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Caulmert Limited

Engineering, Environmental & Planning Consultancy Services

Bodnant Avenue, Prestatyn

ADRA

Housing Development

Flood Consequences Assessment and Drainage Strategy

APPROVAL

Prepared by:

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March 26

Caulmert
engineering environmental planning

APPROVAL RECORD

Site: Bodnant Avenue, Prestatyn

Client: ADRA

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Approved	Nick Owen Associate	**Date**	25/03/26

Revision Log			
Revision	**Description of Change**	**Approved**	**Effective Date**
P1	Approval	JE	25/03/26

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Flood Consequences Assessment and Drainage Strategy

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APPENDICES

1.0 INTRODUCTION AND DEVELOPMENT PROPOSALS

1.1 Background

1.1.1 Adra, Housing Association is proposing to construct 62 mixed occupancy dwellings and apartments on the site on land off Bodnant Avenue, Prestatyn.

1.1.2 Caulmert has been appointed to prepare a Flood Consequences Assessment and Drainage Strategy to support a planning application for the development. This considers the risk of flooding at the site, and the disposal of surface water and domestic foul effluent. The strategy for the disposal of surface water follows the approach recommended in the Sustainable Drainage Systems Standards for Wales (SuDS Standards) and the CIRIA SuDS manual. The criteria for the management of foul flows are in accordance with the Building Regulations, relevant British Standards, and the requirements of Dwr Cymru Welsh Water (DCWW).

1.1.3 The site has an area of approximately 2.47ha (24694m²) and is situated to the east of Prestatyn town. The site is located to the south of the A548 Prestatyn Road and north of the A547 Gronant Road. The plan below shows the location of the site, edged red.

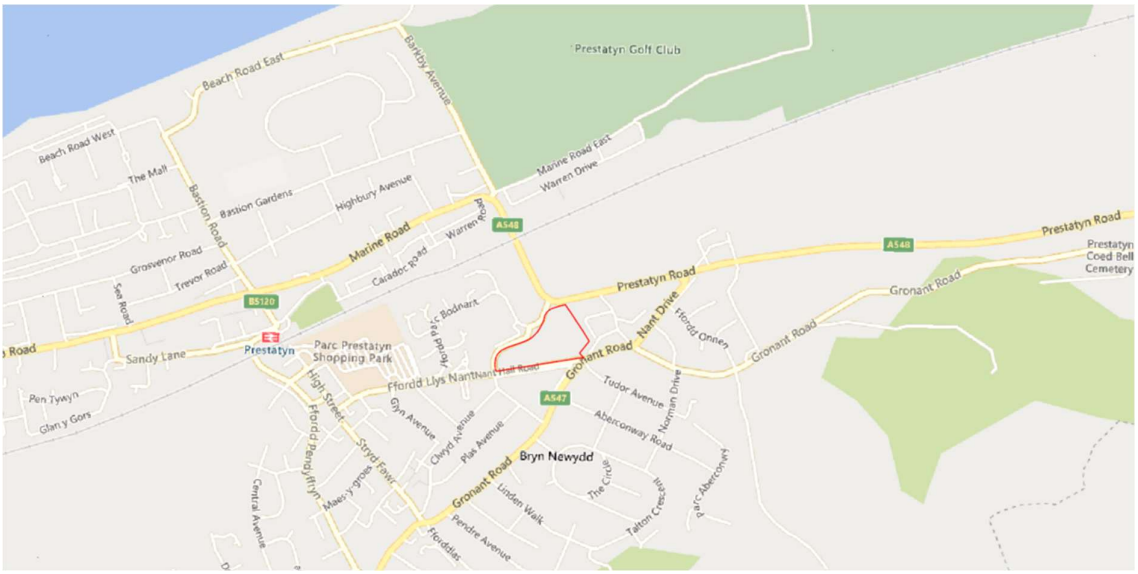


Figure 1: Site Location Plan

1.2 Existing Site Features

1.2.1 The site comprises of undeveloped greenfield land with an existing housing estate bordering the southern boundary on the opposite of Nant Hall Road. Bodnant Avenue, Ffordd Parc Bodnant and Bodnant Community School are located to the west of the site boundary. The A548 Prestatyn Road lies to the north of the site boundary. An existing farm with caravan camping grounds are located to the east of the site.

1.2.2 Access to the site is from Bodnant Avenue to the west of the proposed site.

1.2.3 The land slopes down from south to north. The highest point on site is 17.45m in the southeast of the site and lowest point on the site is 6.08m in the northeast of the site.

1.2.4 The satellite imagery below shows the context and setting of the site.

Figure 2: Site Context Plan

1.2.5 A topographical survey has been undertaken, and a copy is enclosed in Appendix 1.

1.2.6 Welsh Water (DCWW) has indicated that a public surface water sewer is located within the highway network close to the site. The sewers run within Nant Hall Road and Bodnant Avenue. A CCTV sewer survey has been completed on the existing 900mm diameter surface water sewer located to the west of the site adjacent to Bodnant Avenue. This is included in Appendix 2.

1.2.7 A pre-planning enquiry has been submitted to DCWW. A copy of their response and existing sewer records is included in Appendix 2.

1.2.8 DCWW has indicated that an existing 225mm and 150mm foul water pipe is located to the south of the site running within Nant Hall Road as shown in Appendix 2.

1.2.9 An existing watercourse is located approximately 31.0m from the eastern boundary within the neighbouring camping and caravan park.

1.3 Existing Site Flood Risk

1.3.1 Welsh Government's Flood Map for Planning shows areas within the site boundary to be in Flood Zone 2 and 3 from Rivers and Sea (Figure 3).

