

Resolven Containerised Storage Flood Consequences Assessment

Version 3

August 2023

**Prepared for:
Lockspot Ltd.**

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Self Storage

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This report describes work commissioned by Lockspot Ltd. by an instruction dated 2nd March 2023. The Client's representative for the contract was Taylor Rees of Lockspot Ltd. Rebekah Alford of JBA Consulting carried out this work.

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1 Introduction

1.1 Terms of reference

JBA Consulting (JBA) were commissioned by Lockspot Ltd to undertake a Level 1 Flood Consequences Assessment (FCA) to support a retrospective planning application for the retention of steel container based self-storage facilities at Old TRW Car Park, Resolven.

This FCA assesses and demonstrates the suitability of the proposed development and describes the flood mitigation measures recommended to appropriately manage flooding at the site.

1.2 FCA requirements

This FCA follows Welsh Government guidance on development and flood risk set out in Technical Advice Note 15: Development and Flood Risk (TAN-15). Where appropriate, the following aspects of flood risk should be addressed in all planning applications over their expected lifetime:

- The likely mechanisms of flooding
- The likely source of flooding
- The depths of flooding through the site
- The speed of inundation of the site
- The rate of rise of flood water through the site
- Velocities of flood water across the site
- Overland flow routes
- The effect of access and egress and infrastructure, for example, public sewer outfalls, combined sewer outflows, surface water sewers and effluent discharge pipes from wastewater treatment works
- The impacts of the development in terms of flood risk on neighbouring properties and elsewhere on the floodplain.

2 Site description

2.1 Site summary

The site is located in part of the Old TRW Car Park, Resolven as shown in Figure 2-1. The site approximately 0.15 hectares in size and is currently comprised of 64 raised steel container based self-storage facilities. The site is bounded by industrial units to the south and west, and car parking to the north. The Resolven public park lies to the northeast of the proposed development. Table 2-1 summaries the key characteristics of the site.

Table 2-1 Site Summary

Site summary	Description
Site name	Resolven Containerised Storage
Site area	0.15ha
Existing land use	Car Park
Purpose of development	Self-storage facilities
OS NGR	SN 82566 02617
Local Planning Authorities	Neath Port Talbot Council
Lead Local Flood Authority	Neath Port Talbot Council



Figure 2-1 Site Location

2.2 Site topography

The Natural Resources Wales (NRW) Open Source 1m Light Detection and Ranging (LiDAR) data has been used in Figure 2-2 to display ground levels across the site and surrounding area. The site is generally level with ground levels increasing from 21.37mAOD in the northwest corner of the site to a maximum of 21.83 mAOD to the southeast of the site.

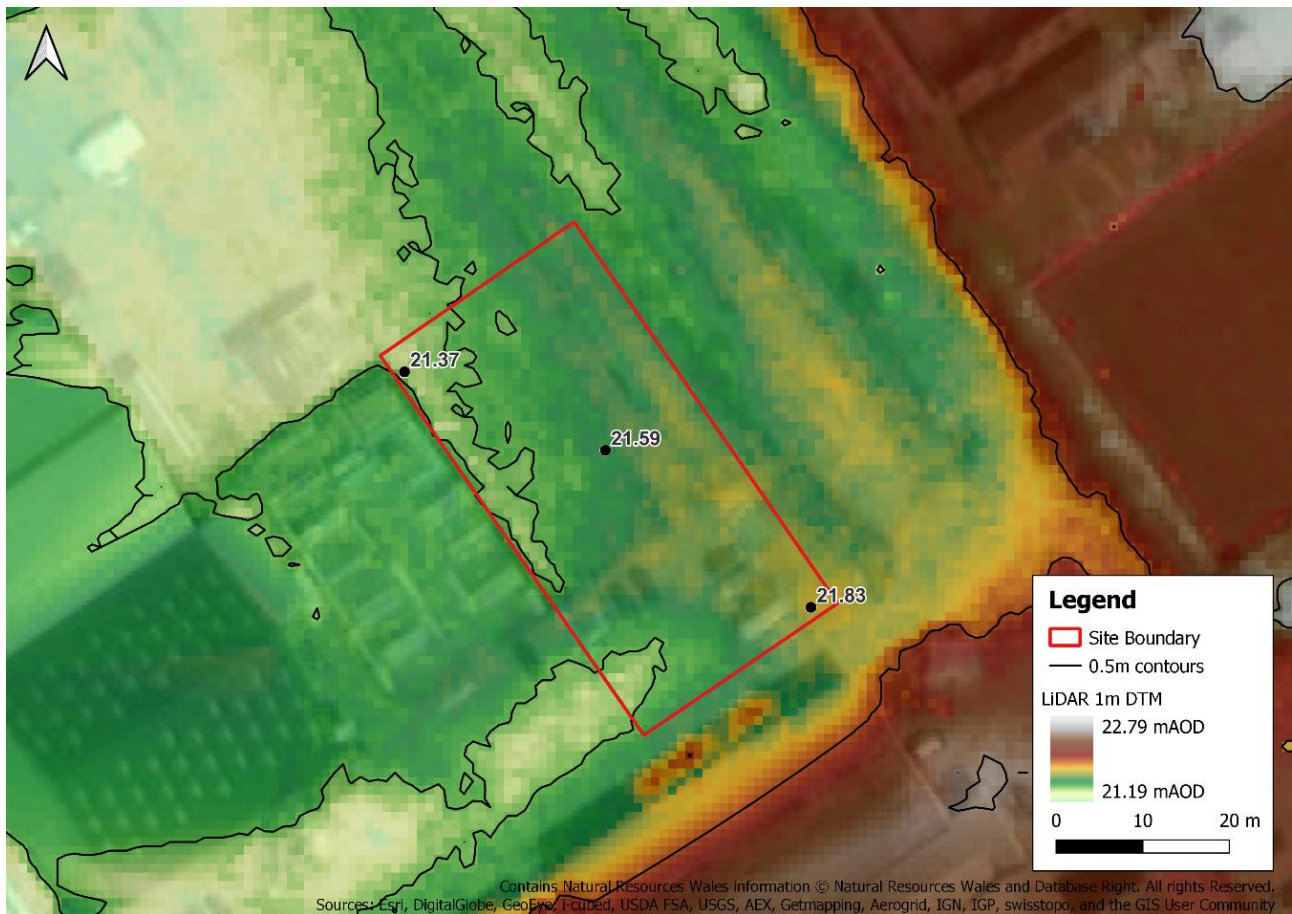


Figure 2-2 Site Topography

2.3 Watercourses and Flood Defences

The site is surrounded by a number of NRW main rivers and ordinary watercourses. The River Neath, an NRW main river, flows in a south westerly direction approximately 220m northwest of the site as shown in Figure 2-3. The second NRW main river, the Clydach Brook flows in a northerly direction approximately 430m east of the site, converging with the River Neath approximately 580m north of the site.

Part of the site is protected from flooding from the Clydach Brook by formal flood defences. The Neath Urban Flood Risk Management (UFRM) System consists of embankments and walls along the banks of the Clydach Brook, which can be seen in Figure 2-3.

The Melin Court Brook flows approximately 715m to the southwest of the site. The Neath Canal lies to the north of the River Neath, approximately 350m north of the site. There is a small unnamed ordinary watercourse 190m south of the site.

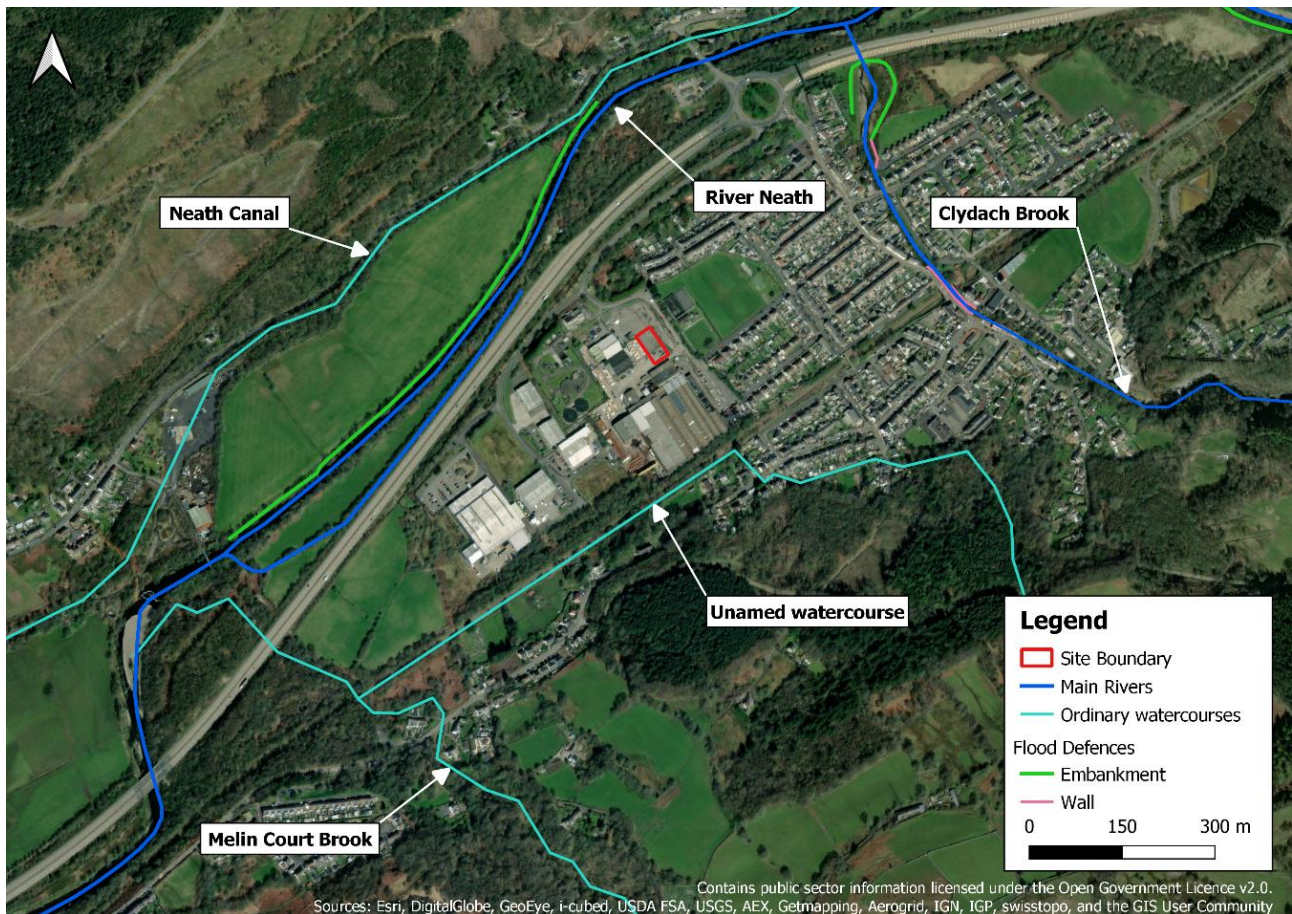


Figure 2-3 Watercourses

2.4 Soils and geology

The geology of the site has been assessed using the British Geological Survey (BGS) GeoIndex Viewer¹. The bedrock is shown to be Rhondda Member comprised of sandstone. The superficial geology is formed of Alluvium Deposits comprised of clay, silt, sand and gravel.

The soils on the site have been assessed on the Cranfield University Soilscape viewer² and are shown to be loamy and clayey floodplain soils with naturally high groundwater.

2.5 Development proposal

The retrospective planning application is for the retention of a steel container based self-storage facility, as shown in Figure 2-4. The nature of the containers mean they

1

https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.38316906.832430431.1667313163-929330974.1667313163

2 Cranfield Soilscales Viewer <https://www.landis.org.uk/soilscales/>

are not intended as a permanent development and are considered temporary. The development plans can be seen in Appendix A.

The containers are raised above the existing ground level on concrete blocks with voids underneath the shipping containers, and timber cladding around the outside as shown in the photographs below. The containers are typically raised 0.35m off the ground.



