

Flood Consequence Assessment

Planning & Development

20 November 2024

Atrium Planning Consultants

17 Quarry Row, Merthyr Tydfil, CF47 8PS



Document Control

Client	Atrium Planning Consultants
Report Title	Flood Consequence Assessment – 17 Quarry Row, Merthyr Tydfil, CF47 8PS
Report Reference	210524-F01
Report Status	Final
Prepared by	K. McCulla
Checked by	H. Fisher
Approved by	A. Jones
Date of Issue	20/11/2024
Issue Method	PDF

Legal

This report has been prepared by Ashfield Solutions Group Ltd (Ashfield) exercising all reasonable skill, care and diligence within the terms of our agreement with the client, incorporating our general Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client. This report should not be used by the client in relation to any other matters not covered specifically by aforementioned scope. Unless otherwise and explicitly stated this report is intended for the sole use of the client and may not be copied, forwarded or in any other way distributed to any other party without the knowledge and written consent of Ashfield. We accept no responsibility to third parties to whom this report, or any part thereof, is made available and any such party relies on the report at their own risk. By receiving this report and acting on it, the client or any other person accepts that no individual is personally liable for breach of statutory duty, or otherwise in connection with its content,

Ashfield Solutions Group Ltd (Reg. No. 09729218), Ashfield Solutions Ltd (Reg. No. 5831575) and Ashfield Flood Risk Solutions Ltd (Reg. No. 09920534) are registered in England and Wales. Registered Office: Cwm Cynon Business Centre, Mountain Ash, CF45 4ER.

Contents

1	Introduction	1
2	Flood Risk Evaluation	8
3	Flood Risk in Planning Context	16
4	Conclusion.....	19

Appendices

Appendix A	Block Plan
Appendix B	Existing and Proposed Floor Plans
Appendix C	NRW Personal Flood Plan template

Distribution

Dr Komalpreet Kaur
Atrium Planning Consultants





Executive Summary

Ashfield Flood Risk Solutions ("Ashfield") were commissioned by Atrium Planning Consultants on behalf of Dr Komalpreet Kaur ("the client") to undertake a Flood Consequence Assessment ("FCA") in support of a planning application for the sub-division of an existing single dwelling into two dwellings at 17 Quarry Row, Merthyr Tydfil, CF47 8PS ("the site").

The nearest NRW designated Main River is the River Taff, located approximately 10m west of the site flowing in a southerly direction through Pontypridd. The NRW Flood Risk Assessment (FRAW) (Rivers) mapping indicates that the building footprint is located within a Low risk area. There is an area of high and medium risk along the southwestern boundary, adjacent to the River Taff.

Flood model data was obtained from NRW to inform this FCA. This comprises the Nant Morlais Hydraulic Model published by Wallingford Hydro Solutions (WHS) on behalf of Merthyr Tydfil County Borough Council in April 2023. A review of the Product 6 fluvial undefended data indicates that the building footprint is not at risk of fluvial flooding in the design flood event of a 1 in 100 year event +25% Climate Change (CC), which aligns with requirements set out in Section 7 of TAN15. Due to no alterations to the building footprint proposed and no risk of flooding in the design flood event (1 in 100 year +25% CC), the overall risk of fluvial flooding to the site is considered Low.

The NRW Flood Risk from Surface Water and Small Watercourses Mapping indicates that the site is not projected to be at risk of flooding from surface water across the high, medium and low probability events. Therefore, the overall risk of surface water flooding is considered Low. The risk of flooding from reservoir failure, groundwater and artificial sources is also considered to be Low. The risk of flooding from tidal sources is considered Negligible.

The NRW Development Advice Map (DAM) indicates that the site is located within Zone C2 of the DAM, indicating that only less vulnerable development should be considered subject to application of justification test, including acceptability of consequences. However, due to the proposed development comprising of minor alterations that are not deemed to have a direct or adverse impact on the watercourse, Section 11.19 of TAN15 indicates the justification of the location would not be required.

This report has outlined a series of recommendations that should be considered to mitigate against any residual flood risk on site. This is primarily focused on development design measures, and the creation of a Personal Flood Plan (which should be informed by the NRW Flood Alert Service).

This report therefore has met the aims as set out in Section 1.2 and concludes that the development:

- Is suitable in the location proposed;
- Will not impact flood risk elsewhere (off-site) at the design flood event; and,
- Is unlikely to place additional persons at risk of flooding.



1 Introduction

1.1 Authorisation and Context

Ashfield Flood Risk Solutions (“Ashfield”) were commissioned by Atrium Planning Consultants on behalf of Dr Komalpreet Kaur (“the client”) to undertake a Flood Consequence Assessment (“FCA”) in support of a planning application for the sub-division of a single dwelling into two dwellings at 17 Quarry Row, Merthyr Tydfil, CF47 8PS (“the site”). The site location is illustrated in Figure 01 for reference.

Figure 01 - Site Location



1.2 Aim and Objectives

This report aims to address the requirements of the Planning Policy Technical Advice Note 15 (TAN 15) (2004) by:

- Assess whether the site is likely to be affected by flooding from different sources;
- Provide an assessment of the sites vulnerability and its suitability in relation to any identified flood risks;
- Provide an opinion in relation to the impacts of the proposed development on flooding elsewhere;
- Where required, presenting flood risk mitigation measures necessary to ensure that the proposed development and occupants will be safe, whilst ensuring flood risk is not increased elsewhere.



1.3 Information Sources Used

In order to prepare this FCA, the following information sources and general guidance documents have been used:

- Planning Policy Wales, Edition 12 – February 2024;
- Planning Policy Wales TAN15 – Welsh Assembly Government (July 2004);
- Scheme Design: Existing Floor Plans – Atrium Planning Consultants, November 2024;
- Scheme Design: Proposed Floor Plans – Atrium Planning Consultants, November 2024;
- Scheme Design: Proposed Block Plan – Atrium Planning Consultants, November 2024;
- Merthyr Tydfil County Borough Council (MTCBC) Preliminary Flood Risk Assessment (PFRA) – MTCBC, April 2011;
- MTCBC PFRA Addendum – MTCBC, January 2018;
- MTCBC Strategic Flood Consequences Assessment (SFCA) – MTCBC, June 2018;
- MTCBC Flood Risk Management Plan (FRMP) – MTCBC, June 2015;
- MTCBC Local Flood Risk Management Strategy (LFRMS) – MTCBC, April 2013;
- 1m Resolution LiDAR Data – Downloaded November 2024;
- NRW Product 5 and 6 Nant Morlais Flood Modelling data – Wallingford Hydro Solutions, April 2023;
- Natural Resources Wales (NRW) interactive flood maps – accessed online November 2024; and,
- British Geological Survey (BGS) Drift & Geology Maps – accessed online November 2024.

1.4 Report Limitations

This assessment of flood risk has looked to use the most accurate and up to date flood mapping for the location. The boundary has been supplied by the client and the assessment of risk is based on this. This report has been prepared with due care and diligence in accordance with industry best practice and guidance. The conclusions in this report are valid only to the extent that the information provided to Ashfield was accurate and complete at time of receipt.

1.5 Site Setting

The site is located at coordinates XY: 304578, 206618 (post code: CF47 8PS). The site is located on the outskirts of Merthyr Tydfil Town Centre, approximately 771m northwest of Merthyr Tydfil Train Station. The site currently comprises a single dwelling and is encompassed by residential properties to the north, northeast and southeast, and the River Taff to the west. The site is accessible via Quarry Row to the east and Vincent Place to the south.

1.6 Development Proposals

This FCA is in support of a planning application for the sub-division of a single dwelling into two dwellings. There are no proposed changes to the building footprint, and block plans can be seen within Appendix A of this report. Furthermore, the existing and proposed floor plans can be seen within Appendix B. It is understood that the ground floor will change from multiple living spaces, kitchens and a shower room, to two separate dwellings, each with living spaces, kitchen and dining spaces. Dwelling 2 will also have a bathroom, study and bedroom on the ground floor. The first floor will change from four bedrooms, a bathroom and an en-suite to two bedrooms, a study and a bathroom within Dwelling 1, and a bedroom and en-suite within Dwelling 2. The Finished Floor Level (FFL) is not



indicated to change and there will be no additional bedrooms to the ground floor, with one less bedroom proposed on the first floor.