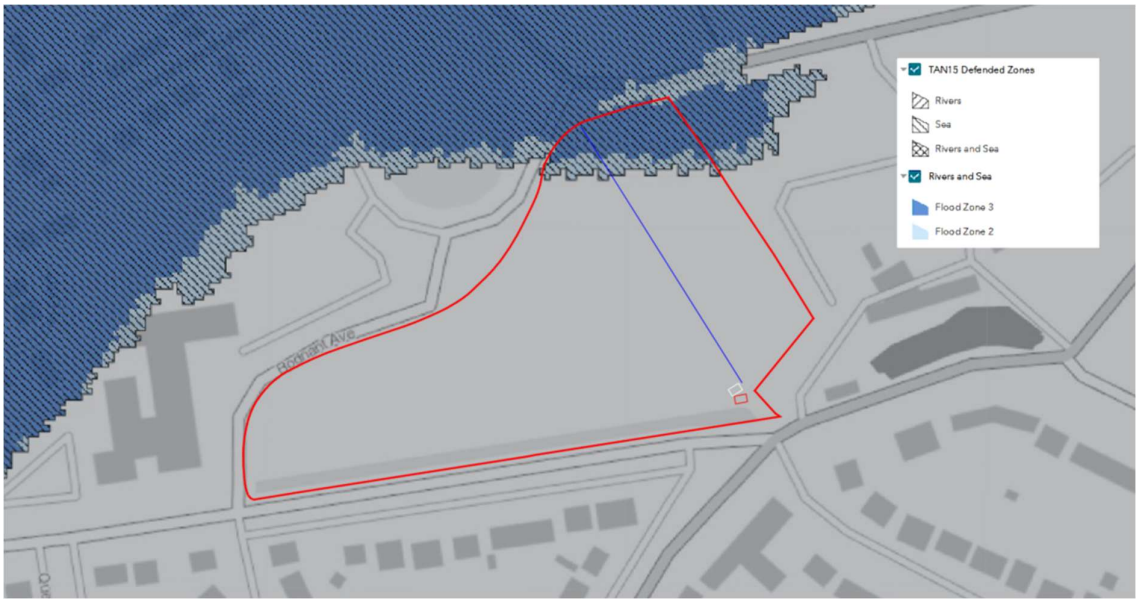


Figure 3: Extract from the Flood Map for Planning (Rivers/Sea)

1.3.2 Welsh Government's Flood Map for Planning shows areas within the site to be in Flood Zone 2 and 3 from Surface Water and Small Watercourses (Figure 4).

Figure 4: Extract from the Flood Map for Planning (Surface Water/Small Watercourses)

1.3.3 Figure 3 indicates the site as being within flood risk zones 2 and 3 from Rivers and Sea with a greater risk being flooding from Sea. The risk classifications for zones 2 and 3 are as follows:

1.3.3.1 Sea – Flood Zone 2

Areas with 0.1% to 0.5% (1 in 100 to 1 in 200) chance of flooding from the sea in a given year, including the effects of climate change.

1.3.3.2 Sea – Flood Zone 3

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

1.3.4 Figure 3 indicates that the area benefits from Risk Management Authority Flood Defences and is located within the TAN15 Defended Zone for Rhyl_Prestatyn with the minimum Standard of Protection of 1 in 200 year (present day) for sea.

1.3.5 Figure 4 shows the northern boundary of the site to be within flood risk zones 2 and 3 for Surface Water and Small Watercourses. The public highway to the south and west of the site are also shown as having risk flooding but this is outside of the site boundary.

1.3.5.1 Surface Water and Small Watercourses – Flood Zone 2

Areas with 0.1% to 1% (1 in 1000 to 1 in 100) chance of flooding from surface water and/or small watercourses in a given year, including the effects of climate change.

1.3.5.2 Surface Water and Small Watercourses – Flood Zone 3

Areas with more than 1% (1 in 100) chance of flooding from surface water and/or small watercourses in a given year, including the effects of climate change

1.3.6 Ground water seepage was not encountered during intrusive ground investigation at the site which were excavated to a depth of 3.25m below ground level as noted in Caulmert Ground Investigation Summary dated 23rd October 2024. We therefore do not anticipate flooding groundwater as a risk but recommend that monitoring is undertaken during construction.

1.3.7 An existing DCWW water main is noted crossing the site. In the event of a pipe rupture or burst, the proposed levels for the site will be designed to ensure any potential overland flow is directed away from dwellings.

1.4 Proposed Development

1.4.1 The proposed development will comprise the construction of 62No. mixed occupancy dwellings, and apartments including access roads, public spaces, retaining walls and proposed drainage. Figure 5 below shows the proposed site layout. A full size plan is included in Appendix 3.

1.4.2 The site boundary area is approximately 2.47ha. However, the area to be developed is 1.95 hectares which is outside the zones identified as being at risk of flooding.

1.4.3 Greenfield run off calculations have been completed using the HR Wallingford greenfield calculation tool. The calculated Qbar greenfield run off rate is 3.7 litres per second (l/s). The results are included in Appendix 5.

