Land Adjacent to Y Garnedd,
Llanfair PG

Drainage Statement for Planning

Document No: 20086/E03 Rev B

September 2023

Contents

Appendices

1. INTRODUCTION

Datrys have been commissioned by the DU Construction to prepare an outline drainage statement in support of a pre-planning application for the construction of a 27-unit residential development on the land adjacent to Y Garnedd, Llanfair PG at grid reference SH 528 721. The existing site currently lies vacant used as agricultural land and is a sloping site from southeast to north west with an elevation difference of potentially 4-5m. The site is accessed via the existing adjacent estate road Y Garnedd.

This document will set out the possible solutions to address the surface water runoff associated with the development whilst also offering solution for the foul drainage.

2. SURFACE WATER DRAINAGE HIERARCHY

Sustainable Drainage Philosophy

The surface water design has been undertaken in accordance with the SuDS drainage hierarchy given in the SuDS Manual published by CIRIA and accepted and adopted by the Lead Local Flood Authority (LLFA).

The drainage hierarchy is:

SuDS Priority Level	Design approach
Level 1	Surface water runoff is collected for re-use
Level 2	Surface water runoff is infiltrated to ground
Level 3	Surface water runoff is discharged to a surface water body
Level 4	Surface water runoff is discharged to a surface water sewer, highway drain, or another drainage system
Level 5	Surface water runoff is discharged to a combined sewer

Table 1 - SuDS drainage hierarchy

Priority Level 1 is the preferred (highest priority) and that 4 and 5 should only be used in exceptional circumstances.

Application of SuDS hierarchy to proposals

The following considerations are relevant to the application of the above to the proposed development.

Priority Level 1 – Re-use

Re-use will be considered where possible including possible inclusion of raised planters and water butts. Rainwater harvesting is not viewed as feasible due to the nature of the development being individual dwellings. Regardless of re-use being incorporated into the design, a formal method for disposal must be provided to address excess volumes beyond that of which the above options provide, whilst the antecedent conditions are also unknown therefore may provide no storage capacity.

Priority Level 2 – Infiltration to ground

Porosity testing has been undertaken for the purposes of ascertaining the infiltration capacity of the ground. The results were deemed unfavourable as such the use of soakaways has been ruled out. An offsite solution is required.

Priority Level 3 – Discharge to surface water body

There is a minor watercourse (ditch) discharging from northeast to southwest along land some 10-15m beyond the northern western boundary. A direct connection to this ditch may be feasible either immediately adjacent the site or alternatively where the watercourse no longer lies upon Welsh Government land. Any connection would be subject to an agreement with 3rd party. The sketch within **Appendix B** indicates the findings of the site walkover where this ditch has been identified. **Appendix D** contains options that have been considered but have had initial resistance from the 3rd parties involved. Liaison with DCWW has agreed in principle to undertake a sewer requisition across 3rd party land to an outfall approximately 200m to south west, agreed with the local landowner.

Priority Level 4 – Surface water or highway sewer

Welsh Water asset maps (**Appendix A**) highlight a lack of surface water sewers within the vicinity local to the site however there does appear to be a surface water drain in the adjacent estate. A connection to this would require a pumped solution but discussions with the highway authority raised concern about available capacity.

Priority Level 5 – Disposal to combined sewer

The combined sewerage network to the south / south east of the site, at a considerable distance has significant capacity issues and given the proposal site does not lie within the same watershed / catchment, DCWW have refused to give any further consideration to a connection.

3. DESIGN CRITERIA

From the above, the most feasible option entails the discharge of the surface water flow into the adjacent watercourse albeit approx.. 200m to the south west. The system is to be designed to the following criteria, subject to agreement with SAB:

Design element	Criterion
Rate of discharge	TBC though assumed to be peak discharge of 5l/s
Climate change effects	+ 30% based on current NW SAB working group considerations
Urban Creep	TBC but provisionally determined as 10%
No uncontrolled surface flooding or off-site run-off	Up to 1 in 100 Year Return Period + 30% Climate Change

Table 2 - Storm water design criteria

The calculation of the storm water run-off is derived from the Wallingford Modified Rational method and in compliance with BS EN 752-4 *Drain and sewer systems outside buildings.*

As infiltration is not feasible, the rate of discharge has been determined from existing greenfield runoff calculations with no allowance for climate change as per standard practice. The difference between the design storm flow and the outflow will be stored temporarily in a combination of above and below ground SuDS features and underground storage (i.e porous paving reservoir and/or geocellular tank). To avoid uncontrolled surface flooding, the attenuation features will be designed to accommodate the full 1 in 100-year event plus climate change effects. Initial estimates indicate a storage requirement of 330m3.

