



Lawray Ltd.

CAPEL SARON, NANTYR

Flood Consequence Assessment and Drainage
Strategy



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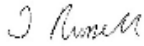
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1.0 INTRODUCTION

1.1 COMMISSION

WSP were appointed by Lawray Ltd. to undertake a Flood Consequence Assessment (FCA) and Drainage Strategy (DS) to support the proposed development at Capel Saron, Nantyr.

This FCA and DS focuses on assessing the flood risk issues at the site and includes the following:

- Liaison with Natural Resources Wales (NRW), Wrexham County Borough Council (WCBC) as Lead Local Flood Authority (LLFA) and Dwr Cymru Welsh Water (DCWW) regarding formal flood maps, culverted watercourses, river flood level data, historic flood information, obtaining updated sewer records and to discuss any specific planning requirements and allowable discharge rates for Foul Drainage
- Review of the existing information readily available on the nearby “main rivers” and “ordinary watercourses”, and existing drawings or published flooding reports in this area and any other readily available information.
- Initial assessment of potential flood risk or drainage constraints to the proposed development.
- Review of publicly available documents, including a Strategic Flood Risk Assessment, local policy documents and geological and hydrogeological mapping, if available for this area
- Advice on masterplanning, taking into consideration the flooding information received from the Statutory Consultees
- Review of site levels in relation to the surrounding area and determine potential flood routes across the site.
- Review of the proposed development with regard to all potential sources of flooding and identify any flood mitigation measures
- Assessment of the likely change in impermeable area resulting from the development
- Review all existing site drainage information and surveys provided by the Client
- Development of preliminary proposals for the foul water drainage on the site.
- Input to master planning for the site and advise on site layout for provision of SUDs, surface water attenuation systems, foul pumping station and indicative finished floor/plot levels.

1.2 POLICY CONTENT

This FCA and DS has been prepared in accordance with the relevant national, regional and local requirements and guidance of the following publications and organisations:

- Technical Advice Note (TAN) 15: Development and Flood Risk dated October 2004 issued by Welsh Government
- Wrexham County Borough Council
- Building Regulations 2010 (Part H3)
- Sewers for Adoption 7th Edition
- Planning Policy Wales (Edition 9, November 2016) issued by Welsh Government
- Wrexham County Borough Councils local planning guidance note Management of Surface Water Generated from New Development
- Wrexham County Borough Council Local Flood Risk Management Strategy April 2013
- Welsh Ministers Standards for Foul Sewers and Lateral Drains
- The new Sustainable Drainage Systems (SuDS) Manual C753, CIRIA
- RainScape – Dwr Cymru Welsh Water
- SuDS Wales

To complete this FCA and DS, the following stakeholders have been consulted:

- Natural Resources Wales
- Dwr Cymru Welsh Water (DCWW)
- Wrexham County Borough Council (WCBC) as Lead Local Flood Authority (LLFA)

1.3 PLANNING POLICY WALES VULNERABILITY AND TECHNICAL ADVICE NOTE 15

The general approach of the Planning Policy Wales (PPW), supported by the Technical Advice Note 15 (TAN15) is to follow a precautionary framework approach when determining the suitability of land for development in flood risk areas, with the intention of steering development away from areas of high risk of flooding to the lowest flood risk areas.

When development has to be considered in high risk areas (zone C) only those developments which can be justified on the basis of the tests outlined in section 6 and section 7 of the TAN15 guidance are to be located within such areas.

Table 2 of TAN15 guidance confirms the 'Flood risk vulnerability classification' of a site, depending on the proposed usage. This classification is subsequently applied to Development Advice Map (DAM) containing three zones (A, B and C with subdivision into C1 and C2) to determine whether:

- The proposed development is suitable for the zone in which it is located.

- The appropriate planning tests that need to be demonstrated in relation to the proposed development.

1.4 LIMITATIONS

The findings and opinions conveyed via this report are based on information obtained from a variety of sources, as detailed, which WSP believes are reliable. Nevertheless, WSP cannot and does not guarantee the authenticity or reliability of the information it has relied upon from these sources.

This report has been written on behalf of the Client and no responsibility is accepted to any Third Party for all or any part. This report should not be relied upon or transferred to any or other parties without the express written authorisation of WSP. If any unauthorised third party comes into possession of this report, they rely on it at their own risk and the authors owe them no duty of care or skill. WSP disclaims any responsibility to the Client and others in respect of any matters outside the scope of the above contract.

This report has been prepared by WSP with all reasonable skill and care within the terms of the Contract with the Client and taking into account of the information made available by the Client, as the manpower and resources devoted to it by agreement with the Client.

It should be noted that the insurance market applies different tests to properties in relation to both determining premiums and, more fundamentally, determining the insurability of properties for flood risk. Those undertaking development in areas which may be at risk of flooding are advised to contact their insurers or the Association of British Insurance (ABI) to seek further guidance prior to commencing development.

The findings of this FCA have been based on data available at the time of the study and on the review of available information that has been undertaken to date. They relate to the current development proposals as outlined in **Appendix 6.1**. WSP do not warrant that the advice in this report will guarantee the availability of flood insurance either now or in the future.

2.0 EXISTING SITE AND DEVELOPMENT PROPOSALS

2.1 SITE LOCATION

The proposed re-development site is located in a rural environment to the south of Plas Nantyr Road, approximately 2.3 miles to the west of Glyn Ceiriog. The site has an approximate area of 0.03ha, of which 0.0155ha is impermeable area and is centred within National Grid Reference 317127E, 337081N.

The site is roughly triangular in shape and is bounded to the north by the Plas Nantyr Road, to the east by a watercourse tributary of the River Teirw, to the south by the River Teirw and to the west by a private access road. The existing site location plan is shown in **Figure 1.0** below.

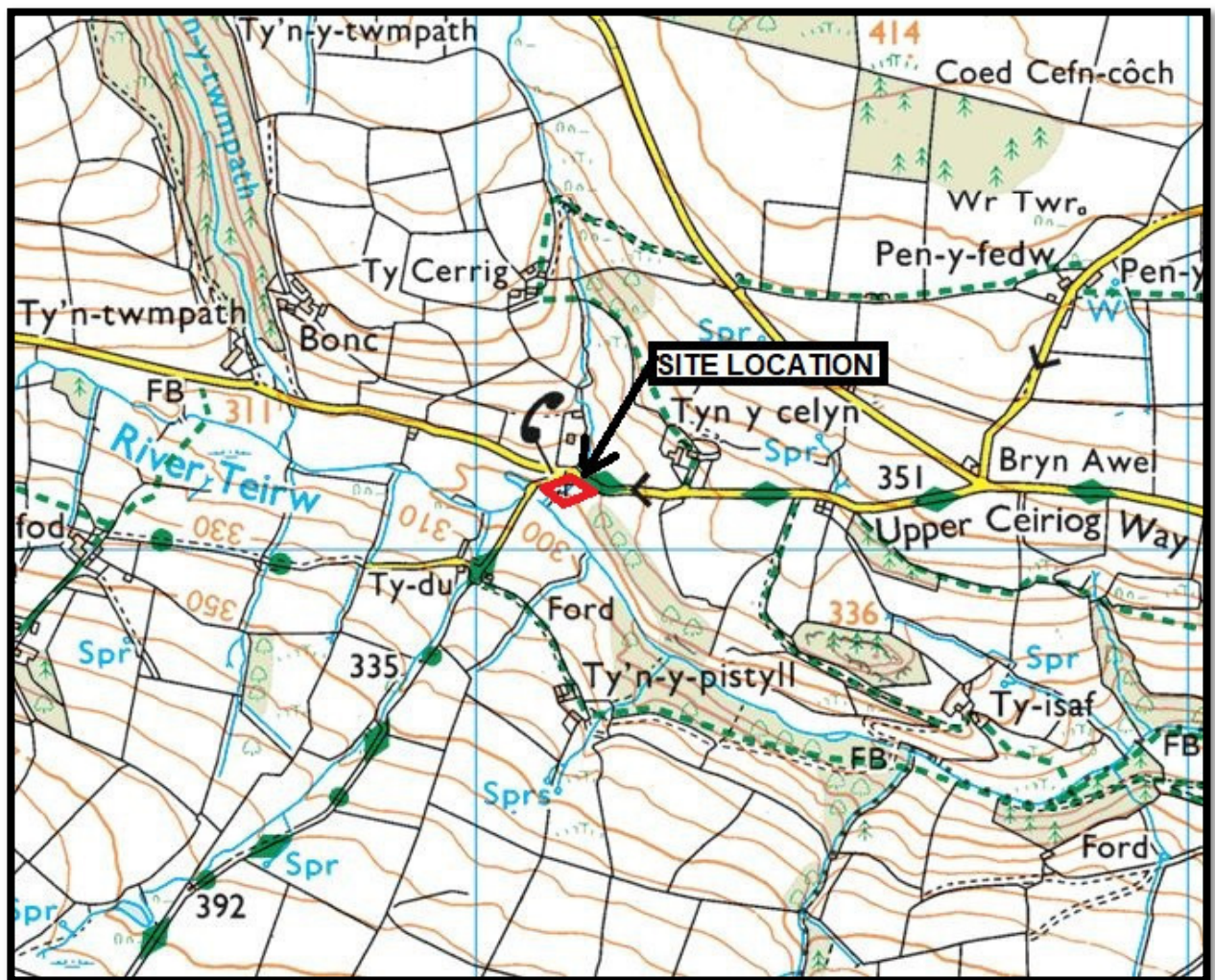


Figure 1.0: Site Location Plan (Source: Ordnance Survey Map
License Number WL100018294)

2.2 SITE DESCRIPTION

A topographical survey provided by the Client has been reviewed as part of this assessment and is included in **Appendix 6.2** of this report (Note: Survey is to local grid). The survey indicates that the

site has a high point of 47.990m ALD (Above Local Datum) located along the north west boundary of the site at the access from the private access road. The low point is located in the southern corner of the site at 45.960m ALD, with levels of 47.170m ALD and 48.410m ALD in the south west and north east corners respectively. The south west boundary to the site is bounded by woodland that falls toward the River Teirw. The south east boundary to the site is bounded by a tributary of the River Teirw, there is a post and wire fence / stone wall / hedge line at the boundary prior to a steep embankment that falls towards the watercourse. The previous use of the site was a place of worship (Capel Saron) which comprised the majority of the site, the remainder of the site was populated with shrubs and grassland.

2.3 PROPOSED DEVELOPMENT

The scheme consists of the re-development of the existing place of worship as 1 number 2 bedroom private residence.

Based upon latest development plans the approximate impermeable area generated by the proposals will be within the region of 0.02Ha which represents an increase of 0.005Ha in impermeable area, as shown on the impermeable area plan included on drawing 4436-100-01 in **Appendix 6.3**.

The development proposals are shown on the Architects plans enclosed within **Appendix 6.1**.

2.4 GEOLOGY AND HYDROGEOLOGY

The surface geology of the site has been reviewed from the British Geological Survey (BGS) online geology maps and shows that the site is comprised of the following:

Solid Geology – Blaen-y-cwm Shale formation – Mudstone. Sedimentary Bedrock formed approximately 449 to 450 million years ago in the Ordovician Period. Bryn Siltstone Formation - Siltstone. Sedimentary Bedrock formed approximately 453 to 454 million years ago in the Ordovician Period

(Note-No superficial geology is shown for the site however approx. 100m to the west of the site, the following description is shown)

Drift Geology - Alluvium - Clay, Silt, Sand and Gravel. Superficial Deposits formed up to 2 million years ago in the Quaternary Period.

The mudstone is a Secondary B aquifer. Secondary B aquifers are predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

The depth of groundwater beneath the site is unknown; however given the granular nature of the superficial deposits and the proximity of the river, shallow groundwater might be present. The granular nature of the superficial deposits is unlikely to offer any significant protection to the underlying aquifer.

2.5 HYDROLOGY

The site is located adjacent to the River Teirw. This is shown in **Figure 2.0** below. The River Teirw is located to the south of the site, it is a NRW designated ordinary watercourse flowing in a south easterly direction and is a tributary of the River Ceiriog.