Figure 2-4 Steel container based self-storage facilities at the site



Figure 2-5 Raised container



Figure 2-6 Void area under the raised container

3 Planning Policy and flood risk

3.1 Planning Context

Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales. These policies have the aim that all development in Wales is sustainable and improve the social, economic, environmental, and cultural wellbeing of Wales as set out in the Wellbeing of Future Generations Act 2015.

Technical Advice Note 15 (TAN-15), introduced by the Welsh Government in 2004, provides technical guidance relating to development planning and flood risk in Wales. The initial requirements of TAN-15 are to identify the vulnerability classification(s) and flood zones relevant to the proposed development, and to apply this information to the application of the justification tests.

An update for TAN-15 was released in October 2021 and was due to come in force on the 1st December 2021. However, Welsh Government subsequently suspended the implementation of the new TAN-15 and it is uncertain as to when this shall now come into force. Although the new TAN-15 is not a material consideration, Welsh Government and NRW advise that some consideration is given to the draft Flood Map for Planning (FMfP) as best available information. Therefore, where a site is located in a FMfP flood risk zone it is recommended that an FCA is carried out.

As a result of the above, both the DAM and the FMfP are considered as part of this FCA, although only the policies of the existing TAN-15 have been considered.

3.2 Vulnerability classification

TAN-15 assigns one of three flood risk vulnerability classifications to a development, as shown in Table 3-1. The proposed development is for commercial use. Consequently, the development is classified as less vulnerable development.

Table 3-1 Development categories defined by TAN-15

Development Category	Types
Emergency services	Hospitals, ambulance stations, fire stations, police stations, coastguard stations, command centres, emergency depots and buildings used to provide emergency shelter in time of flood.

Development Category	Types
Highly vulnerable development	All residential premises (including hotels and caravan parks), public buildings, (e.g. schools, libraries, leisure centres), especially vulnerable industrial development (e.g. power stations, chemical plants, incinerators), and waste disposal sites.
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.

3.3 Development Advice Map (DAM)

DAM zone classification is used to trigger different planning actions based on a precautionary assessment of flood risk. Figure 3-1 shows that the proposed development is located in DAM Zone C2.



Figure 3-1 Development Advice Map Zones

Zone C2 is described as “areas of the floodplain without significant flood defence infrastructure.” Less vulnerable development within Zone C2 can occur subject to the application of a Justification Test, including the acceptability of consequences.

3.4 Flood Map for Planning Classifications (FMfP)

The new TAN-15 will replace the DAM with the Flood Map for Planning (FMfP). Whilst the new TAN-15 is not a material consideration until implemented, it does illustrate the current policy thinking of Welsh Government and in some cases the FMfP may constitute best available information. Consequently, information on the FMfP is provided for information only.

3.4.1 Flood Map for Planning- Rivers

Figure 3-2 shows that the site is located within Flood Zone 3 of the Flood Map for Planning for Rivers. Flood Zone 3 represents areas which have a greater than a 1% Annual Exceedance Probability (AEP) chance of flooding in a given year, including climate change. Part of the proposed development is protected by the presence of flood defences. These flood defences form part of the TAN-15 Defended Zone.

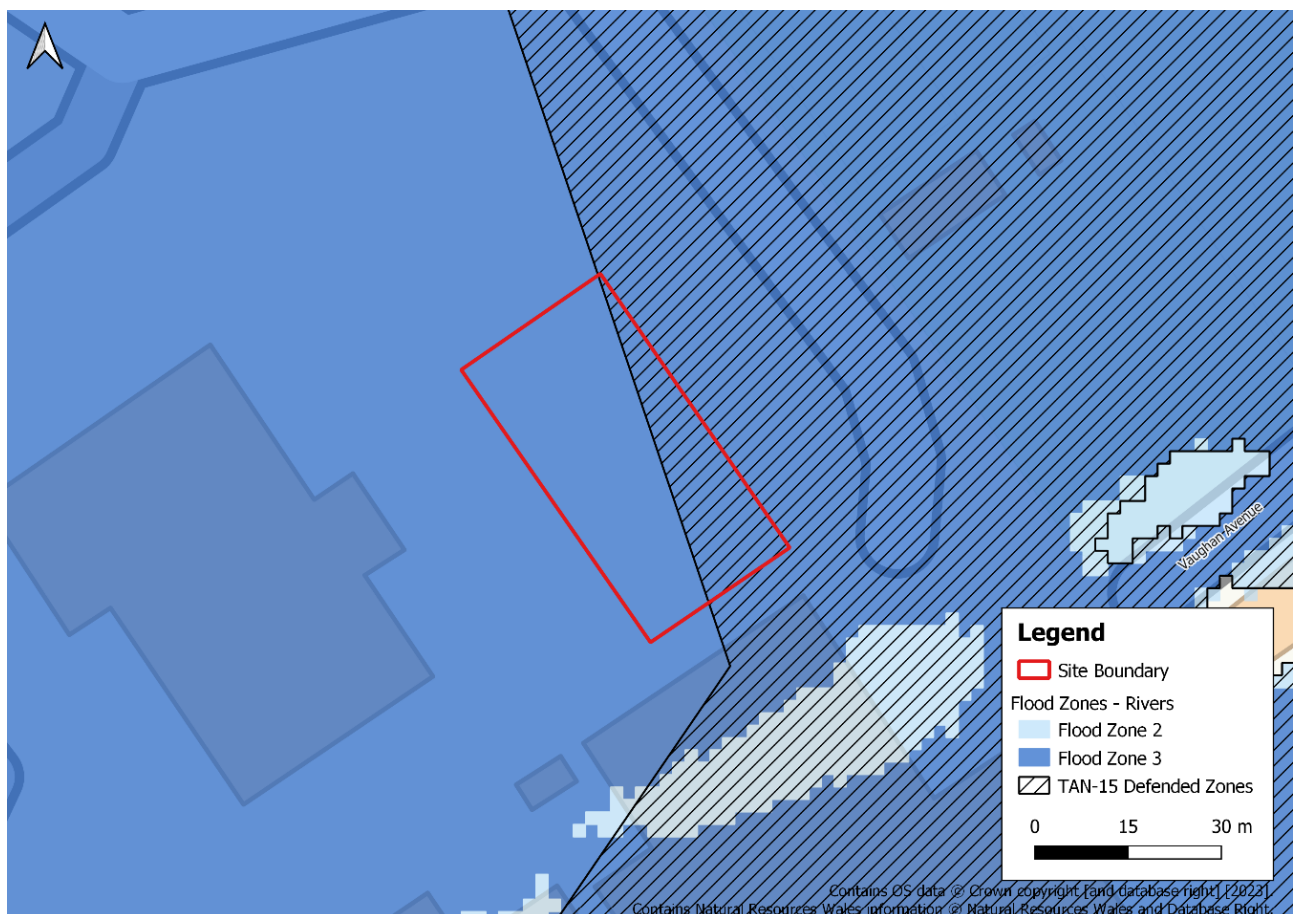


Figure 3-2 Flood Map for Planning- Rivers

3.4.2 Flood Map for Planning- Sea

The development site is located within Flood Zone 1 for the Flood Map for Planning for the sea. Flood Zone 1 represents areas which have less than 1 in 1000 (0.1%) (plus climate change) chance of flooding in a given year. Zone 1 is represented by a transparent layer and has therefore not been shown graphically.

3.5 Local Development Plan

The Local Development Plan (LDP) is a land-use document in which the council sets out its land use development over a 15-year period. The current LDP for Neath Port Talbot³ was adopted in 2016 and provides a framework to guide future development and set out where, when, and how new development can take place within the plan period (2011-2026).

The development of the site has provided new employment opportunities and helps to meet policy SP11 of the LDP which aims to ensure Neath Port Talbot achieves its economic potential.

3.6 Justification test

Development in Zone C2 is subject to the justification test. TAN-15 states that development will be justified if it can be demonstrated that:

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

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

It concurs with the aims of Planning Policy Wales and meets the definition of previously developed land;

and,

The potential consequences of a flooding event for the particular type of development have been considered and found to be acceptable.

The proposed development has been assessed against the requirements of the Justification Test with the results summarised in Table 3-2. All the criteria have been satisfied with regards to the proposed development.

³ https://www.npt.gov.uk/media/7321/ldp_written_statement_jan16.pdf?v=20170727124344

Table 3-2 Justification Test applied to the proposed development

TAN-15 Justification Criteria	Comments	Achieved
Its location is necessary to assist a local authority regeneration initiative or strategy, or contribute to key employment objectives, necessary to sustain an existing settlement or region	The proposed development will promote growth in the local economy, providing new employment and help to meet strategic policy SP11.	✓
The site meets the definition of previously developed land and concurs with the aims of Planning Policy Wales (i.e. the presumption in favour of sustainable development)	The proposed development site meets the criteria of previously developed land.	✓
The potential consequences of a flooding event for the particular type of development have been considered and found to be acceptable.	An assessment of the flood consequences at the site has demonstrated the proposed acceptability of the development. See Section 4 & 5.	✓

4 Flood Risk Assessment

This section assesses the risk to the proposed development from all sources of flooding, based solely on a desk-based analysis of existing publicly available flood risk data.

4.1 Review of existing flood data

The latest available information on flood risk at the site, published by Natural Resources Wales, is summarised in Table 4-1.

Table 4-1 Summary of flood risk

Source of flooding	Onsite Presence	Description
Flood Risk from Rivers	✓	The site is at low to medium risk of river flooding.
Flood Risk from the Sea	✗	The site is at very low risk of tidal flooding.
Flood Risk from Surface Water and Small Watercourses	✗	The site is at very low risk of surface water flooding
Flood Risk from Groundwater	✗	The site is at low of flooding from groundwater.
Flood Risk from Reservoirs	✓	The site is at low risk of flooding from reservoirs.
Flood Risk from Sewers	✗	The site is at low risk of flooding from sewers.

4.2 Historical flooding

NRW's map of recorded flood extents does not show any evidence of historic flooding on the site. Further, there are no other records of historic flooding at the site identified in the Neath Port Talbot County Borough Council Flood Risk Management Plan⁴.

4.3 Flood Risk from Rivers

NRW's Flood Risk Assessment Wales (FRAW) flood mapping indicates that the majority of the site is located within the **low risk** area of flooding from rivers, with

4 <https://www.npt.gov.uk/media/5399/floodriskmanagementplan15.pdf?v=20170627002320>

between a 1 in 1000 and 1 in 100 (0.1% - 1% AEP) chance of flooding in any given year, as shown in Figure 4-1. A section of the site along the western boundary is located within an area at **medium risk** of flooding from rivers, with between a 1 in 100 and 1 in 30 (1% - 3.3% AEP) chance of flooding in any given year.

The eastern edge of the site is located within the area benefitting from the flood defence along the Clydach Brook, as previously mentioned in Section 2.3.

As noted in Section 3.4.1, part of the proposed development site is located within the extent of the FMFP for Rivers. The FMFP includes an allowance for climate change whereas the FRAW mapping does not. To better understand the risk of flooding posed by fluvial flood risk sources and the implications of climate change on flood risk to the proposed development, further assessment using detailed flood modelling data was undertaken and is discussed in Section 5.