The following design criteria will apply for the surface water runoff of the site:

- Approved Document H, Building Regulations
- Sewers for Adoption, 7th Edition
- Rainfall runoff management for developments (SC030219)
- BRE Digest 365
- Statutory standards for sustainable drainage systems – designing, constructing, operating and maintaining surface water drainage systems.
- SuDS manual
- Non-Statutory SuDS Technical Standards for Sustainable Drainage: Practical Guidance

4. SUSTAINABLE DRAINAGE

Scheme Approach to Sustainable Drainage

The design for surface water disposal from the site will be considered in line with the CIRIA SuDS manual. This approach seeks to manage the quantity and quality of surface water runoff on or as close to the surface and as close to the source of the runoff as possible as well as providing amenity and biodiversity to the end users and flora and fauna.

In order for the surface water design to be approved by SAB (SuDS Approval Body), the design has to show compliance with Statutory National Standards for Sustainable Drainage Systems. These Standards are:

S1 – Surface water runoff destination
S2 – Surface water runoff hydraulic control
S3 – Water quality
S4 – Amenity
S5 – Biodiversity
S6 – Design of drainage for Construction and Maintenance and Structural Integrity

S1 – Surface water runoff destination

Re-use will be considered where possible including possible raised planters and water butts. Rainwater harvesting was considered by the Client but deemed to be impractical for this site given the nature of the development as individual dwellings. Porosity testing has ruled out disposal by means of infiltration. A connection into the nearby watercourse has proved complex and as such it was proposed to discharge to the highway network in the existing estate road. However, this was rejected by SAB and the Highways Dept, due to their instance on avoiding extra flow into the existing drainage. As such, an agreement for an outfall to the nearby watercourse, at the Southeast of the site has been reached, which will entail a sewer requisition and DCWW adoption of the proposed onsite surface water network. Various SuDS features will be incorporated on site prior to runoff exiting the site.

S2 – Surface water runoff hydraulic control

The proposed site discharge would need to be restricted to a suitable rate via a flow control device anticipated to be 7.2l/s. The additional surface water will be stored onsite in an attenuation basin combined with traditional below ground features such as a geocellular tank. The attenuation will be large enough to store on site all storms up to the threshold event (1 in 100-year event + 30% for climate change effects). An allowance for urban creep (10%) will also be factored into the attenuation calculations.

RWPs will be routed to SuDS planters where practical to slow the conveyance of flows and maximise the opportunity for evapotranspiration. Porous paving throughout the development will also assist with reducing the rate of runoff at source and will consist of a type B arrangement, with the pipework connecting into the onsite network. The various SUDS features will help to reduce the conveyance rate toward the pump and ensure there will be no discharge from the proposed site that results from the first 5mm of any rainfall event whilst maximising the opportunity for evapotranspiration.

S3 – Water quality

A pollution risk may arise from petrol or oil spillage from vehicles using the development site. The drainage of the car parking will form a part of the general site surface water drainage system and will need to be subjected to some form of treatment, likely to be via a type B style porous paving arrangement with the pipework connecting into the onsite network.

Table 26.2 of the SuDS Manual identifies the site as a low pollution hazard level with indices varying between 0.4 – 0.5. Table 26.3 suggests permeable paving offers a mitigation index of 0.6 - 0.7, while the other SuDS feature also offers the following mitigation indices; detention basin (0.5 – 0.6).

The sub-base reservoir layer of the permeable paving provides an effective measure to trap suspended solids and hydrocarbons thus improving the water quality before discharging into the onsite pipe network and subsequently offsite. The SuDS features in the scheme should be connected in series to achieve a robust surface water management train providing effective treatment for contaminants by offering the chance for settlement of sediments and interception of hydrocarbons.

S4 – Amenity

The use of permeable paving within the site will promote multi-functionality, whilst the allowance of climate change and urban creep aids the developments resilience to future change. SuDS planters offer the opportunity for enhancement of the appearance of the gardens using the water as a valuable resource.

A large public open space is being provided along the northern boundary which partially doubles up as the attenuation basin which will surcharge during larger storm events. DCWW are having to adopt the network and consequently they require below ground storage to be the predominant means of storage. Consequently, attenuation cells will have to be incorporated into the proposals. This will be set at a level to enable below ground storage to extend the period before the basin becomes surcharged. SUDS features local to the plots will maximise legibility of the water network whilst also providing aesthetically pleasing water feature in normal low flows.