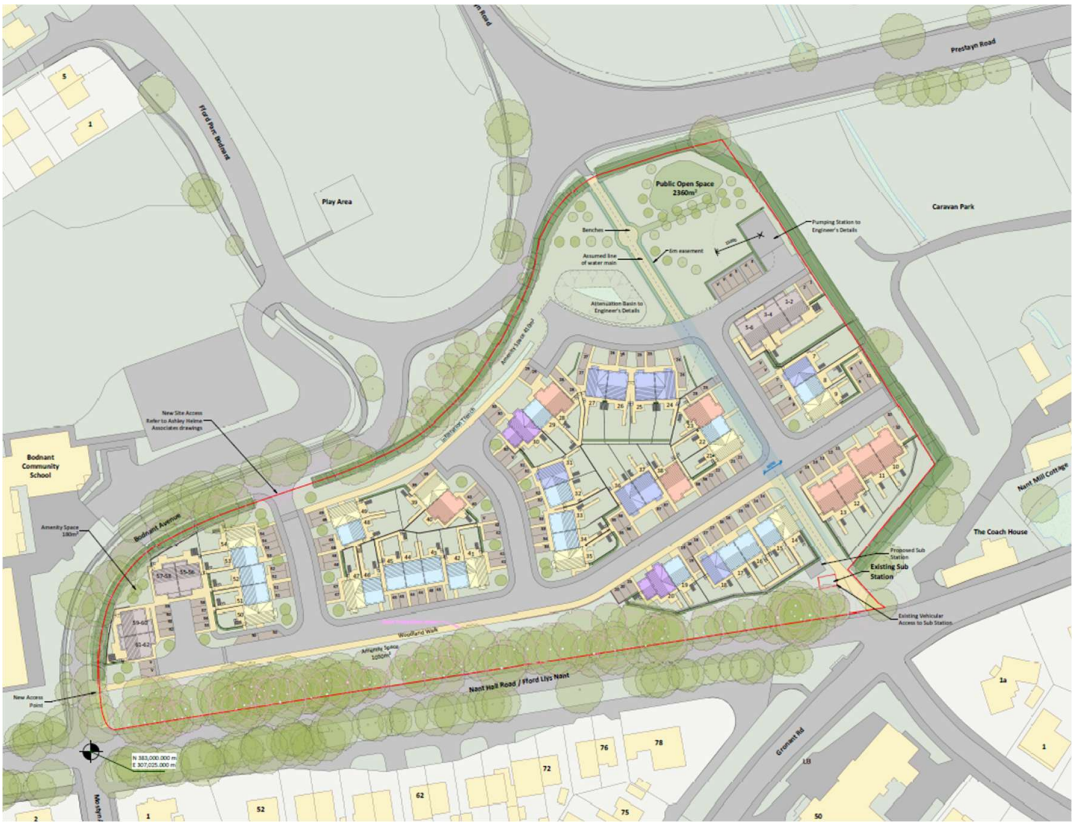


Figure 5: Proposed Development Layout

1.5 Acceptability of Flooding Consequences

1.5.1 This Assessment presents an understanding of the potential risks and consequences of development and identifies how these can be safely managed.

1.5.2 The scope of the FCA needs to consider if there is:

- Risk to life
- Disruption to people living and working in the area
- Impact on flood risk generally and
- Disruption to the sustainable management of resources

Risk to Life

1.5.3 An area of the site is noted as being in flood zone 2 and 3 for risk of flooding from Rivers & Sea and risk of flooding from Surface Water & Small Watercourse. This area is located within the site boundary and is localized to the northern area of the site. This is outside of the residential development area.

1.5.4 On the west and southern boundaries, areas of flooding are noted outside of the site boundary within the existing adopted road network. Houses and public spaces are not located within these areas.

1.5.5 On the northern boundary houses are set away from the potential surface water flow path. The area indicated as flooding is to be maintained at existing levels and not to be developed.

1.5.6 In both locations, the infrastructure construction will be designed so as to be resilient to the effects of surface water flooding.

Disruption to People

1.5.7 In the event of flooding occurring on the northern area of the site either from Rivers & Sea or Surface Water & Small Watercourse the disruption to people would be minimal. The area at risk of flooding is remote to the residential area of the site and access to and from the site, which is via Bodnant Road, either in vehicles or on foot would not be affected as it is outside the risk area. The topography of the site is such that standing water would not be expected and overland flow paths will be maintained through the development to prevent risk to dwellings.

1.5.8 An existing public water main owned and maintained by DCWW is noted as crossing the site. A pipe easement has been included in the proposed site plan. In the event of a rupture or burst of the water main excess water flow may be present on the surface. In the locations immediately adjacent to the watermain, site levels will be designed to ensure surface flow is directed away from dwellings to prevent any risk of flooding to the properties.

Impact on Flood Risk to Others

1.5.9 The proposed development drainage follows the sustainable drainage principles. These reflect Welsh Government's SuDS standards, and will be subject to a separate approval process through an application to the SuDS Approving Body.

1.5.10 The proposed surface water drainage is to discharge at two locations:

1.5.10.1 Discharge to ground through an infiltration trench located along the northern boundary. The trench will have a restricted overflow discharge into the infiltration pond.

1.5.10.2 Discharge to ground through the infiltration pond to north of the site. The pond will be provided with an overflow outfall connecting into the existing DCWW 900mm diameter sewer located outside the site boundary to the north west. Discharge from the overflow will be restricted to the existing Greenfield run-off rate.

1.5.11 The following Section 2 "Proposed Sustainable Drainage" provides more detail.

2.0 PROPOSED SUSTAINABLE DRAINAGE

2.1 Project Approach to Sustainable Drainage

2.1.1 This section summarises the outline design for the disposal of surface water from the site. The approach recommended in the Sustainable Drainage Systems Standards for Wales (the Standards) and the CIRIA SuDS manual is to manage the quality and quantity of rainwater runoff close to where it falls and to allow its use in a manner which provides amenity benefits to site users and also encourages biodiversity.

2.1.2 The Standards are split into six sections which need to be addressed. These are:

- S1. Surface water runoff destination
- S2. Surface water runoff hydraulic control
- S3. Water Quality
- S4. Amenity
- S5. Biodiversity

2.1.3 Subsequent paragraphs of this section of the report outline how these objectives can be achieved within the drainage design for the proposed new development and modifications of the existing drainage.

2.2 S1. Surface Water Runoff Destination

2.2.1 The standard has five priority levels for surface water runoff. These are:

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

Information has been gathered specific to the site and is considered against these priorities below.

2.3 S1. Surface Water Runoff Destination, Priority 1: Runoff Collected for Use

2.3.1 Priority 1 is to collect water for reuse. It is not cost effective to capture and store rainwater for use in most domestic appliances within buildings. The nature of the development is such that rainwater butts for garden irrigation would be suitable on a plot by plot basis. Collection of rainwater for use in appliances within the buildings is not considered viable.

2.4 S1. Surface Water Runoff Destination, Priority 2: Infiltration to Ground

2.4.1 Infiltration testing has been conducted in accordance with BRE365 the results of which can be seen in Caulmert Ground Investigation Summary dated 23rd October 2024. The infiltration rates in SA1 and SA2 indicate good infiltration materials with the calculated infiltration design rates of 2.4×10^{-5} m/s and 1.0×10^{-5} m/s respectively. The infiltration testing indicates that soakaways would be viable in the western/northwestern areas where granular Glaciofluvial deposits are present.

2.4.2 On the basis that the existing ground can be used for infiltration, this will be used as the primary means of managing surface water discharge from the development including roof areas, hard landscaped areas, car parking areas and access roads.