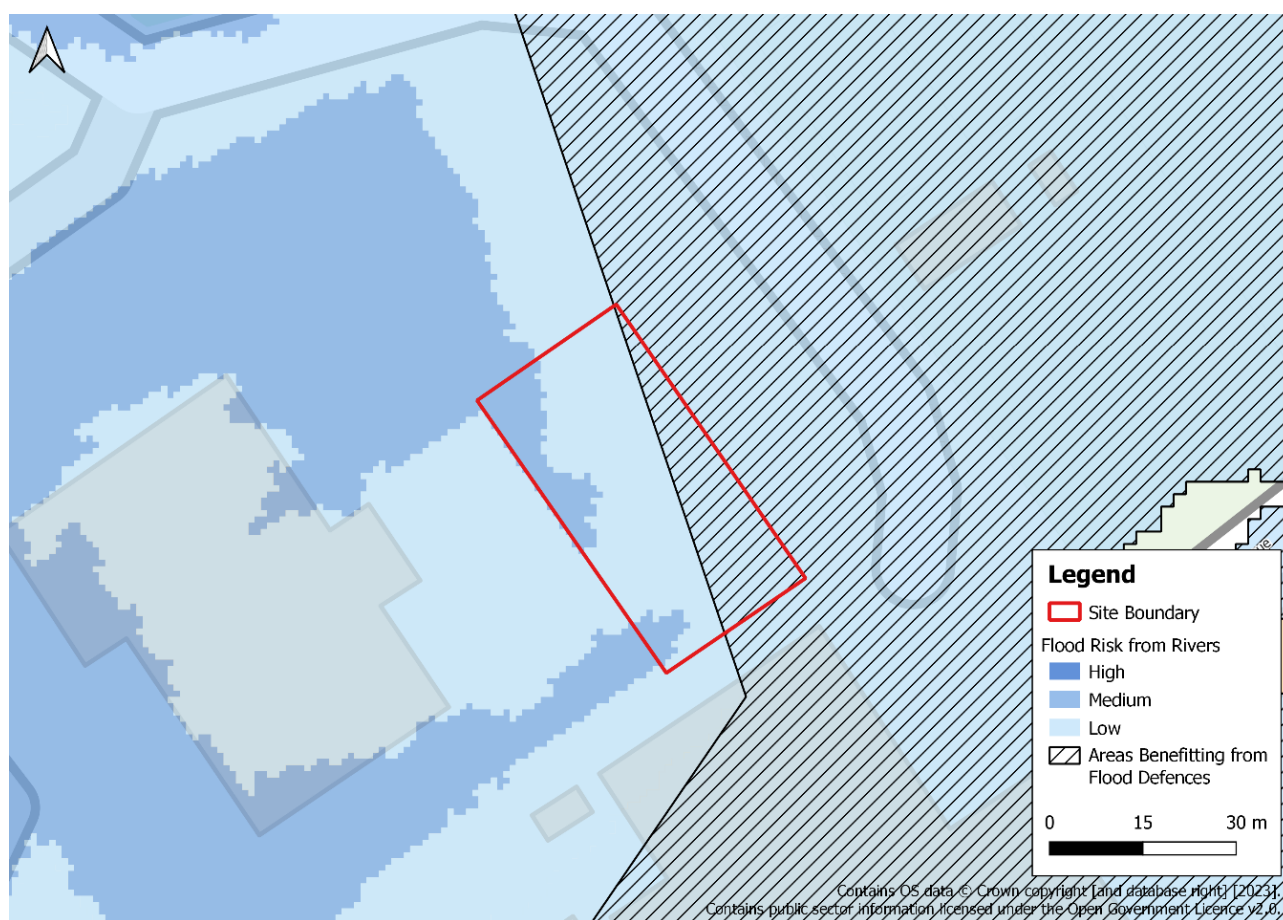


Figure 4-1 FRAW map – Risk of flooding from Rivers

4.4 Flood Risk from the Sea

The NRW FRAW Flood Risk from the Sea mapping shows that the site is at **very low** risk of tidal flooding and is therefore not shown graphically.

4.5 Flood Risk from Surface Water and Small Watercourses

The NRW FRAW Flood Risk from Surface Water and Small Watercourse map, shown in Figure 4-2, indicates that the site is at **very low** risk of surface water flooding. This means there is less than a 0.1% AEP chance of surface water flooding in any given year.

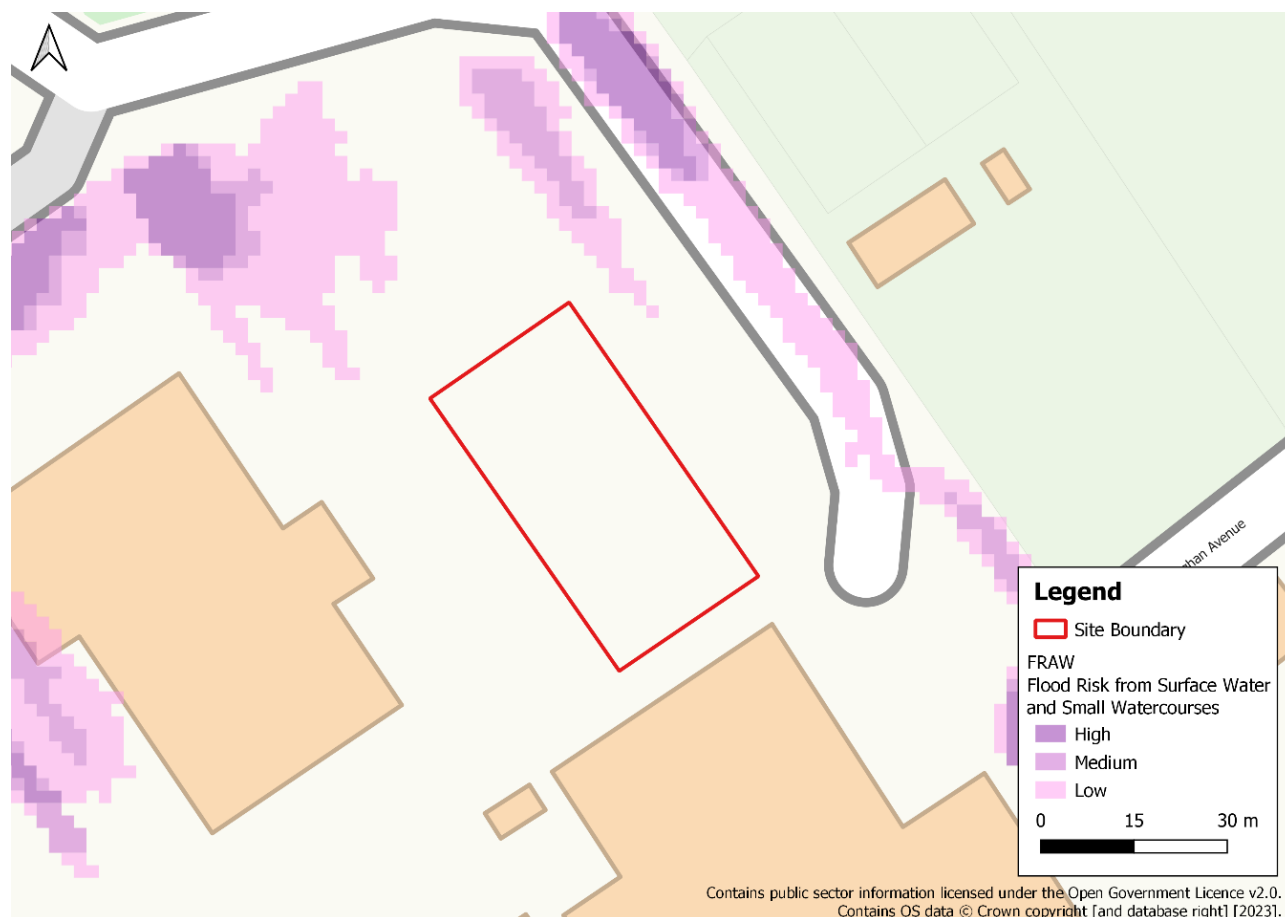


Figure 4-2 FRAW map – Risk of flooding from Surface Water and Small Watercourses

4.6 Flood Risk from Groundwater

Groundwater flooding is caused by unusually high groundwater levels. It occurs as excess water emerges at the ground surface or within manmade structures such as basements. Groundwater flooding tends to be more persistent than surface water flooding, in some cases lasting for weeks or months. This risk of groundwater flooding depends on the nature of the geological strata underlying the site and the local topography. As noted in section 2.4, the soils on site have a naturally high groundwater.

However, the Flood Risk Management Plan⁴ states that there are no specific areas of historical groundwater flooding recorded in the Neath Port Talbot area. Therefore, the development site is considered to have a **low risk** of groundwater flooding.

4.7 Flood Risk from Sewers

The Neath Port Talbot Flood Risk Management Strategy⁵ highlights a total of 430 sewer flooding events recorded by Dŵr Cymru Welsh Water, of which 355 were identified as being at high risk. There is, however, no specific mention of flooding to the proposed development site as a result of sewers. It can therefore be concluded that there is a **low risk** of sewer flooding at the site.

4.8 Flood Risk from Reservoirs

As shown in Figure 4-3, NRW flood risk mapping indicates the site is at risk of flooding due to reservoir failure. The site lies within the reservoir flood zone of the Ystradfellte Reservoir. As the enforcement authority for the Reservoirs Act 1975 in Wales, NRW ensure that reservoirs are inspected regularly, and essential safety work is carried out. The regulatory nature of reservoir management means that the probability of a failure at a statutory reservoir is very low. The Ystradfellte Reservoir which presents a risk to the site is >20km away allowing substantial warning time if a failure should occur. It is therefore concluded, given the probability and consequences of such an event, that the risk at the proposed development site as a result of reservoir failure is **low**.

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https://www.npt.gov.uk/media/4930/lfrms_npt_local_flood_risk_management_strategy.pdf?v=20170627002244

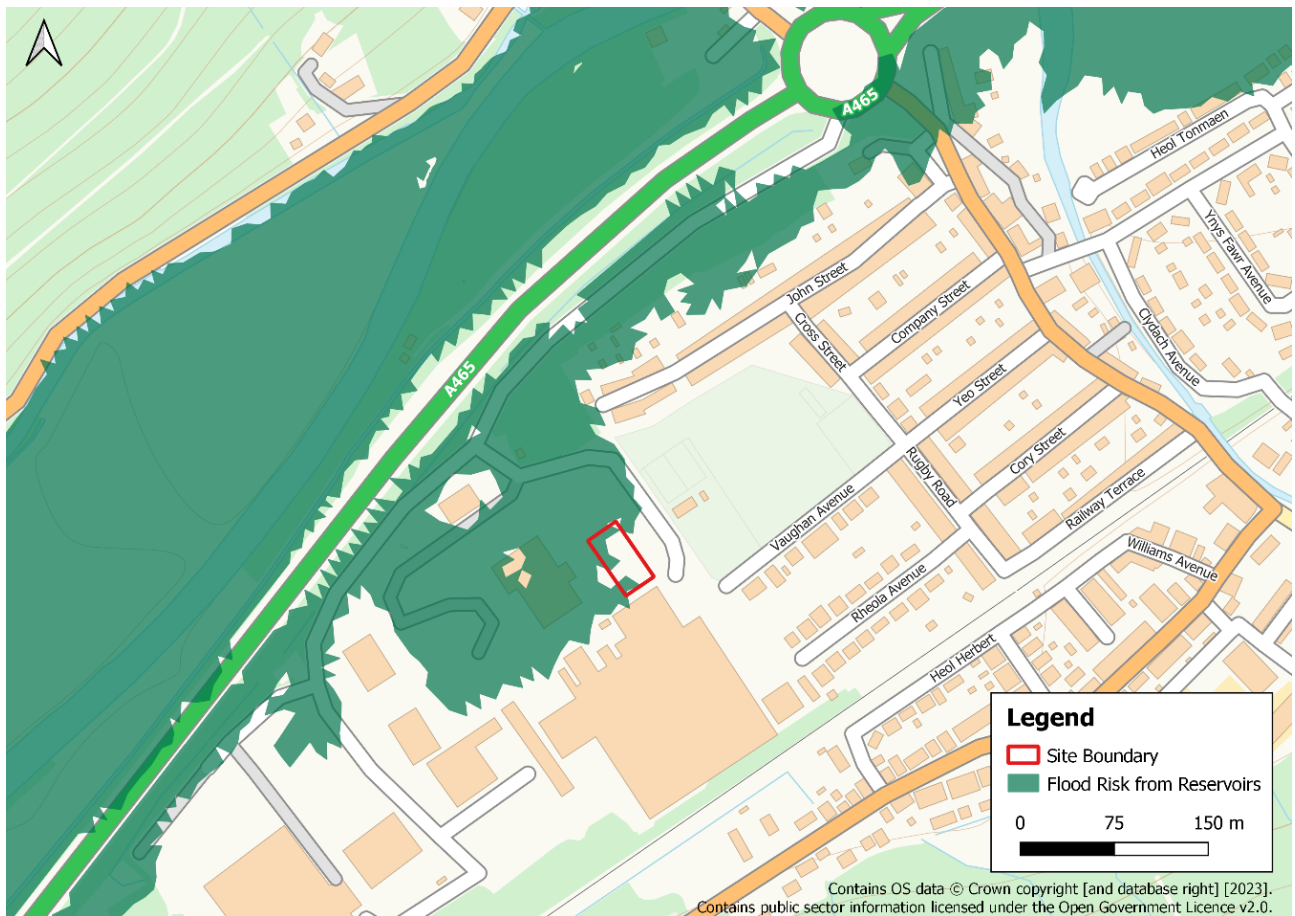


Figure 4-3 Risk of flooding from Reservoirs

5 Detailed Fluvial Flood Risk Assessment

As identified in Section 0, the site is considered to be at low to medium risk of fluvial flooding. To better understand the risk of fluvial flooding posed to the site and the potential implications of climate change, further assessment using detailed hydraulic modelling is provided in this section.