S5 - Biodiversity

The proposals will attempt to promote surface conveyance where possible providing opportunities for wildlife and potentially increase the number of species. Soft landscaping, where suitable, within the SuDS features will include a variety of planting of known wildlife value local to the area – providing habitat and food for insects, invertebrates and birds. A landscaping plan will also be produced accounting for appropriate vegetation.

The bio-detention pond can provide habitats and feeding grounds for amphibians as well as birds, insects and small mammals.

The use of SuDS Planters or raised planters at certain downpipes in individual plots may be given consideration which may provide habitat and food for insects, invertebrates and birds.

S6 - Design of drainage for Construction and Maintenance and Structural Integrity

All SuDS features will be installed by a competent contractor and will be situated in locations and at shallow depths where they can be easily maintained. A maintenance plan will state the maintenance requirements for the SuDS features in order for them to remain at their optimum capacity.

All materials and components, where possible, will have a minimum design life equivalent to the design life of the development, including an appropriate factor of safety.

SAB Pre-application

A response was received on 15/9/2023 to a pre-application made relative to the site proposals. The response was generally agreeable to the surface water proposals and merely outlined the requirement for more detail when submitting the full SAB application. Further discussion on the proposed peak discharge rate is required.

5. FOUL WATER DRAINAGE

The following design criteria will apply for the surface water runoff and foul discharge design of the site:

- Approved Document H, Building Regulations
- Sewers for Adoption 7th Edition
- BS EN 12056 Part 2.

The site is in close proximity to an existing 150mm foul sewer serving the existing estate however the site sits at a lower elevation thus requiring a pumped solution to cater for the development. The pump compound would most likely be sited in the northern corner of the site with tanker access arrangements to be agreed with DCWW. Vehicles are proposed to turn at the on-site T junction and reverse down the access road into the compound layby. A compound size of 9m x 14m can be afforded. DCWW have commented initially on the proposal and have not highlighted any concerns that cannot be addressed (**Appendix F**).

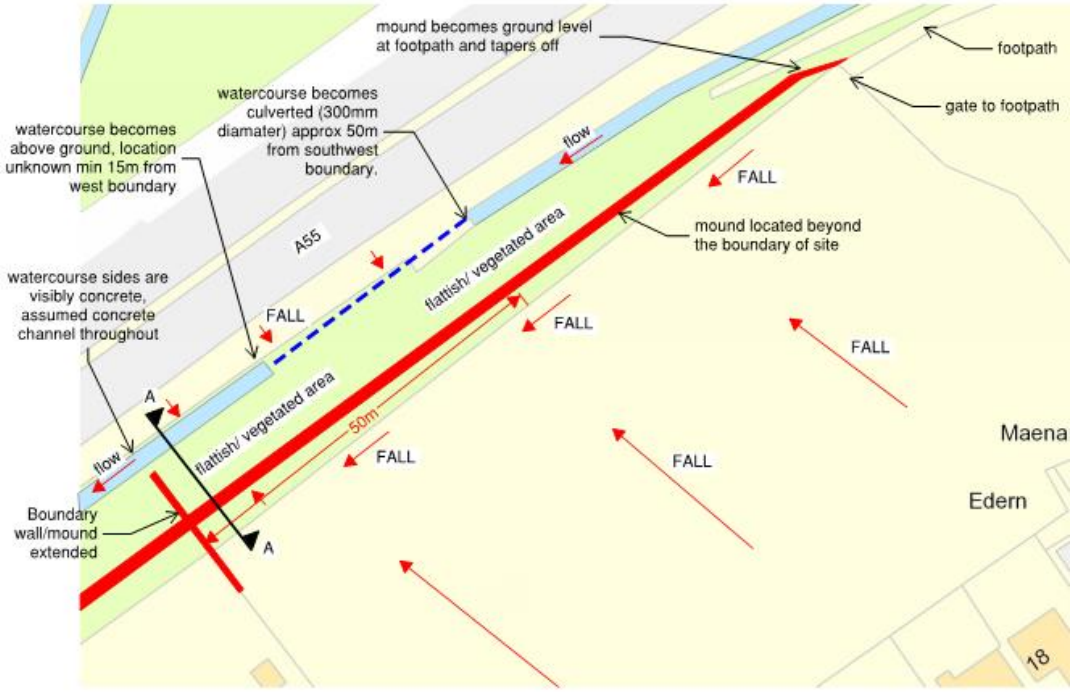
A connection could be made to the sewer subject to agreement of the Section 104 and the subsequent Section 106. The general arrangements of the on-site drainage will be largely to adoptable standards and will require liaison with DCWW during the technical vetting procedure and the collation of information for the formal agreement. When the agreement is in place the Section 106 will be required to formalise the sewer connection.