2.5 S1. Surface Water Runoff Destination, Priority 3: Discharge to a Surface Water Body

2.5.1 An existing water body is located approximately 31.0m outside of the eastern site boundary across private third-party land. This has been discounted due to the requirement to cross third party land to achieve a connection.

2.6 S1. Surface Water Runoff Destination, Priority 4: Discharge to a Surface Water Sewer

2.6.1 It is proposed that the surface water infiltration system will have an emergency overflow connected to the existing 900mm diameter public surface water sewer located adjacent to the northwestern boundary. The flow rate will be restricted to suit the greenfield run off rate of 3.7 l/s. Welsh Water have been contacted to confirm approval in principle to connection with the public sewer, we are awaiting the confirmation.

2.7 S1. Surface Water Runoff Destination, Priority 5: Discharge to a Combined Sewer

2.7.1 This option does not need to be considered.

2.8 S2. Surface Water Runoff Hydraulic Control

2.8.1 It is proposed that where feasible surface water run-off will be discharged to ground through infiltration with an emergency overflow provided connected to an existing off site public surface water sewer. The surface water discharge flow rate to the sewer is not to exceed the calculated Qbar greenfield runoff rate of 3.7 l/s.

2.8.2 The surface water network will have an infiltration trench located along the north/western boundary. The trench will provide 27m³ storage, be 1.0m minimum depth and 2.0m wide with an infiltration rate of 0.036m/hr and safety factor of 5.

2.8.3 The surface water network will have an infiltration basin providing approximately 737m³ of storage with an infiltration rate of 0.036m/hr and a safety factor of 5. The basin will have a flow restricted emergency overflow.

2.8.4 The emergency overflow from the pond will discharge into the existing public 900mm diameter sewer located to the northwest of the site. The flow restriction will be by Hydrobrake at 3.7 l/s.

2.8.5 The proposed discharge restriction of 3.7 l/s is to be utilized through the storm periods of 2 years, 30 years and 100 years (plus a climate change allowance of 30%).

2.8.6 Additional SuDS features will be provide on plot including permeable paving for the car parking areas, water butts, bio-retention rain gardens and infiltration trenches top provide surface water runoff management at source. These features will be private and maintained by Adra or the individual property owners.

2.9 Water Quality

2.9.1 The proposed road areas are classified as a cul-de-sac and considered to be low pollution hazard index. The roads will be drained via gullies into the main surface water network. The surface water network is then drained via infiltration.

2.9.2 The roof areas of the plots have a very low pollution hazard index. The roof drainage will discharge through infiltration trenches and/or rain gardens where suitable prior to discharge into wider surface water drainage network.

2.9.3 The car parking areas are classed as residential parking with frequent changes. As such the pollution hazard is considered to be low. The spaces will drain via permeable paving with over-flow perforated pipes to collect any excess and drain them into the wider surface water drainage network. This adequately mitigates the pollution risk.

2.9.4 Water quality and pollution index calculations are included in Appendix 6.

2.10 S4. Amenity and S5. Biodiversity

2.10.1 The guidance in the Standards encourages the use of 'softer' drainage solutions. The opportunity for incorporating larger softer SuDS features on the site is limited due to the site constraints.

2.10.2 The detention basin in the north of the site will provide amenity and biodiversity benefit.

2.11 S6. Design of Drainage for Construction, Operation and Maintenance

2.11.1 The properties on the site will be wholly Adra social housing. As such, surface water drainage that serves only the social housing will remain the responsibility of Adra to operate and maintain. When private and highway drainage combines, the asset will be adopted by the SuDS Approving Body, and will be operated and maintained by them. A management and maintenance schedule will be provided.

3.0 FOUL DRAINAGE

3.1 General Considerations

3.1.1 At present no existing foul water drainage is located within the site boundary.

3.1.2 A pre-development enquiry with DCWW (Welsh Water) has confirmed the existing system has capacity to accept foul flows from the proposed site. See Appendix 2.

3.1.3 The proposed foul drainage is to be collected from each plot and discharged into the proposed foul water drainage network as shown in Appendix 4. This network collects into a proposed adopted foul water pumping station located to the north-east of the site. The pumping station will then discharge via rising main to break chamber within the site boundary. This will then drain via gravity to the existing public foul water network within Nant Hall Road to the south of the site.

4.0 FLOOD RISK AND PROPOSED DRAINAGE – SUMMARY

4.1 Flood Risk

4.1.1 The site is shown to be at risk of flooding within the site boundary from Rivers and Sea within flood zones 2 and 3. The area is noted as being in the Rhyl Presatatyn TAN15 defended zone. The flooding area is localised to the north area of the site which is to remain undeveloped and existing levels maintained.

4.1.2 The site is shown to be at risk flooding within the site boundary from Surface water and Small Watercourses within flood zone 2 and 3. The flooding area is localised to the north area of the site which is to remain undeveloped and existing levels maintained.

4.1.3 The area of the site which is to be developed is located away from the flood risk area and due to the topography of the site will be elevated above it. Access to and from the site onto Bodnant Road is outside the flood risk area and will be maintained at all times. The development is therefore considered not to be adversely at risk flood risk.

4.2 Surface Water Drainage

4.2.1 The management of surface water drainage will be in compliance with the Welsh Government SuDS Standards. The proposals will be separately submitted to the SAB for approval.

4.2.2 The proposed surface water system will enable rainwater to discharge first via infiltration. Rainfall that does not infiltrate will be collected and discharged into the existing 900mm diameter public surface water drain at a flow rate of 3.7 l/s.

