



Project Title: 00283 Unit 11 Edwards Yard, Llandarcy

Product: Bespoke Flood Evacuation Plan

Date: 16 July 2023

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This flood evacuation plan has been undertaken using datasets made available at the time of writing this report.

Report Revision Log

Report Reference	Date Issued	Issued To	Notes
00283 Unit 11 Edwards Yard	17/07/2023	Client	

1. INTRODUCTION

1.1. PURPOSE OF THE REPORT

FloodPlan have been commissioned on behalf of Mr A. Randall to produce a Flood Evacuation Plan (FEP) for a site at 11 Edwards Yard, Llandarcy, Neath, SA10 6JY. This assessment has been conducted with the understanding that the document will be used as part of a planning permission proposal by Mr A. Randall.

1.2. LOCATION OF SUBJECT SITE

The site is located a site at 11 Edwards Yard, Llandarcy, Neath, SA10 6JY. The site is located to the west of the M4. Access to the site is gained via Junction 43 of the M4 motorway.

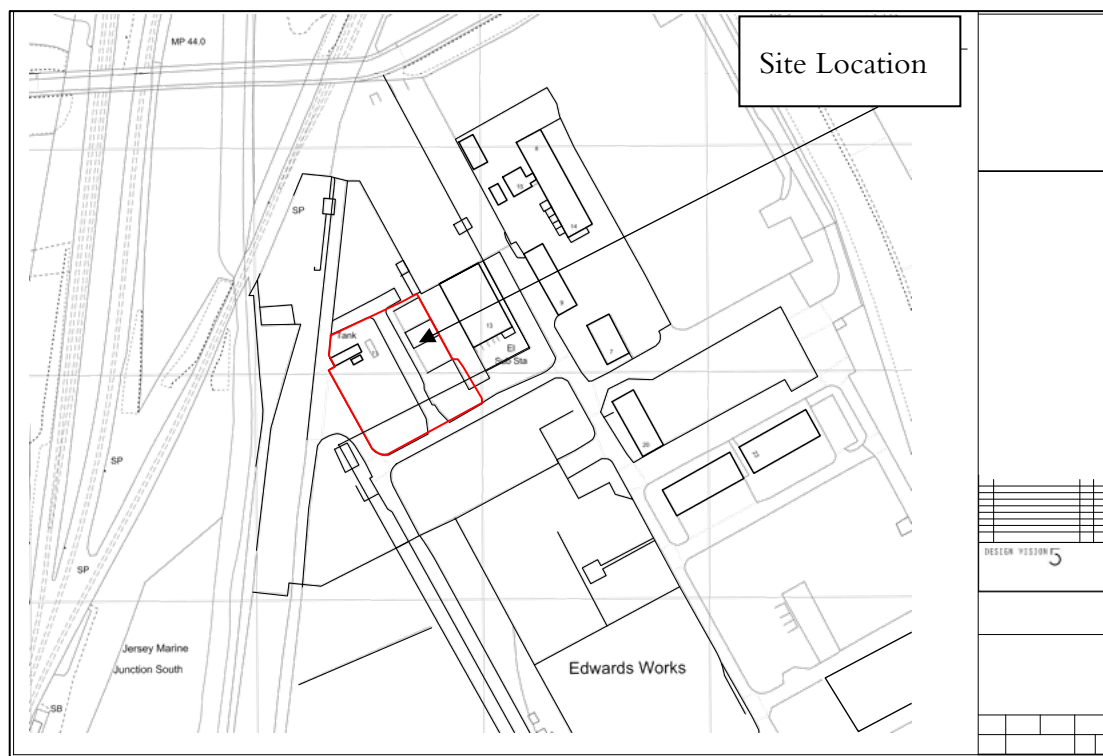


Figure 1: Site Location

1.3. SITE DETAILS

The existing site is largely hardstanding and is used for commercial purposes. The development proposes the construction of an industrial storage unit and a portacabin office unit. Development plans can be seen below and in Appendix A. The site is primarily at risk from tidal sources. Site specific flood risk assessment can be seen in Appendix B. The development proposes the construction of an industrial use unit. The development is expected to be in situ for 75 years (2098).

2. FLOOD WARNINGS

2.1. INTRODUCTION TO FLOOD WARNINGS

Natural Resources Wales provide a flood warning service for areas believed to be at risk from fluvial or tidal flooding (Wales only). The service runs 24 hours a day, 7 days a week, 365 days a year. The NRW flood warning website can be found linked below:

<https://flood-warning.naturalresources.wales>

2.2. FLOOD WARNING TIER SYSTEM

Flood Alert: Flooding is possible, be prepared.

- Prepare flood kit of essential items
- monitor local river levels and 5 day flood risk.

Flood Warning: Flooding is expected,

- move family, pets and valuables to a safe place.
- Turn off gas, electricity, and water supplies if it is safe to do so.
- Put flood protection equipment in place.

Severe Flood Warnings: Severe flooding, danger to life.

- Stay in a safe place with means of escape
- Be ready to leave your home
- Cooperate with the emergency services
- Call 999 if you are in immediate danger

*If there is an emergency that threatens life the Emergency Services (999) should be the first point of contact.

2.3. FLOOD WARNING SERVICE

Flood Warnings is a free service that is conducted directly by NRW. This service provides warnings to businesses and property owners via telephone, text, and emails. It is strongly recommended that users (staff) of the facility are signed up to receive this service. Link below:

<https://naturalresources.wales/flooding/sign-up-to-receive-flood-warnings/?lang=en>

2.4. FLOOD WARNING LEAD TIME

Lead times can vary wildly depending on variables such as catchment, flood type. Tidal and forecasted heavy rainfall events can be predicted consistently.

3. PRE-FLOOD OBJECTIVES

3.1. HAZARDOUS MATERIALS

The applicant may house hazardous materials on site. A conscious effort should be made to ensure that chemicals, oils etc are above the predicted flood level and therefore do not enter the flood water.

3.2. INSURANCE

The applicant may wish to include flood protection, business interruption and loss of revenue insurance. An effort should be made to ensure that the policy kept updated with any potential future changes to the facility.

3.3. BUILDING MATERIALS

If applicable, it is recommended that any building works be conducted with respect to CIRIA published document 'code of practice for property flood resilience (C790)'. For existing buildings, consideration should be given to the improvement of facilities and the ease of 'cleanup' post flooding.

3.4. PREPARING FOR POST FLOOD

Consideration should be given to having contact information for persons available to return the facility to an operational state post flood. The quicker the clean-up can be done, the sooner the facility can be returned to operation. It is recommended to have a list of contractors who have viewed the property pre flood and understand the predicted scope of works.

3.5. FLOOD KIT

Flood kits should be prepared and kept on site in accessible locations. A schedule of inspection should be kept ensuring items are not damaged, missing or out of date. Ideally these should be left in an area that is above the predicted flood level and out of the reach of children.

Items to be included within a flood kit:

- First Aid Kit
- Wind up torches
- Bottled water
- Wind up radio
- A fully charged mobile phone
- Tinned or non-perishable foods
- Blankets
- Waterproof clothing

Items to be included within a typical first aid kit:

- Scissors

- Antiseptic wipes
- Cleansing wipes
- Tweezers
- Bandages
- Safety pins
- Sterile eye dressing
- Medical gloves
- Plasters (Including non-allergic)

3.6. CONTACT DETAILS

The site owner/manager should have the contact details of all tenants, staff, site users where possible. Contact details may include mobile phone numbers, landline numbers. Special consideration should be given to those most vulnerable, elderly, disabled etc. Some standard forms have been included within Appendix B. These should be used as a guide and doctored to suit.

3.7. KEY EQUIPMENT

The site users should know where key locations are on the premises and how to operate safely. Locations such as cut off points for gas, electric and water. Other key equipment such as flood protection equipment such as sandbags, flood barriers etc should be stored in easily accessible places to be deployed in the event of a flood. Please ensure that persons responsible for deploying these devices are adequately trained and risk assessed. For deploying temporary flood protection equipment, please follow advice set out by CIRIA publishes guidance ‘Code of practice for property flood resilience (C790)’. link below:

<https://naturalresources.wales/flooding/sign-up-to-receive-flood-warnings/?lang=en>

4. DURING A FLOOD OBJECTIVES

4.1.FLOOD ALERT AND WARNING

Once a flood alert has been made to the site it should be communicated to all stakeholders and/or persons at risk. Once a flood warning has been made this must also be communicated to persons at risk. The message can be conveyed by siren alarm with a pre-recorded message or by person. This process should not be delayed. The site owner / manager has a duty of care to the persons using the facility. The designated 'person in charge' should inform persons at risk of the pre-designated evacuation route.

4.2.EVACUATION ROUTE

The site evacuation plan should be adhered to where possible. The evacuation route attempts to steer development from the site to an area expected to be flood free. The route should avoid areas at a high hazard rating where possible.

4.3.EVACUATION BY FOOT AND VEHICLE

Site users of the should exit the industrial park using the access road at the northern boundary of the industrial estate. Users should follow the access road and turn right at the B4290 junction. Users should follow the B4290 for some 700m and convene at the 'Glamorgan Health Club car park. This location is at higher ground (31.5mAoD) and within key infrastructure links.



Figure 2: Evacuation Route

4.4. ON SITE REFUGE

The site has no upper floors and therefore no facility for safe refuge. Refuge within the building should only be used as a last resort. If safe refuge must be found in the building the emergency services should be contacted immediately. The proposed FFL's for the commercial use units should be set to a flood free level for the design event.

5. POST FLOOD OBJECTIVES

5.1. STRUCTURAL DAMAGE

Depending on the severity of the flooding, the building may have suffered structural damage. A structural engineer should be consulted if you suspect damage.

5.2. HAZARDOUS MATERIAL

There is potential for hazardous material and waste to be present after a flood. The clean-up crew should hold the necessary permits, insurances and be adequately risk assessed.

5.3. INSURANCE CLAIM

It would be advantageous if photographs could be taken of the damage for inclusion within the insurance claim. Damages should be listed in an itemised manner.

5.4. RE-OCCUPYING THE FACILITY

Every effort should be made to ensure services (electrical, gas etc) are inspected by a qualified professional and are fit for purpose. Potential users of the site should be able to clearly distinguish that the site is closed. If people are displaced, they should be kept informed with the progress of the clean-up and aware of timescale. It is important to realise that just because a flood event has occurred does not mean that another may not be possible.

