

Flood Consequence Assessment for Planning

June 2026

Prepared for:

MRH, MGP & CB Vaughan

Location:

Pant-y-Phillip

Dwrbach

Scleddau

Pembrokeshire

SA65 9RH

Our reference:

97597-Preseli-PantYPhillip



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1. Key Facts

Flood Risk Posed:

- The entire site is shown to be outside Flood Zones 2 and 3 (sea) and Flood Zones 2 and 3 (rivers).
- The site is shown to be partially within Flood Zones 2 and 3 for surface water and small watercourses.
- The location of the proposed Screening and Tipping Area, Wheel Washing and Catchment Pit and Weighbridge are shown to be entirely outside of Flood Zones 2 and 3 for rivers, sea, and surface water and small watercourses.
- The Screened Material Storage Bays are shown to be partially within Flood Zone 2 for surface water and small watercourses.
- For the design flood event (1:100 year plus climate change), all proposed development will be entirely flood free. The only part of the site shown to be within surface water and small watercourse Flood Zone 3 is part of the existing quarry floor.
- No information has been provided to suggest that the site has flooded historically due to groundwater.
- No information has been presented to suggest that the site itself has been affected by sewer flooding.
- The Natural Resources Wales Risk of Flooding from Reservoirs Map suggests that the site lies outside of the "Maximum extent of flooding" from reservoir failure.
- The site is shown to be entirely outside of areas of NRW historic flooding records.

Flood Risk Mitigation:

- The proposed application is for a Recycling yard of inert waste and small associated landfill with option to quarry material.
- Safe escape from the site can be provided. The site access and the A40 south of the site are located entirely outside of Flood Zones 2 and 3 from Rivers, Sea and Surface Water and small watercourses.
- Flood proofing of the development will be incorporated as appropriate.
- A flood warning and evacuation plan will be implemented post development.

Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

2. Introduction

- 2.1. Unda Consulting Limited have been appointed by MRH, MGP & CB Vaughan (hereinafter referred to as “the applicant”) to undertake a Flood Consequence Assessment (FCA) for Planning at Pant-y-Phillip, Dwrbach, Scleddau, Pembrokeshire, SA65 9RH (hereinafter referred to as “the site”). The FCA has been undertaken in accordance with Technical Advice Note 15 (TAN 15) and the associated technical guidance.
- 2.2. The site is located partially within Flood Zones 2 and 3 for surface water and small watercourses as defined by Natural Resources Wales (NRW) on their Flood Map for Planning. Under Technical Advice Note 15 (TAN 15), a FCA is required:
- For any development proposal located fully or partly in Surface Water and Small Watercourses – Flood Zone 2 and 3;
 - For development on sites outside of these zones, but which has the potential to affect the course of surface water and/or excess water from ordinary watercourses;
 - For all applications in Zones 2, 3 and TAN 15 Defended Zones.
- 2.3. Given that the proposed application site is located partially within Flood Zones 2 and 3 for surface water and small watercourses, the applicant is required to submit a FCA under TAN 15. The assessment should demonstrate to the Local Planning Authority (LPA) and NRW how flood risk will be managed now and over the development’s lifetime, taking climate change into account, and with regard to the vulnerability of its potential users. The FCA should demonstrate that the consequences associated with flooding are acceptable.
- 2.4. The objectives of a FCA to support a planning application are to establish:
- Whether the proposed development is likely to be affected by current or future flooding from any source;
 - Whether it will increase flood risk elsewhere;
 - Whether the measures proposed to deal with these effects and risks are appropriate.

3. Existing Site

- 3.1. The site comprises an existing access onto the A40 highway and forms an open flat yard area with a vertical rock face from previous quarry operations. The previous quarry yard area is currently used for agricultural storage purposes.



Figure 1: Aerial imagery and OS Mastermap of the site (Source: Google, OS)



Figure 2: Aerial imagery of the site and surrounding area (Source: Google Earth)

Site Topography:

- 3.2. Welsh Government and NRW LiDAR has been used to assess the topography across the site and wider area. Light Detection and Ranging (LiDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground surface. Up to 100,000 measurements per second are made of the ground, allowing highly detailed terrain models to be generated at high spatial resolutions. The LiDAR technique records an elevation accurate to +/-5cm to 15cm with spatial resolutions ranging from 25cm to 2 metres. This dataset is derived from a combination of the full dataset which has been merged and re-sampled to give the best possible coverage. The dataset can be supplied as a Digital Surface Model (DSM) produced from the signal returned to the LiDAR (which includes heights of objects, such as vehicles, buildings and vegetation, as well as the terrain surface) or as a Digital Terrain Model (DTM) produced by removing objects from the Digital Surface Model. 1.0m horizontal resolution DTM LiDAR data has been used for the purposes of this study.
- 3.3. The site is accessed via the A40 highway and forms an open flat yard area with a vertical rock face from previous quarry operations.
- 3.4. LiDAR remotely sensed digital elevation data suggests that the ground topography in the area of the existing yard area / quarry floor ranges from approximately 65.10mAOD to 68.50mAOD.