1.7 Topographic Mapping

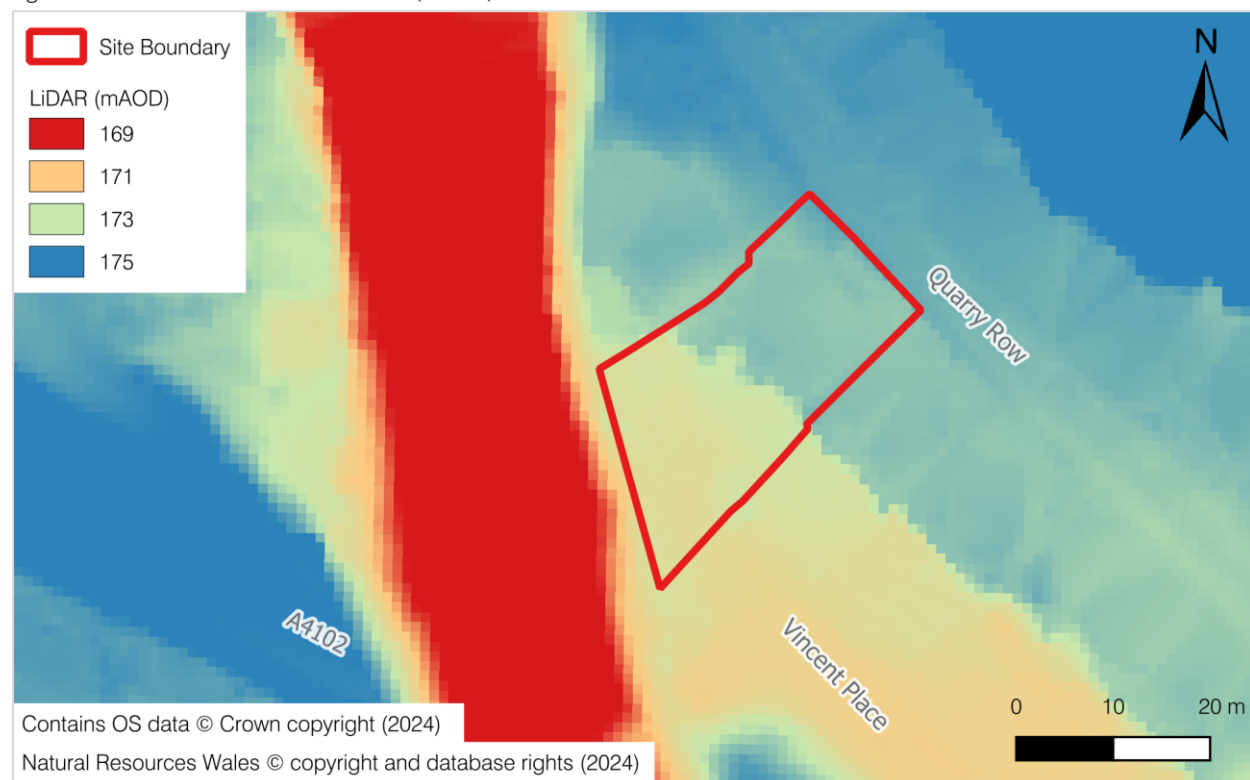
In the absence of a site-specific topographic survey, freely available 1m resolution Light Detection and Ranging (LiDAR) data has been downloaded to allow analysis of the whole site and local area. A visual illustration of the LiDAR is presented on Figure 02.

From review of the LiDAR, it was indicated the topography of the whole site falls from approximately 173.33mAOD in the eastern region of the boundary, closest the dwelling, to 171.88mAOD along the western boundary closest to the River Taff. This is a difference in ground levels of 1.45m. The building footprint is located in the area of the site that is at a higher elevation, with ground levels approximately 173.3 - 173.47mAOD across the footprint.

The LiDAR derived ground levels around the dwelling are shown to range between approximately 173.2mAOD at the front entrance to approximately 173.47mAOD at the rear of the building. A review of street level imagery indicates that the front door threshold is elevated above external ground levels by approximately 0.15m. Therefore, the Assumed Floor Level (AFL) for the dwelling is 173.35mAOD (173.2mAOD + 0.15m). This level will be used within analysis against fluvial flood model data within Section 2.1 of this report.

LiDAR also indicates the site is elevated approximately 5m above the eastern bank of the River Taff.

Figure 02 - LiDAR Derived Ground Levels (mAOD)





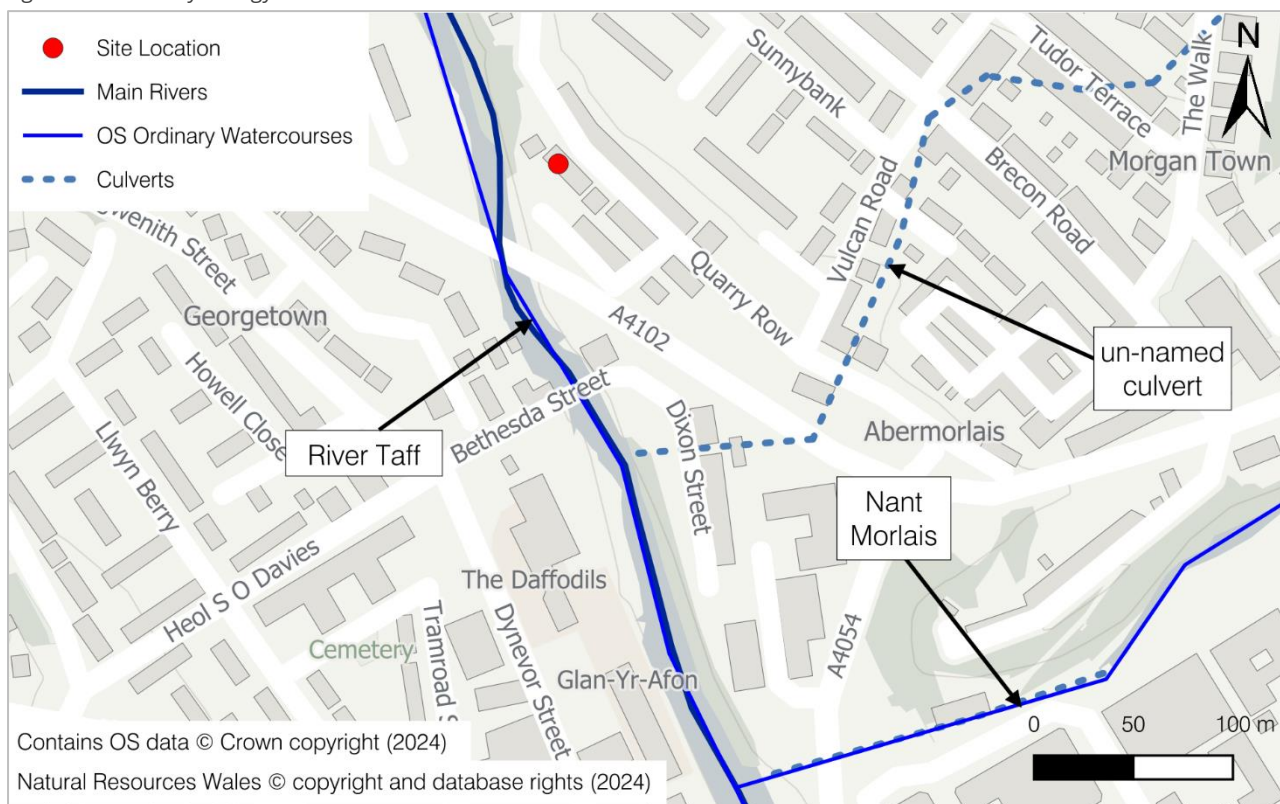
1.8 Local Hydrology

The nearest NRW designated Main River is the River Taff, located approximately 10m west of the site (Figure 03), flowing in a southerly direction through Pontypridd before discharging into Cardiff Bay and the Severn Estuary, approximately 37.4km south of the site.

