, a detailed examination of a site can refine an area's risk of flooding.

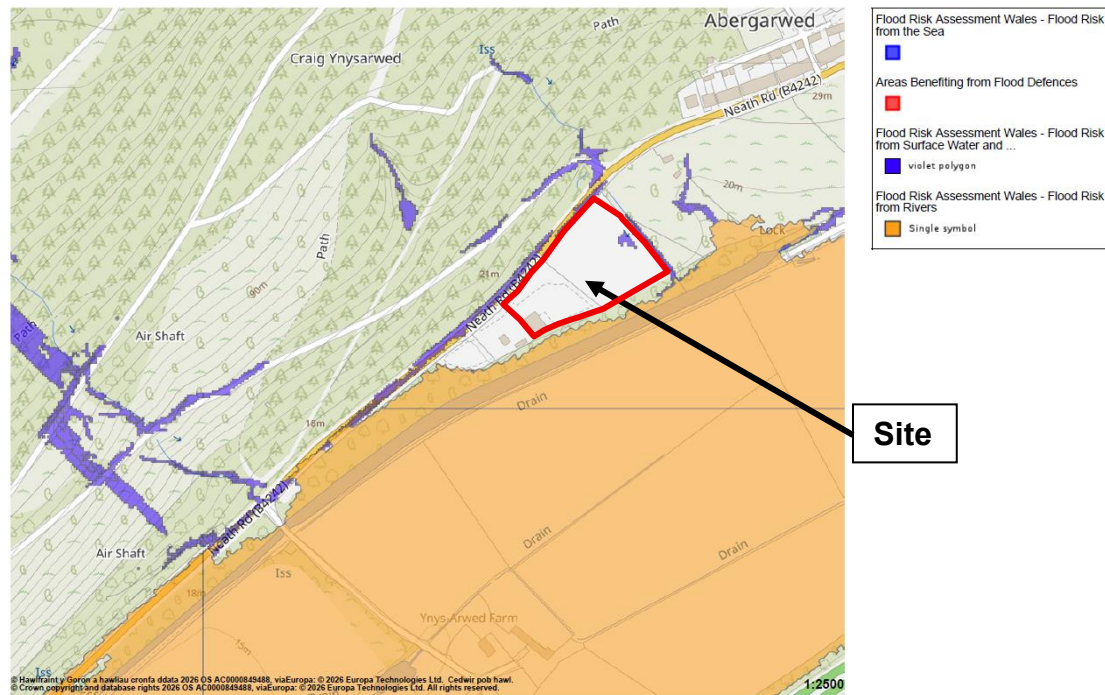


Figure 1.2 – Sea Flood Risk Assessment Map

Potentially the development could be at risk from the pooling of surface water or flooding from the adjacent minor watercourse. With this in mind, the client recognises the need to undertake a Flood Consequence Assessment to evaluate the risk and the implication of any flooding on the site. The assessment should be in accordance with the requirements of Section 11 of TAN 15. Francis Sant have been employed to undertake this task based on information currently available (no additional modelling).

Section 2 of this report describes the location of the development while the risk of flooding, from various sources, are considered in Section 3. Section 4 considers the need for sustainable drainage while potential resilient measures are discussed in Section 5. The conclusions of the study, along with the main recommendations, are provided in Section 6.

2 THE DEVELOPMENT

Location

The proposed Abergarwed Tourism Park (coordinates E281330 N202120) is situated at the former Abergarwed Service Station, south west of the village of Abergarwed (see Figure 2.1 to 2.3 and Plate 2.1 to 2.3). The site is located off the B4242, Neath Road, which forms the site's north western boundary. There is a small watercourse delineating the site's eastern boundary while the Neath Canal is some 15m to the south east. The A465 dual carriageway is some 375m to the south east while the Afon Nedd is some 430m to the south east or 280m to the east, as it meanders across the valley. The site is some 7km north east of Neath.