5.1 Hydraulic modelling availability

Detailed flood risk data used to inform this study was obtained from two NRW flood models providing coverage of two different watercourses that have the potential to cause flooding on the site. In order to fully explore all fluvial risks posed to the site both hydraulic models are used to inform this FCA.

5.2 Melincourt Brook Flood Model

The Melincourt Brook flood model was developed in 2015 by JBA Consulting to improve the understanding of flood mechanisms and threshold of flooding, as well as to help to improve the Flood Map and Flood Warning service. This model is a linked 1D-2D model of the watercourses has been developed using the software ESTRY-TUFLOW. The Melincourt Brook is modelled in the 1D domain with the River Neath modelled in the 2D domain.

The model was updated by NRW in 2022 to bring the model up to current day modelling standards. Changes included updating the LiDAR topography to the latest available version, updating the 2D domain manning's roughness using the latest OS MasterMap® and updating the flow estimates using the latest hydrological methodology.

JBA consider the model suitable to inform this FCA and no model updates have been made.

5.2.1 1% AEP plus climate change

Figure 5-1 shows the site is predicted to flood during the 1% AEP plus climate change fluvial flood event. In this event shallow flooding of the site is predicted, with an average flood depth across the site of 0.16m and reach a maximum depth of 0.33m. The maximum flood level on site is 21.84 mAOD.

The main flood pathway to the proposed development site in this scenario originates from the Melin Brook, as shown in Figure 5-2.

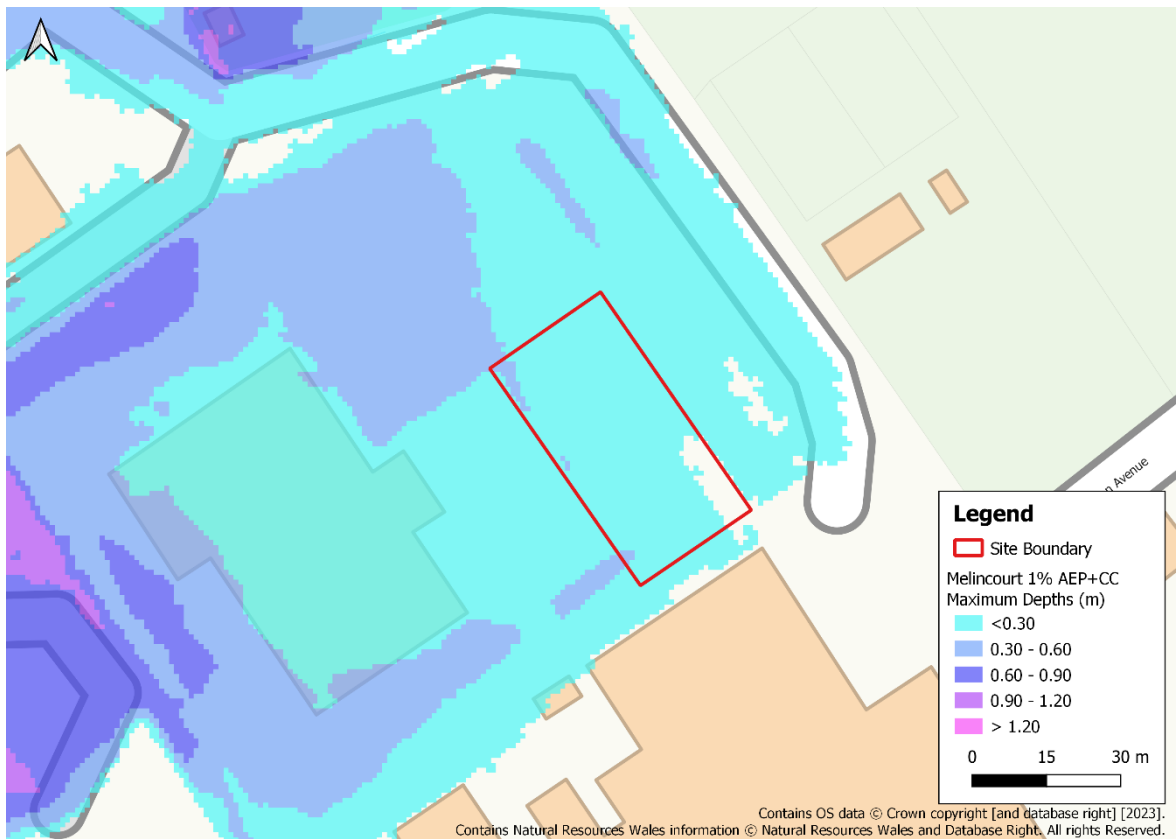


Figure 5-1 1% AEP plus climate change maximum flood depth at the site

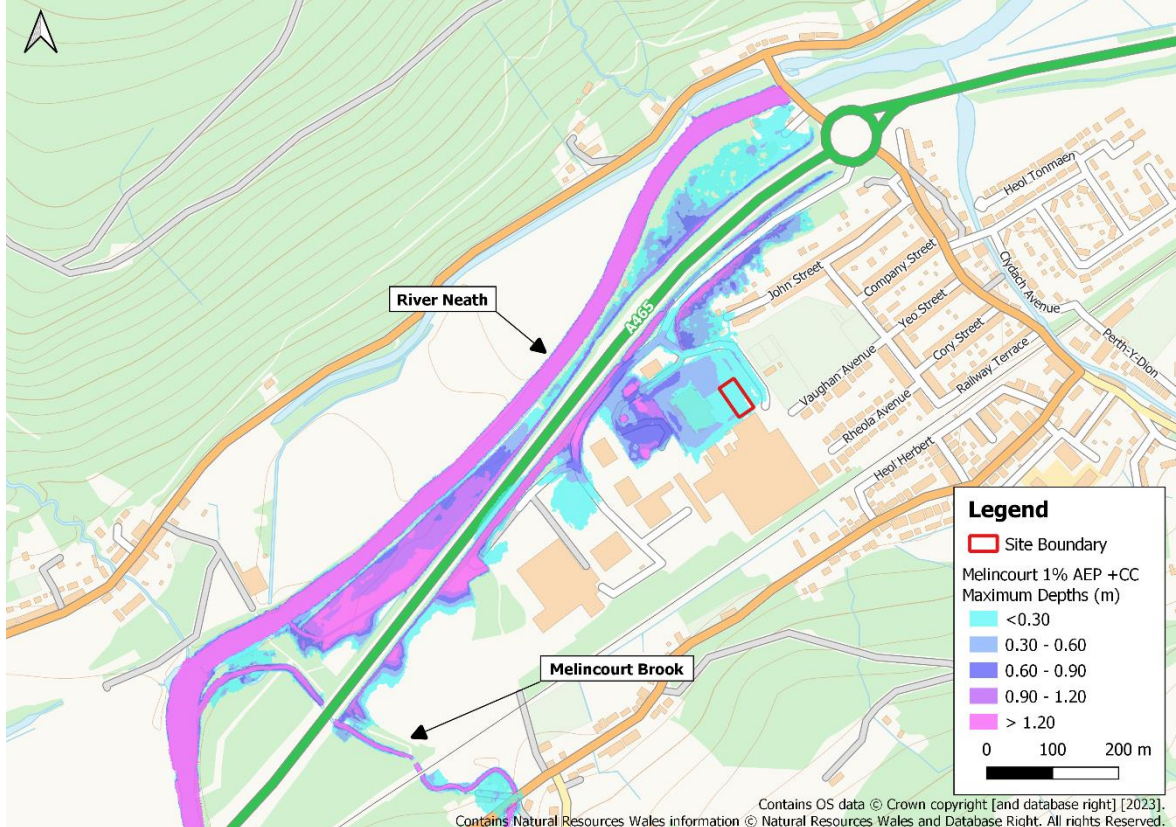


Figure 5-2 1% AEP plus climate change maximum flood depth across Resolven

As noted in Section 2.5, the containers are typically raised off the ground by 0.35m. Consequently, it is unlikely that the containers will experience internal flooding in this design event.

5.2.2 0.1% AEP

Figure 5-3 shows the site is predicted to flood during the 0.1% AEP fluvial flood event to depths of an average of 0.36m and a maximum depth of 0.55m. The maximum flood level at the site is predicted to be 22.05mAOD.

Notwithstanding that the containers are be raised 0.35m off the ground, the predicted depths remain below the 0.6m maximum flood depth for this design event as detailed within A1.15 TAN-15.

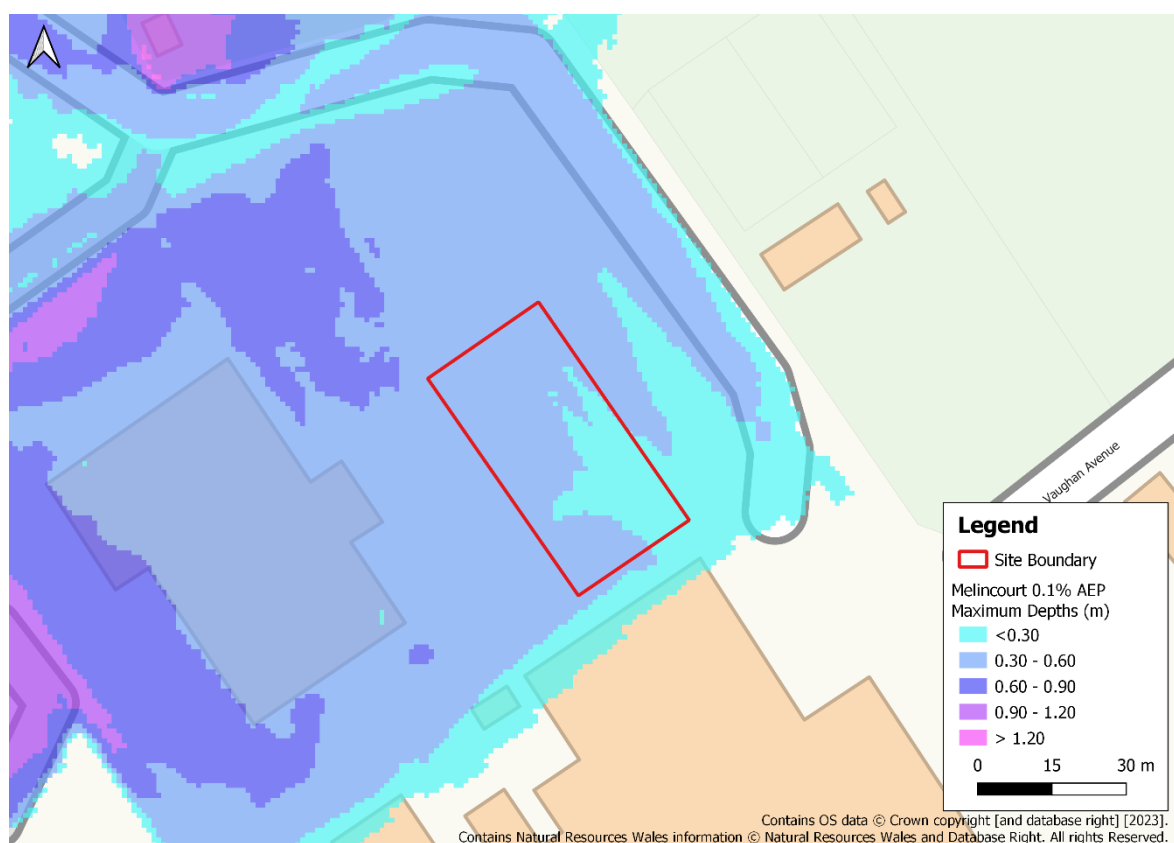


Figure 5-3 0.1% AEP maximum flood depth

5.3 Resolven Flood Model

The Clydach Brook at Resolven model was developed in 2010 by JBA Consulting on behalf of Environment Agency Wales to inform Flood Hazard Mapping. The model is a linked 1D-2D model ESTRY-TUFLOW model. The Clydach Brook through Resolven is modelled from the eastern urban extent adjacent to its confluence with the River Neath and the site falls within the 2D domain.