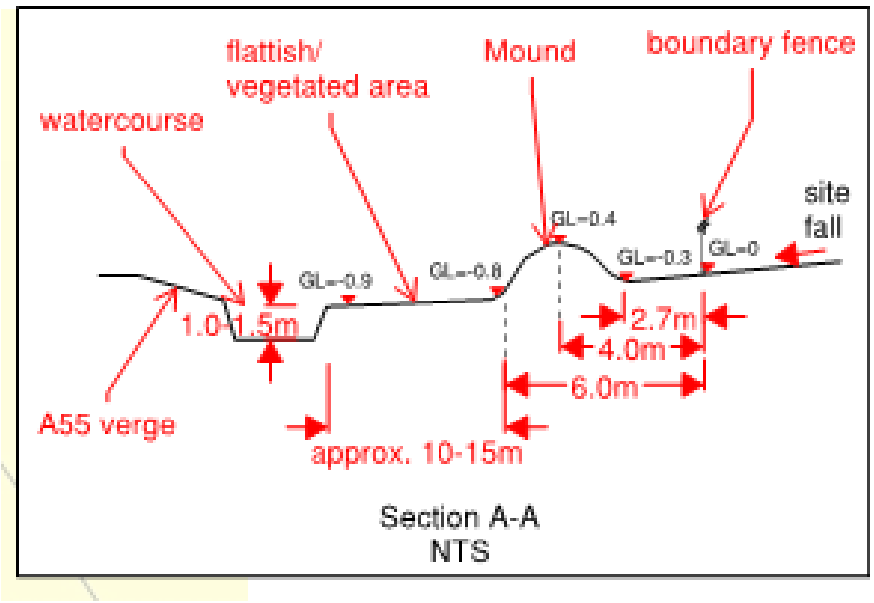
A DCWW pre-application, PPA0004808, has received favourable comments from DCWW indicating they envisage no capacity issues with the network nor the local wastewater treatment works (**Appendix E**).

APPENDICES

APPENDIX A –
WELSH WATER UTILITY MAPS

APPENDIX B –
SITE WALKOVER FINDINGS





APPENDIX C –
PROPOSED DRAINAGE LAYOUT

PROJECT No. 20086 | DRG No. 501-1 | **DO NOT SCALE**

INFILTRATION NOT FEASIBLE AS DETERMINED BY POROSITY TESTING. REF. POROSITY REPORT

WATERBUTTS AND LOCALISED AMENITY & BIODIVERSITY FEATURES AROUND PLOTS TO BE INCLUDED IN DETAILED DESIGN FOR PURPOSES OF SAB APPLICATION

CUT-OFF LAND DRAIN TO INTERCEPT ANY EXCEEDANCE FLOWS OVER HB2 KERBS AT END OF PROPOSED HIGHWAY.

TYPE 3 PUMP COMPOUND (SUBJECT TO DCWW ADOPTION)

ANY ADJACENT RUNOFF ONTO SITE BOUNDARY INTERCEPTED WITH LAND DRAINS

EXISTING OFFSITE BUND TIES INTO HIGHER GROUND PROFILES

VEHICLE RESTRAINT BOLLARDS TO BE INCORPORATED TO SAFEGUARD THE ASS FROM ERRANT VEHICLES.

EXISTING OFFSITE BUND

OFFLINE GEOCELLULAR TANK UNDER 8.5x7.5x0.8 dp AFFORDING 40m3 OF STORAGE.

HYDROBRAKE CHAMBER WITH FLOW RESTRICTED TO 7.2Lls (TBC) DURING THE THRESHOLD DESIGN EVENT (SUBJECT TO AGREEMENT WITH SAB)

OFFLINE ATTENUATION BASIN WITH 1:4 SIDE SLOPES AFFORDING 66m³ STORAGE WHEN BELOW GROUND TANK IS SURCHARGED.

EXISTING WATERCOURSE FOR ADJACENT HIGHWAY

EXISTING OFFSITE BUND

PROPOSED ONSITE BUND

REF. DRAWING 501-2 FOR OFFSITE DRAINAGE SUBJECT TO DCWW SEWER REQUISITION AND NRW FRAP APPLICATION

POROUS PAVING RESERVOIR LAYER SET AT 150mm DEPTH FOR PLOTS 9-14 & 23-27

POROUS PAVING RESERVOIR LAYER SET AT 900mm DEPTH FOR PLOTS 2-8 & 15-22

BREAKER CHAMBER

ASSUMED LOCATION

EXISTING 100mm SEWER TO BE RELAID AS 150mm PIPE (SUBJECT TO S185 AGREEMENT)