Figure 2.1 – Location Plan

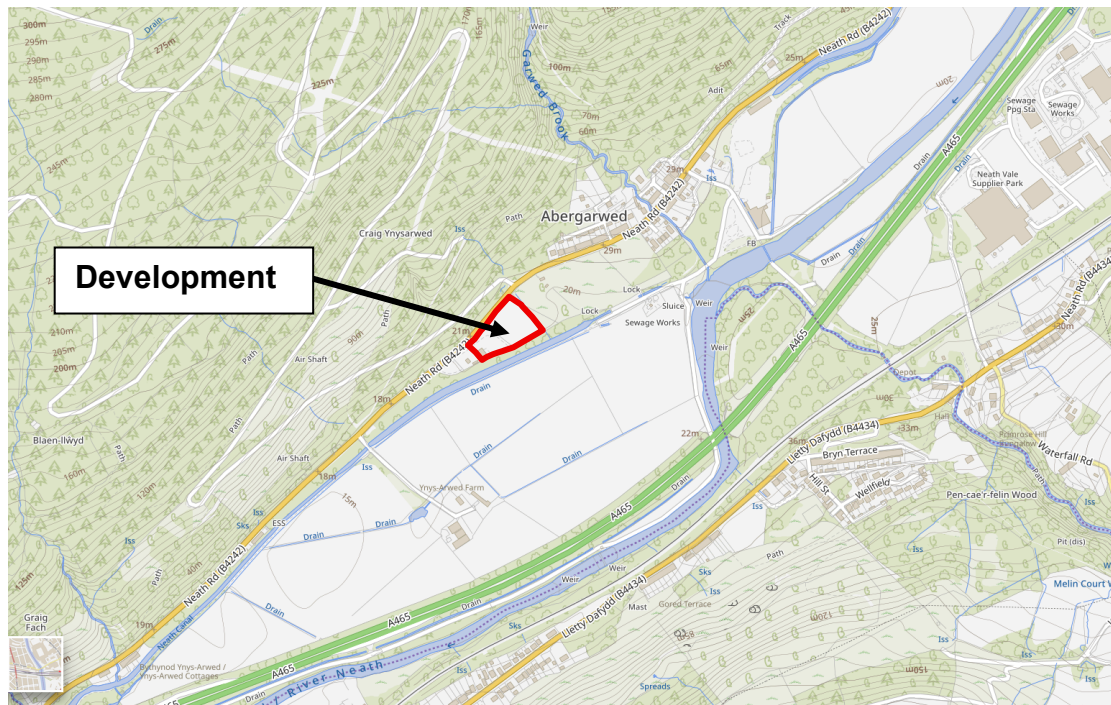


Figure 2.2 – Location of Site

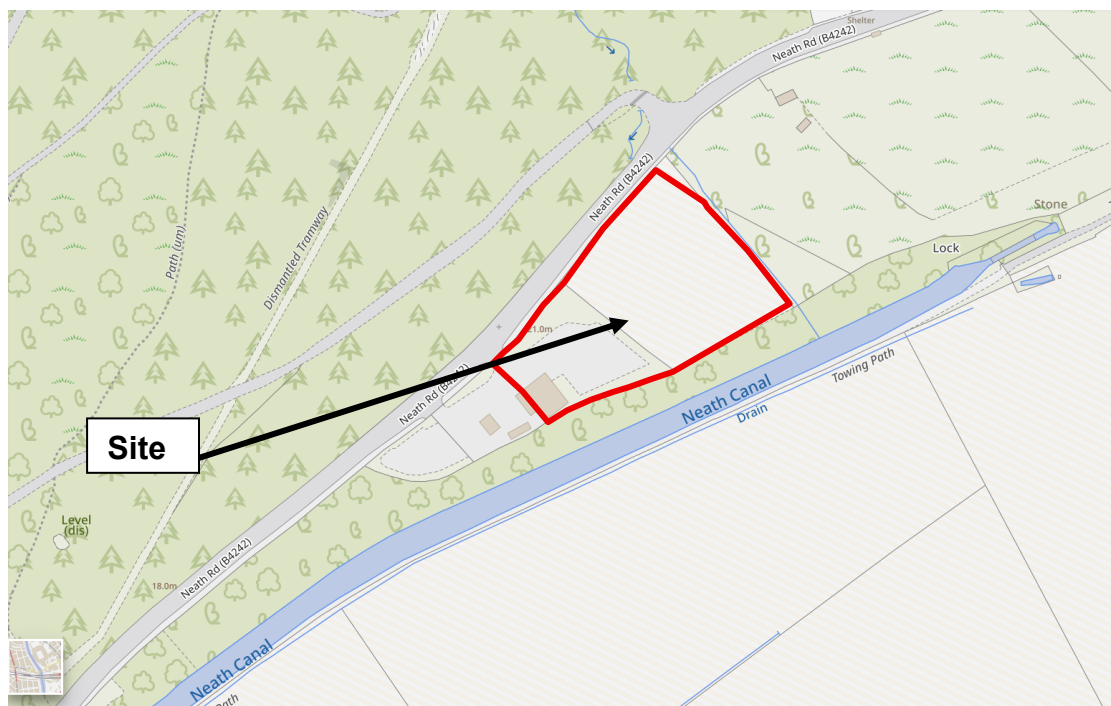


Figure 2.3 – Plan of Site

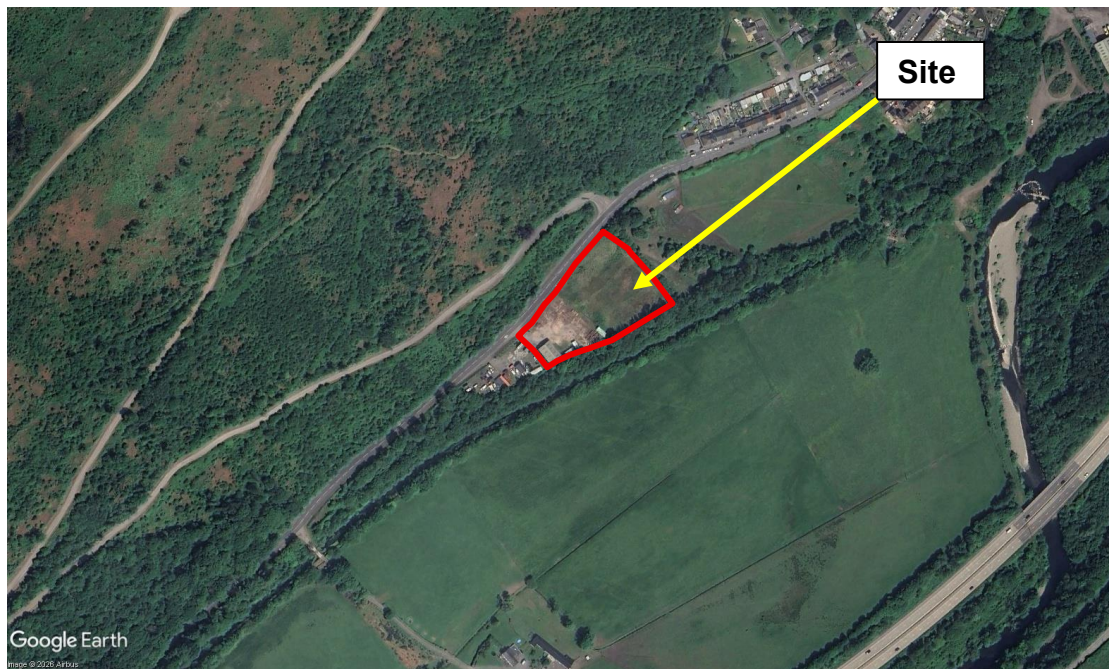


Plate 2.1 - Aerial Photograph



Plate 2.2 – Street View



Plate 2.3 – Street View

The Terrain

Lidar data indicates that the site levels generally range between 20.8m and 22.4m AOD with the land generally falling from north to south east and to west (see Figure 2.4). There is a dip in the land on the north eastern side of the site.

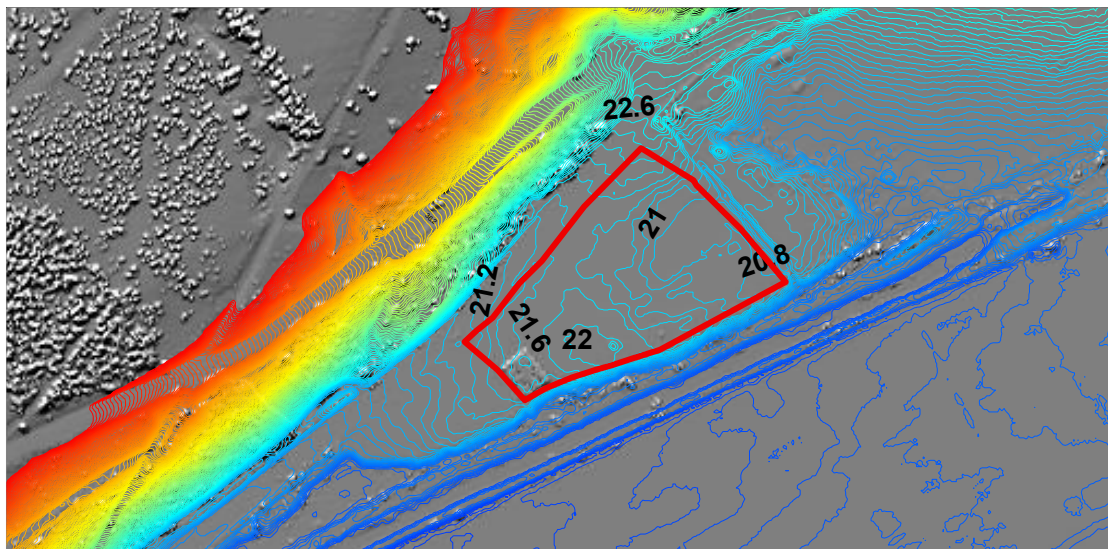


Figure 2.4 – Lidar Data Around The Site

Development

It is proposed to develop a Tourism Park at the Aberarwed Service Station which entails constructing 13 lodges, 8 accommodation pods, and a shower block. In addition, it is proposed to convert an existing shed into an information centre which will house a meet and greet area, a play area, and an ancillary shop (see Figure 2.5 to 2.14). An access road and parking will also be constructed.