4.2.3 Highway drainage is to be collected through gullies and discharged into the surface water drainage network.

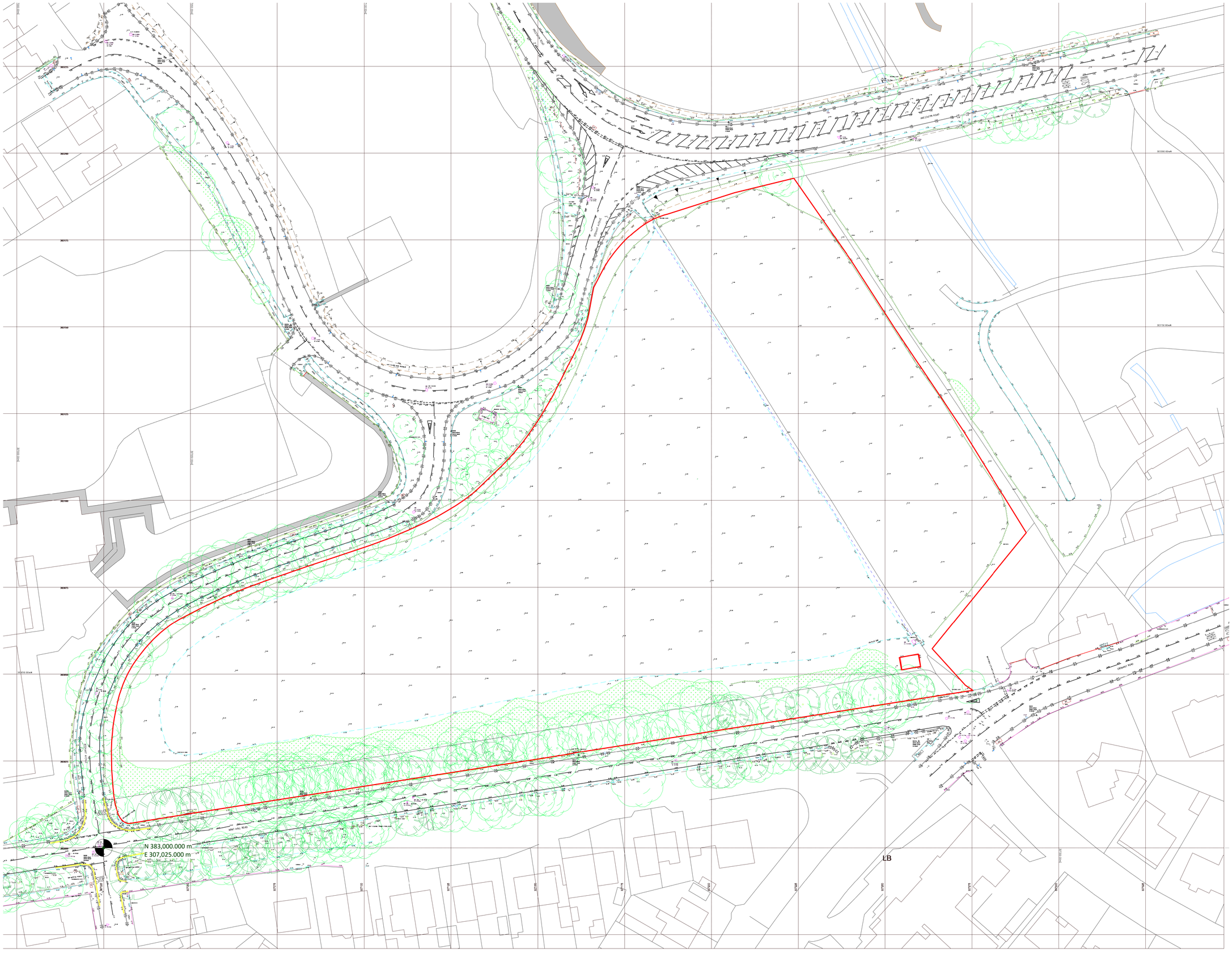
4.3 Foul Drainage

4.3.1 Foul water is to be collected by the proposed adoptable foul water network which will be offered to DCWW for adoption. Discharge from the site will be managed via a foul water pumping station which will convey flow into the DCWW public sewer network in Nant Hall Road to the south of the site.

4.3.2 Private drainage is to be designed on a plot by plot basis and connected into the adoptable foul water network.

APPENDIX 1

Topographical Survey



1 | EXISTING SITE
SCALE: 1 : 500

0m 10m 20m 30m 40m 50m
VISUAL SCALE 1:500 @ A1

N

REV	DESCRIPTION	DATE	BY
B	PAC ISSUE	20/03/26	AL
A	UPDATED RED LINE BOUNDARY	05/11/25	ED

PROJECT
BODNANT AVE, PRESTATYN
for ADRA

DRAWING TITLE
EXISTING SITE PLAN

SCALE	DATE	DRAWN	CHECKED
1 : 500 @A1	12/03/24	IO	SV

DRAWING STATUS: PLANNING

JOB No	DRAWING No	REVISION
C1148	002	B

AINSLEY GOMMON ARCHITECTS
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PRINTED: 19/03/2026 07:55:00

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APPENDIX 2

Existing Drainage

CCTV Inspection Report

View via iTouch Live

Your full report, including the video is only a click away download or view online now.

PRESTATYN ROAD
LL19 9LY

28/01/2026

Job Number: 28/1/26

Conwy Drainage Solutions Ltd

6 Cwrt Y Rhos, Old Colwyn, Colwyn Bay, Conwy, LL29 8EJ

Tel: 07522 810 999

Project Information

Conwy Drainage Solutions Ltd
6 Cwrt Y Rhos, Old Colwyn
Colwyn Bay
Conwy
LL29 8EJ

Job Number	Surveyed by (Operator)	Base Unit	Date
28/1/26	**STEVE**	**1AO6WLAC5Q**	**28/01/2026**

Client Details:

CAULMERTS

Site Details:

PRESTATYN ROAD
LL19 9LY

Contractor Details:

Conwy Drainage Solutions Ltd
6 Cwrt Y Rhos, Old Colwyn
Colwyn Bay
Conwy
LL29 8EJ

Purpose of Survey:

Conwy Drainage Solutions Ltd
6 Cwrt Y Rhos, Old Colwyn
Colwyn Bay
Conwy
LL29 8EJ

Job Number	Surveyed by (Operator)	Base Unit	Date
28/1/26	**STEVE**	**1AO6WLAC5Q**	**28/01/2026**

Report Contents

Conwy Drainage Solutions Ltd
6 Cwrt Y Rhos, Old Colwyn
Colwyn Bay
Conwy
LL29 8EJ

Defect Grade Descriptions

Job Number	Surveyed by (Operator)	Base Unit	Date
28/1/26	**STEVE**	**1AO6WLAC5Q**	**28/01/2026**

1: Occurences without damage. For example, laterals, joints,etc.