JBA consider the model suitable to inform this flood consequence assessment of flooding from the Clydach Brook and no model updates have been made.

5.3.1 1% AEP plus climate change

Figure 5-4 shows the site is predicted to flood during the 1% AEP plus climate change fluvial flood event. In this event shallow flooding of the site is predicted, with an average flood depth across the site of 0.04m and reach a maximum depth of 0.12m. The maximum flood level on site is 21.82 mAOD.

The main flood pathway to the proposed development site in this scenario originates from the Clydach Brook, as shown in Figure 5-5.

As noted in Section 2.5, the containers are typically raised off the ground by 0.35m. Consequently, it is unlikely that the containers will experience internal flooding in this design event.

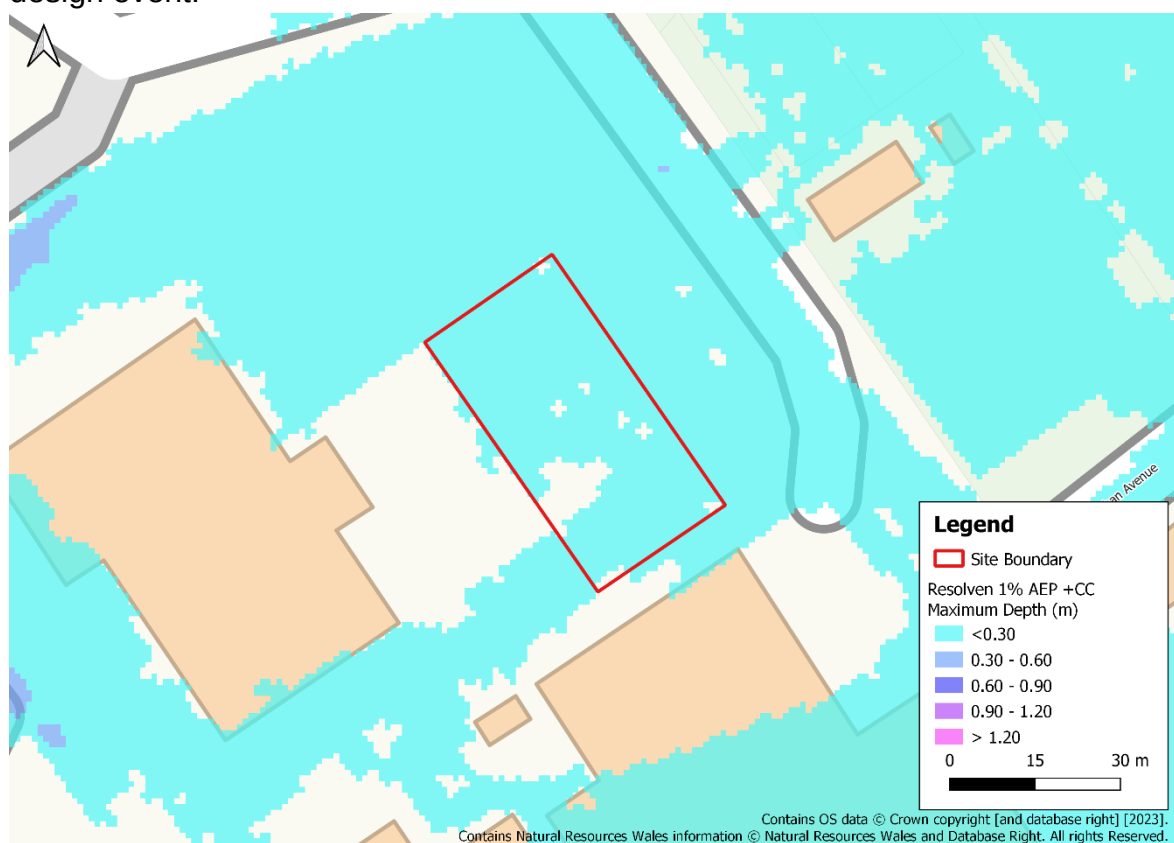


Figure 5-4 1% AEP plus climate change maximum flood depths at the site

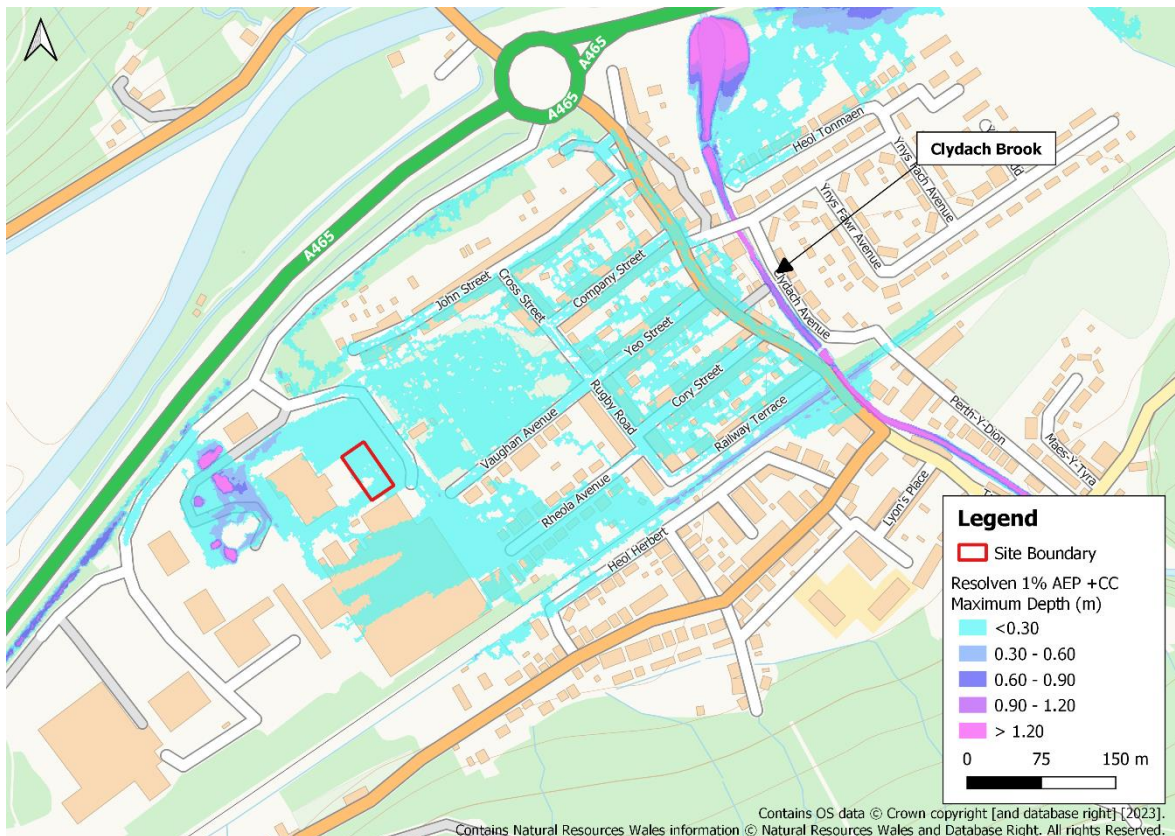


Figure 5-5 1% AEP plus climate change maximum flood depths across Resolven

5.3.2 0.1% AEP

Figure 5-6 shows the site is predicted to flood during the 0.1% AEP fluvial flood event to depths of an average of 0.35m and a maximum depth of 0.54m. The maximum flood level at the site are predicted to be 22.01 mAOD.

Notwithstanding that the containers are be raised 0.35m off the ground, the predicted depths remain below the 0.6m maximum flood depth for this design event as detailed within A1.15 TAN-15.

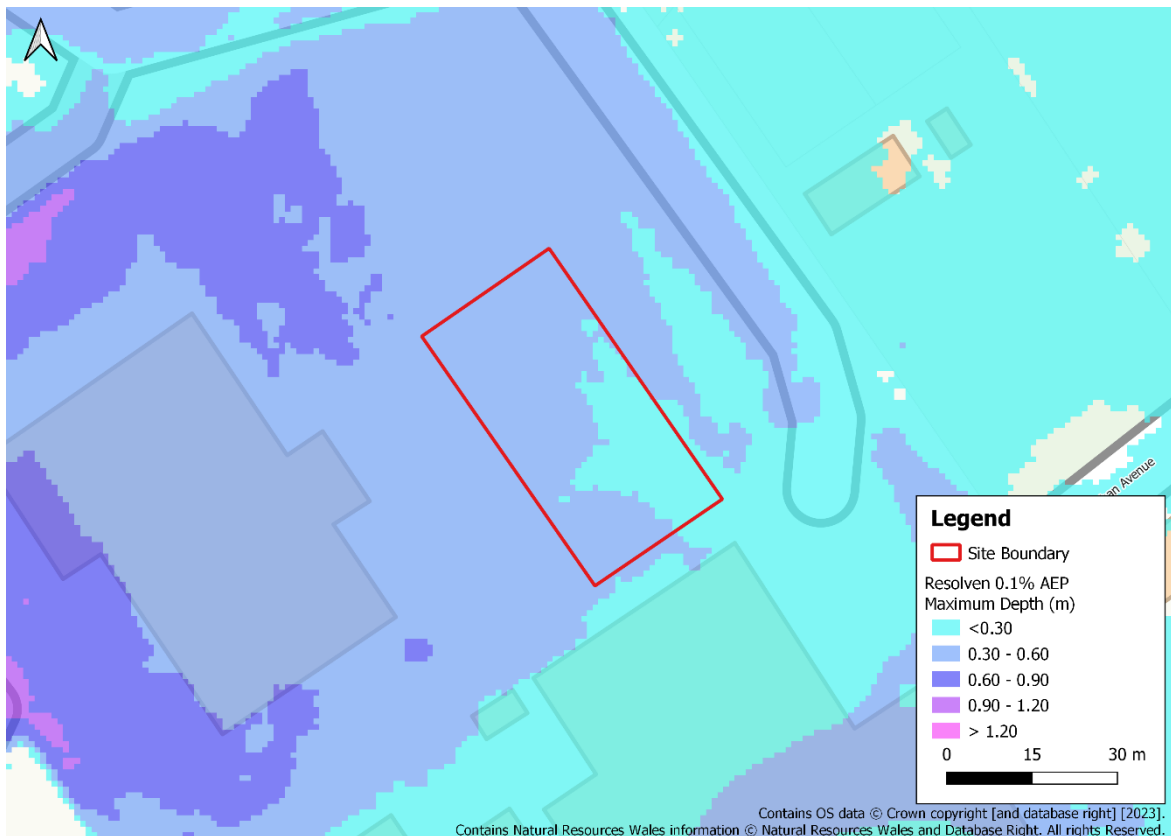


Figure 5-6 0.1% AEP maximum flood depth at site

5.4 Third Party Impacts

TAN-15 requires that any new development does not have an adverse impact on the flood risk to any third-party. NRW have raised concerns that the placement of the containers on the site could lead to the displacement of flood water. As noted in Section 2.5, the containers are raised above the ground level on concrete blocks with voids underneath the containers and timber cladding around the outside of the raised area.