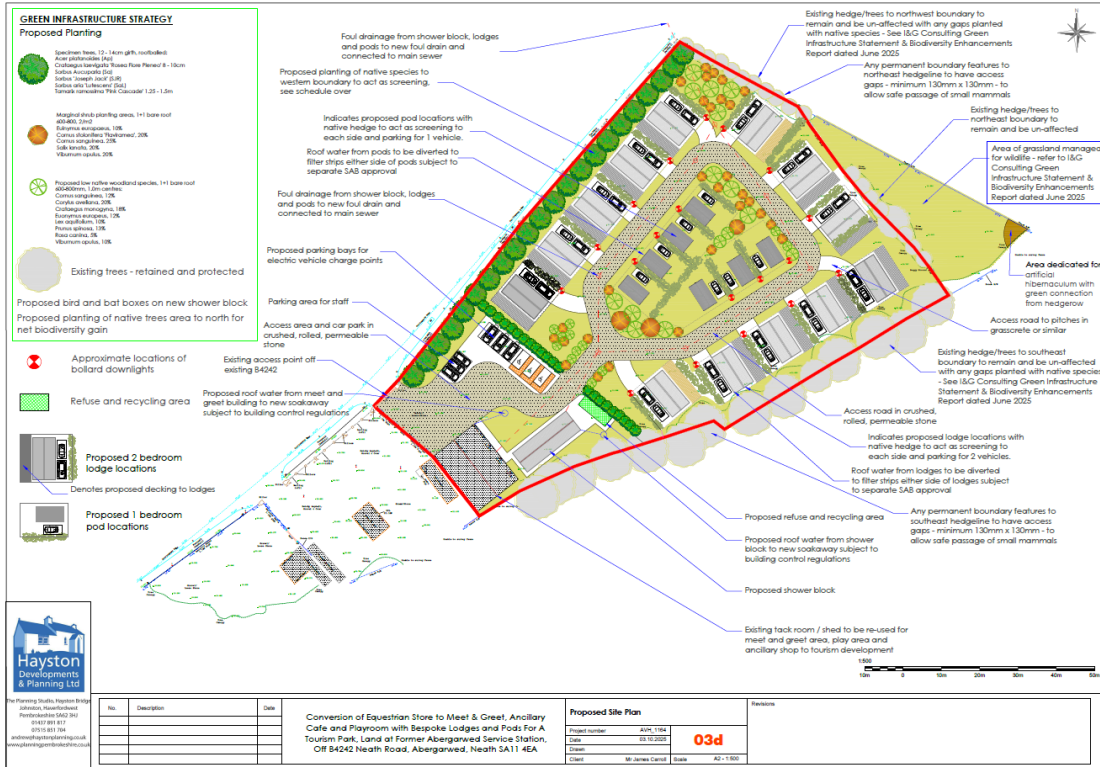


Figure 2.5 – Plan of Site

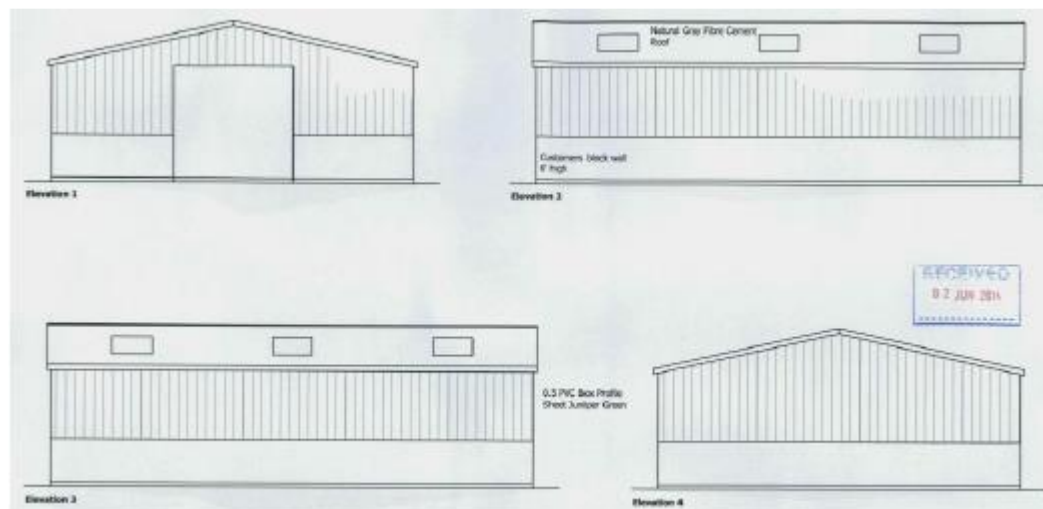


Figure 2.6 – Elevations of Existing Shed

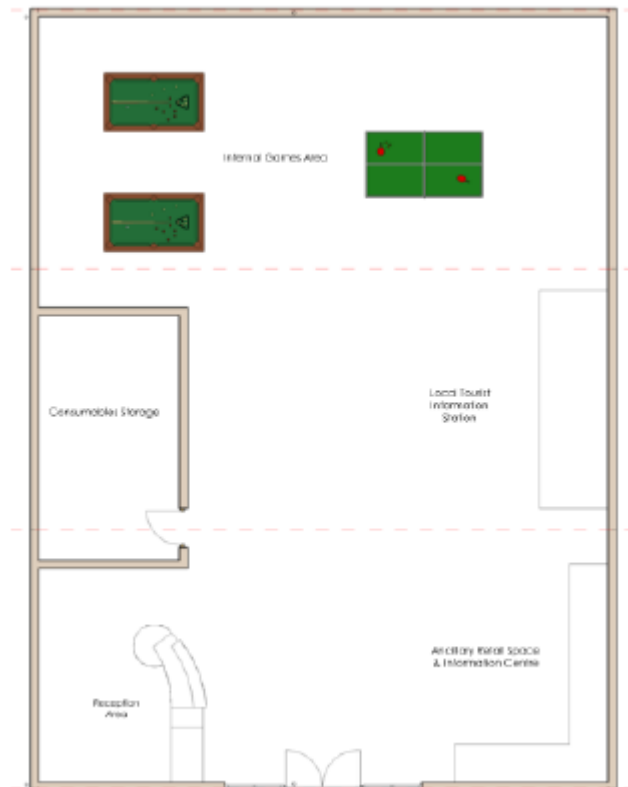


Figure 2.7 – Plan of Proposed Information Centre

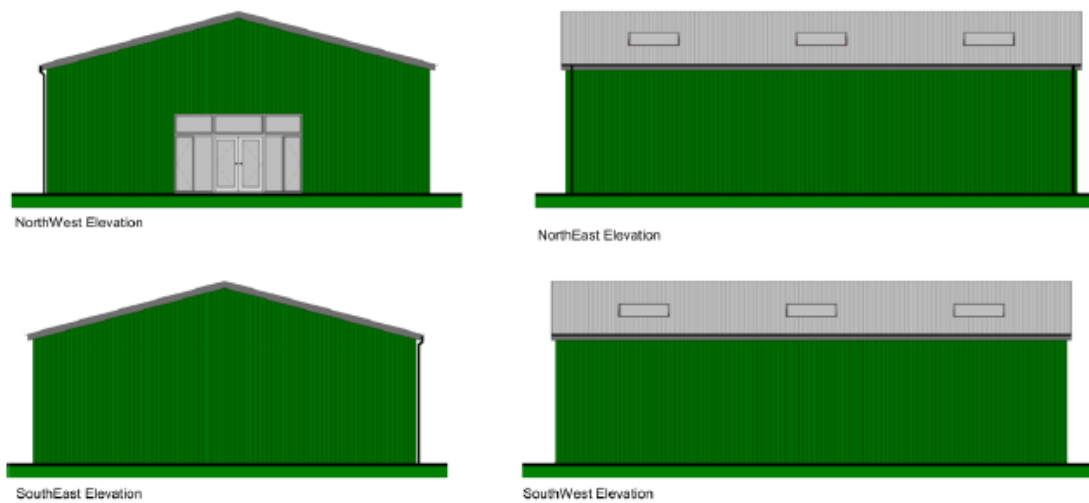


Figure 2.8 – Elevation of Proposed Information Centre

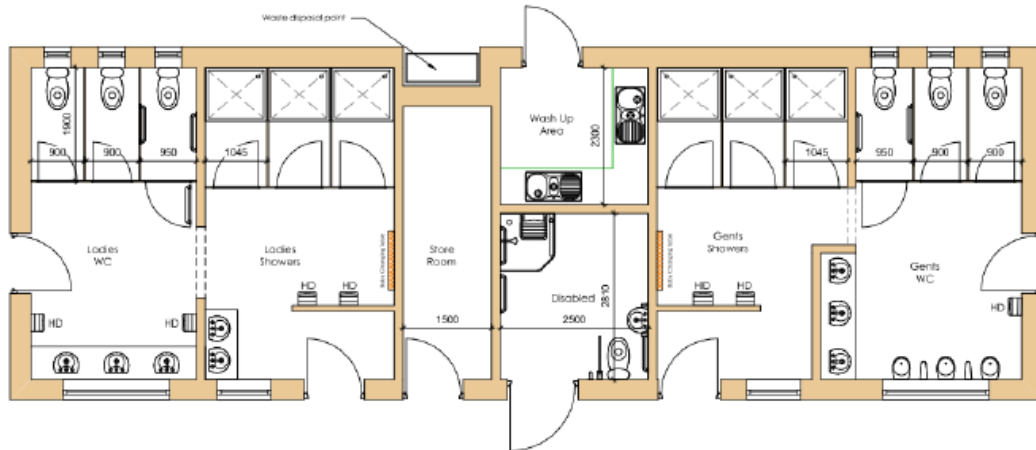


Figure 2.9 – Plan of Proposed Shower Block

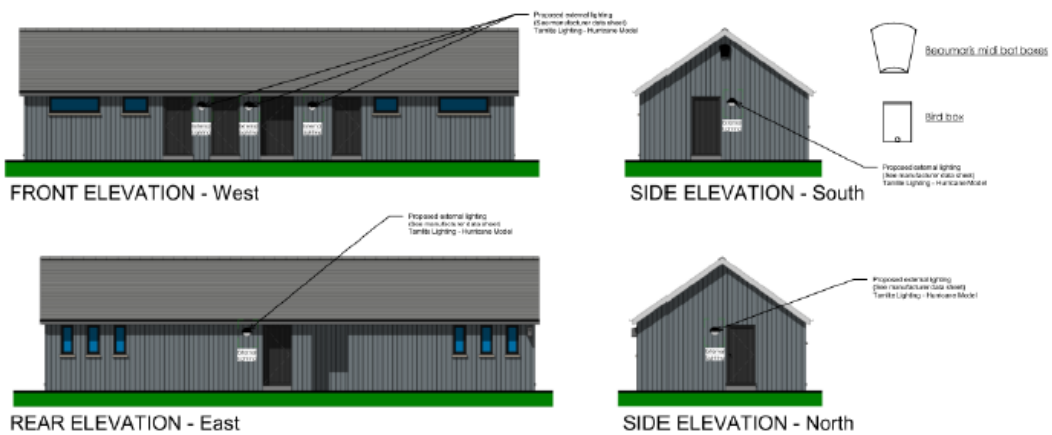


Figure 2.10 – Elevation of Proposed Shower Block



Figure 2.11 – Plan of Proposed Lodge

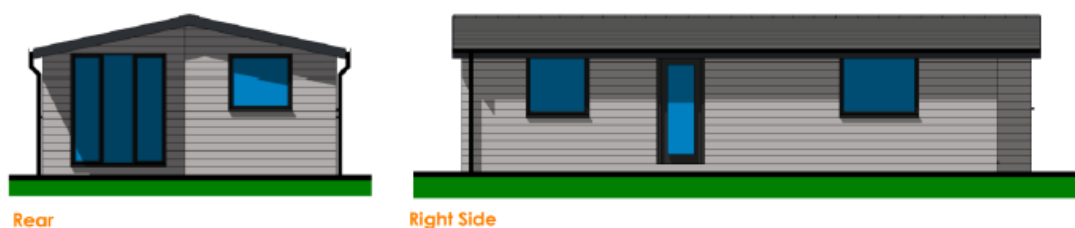


Figure 2.12 – Elevation of Proposed Lodge

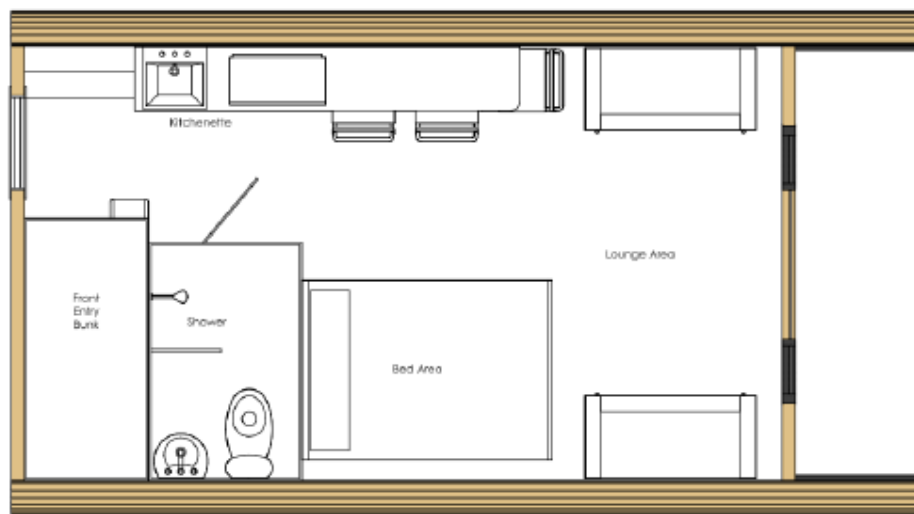


Figure 2.13 – Plan of Proposed Accommodation Pod

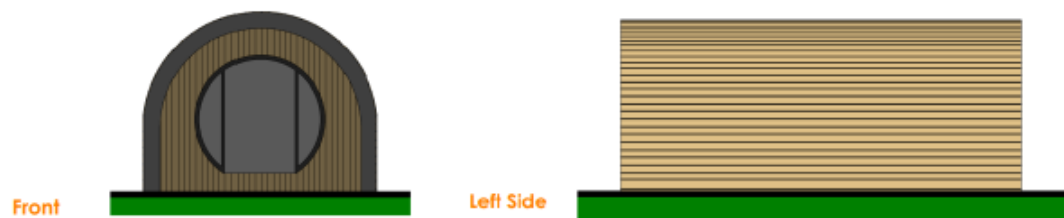


Figure 2.14 – Elevation of Proposed Accommodation Pod

3 FLOOD RISK

Flooding can occur from several sources, some of which are considered in this section. Currently the site is not at risk of flooding from a river or from the sea, however, some surface water pooling is seen on the north eastern side of the site, during the Q1000 event (see Figure 3.1). The maps, however, do not account for climate change.