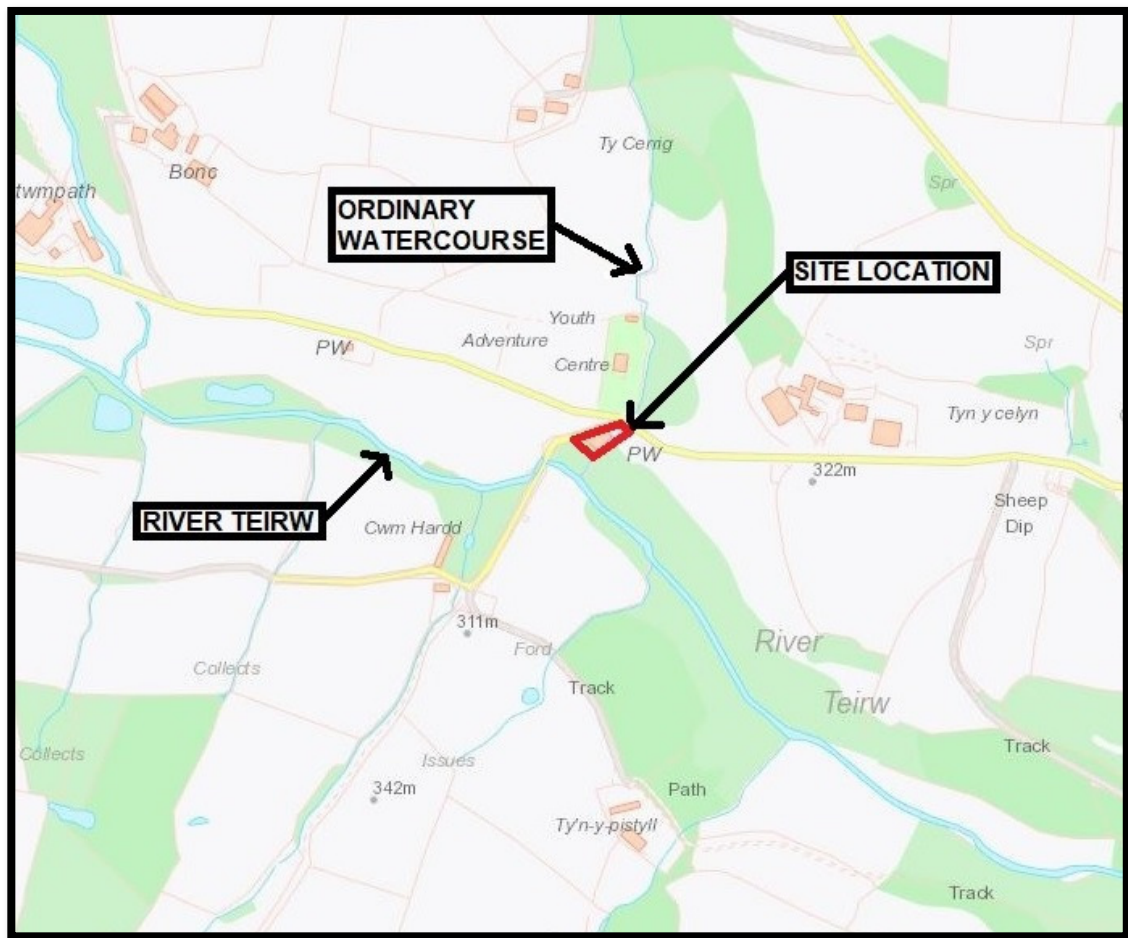


Figure 1.1: Hydrology Plan (Source: Natural Resources Wales)

2.6 EXISTING DRAINAGE

2.6.1 PUBLIC SEWERS

Due to the rural nature of the site, it was anticipated that there would be no public sewers within the immediate vicinity, which DCWW confirmed. It is highly likely that due to the rural nature of the site there will never be a positive public sewer network within the vicinity of the site. A copy of the correspondence email with DCWW is included in **Appendix 6.4** of this report.

2.6.2 EXISTING SITE DRAINAGE ARRANGEMENTS

The site walkover undertaken by WSP on the 7th January 2019 indicated that surface water from the existing roof discharged freely via downspouts to the surrounding area. No positive surface water drainage network could be identified. The previous use of the property had no requirement for foul drainage therefore, there is no existing foul drainage within the site boundary.

2.7 CONSULTATION WITH AUTHORITIES

2.7.1 CONSULTATION WITH WREXHAM COUNTY BOROUGH COUNCIL (WCBC)

The LLFA of WCBC were consulted as part of the planning application of the scheme, the following was stated in their response and is included within **Appendix 6.5**:

- The site is bounded by a small un named watercourse and would appear to be located within a topographical low point.
- NRW's updated flood map for surface water does identify a risk of surface water flooding to the site, and we hold a number of reports of surface water and rapid flash flooding in the immediate vicinity of the site.
- As the application is for a change of use to a higher vulnerability use, with reported incidents of flooding in the immediate vicinity of the site I would strongly recommend a flood consequence assessment is submitted in support of the application to better define the risks to the site from fluvial flooding, blockage of local drainage infrastructure and surface water runoff and propose mitigation to minimise the impact of any future flooding to the development and surroundings
- This assessment should be used to better define the risks to the site from the local flood risk sources referenced above as well as identify any suitable mitigation that could be incorporated into the proposed development to ensure any identified flood risk can be acceptably managed into the future. It is worth noting that NRW and the TAN15 Development Advice Maps do not explicitly consider the sources of risk identified.

2.7.2 CONSULTATION WITH NATURAL RESOURCES WALES (NRW)

NRW were consulted as part of the planning application of the scheme, the following was stated in their response and is included within **Appendix 6.6**:

- We have significant concerns with the proposed development as submitted. We recommend that you should only grant planning permission if the scheme can meet the following requirement and you attach the condition listed below. Otherwise, we would object to this planning application.
 - Requirement 1: Foul Drainage - Clarification with regards to the method for the disposal of foul drainage. We note that there is a discrepancy between the application form which states that the method of foul water drainage is unknown, and plan AR-060101 P6 which indicates a cesspool. The applicant should clarify the method of foul drainage.
 - The preferred method of foul drainage disposal is connection to the mains sewer. If this is not feasible, alternative methods of non mains drainage should be justified in accordance with the hierarchical approach set out in WG Circular 008/2018. Circular 008/2018 discourages using cesspools for new development. The applicant must therefore fully justify the use of a cesspool over preferred alternative means of foul disposal in accordance with the hierarchy set out in the Circular and Building Regulations Approved Document H. The Local Planning Authority will need to be satisfied that the sewerage arrangements are suitable.
 - It should be noted, we do not accept the promotion or proliferation of cesspools, instead of connection to a public sewer or alternative private sewerage options such as septic tanks or package plants, as a viable long-term sewerage option in anything other than exceptional circumstances.

- In our previous response to this proposal (CAS-63313-T5G0) we provided our standing advice with regards to highly vulnerable development (housing), located in Zone C2 of the Development Advice Map (DAM). We note an amended red line plan has been submitted which excludes any area of C2 flood risk, we therefore have no objection to the proposal on flood risk grounds. However, we would advise that the applicant is made aware of the potential flood risks, and advised to install flood-proofing measures as part of the development.

2.7.3 CONSULTATION WITH DWR CYMRU WELSH WATER (DCWW)

DCWW were consulted as part of the planning application of the scheme, the following was stated in their response and is included within **Appendix 6.7**:

- Since the proposal intends utilising an alternative to mains drainage we would advise that the applicant seek advice from Natural Resources Wales and or the Local Authority Building control Department / Approved Building Inspector as both are responsible to regulate alternative methods of drainage.
- However, should circumstances change and a connection to the public sewerage system / public sewerage treatment works is preferred we must be re-consulted on this application.

3.0 ASSESSMENT OF FLOOD RISK

3.1 FLOODING HISTORY

Wrexham County Borough Council as the Lead Local Flood Authority have confirmed that there are: *reported incidents from members of the public to the council of flood incidents within the immediate vicinity of the site. These are classified as “surface water and rapid flash flooding” incidents. Having investigated further these appear to be associated with flooding of the local highway network in 2011 and 2017.*

3.2 FLUVIAL FLOOD RISK

Natural Resources Wales online flood risk map indicates that the majority of the site lies within Flood Zone A. Flood Zone A is defined as an area where “there is little or no risk of fluvial or tidal / coastal flooding”. This is shown in **Figure 1.2** below.

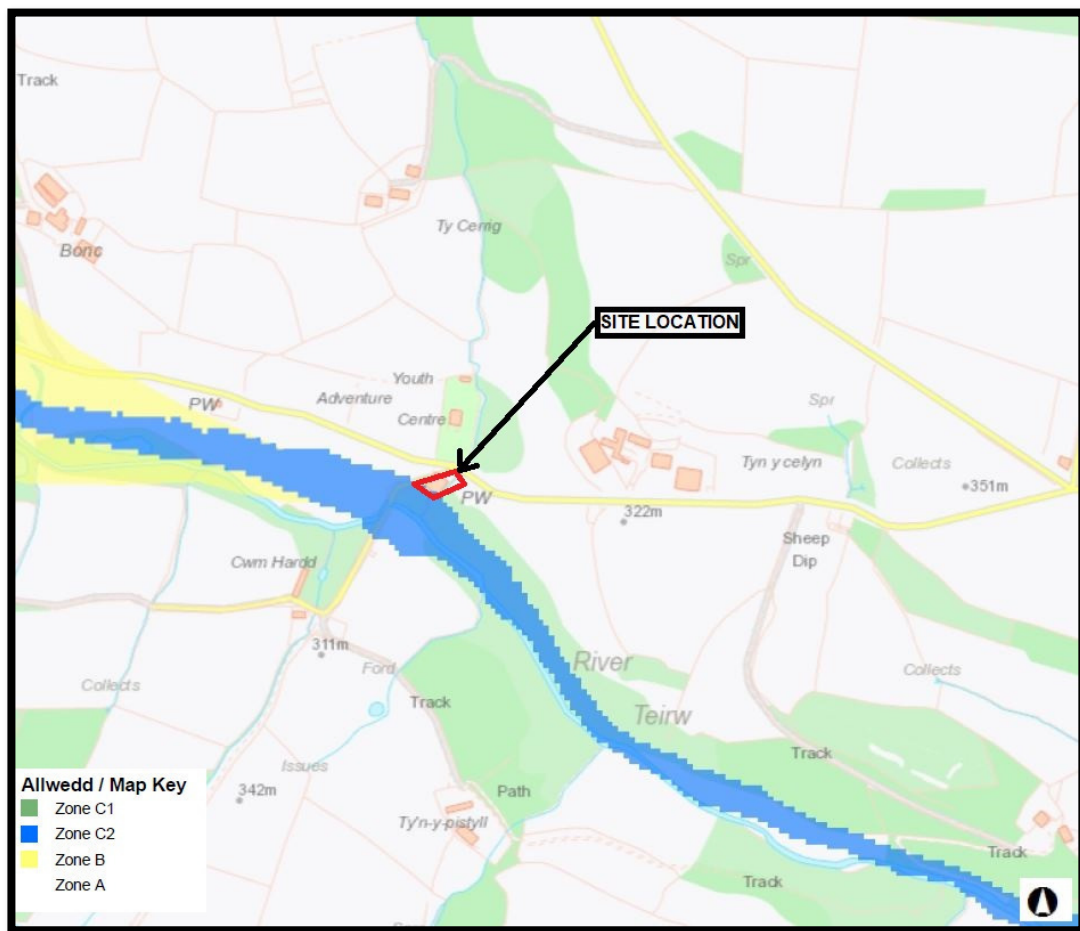


Figure 1.2: Rivers and Sea Floodmap (Source: Natural Resources Wales Floodmap December 2018)

The south west of the site is adjacent to an area that appears to lie within Flood Zone C2 which is defined as “*based on the extreme flood outline, which is equal to or greater than a 1 in 1,000 chance of river, tidal or coastal flooding in any given year and without significant flood defence infrastructure*”.

However, the extents of Flood Zone C2 do not appear to overlap with the site boundary and given that there is no access to the property on the south west facing side, the likelihood of flood water ingress into the property should be low, however, as stated in the correspondence with NRW it would be advisable that the occupant is made aware of the potential flood risks and advised to install flood-proofing measures as part of the development. For example in this instance, a protective boundary wall could be installed along the south west edge in a similar fashion to the masonry wall along the west, north and north east boundary of the site.

