

Flood Consequences Assessment (FCA) For:

Proposed temporary structure at:
Nisbets Catering Equipment,
Newhouse Farm Industrial Estate, Chepstow,
Monmouthshire
NP16 6UD

Prepared for:

Mango Planning



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LIMITATIONS

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All the Natural Resources Wales (NRW) mapping data used is under special license. Data is current as of **March 2024** and is subject to change.

The information presented and conclusions drawn are based on statistical data and are for guidance purposes only. The study provides no guarantee against flooding of the study site or elsewhere, nor of the absolute accuracy of water levels, flow rates and associated probabilities.

Purpose of the report

The purpose of this report is to outline the potential flood risk to the site, the potential impact of the proposed development on flood risk elsewhere, and the proposed measures which could be incorporated to mitigate any identified flood risk. *The Client* is seeking consent for a period of 5 years for a temporary unit.

Consultation

The report has been prepared in accordance with the guidance contained in Planning Policy Wales (PPW) and Technical Advice Note 15 (TAN15): Development and Flood Risk. This report has been prepared in consultation with Natural Resources Wales (NRW) including the Development Advice Map (DAM) and Flood Map for Planning (FMfP) Wales. Product 5 and 6 (flood modelled) data (Caldicot and Wentlooge_5_V1.0_2) has been received from NRW and consulted to inform the FCA. However, they have stated it is out of date.

Monmouthshire Council have been consulted. The Monmouthshire County Council Adopted Local Development Plan (LDP) was adopted in February 2014 and has been reviewed to inform the FCA. The LDP forms the development plan that will form the basis of decisions on land use for planning in the council. All relevant specific policies relating to flood risk, drainage and climate change have been reviewed and considered. In addition to the LDP, the following Local Authority (LA) documents and associated relevant policies and guidance have been consulted:

- Monmouthshire County Council Flood Risk Management Plan (2016);
- Monmouthshire County Council Local Flood Risk Management Strategy (2013);
- Monmouthshire County Council Preliminary Flood Risk Assessment Report (2009) and 2017 Addendum.

1 INTRODUCTION

Vale Consultancy has been instructed by *The Client* to undertake a Flood Consequences Assessment (FCA) for the proposed development, at Nisbets Food Distribution Centre, Newhouse Farm Industrial Estate, Chepstow, Monmouthshire, NP16 6UD (353817E, 191111N).

1.1 Existing Site & Location

Currently, the Application Site comprises hardcore service yard for storage / access etc.

The wider site is occupied by a food distribution centre with associated service yards, access, storage and parking.

The Application Site is bordered by Nisbets Food Distribution Centre to the north, undeveloped land to the east with the M48 highway further afield, National Rail Network line to the south and industrial units to the west. The general land use in the vicinity comprises industrial.

The site is considered to be *Brownfield or Previously Developed Land*.

Provision of site access / egress is from the A466 highway into Newhouse Farm Industrial Estate.

Refer to Figure 1 below and Appendix A.



Figure 1 : Existing Site Satellite (Google Maps) Imagery

1.2 Planning History

Newhouse Farm Industrial Estate has been subject to relatively frequent planning and developments; mostly of an industrial (and / or other *Less Vulnerable* Development) nature. This makes sense as the area is situated on the peripheries of the River Severn tidal flood plain, albeit served by significant formal flood defence assets.

Planning Application *DM/2020/01386* was approved for the storage of hazardous substances: the storage of Liquefied Natural Gas and Liquefied Nitrogen and the filling of vehicles associated with the operation of the site for distribution purposes.

For this successful planning application, NRW's Flood Risk Advice states;

We note the site's location within Zone C2 as defined by the Development Advice Map (DAM) referred to in Technical Advice Note 15: Development and Flood Risk (TAN15) and advise that if permission is granted, suitable provisions should be in place to ensure there is no impact on the environment should the site be inundated.

For the same application, comments from the Local Authority (LA) Emergency Planning Manager regarding flood risk state;

The site is within a flood zone and I would expect the company to have a comprehensive flood plan for the premises. The Plan should include triggers, activation arrangements and roles and responsibilities for key staff named in the plan. Any flood plan should also identify a potential evacuation route and the development should have signage identifying this route and emergency egress points. The development should also be signed up to the NRW flood warning service. The significant risk to the site is tidal flooding from the River Severn. It is located on the edge of the River Severn flood plain although protection is offered from flood defences.

1.3 Proposed Development

The proposals are for construction of a *temporary* industrial unit / structure with a footprint of approximately 4200m². The structure will not require any foundations and a consent of 5-years is sought.

Refer to the Proposed Development Plans, Appendix B.

1.4 Development Vulnerability Classification

The proposal is for *Less Vulnerable Development* in accordance with Figure 2 of TAN15. Such developments typically have a lifetime expectancy of 75-years. However, and as mentioned above; the proposed structure is only required for 5 years – after which, it may be removed. In this sense, the structure and proposals are temporary, albeit for an extended period of 5 years.

1.5 Existing Topography

No topographical survey of the site has been provided at this stage.

In the absence of a survey; topographical data to metres above ordnance datum (m AOD) has been derived from a 1m resolution NRW composite 'Light Detecting and Ranging' (LiDAR) Digital Terrain Model (DTM) tile.

A review of LiDAR data indicates a maximum level of **8.83m AOD** and a minimum level of **8.38m AOD**. An average site level of **8.6m AOD** is recorded.

A review of LiDAR data corroborates the findings of the topographical survey. Further afield, the LiDAR data indicates the topography to generally slope from north to south.

Refer to Topographical Data, Appendix C.

1.6 Existing Ground Conditions

Reference to the British Geological Survey (BGS) online mapping (1:50,000 scale) indicates that the site is underlain by Superficial deposits defined as Tidal Flat Deposits comprising Clay and Silt. Bedrock geology is listed as Mercia Mudstone Group comprising Mudstone.

1.5 Existing Site Drainage

The existing site is served by formal drainage infrastructure which is to be retained.

1.6 Proposed Site Drainage

The proposals will be subject to successful SuDS Approving Body (SAB) Application in alignment with national and regional policy.

Refer to the Drainage Strategy Report supporting the planning application (also by *Vale Consultancy*).

2 FLOOD ZONE CATEGORY AND POLICY CONTEXT

2.1 Flood Zone Category

Development Advice Map (DAM)

The Welsh Government Development Advice Map (DAM) has been developed for land use planning purposes. It is based on Natural Resource Wales' extreme flood outlines and the British Geological Survey drift data. The DAM should be used alongside Planning Policy Wales and Technical Advice Note (TAN) 15 to direct new development with respect to flood risk. Together, they form a precautionary framework to guide planning applications.

The DAM is used as a screening tool by Local Authorities to understand where further assessment of flooding may be needed. The DAM has not been updated since 2020 and no further updates are planned due to implementation of the forthcoming and revised TAN15 during 2023. It is fair to say that implementation of the new / forthcoming TAN15 is in a transitional phase.

The site is located within **Zone C2** which defines areas;

'Areas of the floodplain without significant flood defence infrastructure' And;

'Used to indicate that only less vulnerable development should be considered subject to application of justification test, including acceptability of consequences. Emergency services and highly vulnerable development should not be considered'

Despite this; the site is served by and benefits from formal flood defences as concluded by this report.

Refer to Appendix D.

Flood Maps for Planning (FMfP) Wales

The Welsh Government was due to implement a revised TAN15 during 2023. This will be supported by the Flood Map for Planning (FMfP), which shows how climate change will affect flood risk extents over the next century. The map shows the potential extent of flooding assuming no defences are in place.

The FMfP has no official status until the Welsh Government implements the revised TAN15. However, it does represent the *best available* source of information that NRW have on flood risk – and therefore is utilised by NRW to inform planning advice.

A review of the FMfP shows the site to fall within **Flood Zone 1 (Rivers)**.

From pluvial sources (**Surface Water and Small Watercourses**); the site is located within **Flood Zone 1**.

The site is located within Flood Zone 3 (Sea).

Refer to Appendix D.