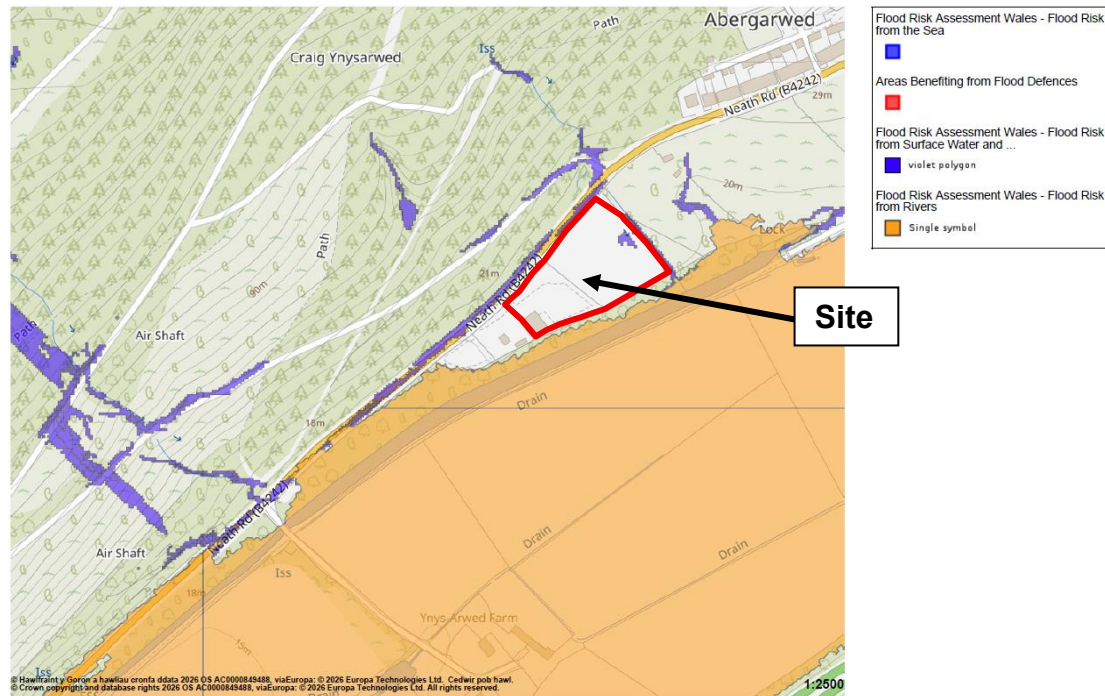


Figure 3.1 – Flood Risk Assessment Map

River

The River Flood Map For Planning, which takes climate change into consideration (100 years), shows that the Afon Nedd is expected to flood across the valley, however, the site is expected to remain flood free during both the Q100 and Q1000 events (see Figure 3.2). The TUFLOW 2D model confirms this when considering the Q1000 defended and undefended scenarios (see Figure 3.3, 3.4 and Table 1).

Table 3.1 Velocity and Depth Key			
Region	Depth	Region	Velocity
	0-0.1m		0 - 0.15m/s
	0.1m-0.2m		0.15m/s - 0.3m/s
	0.2m-0.3m		0.3m/s - 0.45m/s
	0.3m-0.6m		0.45m/s - 0.6m/s
	0.6m-1m		0.6m/s - 1m/s
	1m-2m		1m/s - 2m/s
	2m-3m		2m/s - 3m/s
	>3m		> 3m/s