3.3 SURFACE WATER FLOODING

Surface water flooding happens when rainwater does not drain away through the normal drainage systems or infiltrate into the ground, but lies on or flows over the ground instead. **Figure 1.3** below shows the NRW surface water flood map:

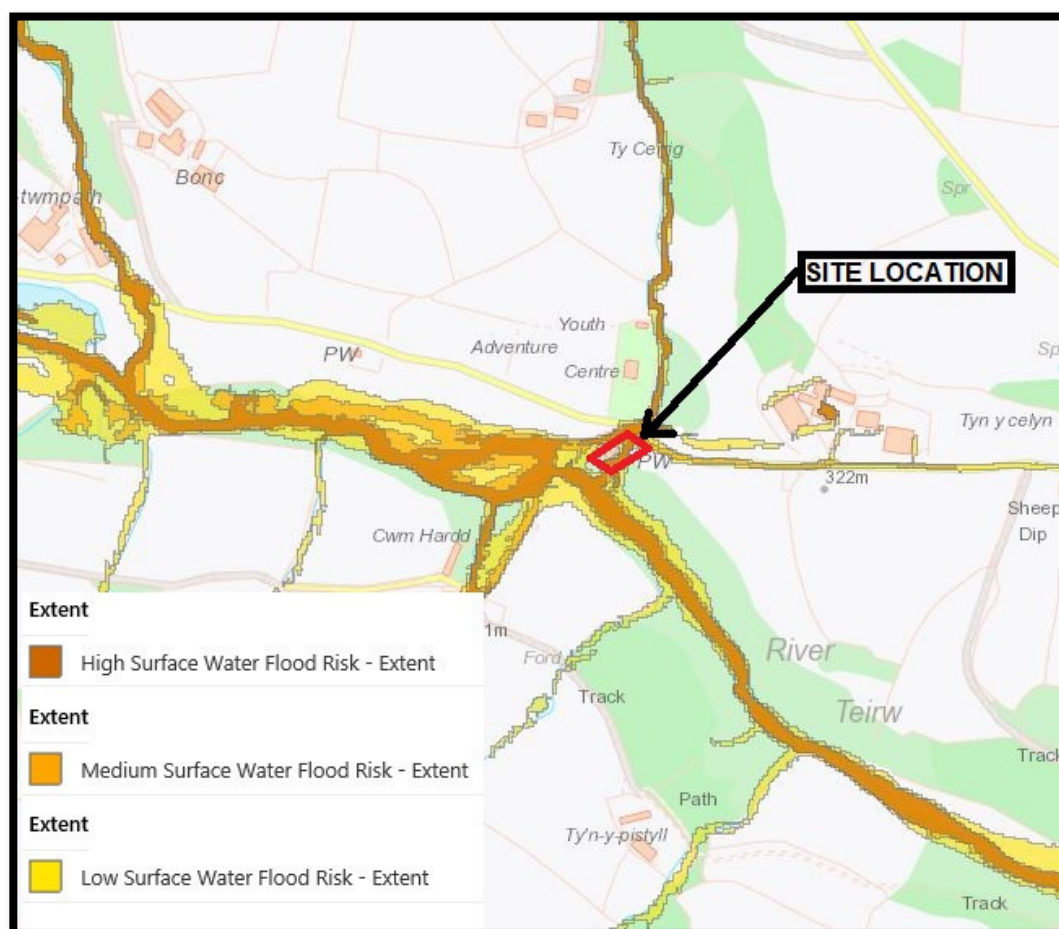


Figure 1.3: Surface Water Flooding Map (Source: Natural Resources Wales Floodmap December 2018)

The above information indicates that the site is currently at a “medium” and “high” risk of surface water flooding from overland flows caused by intense rainfall. NRW define “medium” and “high” surface water flood risk as:

- “High” risk means that each year, the area has a chance of flooding of greater than 1 in 30 (3.3%).

- “Medium” risk means that each year, the area has a chance of flooding between 1 in 100 (1%) and 1 in 30 (3.3%)

As previously stated in section 2, there are no sewers within the site and surrounding area. It is likely that the “medium” and “high” risk characterisation of the site shown within **Figure 1.3** is as a result of the site topography and a sub-standard positive drainage system within the site and the surrounding area.

Following a review of the existing ground levels and the site walkover undertaken by WSP on the 7th January 2019, it was noted that the surface water flooding shown in **Figure 1.3** is not a true representation of what would actually occur during a peak storm event. Owing to the existing ground levels it is likely surface water flows from Plas Nantyr Road and the adjacent private access road to the West would be contained within the curtilages of the highway and flow around the surrounding masonry wall located along the perimeter of the site (which would act as flood protection for the property) following the longitudinal gradients of the local highways away from the proposed site. This is shown on the Flood Routing drawing 4436-100-02 in **Appendix 6.8**.

In an event were the culverted watercourse that passes underneath Plas Nantyr Road became blocked and forced surcharged storm water flows onto Plas Nantyr Road, the surrounding masonry wall should still provide suitable protection for the site and re-direct flows either directly back into watercourse on the south side of Plas Nantyr Road or in a south westerly direction along the access road were it would ultimately discharge into the River Teirw.

As previously mentioned in section 2, there is a post and wire fence / stone wall / hedge line at the boundary prior to a steep embankment that falls towards the watercourse. It would be expected that the steep slope down to the watercourse from the site and associated difference in level between the property and the watercourse should provide suitable protection along the eastern edge of the site from the surcharged watercourse during critical storm events.

3.4 FLOODING FROM THE SEA

The site is located inland and is not within proximity of a tidally influences watercourse. On this basis, the risk of flooding from the sea of high tides to the proposed development is negligible.

3.5 FLOODING FROM CANAL

There are no canals within the vicinity of the site. On this basis, the risk of canal flooding to the proposed development is considered to be negligible.

3.6 GROUNDWATER EMERGENCE AND FLOODING

Given the granular nature of the superficial deposits and the proximity of the River Teirw and adjacent watercourse it is likely that shallow or perched groundwater could be present on site. However, this is unlikely to present an issue.

3.7 FLOODING FROM RESERVOIRS

The NRW reservoir flooding map indicated that the site does not lie within a reservoir flooding outline. On this basis, the risk of reservoir flooding to the proposed site is negligible.

3.8 FLOODING FROM SEWERS

As previously stated within section 2 there is no evidence of either public or private sewers within the vicinity of the site.

3.9 FLOODING FROM HIGHWAY

The topographic survey provided by the client indicated that the site ground levels are higher than the adjacent access road to the west of the site but lower than Plas Nantyr Road. However, the survey also indicated that the existing masonry wall located along the perimeter of the north of the site should provide suitable protection to flooding from Plas Nantyr Road. As previously mentioned we would expect the existing longitudinal gradients of the adjacent access road to contain surface water flows within the curtilages of the respected highways and flow in a south westerly direction towards the River Teirw. On this basis, the site is considered to be at a low risk of flooding from the local highway.

4.0 DRAINAGE PROPOSALS

4.1 FOUL DRAINAGE

The foul drainage disposal is proposed to be in compliance with the requirements of Building Regulations 2010 Part H (2015 Edition), Drainage and Waste Disposal and Sewers for Adoption 7th Edition.

Part H1 of the above document contains the following requirements:

“An adequate system of drainage shall be provided to carry foul water from appliances within the building on to the following, listed in order of priority.”

- a) A public sewer or where that is not reasonably practicable
- b) A private sewer communicating with a public sewer, or where that is not reasonably practicable,
- c) Either a septic tank which has appropriate form of secondary treatment or another wastewater treatment system; or, where that is not reasonably practicable,
- d) A cesspool

4.1.1 CONNECTION TO PUBLIC SEWER

As stated in section 2 of this report there are no public sewers within the vicinity of the site.

4.1.2 CONNECTION TO PRIVATE SEWER CONNECTING TO PUBLIC SEWER

As stated in section 2 of this report there are no private sewers within the vicinity of the site.

4.1.3 CONNECTION TO SEPTIC TANK / PACKAGE TREATMENT WORKS

NRW were consulted as part of the planning application of the scheme, they advocated that should foul drainage disposal to a mains sewer not be feasible, then alternative methods of non mains drainage should be justified. Building Regulations 2010 Part H state that:

Septic tanks provide suitable conditions for the settlement, storage and partial decomposition of solids which need to be removed at regular intervals. The discharge can however, still be harmful and will require further treatment from either a drainage field/mound or constructed wetland.

Septic tanks with some form of secondary treatment will normally be the most economic means of treating wastewater from small developments (e.g. 1 to 3 dwellings). Appropriate forms of secondary treatment for use with septic tanks (drainage fields, drainage mounds or constructed wetlands) are described in paragraphs below.

Drainage fields typically consist of a system of sub-surface irrigation pipes which allow the effluent to percolate into the surrounding soil. Biological treatment takes place naturally in the aerated layers of soil.

Drainage fields may be used to provide secondary treatment in conjunction with septic tanks. They may be used where the subsoil is sufficiently free-draining and the site is not prone to flooding or waterlogging at any time of year.

Drainage mounds are essentially drainage fields placed above the natural surface of the ground providing an aerated layer of soil to treat the discharge.

Drainage mounds may be used where the subsoil is occasionally waterlogged, but where drainage fields would otherwise be suitable.

Constructed wetlands (for example reed beds) are man-made systems which exploit the natural treatment capacity of certain wetland plants.

Constructed wetlands discharging to a suitable watercourse may be used to treat septic tank effluent where drainage fields are not practical. The consent of the EA may be required.

A drainage field or mound serving a wastewater treatment plant or septic tank should be located:

- *At least 10m from any watercourse or permeable drain;*
- *At least 50m from the point of abstraction of any groundwater supply and not in any Zone 1 groundwater protection zone;*
- *At least 15m from any building;*
- *Sufficiently far from any other drainage fields, drainage mounds or soakaways so that the overall soakaway capacity of the ground is not exceeded.*

Packaged treatment works – the discharge from the wastewater treatment plant should be sited at least 10m away from watercourses and any other buildings.

Additionally, due to the small size of the site, there is only a small area to the west of the site that is greater than 10m from the adjacent watercourse and there is nowhere on the site greater than 10m/15m from the building. Therefore, it will not be possible to meet the criteria from Building Regulations 2010 Part H for utilisation of a septic tank and associated drainage field / mound / wetland or package treatment works in this instance.

4.1.4 CONNECTION TO CESSPOOL

Building Regulations 2010 Part H state that:

Cesspools should be sited at least 7m from any habitable parts of buildings and preferably downslope.

Cesspools should be sited within 30m of a vehicle access and at such levels that they can be emptied and cleaned without the hazard to the building occupants or the contents being taken through a dwelling or place of work. Access may be through a covered space which may be lockable.

Cesspools should have a capacity below the level of the inlet of at least 18,000 litres (18m³) for 2 users. This size should be increased by 6800 litres (6.8m³) for each additional user.

The proposed peak foul discharge generated by the development has been calculated based upon an occupancy rate of 2 persons per 2 bedroom private residence, which equates to 2 persons and allowing a conservative usage of 200 l/person/activity/day over a 24 hour day with a peaking factor of 6, which generates a peak flow in the region of 0.03l/s and a maximum flow generated on a typical day of 2.4m³/day (2400l/day). Therefore, a 18m³ (18,000l / 3960 gallons) cesspool will require emptying a minimum of every 7.5 days.

Should a larger cesspool be required this can be specified at detail design stage and it should be possible to specify a volume of cesspool that meets client requirements.

The existing peak foul discharge for the property, due to it previously having no foul drainage was 0l/s therefore the peak foul flows from the proposed development will be greater than those of its previous use.

In light of the above, we would advocate a separate foul drainage system is designed to serve the proposed development, in accordance with all statutory requirements. It is likely that the foul flows will discharge to a cesspool pending approval by the statutory bodies, however, it should be state that due to the small size of the site the distance from the cesspool to the building will have to be reduced from 7m to a minimum of 5m. Indicative proposals of the foul drainage are shown on drawing 4436-500-01 enclosed within **Appendix 6.9**.