PUMP STATION

PLOT 1 FFL 45.050
PLOT 2 FFL 44.750
PLOT 3 FFL 44.625
PLOT 4
PLOT 5 FFL 44.480
PLOT 6
PLOT 7 FFL 44.850
PLOT 8
PLOT 9/10 FFL 44.675
PLOT 11/12 FFL 44.675
PLOT 13 FFL 43.810
PLOT 14 FFL 43.810
PLOT 15 FFL 43.960
PLOT 16 FFL 43.960
PLOT 17 FFL 44.200
PLOT 18 FFL 44.200
PLOT 19 FFL 44.050
PLOT 20 FFL 44.050
PLOT 21 FFL 43.895
PLOT 22 FFL 43.895
PLOT 23 FFL 44.250
PLOT 24 FFL 43.660
PLOT 25 FFL 43.660
PLOT 26 FFL 44.925
PLOT 27 FFL 44.350

PUBLIC OPEN SPACE

VISITOR PARKING

SURVEY POINT A
SURVEY POINT A1
SURVEY POINT B

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S, ENGINEER'S AND OTHER SPECIALISTS' DRAWINGS.
2. PLEASE REFER TO ARCHITECTS DRAWINGS FOR FINAL BUILDING LOCATION
3. REFER TO DATRYS DRAWING 20086/502 FOR DRAINAGE DETAILS.
4. ALL DRAINAGE COMPONENTS ARE TO COMPLY WITH CURRENT BRITISH STANDARDS & BUILDING REGULATIONS REQUIREMENTS
5. AT ALL OUTFALL POINTS TO AN EXISTING NETWORK, THE POSITION AND INVERT LEVEL OF EXISTING DRAINS MUST BE CONFIRMED WELL IN ADVANCE OF THE PROGRAMMED DATE FOR INSTALLING ANY OF THE UPSTREAM DRAINAGE, OR ORDERING ANY MATERIALS IN ORDER TO ALLOW TIME FOR ANY NECESSARY REVISIONS TO THE HYDRAULIC DESIGN.
6. ALL GRAVITY PVC-U PIPEWORK TO BE TO BS 4660:2000 OR BS EN 1401-1:2009 WHERE RELEVANT UNLESS NOTED OTHERWISE
7. ALL CONCRETE SHALL BE GEN3 WITH SULPHATE RESISTING IN ACCORDANCE WITH BS8500 U.N.O.
8. FINAL LOCATIONS AND DETAILS OF SOIL & VENT PIPE, STUB STACKS, RAINWATER DOWN PIPES, GULLYS etc. TO BE CONFIRMED BY REFERENCE TO ARCHITECTS' DRAWINGS
9. ALL PIPES INTO MH's TO BE SOFFIT TO SOFFIT LVL U.N.O.
10. ALL NON ADOPTABLE DOMESTIC FOUL AND SURFACE WATER PIPE RUNS SHALL CONSIST OF 100mm Ø PIPES LAID AT A MINIMUM FALL OF 1 IN 80 U.N.O
11. ALL CONNECTIONS FROM HIGHWAY GULLIES TO BE 150mmØ LAID AT FALLS OF BETWEEN 1:20 & 1:100 WITH TYPE S BED & SURROUND TO ALL CONNECTIONS WHERE MIN 1.2m COVER IS ACHIEVED. TYPE Z BED & SURROUND TO ALL OTHER CONNECTIONS.
12. COVER LEVELS ARE APPROXIMATE AND SHOULD MATCH PROPOSED SURROUNDING LEVELS. CONTRACTOR TO USE OFFICIAL TBM'S FOR SETTING OUT.

KEY

- SITE BOUNDARY
- PROPOSED SURFACE WATER INSPECTION CHAMBER AND DRAIN
- PROPOSED PERFORATED PIPE
- PROPOSED HIGHWAY GULLY WITH 150mm Ø CONNECTIONS
- PROPOSED ATTENUATION BASIN
- PROPOSED POROUS PAVING
- PROPOSED HYDROPLANTER
- PROPOSED ATTENUATION TANK
- PROPOSED TREE PIT
- PROPOSED FOUL DRAIN RUN AND INSPECTION CHAMBERS
- PROPOSED FOUL WATER RISING MAIN
- EXISTING FOUL SEWER
- EXISTING SURFACE WATER SEWER

REV	DATE	DESCRIPTION	BY	CHK	APP
P02	15.12.23	UPDATED TO REFLECT NEW BASE LAYOUT	WH	IR	AC
P01	11.10.23	FIRST ISSUE	WH	IR	AC