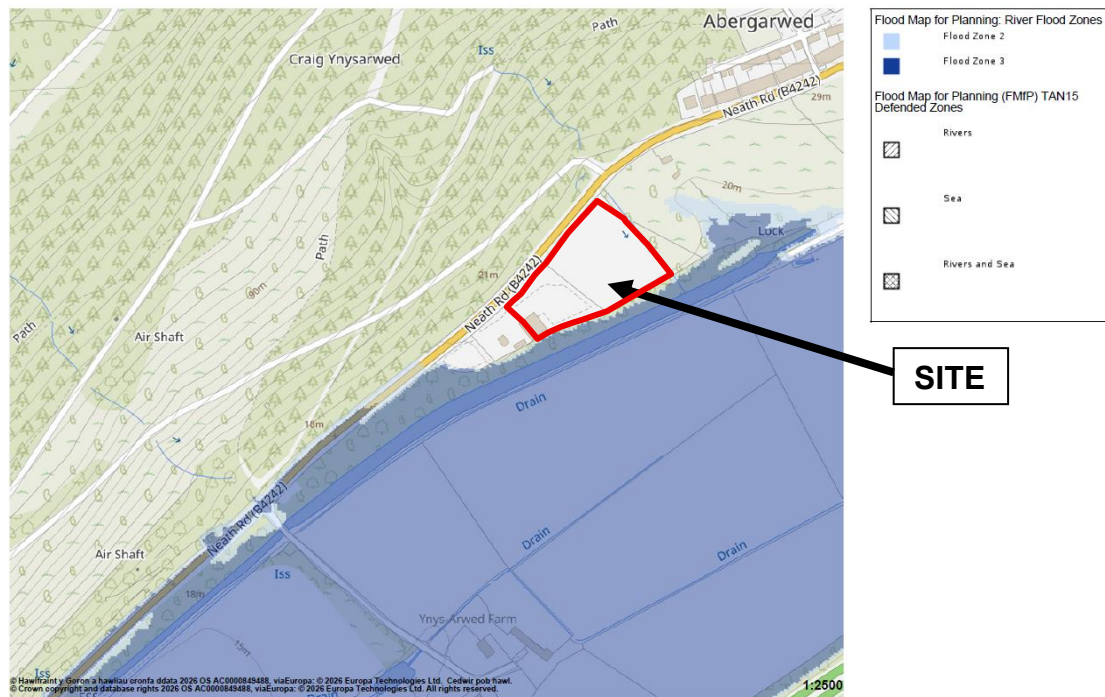


Figure 3.2 – River Flood Map For Planning

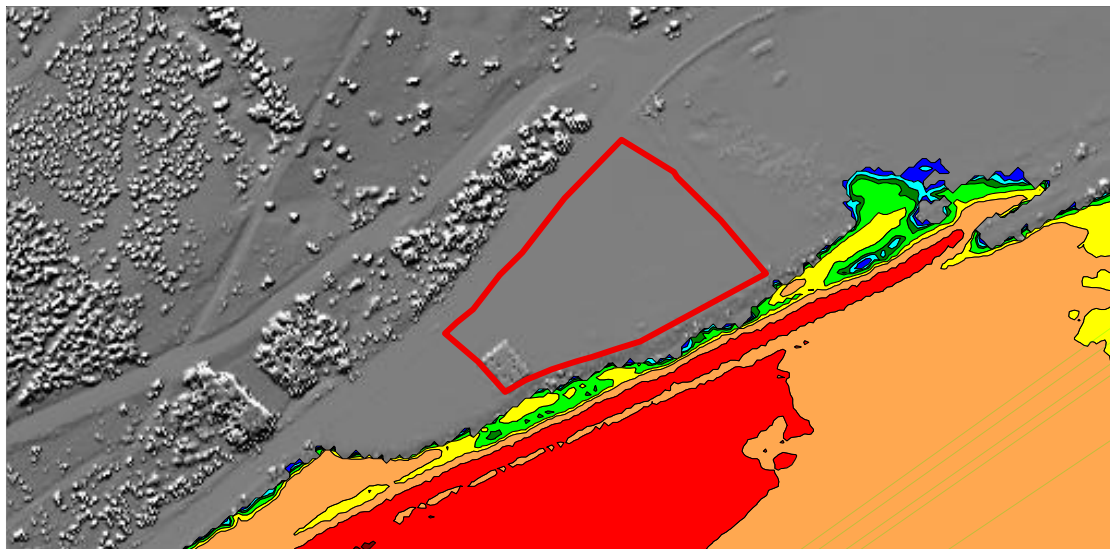


Figure 3.3 – Defended Q1000 – Depth

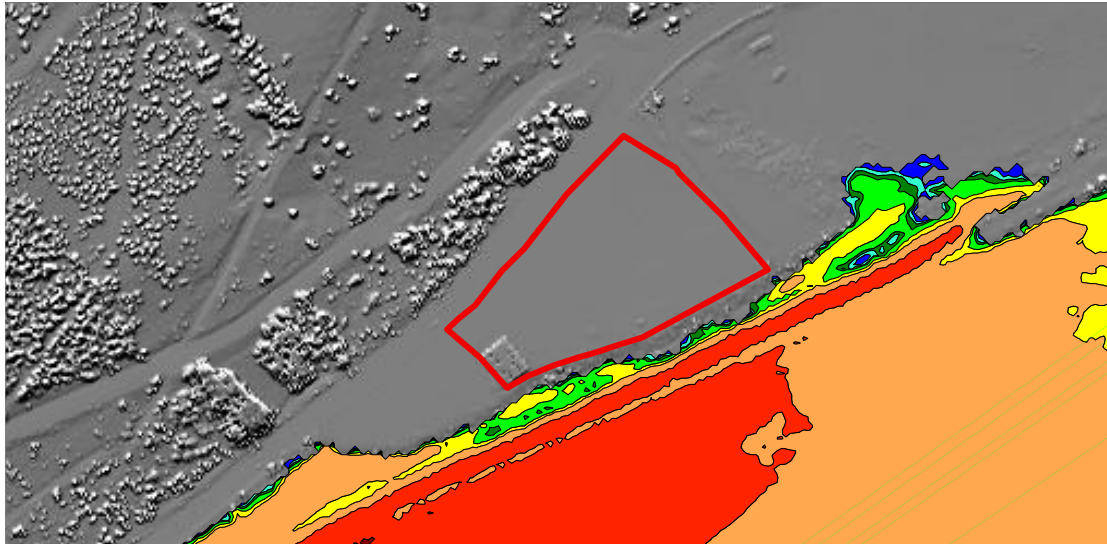


Figure 3.4 – Undefended Q1000 – Depth

Tidal

Considering the site levels and distance from the coast, the development is not at risk from tidal flooding, or from coastal erosion, over the lifetime of the development. The Flood Map For Planning confirms this (see Figure 3.5).

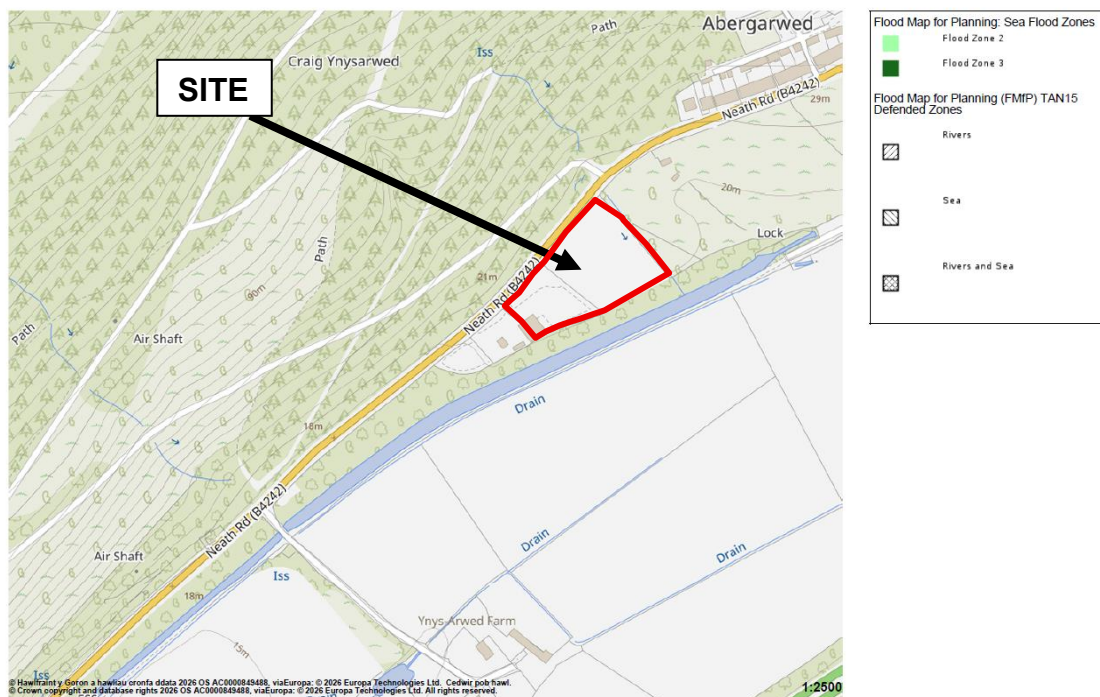


Figure 3.5 –Sea Flood Map For Planning

Surface Water and Minor Watercourse

The Surface Water and Small Watercourse Flood Map For Planning (see Figure 3.6 and 3.7) indicates that most of the site is expected to remain flood free during both the Q100 and Q1000 events. However, some surface water is seen to pool on the north eastern site of the site during the Q1000 event. The map also shows that the flood area is connected to the adjacent watercourse and could, therefore, be providing some flood storage during such an event. Considering the topography the

flood water is expected to be shallow (less than 400mm) and the flow velocity in the pooled area is expected to be low.

Tan 15 requires that a highly vulnerable development is flood free during a Q100 event and is not located in Zone 3. A development that lies in Zone 2 will need demonstrate that it is in line with the adopted development plan's strategy to regenerate an existing settlement or can achieve key economic or environmental objectives. Flooding must also be considered tolerable in accordance with Section 11 of TAN 15 (depth less than 600mm; velocity less than 0.15m/s with no loss of flood storage capacity).

There are a number of measures that can be taken to mitigate against this risk. The first is to remove the affected area from the development site which might require losing a lodge from the proposed development (Lodge No7). Potentially the area could be used for planting and recreational purposes. Alternatively, the affected land can be raised slightly (see section through the area on Figure 3.8) to prevent the pooling occurring. To compensate against this an equivalent area on the opposite bank of the watercourse will have to be lowered to a similar original level (see Figure 3.7). Considering the location of the flooding it is likely that the flooding is from pooling alone with no flood storage element as indicated on the Flood Risk Assessment maps. If this is the case, then no compensation work will be required but the approach would have to be agreed with the local authority.

Standard precautions, such as raising the finished floor levels by 150mm, should be applied to the buildings to protect against surface water flooding