3 SOURCES OF FLOODING AND PROBABILITY

3.1 Fluvial

The nearest surface water feature is the *Hunger Pill* which is located adjacent (south east) to the wider application site and flows south east from here before discharging into the *River Wye* at a location approximately 330m south east from the site. The *River Wye* discharges into the *River Severn*, shortly downstream from this point. All three watercourses are considered to be *Main Rivers*.

Main Rivers are usually larger streams and rivers but also include some smaller watercourses. In Wales, main rivers are legally designated by NRW. If you want to carry out works in, over, under or near a main river, or in a flood plain or flood defence (including a sea defence), you will need to apply for a Flood Risk Activity Permit.

It can be concluded that the proposals are exempt from a Flood Risk Activity Permit.

Reference to the FMfP indicates the site to fall in **Flood Zone 1 (Rivers)**.

This defines; '*Areas with less than 0.1% (1 in 1000) chance of flooding from Rivers in any given year, including the effects of climate change*'.

There are no other surface water features in the area that could or would currently pose a *Fluvial* flood risk to the site or the proposed development.

There are no records or incidents of historical flooding at the site or within the vicinity.

It can be concluded that the site is at **Low** risk of fluvial flooding.

3.2 Tidal

Reference to the FMfP indicates the site to fall in **Flood Zone 3 (Sea)**.

'Areas with more than 0.5% (1 in 200) chance of flooding from the sea in a given year, including the effects of climate change'.

The site is served by significant flood defence infrastructure in the form of *Coastal Embankments*. These provide a standard of protection (SOP) commensurate to the 1 in 200-year storm event. **Refer to Figure 2, below.**

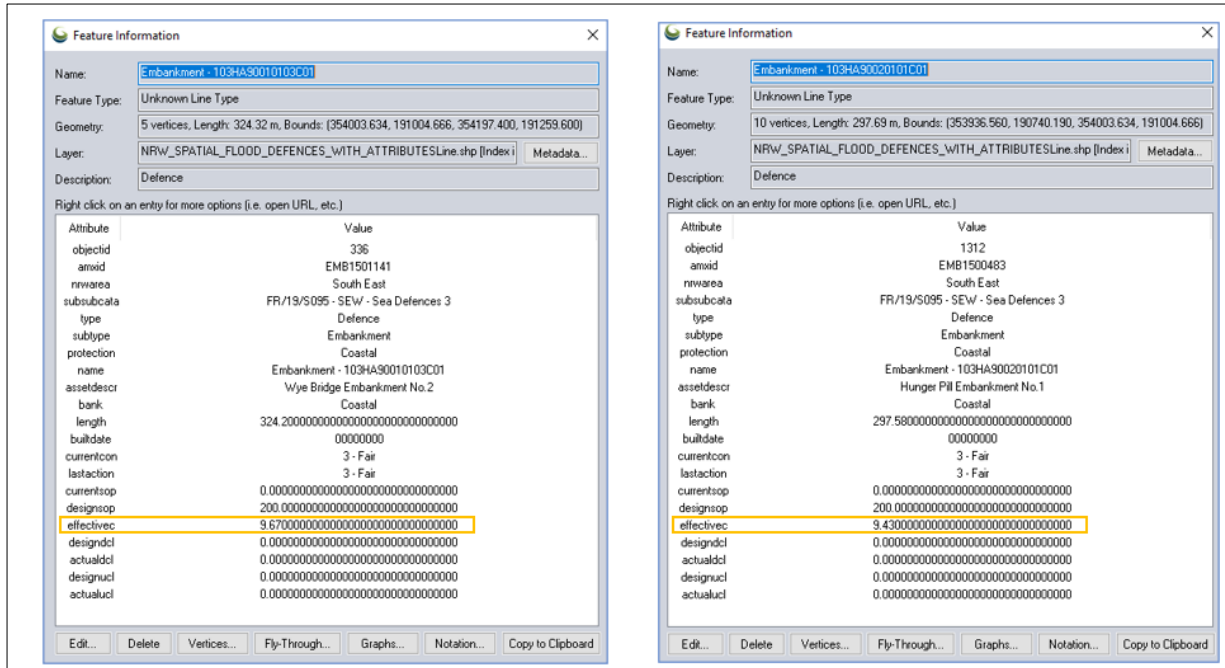


Figure 2 : Flood Defence Asset information

A review of the Design Flood Levels (DFLs) from the 2015 / 16 flood modelled (Product 5 and 6) data indicates that the existing defences provide a SOP commensurate to the 1 in 200-year storm event. Refer to **Table 1**, below, for reference. Although NRW have stated that the model results should not be used (due to updated advice and allowances for climate change); the results are of importance as the proposals are for a temporary unit with a consent (and lifetime expectancy) of five years.

Table 1 – Defended Model Results – Median Values

	Defended (excluding upper confidence interval)					
	1 in 200			1 in 1000		
	2015	2090	2115	2015	2090	2115
Model Grid Size (m)	5	5	5	5	5	5
Wet Cells	1	251	258	144	263	267
Elevation, mean (mAOD)	7.49	10.25	10.45	9.55	10.63	10.79
Elevation, max (mAOD)	7.49	10.31	10.47	9.58	10.64	10.79
Depth, mean (m)	0.07	0.87	1.04	0.52	1.19	1.33
Depth, max (m)	0.07	2.28	2.49	1.62	2.68	2.83
Velocity, mean (m/s)	0.01	0.96	1.04	0.55	1.15	1.20
Velocity, max (m/s)	0.01	2.12	2.26	1.13	2.56	2.65
Hazard, mean	0.58	1.70	1.87	1.23	2.06	2.14
Hazard, max	0.58	3.95	4.21	2.43	4.60	4.72

In the absence of 'up-to-date' Product 5 and 6 Data; the UKCP18 Methodology has been used to determine the potential tidal flood risk posed to the site. The updated 2018 model applies new sea level science and

improvements to statistical methods to update the 'pre-existing' (2011) extreme sea levels. The science behind climate change projections for sea level rise has changed substantially in recent years. There is greater confidence in the revised projections of global mean sea level presented by UKCP18, which reflects regional variation. This guidance has been updated to reflect the higher central allowance (70th percentile) and upper end allowance (95th percentile) of RCP² 8.5. This reflects an increase in global mean surface temperature of around 4.3°C by 2100.

Table 3 of the document sets out estimates of cumulative sea level rise for each local authority area to 2100 and 2120 (to reflect the 100-year lifetime expectancy for new residential developments. The allowances are derived using the UKCP18 2100 dataset. The allowances in Table 3 are provided as a guide, with the 2100 figure currently appropriate for development with a 75-year lifetime expectancy. As a minimum, development proposals should be assessed against the relevant regional 70th percentile presented in Table 3 of TAN15 to inform design levels. An assessment should also be made against the 95th percentile to inform mitigation measures, access / egress routes, and emergency plans. From the updated (2018) model the current extreme sea levels for the 1 on 200 (0.5% AEP) and 1 in 1000-year (0.1%) events are included in **Appendix D**.

Based upon recorded LiDAR levels and estimated DFLs during extreme sea events; the proposed site could flood by up to 1.53m during the T200CC (2100) (70th percentile) event. However, and as aforementioned, the proposals are for a temporary unit with a planning consent of 5 years. It can be confirmed that the existing sea flood defences will provide a SOP commensurate to the 1 in 200-year event (T200). It is not anticipated that the existing defences (in *Fair* condition) will fail / be breached within the next five years, as a result of the effects of climate change. Furthermore, there are no records of historical flooding (from all sources) at the site or in the vicinity.

Therefore, the site is currently at **Low** risk of flooding from the sea. The site is likely to / will become at greater risk of flooding during the future. However, as the proposals are temporary (5-years) the risks are highly unlikely to materialise into unacceptable consequences before the end of its useful lifetime.

3.3 Surface Water and Small Watercourse (Pluvial)

Surface water (or pluvial) flooding occurs when rainwater does not drain away through the normal drainage system or soak into the ground. It is usually associated with high intensity rainfall events but can also occur with lower intensity rainfall or melting snow where the ground is saturated, frozen or developed, resulting in overland flow and ponding in depressions in topography. Surface water flooding can occur anywhere without warning. However, flow paths can be determined by consideration of contours and relative levels.