4.2 SURFACE WATER DRAINAGE

4.2.1 SURFACE WATER DRAINAGE GUIDANCE AND POLICY

The **Welsh Government Planning Policy Wales** guidance states the following *“flood risk is a material planning consideration”* and the **Technical Advice Note 15: Development and Flood Risk (TAN15,2004)** also states that *“surface water is a material consideration and explains that development should not create additional runoff compared with the undeveloped situation and re-development schemes should also aim to reduce run-off where possible.”*

The aim of a surface water drainage strategy is to focus on the capture and management of surface water within the site boundary and ensure compliance with the requirements and guidance of the following publications and organisations:

- Technical Advice Note (TAN) 15: Development and Flood Risk dated October 2004 issued by Welsh Government
- Wrexham County Borough Council
- Building Regulations 2010 (Part H3)
- Sewers for Adoption 7th Edition
- Planning Policy Wales (Edition 9, November 2016) issued by Welsh Government
- Wrexham County Borough Councils local planning guidance note Management of Surface Water Generated from New Development
- Wrexham County Borough Council Local Flood Risk Management Strategy April 2013
- Welsh Ministers Standards for Foul Sewers and Lateral Drains
- The new Sustainable Drainage Systems (SuDS) Manual C753, CIRIA
- RainScape – Dwr Cymru Welsh Water
- SuDS Wales

In accordance with the above, surface water drainage systems are required to consider quantity, quality, amenity and biodiversity whilst preventing any likelihood of flooding to the site or adjacent sites. Part H3 of the Building Regulations 2010 guidance recommends that surface water runoff shall discharge to one of the following, listed in order of priority:

- Discharge to the ground

- Discharge to a surface water body
- Discharge to a surface water sewer
- To a combined sewer where there are absolutely no other options and only where agreed in advance with the relevant sewerage undertaker.

It is necessary to identify the most appropriate method of controlling and discharging surface water. The design should seek to improve the local run-off profile by using systems that can either attenuate run-off and reduce peak flow rates or positively impact on the existing flood profile.

4.2.1.1 SCHEME PROPOSALS

As previously mentioned in section 2 of this report, the increase in impermeable area of 0.005ha is negligible. Given the small scale of the site and the limit impact the surface water flows generated by the development will have on the surrounding area, it is proposed that the existing drainage arrangement is maintained, however, we would suggest water butts are installed on the rain water pipes

4.2.1.2 WATER QUALITY

The new SuDS Manual (CIRIA C753, November 2015) introduced a slightly different approach compared to the previous version for the water quality management of surface water. The Manual describes risks posed by the surface water runoff to the receiving environment as a function of:

- The pollution hazard at a particular site (i.e. the pollution source).
- The effectiveness of SuDS treatment components in reducing levels of pollutants to environmentally acceptable levels (i.e. the pollutant pathway).
- The sensitivity of the receiving environment (the environment receptor).

The proposed land uses requiring surface water drainage for this site are as follows:

- Roof areas – surface water discharge to water butts before discharging to the adjacent watercourse.

Table 26.2 of the SuDS Manual C753 assigns pollution hazard indices for different land use classification. The roof water has hazard levels ranging from very low to low, with low levels of contamination. The proposed water butts are deemed to be sufficient to remove the suspended sediments from the roof surface water for a development of this size and nature.

4.2.1.3 RESIDUAL RISKS AND EXCEEDENCE FLOWS AND RUNOFF IN EXCESS OF DESIGN CRITERIA

It is difficult to completely guard against flooding since extreme events greater than the design standard event are always possible. It is practicable to minimise the risk by careful design of the layout of the development such that internal flooding is avoided. Areas of hardstanding can be laid to fall away from buildings with flows directed to areas where damage and disruption to buildings, assets and operations will be minimized.

4.2.1.4 GENERAL MAINTENANCE REGIMES

The surface water drainage proposals for this site should include the following maintenance measures:

- Cleaning the water butts to improve the quality of water.
- Cleaning and maintenance of the septic tank / cesspool chamber to maintain effective drainage.

The frequency of the cleaning and maintenance inspections will be agreed with the property owner/resident or relevant maintenance team.

5.0 CONCLUSION

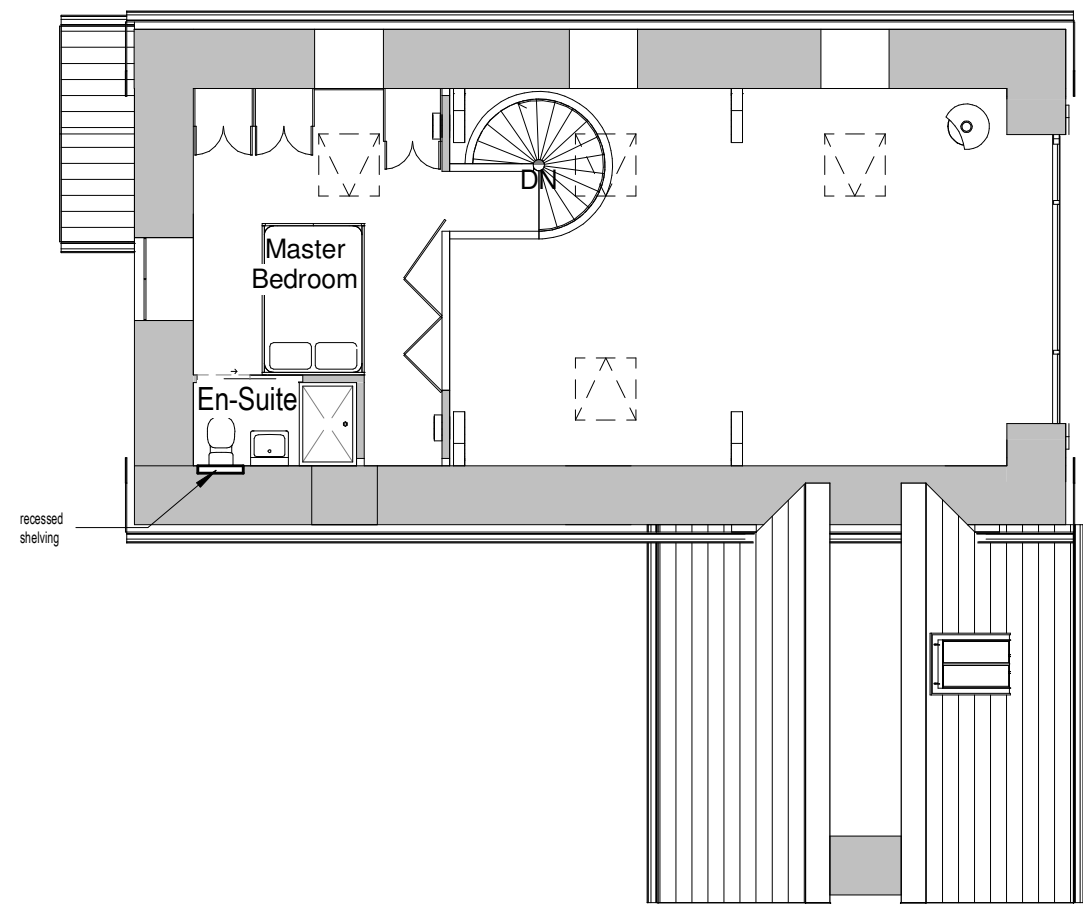
5.1 CONCLUSION

The proposed site was not found to be at fluvial flood risk and is situated on land identified on the TAN15 Development map as Flood Zone A. Due to the location of the site, the risk of flooding from canals, reservoirs and tidal waters is considered to be negligible.

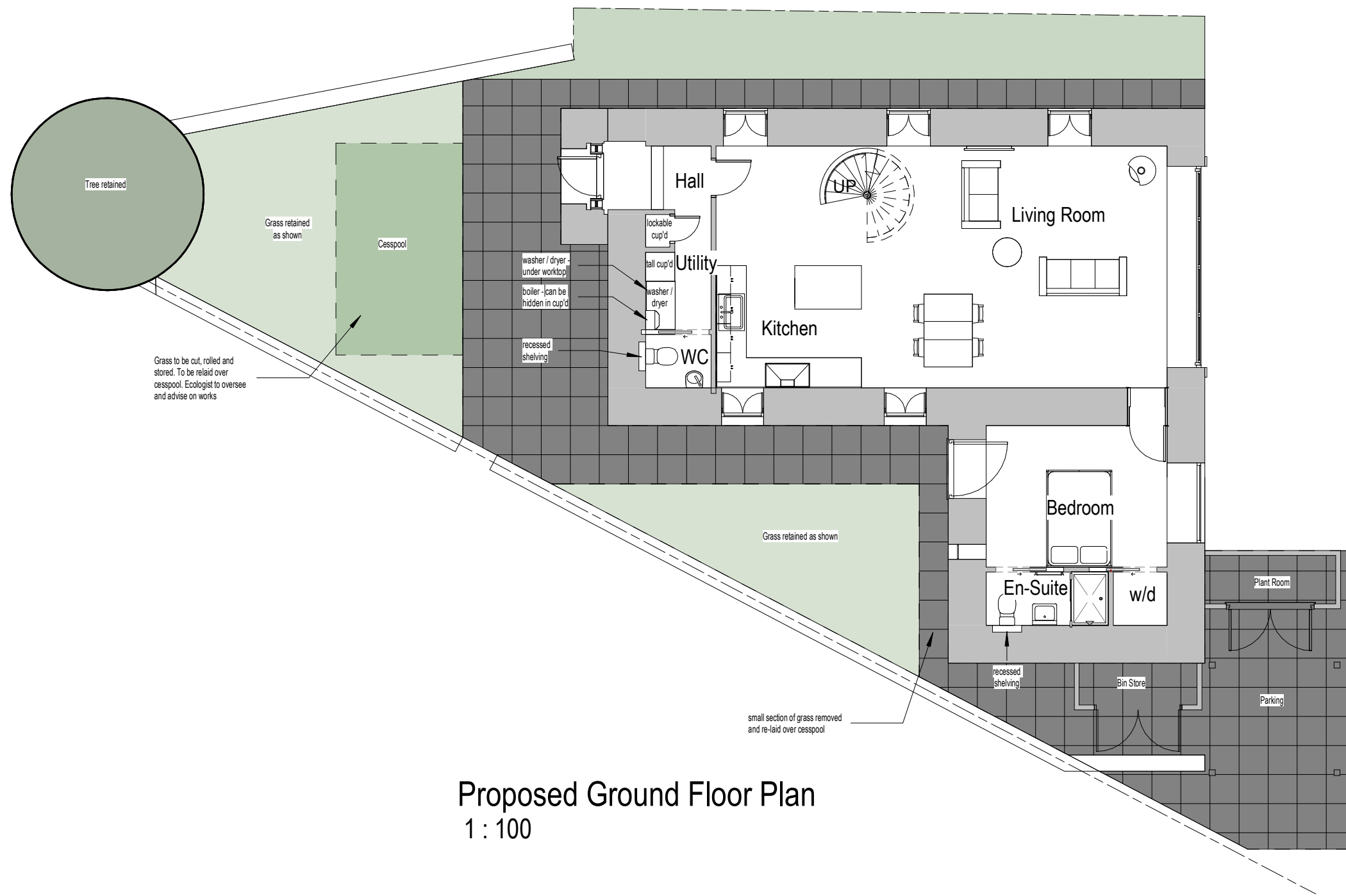
The proposed development is not expected to be affected by general objections in respect to draining the site. There will be suitable conditions imposed to ensure that the drainage proposals are designed and constructed in accordance with relevant statutory requirements, including Building Regulations 2010 and the requirements of WCBC's surface water management guidance.