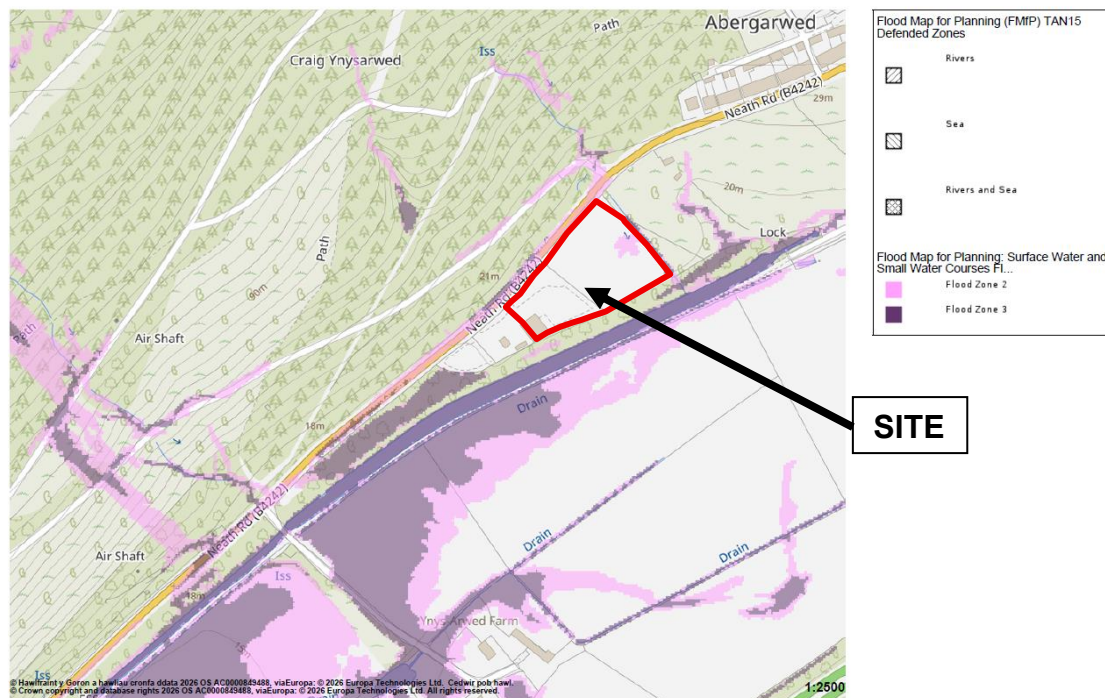


Figure 3.6 – Surface Water Flood Map For Planning

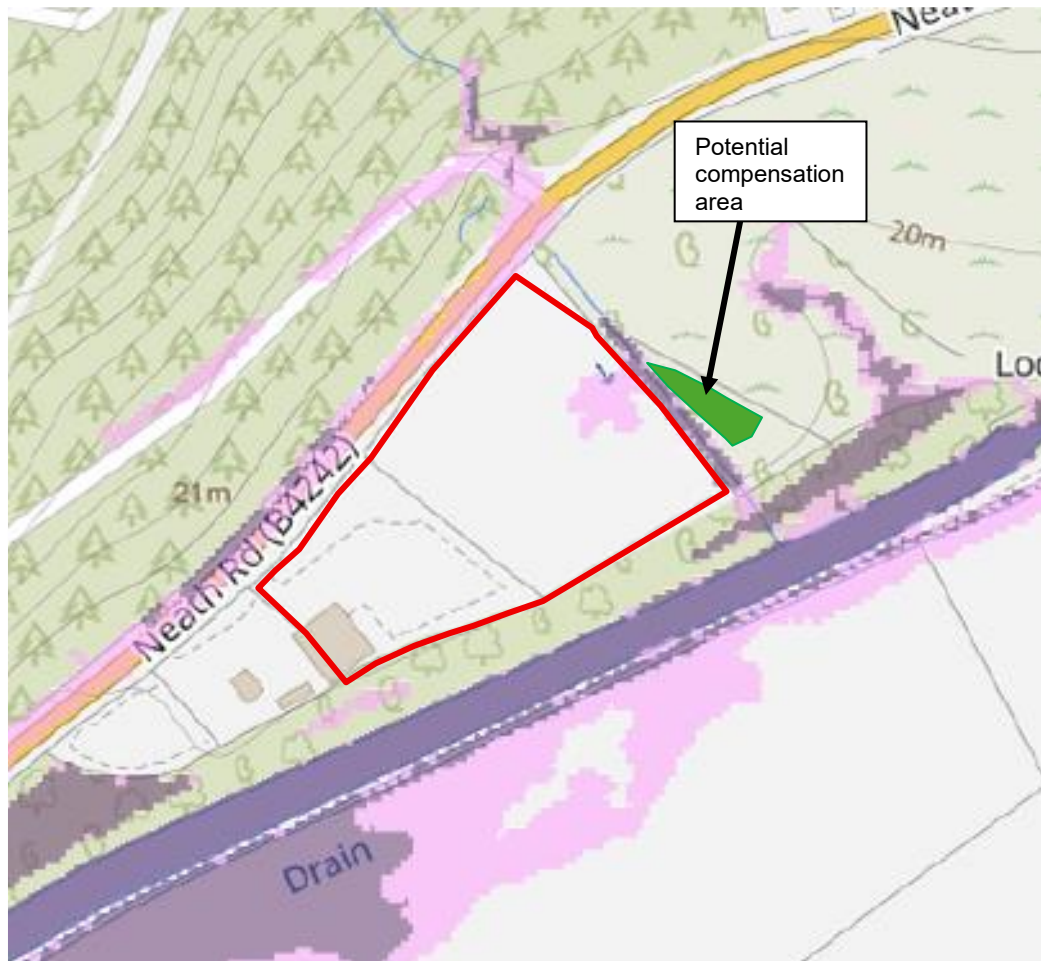


Figure 3.7 – Surface Water Flood Map For Planning

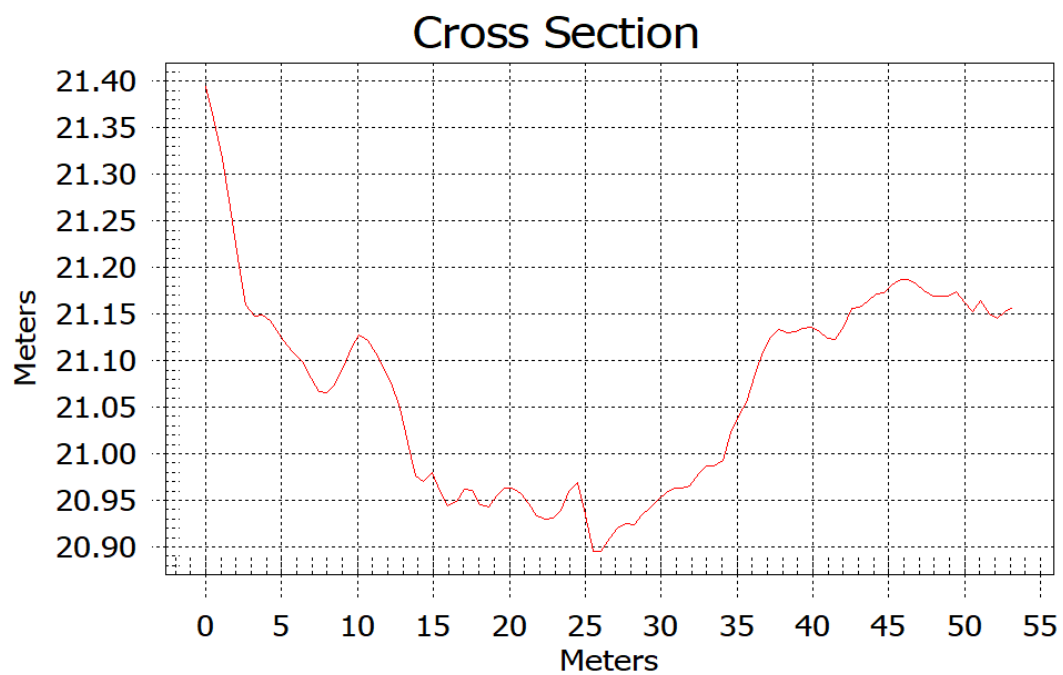


Figure 3.8 – Typical Section Through Pooling Area

Ground Water

The BGS maps indicates that the site has superficial geology of Clay, Silt, Sand and Gravel from Alluvium, over a bedrock geology consisting of Mudstone Siltstone and Sandstone of the South Wales Upper Coal Measures Formation (see Figure 3.9 and 3.10). When also considering the terrain, the risk from ground water flooding is considered to be low.

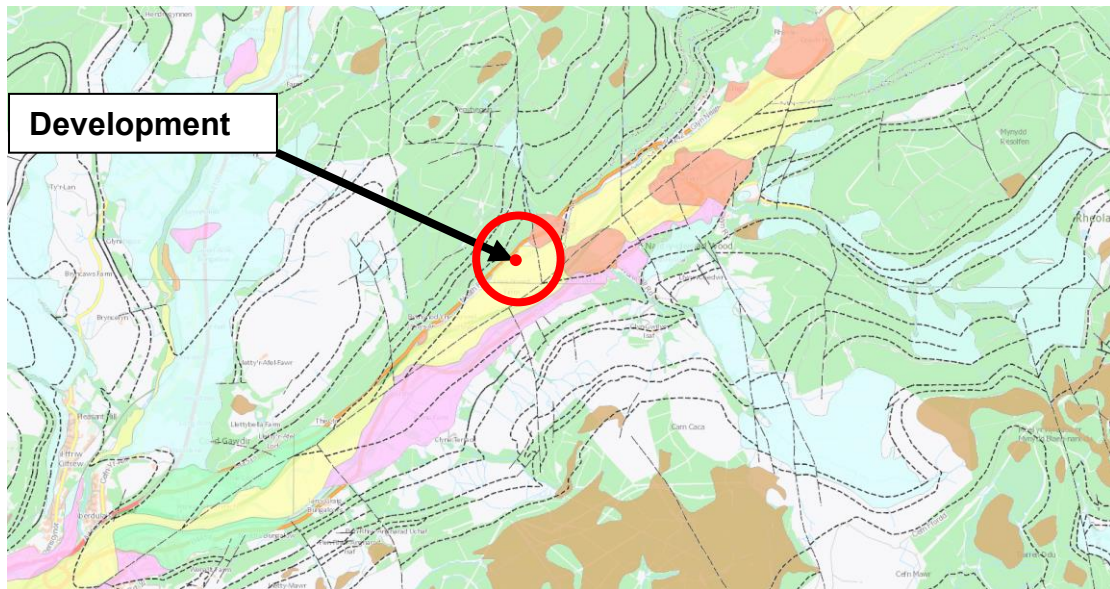


Figure 3.9 – Superficial Geology of The Area

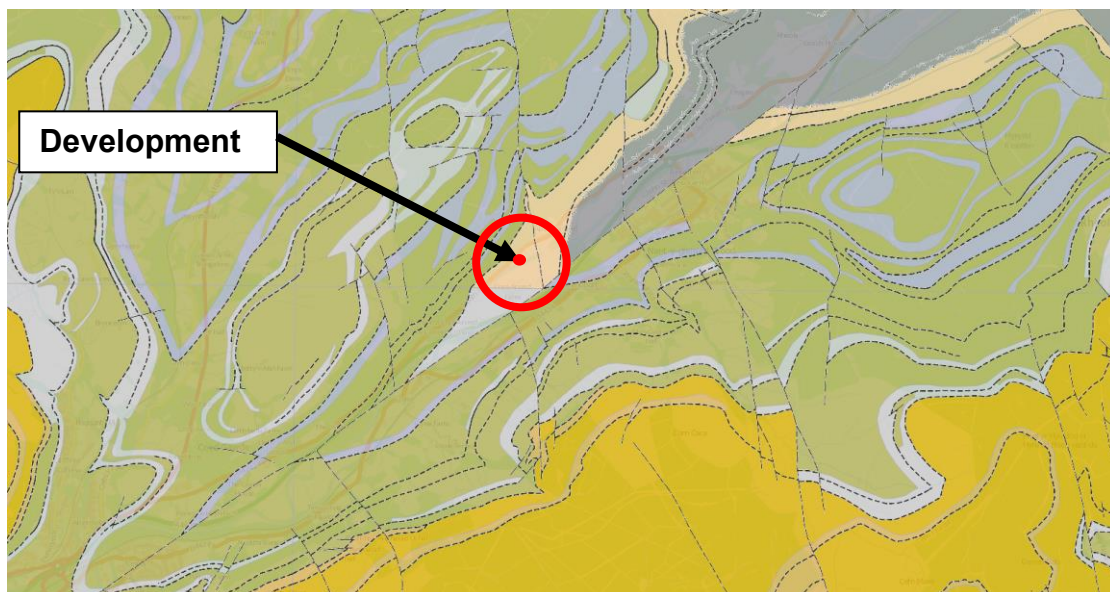


Figure 3.10 – Solid Geology of The Area

Sewage Backflow.