The FMfP indicates the extent of flood risk from Surface water and Small watercourses (pluvial).

The whole of the application site is located within **Flood Zone 1** (pluvial). **Flood Zone 1** defines areas with less than a 0.1% (1 in 1000) chance of flooding from pluvial sources in a given year, including the effects of climate change. All developable aspects of the proposals are located within **Flood Zone 1**. Site access / egress is located within **Flood Zone 1** (pluvial).

The areas identified to be at risk of flooding from pluvial sources in the wider local vicinity can largely be attributed to topographical low points and existing / historical drainage ditches.

There are no distinct flow routes in the area which would direct any excess surface water towards the site.

The proposed development will be subject to successful SAB Application and thus, will need to incorporate SuDS as per Welsh Government Statutory standards for sustainable drainage systems – designing, constructing, operating and maintaining surface water drainage systems.

It can be concluded that the site is at **Low** risk of flooding from pluvial sources.

3.4 Sewer Flooding

Flooding from sewers can occur when a sewer is overwhelmed by heavy rainfall, becomes blocked, is damaged, or is of inadequate capacity.

There are no known records of notable flooding from sewers at the site or in the near vicinity.

There are no distinct flow routes in the area which would direct any potential flooding arising from the local sewer network serving the area.

It can be concluded that the risk of sewer flooding to the site is **Low**.

3.5 Groundwater Flooding

Groundwater flooding occurs when water levels underneath the ground rise above normal levels. Prolonged heavy rainfall soaks into the ground and can cause the ground to become saturated. This results in rising groundwater levels which leads to flooding above ground.

There are no known records of groundwater flooding incidents at or near to the site. The proposed development will be overlain predominantly by hardstanding which would prevent the ingress of groundwater to the surface.

It can be concluded that the risk of groundwater flooding is **Low**.

3.6 Artificial Sources of Flooding

There are no canals or other artificial / man-made surface water bodies within the immediate vicinity of the site or surrounding area which would pose a flood risk to the site.

The NRW 'Risk of Flooding from Reservoirs' map (**Appendix D**) shows that the site is not currently at risk of flooding from reservoirs.

The risk of flooding from reservoirs is extremely unlikely to happen. All large reservoirs must be inspected and supervised by a reservoir panel engineer, as the enforcement agency the NRW ensure that reservoirs are inspected regularly, and essential safety work carried out.

It can be concluded that the probability of flooding from artificial sources is **Low**.

3.7 Summary of Potential Flooding

It can be concluded that *Tidal* flooding poses the greatest source of flood risk to the site. However, this currently poses a **Low** flood risk to the site. Despite the fact that the site and proposals will become at greater *Tidal* flood risk in the future, as a consequence of the effects of climate change; the proposals for a temporary unit only have a lifetime expectancy (and planning consent) for up to five years. The potential sources of flooding are deemed manageable over the 5-year lifetime expectancy of the *Less Vulnerable* development proposals.

It can be concluded that the site is at **Low** risk of *Fluvial* and *Pluvial* flooding.

The risk of flooding to the development proposal has been addressed and a balanced judgement has been applied in recognising the potential consequences of flooding.

Suitable and recommended flood mitigation measures are discussed in Section 5. There are no records or incidents of any historic flooding at the site, nor within the vicinity. **Refer to Appendix D.**

4 TAN15 ASSESSMENT

4.1 Justifying the Location

As previously mentioned, the site falls within **Zone C2** of the NRW DAM map which is defined as:

'Areas of the floodplain without significant flood defence infrastructure' And;

'Used to indicate that only less vulnerable development should be considered subject to application of justification test, including acceptability of consequences. Emergency services and highly vulnerable development should not be considered'.

Figure 1 of TAN15 advises that **Zone C2** is used to indicate area that only *'Less Vulnerable'* Development should be considered, subject to application of the justification test, including acceptability of consequences.

The proposals for an industrial temporary storage structure are required for retention and expansion of the site's current facilities and provisions. Nisbets are an UK-based company of an importance within the food catering industry. Therefore, the proposals' location here is necessary to contribute to key employment objectives supported by the local authority, and other key partners, to sustain an existing settlement or region.

Furthermore, and to satisfy the latter part of the *Justification test*;

The proposals concur with the aims of PPW and meets the definition of previously developed (*Brownfield*) land.

Due to the 5-year life-span and temporary nature of the modular storage unit; 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 of TAN15 found to be acceptable.

The proposals are within the constraints of the existing and wider site boundary and are for a *temporary* unit with a lifetime span of 5-years. The proposals seek a 5-year planning consent.

It has already been established (and demonstrated) that the site is served by and benefits from formal flood defences.

Policy 6 of TAN15, *Justifying the location of development* states;

6.1 Much urban development in Wales has taken place alongside rivers and in the coastal plain. It is therefore inevitable, despite the overall aim to avoid flood risk areas, that some existing development will be vulnerable to flooding and fall within zone C. Some flexibility is necessary to enable the risks of flooding to be addressed whilst recognising the negative economic and social consequences if policy were to preclude investment in existing urban areas, and the benefits of reusing previously developed land. Further development in such areas, whilst possibly benefitting from some protection, will not be free from risk and could in some cases exacerbate the consequences of a flood event for existing development and therefore a balanced judgement is required.

Policy 7 *'Assessing flooding consequences'* of TAN15 states;

7.1 If a development proposal in zone C1, or in C2 if it is defined as being of low vulnerability, meets the test outlined in section 6, the justification will be in the knowledge that those developments will flood and will need to be planned accordingly. This section will apply in zone C, and those parts of zone B where flooding has been identified as a material consideration to allow for localised problems.

The proceeding section; *Mitigation Measures and Recommendations* addresses this.

5 MITIGATION & RECOMENDATIONS

The site is at risk from *Tidal* flooding, albeit a **Low** risk.

The site is deemed to be at either **No / Low / Residual** risk from flooding from all of the other potential sources assessed.

Taking a precautionary approach and as an additional factor of safety, mitigation measures should be incorporated into the proposed development to ensure that development is as safe as possible and there is:

- Minimal risk to life;
- Minimal disruption to people living and working in the area;
- Minimal potential damage to property;
- Minimal impact of the proposed development on flood risk generally; and,
- Minimal disruption to natural heritage.

External alterations should be considered. For instance, commercial flood guards (barriers) are available and should be fitted to doorways. They can be applied and removed as and when by site users / residents and can provide a protection and freeboard to inundation waters up to 0.6m and will prevent the ingress of waters to properties thus minimising and avoiding any potential internal / material damage. Other products which would protect the dwellings from inundation include flood fences, flood doors and air bricks.

Additional *internal* alterations that should be introduced where practically possible to the development include:

- Raised electronic control units and sockets;
- Install smart air bricks or air brick covers;
- Provide low level flood guards on all access points;
- Use plastic and stainless-steel fixtures and fittings and avoid wooden alternatives;
- Use solid flooring (tiled, resin, concrete) at lower ground level, where possible;
- Ensure that with the time afforded by advance warning, evacuation of property via safe egress and removal of valuables from the building can be implemented;
- Clearance of any existing surface water drainage system to improve drainage of the site and follow necessary maintenance procedures (to new and existing surface water drainage) to ensure that the system functions to optimum capacity;
- The predicted depths, rise, speed of inundation and velocities are likely to satisfy the TAN15 suggested tolerable conditions for more extreme events;
- Use robust flood resistant construction techniques.

All construction methods to be inherently flood resilient. For example, polished concrete floors preferable to plasterboard. It is helpful to refer to *BS85500: 2015, Flood resistant and resilient construction. Guide to improving the flood performance of buildings.*

If you live in a flood risk area, or you have flooded before, consider getting a chartered surveyor to carry out a flood survey. This will tell you where flood water might enter your property, how fast it will flow and where it could cause the worst damage. The surveyor can then use this information to help you choose the best flood protection for your property. Ensure to choose BSI kitemark certified flood protection products that meet the British standard for quality and safety. You can also follow the guidance and checklists in the property resilience Code of Practice to make sure the survey, installations or building work are completed to the correct standard.