The containers are typically raised 0.35m off the ground. In the 0.1% AEP event, flood depths across the site are also typically 0.35m. Should flood depth locally exceed the raised level of the containers, it is assumed that internal flooding of the containers will take place and therefore no further displacement will take place. To manage the risk of unnecessary displacement, the timber cladding around the containers will be removed. Therefore, the potential displacement caused by the development is limited to the concrete blocks beneath the containers.

To consider the potential impacts flood water displacement, resulting from flood water being displaced by the concrete blocks, we have calculated the volume of water that may be displaced and related this displacement to the predicted flooding across the surrounding area.

The calculation of the volume that will be displaced by the concrete blocks is summarised in Table 5-1.

Table 5-1 Volume of the concrete blocks underlying the containers

Container Concrete block size	
Container width (m)	2.43
Length of blocks per container, blocks front and rears (m)	4.86
Number of containers	64
Container block height (m)	0.35
Container block width (m)	0.40
Container block volume	
Container block volume (m ³)	43.55

For the purposes of this analysis, we have assumed an extent of the flood cell around the site. The overlay of this extent with the Melincourt Brook flood depths is shown in Figures Figure 5-7 and Figure 5-8. The Melincourt Brook model was used to derive the flood volume, as it shows the worst case of flooding on the site. GIS raster analysis tools were used to calculate flood volumes from the depth grid.

In the 1% AEP plus climate change scenario, the volume of water over the industrial estate is predicted to be 19,184m³, over a flooded area of 40,677m². The volume of the concrete blocks equates to 0.11% of the flood volume within the assumed flood cell. The displacement of flood water over the area of the flood cells has the maximum potential to increase water level by 1.07mm.

In the 0.1% AEP scenario, the volume of water over the wider industrial estate is predicted to be 28,277.15m³, over a flooded area of 47,641m². The volume of the concrete blocks equates to 0.09% of the flood volume within the assumed flood cell.

The displacement of flood water over the area of the flood cells has the maximum potential to increase water level by 0.91mm.

Based on this analysis we can conclude that the development and associated concrete blocks have negligible potential to increase flood risk elsewhere. The potential 1mm increase in water level is well below the NRW advised 5mm threshold of significance.

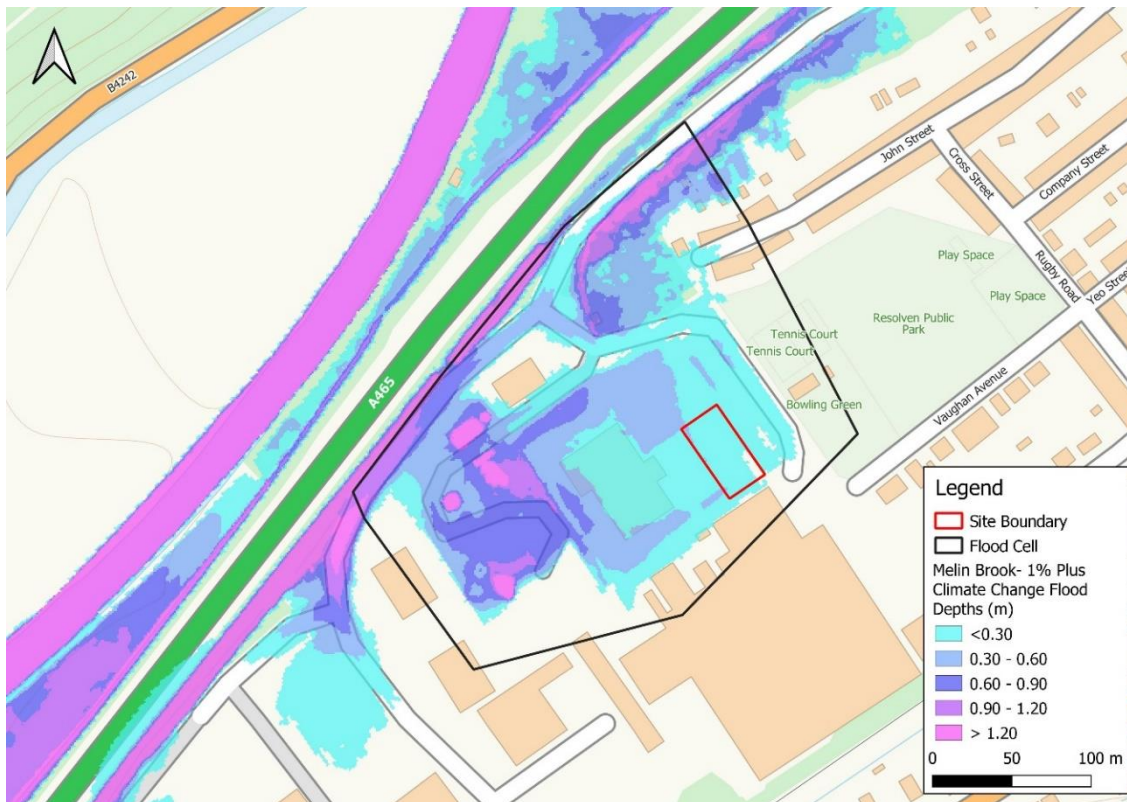


Figure 5-7 Flood Volume Estimation Area- 1% AEP plus climate change

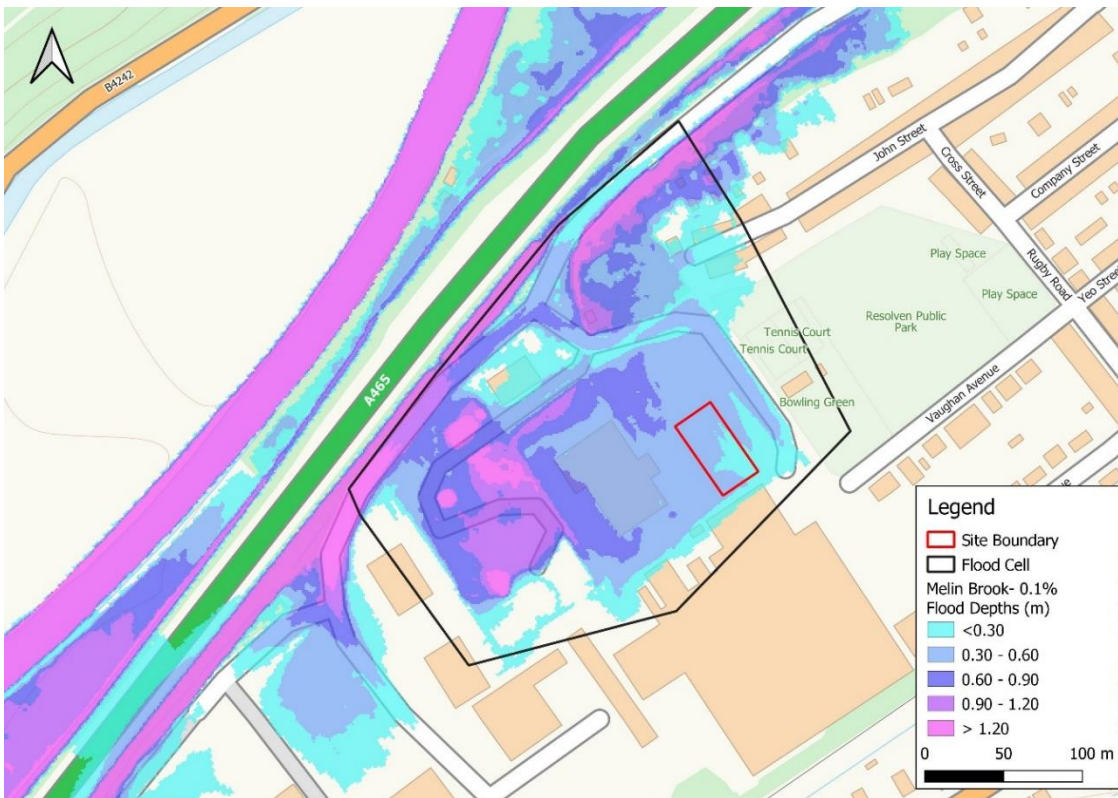


Figure 5-8 Flood Volume Estimation Area- 0.1% AEP

6 Assessment of Acceptability Criteria

TAN-15 states that for less vulnerable development to be considered within zone C2, the site must meet both the Justification Test and the acceptability criteria. Section 3.6 details the assessment of the proposed development site against each criteria of the Justification Test. Our assessment of the acceptability criteria, as set out in TAN-15, is summarised in Table 6-1 below. These criteria must be satisfied for the proposed development to comply with all aspects of TAN-15.

Table 6-1 Assessment of accessibility criteria

TAN-15 Justification Criteria	Comments	Achieved
Developer is required to demonstrate that the site is designed to be flood free for the lifetime [Ref: TAN-15 A1.5] of development for a 1 in 100 (1%) chance (fluvial) and 1 in 200 (0.5%) chance (tidal) flood event including an allowance for climate change in accordance with TAN-15 table A1.14.	In the 1% AEP plus climate change fluvial flood event, flooding across the site is predicted to reach a maximum depth of 0.33m. As the containers are typically raised 0.35m off the ground it is unlikely that the containers will experience internal flooding.	Yes
The development should be designed so that in an extreme (1 in 1000 chance) event there would be less than 600mm of water on access roads and within the property.	In the 0.1% AEP fluvial flood event, flooding across the site is predicted to reach a maximum depth of 0.55m and the internal flooding within the containers is predicted to be shallow and remain below 0.6m.	Yes
No flooding elsewhere.	As detailed in Section 5.4, the raised containers will not result in a significant displacement of floodwater. Consequently, the proposals will not increase flooding elsewhere.	Yes
Flood defences must be shown by the developer to be structurally adequate particularly under extreme overtopping conditions (i.e. that flood with a 1 in 1000 chance of occurring in any given year).	The development is partially protected by the presence of flood defences to the north of the site. These are NRW owned assets that must be maintained to offer protection throughout Resolven.	Yes
The developer must ensure that future occupiers of	The site owners should sign up to the NRW Flood Warning Service to provide	Yes

TAN-15 Justification Criteria	Comments	Achieved
development are aware of the flooding risks and consequences	warning in the event of an extreme flood event. It is recommended that a Flood Response Plan is prepared for the site and communicated to the occupiers.	
Effective flood warnings are provided at the site	The site is included within the "River Neath" Flood Alert Area and the "Clydach Brook at Resolven" Flood Warning Area. It is recommended that the site owners sign up for these flood warnings and alerts.	Yes
Escape/evacuation routes are shown by the developer to be operational under all conditions.	The site and access way flood to shallow depths of up to 0.33m during the 1% AEP plus climate change event. During the 0.1% AEP scenario, flooding on the access roads is up to 0.4m and vehicle access to the site is considered to be acceptable in these conditions. As the site is within a flood warning area sufficient warning should be provided to allow safe evacuation of the site.	Yes
The development is designed by the developer to allow the occupier of the facility for rapid movement of goods/possessions to areas away from flood waters.	The containers will be flood free during the 1% AEP plus climate change event and therefore goods and possessions will not need to be moved. It is unlikely that sufficient flood warning would be provided to allow safe evacuation of goods/possessions from the site in a 0.1% AEP event. This is an acknowledged risk.	Yes
Development is designed to minimise structural damage during a flooding event and is flood proofed to enable it to be returned to its prime use quickly in the aftermath of the flood.	In all scenarios flood depths will be shallow and are unlikely to result in structural damage.	Yes

7 Conclusions

JBA Consulting (JBA) were commissioned by Lockspot Ltd to undertake a Level 1 Flood Consequence Assessment (FCA) to support a retrospective planning application for the retention of steel container based self-storage facilities at Old TRW Car Park, Resolven.

The site is approximately 0.15 hectares in size and is currently comprised of 64 raised steel container based self-storage facilities. The containers are typically raised 0.35m off the ground.

The site is surrounded by a number of NRW main rivers and ordinary watercourses. The River Neath, an NRW main river, flows approximately 220m northwest of the site. The second NRW main river, the Clydach Brook flows approximately 430m to the east of the site. There is a small unnamed ordinary watercourse 190m south of the site. The Melin Court Brook flows approximately 715 m to the southwest of the site.