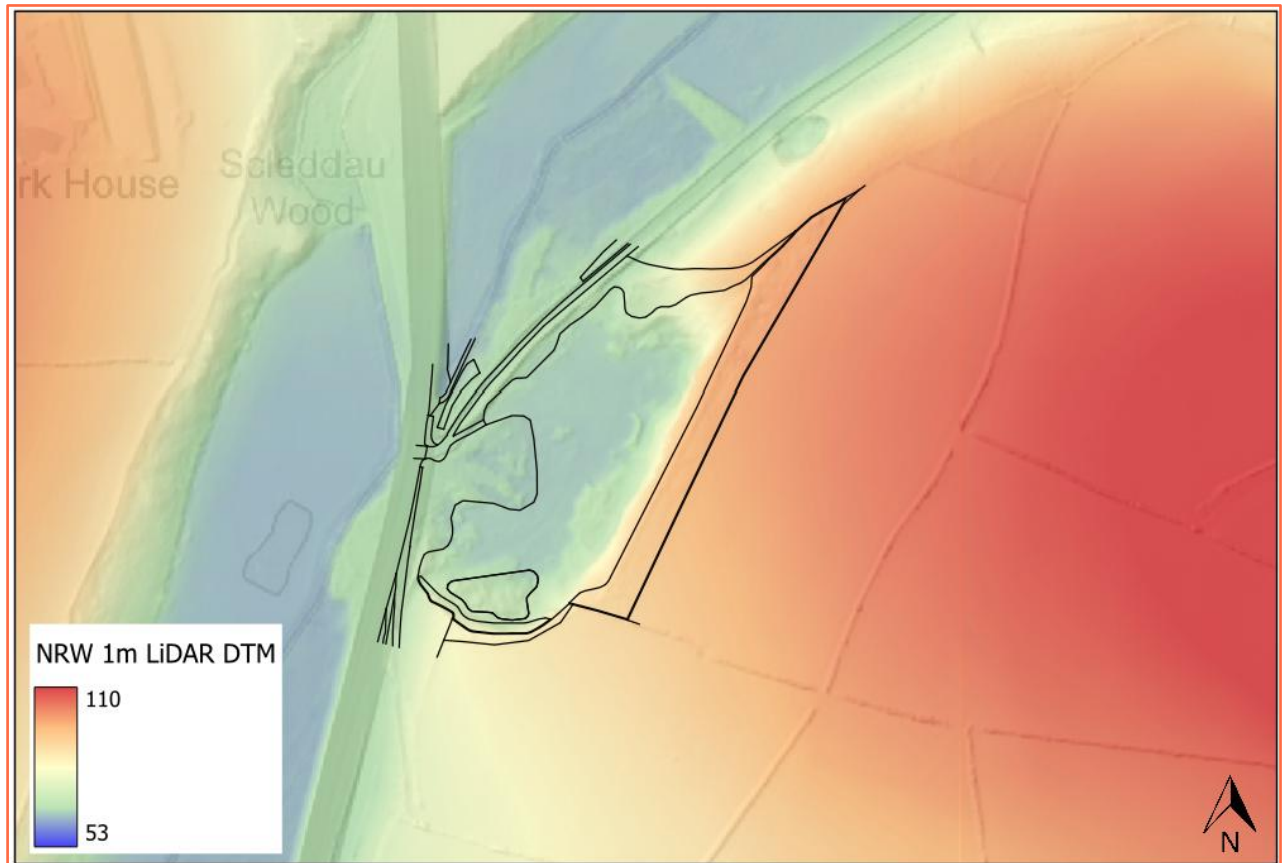


Figure 3: Welsh Government 1m LiDAR DTM, with OS Mastermap overlain (Source: Welsh Government)

4. Development Proposal

- 4.1. The proposed application is for a Recycling yard of inert waste and small associated landfill with option to quarry material.
- 4.2. Proposed plans are provided in the report Appendix.



Figure 4: Proposed site plan (Source: Applicant)

5. Flood Risk Assessment

NRW Flood Zones:

- 5.1. Within planning, Flood Zones refer to the probability of river and sea flooding. They are shown on the Flood Map for Planning.

Zone	Flooding from Rivers	Flooding from the Sea	Flooding from surface water and small watercourses
1	Less than 1 in 1000 (0.1%) (plus climate change) chance of flooding in a given year.		
2	Less than 1 in 100 (1%) but greater than 1 in 1000 (0.1%) chance of flooding in a given year, including climate change.	Less than 1 in 200 (0.5%) but greater than 1 in 1000 (0.1%) chance of flooding in a given year, including climate change.	Less than 1 in 100 (1%) but greater than 1 in 1000 (0.1%) chance of flooding in a given year, including climate change.
3	A greater than 1 in 100 (1%) chance of flooding in a given year, including climate change.	A greater than 1 in 200 (0.5%) chance of flooding in a given year, including climate change.	A greater than 1 in 100 (1%) chance of flooding in a given year, including climate change.
Tan 15 Defended Zones	Areas where flood risk management infrastructure provides a minimum standard of protection against flooding from rivers of 1:100 (plus climate change and freeboard)	Areas where flood risk management infrastructure provides a minimum standard of protection against flooding from the sea of 1:200 (plus climate change and freeboard)	Not applicable.

Table 1: Flood Zones (Source: Tan15)

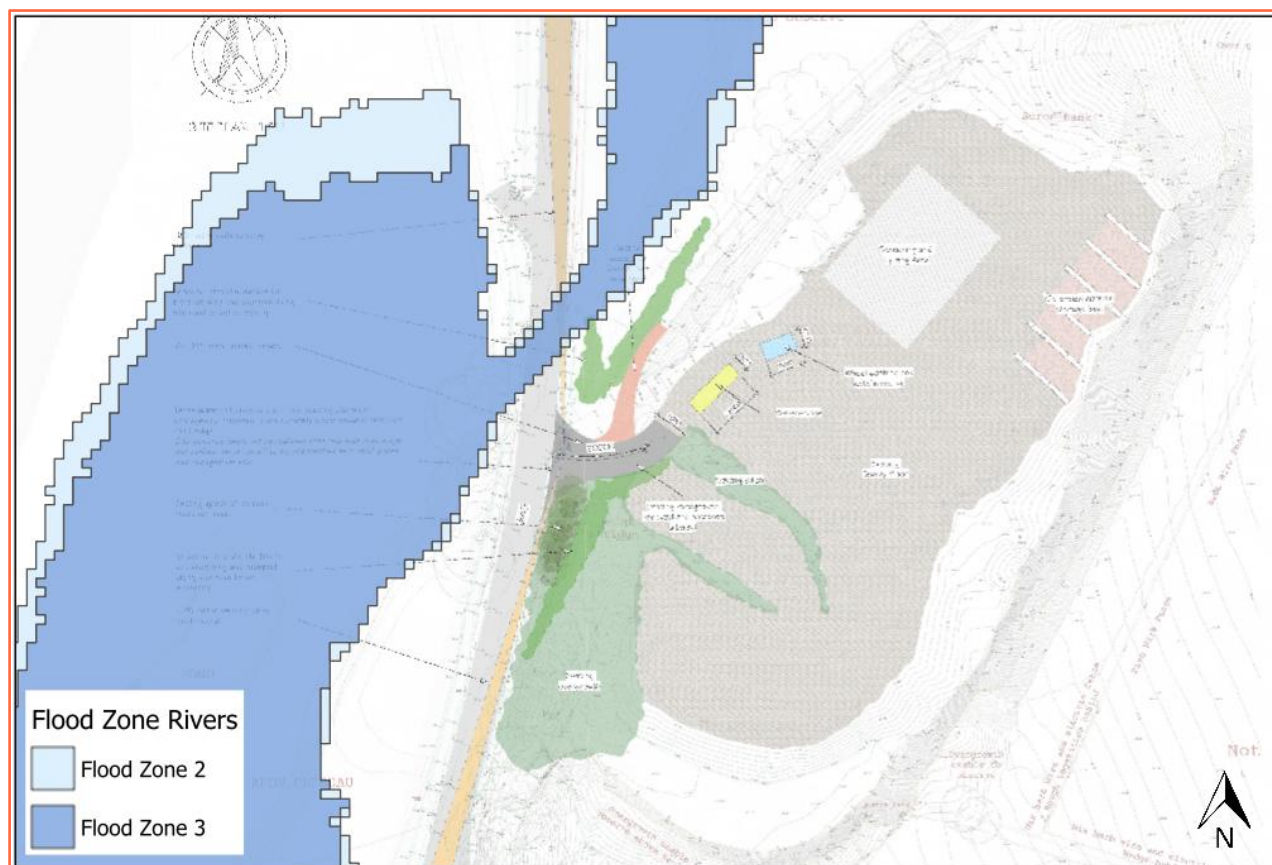


Figure 5: Natural Resource Wales Detailed Flood Map for Planning – Rivers Flood Zones (Source: NRW)