Flood Alerts and Warnings

NRW Flood Alerts and Warnings cover this area. Site owners and residents / occupants should register to receive the service. Flood Warnings Direct is a free service that provides prior warnings of a fluvial flood event. Areas at risk of flooding from rivers (fluvial) and the sea (tidal) are warned, which relies on direct measurements of rainfall, river levels, tide levels, in-house predictive models, rainfall data and information from the Met Office. This service operates 24 hours / day 365 days a year. If flooding is forecast, warnings are issued using a set of easily recognisable codes.

It should be mentioned that Tidal forecast generally offer a greater period of warning compared to fluvial.

Appropriate documentation should be displayed to inform any users of the site of the potential risk. Documentation will be displayed at an appropriate position in the building. The documentation will indicate the risk of flooding and contain information on how prior warnings will be sent to the building. Further information on the documentation will comprise of the Floodline Warnings Direct telephone number, emergency services numbers and exit plans and egress directions from the hall, as identified in the evacuation procedure for the site.

The site owner should draw up an evacuation procedure for implementation during an extreme event. This should be done in conjunction with the appropriate professional bodies. An evacuation procedure should be drawn up after the developer has completed an action plan. The action plan is carried out and based on an assessment of the consequences of an extreme flood on the building.

The evacuation procedure should be a written document which should outline the course of action to site users during a flood.

Monmouthshire County Council Emergency Planning department should be consulted in regards to the evacuation plan and procedure.

The evacuation procedure should address the following topics:

- A list of important contacts, building services, suppliers and evacuation contacts for officers and users;
- A description or plan showing locations of key property, protective materials and service shut-off points;
- Basic strategies for protecting property and assisting recovery;
- Checklist of procedures that can be quickly accessed by users during a flood;
- Safe exit-plan (building and site);
- Safe exit route to higher ground outside the flood risk area (building and site), kept and displayed on site.

Refer to Appendix D.

5.1 Access and Egress

Safe access / egress is provided north west and then north east via the unnamed access roads within the industrial estate to an area in the north east extents that lies *outside* of the extreme flood extents (from all sources) at higher ground and *away* from the potential source of flood risk. Safe access / egress is also provided by Caerwent Lane (north bound). Refer to Figure 3, below.



Figure 3: Potential Proposed Flood Evacuation / Safe Egress Route Plan

5.2 Finished Floor Level (FFL)

In accordance with Building Regulations, finished floor levels (FFL) should be set 150mm above surrounding ground levels. The raising of FFLs / ground re-profiling to alleviate flood risk is not considered necessary or appropriate.

The temporary storage unit will have an approximate FFL in the order **8.6m AOD**.

5.3 Impact on Flood Risk Elsewhere

The development will not increase flood risk elsewhere or to third party land / infrastructure. For instance; there will be no loss of floodplain / storage. The proposals are within the constraints of the wider site boundary; are for 'Less Vulnerable' development on *Brownfield* Land which is already overlain by 100% impermeable (hardstanding) surfaces. Any displaced water would be contained within the wider site boundary and could cause some shallow flooding which would disperse away southwards, following the local topography. Any increase in flood risk locally, would be temporary (5-years). A successful SAB Application will ensure there is no increase in flood risk from pluvial sources cross the lifetime expectancy of the development, including the effects of climate change.

6 CONCLUSIONS

The proposals are for construction of a temporary industrial unit / structure with a footprint of approximately 4200m². The structure will not require any foundations and a consent of 5-years is sought.

The NRW DAM map shows the site to fall within **Zone C2**. Only '*Less Vulnerable*' development is permitted within Zone C2, subject to application of the justification test. The report concludes that the site and proposals successfully *pass* the *Justification test* as per TAN15.

The FMfP indicates the site to fall within **Flood Zone 1 (Rivers)**, **Flood Zone 1 (Surface water and small watercourses)** and **Flood Zone 3 (Sea)**. The site is served by Tidal flood defence embankments which provide a SOP commensurate to at least the current T200 event.

It can be concluded that *Tidal* flooding represents the greatest potential flood risk to the site, albeit a **Low** risk.

The potential consequences of flooding across the 5-year lifespan of the development have been considered and are deemed to be acceptable and manageable across its lifespan. The developer wholly accepts the potential risks and inherent consequences of flooding here.

All other potential sources of flooding have been assessed and are concluded to be either **Low, residual risk** or **null**.

The area is served by a rigorous system of Flood Warnings and Alerts which would enable more than sufficient time for evacuation of the site.

The proposals will not result in an increase in flood risk elsewhere or to third party land / infrastructure.

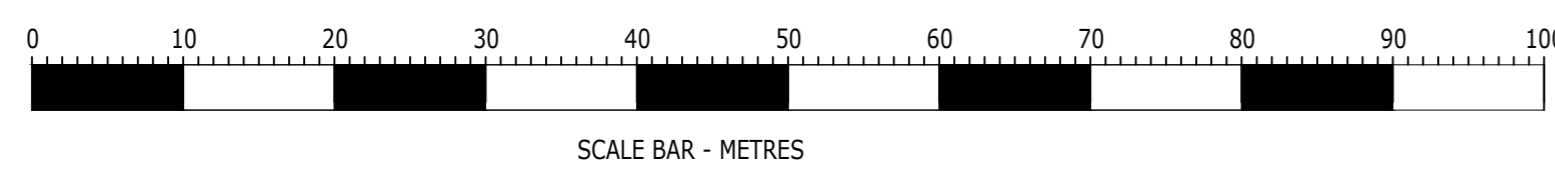
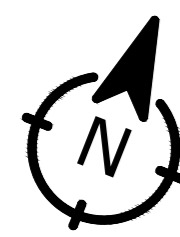
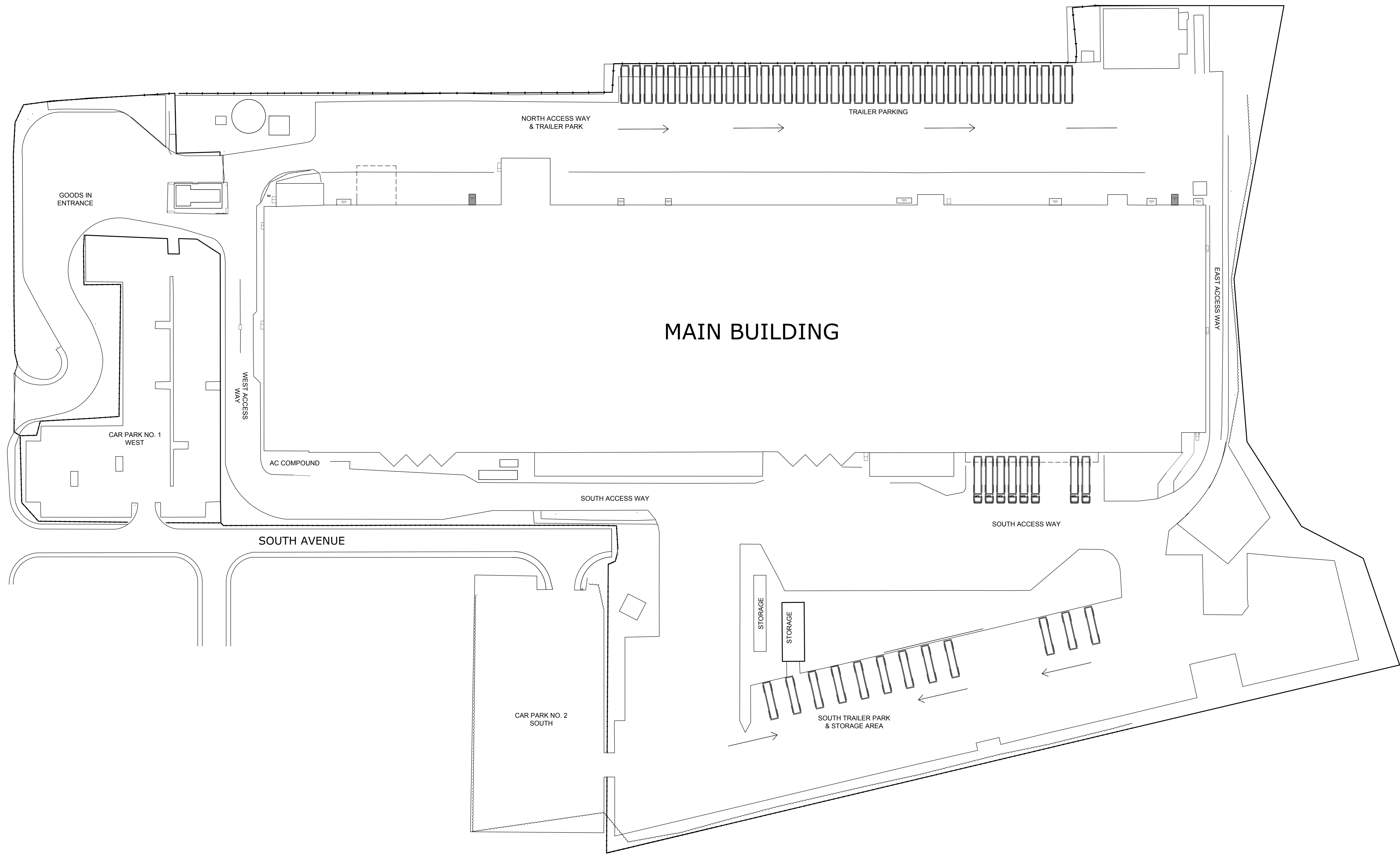
The proposals are fully compliant with the guidance and principles laid out in TAN15 and PPW. The proposals concur with the aims and objectives of the LDP.