6.0 APPENDICES

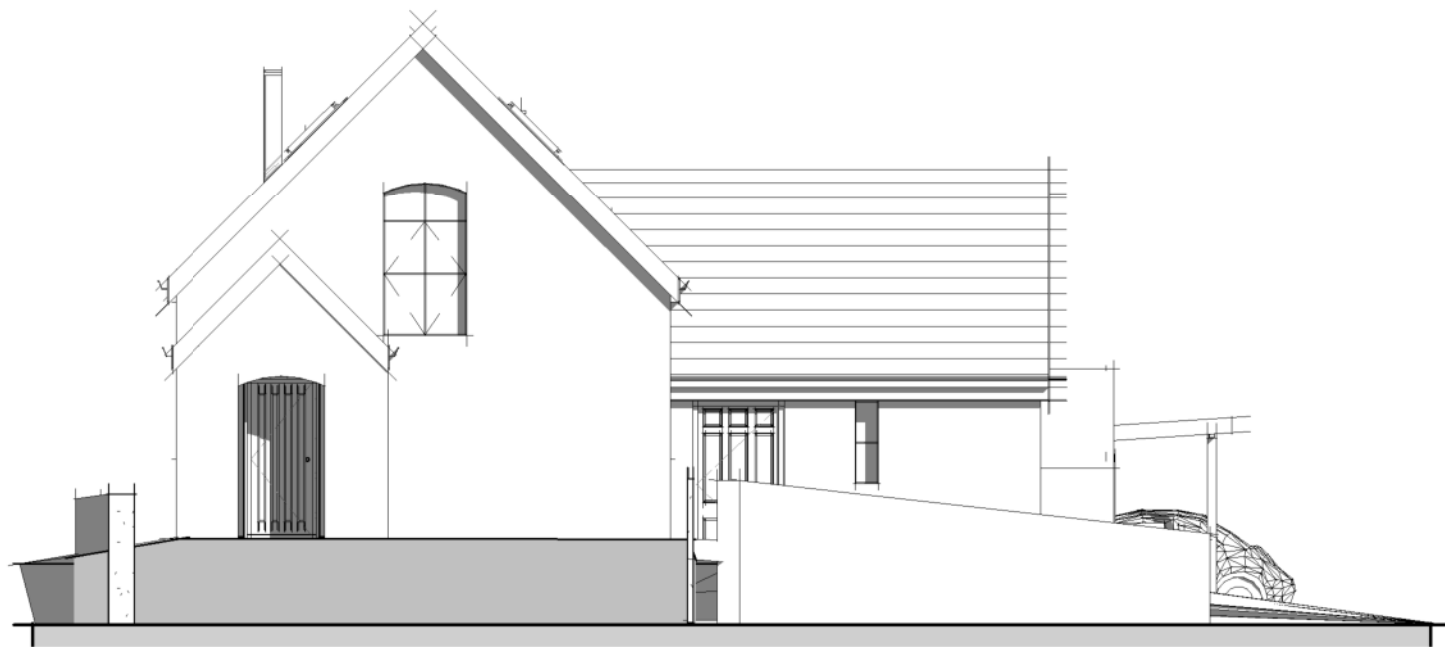
- 6.1 DEVELOPMENT PLAN**
- 6.2 TOPOGRAPHICAL SURVEY**
- 6.3 PROPOSED AND EXISTING IMPERMEABLE AREAS**
- 6.4 DCWW SEWER PLAN CORRESPONDENCE**
- 6.5 WCBC FLOOD OFFICER RESPONSE**
- 6.6 NRW RESPONSE**
- 6.7 DCWW RESPONSE**
- 6.8 FLOOD ROUTING PLAN**
- 6.9 INDICATIVE DRAINAGE LAYOUT**