- 5.2. The Flood Zones shown on the Natural Resource Wales Flood Map for Planning include a climate change allowance. The Flood Map for Planning displays predicted future flood risk under the central climate change estimate.
- 5.3. The entire site is shown to be outside of Flood Zones 2 and 3 (sea) and Flood Zones 2 and 3 (rivers).
- 5.4. The site is shown to be partially within Flood Zones 2 and 3 for surface water and small watercourses.
- 5.5. The location of the proposed Screening and Tipping Area, Wheel Washing and Catchment Pit and Weighbridge are shown to be entirely outside of Flood Zones 2 and 3 for rivers, sea, and surface water and small watercourses.
- 5.6. The Screened Material Storage Bays are shown to be partially within Flood Zone 2 for surface water and small watercourses.
- 5.7. Flood Zone 3 displays the extent of flooding from:
- Rivers with a 1% (1 in 100) chance or greater of happening in any given year, including an allowance for climate change.
 - the sea with a 0.5% (1 in 200) chance or greater of happening in any given year, including an allowance for climate change.
 - Surface water & small watercourses with a 1% (1 in 100) chance or greater of happening in any given year, including an allowance for climate change.
- 5.8. Flood Zone 2 displays the extent of flooding from:
- Rivers with less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance of happening in any given year, including an allowance for climate change.
 - the Sea with less than 0.5% (1 in 200) but greater than or equal to 0.1% (1 in 1,000) chance of flooding in any given year, including an allowance for climate change.
 - Surface water & small watercourses with less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance of happening in any given year, including an allowance for climate change.

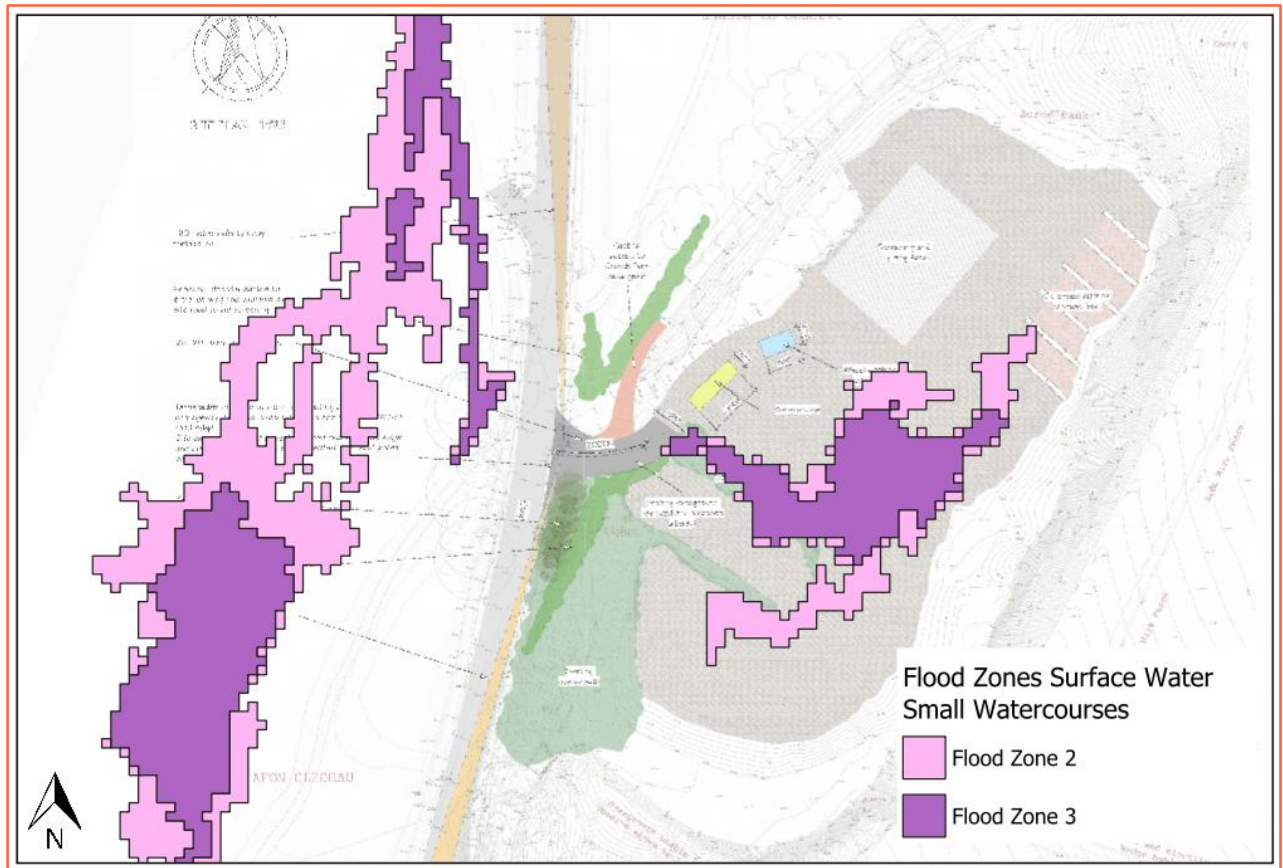


Figure 6: Natural Resource Wales Detailed Flood Map for Planning – Surface Water and Small Watercourses Flood Zones (Source: NRW)

Fluvial / Tidal (River Cleddau):

- 5.9. The River Cleddau (Welsh: Afon Cleddau) consists of the Eastern and Western Cleddau rivers in Pembrokeshire, west Wales. They unite to form the Daugleddau estuary and the harbour of Milford Haven Waterway.
- 5.10. The River Cleddau flows from north to south in this reach, approximately 8m to the northwest of the site entrance.