NO DEFECTS WERE DETECTED.

2: Constructional deficiencies or occurences with insignificant influence to tightness, hydraulic or static pressure or pipe: Eg. wide joints, badly torched intakes, minor deformation of plastic pipes, minor erosions etc.

REHABILITATION CAN BE SCHEDULED LONG-TERM.

3: Constructional deficiencies diminishing static, hydraulic and tightness: Eg. untorched intakes, cracks, minor drainage obstructions such as calcite build ups, protruding laterals, minor damages to pipe wall, individual root penetrations, corroded pipe walls etc.

REHABILITATION IS NECESSARY MEDIUM-TERM WITHIN 3 TO 5 YEARS.

4: Constructional damages with insufficent static safety, hydraulic or tightness: Eg. axial/radial pipe bursts, pipe deformations, visually noticeable infiltration/exfiltration, cavities, in pipe-wall, severe protruding, laterals severe root penetrations, severe corrosion of pipe wall etc.

REHABILITATION PROCEDURE IS URGENT AND HAS TO BE COMPLETED WITHIN 1 TO 2 YEARS. NECESSITY FOR EMERGENCY OPERATIONS HAS TO BE EXAMINED.

5: Pipe is already or will shortly be impermeable: Eg. collapsed pipe, deeply rooted pipe or other drainage obstructions. Pipe loses water or danger of backwater in basements etc.

REHABILITATION IS URGENT AND SHORT-TERM. IN ORDER TO PREVENT FURTHER DAMAGE, NECESSARY TEMPORARY SPOT REPAIR HAS TO BE CONDUCTED ON EMERGENCY LEVEL.

Report Summary

Conwy Drainage Solutions Ltd
6 Cwrt Y Rhos, Old Colwyn
Colwyn Bay
Conwy
LL29 8EJ

Job Number	Surveyed by (Operator)	Base Unit	Date
28/1/26	**STEVE**	**1AO6WLAC5Q**	**28/01/2026**

Job Information

Total Distance Surveyed: **90.37 meters**
Engineer: **STEVE**
Number of Surveys: **2**
Number of Surveys grade 4 or above: **0**

Section 1 Overview (28/01/2026)

Manholes: **MH1 to MH2**
Pipe Length: **39.21 metres**
Structural Grade: **0**
Service Grade: **0**
Material: **Concrete**
Pipe Size: **900mm**
Use: **Surface water**

Section 2 Overview (28/01/2026)

Manholes: **MH2 to MH3**
Pipe Length: **51.16 metres**
Structural Grade: **0**
Service Grade: **0**
Material: **Concrete**
Pipe Size: **900mm**
Use: **Surface water**

CCTV Inspection Report

Conwy Drainage Solutions Ltd
6 Cwrt Y Rhos, Old Colwyn
Colwyn Bay
Conwy
LL29 8EJ

Surveyed by (Operator)	Job Number	Pipe Length Reference(PLR)	Date	Pre Cleaned
STEVE	**28/1/26**	**MH1 X**	**28/01/2026**	**Not Cleaned**
Weather	Customer Present	Service Grade/Structural Grade	Base Unit	Section Number
1 - Dry		**0/0**	**1AO6WLAC5Q**	**1**

Road **PRESTATYN ROAD**
Place **LL19 9LY**
Location

Division
District
Location Details

Purpose
Duty **Surface water**
Catchment

Shape/Size **900mm**
Material **Concrete**
Category

Start Node **MH1**
End Node **MH2**
Total length **39.21 metres**

Scale **1:2.06**
Direction **Downstream**

View via iTouch Live | Download

Start Node Ref:MH1 | I/L : metres | Depth: 3.4 metres

Position	Code	Description	Photo	Type/Grade
0.00	MH	Start node type, manhole, reference MH1	14062792	Comment / 0
0.00	WL	Water level 0% height/diameter	14062793	Comment / 0
39.21	MHF	Finish node type, manhole, reference MH2	14062950	Comment / 0

End Node Ref:MH2 | I/L : metres

Conwy Drainage Solutions Ltd
6 Cwrt Y Rhos, Old Colwyn
Colwyn Bay
Conwy
LL29 8EJ

CCTV Inspection Photos

Job Number	Surveyed by (Operator)	Base Unit	Date
28/1/26	**STEVE**	**1AO6WLAC5Q**	**28/01/2026**

Start node type, manhole, reference MH1

Water level 0% height/diameter

Finish node type, manhole, reference MH2

CCTV Inspection Report

Conwy Drainage Solutions Ltd
6 Cwrt Y Rhos, Old Colwyn
Colwyn Bay
Conwy
LL29 8EJ

Surveyed by (Operator)	Job Number	Pipe Length Reference(PLR)	Date	Pre Cleaned
STEVE	**28/1/26**	**MH2 X**	**28/01/2026**	**Not Cleaned**
Weather	Customer Present	Service Grade/Structural Grade	Base Unit	Section Number
1 - Dry		**0/0**	**1AO6WLAC5Q**	**2**

Road **PRESTATYN ROAD**
Place **LL19 9LY**
Location

Division
District
Location Details

Purpose
Duty **Surface water**
Catchment

Shape/Size **900mm**
Material **Concrete**
Category

Start Node **MH2**
End Node **MH3**
Total length **51.16 metres**

Scale **1:2.69**
Direction **Downstream**

View via iTouch Live | Download

Start Node Ref:MH2 | I/L : metres

Position	Code	Description	Photo	Type/Grade
0.00	MH	Start node type, manhole, reference MH2	14062985	Comment / 0
0.00	WL	Water level 0% height/diameter	14062986	Comment / 0
51.16	MHF	Finish node type, manhole, reference MH3	14063157	Comment / 0