6. REPORT CLOSING STATEMENTS

6.1. REPORT LIMITATIONS

This report has been conducted as a desktop study of information supplied by third party sources only. Whilst every effort has been made to ensure the most recent data has been used, this document could become 'out of date' with further data iterations. FloodPlan Limited also holds no liability for the validity of third-party data.

6.1. FURTHER STUDY

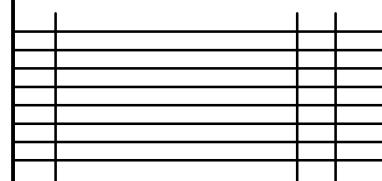
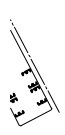
This document has been conducted using third party data. The applicant may wish to validate the findings of this assessment by commissioning their own bespoke studies into catchment hydrology, topography, and hydraulic flood modelling data. It should be known that as guidance and regulation changes, this report will be outdated.

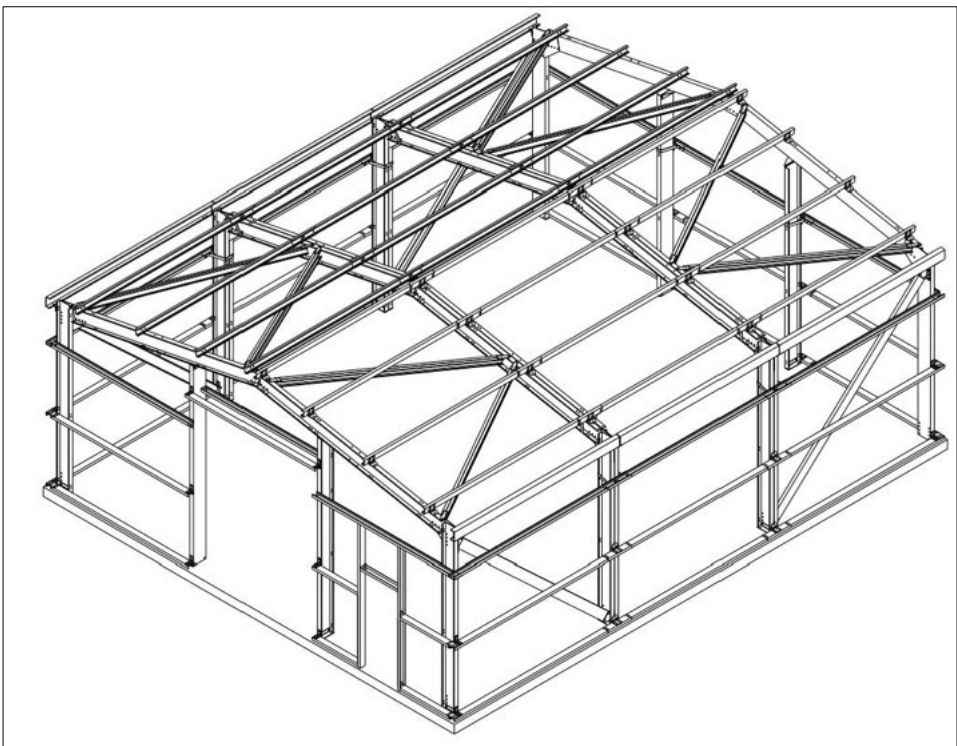
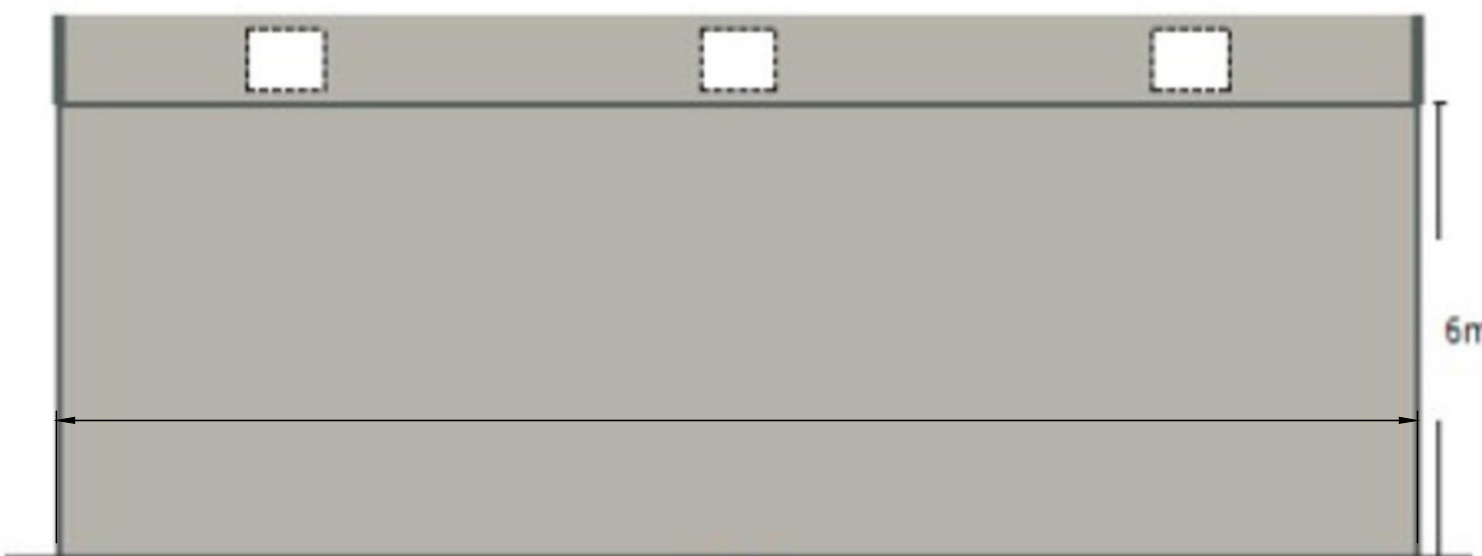
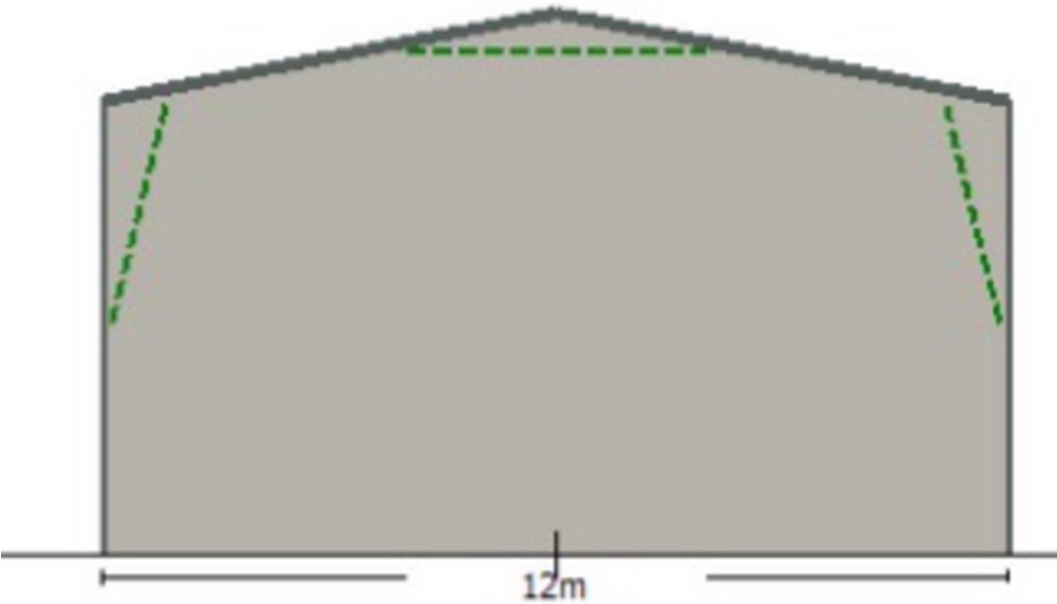
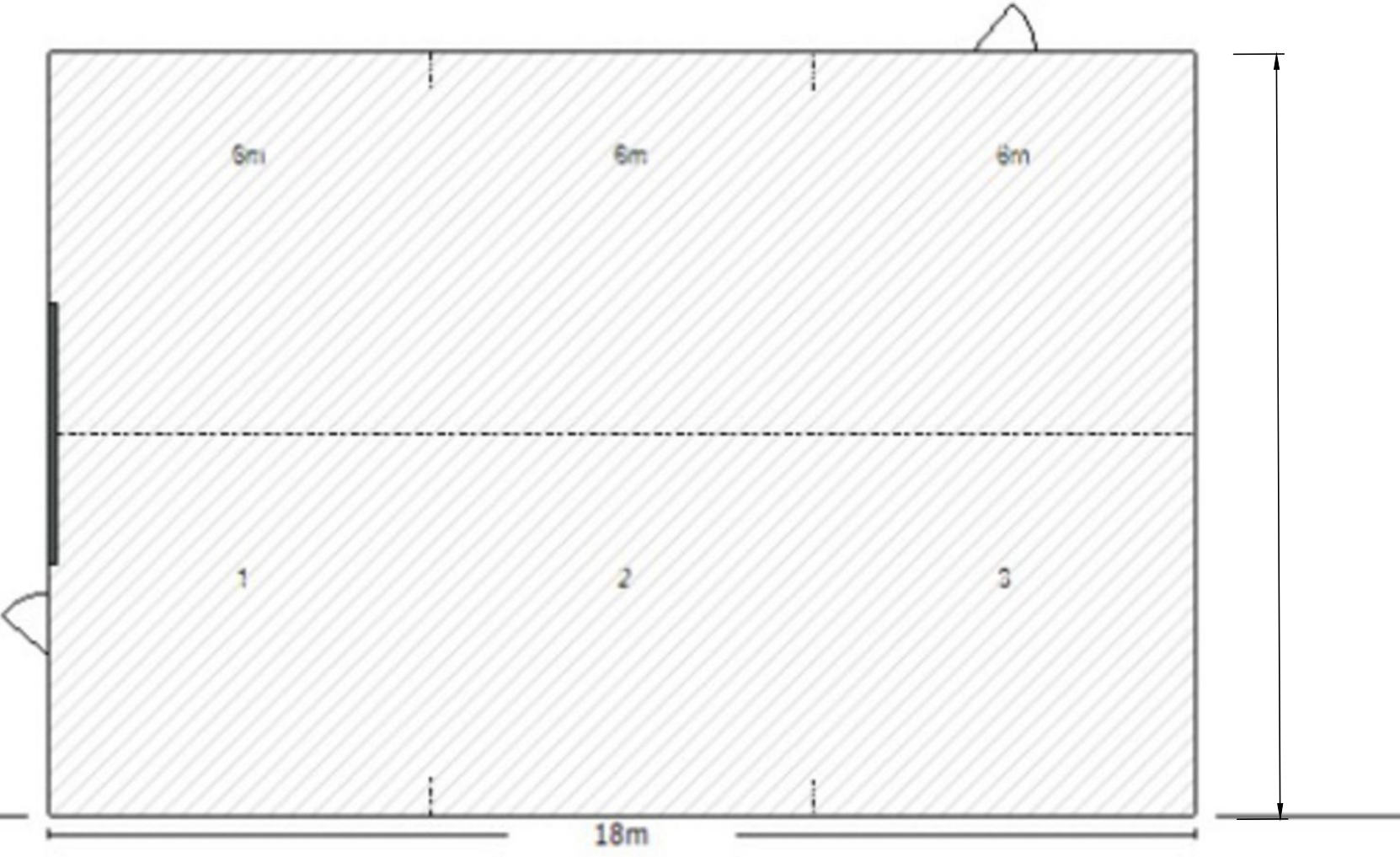
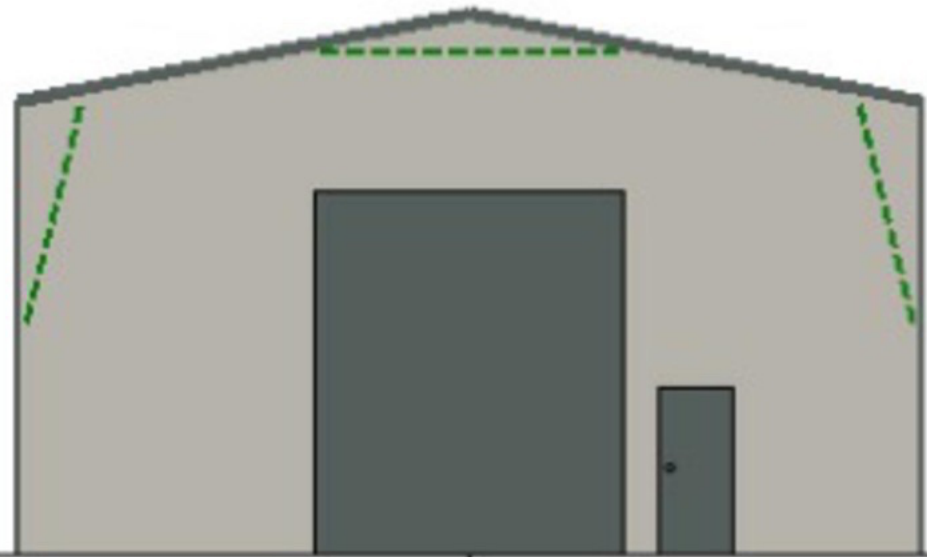
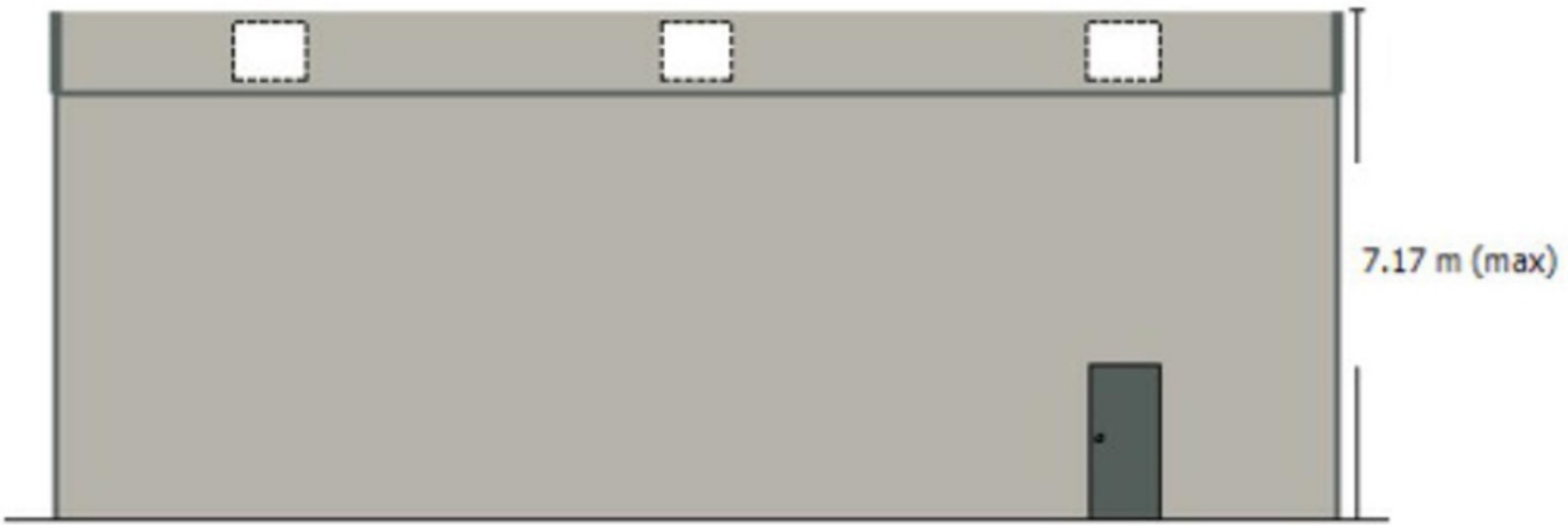
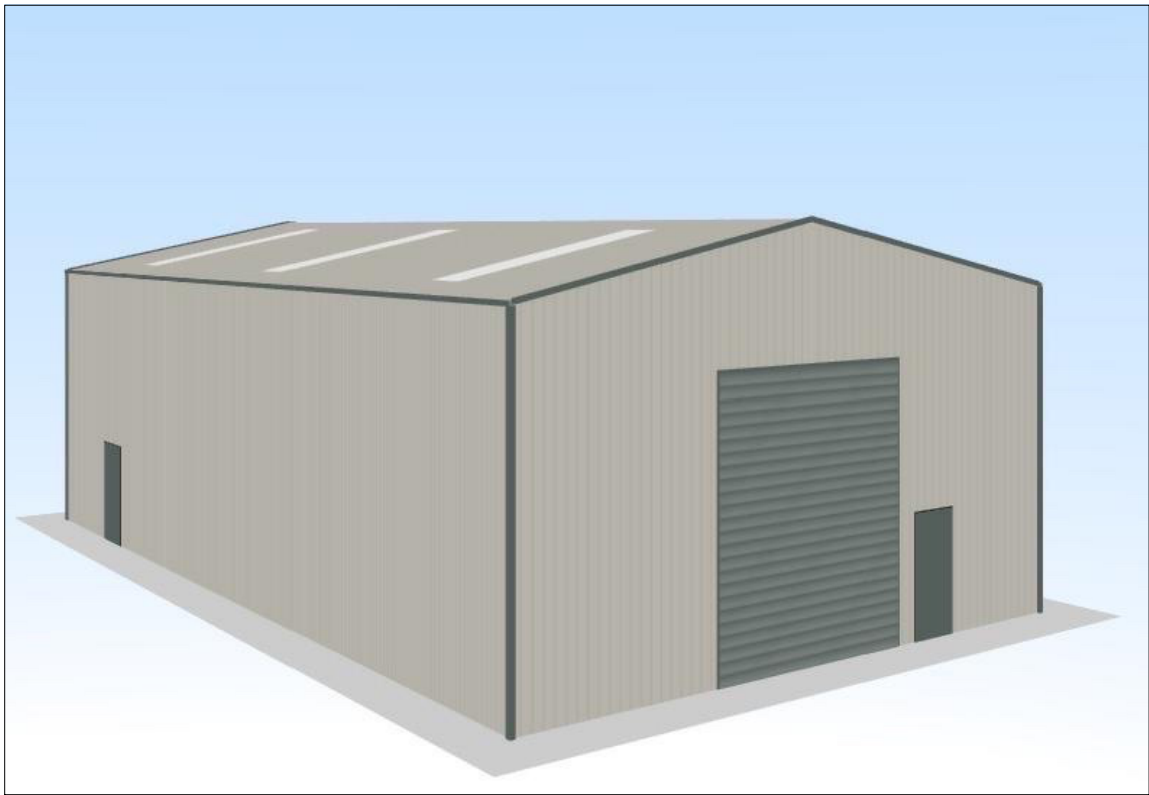
7. CONCLUSIONS AND RECOMMENDATIONS