Detailed Flood Modelling:

- 5.11. The 'NRW Local Model Manager' shows the location of NRW's detailed, local flood models which can be requested from NRW. The NRW Local Model Manager shows no detailed flood model available for the River Cleddau.
- 5.12. TAN15 requires development proposals in flood risk areas to be accompanied by a detailed, site specific FCA that considers a range of climate change scenarios, including upper end estimates for a range of events, up to and including a probability of 0.1% in any year (1 in 1000).
- 5.13. The FCA should demonstrate the impacts of climate change to and from the development over the whole of its lifetime. TAN15 suggests that generally it is reasonable to consider residential development as having a lifetime of 100 years, while a lifetime of 75 years is considered a reasonable rule of thumb for all other developments.
- 5.14. The Flood Map for Planning contains 100-year climate change scenarios. Where new developments will have shorter lifetimes, it is reasonable that the flood consequences assessment focusses on potential risks during the development's expected lifetime.
- 5.15. The development is industrial in nature. The lifetime of the development is therefore considered to be 75 years.

5.16. The minimum expectation is for an FCA to demonstrate the risks/impacts for:

- 1% (1 in 100) fluvial / 0.5% (1 in 200) tidal event + CC (central estimate) as the design event
- 1% (1 in 100) fluvial / 0.5% (1 in 200) + CC (upper estimate) to inform mitigation/resilience measures i.e. sensitivity testing
- 0.1% (1 in 1000) extreme event + CC (central estimate) and show it can meet the tolerable conditions as set out in TAN15
- Surface water and small watercourses risk in zones 2 and 3.

Flood Defences:

5.17. The site is not shown to benefit from the presence of flood defences on the NRW Flood Map for Planning.

Residual Risk (breach or overtopping of flood defences):

5.18. Breaching of flood defences can cause rapid inundation of areas behind flood defences as flow in the river channel discharges through the breach. A breach can occur with little or no warning, although they are much more likely to concur with extreme river levels or tides when the stresses on flood defences are highest. Flood water flowing through a breach will normally discharge at a high velocity, rapidly filling up the areas behind the defences, resulting in significant damage to buildings and a high risk of loss of life. Breaches are most likely to occur in soft defences such as earth embankments although poorly maintained hard defences can also be a potential source of breach.

5.19. Overtopping of flood defences occurs when water levels exceed the protection level of raised flood defences. The worst case occurs when the fluvial or tidal levels exceed the defence level as this can lead to prolonged flooding. Less severe overtopping can occur when flood levels are below defence levels, but wave action causes cyclic overtopping, with intermittent discharge over the crest level of the defence. Flood defences are commonly designed with a freeboard to provide protection against overtopping from waves. The risk from overtopping due to exceedance of the flood defence level is much more significant than the risk posed by wave overtopping. Exceedance of the flood defence level can lead to prolonged and rapid flooding with properties immediately behind the defences at highest risk.

5.20. No raised flood defences act to defend the site from direct inundation, meaning there is negligible residual risk from breach and overtopping of flood defences.

Pluvial (Surface Water and Small Water Courses):

5.21. Pluvial (surface water) flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead.

5.22. The mapping below shows the Flood Risk from Surface Water & Small Watercourses centred on the site. Please note that NRW do not consider this information suitable to be used to identify the risk to individual properties or sites. It is useful to raise awareness in areas which may be at risk and may require additional investigation.

5.23. The site is shown to be partially within Flood Zones 2 and 3 for surface water and small watercourses.

5.24. The location of the proposed Screening and Tipping Area, Wheel Washing and Catchment Pit and Weighbridge are shown to be entirely outside of Flood Zones 2 and 3 for rivers, sea, and surface water and small watercourses.

5.25. The Screened Material Storage Bays are shown to be partially within Flood Zone 2 for surface water and small watercourses.

5.26. The Flood Zones shown on the Natural Resource Wales Flood Map for Planning include a climate change allowance. The Flood Map for Planning displays predicted future flood risk under the central climate change estimate.

- 5.27. The Flood Map for Planning contains 100-year climate change scenarios.
- 5.28. The development is industrial in nature. The lifetime of the development is therefore considered to be 75 years.
- 5.29. All proposed development is located outside of the surface water and small watercourses with a 1% (1 in 100) chance or greater of happening in any given year, including an allowance for climate change.
- 5.30. As such, for the design flood event (1:100 year plus climate change), all proposed development will be entirely flood free. The only part of the site shown to be within surface water and small watercourse Flood Zone 3 is part of the existing quarry floor.
- 5.31. A small part of the most southern of the Screened material storage bays is shown to be within an area with Surface water and small watercourses with less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance of happening in any given year, including an allowance for climate change.
- 5.32. No information has been provided to suggest that the site has flooded historically due to surface water flooding.

Groundwater:

- 5.33. Groundwater flooding occurs as a result of water rising up from the underlying rocks or from water flowing from abnormal springs. This tends to occur after much longer periods of sustained high rainfall. Higher rainfall means more water will infiltrate into the ground and cause the water table to rise above normal levels. Groundwater tends to flow from areas where the ground level is high, to areas where the ground level is low. In low-lying areas the water table is usually at shallower depths anyway, but during very wet periods, with all the additional groundwater flowing towards these areas, the water table can rise up to the surface causing groundwater flooding.
- 5.34. Groundwater flooding is most likely to occur in low-lying areas underlain by permeable rocks (aquifers). These may be extensive, regional aquifers, such as chalk or sandstone, or may be localised sands or river gravels in valley bottoms underlain by less permeable rocks. Groundwater flooding takes longer to dissipate because groundwater moves much more slowly than surface water and will take time to flow away underground.
- 5.35. No information has been provided to suggest that the site has flooded historically due to groundwater.

Sewer:

- 5.36. Sewer flooding occurs when the sewer network cannot cope with the volume of water that is entering it. It is often experienced during times of heavy rainfall when large amounts of surface water overwhelm the sewer network causing flooding. Temporary problems such as blockages, siltation, collapses and equipment or operational failures can also result in sewer flooding.
- 5.37. All Water Companies have a statutory obligation to maintain a register of properties/areas which have reported records of flooding from the public sewerage system, and this is shown on the DG5 Flood Register. This includes records of flooding from foul sewers, combined sewers and surface water sewers which are deemed to be public and therefore maintained by the Water Company. The DG5 register records of flood incidents resulting in both internal property flooding and external flooding incidents. Once a property is identified on the DG5 register, water companies can typically put funding in place to address the issues and hence enable the property to be removed from the register. It should be noted that flooding from land drainage, highway drainage, rivers/watercourses and private sewers is not recorded within the register.
- 5.38. No information has been presented to suggest that the site itself has been affected by sewer flooding.

Other Sources:

- 5.39. The Natural Resources Wales Risk of Flooding from Reservoirs Map suggests that the site lies outside of the "Maximum extent of flooding" from reservoir failure. The Natural Resources Wales also advise on their website that reservoir flooding is extremely unlikely. All major reservoirs have to be inspected by specialist dam and reservoir Engineers. These inspections are monitored and enforced by the Natural Resources Wales themselves. The risk to the site from reservoir flooding is therefore minimal and is far lower than that relating to the potential for fluvial flooding to occur.
- 5.40. There do not appear to be any further artificial (man-made) sources of flood risk (such as raised canals) in the vicinity of the site.