End Node Ref:MH3 | I/L : metres

Conwy Drainage Solutions Ltd
6 Cwrt Y Rhos, Old Colwyn
Colwyn Bay
Conwy
LL29 8EJ

CCTV Inspection Photos

Job Number	Surveyed by (Operator)	Base Unit	Date
28/1/26	**STEVE**	**1AO6WLAC5Q**	**28/01/2026**

Start node type, manhole, reference MH2

Water level 0% height/diameter

Finish node type, manhole, reference MH3

Conwy Drainage Solutions Ltd
6 Cwrt Y Rhos, Old Colwyn
Colwyn Bay
Conwy
LL29 8EJ

Structural Defects (SRM 4)

Job Number	Surveyed by (Operator)	Base Unit	Date
28/1/26	**STEVE**	**1AO6WLAC5Q**	**28/01/2026**

No.	PLR	Dir.	Use	Shape/Size	Date	Mat.	Total Length	Inspection Length	Cat.	Peak Score	Grade	Mean Score	Total Score
1	MH1 X	D	S	900	28/01/2026	Concrete	39.21 metres	39.21		0	1	0	0
2	MH2 X	D	S	900	28/01/2026	Concrete	51.16 metres	51.16		0	1	0	0

Conwy Drainage Solutions Ltd
6 Cwrt Y Rhos, Old Colwyn
Colwyn Bay
Conwy
LL29 8EJ

Service Defects (SRM 4)

Job Number	Surveyed by (Operator)	Base Unit	Date
28/1/26	**STEVE**	**1AO6WLAC5Q**	**28/01/2026**

No.	PLR	Dir.	Use	Shape/Size	Date	Mat.	Total Length	Inspection Length	Cat.	Peak Score	Grade	Mean Score	Total Score
1	MH1 X	D	S	900	28/01/2026	Concrete	39.21 metres	39.21		0	1	0	0
2	MH2 X	D	S	900	28/01/2026	Concrete	51.16 metres	51.16		0	1	0	0

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

Mr Jonathan Sykes
Caulmert
Optic Centre
St Asaph
Denbighsire
LL17 0JD

Date: 23/08/2024
Our Ref: PPA0008877

Dear Mr Sykes

Grid Ref: 307175 383091
Site Address: Bodnant Avenue, Prestatyn, Denbighshire
Development: Bodnant Avenue

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.

APPRAISAL

Firstly, we note that the proposal relates to 62 dwellings at Bodnant Avenue and acknowledge that the site comprises of a potential windfall development with no allocated status in the Local Development Plan (LDP). Accordingly, whilst it does not appear an assessment has been previously undertaken of the public sewerage and watermains systems, we offer the following comments as part of our appraisal of this development.

Public Sewerage Network

The proposed development site is located in the immediate vicinity of a mixed sewerage system, comprising foul and surface water public sewers, which drains to Llanasa Wastewater Treatment Works (WwTW).

Asset Protection

This site is crossed by a public watermain with the approximate position being marked on the attached Statutory Public Sewer Record. In accordance with the Water Industry Act 1991, Dwr Cymru Welsh Water requires access to its apparatus at all times in order to carry out maintenance and repairs. No part of any building will be permitted within the protection zone of the public watermain measured 3 metres either side of the centreline of the 6" public watermain. Our strong recommendation is that your site layout takes into account the location of the assets crossing the site and should be referred to in any master-planning exercises or site layout plans submitted as part of any subsequent planning application. Further information regarding Asset Protection is provided in the attached Advice & Guidance note.

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.

Surface Water Drainage

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'. As highlighted in these standards, the developer is required to explore and fully exhaust all surface water drainage options in accordance with a hierarchy which states that discharge to a combined sewer shall only be made as a last resort. Disposal should be made through the hierarchical approach, preferring infiltration and, where infiltration is not possible, disposal to a surface water drainage body in liaison with the Land Drainage Authority and/or Natural Resources Wales.

It is therefore recommended that the developer consult with Denbighshire County Council, as the determining SuDS Approval Body (SAB), in relation to their proposals for SuDS features. Please note, DCWW is a statutory consultee to the SAB application process and will provide comments to any SuDS proposals by response to SAB consultation. Please refer to further detailed advice relating to surface water management included in our attached Advice & Guidance note.

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.

Foul Water Drainage – Sewerage Network

We have considered the impact of foul flows generated by the proposed development and concluded that flows can be accommodated within the public sewerage system. We advise that the flows should be connected to the foul sewer between manholes SJ07831001 and SJ07830003 located to the south. 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.

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.

Foul Water Drainage – Sewage Treatment

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

Potable Water Supply

Capacity is currently available in the water supply system to accommodate the development. Initial indications are that a connection can be made from the 6" diameter watermain in the site boundary. We reserve the right however to reassess our position as part of the formal application for the provision of new water mains under Section 41 and Section 51 of the Water Industry Act (1991) to ensure there is sufficient capacity available to serve the development without causing detriment to existing customers' supply as demands upon our water systems change continually.

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,

Rhys Evans
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.*

Dŵr Cymru
Welsh Water

1500

N
W E
S

LEGEND(Representative of most common features)

Waste network:

- Foul chamber
- Surface water chamber
- Combined chamber
- Combined sewer overflow
- Special purpose chamber
- Treatment works
- Pumping station
- Outfall
- Lamphole
- Storm Overflow
- Rising main
- Gravity sewer
- Private sewer
- Private sewer subject to Sect. 104 adoption agreement
- Private Sewer Transfer
- Lateral Drain
- Inspection Chamber

NB: Sewer symbol colour indicates the type.

RED - Combined
GREEN - Surface Water
BROWN - Foul
Purple - Former S24 sewers (for indicative purposes only)

Notes:

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF) . It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation

Dŵr Cymru Cyfyngedig ('the Company') gives this information as to the position of its underground apparatus by way of general guidance only and on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon in the event of excavations or other works made in the vicinity of the company's apparatus. The onus of locating apparatus before carrying out any excavations rests entirely on you. The information which is supplied by the Company, is done so in accordance with statutory requirements of sections 198 and 199 of the Water Industry Act 1991 which is based upon the best Information available and, in particular, but without prejudice to the generality of the foregoing, it should be noted that the records that are available to the Company may not disclose the existence of a water main, service pipe, sewer, lateral drain or disposal main and any associated apparatus laid before 1 September 1989, or, if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of this information is entirely without prejudice to the provision of the New Roads and Street Works Act 1991 and the Company's right to be compensated for any damage to its apparatus.