The level of detail and content of the FCA are **at least** commensurate with the requirements for the relatively small nature and scale of a temporary (5-year) '*Less Vulnerable*' development.

The proposals are subject to a successful SAB Application and all drainage infrastructure to be designed and constructed in accordance with national and regional policy, guidance and legislation.

The risk of flooding to the development proposal has been addressed and a balanced judgement has been applied in recognising the potential consequences of flooding.

APPENDIX A: Existing Site and Location Plan



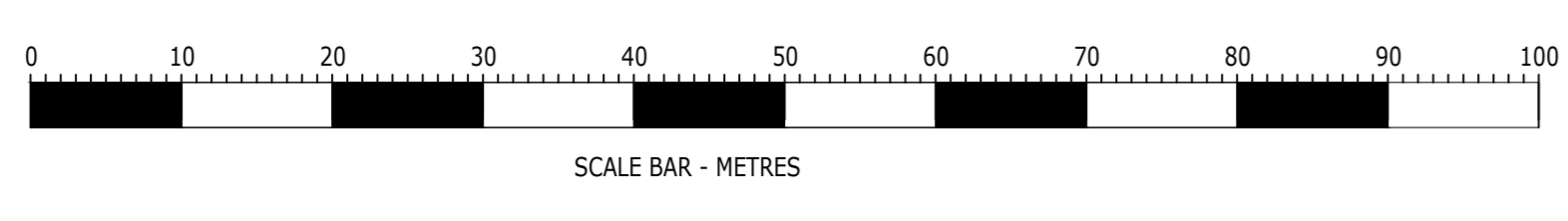
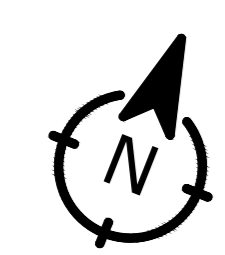
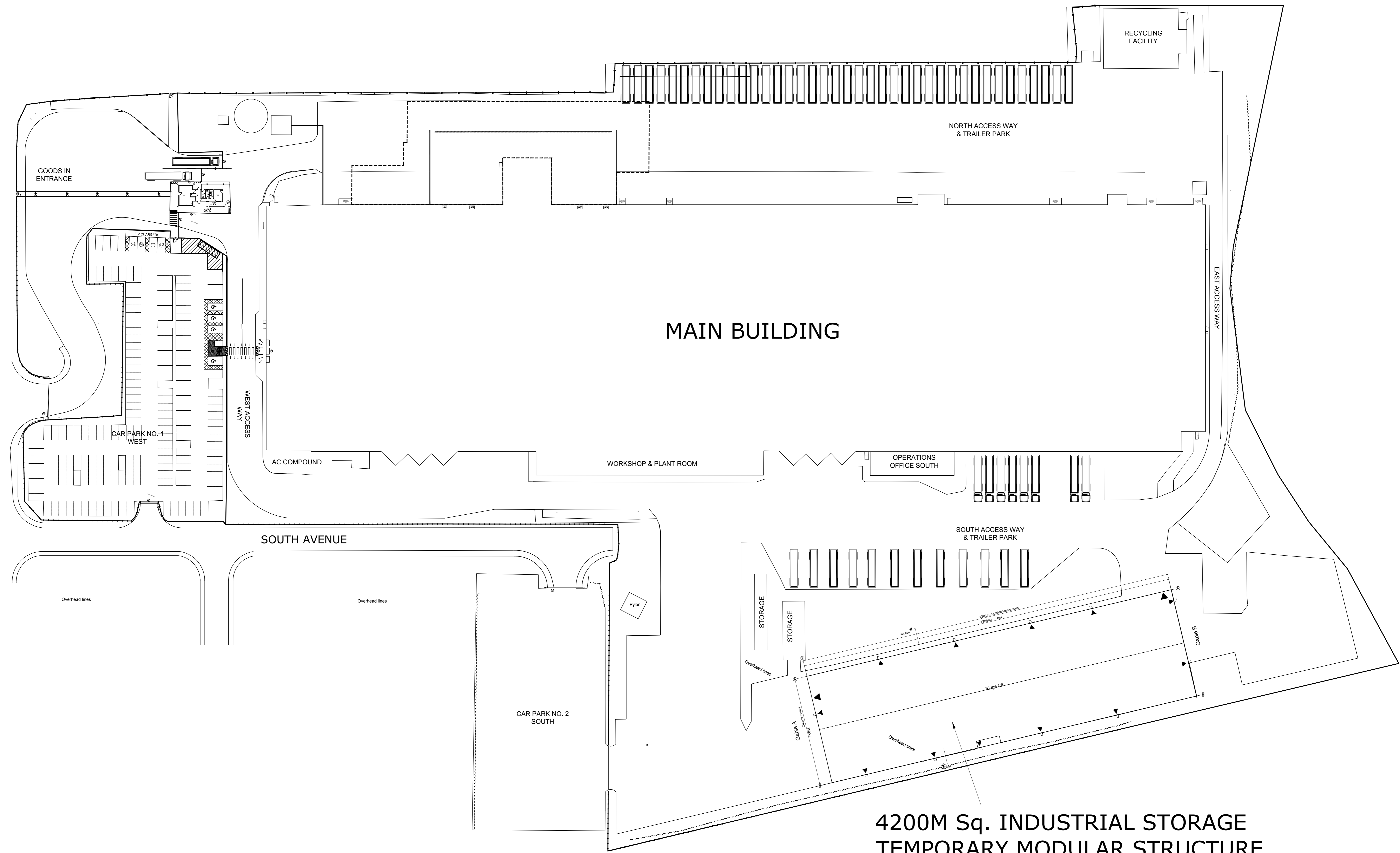
NISBETS

Project NISBETS CHEPSTOW - Delta 2000
 Location Newhouse Farm Industrial Estate NP16 6UD
 Title EXISTING WHOLE SITE PLAN
 Date 04.03.2024
 Scale 1:500 @ A0

Drawn By GS
 Drawing No. NIS C EXIST SITE PLAN 03

The information in this drawing is confidential and should not be disclosed to others without the written permission of Nisbets. Site dimensions where indicated to be checked. If encountered, discrepancies between drawing/specification, contact Nisbets for clarification. RESPONSIBILITY IS NOT ACCEPTED FOR ERRORS MADE BY OTHERS IN SCALING FROM THIS DRAWING. ALL CONSTRUCTION INFORMATION SHOULD BE TAKEN FROM FIGURED DIMENSIONS ONLY.