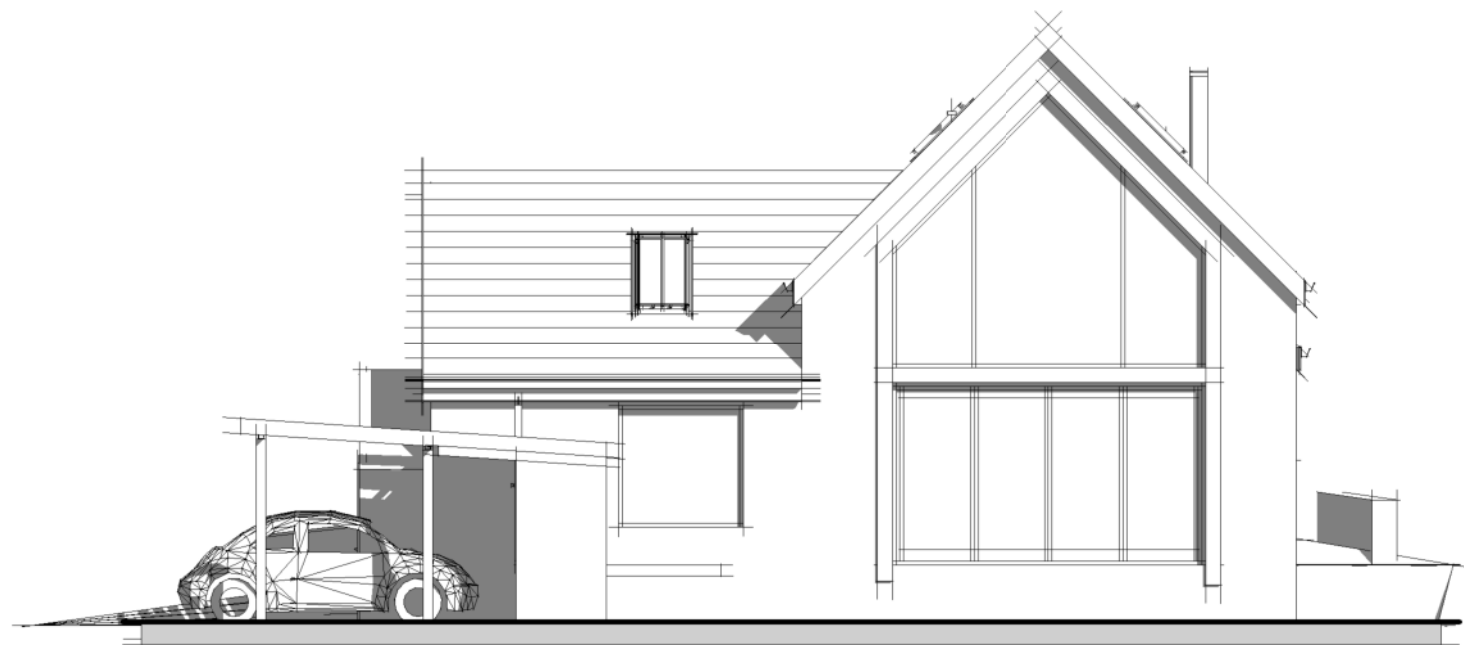
First Floor Plan
1 : 100



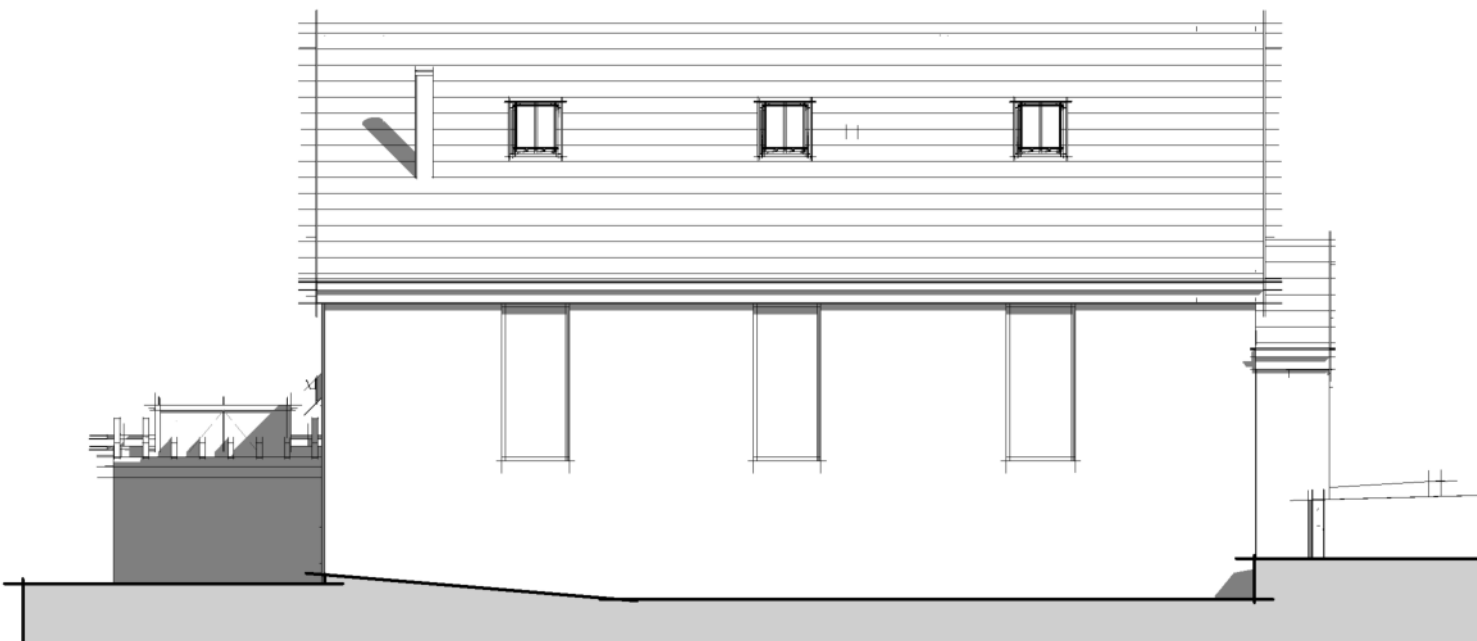
Proposed Ground Floor Plan
1 : 100



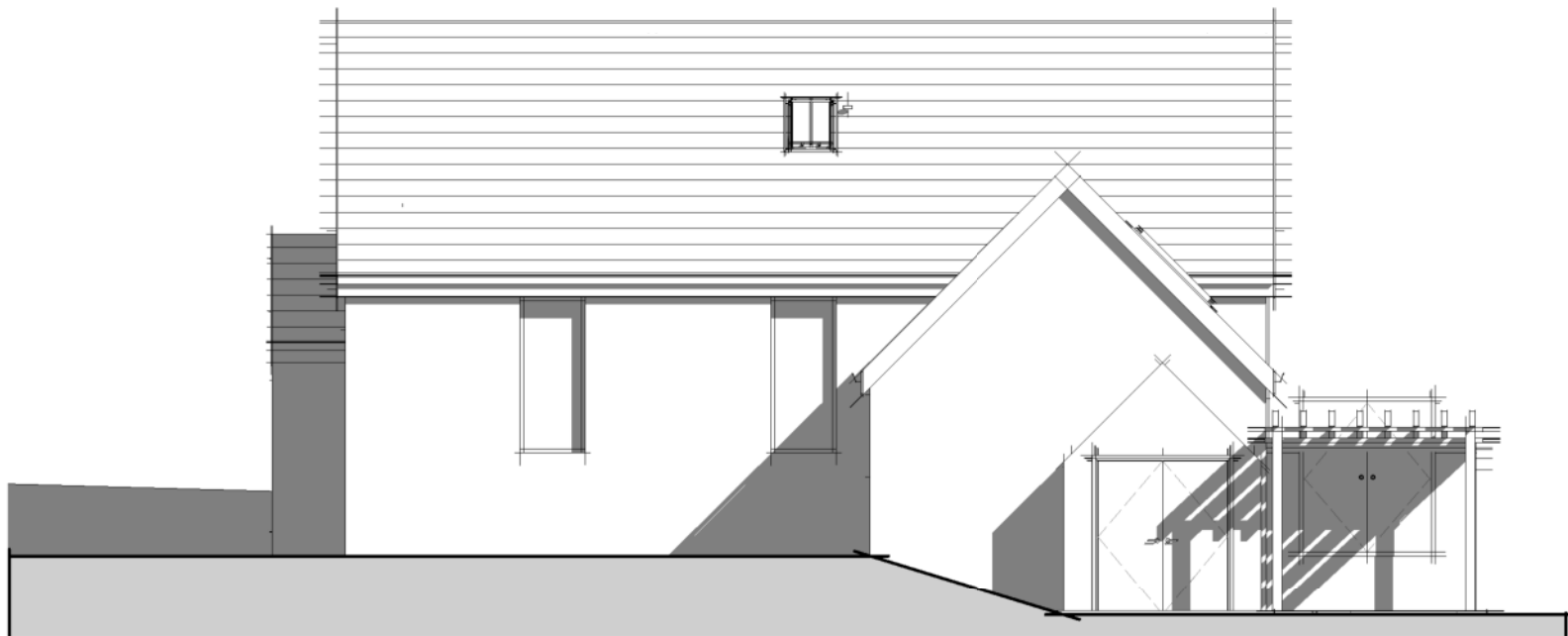
Proposed Front Elevation
1 : 100



Proposed Rear Elevation
1 : 100



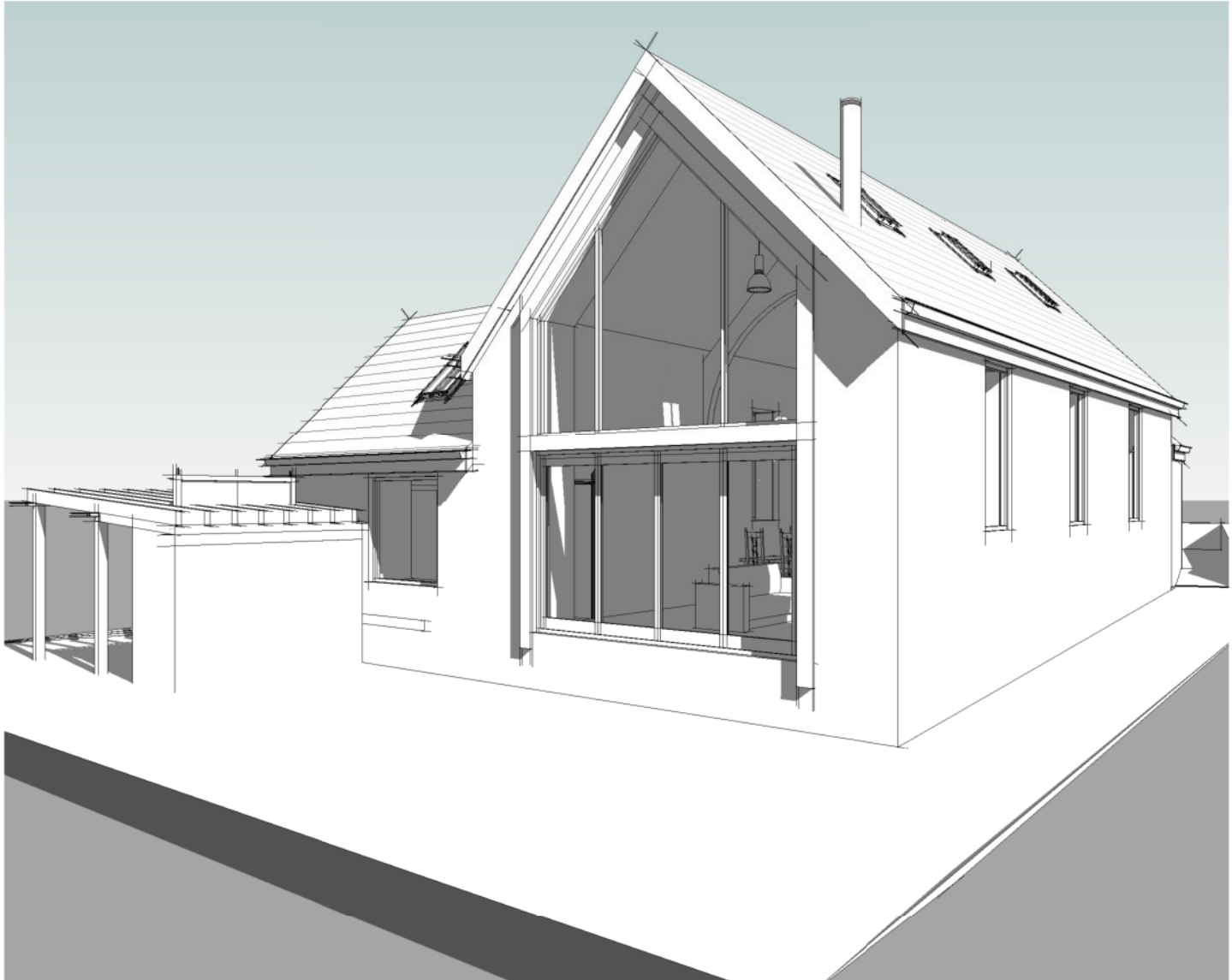
Proposed Side Elevation 1
1 : 100



Proposed Side Elevation 2
1 : 100



3D Front



3D Rear

P6	Amendments	06/08/2018
P5	Amendments	06/08/2018
P4	Planning Application	27/07/2018
P3	Amendments	12/06/2018
P2	Planning Submission	23/04/2018
P1	Client Comments	20/04/2018
REV.	DESCRIPTION DRAWN BY CHECKED BY APPROVED BY	DATE
RBA	PLAN OF WORK 2013 WORKSTAGE	LEVEL OF MODEL DEFINITION (LoD)

PURPOSE OF ISSUE - SUITABLE FOR ...	BS1192 +A1 2015
Planning Submission	STATUS

lawray architects
penseiri

CARDIFF 029 2052 8140
LONDON 0207 138 3560
WREXHAM 01978 357 887

www.lawray.co.uk

CLIENT
Mr & Mrs B Magill

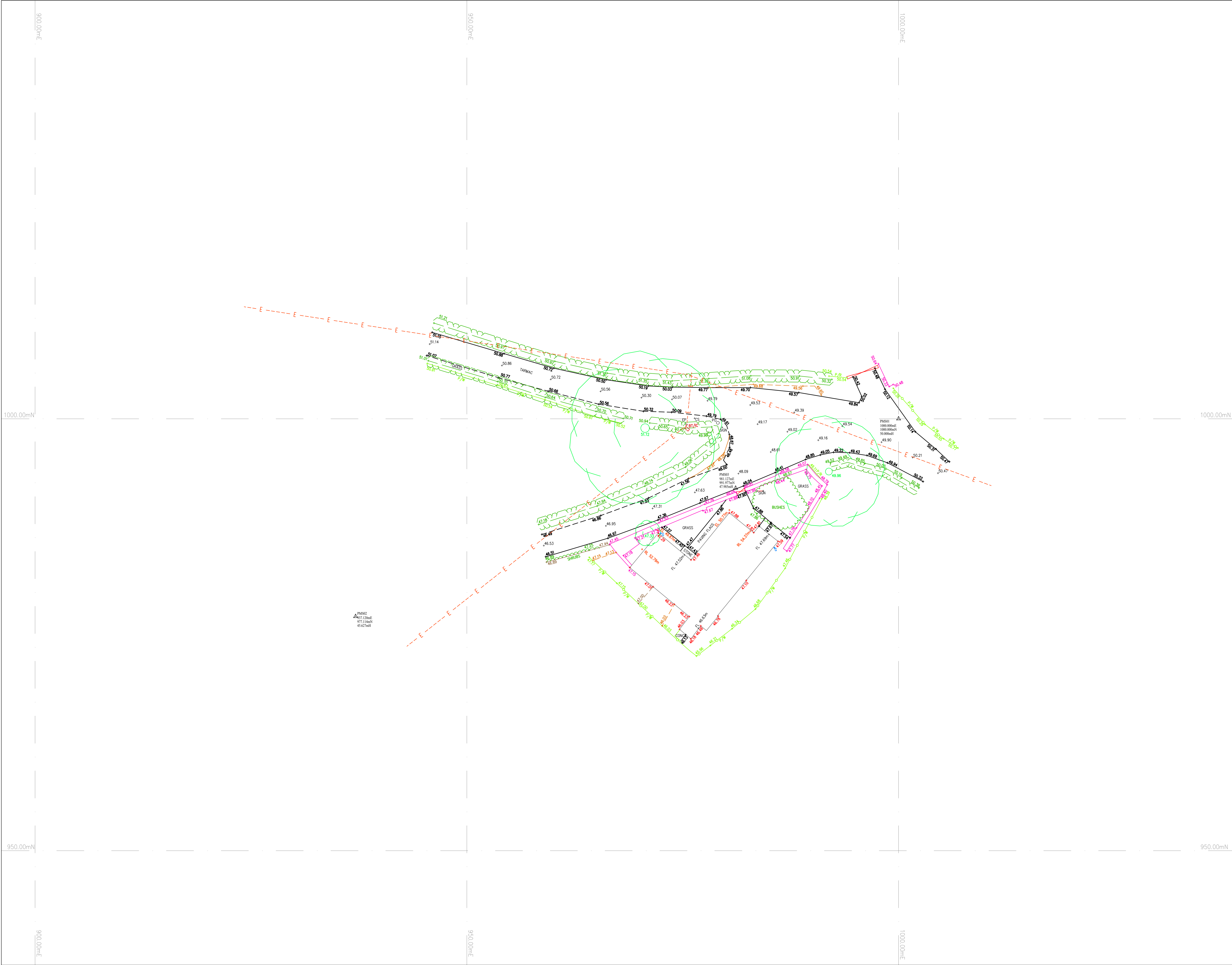
PROJECT TITLE
1827 Capel Saron, Nantyr

DRAWING TITLE
Proposed Plans & Elevations

PROJECT No	SCALE @ A1
1837	1 : 100

DRAWING No	PROJECT	ORIGINATOR	VOLUME	LEVEL	TYPE	ROLE	CLASSNUMBER	REVISION
BS1192:2017 +A2 2015	SCN-LAW-X-X-DFF-	AR-060101	P6					

DO NOT SCALE
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Reg. Co. No. 2724178, VAT Reg. No. 134 2148 06



Site Grid North

Symbols/Abbreviations (Where Applicable):

+AV: AIR VALVE

+BB: BELISHA BEACON

●BH: BOREHOLE

●BM: BENCHMARK

○BOL: BOLLARD

○B/S: BUS STOP

+CAM: CAMERA

+CS: CABLE STAY

○CATV: C.A.T.V INSPECTION CHAMBER

+CBOX: ELECTRICITY BOX, CABLE BOX, ETC.

○CCTV: C.C.T.V CAMERA

+C.PIT: CATCH PIT

□EC: ELECTRICITY COVER

○EP: ELECTRICITY POLE

+ER: EARTH ROD

+FH: FIRE HYDRANT

○FP: FLAG POLE

□G: GULLY

○G: GULLY (ROUND)

+GV: GAS VALVE

□IC: INSPECTION COVER (SQUARE)

○IC: INSPECTION COVER (ROUND)

+IL: INVERT LEVEL

+KO: KERB OUTLET

+LB: LETTER BOX

○LC: LIGHTING COLUMN

○LP: LAMP POST

○LP/BS: LAMP POST/BUS STOP

□MH: MANHOLE (SQUARE)

○MH: MANHOLE (ROUND)

+MKR: MARKER

○P: POST

+RE: RODDING EYE

+R/S: ROAD SIGN

+S/P: SIGN POST

+SNP: STREET NAME PLATE

+ST: STOP TAP

+SV: STOP VALVE

+TCB: TELEPHONE CALL BOX

+TL: TRAFFIC LIGHT

○TP: TELEGRAPH POLE

○TP/EP: TELEGRAPH POLE/ELECTRIC POLE

+T/IC: TELECOM INSPECTION COVER

+WO: WATER OUTLET

+WM: WATER METER

—G: GATE

X: DEFINED POINT

○CP: CONTROL POINT

○T: TREE (CONIFEROUS)

○D: TREE (DECIDUOUS)

□F: FOLIAGE

□H: HEDGE

DPC 99.99m DAMP PROOF COURSE LEVEL

EL 99.99m EAVES LEVEL

FL 99.99m FLOOR LEVEL

RL 99.99m RIDGE LEVEL

SL 99.99m SOFFIT LEVEL

TL 99.99m THRESHOLD LEVEL

FENCE DESCRIPTIONS:

B/W: BARBED WIRE FENCE

C/B: CLOSE BOARDED FENCE

C/L: CHAIN LINK FENCE

C/P: CHESTNUT PALING FENCE

CONC/P: CONCRETE PANEL FENCE

I/R: IRON RAILING FENCE

P/R: POST AND RAIL FENCE

P/W: POST AND WIRE FENCE

P/C: POST AND CHAIN FENCE

S/PAL: STEEL PALSADE FENCE

S/B: SAFETY BARRIER

T/PAL: TIMBER PALSADE FENCE

Revision Information

Rev	Date	Description

INFORMATION

1) Local grid and level.