There is an un-named culverted watercourse located approximately 139m south-southeast of the site.

There is an ordinary watercourse located approximately 315m south-southeast of the site (the Nant Morlais), at its confluence with the River Taff. The Nant Morlais is partially culverted, with the nearest open channel section located approximately 371m southeast of the site.

Figure 03 - Local Hydrology



1.9 Local Drainage

A drainage plan for the site was not provided by the client; however, a review of Street View imagery indicated that the nearest drains to the site are gully drains, located on Quarry Row adjacent to the site boundary. It is assumed that the site is connected to the wider public below ground drainage network and there will be no changes to outfalls based on the division of a single existing dwelling into two sub dwellings.



1.10 Flood History

Upon review of the NRW recorded flood outlines, it is indicated that historic flooding has not occurred at the site. The nearest recorded flood outline is located approximately 99m north of the site. This incident was indicated to have occurred in 1979, due to the River Taff exceeding its channel capacity with no raised defences (Figure 04).

Figure 04 - NRW Recorded Flood Outlines



Online Documentation

The Merthyr Tydfil County Borough Council (MTCBC) Strategic Flood Consequences Assessment (SFCA)¹ (2018) was reviewed for historic flood events at and within the vicinity of the site. Upon review of the SFCA, it was indicated that historic flood events have occurred within the Borough, however none were within proximity to the site.

The MTCBC Preliminary Flood Risk Assessment Report (PFRA)² (2011) was reviewed for historic flooding. Upon review of the PFRA, it was indicated that there have been two flooding incidents within Merthyr Tydfil, the December 1960 event and the December 1979 incident, which was identified by the NRW open-source data of recorded flood outlines. The December 1960 event was a result of a long period of wet weather, resulting in the highest river levels in 100 years. The December 1979 event was preceded by two significant storm events that resulted in a super saturated catchment, which subsequently led to 100% surface run-off and higher than normal flows.

MPTCBC PFRA addendum (2018)³ stated that no flooding incidents had occurred since 2011 that has changed the understanding of the flood risk of the area.

¹ <https://www.merthyr.gov.uk/media/4444/sd37-merthyr-tydfil-strategic-flood-consequence-assessment-sfca-june-2018.pdf>

² <https://www.merthyr.gov.uk/media/1470/mtcbc-preliminary-flood-risk-assessment-report-pfra.pdf>

³ <https://www.merthyr.gov.uk/media/3649/merthyr-tydfil-pfra-phase-1-review-questionnaire-addendumenglish.pdf>



The MTCBC Local Flood Risk Management Strategy (LFRMS) (2013)⁴ was reviewed for historic flood events at and within the vicinity of the site. Upon review of the LFRMS, it was indicated that there have been no reportable incidents identified at or within the vicinity of the site.

The MTBCB Flood Risk Management Plan (FRMP) (2015)⁵ was reviewed for historic flood events at and within the vicinity of the site. Upon review of the FRMP, it was indicated that there have been no reportable incidents identified at or within the vicinity of the site.

Flood History Summary

Based on the information reviewed, it was indicated that there have been no historic flooding events identified at the site.

1.11 The Design Flood

The Planning Practice Guidance along with TAN15 identifies that new developments should be designed to provide adequate flood risk management, mitigation and resilience against the 'design flood' for their lifetime.

This is a flood event of a given annual flood probability, which is generally taken as fluvial (river) flooding likely to occur with a 1% annual probability (1 in 100 chance each year), or tidal flooding within a 0.5% annual probability (1 in 200 chance each year) plus an allowance for Climate Change (CC), against which the suitability of a proposed development is assessed and mitigation measures, if any, are designed. The site is confirmed to not be at a risk of tidal flooding. As the main risk to the site is fluvial, the 1 in 100 year +CC event will be considered throughout this report. Additionally, consideration to the tolerable limits of TAN15 is given within Section 3 of this report.

1.12 Climate Change

In September 2021, NRW published the Climate Change Allowance guidance for FCAs⁶. This includes predicted future change in peak river flows which replaced the previous national 20% allowance, with a range of projections applied to regionalised river basin districts.

Peak River Flow Allowance

The site falls within the Severn Basin District. Table 1 identifies the relevant peak river flow allowance.

Table 1 – Peak River Flow Allowance for the Severn Basin District

Allowance Category	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Upper End Estimate	25%	40%	70%
Change factor/central estimate	10%	20%	25%
Lower end Estimate	0%	5%	5%

⁴ <https://www.merthyr.gov.uk/media/1472/mtcbc-local-flood-risk-management-strategy-lfrms.pdf>

⁵ <https://www.merthyr.gov.uk/media/7721/flood-risk-management-plan-june-2015.pdf>

⁶ https://www.gov.wales/sites/default/files/publications/2021-09/climate-change-allowances-and-flood-consequence-assessments_0.pdf



When determining the appropriate allowance for use in a Flood Consequence Assessment, the guidance from the Welsh Government recommends that the central estimate or change factor should be used. For the lifetime of the proposed development, the 2080s central estimate should be considered, which as seen in Table 1 above is an additional 25% for Climate Change (CC).

To ensure that the development is designed adequately for its lifetime, an allowance of 25% should be applied to the design flood (1 in 100 year) event. This will be considered further within Sections 2 and 3 of this FCA.



2 Flood Risk Evaluation

The following sections provide an evaluation of the risk posed by the key flood sources in relation to the site location. Consideration is given to the severity of flood risk to the site as a whole, making use of existing flood mapping, high-level local strategic studies and available topographic information.

2.1 Tidal Flood Risk

Tidal flood risk can affect the coastline as well as estuaries and rivers that are tidally influenced. Flood events often coincide with the tidal regime, high rainfall events or other natural phenomena, which can lead to water levels covering low-lying land or exceeding natural or man-made defences.

The NRW Flood Risk Assessment Wales (FRAW) (Rivers and Sea) divides the floodplain into risk-based categories and provides an indication of flood risk for the site. The FRAW mapping (Rivers and Sea) indicates the site is not located within an area at risk of tidal flooding. The nearest high risk tidal extent is located 23.1km southwest of the site, with the coastline located approximately 34km southeast of the site.

The risk of flooding from tidal sources is considered **Negligible** at the site. No further consideration is made within this report to this source of flooding.

2.2 Fluvial Flood Risk

Fluvial flood risk originates from any watercourse that may affect a site when the channel capacity is exceeded. This type of flooding often occurs following extreme rainstorm events or prolonged periods of wet weather.

As previously mentioned in Section 1.8 of this report, the nearest NRW designated Main River is the River Taff, located approximately 10m west of the site (Figure 03). There is an un-named culverted watercourse located approximately 139m south-southeast of the site, in addition to an ordinary watercourse located approximately 315m south-southeast of the site (the Nant Morlais).