The site is located within flood zone C2. The evacuation route has been created for the shortest possible route to an area expected to remain dry during the T200 (2098) tidal flood event.

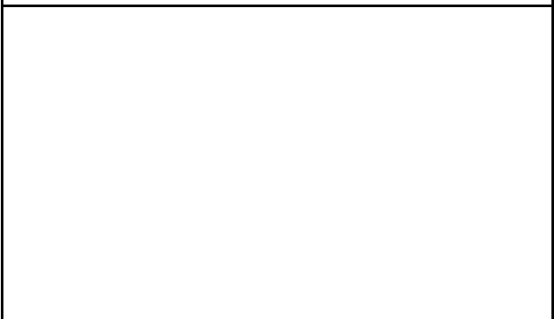
- This document should be made available to site users
- NRW flood alerts and Warnings should be signed up to
- Flood kits should be placed in responsible locations throughout the site
- This document should be reviewed within 3 years.

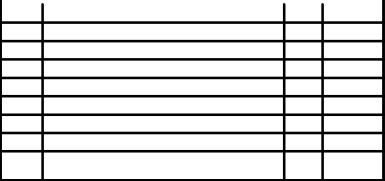
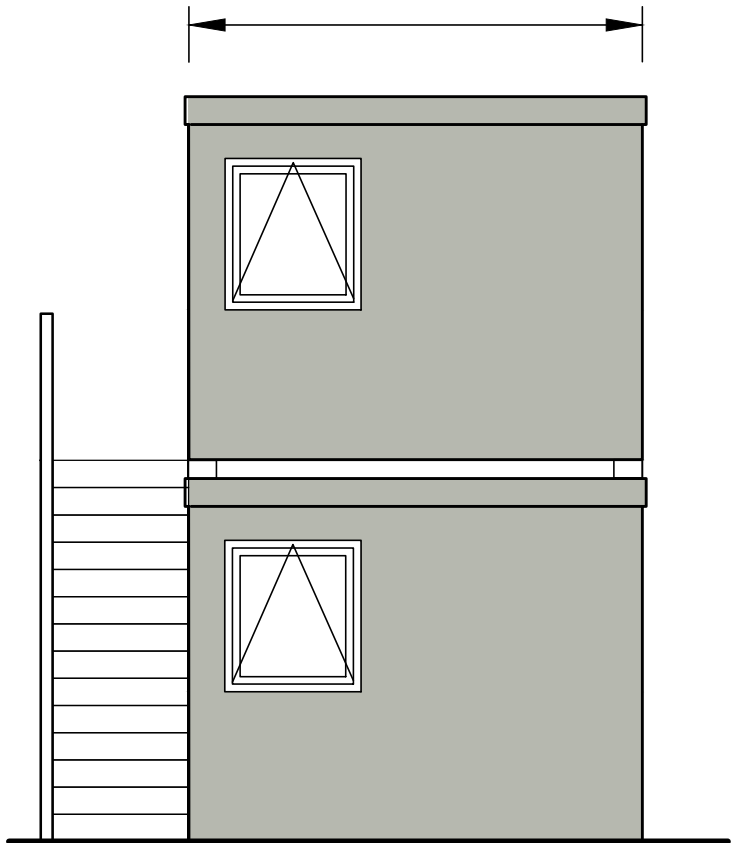
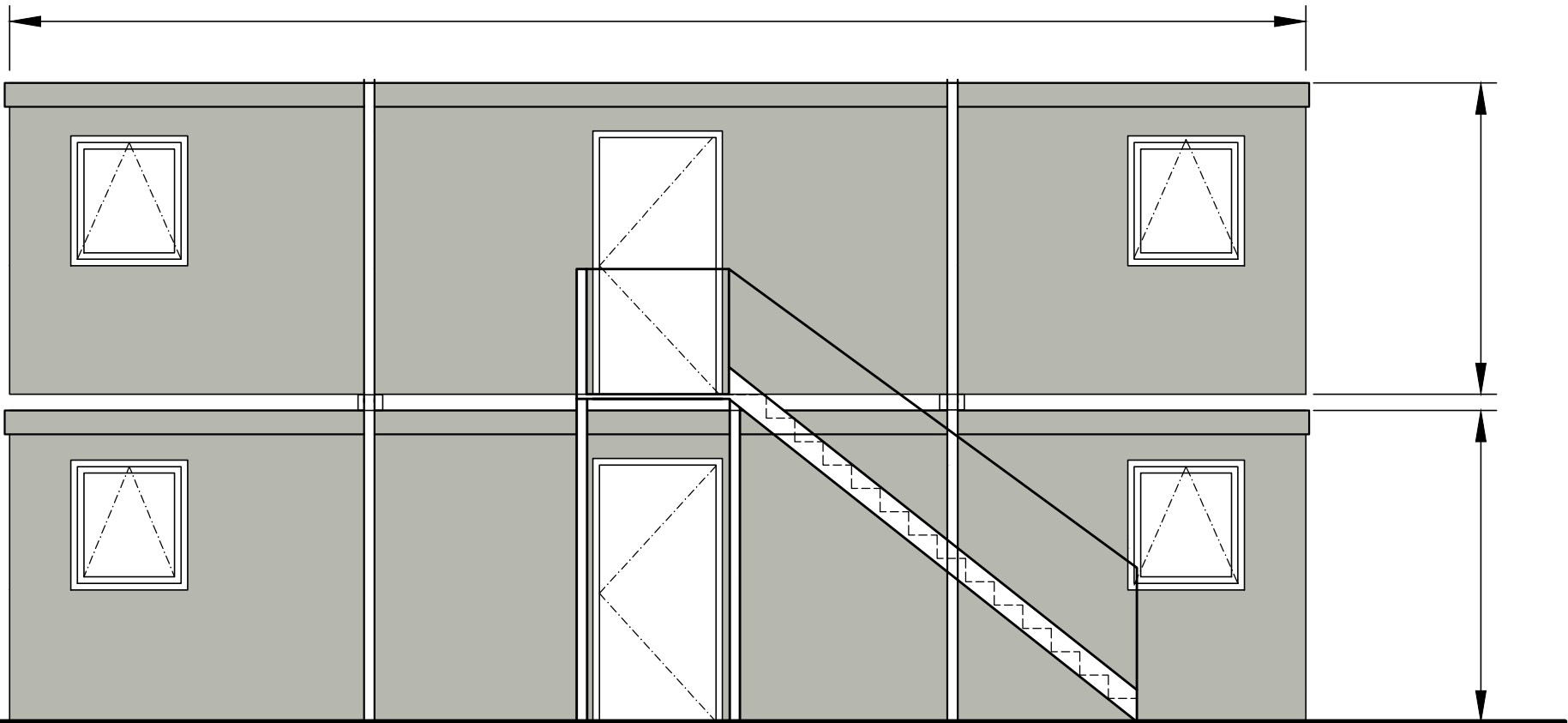
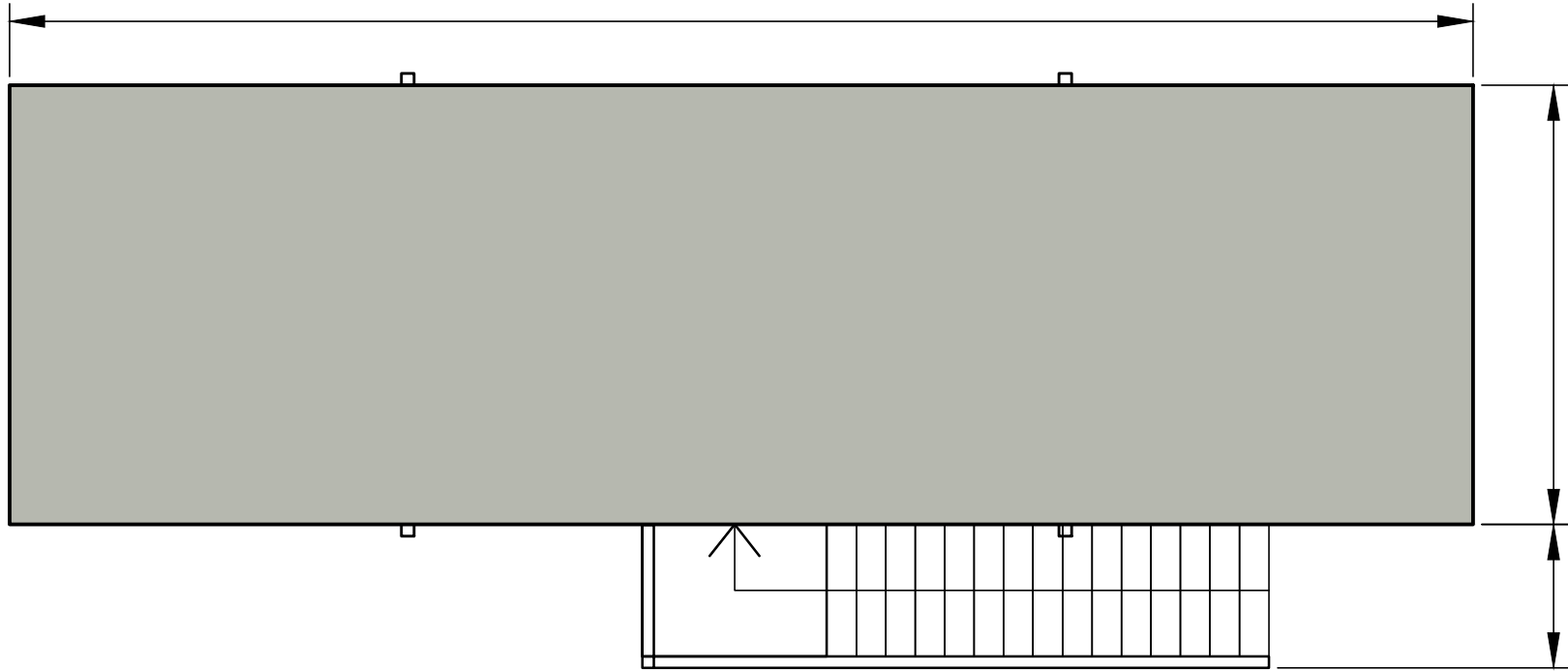
Appendix A: Site Plans