APPENDIX B: Proposed Development Plans



**4200M Sq. INDUSTRIAL STORAGE
TEMPORARY MODULAR STRUCTURE**



Project NISBETS CHEPSTOW - Delta 2000
 Location Newhouse Farm Industrial Estate NP16 6UD
 Title PROPOSED SITE PLAN - TEMP STRUCTURE
 Date 04.03.2024
 Scale 1:500 @ A0

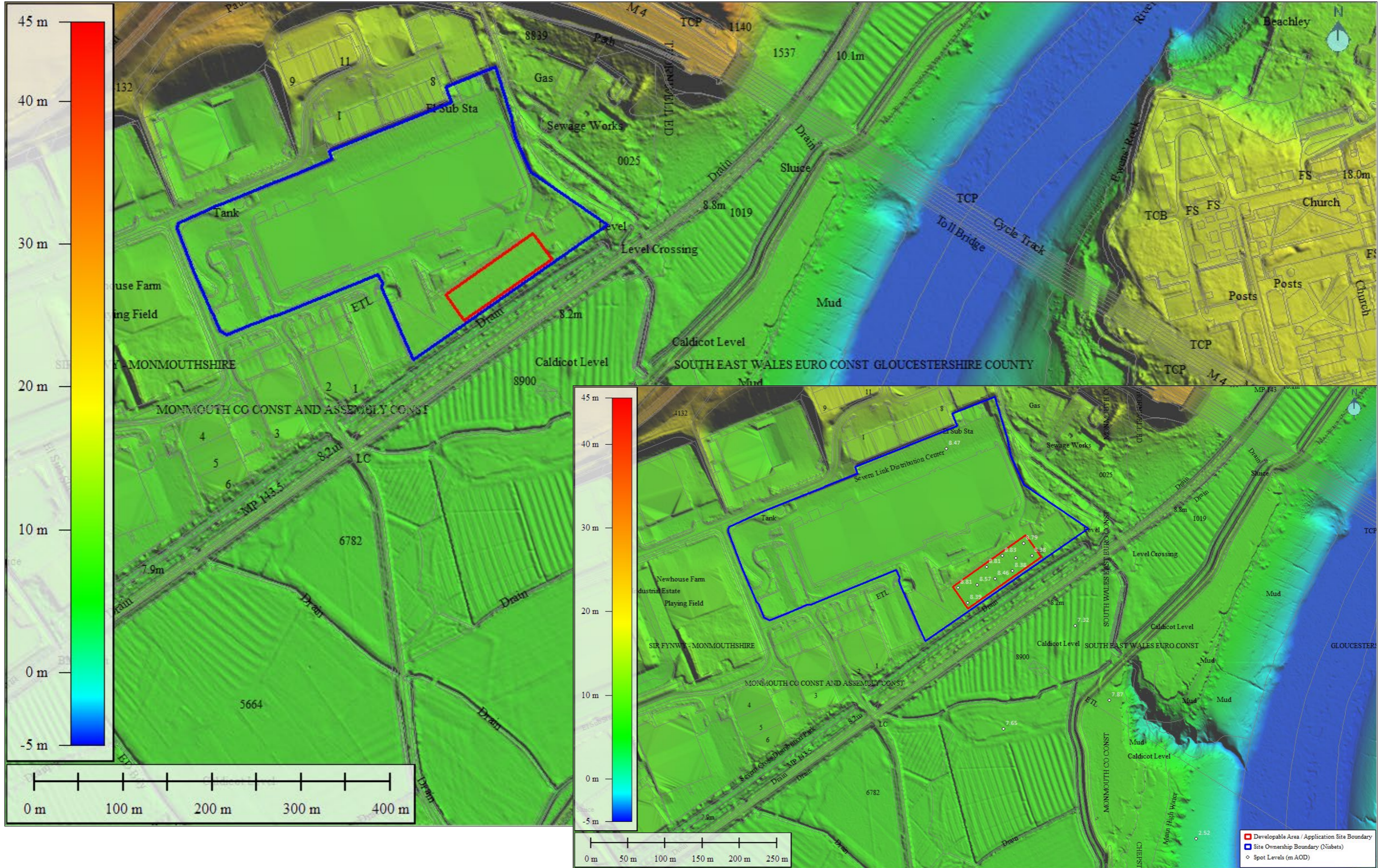
Drawn By GS
 Drawing No. NIS C PROP SITE PLAN 04

The information in this drawing is confidential and should not be disclosed to others without the written permission of Nisbets. Site dimensions where indicated to be checked. If encountered, discrepancies between drawing/specification, contact Nisbets for clarification. RESPONSIBILITY IS NOT ACCEPTED FOR ERRORS MADE BY OTHERS IN SCALING FROM THIS DRAWING. ALL CONSTRUCTION INFORMATION SHOULD BE TAKEN FROM FIGURED DIMENSIONS ONLY.



OS Existing Site and Location Plan overlain with the proposed *Temporary Modular Structure*