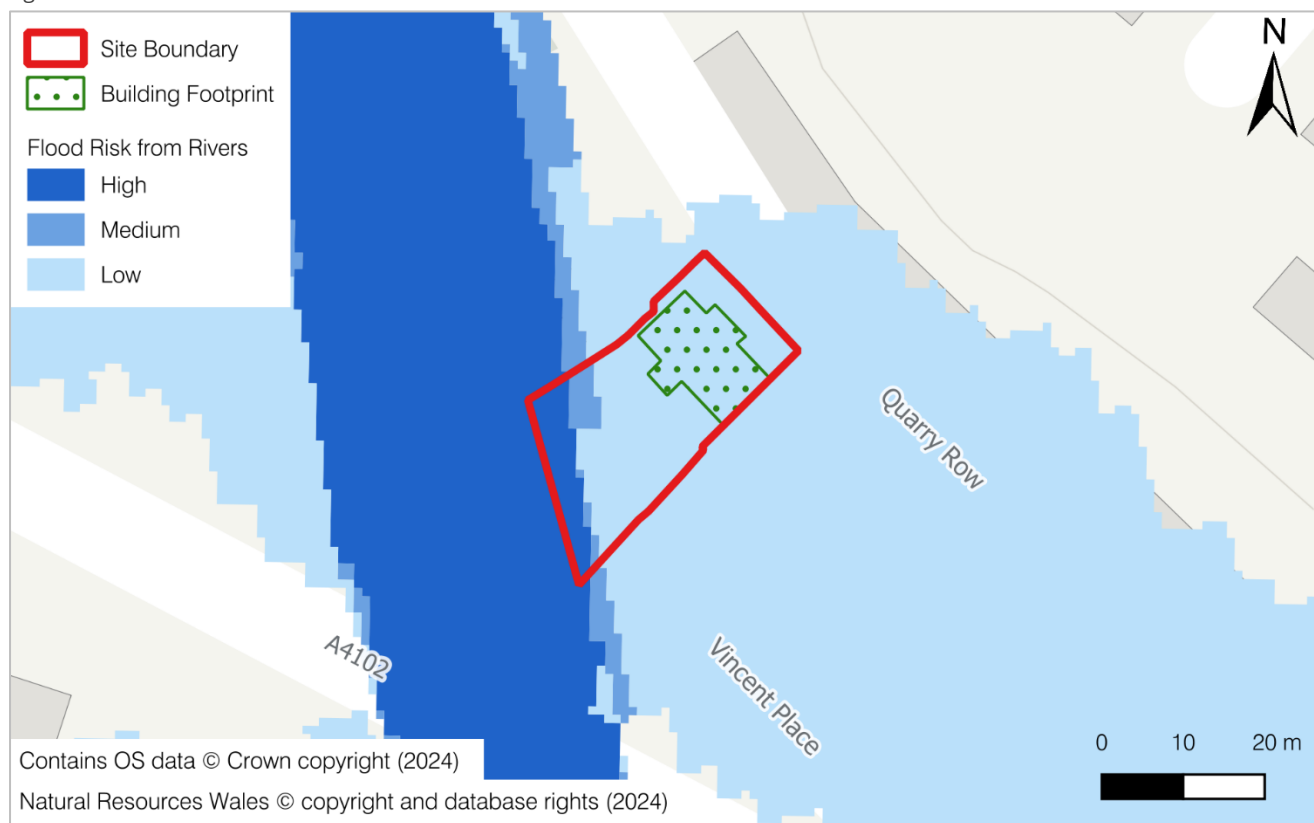
NRW Flood Mapping

The NRW Flood Risk Assessment (FRAW) (Rivers) divides the floodplain into risk-based categories and provides an indication of flood risk for the site. The FRAW mapping (Rivers) (Figure 05) indicates that the building within the site boundary is located within a low risk area. There is an area of high and medium risk along the southwestern boundary, adjacent to the River Taff. The risk definitions for reference are:

- **High Risk** – An area that has an annual chance of flooding greater than 1 in 30 (3.3%);
- **Medium Risk** – An area that has an annual chance of flooding between 1 in 100 (1%) and 1 in 30 (3.3%);
- **Low Risk** – An area that has an annual chance of flooding between 1 in 1000 (0.1%) and 1 in 100 (1%).



Figure 05 - NRW Flood Risk from Rivers



Flood Defences

The open-source layer for flood defences in GIS Viewer has not identified any flood defences in the vicinity of the site. Moreover, the site is indicated to not be located within an area benefitting from flood defences.

NRW Flood Model Data

Product 5 and 6 flood model data was obtained from NRW to inform this FCA. This comprises the Nant Morlais Hydraulic Model published by Wallingford Hydro Solutions (WHS) on behalf of Merthyr Tydfil County Borough Council in April 2023. The model is a 1D/2D TuFLOW 2020-10-AD model. This allows for a detailed representation of the floodplain, using efficient techniques to modify the baseline ground elevation and model grid to define floodplain features which control flood mechanism.

The model was run for the 1 in 30 year, 1 in 100 year and 1 in 1000 year flood events, including 25% Climate Change (CC) allowance. Additionally, the model was run for four different storm durations;

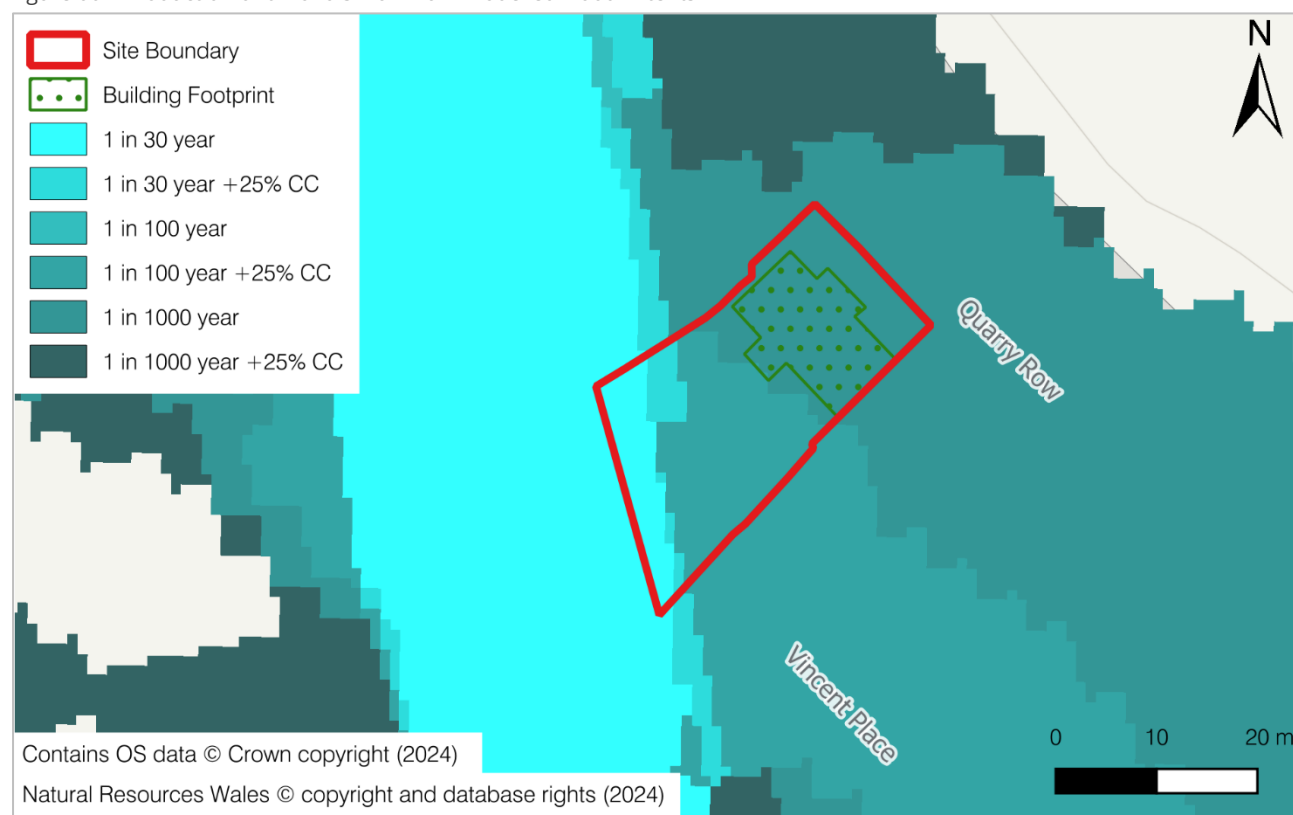
- 4 hour storm;
- 6 hour storm;
- 8 hour storm;
- 10 hour storm.



The 4 hour storm was shown to be the critical storm for all scenarios, with modelling showing there was no significant difference between the 'de-facto' defended scenarios and the undefended scenarios. The flood extents used within this report are taken from the un-defended fluvial scenario, using the 4-hour storm event as this represents a shorter, more intense rainfall period (flash flood).

The Maximum Modelled Flood Extents have been provided within the Product 6 information and can be seen within Figure 06 for reference. As seen within Figure 06, the building footprint is shown to not be at risk in all return periods up to the 1 in 1000 year event. Projected flooding is indicated to be restricted to external areas within the rear garden of the building and do not pose an internal risk to the building footprint. The dwelling is shown to not be at risk in the design flood event (1% + 25% CC). The building footprint is only shown to be at risk in the extreme 1 in 1000 year and 1 in 1000 year + 25% CC flooding scenarios.