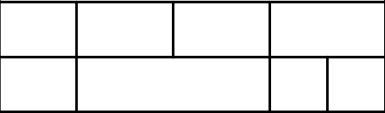


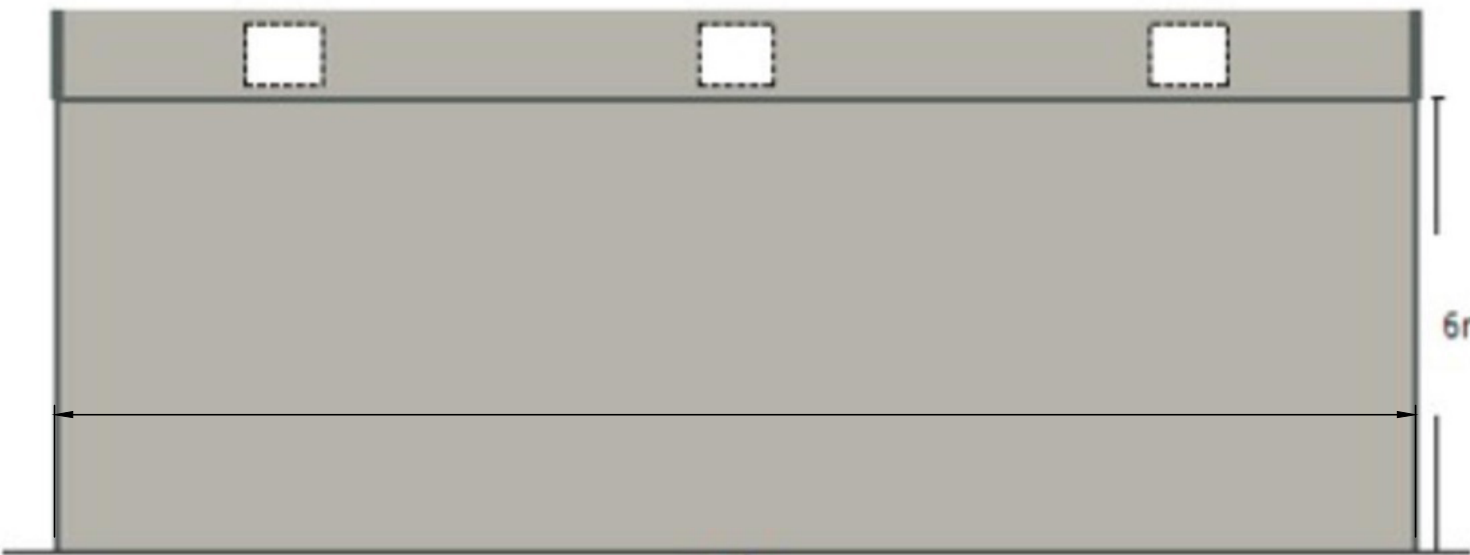
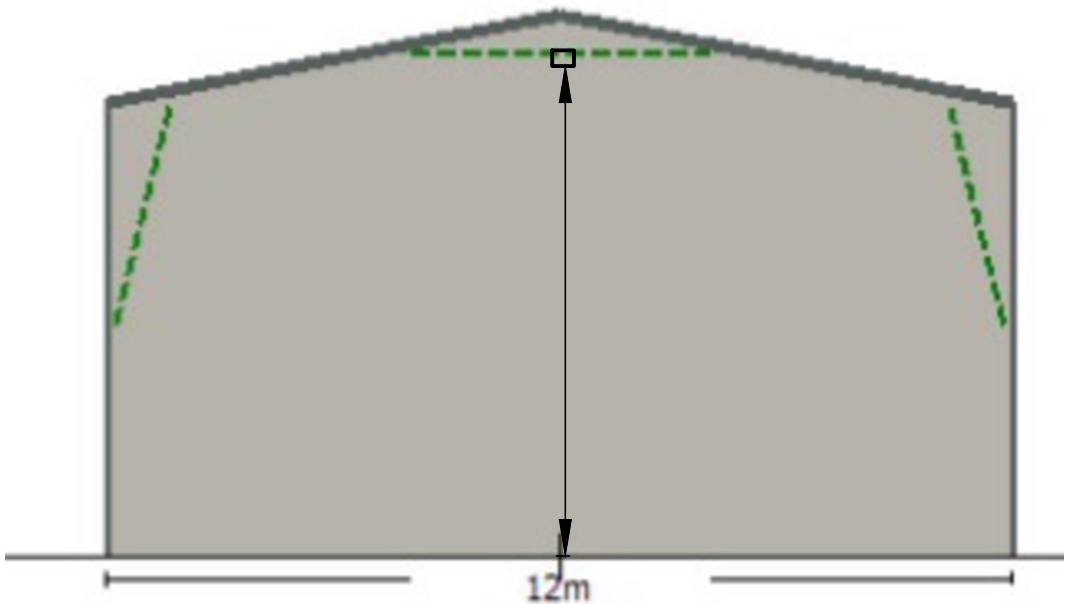
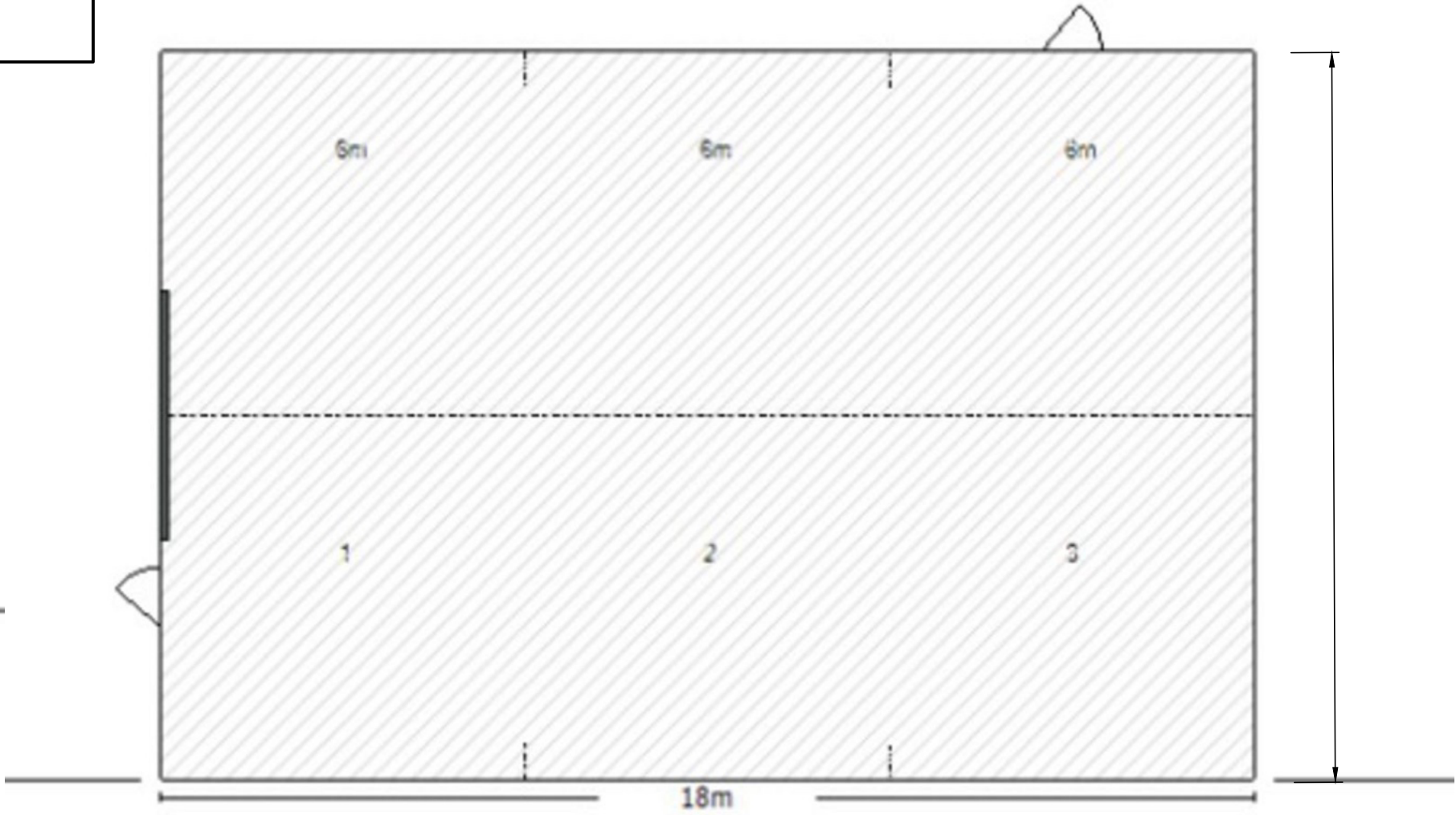