Care will need to be taken to ensure that surface water is unable to flow into the main sewer. To prevent the risk of backflow, from an overloaded sewer, a non-return valve could be installed.

Risk From Reservoir Failure

The site is not expected to be at risk from reservoir failure (see Figure 3.11).

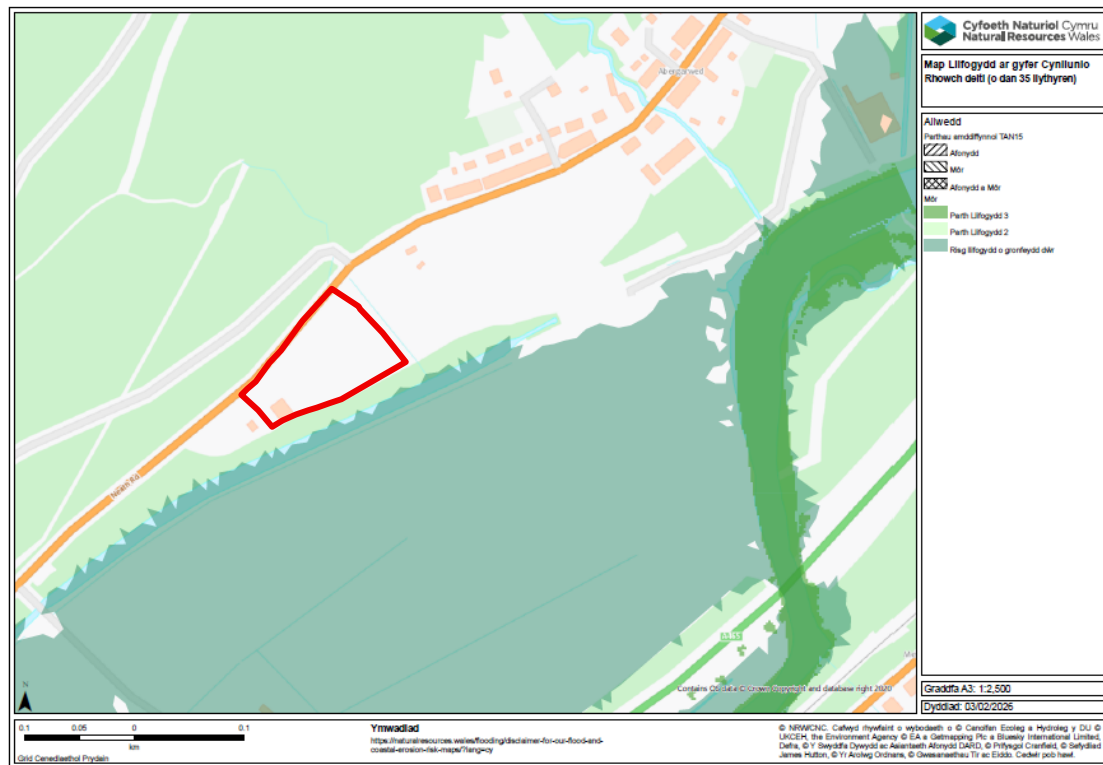


Figure 3.11 – Flooding From Reservoir Failure

3.7 Historical Flooding

There is no data of historical flooding for the site (see Figure 3.12).

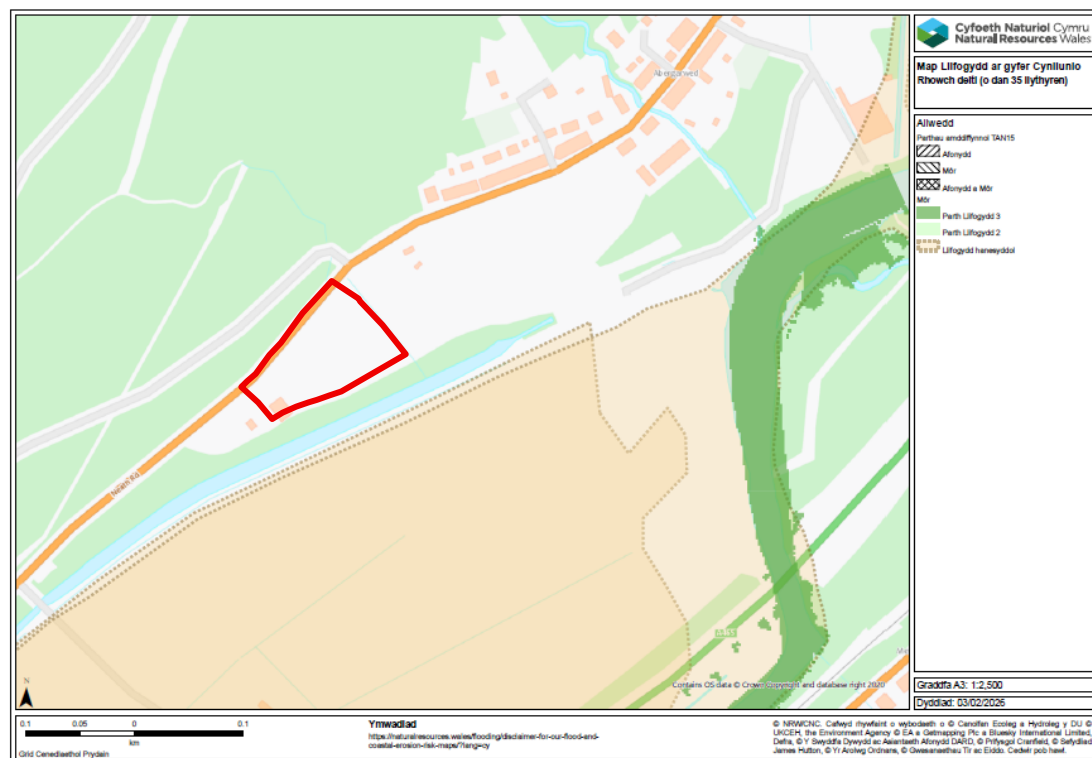


Figure 3.12 – Record of Historical Flooding

4 SUSTAINABLE DRAINAGE

The proposed development will need a sustainable drainage system, adhering to the requirements of the Welsh Government Standards and the SUDS manual. As the total development area is likely to exceed 100m² a SAB approval is also likely to be required.

The rain water falling on the roof of the shower block and lodges can be stored for use, by means of water butts, meeting the requirement of level 1 of Welsh Government Sustainable Drainage, Standard 1. The overflow from the water butts, can be discharged into bioretention gardens before flowing into the subbase of the access road. The access road itself can be of a permeable construction, such as reinforced gravel with Type 3 subbase.

The roof of the accommodation pods can be drained into a filter drains located either side of the structure. From the filter drains the water can be discharged into the access road subbase.

As the Information Centre will be developed by converting an existing building a sustainable drainage system is not strictly necessary. Nevertheless, as a matter of best practice the roof water can also be drained into water butts which can overflow into bioretention gardens and subsequently drained into the subbase of the access road.

From the access road subbase the rain water will be allowed to infiltrate into the ground. However, if infiltration is not possible the rainwater will need to be drained to the adjacent watercourse at a controlled rainfall runoff rate.

Plants can be placed around the site particularly in the bioretention gardens and filter drains to help absorb the water, enhance biodiversity and provide an amenity.

Should the system fail or exceeded then the water is expected to flow over land into the harmlessly into the watercourse or potentially into the Neath Canal.

The proposed solution, which will need to be designed in detail, can be cost effective to construct and maintain. Appropriate measures will be undertaken during the construction phase, in accordance with the recommendations given in the appropriate Guidance for Pollution Prevention (eg GPP 6 Working at construction and demolition sites) to minimise the risk of polluting the nearby watercourse.

The contaminants could include:

- Silt, if the ground, around the building, becomes striped;
- Cement and grout;
- Oils and chemicals from construction materials and from plant;
- Fuel from any plant (eg an excavator);
- Non Native Species that currently might be growing on the site (non identified);
- Construction waste.

Measures can be taken to minimize the risk as identified in Table 3 below:

Table 3 - Pollution Prevention Tasks	
Ref	Action
1	Where necessary place sandbags along the boundary of the site to help prevent silt from washing from the site into the road.
2	Ground is not to be stripped during periods of heavy rainfall.
3	All soil heaps to be covered.
4	The adjacent road will be monitored and, if necessary, periodically swept clean.
5	Grout/cement/concrete to be mixed in a designated location where the ground is protected.
6	Any waste to be disposed of in an appropriate receptor (eg skip) and taken off site to a licenced tip.
7	Used water, from washing tools used in working with cement (eg trowels) to be disposed of off site.
8	Where possible all chemicals will be stored off site. Any chemicals stored on site will be securely kept in a waterproof area and bunded where appropriate (eg using a hazardous substance storage cabinets).
9	Any cement kept on site will be stored in a secure waterproof area.
10	Ground protection will be present where chemicals are to be used and any spills are to be cleaned immediately using spill kits stored on site.
11	Site staff to be trained to use the spill kits.
12	Where possible plant will be fuelled off site. If this is not possible plant should be refuelled in a designated area where the ground is protected.
13	Prior to starting on site all workers will receive an induction training and advised of the chemicals used on site, where they are stored, pollution prevention measures to adopt, where the spill kits are stored and how to use them.
14	A waste minimisation audit will be undertaken prior to commencement on site. Where possible any residual waste will be recycled. All waste, however, will be cleaned immediately and placed in a covered collection receptor (eg a skip) and removed from site regularly.
15	Pollution incident response plan is prepared in accordance with current best practice (GGP21). An incident that could threaten the environment should be reported to NRW immediately on 0300 065 3000 (24hrs) .