Figure 06 – Product 6 Nant Morlais Maximum Modelled Flood Extents



Internal flooding is only projected during the extreme 1 in 1000 year and 1 in 1000 year +25% CC flood events. All other modelled flood events are not shown to encroach upon the building. The Maximum Modelled Flood Levels for all return periods is seen in Table 2 below, compared to the Assumed Floor Level discussed in Section 1.7 (173.35mAOD) to calculate the internal flood levels, if internal flooding should occur.



Table 2 – Maximum Modelled Flood Levels.

Return Periods	Maximum Modelled Flood Level (mAOD)	Elevation Above Flooding (m)
1 in 30 year	170.12	3.23
1 in 30 year + CC	170.98	2.37
1 in 100 year	171.12	2.23
1 in 100 year + CC	172.68	0.67
		Calculated Flood Depth - Internal (m)
1 in 1000 year	174.04	0.69
1 in 1000 year + CC	174.62	1.27

Table 2 indicates that based on the Assumed Floor Level (AFL) of 173.35mAOD, the building is only expected to experience internal flood depths of up to 0.69m during the projected 1 in 1000 year flood event, and depths of up to 1.27m during the 1 in 1000 year +25% flood event. The building footprint is projected to be elevated 0.67m above the design flood event (1 in 100 year +25% CC).

Online Documentation

Upon review of the relevant documents, it was indicated that there have been fluvial flood events within 99m; however, there have been no reportable incidents located at the site.

In summary, despite the site's western boundary shown to be impacted during all modelled return periods, the building itself only has residual risk from the 1 in 1000 year and 1 in 1000 year +25% events. Therefore, the overall risk to the site from fluvial flooding is considered to be **Low**.

2.3 Surface Water Flooding

Surface water flooding occurs when local drainage networks are overwhelmed during an extreme rainfall event, causing water to flow over the surface and follow gravity to the lowest point where it often pools. This flood source is increasingly becoming one of the major contributors of flood risk, due to changing weather patterns and increased extreme rainfall events occurring across the UK. This places more pressure than ever on drainage systems, which are often overwhelmed during flash flood events, normally only designed to take between a 1 in 20 and a 1 in 30 return period event.

When interpreting the surface water flood map information, it needs to be taken into account that surface water mapping is generated from information that is largely high-level. The flood mapping must be correctly interpreted in order to give a fair representation of the site's surface water flood risk and used only as a guide.



The NRW Flood Risk from Surface Water and Small Watercourses Mapping (Figure 07) indicates that the site is outside of high, medium and low risk of surface water flooding. The risk definitions are:

- **High Risk** means that each year, the chance of flooding in the area is greater than 1 in 30 (3.3%);
- **Medium Risk** means that each year, the chance of flooding in the area is between 1 in 100 (1%) and 1 in 30 (3.3%);
- **Low Risk** means that each year, the chance of flooding in the area is between 1 in 1000 (0.1%) and 1 in 100 (1%).

Figure 07 - NRW Risk of Flooding from Surface Water and small watercourses.



During the high probability event, surface water is shown to not impact the site. The nearest high probability extent is 14m south of the site on Vincent Place. The nearest low probability extent is 4m south of the site on Vincent Place.

Online Documentation

Upon review of the relevant documents, it was indicated that there have been no reportable instances of historic surface water flood events located at or within the vicinity of the site.

Based on the available flood risk mapping, flood risk from this source is considered to be **Low**. No further consideration of this source is made within this FCA.



2.4 Reservoir Failure

Assessment of risk of a reservoir failure may be interpreted as the extent of flooding that would occur, should any reservoir that has a capacity larger than 25,000m³, suffer a catastrophic failure. Mapping of this nature is described by Natural Resources Wales as a worst-case scenario, with a flood event of this type being extremely unlikely.

The NRW Risk of Flooding from Reservoir Mapping (Figure 08) shows the site is located within an area at risk of flooding during multiple reservoir failure events. The nearest reservoir is Pontsticill (Taf Fechan) which is located approximately 5.2km to the northeast of the site. Current legislation ensures that reservoirs are inspected regularly, and essential safety work is carried out as required.

Figure 08 - NRW Risk of Flooding from Reservoir Failure



Online Documentation

Upon review of the relevant documents, it was indicated that there have been no reportable instances of reservoir failure flood events located at or within the vicinity of the site.



The site is located within an area at risk of flooding from reservoir failure. Current legislation ensures that reservoirs are inspected regularly. The risk of flooding from reservoir failure is therefore considered to be **Low**. No further consideration of this source is made within this FCA.

2.5 Groundwater

Flooding from a groundwater source often occurs during or following a period of prolonged wet weather within areas that are low lying underlain by permeable rocks (aquifers). When aquifers are at their maximum holding potential, flooding at surface level can occur from beneath the ground.

Groundwater as a sole flooding mechanism is often regarded as low risk as it often relies on a coinciding rainfall, or flood event from an additional source to become a flood risk. The main contributory factor that will enhance the risk of groundwater flooding, is prolonged periods of high rainfall, which result in the groundwater saturation level rising to the point where it reaches the surface.

Online BGS mapping shows the bedrock geology beneath the site to comprise South Wales Lower Coal Measures Formation - Sandstone. This is classified as a 'Secondary A' aquifer. These are classed as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

The bedrock beneath the building footprint is overlain by Till, Devensian - Diamicton. The bedrock beneath the rear garden is overlain by Alluvium - Clay, silt, sand and gravel. These are both classified as 'Unproductive Strata' aquifers. These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

The nearest borehole to the site which shares the same underlying geology groundwater information is located approximately 180m east (Ref: SO00NW213), which has a depth of approximately 80.2m below ground level (bgl). Groundwater was struck at approximately 6m bgl.

Online Documentation

Upon review of the relevant documents, it was indicated that there have been no reportable instances of historic groundwater flood events located at or within the vicinity of the site. No further information regarding the susceptibility of groundwater flooding at the site was provide within any of the listed documents.

The risk of groundwater flooding is therefore considered to be **Low**. No further consideration of this source is made within this FCA.

2.6 Artificial Flood Sources

Flood risk from artificial sources would include the failure of man-made drainage or water supply network. Although the likelihood of such an occurrence is highly unpredictable, it is recommended that any proposed designs for the



site take into account the location of any existing below ground services, in order to avoid any inadvertent flooding taking place during the construction phase and in the future.

Online Documentation

Upon review of the relevant documents, it was indicated that there have been no reportable incidents of artificial flooding located at the site.

In summary, the overall risk to the site from artificial sources is considered to be **Low**. No further consideration of this source is made within this FCA.

2.7 Summary

Table 3 provides a summary of the classification of risk to the site from all flood sources and indicates where further considerations are required.

Table 3 – Flood Risk Summary

Flood Source	Overall Risk Classification	Additional Considerations
Tidal	Negligible	None
Fluvial	Low	See Section 3
Surface Water	Low	None
Reservoir Failure	Low	None
Groundwater	Low	None
Artificial Sources	Low	None



3 Flood Risk in Planning Context

This report has so far evaluated all sources of potential flooding that may affect the site. Section 3 identifies the flood risks in the context of the proposed development and provides justification for enabling safe development.