Historical Flood Events:

- 5.41. The site is shown to be entirely outside of areas of NRW historic flooding records.

6. Flood Risk Management

Vulnerability to Flooding:

- 6.1. TAN15 classifies property usage by vulnerability to flooding.
- 6.2. The application is for a Recycling yard of inert waste and small associated landfill with option to quarry material.
- 6.3. Under TAN15, the proposed development is considered both “Less vulnerable development” (general industrial, mineral extraction sites and associated processing facilities (excluding waste disposal sites), and “Highly vulnerable development” (waste disposal sites).
- 6.4. Particular flooding consequences may not be acceptable for particular types of development. For example, allowing residential development in areas which are subject to high risks of flooding can result in a traumatic impact on people’s lives. The precautionary framework identifies the vulnerability of different land uses to flooding, and for this purpose, development has been subdivided into three categories:

Development category	Types
Highly vulnerable development	• All residential premises (including hotels, Gypsy and Traveller sites, caravan parks and camping sites) • Schools and childcare establishments, colleges and universities. • Hospitals and GP surgeries. • Especially vulnerable industrial development (e.g. power generating and distribution elements of power stations, transformers, chemical plants, incinerators), and waste disposal sites. • Emergency services, including: ambulance stations, fire stations, police stations, command centres, emergency depots. • Buildings used to provide emergency shelter in time of flood.
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). • Public buildings including libraries, community centres and leisure centres (excluding those identified as in Highly Vulnerable category and emergency shelters). • Places of worship. • Cemeteries. • Equipped play areas. • Renewable energy generation facilities (excluding hydro generation).
Water compatible development	• Boatyards, marinas and essential works required at mooring basins. • Development associated with canals. • Flood defences and management infrastructure. • Open spaces (excluding equipped play areas). • Hydro renewable energy generation.

Table 2: Development vulnerability classification (Source: TAN15)

- 6.5. Highly vulnerable development is development where the ability of occupants to decide on whether they wish to accept the risks to life and property associated with flooding, or be able to manage the consequences of such a risk, is limited. It also includes those industrial uses where there would be an attendant risk to the public and the water environment should the site be inundated. Emergency services and local authority command centres need to be operational and accessible at all times and are therefore also considered highly vulnerable.
- 6.6. Less vulnerable development is development where the ability of occupants to decide if risks and consequences are acceptable is greater than that in the highly vulnerable category.

- 6.7. Water compatible developments include developments which are required to be in a fluvial, tidal or coastal location by virtue of their nature, and developments which are resilient to the effects of occasional flooding.
- 6.8. The list is not exhaustive therefore decision makers should apply professional judgement when considering development categories not explicitly listed.
- 6.9. It is understood that the application seeks to re-use the historic quarry site for the purposes of storing / recovery and re-use of inert waste from building sites in the locality. Once taken to site the material is intended to be screened / separated / stored and re-sold. For example unwanted concrete products from development sites would be taken to the site and could be crushed and re-used for aggregate purposes. Should there be any waste which cannot be reused (in accordance with the waste hierarchy, which would be of a limited amount) this could be reused as a buttress to add stability to the existing rock face that exists from the historic quarry activities.
- 6.10. As such, while a waste disposal site would be considered to be “highly vulnerable development” under TAN15, the usage of the development is predominantly recycling / recovery which is more analogous to a general industrial or mineral processing use (Less Vulnerable).

Acceptability criteria for flooding consequences:

Frequency thresholds: designing development to be flood free:

- 6.11. In accordance with TAN15 there is a frequency threshold of flooding below which flooding of development should not be allowed. The following table, taken from TAN15, provides indicative guidance as to what the frequency threshold could be for different types of development in terms of annual probability of occurrence:

Vulnerability Categories		Flood event type	
		Rivers	Sea
Highly vulnerable development	Emergency services (command centres and hubs)	0.1%+CC (1 in 1,000)	0.1%+CC (1 in 1,000)
	All Other types	1%+CC (1 in 100)	0.5%+CC (1 in 200)
Less vulnerable development		1%+CC (1 in 100)	0.5%+CC (1 in 200)
Water compatible development that may be occupied by people		1%+CC (1 in 100)	0.5%+CC (1 in 200)

Table 3: Flood events in which development must be flood-free

- 6.12. The TAN15 Frequently Asked Question document (March 2026) states that whilst it is acknowledged that TAN15 does not explicitly define thresholds for small water course and surface water flooding, thresholds relating to river flooding can be applied.
- 6.13. The development is classified as both “Less Vulnerable Development” and “Highly Vulnerable Development”.
- 6.14. All development must be designed to be flood free during the 1% river flood (i.e. a flood with a 1 in 100 chance of occurring in any year) and the 0.5% flood from the sea (i.e. a flood with a 1 in 200 chance of occurring in any year), plus an allowance for climate change over the lifetime of development.
- 6.15. All proposed development is located outside of the surface water and small watercourses with a 1% (1 in 100) chance or greater of happening in any given year, including an allowance for climate change.
- 6.16. As such, for the design flood event (1:100 year plus climate change), all proposed development will be entirely flood free. The only part of the site shown to be within surface water and small watercourse Flood Zone 3 is part of the existing quarry floor.

6.17. As such, the development is entirely flood free during the lifetime of the development.

Tolerable conditions: managing consequences in an extreme event:

6.18. During extreme flood events there is recognition that it may not be possible to keep all development flood-free. In these circumstances it is imperative that flooding does not endanger life, therefore it must be demonstrated that conditions within the development during an extreme event will be tolerable.

6.19. The table below indicates the maximum tolerable flood depth and velocity conditions for highly vulnerable and less vulnerable development when assessed against the 0.1% extreme flood event, including an allowance for climate change.

Types of development	Maximum depth of flooding (mm)	Maximum velocity of flood waters (metres/sec)
Highly vulnerable development	600	0.15
Less vulnerable development		
Infrastructure associated with highly vulnerable development e.g. car parks, access, paths and roads	600	0.3
Water compatible development (limited to those built elements of development that may be occupied by people)		

Table 4: Tolerable conditions in an extreme flood event

6.20. A small part of the most southern of the Screened material storage bays is shown to be within an area with Surface water and small watercourses with less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance of happening in any given year, including an allowance for climate change.

Physical Design Measures:

6.21. The location of the proposed Screening and Tipping Area, Wheel Washing and Catchment Pit and Weighbridge are shown to be entirely outside of Flood Zones 2 and 3 for rivers, sea, and surface water and small watercourses.