REVISIONS

PLANNING

CLIENT

DU CONSTRUCTION LTD
CONTRACTWYR ADEILADU : BUILDING CONTRACTORS
T: 01407 762784
E: info@duconstructionltd.co.uk

PROJECT

Land Adj. Y Garnedd
LlanfairPG

TITLE

Proposed Drainage Layout

DATRYS
Caernarfon:
Unit 6 Block A, Doc Victoria
Caernarfon, LL55 1TH
Tel: 01286 671027
Mold:
Suite 4A, Broncoed House
Wrexham Road, Mold, CH7 1HP
Tel: 01352 706205
info@datrys.cooop | www.datrys.net

DRAWN WH	CHECKED IR	PASSED AC	
DATE 11.10.23	CLIENT'S REF.		
SCALE AT A1 1:250	AUTOCAD REF. 20086/501-1		

DRAWING No. 20086/501-1 | REVISION P02

PROJECT No. 20086 | DRG No. 501-2 | **DO NOT SCALE**

NOTES

REV	DATE	DESCRIPTION	BY	CHK	APP
P02	15.12.23	UPDATED TO REFLECT NEW BASE LAYOUT	WH	IR	AC
P01	04.05.23	FIRST ISSUE	CB	LI	AC

REVISIONS

CLIENT

DU CONSTRUCTION LTD
CONTRACTWYR ADEILADU : BUILDING CONTRACTORS
T: 01407 762784
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PLANNING