APPENDIX C: Topographical Data



NRW LiDAR 1m Resolution Digital Terrain Model (DTM) Extract to m AOD

APPENDIX D: NRW Flood Maps and Supporting Information

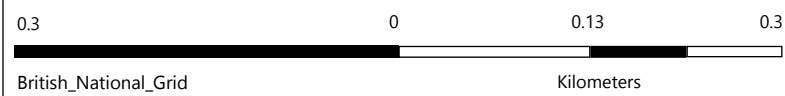
18045
NRW DAM

Allwedd / Map Key

- Zone C1
- Zone C2
- Zone B
- Zone A

Graddfa / Scale at A3 1:5,000

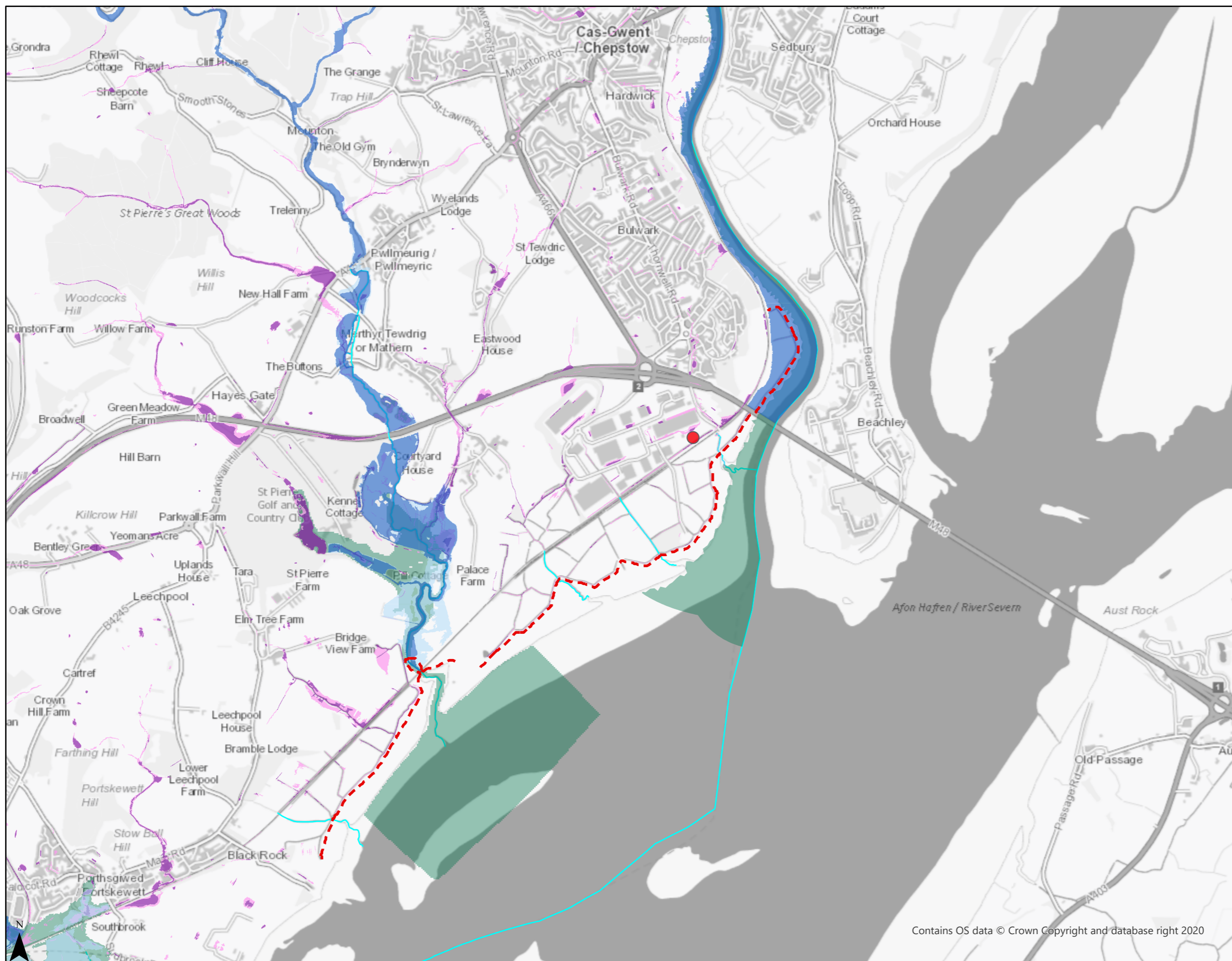
Dyddiad / Date
02/11/2023



Flood Map for Planning - Detail
18045 - Nisbets Distribution Centre

Legend

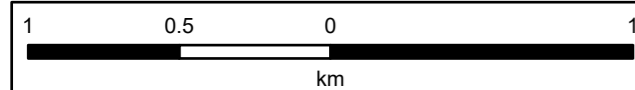
- - - Flood Defence Locations
- TAN15 Defended Zones
- Rivers
- Sea
- Rivers and Sea
- Rivers
- Flood Zone 3
- Flood Zone 2
- Surface Water and Small Watercourses
- Flood Zone 3
- Flood Zone 2
- Recorded Flood Extents
- Flood Risk from Reservoirs
- Main Rivers



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Date: 18/03/2024



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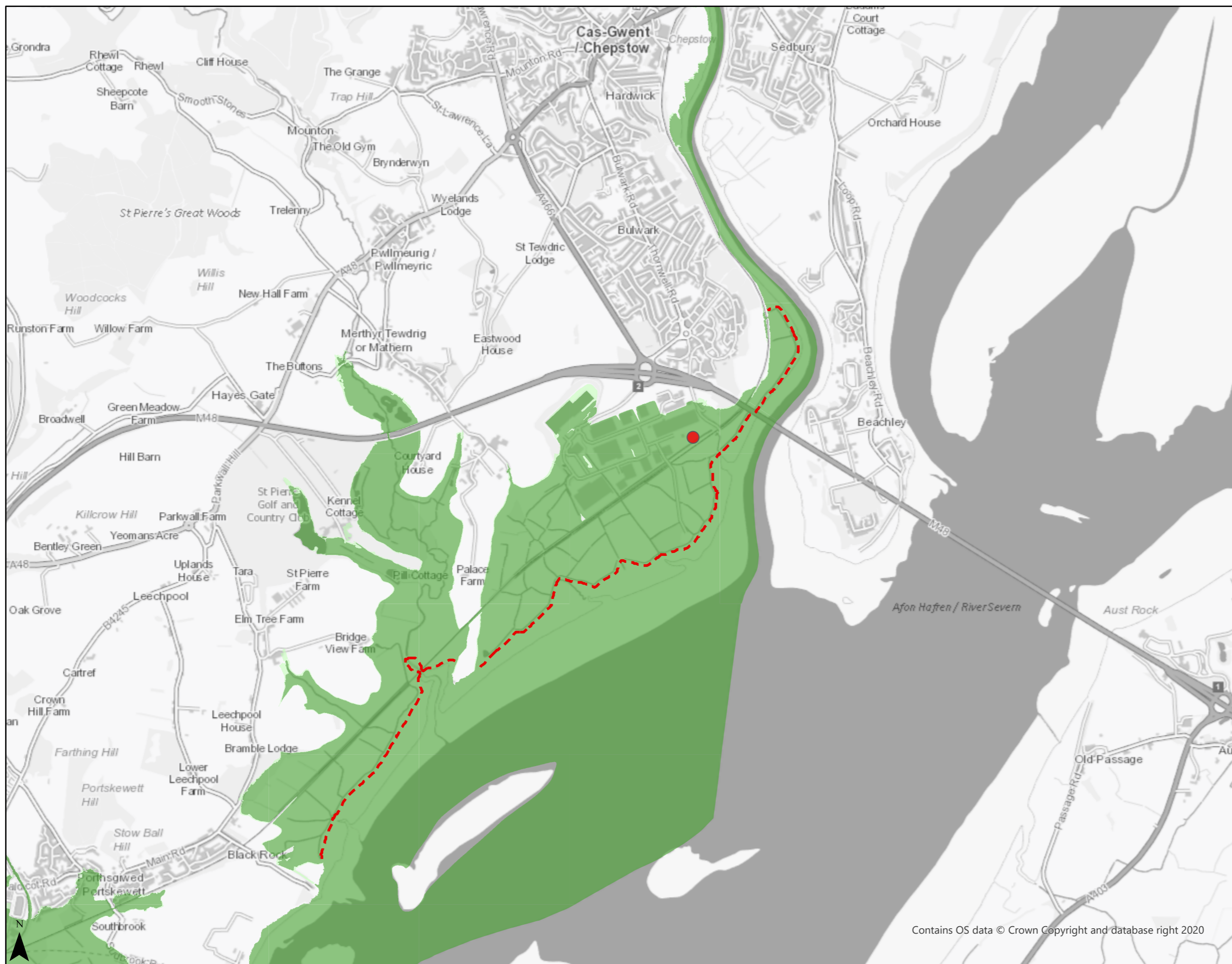
<https://naturalresources.wales/flooding/disclaimer-for-our-flood-and-coastal-erosion-risk-maps/?lang=en>

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Flood Map for Planning - Detail
18045 - Nisbets Distribution Centre

Legend

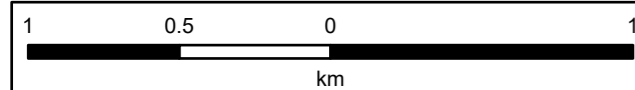
- - - Flood Defence Locations
- TAN15 Defended Zones
- Rivers
- Sea
- Rivers and Sea
- Sea
- Flood Zone 3
- Flood Zone 2



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Local Authority Area	Allowance (percentile)	Mean sea level rise (metres) by 2100 <small>*(UKCP18 baseline 1981-2000)</small>	Mean sea level rise (metres) by 2120 <small>*(UKCP18 baseline 1981-2000)</small>
Newport	70th	0.85	1.01
	95th	1.11	1.33

Feature Information ✕

Name:

Feature Type: Unknown Point Feature

Geometry: Point location: 346260.300 183969.500 (Lat/Lon: 51° 33' 04.8679" N, 2° 46' 30.2911" W)

Layer: Coastal_Design_Sea_Levels_Coastal_Flood_Boundary_Extreme_Sea_Levels | Metadata...

Right click on an entry for more options (i.e. open URL, etc.)

Attribute	Value
location	UK MAINLAND
chainage	_382
x_bng	346260.300000000000000000
y_bng	183969.500000000000000000
base_year	2017
hat_od	8.1300000000000000000000
mhws_od	6.7500000000000000000000
t1	8.1100000000000000000000
t2	8.2200000000000000000000
t5	8.3700000000000000000000
t10	8.4900000000000000000000
t20	8.6100000000000000000000
t25	8.6500000000000000000000
t50	8.7900000000000000000000
t75	8.8600000000000000000000
t100	8.9200000000000000000000
t150	9.0100000000000000000000
t200	9.0700000000000000000000
t250	9.1200000000000000000000
t300	9.1600000000000000000000
t500	9.2700000000000000000000
t1000	9.4300000000000000000000
t10000	10.0500000000000000000000
c1_t1	8.1000000000000000000000



Tidal Flood Risk Supporting Information

18045 – Nisbets Distribution Centre, Chepstow, NP16 6UD

Feature Information

Name:

Feature Type: Unknown Line Type

Geometry: 10 vertices, Length: 297.69 m, Bounds: (353936.560, 190740.190, 354003.634, 191004.666)

Layer:

Description: Defence

Right click on an entry for more options (i.e. open URL, etc.)