6.22. The Screened Material Storage Bays are shown to be partially within Flood Zone 2 for surface water and small watercourses.

6.23. To help protect against flooding during extreme events, the applicant has agreed to implement flood resistant design measures into the development where practical and feasible, in consultation with the Local Authority building control department. These measures can include where practical and feasible into any weighbridge office, workshop, welfare building and plant room:

- Raised wiring and power outlets at least 600mm above ground floor level;
- Electrical incomer and meter situated at least 600mm above ground floor level;
- Boilers, control and water storage / immersion installed at least 600mm above ground floor level;
- Gas meter installed at least 600mm above ground floor level;
- Plumbing insulation of closed-cell design;
- Non-return valves fitted to all drain and sewer outlets;
- Manhole covers secured.

Safe Escape:

- 6.24. TAN 15 requires a route of safe escape for all residents and users to be provided from new developments in Flood Zone 2, Flood Zone 3 and TAN 15 Defended Zones.
- 6.25. The entire site is shown to be outside of Flood Zones 2 and 3 (sea) and Flood Zones 2 and 3 (rivers).
- 6.26. The site is shown to be partially within Flood Zones 2 and 3 for surface water and small watercourses.

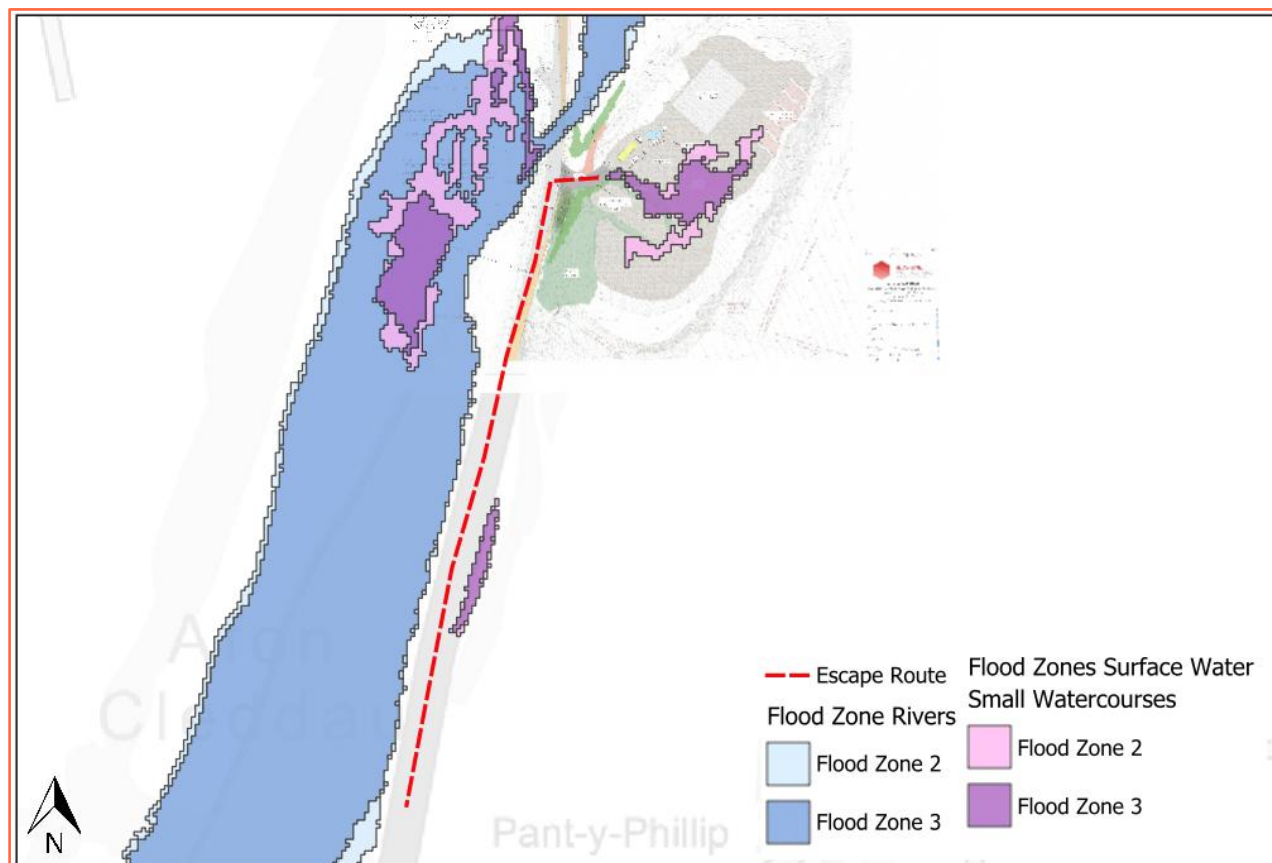


Figure 7: Proposed Escape Route

- 6.27. The site access and the A40 south of the site are located entirely outside of Flood Zones 2 and 3 from Rivers, Sea and Surface Water and small watercourses.
- 6.28. Safe escape will be provided by a formal flood warning and evacuation plan.
- 6.29. Owners, occupants and users should follow the warning and evacuation procedure detailed in the following section.

Flood Warning:

- 6.30. The NRW is responsible for issuing flood warnings. Flood warnings are issued to the emergency services and local authorities. Both private individuals and organisations can sign-up to receive warnings via phone, text or email. This system of receiving warnings is currently voluntary.
- 6.31. Advice regarding severe flood warnings will generally be given during weather forecasts on local radio and TV. In the case of extreme events, warnings can also be disseminated via door to door visits by the police or locally appointed flood wardens.

- 6.32. The applicant has agreed to implement a flood warning and evacuation plan post development, and subscribe to the NRW's flood warning service.
- 6.33. The site is shown to lie in close proximity to the Western Cleddau Flood Alert Area. The NRW issue flood warnings to specific areas when flooding is expected. It is recommended that the applicant registers online with the free NRW Floodline Warnings Direct service at <https://naturalresources.wales/flooding/sign-up-to-receive-flood-warnings/?lang=en> to receive flood warnings by phone, text or email.
- 6.34. Flood warning notices will be erected around the site to inform site users of the risk of flooding, and the flood warning and evacuation measures.

Flood Warning	Flood Alert	Flood Warning	Severe Flood Warning
			
What it means?	Flooding is possible. Be prepared.	Flooding is expected. Immediate action required.	Severe flooding. Danger to life.
When it's used?	Two hours to two days in advance of flooding.	Half an hour to one day in advance of flooding.	When flooding poses a significant threat to life.
What to do?	Be prepared to act on your flood plan. Prepare a flood kit of essential items. Monitor local water levels and the flood forecast on our website.	Move family, pets and valuables to a safe place. Turn off gas, electricity and water supplies if safe to do so. Put flood protection equipment in place.	Stay in a safe place with a means of escape. Be ready should you need to evacuate from your home. Co-operate with the emergency services. Call 999 if you are in immediate danger.