The development is classified as Less Vulnerable Development and is located with Zone C2, as categorised by NRW's Development Advice Maps. Zone C2 is described as "areas of the floodplain without significant flood defence infrastructure." Less Vulnerable Development within Zone C2 can occur subject to the application of a Justification Test, including the acceptability of consequences.

The site is at very low risk from tidal flooding and surface water flooding and is at low risk of groundwater, sewer, and reservoir flooding.

Detailed flood modelling data used to inform this study was obtained from the Clydach Brook at Resolven model and the Melin Court Brook model to fully explore all fluvial risks posed to the site.

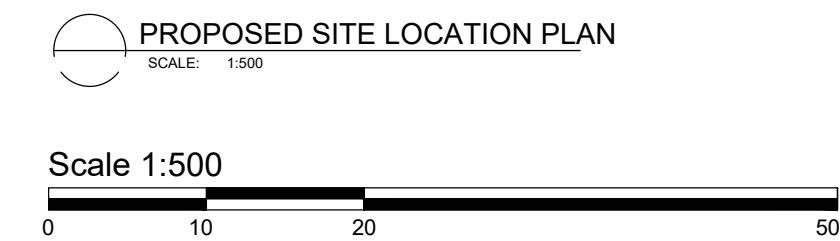
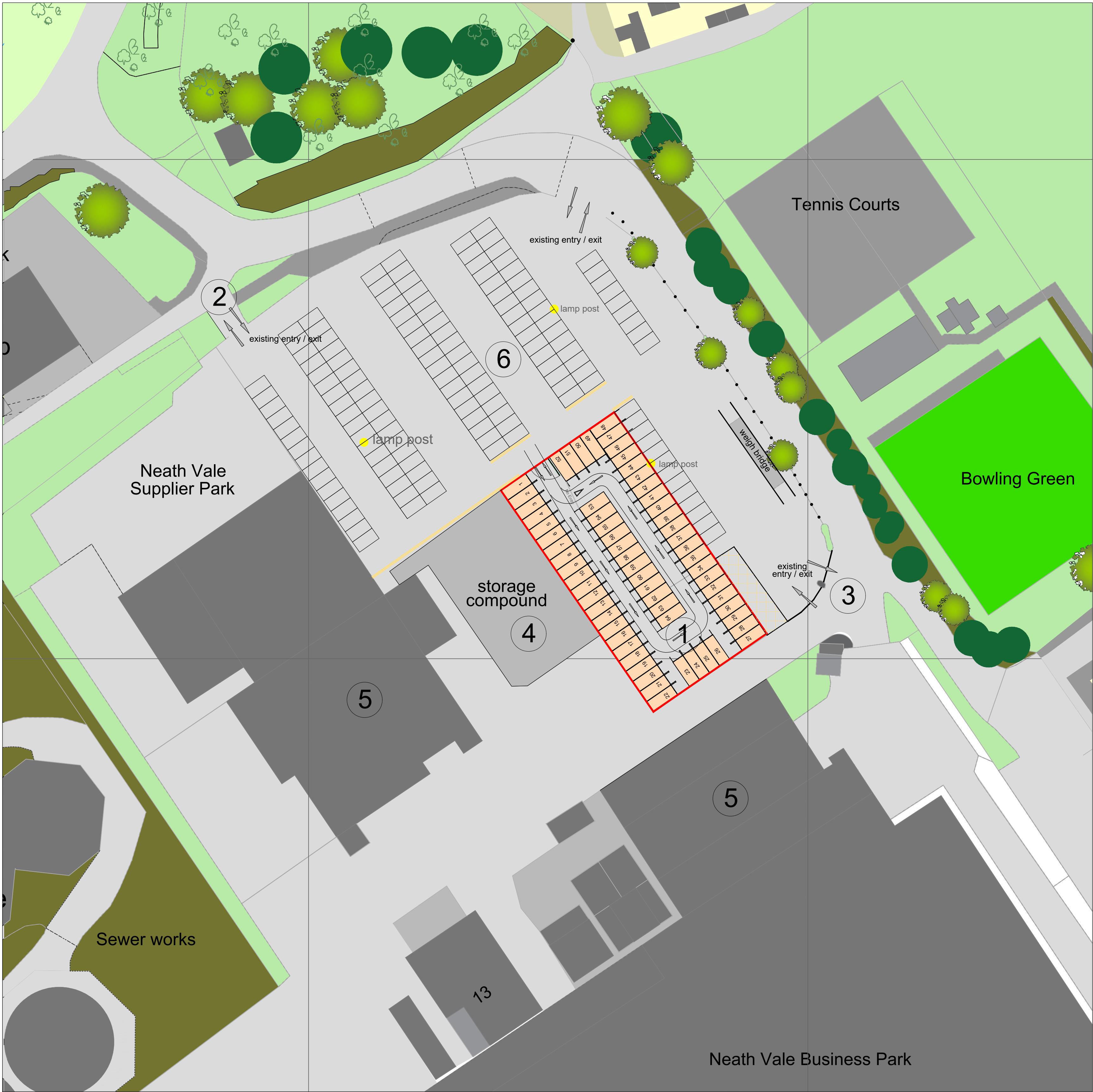
In the 1% AEP plus climate change fluvial flood event, flooding across the site is predicted to reach a maximum depth of 0.33m. As the containers are typically raised 0.35m off the ground it is unlikely that the containers will experience internal flooding.

The site is predicted to flood to shallow depths in the 0.1% AEP event, reaching a typical depth of 0.35m and a maximum depth of 0.55m. Internal flooding within the containers, should it occur, is predicted to be shallow and remain below the 0.6m maximum flood depth satisfying the requirements of A1.15 of TAN-15.

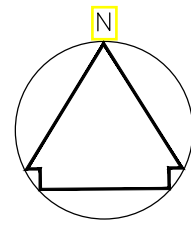
The development will not significantly displace floodwater as the containers are raised above the existing ground levels on blocks, and ground levels of the site will remain unchanged.

In conclusion, the site satisfies all the requirements of the Justification Test, including the Acceptability Criteria. Therefore, on the grounds of flood risk, the proposed development site complies with the aims and objectives of Planning Policy Wales and TAN-15.

A Site Plans



PROPOSED SITE LOCATION PLAN
SCALE: 1:1250



- 1 Proposed Container storage layout
- 2 Existing Multiple site Entrances
- 3 Principle / Historic site entrance
- 4 Existing storage yard - secure racking and fenced
- 5 Existing buildings industrial
- 6 Existing gravel / tarmacadam parking area. Layout drawn from historic photographs - white lining is faded and no longer visible on-site

REV:	DESCRIPTION:	BY:	DATE:
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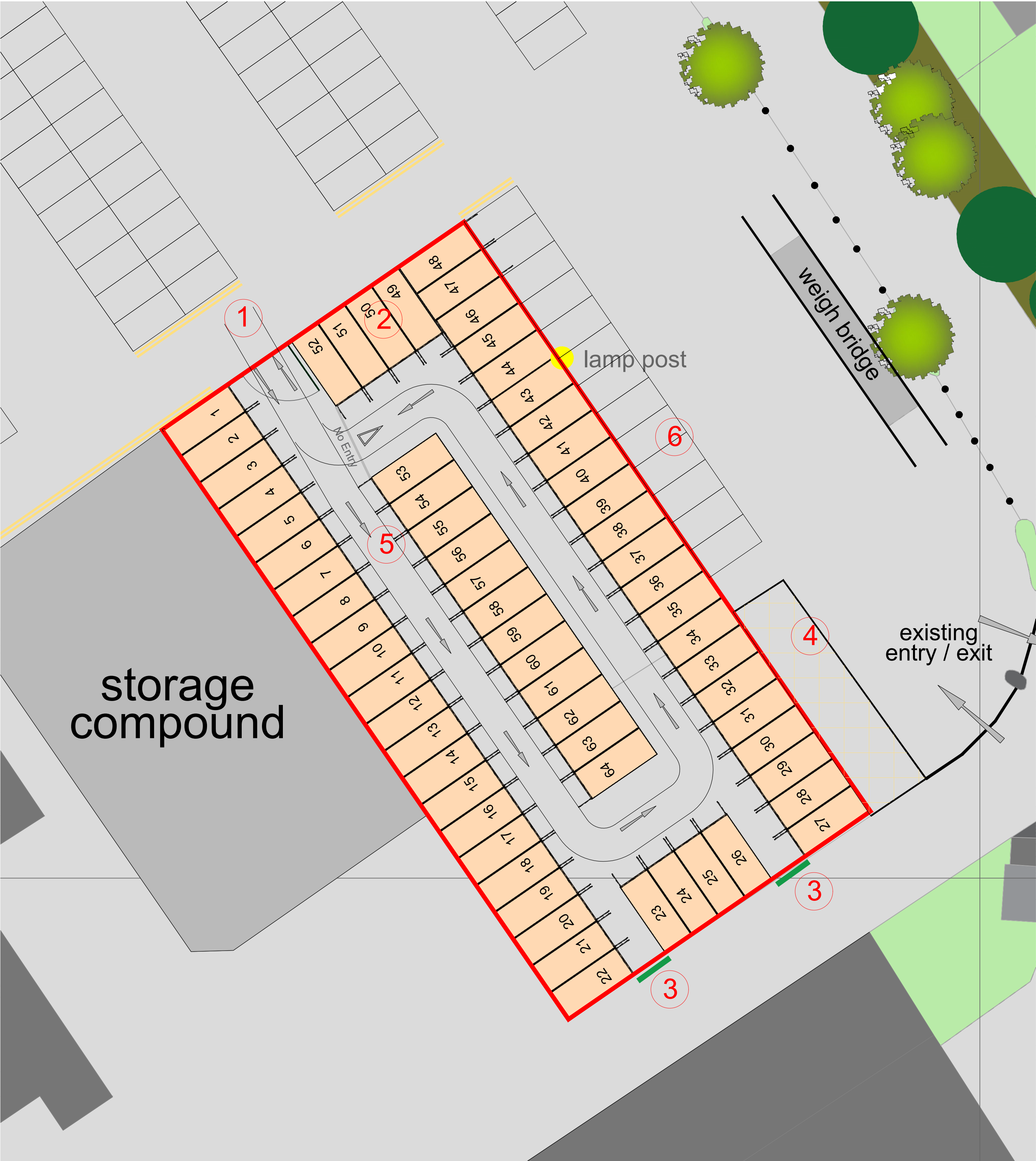
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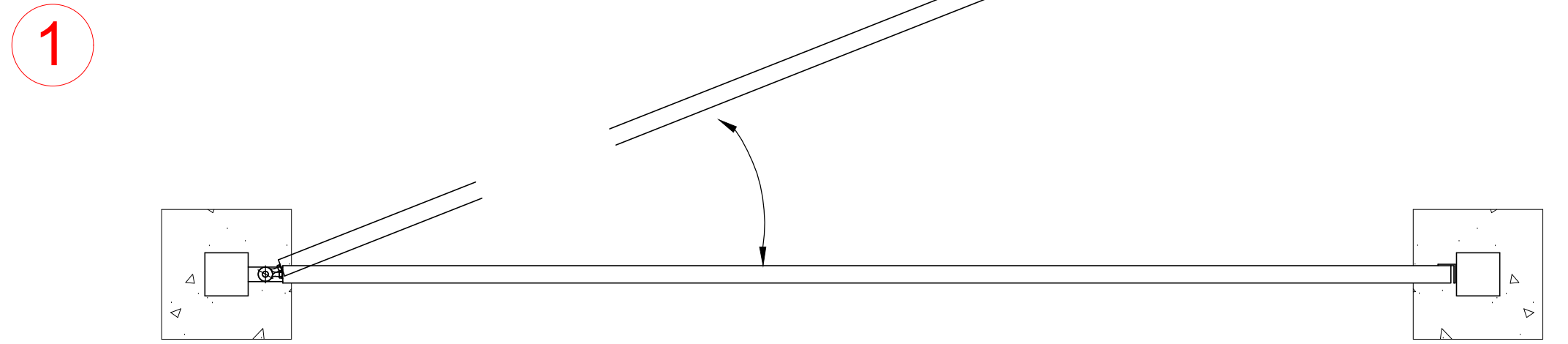
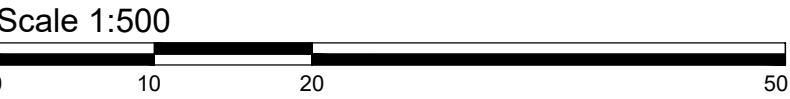
LOCKSPOT SELF STORAGE
Unit 1 LLANELLI GATE BUSINESS PARK
DAFEN
LLANELLI