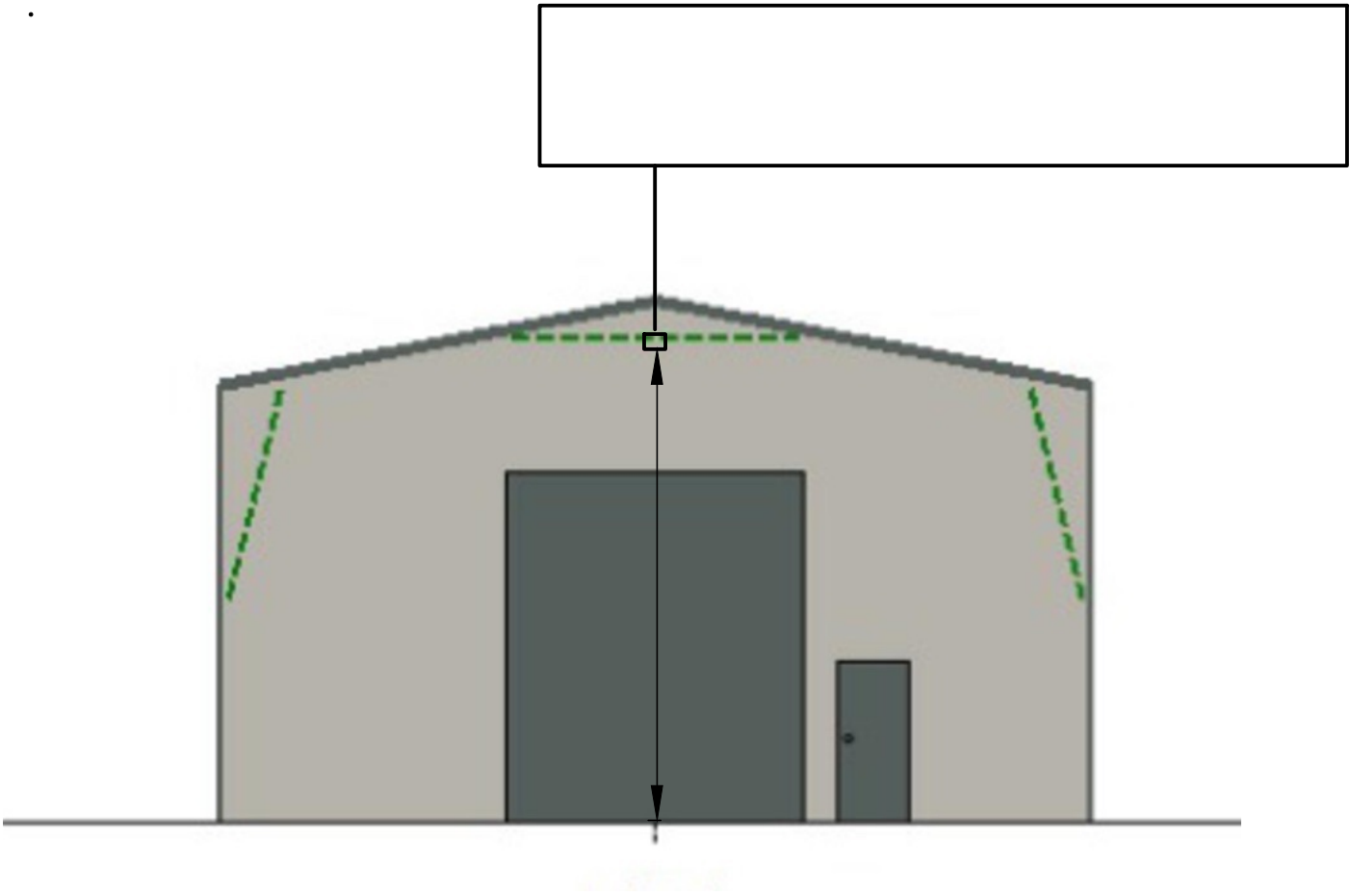
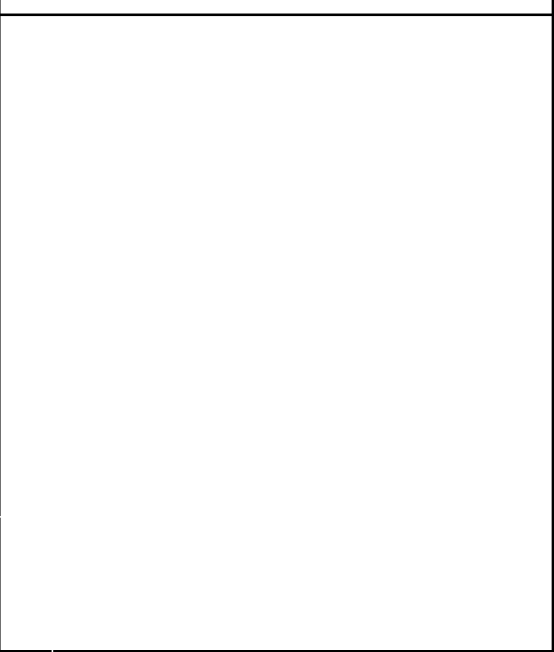
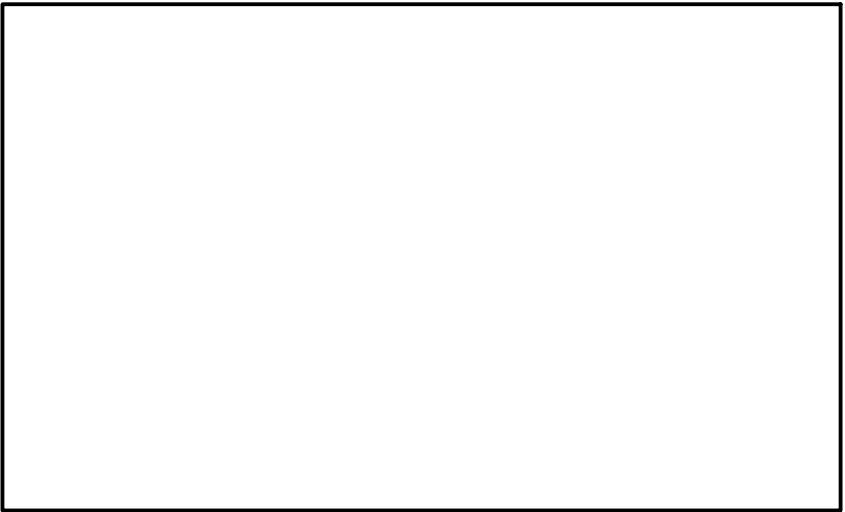
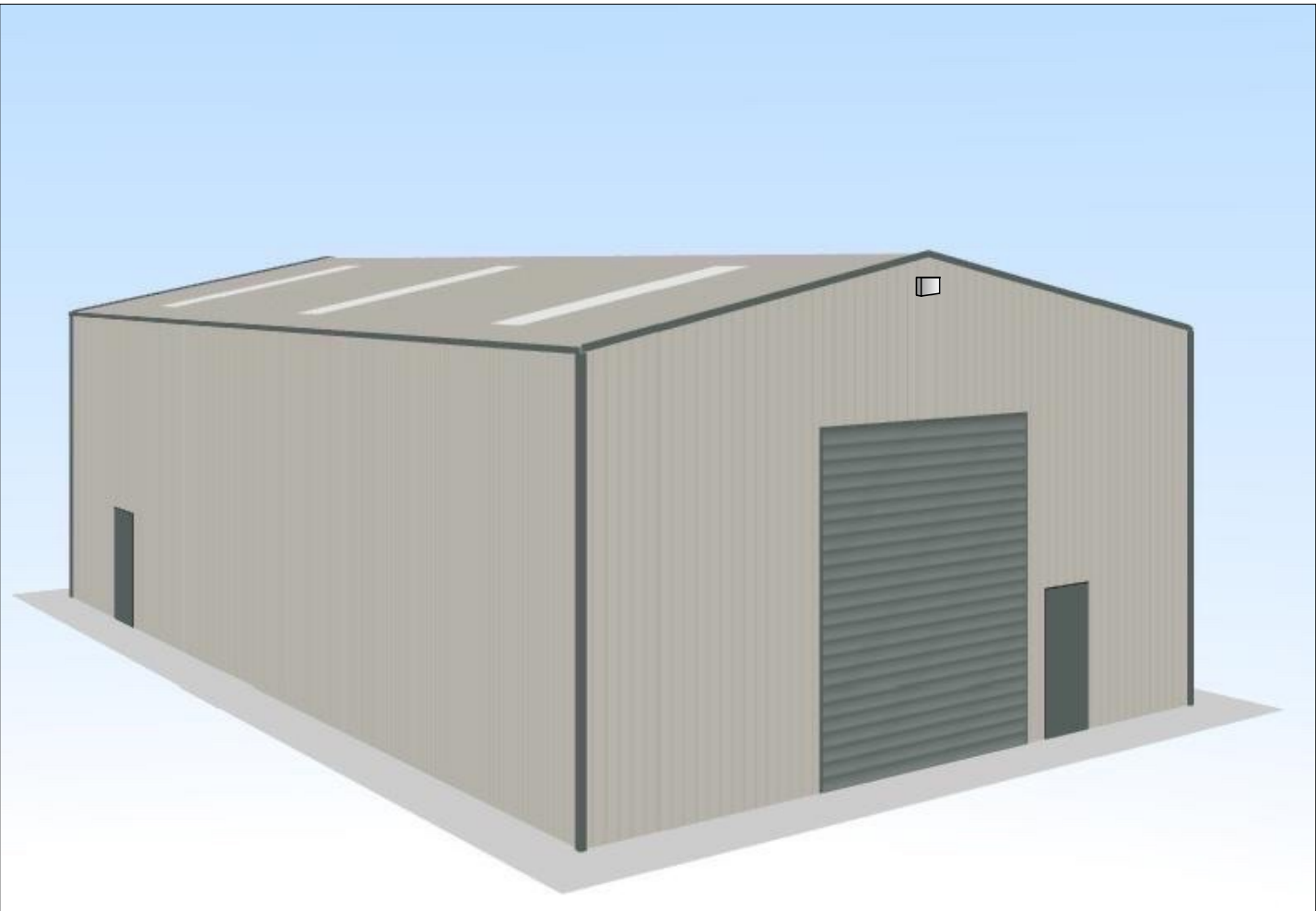
DESIGN VISION 5