2) Only services located during the site survey are shown on this plan. Further investigation may be required to ascertain the full extent of the site services.

3) Copyright of this drawing remains the property of PM Surveys UK Ltd. Do not scale from this drawing. In the event of any discrepancy, refer query to PM Surveys UK Ltd.

NOTES

Ordnance Survey Bench Mark Used

Location	Type	Value (m)
1		
2		

PM SURVEYS UK

Unit 3, Queensferry Industrial Estate

Pentre

Flintshire, CH5 2DJ

Tel: 01244 952477

Email: info@pmsurveys.co.uk

Client Info

Lawray Architects

Croesnewydd Road

The Byre

Wrexham

Tel: 01978 357887

Email: cathyowen@lawray.co.uk

Project

Saron Chapel, Nantyr

Project No

PMS18263

Sheet

A1

Surveyed By

NL

Drawn By

JW

Scale

1:200

Approved By

PM

Dwg

PMS18263

Issued

29/11/18

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NUMBER WL100018294



EXISTING SITE (300 SQ M)

- IMPERMEABLE AREA = 155 SQ M
(BUILDINGS AND PAVED AREAS)
- PERMEABLE AREA = 145 SQ M
(LANDSCAPED AREAS)

PROPOSED SITE

- IMPERMEABLE AREA = 200 SQ M

P01	04/02/2019	JR	FIRST ISSUE	GNT	WJS
REV	DATE	BY	DESCRIPTION	CHK	APP
DRAWING STATUS:					



Opus House
Yale Business Village
Wrexham Technology
Park
Wrexham
LL13 7YL

T+ 44 (0) 1978 368 100
wsp.com

CLIENT:

PROJECT:

CAPEL SARON

SCALE @ A1:

1:100

CHECKED:

GNT

APPROVED:

MW

PROJECT No:

70054436

DESIGNED:

GNT

DRAWN:

JR

DATE:

04/02/19

DRAWING No:

4436-100-01

REV:

P01

© WSP UK Ltd

1:250
@ A1
0 4 8 12 16 20 24 m

File name: G:\PROPOSALS\GNT\PROPOSALS\SARON CHAPEL\DRAWINGS\4436-100-01-A - EXISTING AND PROPOSED IMPERMEABLE AREA.DWG, printed on 04 February 2019 15:01:12, by Russell, Jason

Russell, Jason

From: Jones Alaw <Alaw.Jones@dwrcymru.com>
Sent: 08 January 2019 15:22
To: Russell, Jason
Subject: RE: Saron Chapel, Nantyr - DCWW infrastructure

Hi Jason,

Thank you for your e-mail.

I can confirm that there are no public sewers in the vicinity of the site.

I hope the above is of assistance. Should you have any queries or require any further information, please do not hesitate to contact me.

Kind regards,
Alaw



Alaw Jones

Development Control Officer | Developer Services | Wholesale Business Services | Services Dwr Cymru Welsh Water

Kinmel Park | Bodolwyddan | LL18 5TQ | T: 0800 917 2652 | www.dwrcymru.com

Developer Services have an on-line service at www.dwrcymru.com. Here you can find all the services available, complete application forms and also make payments. If you have a quotation you can pay for this on-line or alternatively by telephoning 0800 917 2652 using a credit/debit card.

*We will respond to your email as soon as possible but you should allow up to **10 working days** to receive a response. For most of the services we offer we set out the timescales that we work to on our Developer Services section of our website. Just follow this link <http://www.dwrcymru.com/en/Developer-Services.aspx> and select the service you require where you will find more information and guidance notes which should assist you. If you cannot find the information you are looking for then please call us on 0800 917 2652 as we can normally deal with any questions you have during the call.*

If we've gone the extra mile to provide you with excellent service, let us know. You can nominate an individual or team for a Diolch award through our [website](#).

From: Russell, Jason [mailto:Jason.Russell@wsp.com]
Sent: 08 January 2019 14:46
To: Jones Alaw <Alaw.Jones@dwrcymru.com>
Subject: Saron Chapel, Nantyr - DCWW infrastructure

***** External Mail *****

Hi Alaw,

As discussed in our telephone conversation, we are undertaking an FCA for a site at Saron Chapel, Nantyr, LL20 7DB.

We have undertaken a site walkover and there appears to be no DCWW apparatus within the site boundary or within the highway.

If you could confirm that DCWW have no infrastructure with the previously mentioned area it would be greatly appreciated.

Kind regards

Jason Russell Bsc (Hons)

Assistant Engineer



T +44 (0) 1978 368100

WSP UK Limited, Opus House
Yale Business Village, Wrexham Technology Park, Wrexham
LL13 7YL

jason.russell@wsp.com

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Cerys Jones

From: Sharon Holman
Sent: 02 July 2018 11:12
To: planning_admin
Subject: FW: P/2018/0416

Civ – flood officer resp

From: Neil Taunt
Sent: 02 July 2018 10:56
To: Sharon Holman
Subject: P/2018/0416

Hi Sharon,

Thank you for the recent consultation on the above application. I appreciate the application has been withdrawn with the intention of re submission.

A portion of the site is identified as falling within DAM zone C2 as defined within TAN15, this would appear to be associated with the nearby Afon Teirw. In addition, the site is bounded by a small un named watercourse and would appear to be located within a topographical low point. NRW's updated flood map for surface water does identify a risk of surface water flooding to the site (extract below), and we hold a number of reports of surface water and rapid flash flooding in the immediate vicinity of the site. As the application is for a change of use to a higher vulnerability use, with reported incidents of flooding in the immediate vicinity of the site I would strongly recommend a flood consequence assessment is submitted in support of the application to better define the risks to the site from fluvial flooding, blockage of local drainage infrastructure and surface water runoff and propose mitigation to minimise the impact of any future flooding to the development and surroundings.



If you have any questions on the above please let me know.

Many thanks

Neil

Neil Taunt MCIWEM C.WEM CEnv CSci

Uwch Swyddog Rheoli Llifogydd / Senior Flood Management Officer



01978 729734 / 07808 787632



Amgylchedd a Chynllunio, Cyngor Bwrdeistref Sirol Wrecsam, De Ffordd yr Abaty, Ystad Ddiwydiannol Wrecsam, Wrecsam LL13 9PW



Environment & Planning, Wrexham County Borough Council, Abbey Road South, Wrexham Industrial Estate, Wrexham LL13 9PW



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twitter.com/cbswrecsam | twitter.com/wrexhamcbc



facebook.com/cyngorwrecsam | facebook.com/wrexhamcouncil

FAO Sharon Holman

14/08/2018

Dear Sharon,

TOWN AND COUNTRY PLANNING ACT 1990
DEDDF CYNLLUNIO GWLAD A THREF 1990

BWRIAD / PROPOSAL:
Change Of Use Of Disused Chapel To Create 1 No. Dwelling And New Access
LLEOLIAD / LOCATION:
Former Saron Chapel

Thank you for consulting Natural Resources Wales (NRW) about the above, which was received on 31/07/2018.

We have significant concerns with the proposed development as submitted. We recommend that you should only grant planning permission if the scheme can meet the following requirement and you attach the condition listed below. Otherwise, we would object to this planning application.

Summary of Requirement

Requirement 1: Foul Drainage - Clarification with regards to the method for the disposal of foul drainage.

Condition 1: EPS - Detailed avoidance and mitigation measures including those described in the bat report, being set out in a method statement and secured through planning condition.

Foul Drainage

We note that there is a discrepancy between the application form which states that the method of foul water drainage is unknown, and plan AR-060101 P6 which indicates a cesspool. The applicant should clarify the method of foul drainage.

Requirement 1: Foul Drainage - Clarification with regards to the method for the disposal of foul drainage.

The preferred method of foul drainage disposal is connection to the mains sewer. If this is not feasible, alternative methods of non mains drainage should be justified in accordance with the hierarchical approach set out in WG Circular 008/2018. Circular 008/2018 discourages using cesspools for new development. The applicant must therefore fully justify the use of a cesspool over preferred alternative means of foul disposal in accordance with the hierarchy set out in the Circular and Building Regulations Approved Document H. The Local Planning Authority will need to be satisfied that the sewerage arrangements are suitable.

It should be noted, we do not accept the promotion or proliferation of cesspools, instead of connection to a public sewer or alternative private sewerage options such as septic tanks or package plants, as a viable long-term sewerage option in anything other than exceptional circumstances.

Protected Species

We note that the ecology report submitted in support of the above application (reference Styles, J. (2018). Nantyr Chapel, Nantyr, Llangollen, LL20 7DB: Preliminary Ecological Appraisal including Dusk/Dawn Results. Tyrer Ecological Consultants Ltd. Unpublished) has identified that the soprano pipistrelle bat is present at the application site. From the information contained in the bat report, we consider that the proposed development represents a lower risk for bats, as defined in our guidance document 'Natural Resources Wales Approach to Bats and Planning (2015)'.

Bats and their breeding sites and resting places are protected under the Conservation of Habitats and Species Regulations 2017. Any development that would contravene the protection afforded to bats under the Regulations would require a derogation licence from Natural Resources Wales. A licence may only be authorised if:

- i. There is no satisfactory alternative and
- ii. The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range. In addition,
- iii. the development works to be authorised must be for the purposes of preserving public health or safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment.

Paragraph 6.3.7 of Technical Advice Note 5: Nature Conservation and Planning (TAN5) states that your Authority should not grant planning permission without having satisfied itself that the proposed development either would not impact adversely on any bats or their roost on the site or that, in its opinion, all three conditions for the eventual grant of a licence are likely to be satisfied.

In this case, the bat report concludes that the proposal is likely to cause harm or disturbance to the bats or cause damage or destruction to their breeding sites and resting places at this site and will, therefore, require a licence. However, we consider that the development

proposal is not likely to be detrimental to the maintenance of the favourable conservation status of the local population of bats.

Therefore, we do not object to the proposal with regards to protected species, subject to the following condition:

Condition 1: EPS - Detailed avoidance and mitigation measures including those described in the bat report, being set out in a method statement and secured through planning condition.

This advice applies to the proposal in its present form. If the plans are changed in ways that may harm or disturb the bats or their breeding sites and resting places at this site, you would need a revised bat report that took account of such changes. Please consult us again if a revised bat report concluded that this is no longer a lower risk case. Otherwise, our advice for lower risk cases would still apply and we would recommend that you secured the avoidance and mitigation measures described in the revised bat report.

Please also note that any changes to plans between planning consent and the licence application may affect the outcome of a licence application.

NRW would refer the Planning Authority to the letter from the Welsh Government to Chief Planning Officer's dated 01 March 2018 which advises Local Planning Authorities to attach an informative regarding licence requirements to all consents and notices where European Protected Species are likely to be present on site.

Flood Risk

In our previous response to this proposal (CAS-63313-T5G0) we provided our standing advice with regards to highly vulnerable development (housing), located in Zone C2 of the Development Advice Map (DAM). We note an amended red line plan has been submitted which excludes any area of C2 flood risk, we therefore have no objection to the proposal on flood risk grounds. However, we would advise that the applicant is made aware of the potential flood risks, and advised to install flood-proofing measures as part of the development.

Further information on flood resistant measures is available from

[Preparing for Floods: Interim guidance for improving the flood resistance of domestic and small business properties October 2003](#)

[Blue Pages: Flood Resilience](#)

[Improving the Flood Performance of New Buildings - Flood Resilient Construction](#)

[Six Steps To Property Level Flood Resilience – BRE Guidance for property owners](#)

Further information on flood risks and long term flood risk maps is available from Natural Resources Wales <https://naturalresources.wales/evidence-and-data/maps/long-term-flood-risk/?lang=en>

Please do not hesitate to contact us if you require further information or clarification on any of the above.

Our comments above only relate specifically to matters that are included on our checklist “Natural Resources Wales and Planning Consultations” (March 2015) which is published on our website: (<https://naturalresources.wales/planning-and-development/planning-and-development/?lang=en>). We have not considered potential effects on other matters and do not rule out the potential for the proposed development to affect other interests, including environmental interests of local importance. The applicant should be advised that, in addition to planning permission, it is their responsibility to ensure that they secure all other permits/consents relevant to their development.