PROJECT

Land Adj. Y Garnedd
LlanfairPG

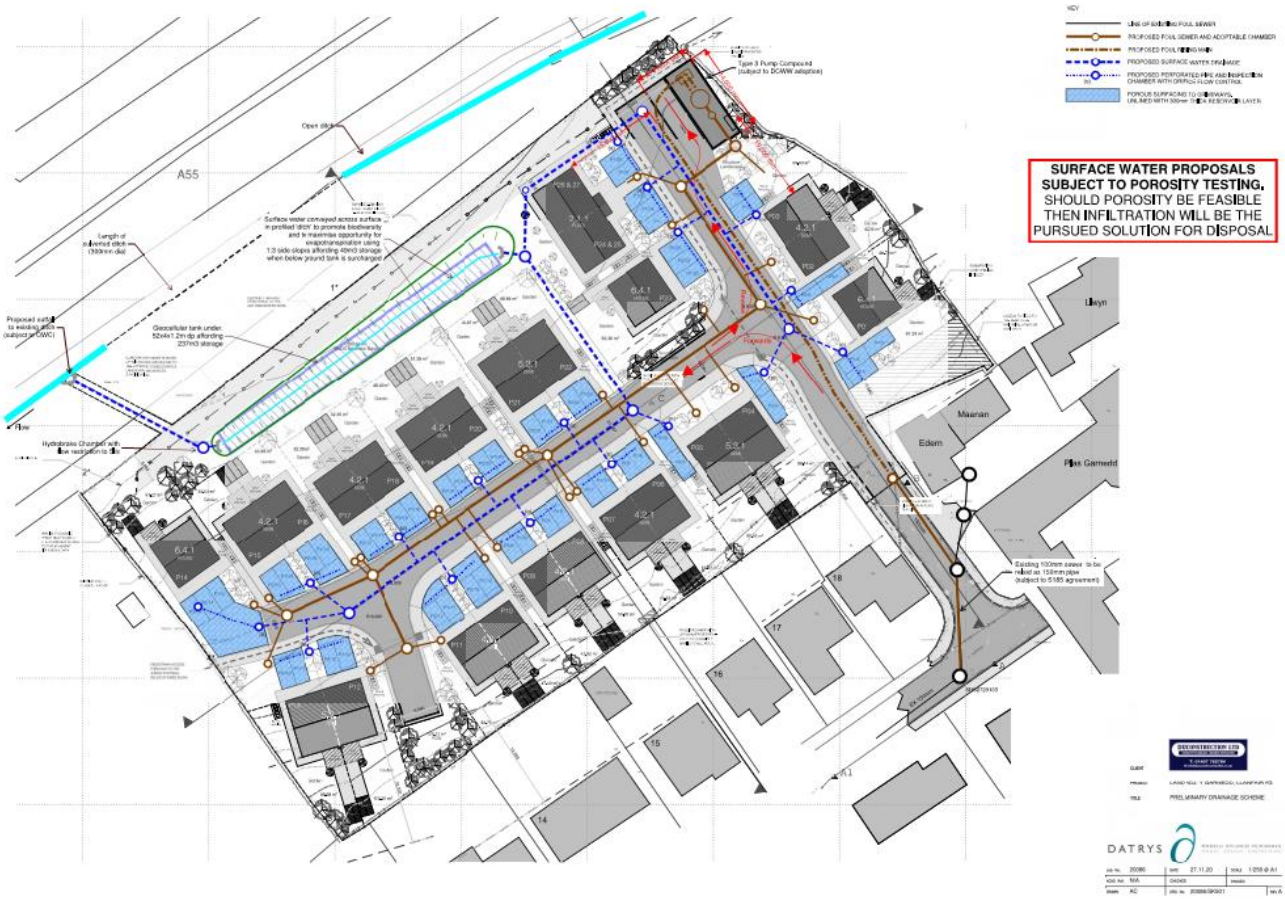
TITLE

Offsite Surface Water Route

DATRYS
Caernarfon:
Unit 6 Block A, Doc Victoria
Caernarfon, LL55 1TH
Tel: 01286 671027
Mold:
Suite 4A, Bronconed House
Wrexham Road, Mold, CH7 1HP
Tel: 01352 706205
info@datrys.coop | www.datrys.net

DRAWN CB	CHECKED LI	PASSED AC	
DATE 04.05.23	DATRYS REF.		
SCALE AT A1 1:1000	AUTOCAD REF. 20086/501-2		
DRAWING No. 20086/501-2			REVISION P02

APPENDIX D –
ALTERNATIVE CONNECTIONS CONSIDERED


SURFACE WATER PROPOSALS
SUBJECT TO POROSITY TESTING,
SHOULD POROSITY BE FEASIBLE
THEN INFILTRATION WILL BE THE
PURSUED SOLUTION FOR DISPOSAL
A55
Open ditch
Flow
Maenan
Edern
Plas Garneddi
DATRYS

APPENDIX E –
DCWW PRE-APPLICATION RESPONSE

Dŵr Cymru
Welsh Water

Developer Services
PO Box 3146
Cardiff
CF30 0EH

Tel: +44 (0)800 917 2652
Fax: +44 (0)2920 740472
E.mail: developer.services@dwrcymru.com

Gwasanaethau Datblygu
Blwch Post 3146
Caerdydd
CF30 0EH

Ffôn: +44 (0)800 917 2652
Ffacs: +44 (0)2920 740472
E.bost: developer.services@dwrcymru.com

Adam Caldwell
Datrys Consulting Engineers
Unit 6
Block A
Doc Fictoria
Caernarfon
LL55 1TH

Date: 07/05/2020
Our Ref: PPA0004808

Dear Mr Caldwell,

Grid Ref: 252871, 372179
Site Address: Land off Y Garnedd, Llanfairpwll
Development: Residential development

I refer to your pre-planning enquiry received relating to the above site, seeking our views on the capacity of our network of assets and infrastructure to accommodate your proposed development. Having reviewed the details submitted I can provide the following comments which should be taken into account within any future planning application for the development.

SEWERAGE

Foul flows only from the proposed development can be accommodated within the public sewerage system. We advise that the flows should communicate with the 150mm foul sewer at/ or downstream of manhole chamber reference SH52729103 located in Y Garnedd. Should a planning application be submitted for this development we will seek to control these points of communication via appropriate planning conditions and therefore recommend that any drainage layout or strategy submitted as part of your application takes this into account. However, should you wish for an alternative connection point to be considered please provide further information to us in the form of a drainage strategy, preferably in advance of a planning application being submitted.

In addition, please note that no highway or land drainage run-off will be permitted to discharge directly or indirectly into the public sewerage system.

SURFACE WATER

As of 7th January 2019, this proposed development is subject to Schedule 3 of the Flood and Water Management Act 2010. The development therefore requires approval of Sustainable Drainage Systems (SuDS) features, in accordance with the 'Statutory standards for sustainable drainage systems – designing, constructing, operating and maintaining surface water drainage systems'. It is therefore recommended that the developer engage in consultation with The Isle of Anglesey County Council as the determining SuDS Approval Body (SAB), in relation to their proposals for SuDS features. Please note, Dwr Cymru Welsh Water is a statutory consultee to the SAB application process and will provide comments to any SuDS proposals by response to SAB consultation.

ADVISORY NOTES

You may need to apply to Dwr Cymru Welsh Water for any connection to the public sewer under Section 106 of the Water industry Act 1991. However, if the connection to the public sewer network is either via a lateral drain (i.e. a drain which extends beyond the connecting property boundary) or via a new sewer (i.e. serves more than one property), it is now a mandatory requirement to first enter into a Section 104 Adoption Agreement (Water Industry Act 1991). The design of the sewers and lateral drains must also conform to the Welsh Ministers Standards for Foul Sewers and Lateral Drains, and conform with the publication "Sewers for Adoption"- 7th Edition. Further information can be obtained via the Developer Services pages of www.dwrcymru.com.