DESIGN VISION 5





DESIGN VISION 5			

Appendix B: Example key forms

Emergency Contacts

[illegible]

Key Contact List

[illegible]

Important People Contact List (staff, tenants etc)

[illegible]

Key Service Locations

[illegible]

Flood resistant Items

[illegible]

Appendix C: Bespoke flood risk assessment



Project Title: 00104 25a Edwards Yard, Llandarcy

Product: Level 2 Flood Consequence Assessment

Date: 16 July 2023

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1. INTRODUCTION

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1.2. LOCATION OF SUBJECT SITE

The site is located a site at 11 Edwards Yard, Llandarcy, Neath, SA10 6JY. The site is located to the west of the M4. Access to the site is gained via Junction 43 of the M4 motorway.

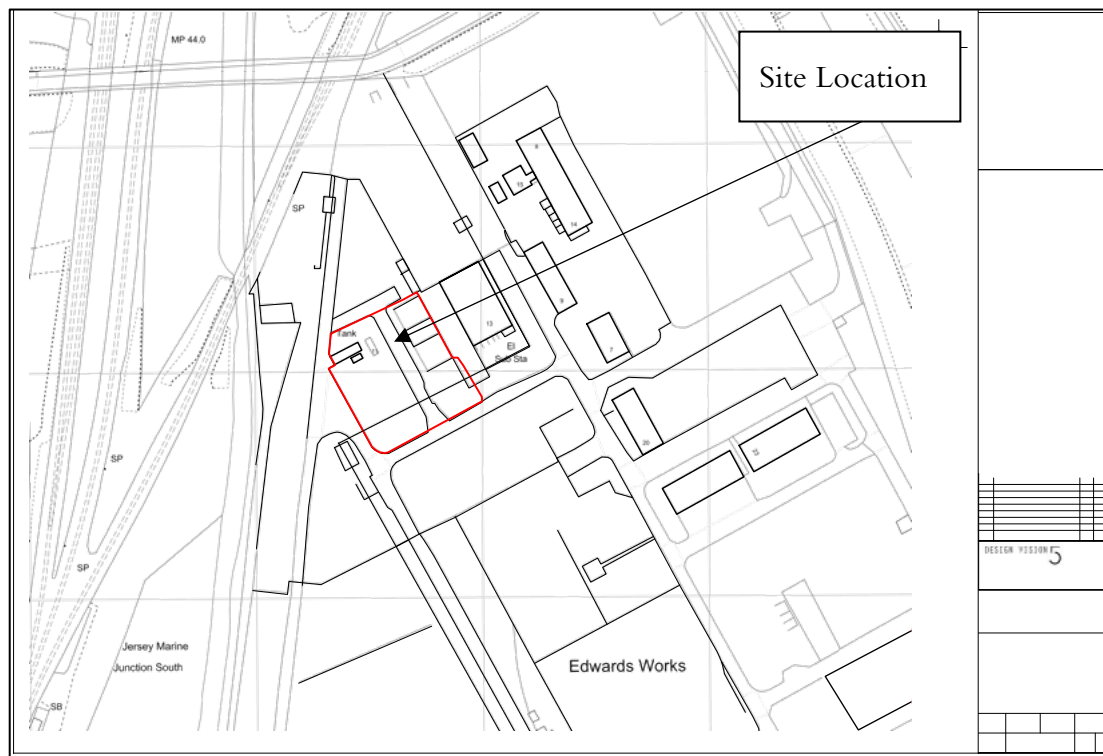


Figure 1: Site Location

1.3. SITE PROPOSALS

The existing site is largely hardstanding and is used for commercial purposes. The development proposes the construction of an industrial storage unit and a portacabin office unit. The development is unlikely to increase the impermeable area on site due to the hardstand nature of the exiting surface. Development proposals can be seen below and in Appendix A: Development Proposals.