Attribute	Value
objectid	1312
amxid	EMB1500483
nrwarea	South East
subsubcata	FR/19/S095 - SEW - Sea Defences 3
type	Defence
subtype	Embankment
protection	Coastal
name	Embankment - 103HA90020101C01
assetdescr	Hunger Pill Embankment No.1
bank	Coastal
length	297.580000000000000000000000000000
builtdate	00000000
currentcon	3 - Fair
lastaction	3 - Fair
currentsop	0.00000000000000000000000000000000
designsop	200.000000000000000000000000000000
effectivec	9.43000000000000000000000000000000
designdcl	0.00000000000000000000000000000000
actualdcl	0.00000000000000000000000000000000
designucl	0.00000000000000000000000000000000
actualucl	0.00000000000000000000000000000000

Feature Information

Name:

Feature Type: Unknown Line Type

Geometry: 5 vertices, Length: 324.32 m, Bounds: (354003.634, 191004.666, 354197.400, 191259.600)

Layer:

Description: Defence

Right click on an entry for more options (i.e. open URL, etc.)

Attribute	Value
objectid	336
amxid	EMB1501141
nrwarea	South East
subsubcata	FR/19/S095 - SEW - Sea Defences 3
type	Defence
subtype	Embankment
protection	Coastal
name	Embankment - 103HA90010103C01
assetdescr	Wye Bridge Embankment No.2
bank	Coastal
length	324.200000000000000000000000000000
builtdate	00000000
currentcon	3 - Fair
lastaction	3 - Fair
currentsop	0.00000000000000000000000000000000
designsop	200.000000000000000000000000000000
effectivec	9.67000000000000000000000000000000
designdcl	0.00000000000000000000000000000000
actualdcl	0.00000000000000000000000000000000
designucl	0.00000000000000000000000000000000
actualucl	0.00000000000000000000000000000000

Nisbets Distribution Centre, Chepstow, NP16 UD

POTENTIAL LOSS OF FLOOD STORAGE /
DISPLACEMENT OF INUNDATION WATERS DURING
CRITICAL, EXTREME EVENTS

ASSUMING A FFL OF 8.6 m AOD

AND MAX DFL OF 9.92 m AOD during T200C (2100)
Event

Then; site Area could flood by up to 1.32 m

PROPOSED UNIT HAS A SURFACE AREA OF 4200 m²

$4200 \times 1.32 = \underline{5,544 m^3}$ of potentially
displaced flood water

would increase significantly in critical events
exceeding the T200 C (2100) event.

* FFL of 8.6 m AOD has been deduced
by taking an average (mean) level from
the recorded LIDAR spot levels (8.45 m AOD)
+ 0.15 m (150mm) as per building regs.

Nisbets Distribution Centre, Chapstow, NP16 6UD

COASTAL FLOOD BOUNDARY EXTREME SEA LEVELS

$T_{200} = 9.07 \text{ m AOD}$

$T_{200} \text{ CC (2120)}$

+ 1.01 (70%) = 10.08 m AOD

+ 1.33 (95%) = 10.4 m AOD

DFL's

$T_{2000} = 9.43 \text{ m AOD}$

$T_{2000} \text{ CC (2120)}$

+ 1.01 (70%) = 10.44 m AOD

+ 1.33 (95%) = 10.76 m AOD

DFL's

$T_{200} \text{ CC (2100)}$

+ 0.85 (70%) = 9.92 m AOD

+ 1.11 (95%) = 10.18 m AOD

DFL's

$T_{1000} \text{ CC (2100)}$

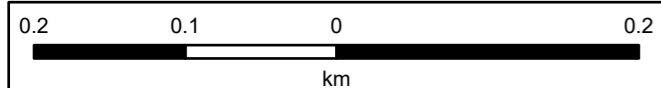
+ 0.85 (70%) = 10.28 m AOD

+ 1.11 (95%) = 10.54 m AOD

Flood Warning and Alert Areas
18045 - NRW Flood Alert Areas

Legend

 Flood Alert Areas



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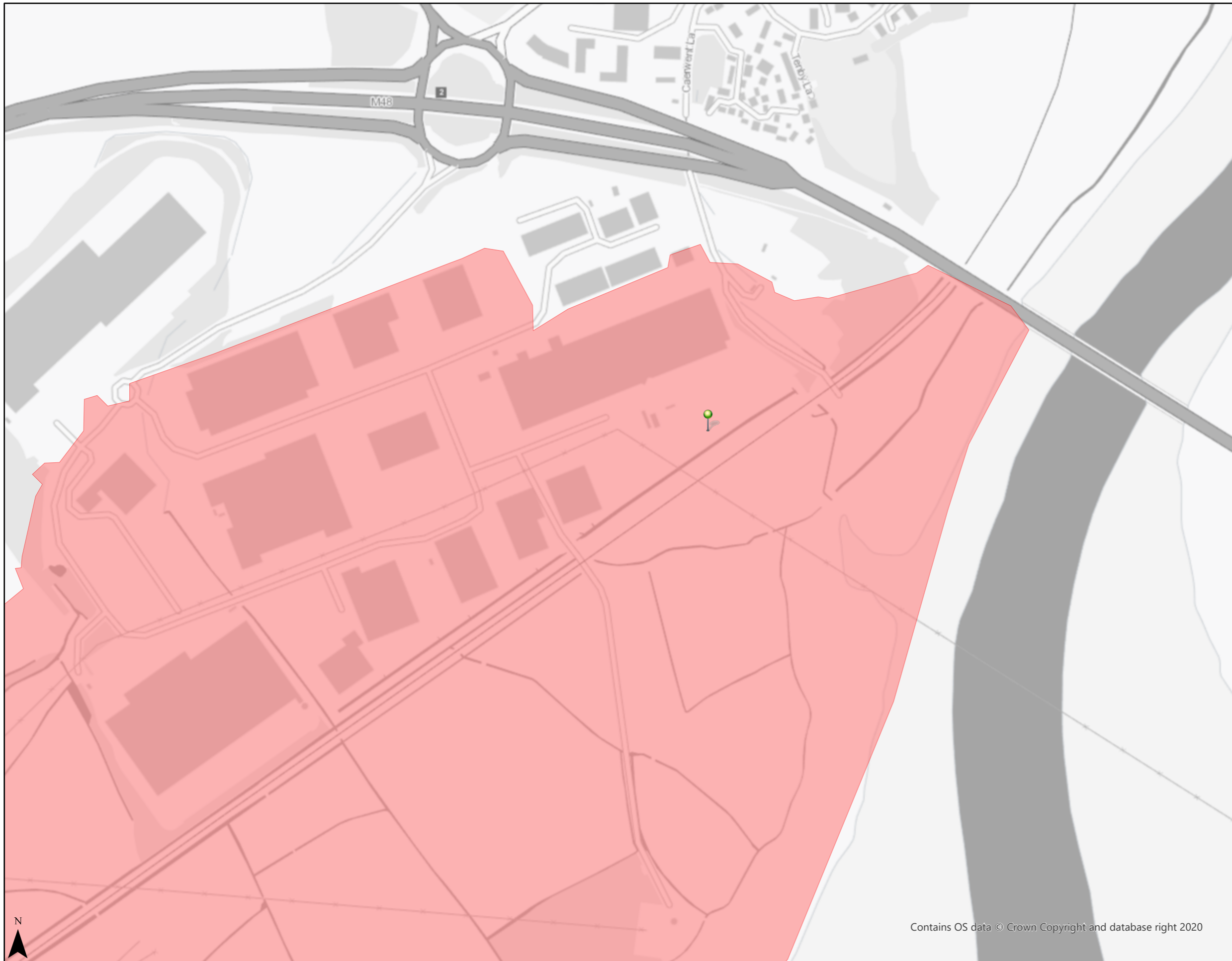
Date: 18/03/2024

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Flood Warning and Alert Areas
18045 - NRW Flood Warning Areas

Legend

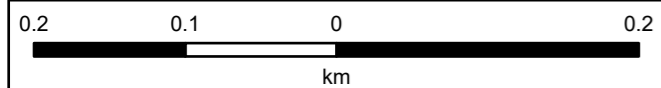
 Flood Warning Areas



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