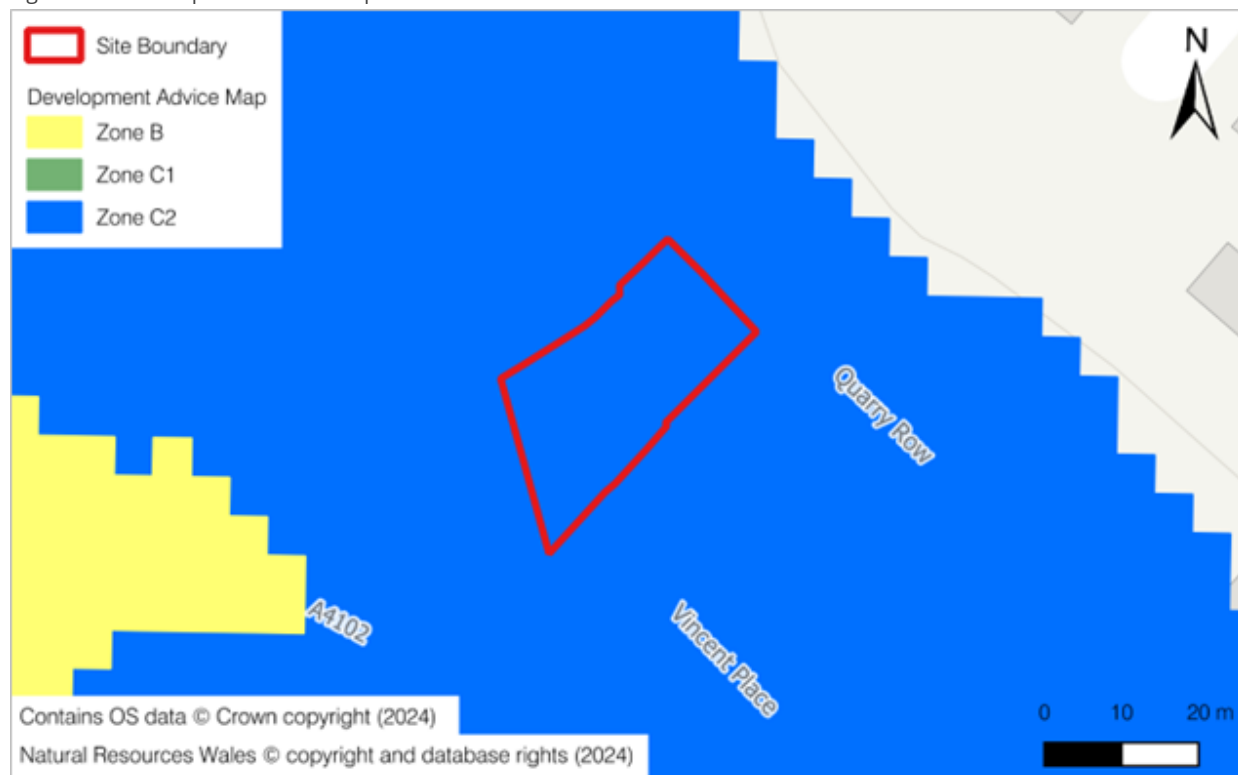
3.1 Flood Risk Status

The site is located within an area at low risk of river flooding. This means that each year, this area has a chance of flooding of between 1 in 1000 (0.1%) and 1 in 100 (1%). The proposed development is not at risk of fluvial flooding in the design flood event of a 1 in 100 year event +25% CC. The building footprint is shown to only be at risk in the extreme 1 in 1000 year and 1 in 1000 year +25% CC flood events. Overall, the risk of fluvial flooding at the site is considered to be **Low**. The risk of flooding from surface water, groundwater, reservoir failure and artificial sources is also considered to be **Low**. The risk of flooding from tidal sources is considered **Negligible**.

3.2 Development Advice Map & TAN 15 Requirements

The Development Advice Map (DAM) shows areas at risk of flooding from rivers and the sea for the purposes of land-use planning. The DAM supports Planning Policy Wales and TAN15 to guide new development away from areas at risk of flooding where possible. As seen in Figure 09, the site is located within Zone C2 of the DAM.

Figure 09 – Development Advice Map





Justifying the Location of Development

Figure 1 within TAN15 states that Zone C2 is used to indicate that only less vulnerable developments should be considered, subject to application of justification test, including acceptability of consequences. However, according to Section 11.19 within TAN15, applications for minor alterations that do not have a direct and adverse effect on a watercourse will not be required to justify the location of development. Nevertheless, although highly vulnerable development is not acceptable in Zone C2, the proposed development is not new, as it comprises internal adjustments only to an existing dwelling. The proposed development is for the sub-division of a single existing dwelling into two separate dwellings, with no changes being made to the building footprint. In addition, the number of residents within the building will not be increasing and the total amount of bedrooms will be decreasing.

Assessing the Consequences of Flooding

Section 7 of TAN15 indicates that potential consequences of a flood event for a new development should be considered and found to be acceptable. As mentioned within Section 2.1, the building footprint is not shown to flood during the design flood event (1 in 100 year +25% CC). The building footprint is projected to be elevated 0.67m above the design flood event (1 in 100 year +25% CC). TAN15 states that whether a development should proceed or not will depend on if the consequences of the proposed development flooding can be managed to a level which is acceptable for the nature of the development being proposed, including its effects on existing developments. Based on the above, the consequences of flooding are considered to be managed down to a suitable level.

3.3 Forward Recommendations

It is recommended that the following options are considered to demonstrate the site's long-term resilience and resistance to residual flood risk. These recommendations are in line with Communities and Local Government guidance: Flood Resilient Construction of New Buildings.

Flood Resilience & Recoverability

The following recommendations are made to bolster the proposed developments resilience and accelerate its recoverability immediately following a flood event. As discussed above, the dwelling is not at risk of flooding in the design flood event (1 in 100 +25% CC). Recommendations are considerations for the client, based on residual risk;

- All vulnerable/electrical equipment and plug sockets could be elevated at least 0.7m above floor level;
- Sealing all ducts and cables/pipes that enter the building with an appropriate water-resistant sealant;
- Implement flood resilient interior design inclusive of (but not limited to) floor finish, walls, doors and skirting;
- Non-Return Valves (NRV's) could be fitted to the below ground foul drainage network at the point the private network enters the public network; and,
- All drainage features within the site boundary should be jetted and inspected on a regular basis which will ensure the drainage network can operate as designed.

Flood Awareness

A Personal Flood Plan should be in use to ensure that the client is aware of the potential risks from flooding in the locality, as well as understanding what to do in the instance of a potential flood event. The NRW Personal Flood Plan template can be seen within Appendix C. It is also recommended that the client registers to the NRW Flood Warning service⁷ as a precaution. Safe refuge is achievable in the upper level of the dwelling itself; however, should there be

⁷ <https://naturalresources.wales/flooding/sign-up-to-receive-flood-warnings/?lang=en>



a requirement to evacuate, this should be done at the 'Flood Alert' stage. The client should egress the site informed by the NRW Flood Alert service.



4 Conclusion

The aim of this FCA was to address the requirements of TAN15. The proposed development at the site comprises the alteration and sub-division of a single dwelling into two dwellings, with no alterations to the building footprint.

The site is located within DAM Zone C2 of the River Taff, however due to the proposed development comprising of minor alterations that are not deemed to have a direct or adverse impact on the watercourse, Section 11.19 of TAN15 indicates the justification of the location would not be required.

The site has been assessed for flood risk from a variety of flood sources and based upon detailed analysis of anecdotal and modelled flood risk information this FCA has identified that the risk of flooding from fluvial sources is considered **Low**. The building footprint is indicated to be elevated approximately 0.67m above the design 1 in 100 + 25% CC flood event, which aligns with requirements set out in Section 7 of TAN15. Additionally, since the proposed development at the site comprises no alterations to the building footprint, the development will not impact the risk of flooding at or within the vicinity of the site as this shows no flood water displacement would be caused.

This FCA has further identified that the risk of flooding from surface water, groundwater, reservoir failure and artificial sources is also considered to be Low. The risk of flooding from tidal sources is considered Negligible.

The report has outlined a series of recommendations that could be considered to mitigate against residual flood risk on site in the extreme flood event. This is primarily focused on development design measures, and the creation of a Personal Flood Plan (which should be informed by the NRW Flood Alert Service).

This report therefore has met the aims as set out in Section 1.2 and concludes that the development:

- Is suitable in the location proposed;
- Will not impact flood risk elsewhere (off-site) at the design flood event; and,
- Is unlikely to place additional persons at risk of flooding.



Limitations of this report

This report has been prepared by Ashfield Flood Risk Solutions Limited (Ashfield) for the sole benefit of the client.

This report has been prepared solely for the benefit of Atrium Planning Consultants on behalf of (the “Client”) and has not been assigned to any other third parties. If reliance on this report was required by a third party, this could be arranged for an agreed fee. This report should not be used by the client in relation to any other matters not covered specifically by the scope of the report. If this report does not contain a signature in the Document Control window, then this is an uncontrolled electronic copy and should not be relied upon by the client or any other recipient, as Ashfield cannot give assurances on the source or content of the document. Ashfield has used all reasonable skill, care and diligence in the preparation of this report.