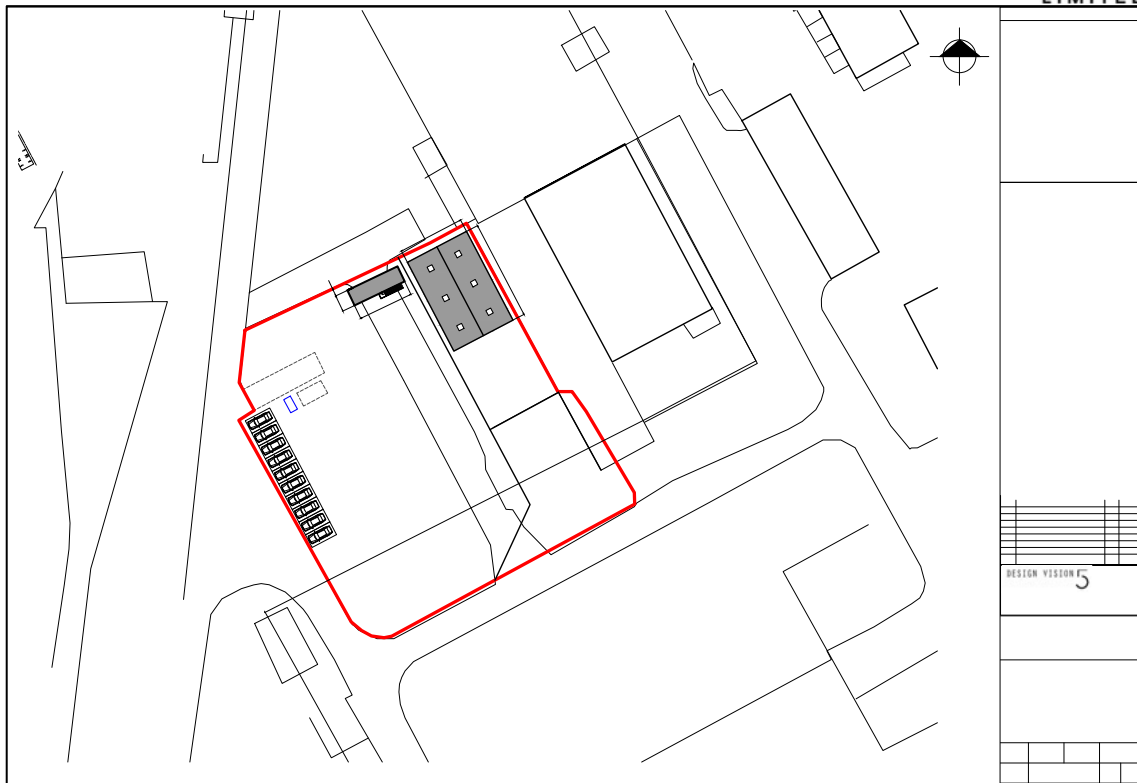


Figure 2: Development Proposal

2. ASSESSMENT OF TAN15

2.1. INTRODUCTION TO TAN15

Technical Advice Note 15 (TAN15 is a Welsh Government published document. This document provides guidance to local planning authorities to ensure the effective implementation of the planning policy. The policy seeks to direct development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere. For these purposes:

- Direct new development away from those areas which are at high risk of flooding.
- Where development has to be considered in high-risk areas (zone C) only those developments which can be justified on the basis of the tests outlined in section 6 and section 7 are located within such areas

Flood risk (from river and sea) are categorised into one of the below:

2.2. FLOOD RISK CLASSIFICATIONS

Flood Zone	Description
Zone A	Little or no risk
Zone B	Known to have flooded in the past
Zone C	EA extreme flood outline (0.1%)
Zone C1	Areas of floodplain which are developed and served by significant infrastructure, including flood defence.
Zone C2	Areas of the floodplain without significant flood defence infrastructure

2.3. FLOOD RISK VULNERABILITY CLASSIFICATION

TAN15 categorises buildings by vulnerability. A summary of categories can be seen below:

Vulnerability Class	Infrastructure
Emergency Services	Hospitals, emergency depots, police stations etc
Highly vulnerable	All residential premises, public buildings, schools, libraries etc.
Less vulnerable	General industrial, commercial, retail, car parks etc

2.4. SUITABLE DEVELOPMENT MATRIX

The below table outlines the suitable development type for the flood zone classification assigned by the Environment Agency flood maps.

Flood risk vulnerability classification	Emergency Services	Highly Vulnerable	Less Vulnerable
Zone A			
Zone B			
Zone C1	Justification Test Required	Justification Test Required	Justification Test Required
Zone C2			Justification Test Required

Figure 3: Suitable Development Matrix

Key: Blue Development is appropriate; Red Development should not be permitted; Green Development is appropriate with a sufficient Justification Test.

3. TAN15 SITE ASSESSMENT

3.1. FLOOD ZONE CLASSIFICATION

As per Figure 4, the site is wholly within flood zone C2. The site does not benefit from flood defences.

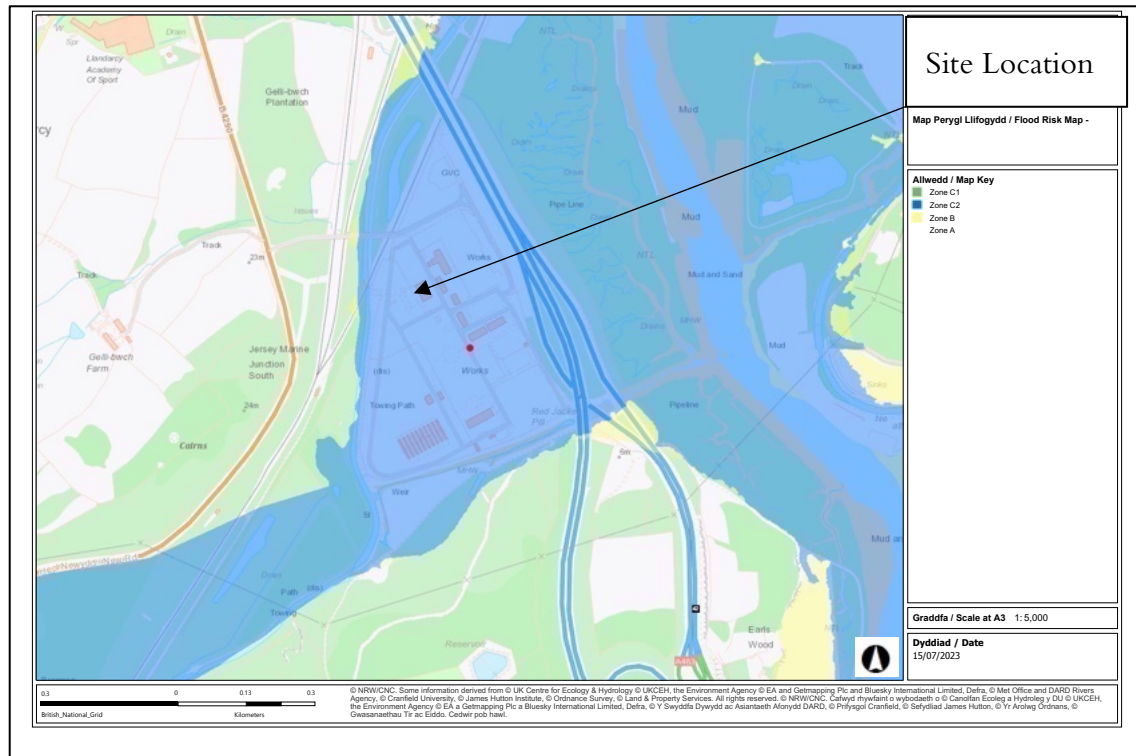


Figure 4: NRW Flood Zone

Where the blue shaded area notates flood zone C2, the green shaded area notated flood zone C1, yellow area notates flood zone B, and the non-shaded areas notates flood zone A.

As part of this FCA, Natural Resources Wales were contacted to release hydraulically modelled flood depths and velocities for the subject site, no detailed flood modelling data was available.

3.2. LAND VULNERABILITY CLASSIFICATION

The existing site is used for commercial purposes and is therefore designated as 'less vulnerable development' by Tan15. The proposed development will also be designated 'less vulnerable development'. The development therefore proposes no increases the vulnerability classification.

3.3. SITE SUITABILITY (TAN15)

'Less vulnerable development' is suitable for flood zone C2, with a successful justification test, as per Figure 3.

4. SITE FLOOD RISK

4.1. THIRD PARTY FLOOD RISK DATA SUMMERY

A 'Groundsure' flood report has been acquired for advising this assessment. The full report can be found in Appendix B. The main findings are summarised below:

Type of Risk	Assessment of Risk
Overall Flood Risk	Negligible
Rivers and the Sea	Very Low
Surface Water	Negligible
Groundwater	Low
Historic Flood	Not identified
Flood Defences	No
FloodScoreTM – insurance rating	Very Low

4.2. SURFACE WATER FLOODING

The Environment Agency surface water flood map Figure 5, shows the site is not considered to be at risk from surface water flooding. The risk profile is consistent with the groundsure flood report.



Figure 5: NRW Surface Water Flood Map

Where the dark purple shaded area denotes high risk of surface water flooding; the lighter purple notates medium risk, and the pink area denotes low risk.

4.3. TIDAL AND FLUVIAL FLOODING

The site is classified as mapped by the Flood Map for Planning as being located within flood zone 3 (tidal). The site is not believed to be protected by formal flood defences.