Table 5: Flood Warnings

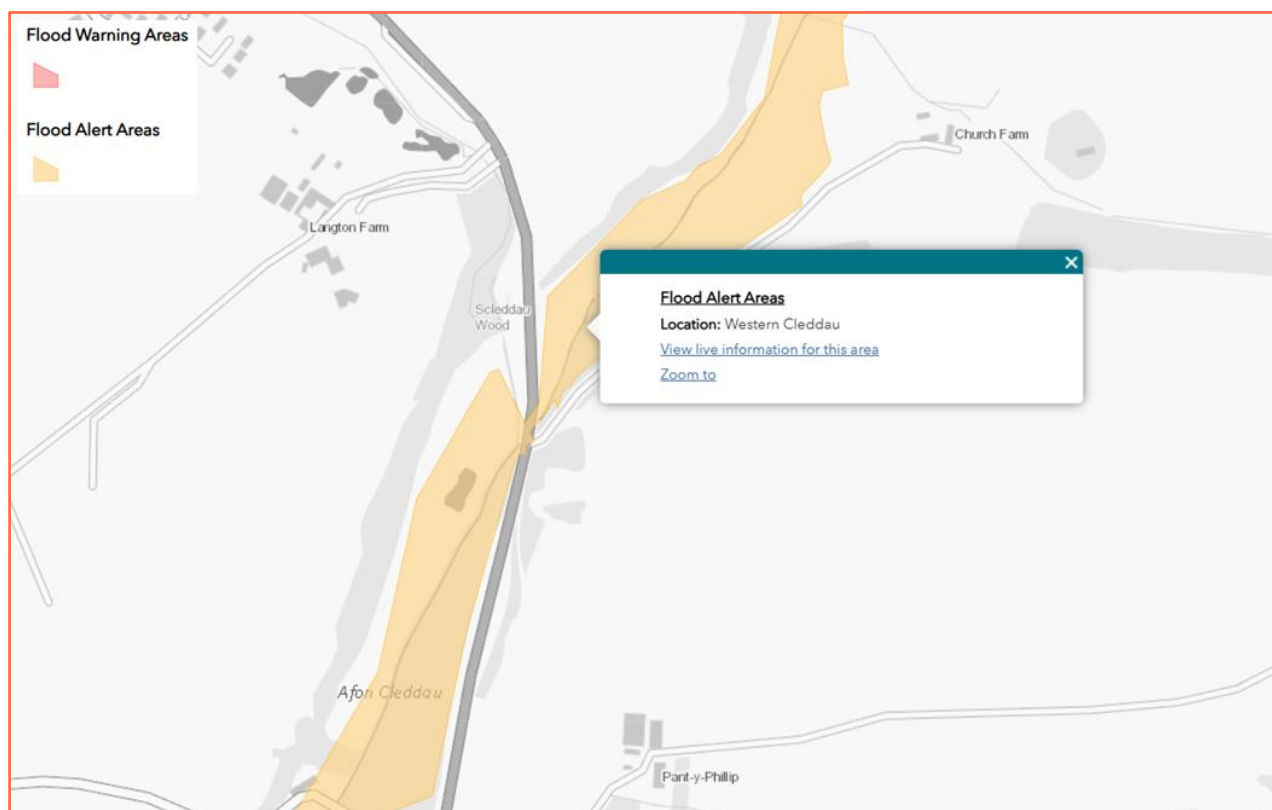


Figure 8: NRW Flood Warning and Flood Alert Areas (Source: NRW)

Flood Plan:

- 6.35. It is recommended that the applicant and future owners, occupiers and Landlords of the Recycling yard of inert waste and small associated landfill with option to quarry material prepare a flood plan to protect life and property during a flood event:

Action	
Before a flood	• Prepare and keep a list of all your important contacts to hand or save them on your mobile phone. • Think about what items you can move now and what you would want to move to safety during a flood. • Know how to turn off electricity and water supplies to the site. • Prepare a flood kit of essential items and keep it handy. It can include copies of important documents, a torch, a battery-powered or wind-up radio, blankets and warm clothing, waterproofs, rubber gloves and a first aid kit including all essential medication.
During a flood	• Activate the evacuation plan and evacuate the site. • Remove cars from the site if there is sufficient warning and the water levels are not rising rapidly. • Switch off water and electricity for the site. • Tune into your local radio station on a battery or wind-up radio. • Listen to the advice of the emergency service and evacuate if told to do so. • Avoid walking or driving through flood water. Six inches of fast-flowing water can knock over an adult and two feet of water can move a car.
After a flood	• If you have flooded, contact your insurance company as soon as possible. • Take photographs and videos of your damaged property as a record for your insurance company. • If you don't have insurance, contact your local authority for information on grants and charities that may help you. • Flood water can contain sewage, chemicals and animal waste. Always wear waterproof outerwear, including gloves, wellington boots and a face mask. • Have your electrics and water checked by qualified engineers before switching them back on.

Table 6: Flood plan

Off-Site Impacts:

Floodplain Storage:

- 6.36. TAN15 requires that where development is proposed in undefended areas of floodplain, which lie outside of the functional floodplain, the implications of ground raising operations for flood risk elsewhere needs to be considered. Raising existing ground levels may reduce the capacity of the floodplain to accommodate floodwater and increase the risk of flooding by either increasing the depth of flooding to existing properties at risk or by extending the floodplain to cover properties normally outside of the floodplain. Flood storage capacity can be maintained by lowering ground levels either within the curtilage of the development or elsewhere in the floodplain, in order to maintain at least the same volume of flood storage capacity within the floodplain.
- 6.37. In undefended tidal areas, raising ground levels is unlikely to impact on maximum tidal levels so the provision of compensatory storage should not be necessary.
- 6.38. For development in a defended flood risk area, the impact on residual flood risk to other properties needs to be considered. New development behind flood defences can increase the residual risk of flooding if the flood defences are breached or overtopped by changing the conveyance of the flow paths or by displacing flood water elsewhere. If the potential impact on residual risk is unacceptable then mitigation should be provided.
- 6.39. TAN15 states that the provision of compensatory floodplain is an effective way of avoiding detrimental impacts elsewhere, but is not always a feasible option. Increasing the risk or severity of flooding elsewhere may be acceptable where the impact is on undeveloped or unoccupied land.
- 6.40. TAN15 states that the FCA should assess various flood return periods up to and including the 0.1% extreme flood event plus climate change over the lifetime of development. Any flood storage lost should be compensated on a 'like for like' and 'level for level' basis where feasible. The likely impact of any displaced water elsewhere should also be assessed. Where the provision of compensatory floodplain storage is not a feasible option, increasing the risk or severity of flooding elsewhere may be acceptable where the impact is on undeveloped or unoccupied land.
- 6.41. The location of the proposed Screening and Tipping Area, Wheel Washing and Catchment Pit and Weighbridge are shown to be entirely outside of Flood Zones 2 and 3 for rivers, sea, and surface water and small watercourses.
- 6.42. The Screened Material Storage Bays are shown to be partially within Flood Zone 2 for surface water and small watercourses. A small part of the most southern of the Screened material storage bays is shown to be within an area with Surface water and small watercourses with less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance of happening in any given year, including an allowance for climate change.
- 6.43. There will be no unacceptable loss of floodplain storage.