This Flood Consequence Assessment report has been designed to meet the aims outlined in Section 1. It is a desktop review of information provided by the client and from selected private and public databases. It only includes a site investigation where specifically referenced. This report does not make a detailed site-specific assessment of the suitability of the existing drainage on the Site. If this is required, then a site survey should be considered. Ashfield accepts no responsibility for the accuracy or completeness of third-party data reviewed within this assessment.

This report is provided under Ashfield Solutions Limited Standard Terms and Conditions.



Appendices



Appendix A Block Plan



NO.	NOTES
1	All dimensions in millimetres unless otherwise stated.
2	Do not scale off drawing. All dimensions to be checked on site by contractor.
3	Drawings to be used for purposes of Planning Application only.
4	These are not Construction Drawings.
5	The contractor is to set out, check and co-ordinate all dimensions on site during the course of works.



PROPOSED BLOCK PLAN @ 1:500



PROPOSED LOCATION PLAN @ 1:1250

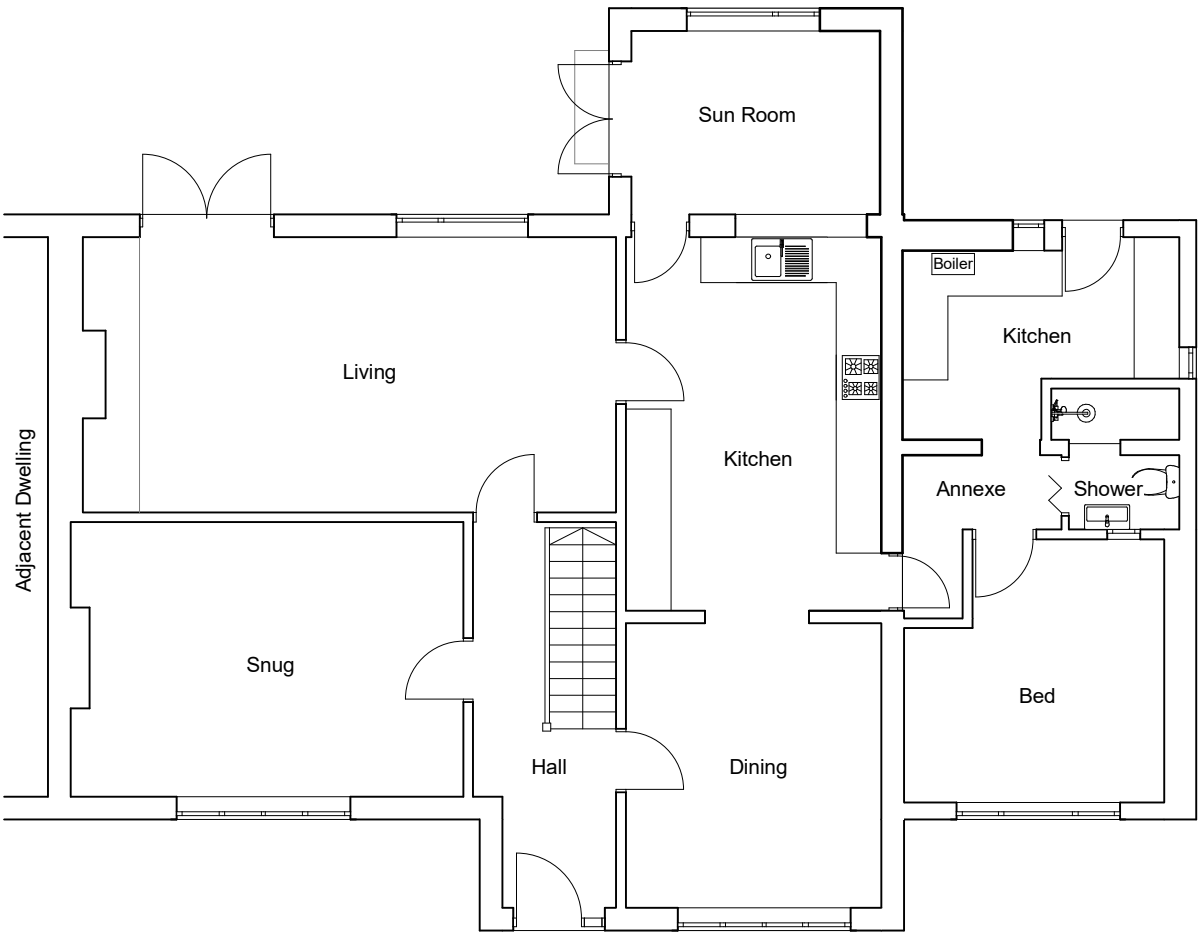


Appendix B

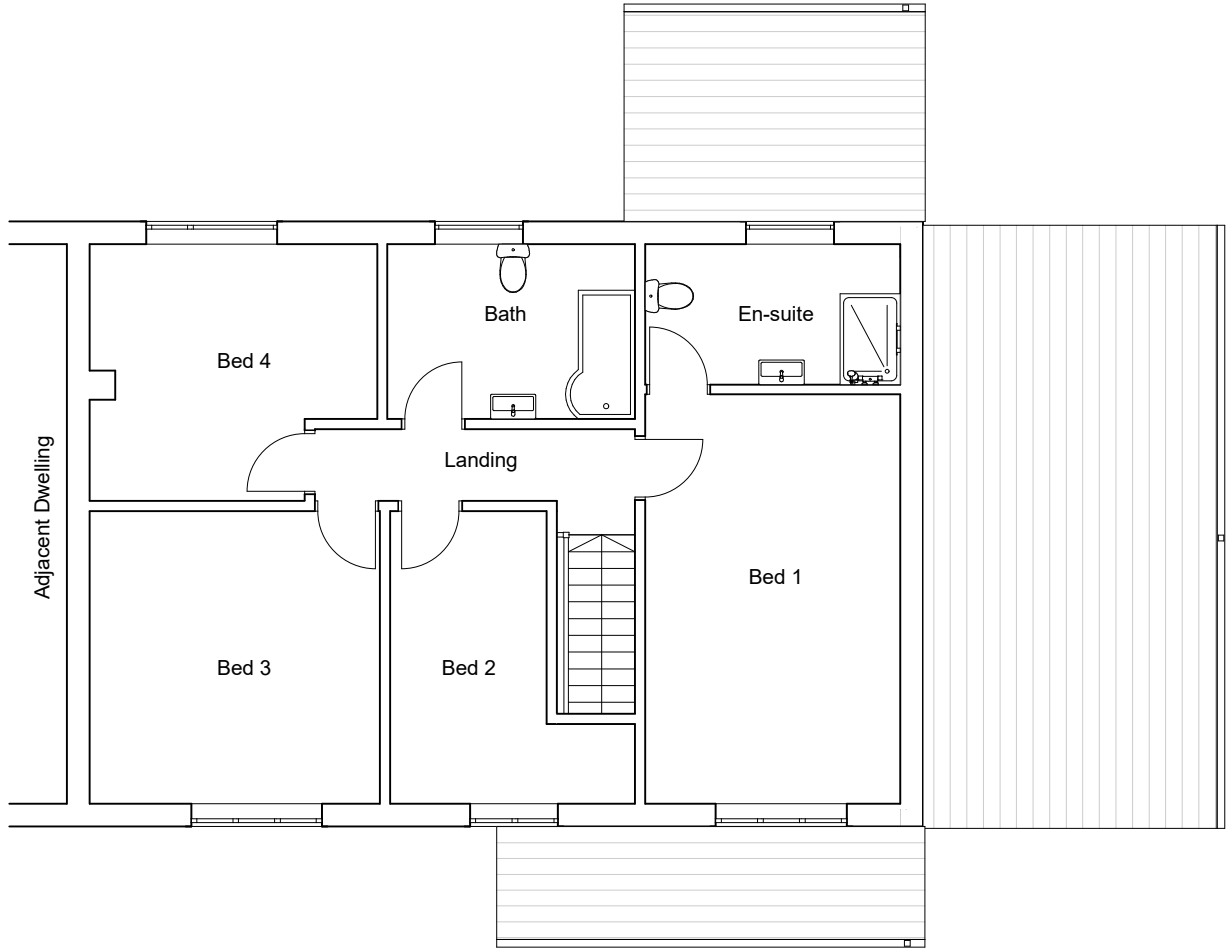
Existing and Proposed Floor Plans



NO.	NOTES
1	All dimensions in millimetres unless otherwise stated.
2	Do not scale off drawing. All dimensions to be checked on site by contractor.
3	Drawings to be used for purposes of Planning Application only.
4	These are not Construction Drawings.
5	The contractor is to set out, check and co-ordinate all dimensions on site during the course of works.