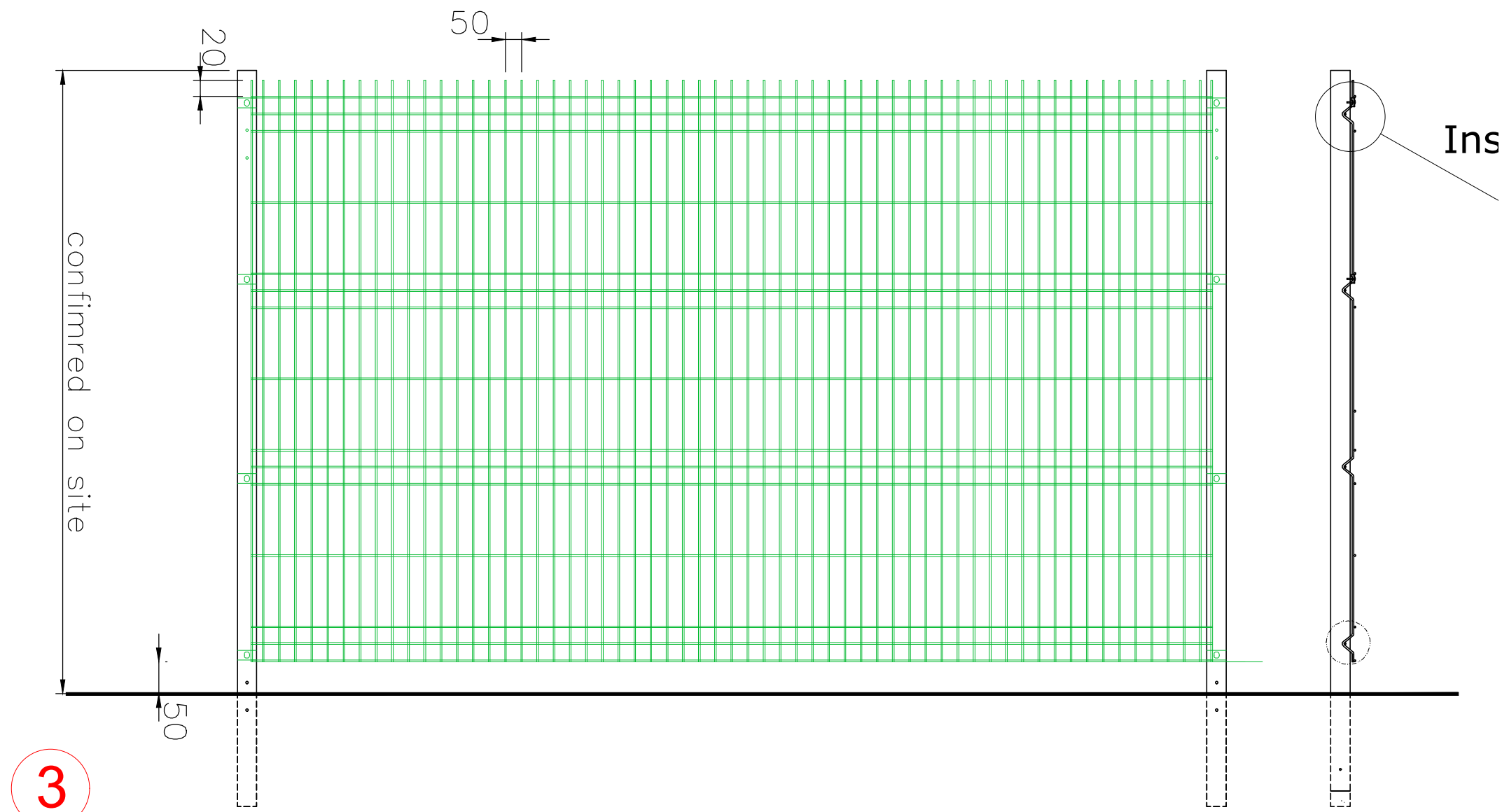
SITE:			
Rheola Enterprise Park, Resolven			
TITLE:			
PROPOSED SITE LOCATION PLAN			
SCALE AT A3: 1:1250 / 1:500	DATE: 11.01.23	DRAWN: CW	CHECKED: CW
PROJECT NO: haf_151	DRAWING NO: 151_SP02	REVISION:	-



PROPOSED SITE LOCATION PLAN
SCALE: 1:500

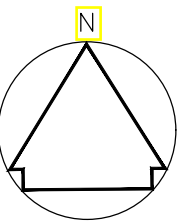


PROPOSED ACCESS / SECURITY GATE
SCALE: 1:20



PROPOSED FENCE INFILL PANEL
SCALE: 1:20

- 1 Proposed access control Gate - Powder coated Steel welded mesh - Green
- 2 20ft long x 8ft wide Steel containers. - colour Blue (64no)
- 3 Rear of site to be secured with steel powder coated welded mesh security fence, fixed to containers for continuity of boundary - Green
- 4 Existing palisade fence retained
- 5 Vehicle route within compound to be one way operation as indicated
- 6 Existing gravel / tarmacadam parking area retained.



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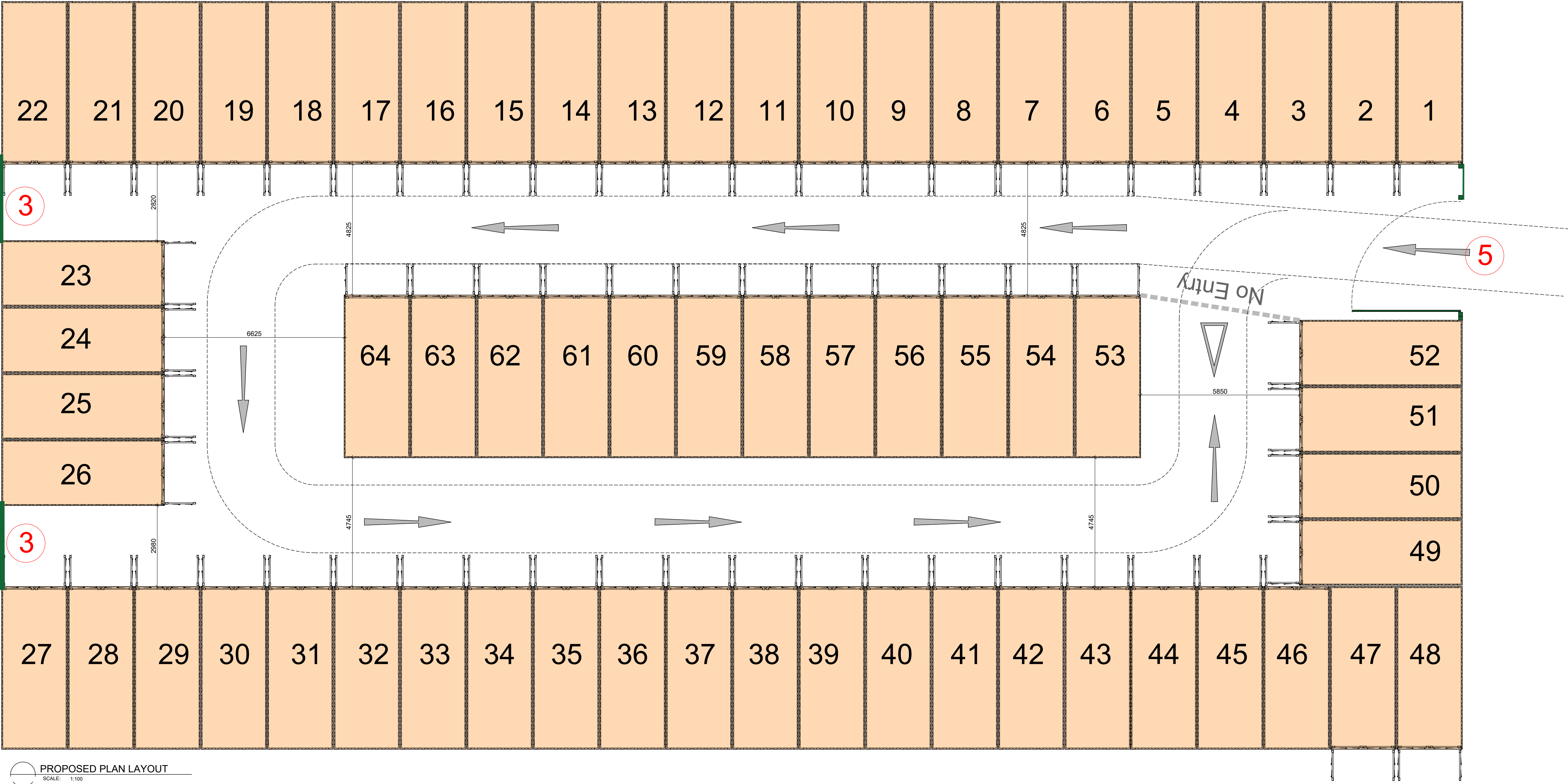
LOCKSPOT SELF STORAGE
Unit 1 LLANELLI GATE BUSINESS PARK
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SITE:
Rheola Enterprise Park,
Resolven

TITLE:
PROPOSED SITE layout plan

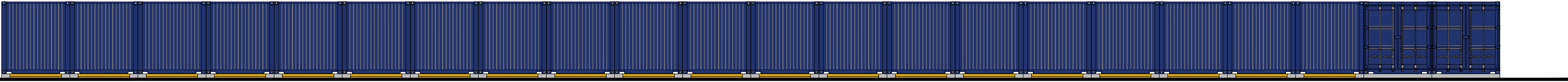
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PROJECT NO: haf_151	DRAWING NO: 151_L01	REVISION:	-



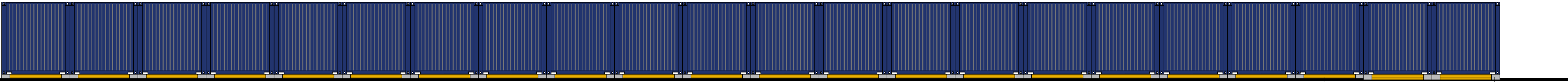
PROPOSED PLAN LAYOUT
SCALE: 1:100



- Containers to be raised and levelled from existing car park surface and placed on HB2 concrete kerb pads
 - Proposed treated timber plinth to containers to seal edges from intrusion / refuse and littering.
 - Rear of site to be secured with steel powder coated welded mesh security fence, fixed to containers for continuity of boundary
 - Side of gated access control to be secured with steel powder coated welded mesh fixed security fence, fixed to containers for continuity of boundary with steel post - Green
 - Proposed new welded mesh powder coated access gates to control access and secure compound - inward opening. - Green
 - Proposed site branding / signage - painted in White on blue containers
- ← Vehicular movements within the site to be on a one way system. Long stay car parking is available within the shared car park adjacent the site



PROPOSED EAST ELEVATION
SCALE: 1:100



PROPOSED WEST ELEVATION
SCALE: 1:100



PROPOSED NORTH ELEVATION
SCALE: 1:100



PROPOSED SOUTH ELEVATION
SCALE: 1:100

REV:	DESCRIPTION:	BY:	DATE:
	STATUS: planning application		

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Unit 1 LLANELLI GATE BUSINESS PARK
DAFEN
LLANELLI

SITE: Rheola Enterprise Park, Resolven			
TITLE: PROPOSED ELEVATIONS			
SCALE AT A3: 1:100	DATE: 11.01.23	DRAWN: CW	CHECKED: CW
PROJECT NO: haf_151	DRAWING NO: 151_L02	REVISION:	-

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