You are 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 you may contact Dwr Cymru Welsh Water on 0800 085 3968 to establish the location and status of the apparatus in and around your site. Please be mindful that under the Water Industry Act 1991 Dwr Cymru Welsh Water has rights of access to its apparatus at all times.

SEWAGE TREATMENT

No problems are envisaged with the Waste Water Treatment Works for the treatment of domestic discharges from this site.

WATER

A water supply can be made available to service this proposed development. Initial indications are that a connection can be made from the 3 inch diameter watermain in grid reference location 252940, 372143.

I trust the above information is helpful and will assist you in forming water and drainage strategies that should accompany any future planning application. I also attach copies of our water and sewer extract plans for the area, and a copy of our Planning Guidance Note which provides further information on our approach to the planning process, making connections to our systems and ensuring any existing public assets or infrastructure located within new development sites are protected.

Please note that our response is based on the information provided in your enquiry and should the information change we reserve the right to make a new representation. Should you have any queries or wish to discuss any aspect of our response please do not hesitate to contact our dedicated team of planning officers, either on 0800 917 2652 or via email at developer.services@dwrcymru.com

Please quote our reference number in all communications and correspondence.

Yours faithfully,

Owain George
Planning Liaison Manager
Developer Services

***Please Note** that demands upon the water and sewerage systems change continually; consequently the information given above should be regarded as reliable for a maximum period of 12 months from the date of this letter.*

APPENDIX F –
DCWW COMMENTS ON PUMPING COMPOUND

From: Aled Griffiths
Sent: 03 August 2021 17:15
To: Adam Caldwell <a.caldwell@datrys.coop>
Cc: Andrew Herbert; Bryn Roberts; Levente Incze; Services Developer
Subject: RE: PSA2186522 : 27 houses at Y Garnedd, Llanfair PG - Pump compound requirement

Afternoon Adam,

The tracker looks ok to me, but the layby would require lockable and collapsible bollards, to prevent anyone from parking with in the layby, the bollards would need to be spaced out so cars could not squeeze between them

And also at the rear of the Layby/Tankers area there is a public foot path so it would require concrete bollards between the layby and the foot path

Cheers
Aled

A Griffith
Aled Griffith
SPS Adoption Technician/
NOA Site Inspector

From: Adam Caldwell
Sent: 29 June 2021 12:26
To: Griffiths Aled
Subject: PSA2186522 : 27 houses at Y Garnedd, Llanfair PG - Pump compound requirement

Hi Aled, trust you are keeping well and no doubt busy.

We have a site (Grid Ref: SH 52899 72191) that we are looking to submit to planning but the requirement for a pumping compound has significant implications on the site layout.
We have incorporated the compound to the northern corner of the site which lies some 4m lower than the adjacent network in the estate.
A type 3 compound is envisaged and its outline is illustrated on the attached.

The tanker servicing this compound would be required to access the site and turn in the T-junction before reversing back into the layby.
Highways don't have any issue with this given the low frequency of this requirement so it comes down to its acceptability to dcww.
We have undertaken a swept path analysis of the entry and reversing action and this is attached as drawing sk450.

We don't want to be wasting time proceeding with detailed design if we cannot agree the location of the compound in the first instance and needs to be ironed out before we submit for planning.
Can you give your view on this please?

Kind Regards,
Adam Caldwell MEng (Hons)

DATRYS
MODELU DYLUNIO PEIRIANNEG

APPENDIX G – POROSITY REPORT

4. SOIL INFILTRATION RESULTS

One porosity test was undertaken within each of the porosity pits, the soakaway test result indicated that once the pit was saturated there was little to no measurable water movement. A very low soil infiltration rate can be ascertained from the initial movement but was it was not feasible to test on further occasions.

The trial pit was stable with no sign of collapse.
No ground water was encountered.

Porosity Pit No.	Depth (m)	Soil Infiltration Rate (m/s)	Comments
TP1	1.4	6.03×10^{-6}	Test Failed
TP2	1.6	2.83×10^{-6}	Test Failed
TP3	1.2	3.71×10^{-6}	Test Failed
TP4	1.2	7.63×10^{-6}	Test Failed
TP5	1.5	5.31×10^{-6}	Test Failed
TP6	1.5	8.02×10^{-6}	Test Failed
TP7	2.4	4.97×10^{-7}	Test Failed