Surface Water Drainage:

- 6.44. The development will utilise Sustainable Urban Drainage (SuDs) design in accordance with TAN15 hierarchy as follows:
1. Surface water runoff is collected for use
 2. Surface water runoff is infiltrated to ground
 3. Surface water runoff is discharged to a surface water body i.e. watercourse
 4. Surface water runoff is discharged to a surface water sewer, highway drain, or another drainage system
 5. Surface water runoff is discharged to a combined sewer.
- 6.45. From 7 January 2019, all new developments of more than 1 dwelling house or where the construction area is 100m² or more, will require Sustainable Drainage Systems (SuDS) for surface water.

7. Discussion and Conclusion

- 7.1. Unda Consulting Limited have been appointed by MRH, MGP & CB Vaughan to undertake a Flood Consequence Assessment for the proposed development at Pant-y-Phillip, Dwrbach, Scleddau, Pembrokeshire, SA65 9RH. The purpose of the study is to support a planning application for the proposed development.
- 7.2. The site comprises an existing access onto the A40 highway and forms an open flat yard area with a vertical rock face from previous quarry operations. The previous quarry yard area is currently used for agricultural storage purposes.
- 7.3. The proposed application is for the Recycling yard of inert waste and small associated landfill with option to quarry material.
- 7.4. Under TAN15, the proposed development is considered both “Less vulnerable development” (general industrial, mineral extraction sites and associated processing facilities (excluding waste disposal sites), and “Highly vulnerable development” (waste disposal sites).
- 7.5. The entire site is shown to be outside of Flood Zones 2 and 3 (sea) and Flood Zones 2 and 3 (rivers).
- 7.6. The site is shown to be partially within Flood Zones 2 and 3 for surface water and small watercourses.
- 7.7. The location of the proposed Screening and Tipping Area, Wheel Washing and Catchment Pit and Weighbridge are shown to be entirely outside of Flood Zones 2 and 3 for rivers, sea, and surface water and small watercourses.
- 7.8. The River Cleddau flows from north to south in this reach, approximately 8m to the northwest of the site entrance.
- 7.9. The ‘NRW Local Model Manager’ shows the location of NRW’s detailed, local flood models which can be requested from NRW. The NRW Local Model Manager shows no detailed flood model available for the River Cleddau.
- 7.10. TAN15 requires development proposals in flood risk areas to be accompanied by a detailed, site specific FCA that considers a range of climate change scenarios, including upper end estimates for a range of events, up to and including a probability of 0.1% in any year (1 in 1000).
- 7.11. The FCA should demonstrate the impacts of climate change to and from the development over the whole of its lifetime. TAN15 suggests that generally it is reasonable to consider residential development as having a lifetime of 100 years, while a lifetime of 75 years is considered a reasonable rule of thumb for all other developments.
- 7.12. The Flood Map for Planning contains 100-year climate change scenarios. Where new developments will have shorter lifetimes, it is reasonable that the flood consequences assessment focusses on potential risks during the development’s expected lifetime.
- 7.13. The development is industrial in nature. The lifetime of the development is therefore considered to be 75 years.
- 7.14. The site is not shown to benefit from the presence of flood defences on the NRW Flood Map for Planning.
- 7.15. All proposed development is located outside of the surface water and small watercourses with a 1% (1 in 100) chance or greater of happening in any given year, including an allowance for climate change.
- 7.16. As such, for the design flood event (1:100 year plus climate change), all proposed development will be entirely flood free. The only part of the site shown to be within surface water and small watercourse Flood Zone 3 is part of the existing quarry floor.

- 7.17. A small part of the most southern of the Screened material storage bays is shown to be within an area with Surface water and small watercourses with less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance of happening in any given year, including an allowance for climate change.
- 7.18. No information has been provided to suggest that the site has flooded historically due to surface water flooding.
- 7.19. No information has been provided to suggest that the site has flooded historically due to groundwater.
- 7.20. No information has been presented to suggest that the site itself has been affected by sewer flooding.
- 7.21. The Natural Resources Wales Risk of Flooding from Reservoirs Map suggests that the site lies outside of the "Maximum extent of flooding" from reservoir failure.
- 7.22. The site is shown to be entirely outside of areas of NRW historic flooding records.
- 7.23. Safe escape from the site can be provided. The site access and the A40 south of the site are located entirely outside of Flood Zones 2 and 3 from Rivers, Sea and Surface Water and small watercourses.
- 7.24. Safe escape will be provided by a formal flood warning and evacuation plan.

In Summary:

- The proposed application is for a Recycling yard of inert waste and small associated landfill with option to quarry material.
- The entire site is shown to be outside of Flood Zones 2 and 3 (sea) and Flood Zones 2 and 3 (rivers).
- The site is shown to be partially within Flood Zones 2 and 3 for surface water and small watercourses.
- The location of the proposed Screening and Tipping Area, Wheel Washing and Catchment Pit and Weighbridge are shown to be entirely outside of Flood Zones 2 and 3 for rivers, sea, and surface water and small watercourses.
- For the design flood event (1:100 year plus climate change), all proposed development will be entirely flood free. The only part of the site shown to be within surface water and small watercourse Flood Zone 3 is part of the existing quarry floor.
- Safe escape from the site can be provided. The site access and the A40 south of the site are located entirely outside of Flood Zones 2 and 3 from Rivers, Sea and Surface Water and small watercourses.
- Flood proofing of the development will be incorporated as appropriate.
- A flood warning and evacuation plan will be implemented post development.

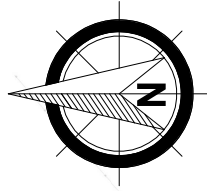
Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

Unda Consulting Limited
June 2026

Appendix

A – Development Plans:

- Plans and Drawings – Applicant.



SITE PLAN - 1:500