EXISTING GROUND FLOOR



EXISTING FIRST FLOOR



SCALE 1:100

Matt John

MSc Regeneration

BSc (Hons) City and Regional Planning

RTPI

Accredited Degrees

LABC

Registered

Partner Authority Scheme

REVISIONS:

SHEET TITLE:	Existing Floor Plans
--------------	----------------------

PROJECT DESCRIPTION:	PROJECT: SITE: 17 Quarry Row, Merthyr CF47 8PS CLIENT: Miss Komalpreet Kaur
----------------------	---

Artium

Planning Consultants

MOBILE: 07505 210 952

EMAIL: artiumplanning@icloud.com

DATE:	April 2024
-------	------------

SCALE:	1 :100
--------	--------

SHEET:

A-3



NO.	NOTES
1	All dimensions in millimetres unless otherwise stated.
2	Do not scale off drawing. All dimensions to be checked on site by contractor.
3	Drawings to be used for purposes of Planning Application only.
4	These are not Construction Drawings.
5	The contractor is to set out, check and co-ordinate all dimensions on site during the course of works.

Existing Walls

Proposed Walls

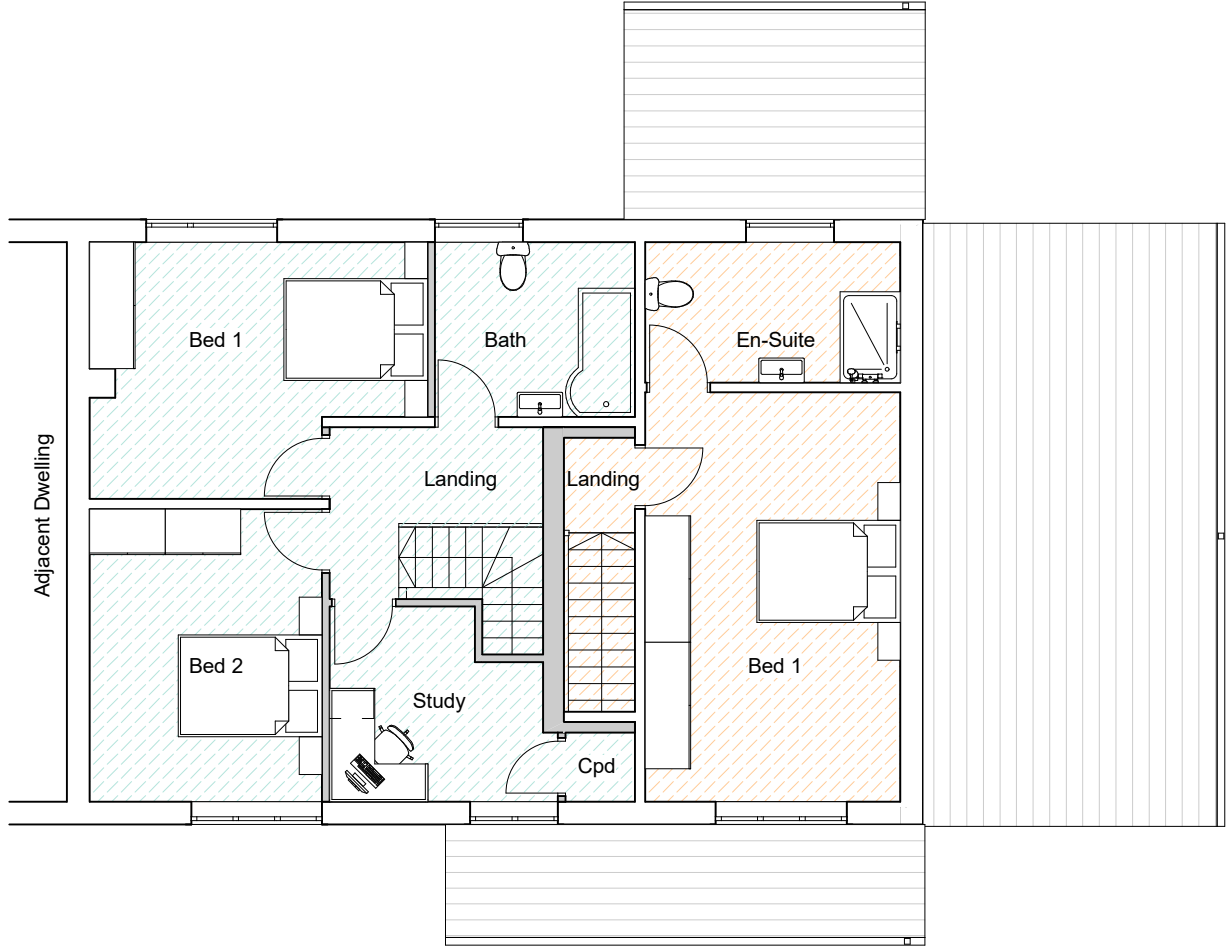
Existing walls/doors to be blocked up

Dwelling 1

Dwelling 2



PROPOSED GROUND FLOOR



PROPOSED FIRST FLOOR



SCALE 1:100



Appendix C

NRW Personal Flood Plan Template



Personal Flood Plan

Name:

Useful numbers:

General contact list	Company name	Contact name	Telephone
Floodline	Natural Resources Wales		0345 988 1188
Electricity provider			
Gas provider			
Water company			
Telephone provider			
Insurance company & policy number			
Local council			
Local radio station			
Travel / weather info			

Key locations:

Service cut-off	Description of location
Electricity	
Gas	
Water	

Who can help / who can you help?

Relationship	Name	Contact details	How can they / you help?
Relative			
Friend or neighbour			

What can you do if a flood is expected in your area?

Actions	Location
Home Move furniture and electrical items to safety	
Put flood boards, polythene and sandbags in place	
Make a list now of what you can move away from the risk	
Turn off electricity, water and gas supplies	
Roll up carpets and rugs	
Unless you have time to remove them hang curtains over the rods	
Move sentimental items to safety	
Put important documents in polythene bags and move to safety	
Garden and outside Move your car out of the flood risk area	
Move any large or loose items or weigh them down	
Business Move important documents, computers and stock	
Alert staff and request their help	
Farmers move animals and livestock to safety	
Evacuation – prepare a flood kit in advance Inform your family or friends that you may need to leave your home	
Get your flood kit together and include a torch, warm and waterproof clothing, water, food, medication, toys for children and pets, rubber gloves and wellingtons	

What can I do now?

Put important documents out of flood risk and protect in polythene ☐	Look at the best way of stopping floodwater entering your property ☐
Check your insurance covers you for flooding ☐	Make a flood plan and prepare a flood kit ☐
Find out where you can get sandbags ☐	Identify what you would need to take with you if you had to leave your home ☐
Identify who can help you / who you can help ☐	Understand the flood warning codes ☐

Are you signed up to receive flood warnings?

☐ If not call Floodline on **0345 988 1188** to see if your area receives free flood warnings.

Let us know when you've completed your flood plan by calling Floodline on **0345 988 1188**. This will help us learn more about how people are preparing for flooding.

There are a range of flood protection products on the market to help you protect your property from flood damage. A directory of these is available from the National Flood Forum at www.bluepages.org.uk



Thank you

for using Ashfield Solutions

Head Office:

Cwm Cynon Business Centre,

Cwm Cynon Business Park,

Mountain Ash, RCT, CF45 4ER

ashfieldsolutions.com

+44 (0)1443 803 540