Advice for the Applicant / Developer:

The applicant is advised to follow the guidance within the Guidance for Pollution Prevention 5 "Works and maintenance in or near water":

http://www.netregs.org.uk/media/1418/gpp-5-works-and-maintenance-in-or-near-water.pdf?utm_source=website&utm_medium=social&utm_campaign=GPP5%2027112017

During the construction phase of the proposals, any waste material which is to be removed from the site should be done so via a registered waste carrier. The waste must be taken to a facility which holds an appropriate exemption or environmental permit to accept the specified waste.

Any waste material which is removed from the site should be carried out in accordance with the duty of care requirements. All appropriate paperwork and documentation should be completed by the parties involved. Details of all waste carriers, permitted and exempt sites can be found electronically via the public registers section of our website www.naturalresourceswales.gov.uk or by contacting our customer contact centre on 0300 065 3000.

Any work which is to take place should be done so with pollution prevention in mind. Pollution prevention advice and guidance can be found via this link:

<http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/>

Should any pollution occur during the operational phase, Natural Resources Wales should be notified via the incident hotline – 03000 65 3000.

Yn gywir / Yours sincerely,

Daniel Davies

Daniel Davies

Cynghorydd Cynllunio Datblygu / Development Planning Advisor

Wrexham County Council
16 Lord Street
WREXHAM
LL11 1LG

Date: 24/05/2018
Our Ref: PLA0034748
Your Ref: P/2018/0416

Dear Sir

Grid Ref: SJ1712137094 317121 337094
Site: Saron Chapel, Nantyr, Llangollen
Development: Change of use of disused chapel to create 1 no. dwelling and new access

We refer to your planning consultation relating to the above site, and we can provide the following comments in respect to the proposed development.

SEWERAGE

Since the proposal intends utilising an alternative to mains drainage we would advise that the applicant seek advice from Natural Resources Wales and or the Local Authority Building control Department / Approved Building Inspector as both are responsible to regulate alternative methods of drainage.

However, should circumstances change and a connection to the public sewerage system/public sewerage treatment works is preferred we must be re-consulted on this application.

Advisory Notes

The applicant is also advised that some public sewers and lateral drains may not be recorded on our maps of public sewers because they were originally privately owned and were transferred into public ownership by nature of the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011. The presence of such assets may affect the proposal. In order to assist us in dealing with the proposal the applicant may contact Dwr Cymru Welsh Water. Under the Water Industry Act 1991 Dwr Cymru Welsh Water has rights of access to its apparatus at all times.

Our response is based on the information provided by your application. Should the proposal alter during the course of the application process we kindly request that we are re-consulted and reserve the right to make new representation.

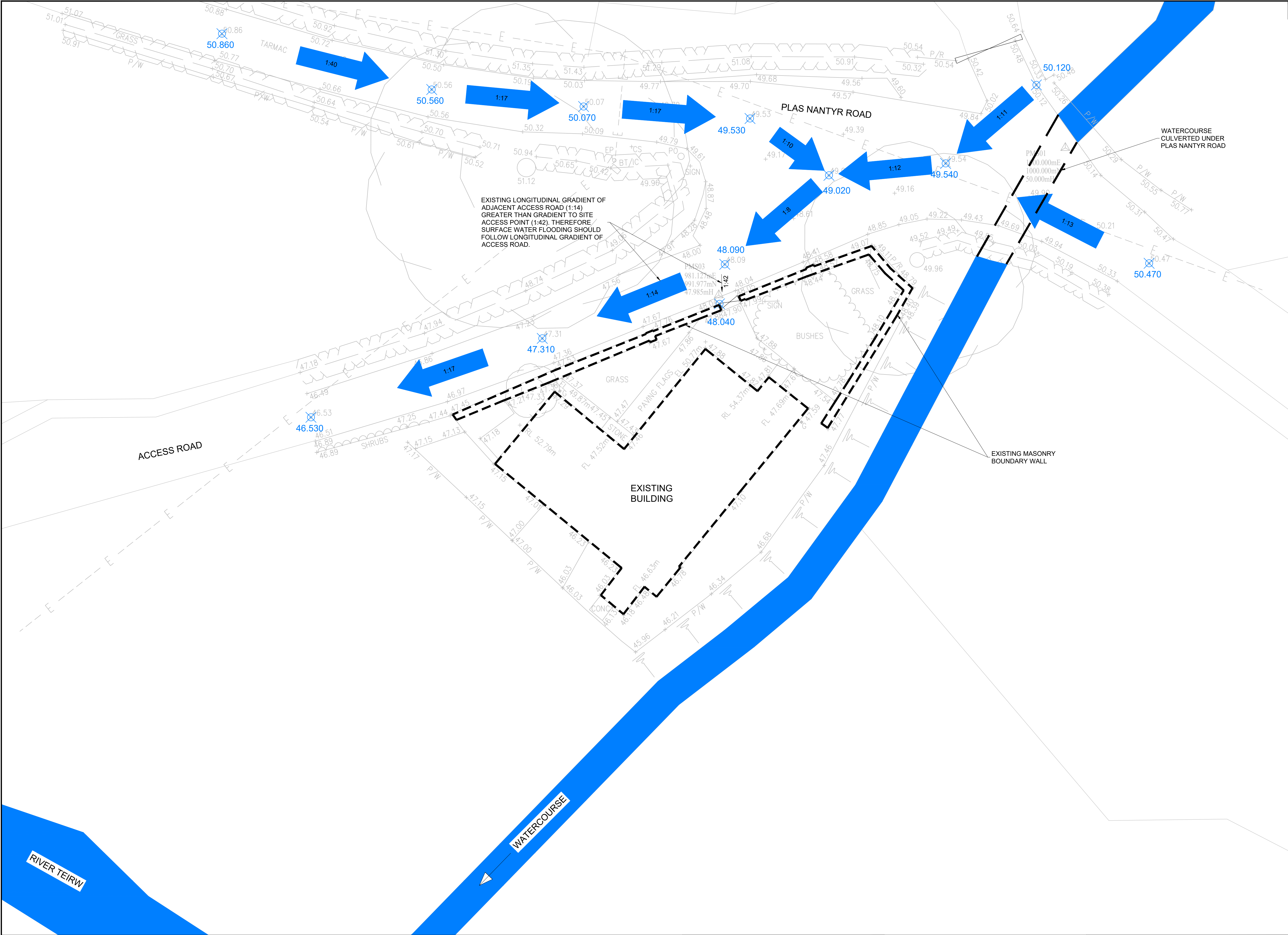
If you have any queries please contact the undersigned on 0800 917 2652 or via email at developer.services@dwrcymru.com

Please quote our reference number in all communications and correspondence.

Yours faithfully,



Alaw Jones
Development Control Officer
Developer Services



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NOTE:
LEVELS SHOWN ON TOPOGRAPHICAL SURVEY ARE
TO LOCAL GRID.

1:100
@ A1

0

1

2

3

4

5

6

7

8

9

10

m

P01	04/02/2019	JR	FIRST ISSUE	GNT	WJS
REV	DATE	BY	DESCRIPTION	CHK	APP

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CLIENT:

PROJECT:

ARCHITECT:

TITLE:

CAPEL SARON

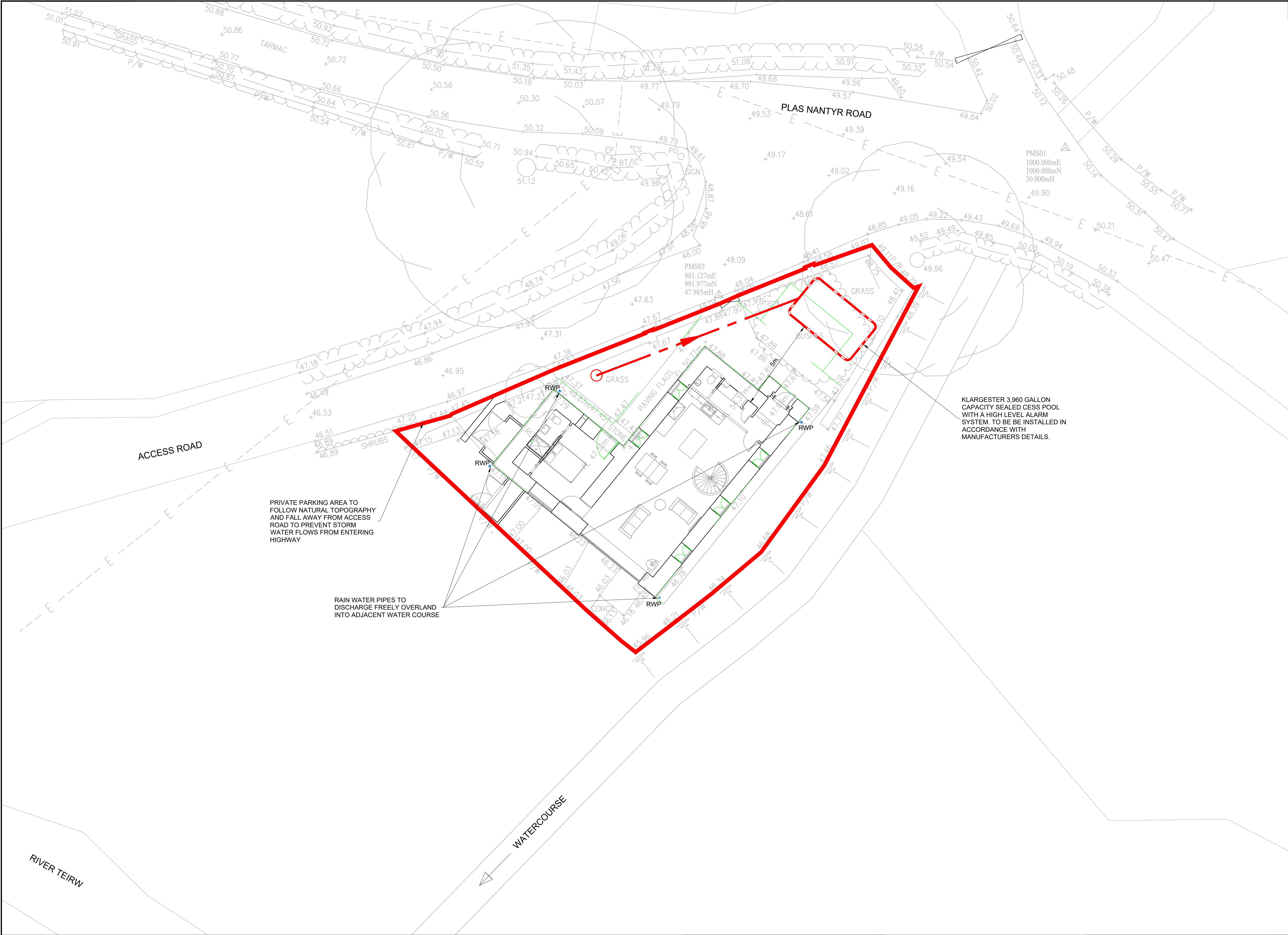
SURFACE WATER
FLOOD ROUTING PLAN

SCALE @ A1: 1:100	CHECKED: GNT	APPROVED: MW
PROJECT No: 70054436	DESIGNED: GNT	DRAWN: JR
DATE: 04/02/19		REV: P01

DRAWING No:
4436-100-02

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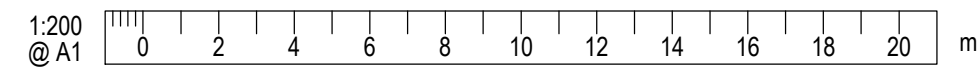
KEY

PROPOSED FOUL SEWER

RAIN WATER PIPE

SITE BOUNDARY

File name: G:\PROPOSALS\GNT\PROPOSALS\SARON CHAPEL\DRAWINGS\4436-500-01-A - DRAINAGE.DWG, printed on 04 February 2019 15:04:24, by Russell, Jason



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ARCHITECT:	

PROJECT:	CAPEL SARON
TITLE:	PROPOSED INDICATIVE DRAINAGE LAYOUT

SCALE @ A1:		CHECKED:		APPROVED:	
1:100		GNT		MW	
PROJECT No:		DESIGNED:	DRAWN:	DATE:	
70054436		GNT	JR	04/02/19	
DRAWING No:				REV:	
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