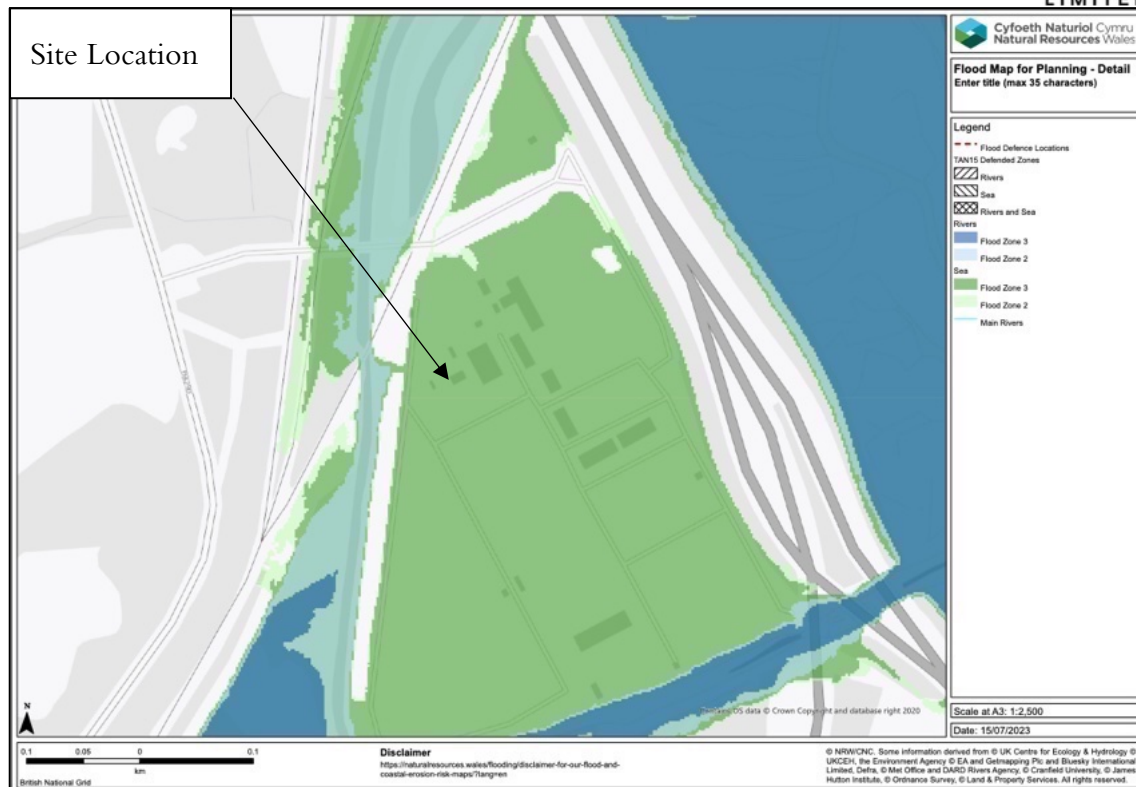


Figure 6: NR W Tidal and Fluvial Flood Map

Tidal: Where the dark green shaded area denotes flood zone 3, the light green area denotes flood zone 2.

Fluvial: Where the dark blue shaded area denotes flood zone 3, the light blue area denotes flood zone 2.

The site is believed to be 'at most' risk from tidal flooding. LiDAR data shows the site to be at an elevated level of 7.3mOD.

The coastal flood boundary extreme sea levels node '482' is the closest node to the development site. The T200 level for 2023 (present day) is 6.388mAoD. The expected lifetime of the development is 75 years (2098). The predicted T200 still water 2098 level (climate change applied) is 7.11mOD. The site is therefore 0.19m above the extreme tidal water level.

The development is experience 0.11m of flooding during the T1000 (2098) event with the maximum still water level being 7.41mOD.

This report recommends that the FFL for the proposed building is set to 7.41mOD to allow for a 300mm freeboard above the T200 (2098) level.

4.4. GROUNDWATER FLOODING

The 'Groundsure' flood report indicates that the site has a low risk of groundwater flooding.

4.5. RESERVOIR FLOODING

The site is at not believed to be at risk of flooding from reservoir sources.

4.6. CANAL AND ARTIFICIAL WATER FLOODING

The site is at not believed to be at risk of flooding from artificial water sources.

4.1. HISTORIC FLOODING

A google search for 'Llandarcy historic flooding' yielded no definitive flood history. The 'Groundsure' flood report also failed to identify any historic flood events for the site.

5. FURTHER SITE ASSESSMENT

5.1. SITE ACCESS AND EGRESS ROUTES

Access to the site is gained via Junction 43 of the M4 motorway. The access road may experience some fluvial, tidal, and surface water flood risk.

5.2. FLOOD COMPENSATION

The development is not proposing the increase in impermeable area. Any development proposals should have suitable SuDS features to compensate for water pollution generated by the proposed development and comply with SAB requirements and regulations.

5.3. FLOOD WARNING AREAS

The below Figure 7, highlights the areas that are considered to benefit from Natural Resources Wales flood alerts. The site is within the flood alert area.

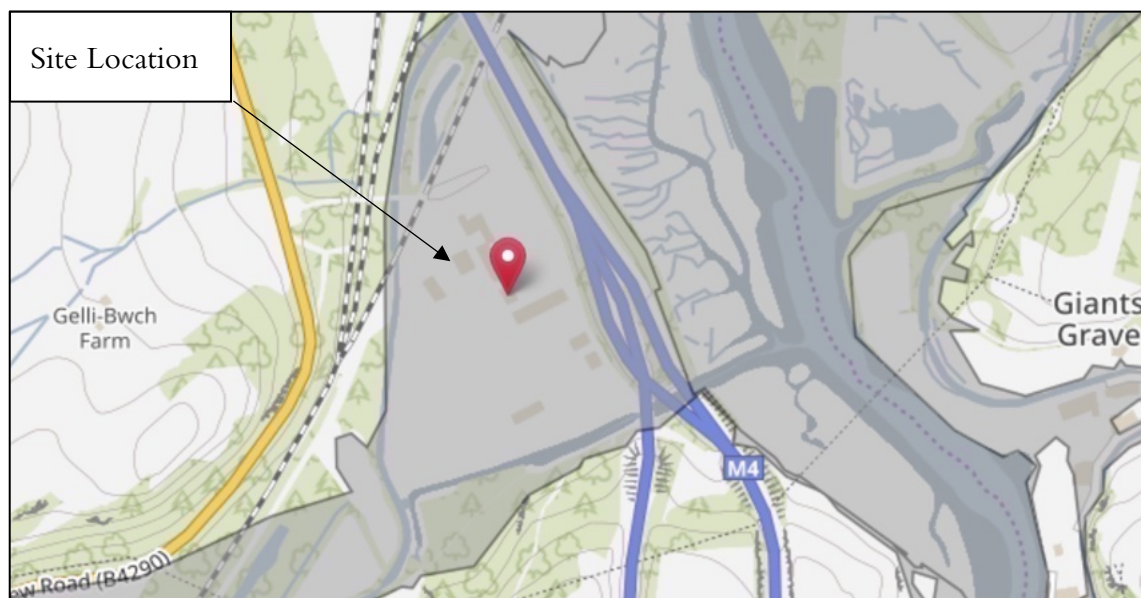


Figure 7: NRW Flood Warning Areas

5.4. AWARENESS OF FLOOD RISK

The developer should be aware that the site is not immune from flooding. It is recommended that future occupiers take the opportunity to develop emergency and non-emergency plans. Further, it is recommended that anyone responsible for the building sign up to receive flood alerts as soon as available.

5.5. JUSTIFICATION TEST

New development should be directed away from zone C and towards suitable land in zone A, otherwise to zone B, where river or coastal flooding will be less of an issue. In zone C the tests outlined in sections 6 and 7 will be applied, recognising, however, that highly vulnerable

development and Emergency Services in zone C2 should not be permitted. All other new development should only be permitted within zones C1 and C2 if determined by the planning authority to be justified in that location. Development, including transport infrastructure, will only be justified if it can be demonstrated that: –

- i. Its location in zone C is necessary to assist, or be part of, a local authority regeneration initiative or a local authority strategy required to sustain an existing settlement; or,
- ii. Its location in zone C is necessary to contribute to key employment objectives supported by the local authority, and other key partners, to sustain an existing settlement or region.

And

- iii. It concurs with the aims of PPW and meets the definition of previously developed land (PPW fig 2.1); and,
- iv. The potential consequences of a flooding event for the particular type of development have been considered, and in terms of the criteria contained in sections 5 and 7 and appendix 1 found to be acceptable.

The Neath Port Talbot County Borough Council Local Development Plan (2011–2026) identifies the need for high quality jobs and economic growth within its literature. The document iterates the requirement for local business to develop to be able to generate economic growth. The proposed development will stimulate economic growth in the area and provide opportunity for employment for local people. This report concludes that the development proposal meets the requirements i & ii.

The development proposes the construction of an industrial unit. The existing land use is largely used as an industrial car park. The existing land is classified as brownfield and is therefore previously developed land. This report concludes that the development proposal meets the requirements iii.

The site is to be used for industrial purposes; no persons are to be sleeping within the development, nor will it at any time be used for residential purposes. The report has found the site to be flood free during the T200 climate change event. The report has also identified the FFL should be set no lower than 7.41mOD to allow for a 300mm freeboard. This report concludes that the development proposal meets the requirements iv.

6. FINDINGS AND RECOMMENDATIONS

6.1. FINDINGS

The development plans propose the construction of an industrial use warehouse and an office unit. TAN15 categorises warehouses as 'less vulnerable development'. 'Less vulnerable development' is suitable for flood zone C2. NRW flood risk mapping indicates that the site is affected by tidal sources. The risk of flooding is not negligible but should be found acceptable for the development vulnerability classification with the inclusion of a justification test, as per TAN15.

6.2. RECOMMENDATIONS

This report recommends the following be considered to lower the risk and/or consequences that flooding may cause to the proposed development:

- Any impermeable areas created should be subject to SuDS treatment and attenuation with a controlled discharge.
- Anyone responsible for the campsite should sign up to the receive flood alerts as soon as possible. Further, the developer / occupier should take this opportunity to ensure that a flood plan is in place.
- An evacuation plan should be in place for site users.
- FFLs should be set no lower than 7.41mOD.

List of Appendices

Appendix A: Development Proposals

Appendix B: Groundsure Flood Report

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Appendix A: Development Proposals

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