5 FLOOD PROOFING MEASURES AND RESPONSE

Section 3 indicates that part of the site could be at risk of surface water flooding during the 1 in 1000 year event. Flooding can potentially result in the need for expensive repairs. As well as the direct damage caused to the building, flooding can impact in many other, and possibly more stressful, ways. The inconvenience of cleaning up after an event and the loss of good will, due to business closure, can be immeasurable. There are methods, however, to limit and mitigate against the consequence of flooding. Some of these are discussed in this section and should be considered for the development.

Generally, water can enter a building:

- Around the edges of closed doors;
- Through airbricks;
- Backflow through overloaded sewers;
- Seepage through walls especially cracks;
- Seepage through the ground;
- Around cable / services entering into the building.

Dryproofing - Preventing the water from entering the building.

In the first instance it is possible to take measures to prevent the ingress of water (dryproof) which include the following.

- There are several propriety barriers available, however, these can be expensive. If desirable, it might be more appropriate to ensure that the walls of the building are able to act as a barrier. Care should be taken to ensure that the pointing and any external plastering are kept in good order and that all cracks and gaps around cables and ducts entering the building are sealed;
- Providing temporary covers to any low air vents. These covers should be removed once the risk of flooding is over;
- Erecting a temporary barrier in front of any external doors or installing flood protection doors;
- Installing a valve allowing the sewer system to be shut preventing any back flow.

In this instance the risk of flooding is considered to be low and mitigation measures are proposed to ensure that the development remains flood free even during the Q1000 event. As a standard precaution the finished floor level of the buildings should be raised 150mm above the surrounding ground level. Further dry proofing measures are, therefore, not considered necessary. However, wetproofing measures can be considered, where appropriate, for the shower block and the information centre as a matter of good practice which would provide protection against instances, such as a burst water pipe or a faulty sprinkler system.

Wetproofing - Reducing damage once the water has entered.

- Have solid concrete ground floors. Suspended floors are more difficult to clean and dry underneath.
- Have tiled floors or removable rugs in place of fitted carpets in the offices, kitchens and bathrooms.
- Use water resistant render for walls.
- Ceramic tiles can be used for wall coverings especially in the kitchen and the ground floor bathroom.

- Avoid new timber frame internal partition walls in the shower block and information centre. These are expensive to repair and dry.
- Use non water absorbing insulation.
- Use corrosion resistant fittings such as galvanised or stainless steel in place of mild steel.
- Ensure electric cables are fed from above.
- Sockets should be kept away from the floor level.
- Use an appropriate damp proof course.
- Install fridges and freezers with motors high up from the floor.
- Install solid internal and external doors effectively sealed.
- Avoid storage heaters.
- Ensure boilers are off the ground.

Considering the low risk of flooding and that a flood free access and egress from the site will be possible during all considered events, the preparation of a flood response plan is not necessary. The managers of the site should, nevertheless, be vigilant of any Flood Alerts (see Figure 5.1) and the risk of flooding should be reviewed periodically.

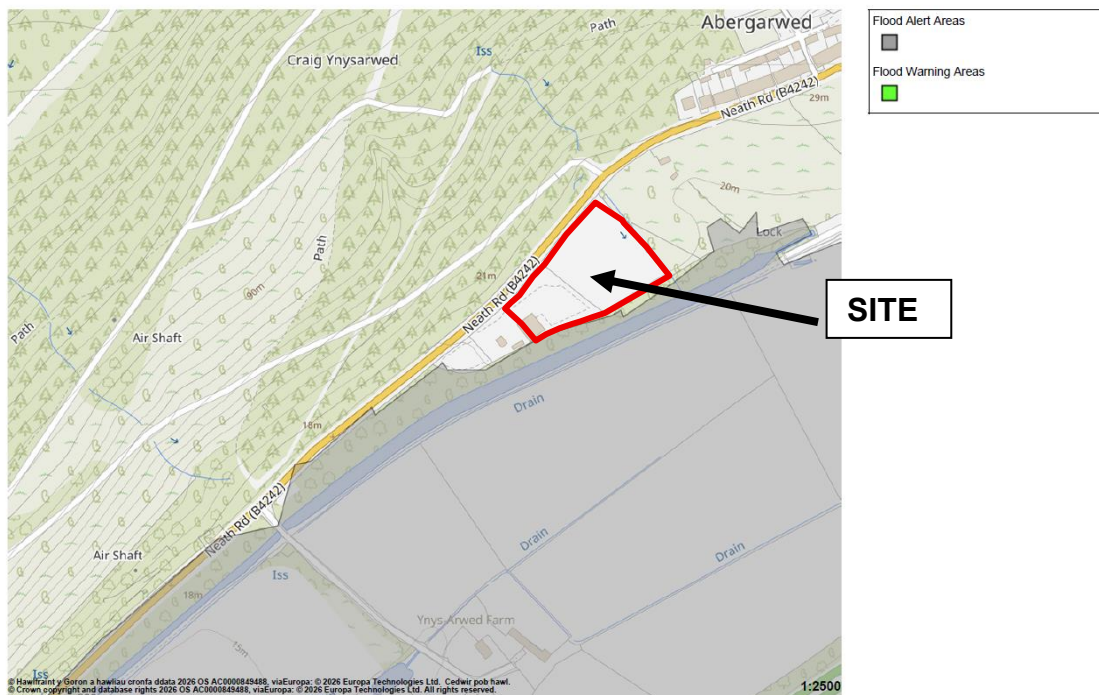


Figure 5.1 – NRW Flood Alert Area

6 CONCLUSIONS AND RECOMMENDATION

Conclusions

The client wishes to develop a Tourism park at the former Abergarwed Service Station by installing 13 lodges, 8 accommodation pods, and a shower block. In addition, it is proposed to convert an existing shed into an information centre to house a meet and greet area, a play area and an ancillary shop. There are concerns, however, that the site could be at risk of flooding with a small area, on the eastern side of the site, located within a Zone 2 flood area, as shown on the Surface Water and Small Watercourse Flood Map For Planning. Francis Sant were, therefore, asked to undertake a Flood Consequence Assessment to evaluate the risk.

As shown on the Flood Map For Planning, a small area, on the eastern side of site, is potentially at risk of flooding during a Q1000 event from surface water pooling due to a dip in the topography. The flood area is connected to the adjacent watercourse and, therefore, can contain an element of flood storage. The area at risk could be removed from the development possibly incorporating it as a location reserved for planting. Alternatively the ground can be raised, with the potential loss of flood storage capacity being compensated for by lowering the ground for a similar area on the other side of the watercourse.

The site is not considered at risk from tidal or river flooding. The site is also not expected to be at risk from reservoir failure, and the risk of ground water flooding is considered to be low.

If possible, the floor level of the proposed information centre and shower block will be raised by 150mm above the surround ground levels and wet proofing measures will be employed, where appropriate, as identified in Section 5.

A Flood Response Plan is not considered necessary at present, but the site's management should remain vigilant to the potential of flooding and the risk should be reviewed periodically. A flood free access route from the site is expected during all considered fluvial events.

A sustainable drainage solution, in accordance with the Welsh Government Standards and the SUDS Manual, should be incorporated into the design. SAB approval will also need to be applied for from the local authority.

A summary of the schemes compliance with TAN 15 is provided in Table 6.1.

Table 6.1 – Compliance With Tan15		
Ref	Criteria	
	What Zone does the development lie in?	Mainly zone Zone 1 and partially Zone 2
	Vulnerability of the development?	Highly vulnerable
	Is the development located on greenfield or developed land?	Part greenfield / part developed
	Is the development flood free during a 1 in 100 fluvial or 1 in 200 tidal events?	Yes
	Is the flood depth less than 600mm during a 1 in 1000 year event?	Yes
	Is the velocity expected to be less than 0.15 for a highly vulnerable development or less than 0.3 for a less vulnerable development during a 1 in 1000 year event?	Yes
	Is there a safe access route?	Yes
	Is the development at risk from costal erosion?	No
	Is the development in a defended zone?	No
	Is there a record of a previous flood event?	No
	Does the development have a detrimental impact on third parties' risk of flooding?	No not with mitigation measures

Recommendations

In developing the site, it is recommended that:

- the finished floor level of the information centre and shower block is set 150mm above the adjacent ground level;
- flood proofing measures, as identified in Section 5, should be considered for inclusion in the scheme;
- consideration should be given for the inclusion of a non return valve on the foul sewer system;
- A sustainable drainage system should be included in the design;
- SAB approval is applied for;
- The ground levels, of the surface water pooling area, is raised with an equivalent area on the eastern side of the small watercourse lowered to compensate for a loss of flood storage on a level for level basis.