Service pipes are not generally shown but their presence should be anticipated.

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

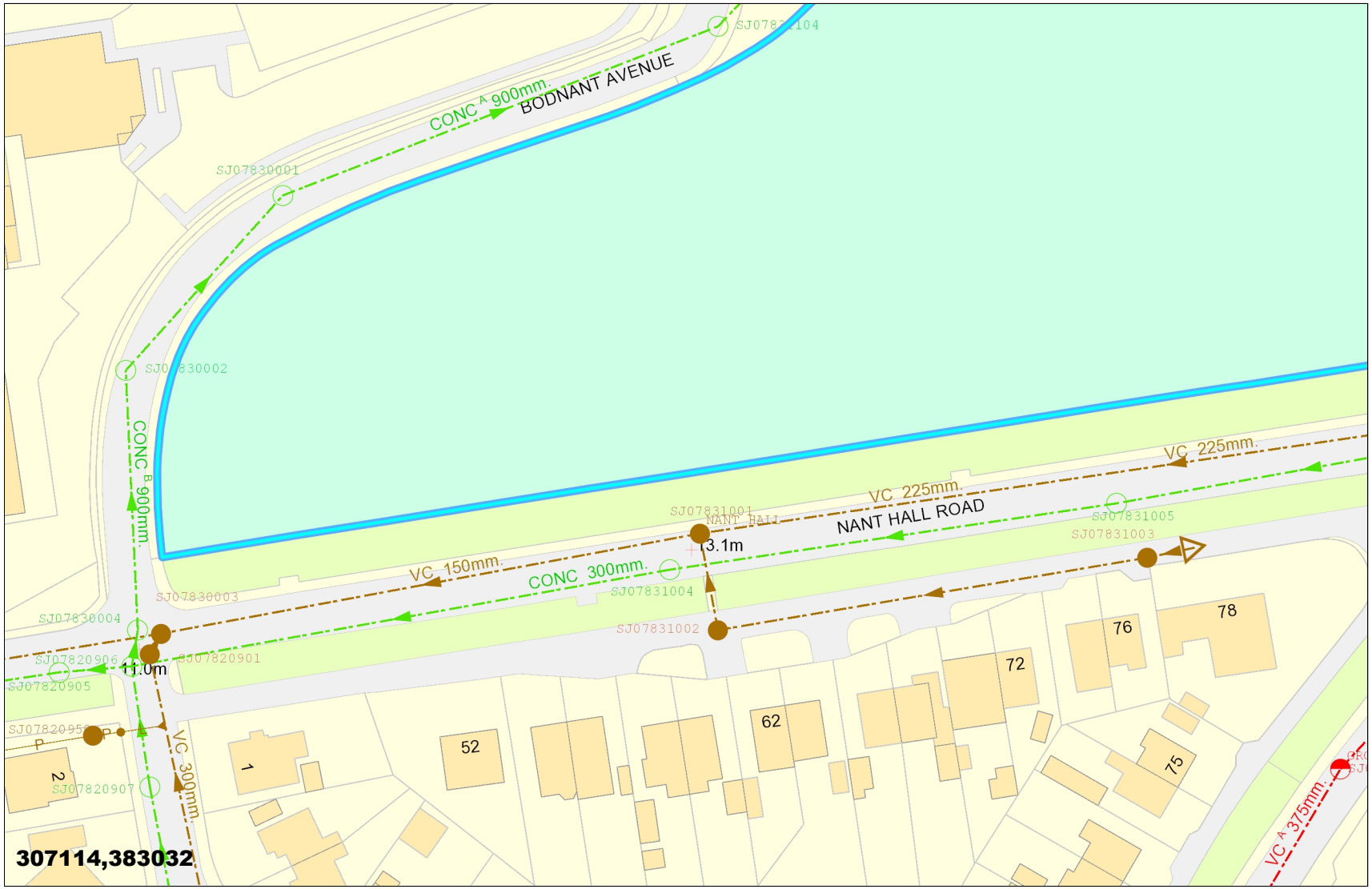
Map Ref:	307165,383102
Map scale:	1:1500
Printed by:	David Hubbard
Printed on:	29 Aug 2024

Dŵr Cymru
Welsh Water

SJ07831001 sewers

03/09/2024

Scale: 1: 1000



LEGEND

Clean Water

- Sluice Val
- Air Val, SINGLE
- Tap
- Pressure Reducing Valve
- Meter
- BULK Meter
- FH
- Cap
- Existing Main
- NON COMPANY

Sewerage External

- Foul
- Surface Water
- Combined
- Rising Main
- Private
- Treatment Works
- Pumping Station
- Special Purpose
- Unknown End
- Change, Combined Overflow
- Outfall, FOUL
- Lamp Hole, Foul
- Private Sewer Transfer
- Lateral Drain
- Inspection Chamber

EXACT LOCATION OF ALL APPARATUS TO BE DETERMINED ON SITE

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be Asbestos Cement (AC) or Pitch Fibre (PF). It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation

APPENDIX 3

Development Layout

14x	2P1B FLAT	53m²
8x	3P2B BUNGALOW	58m²
19x	4P2B HOUSE	83m²
9x	5P3B HOUSE	93m²
10x	5P3B CORNER HOUSE	93m²
2x	7P4B HOUSE	114m²

TOTAL - 62 PLOTS

TOTAL SITE AREA - 25019m²

Prestatyn Road

Ffordd Parc Bodnant

Play Area

Public Open Space 2360m²

Caravan Park

Benches

Assumed line of water main

6m easement

15000

Pumping Station to Engineer's Details

Attenuation Basin to Engineer's Details

Amenity Space 410m²

Infiltration Trench

New Site Access Refer to Ashley Helme Associates drawings

Bodnant Community School

Amenity Space 180m²

Bodnant Avenue

Root Protection Areas

Woodland Walk

Amenity Space 1050m²

Nant Hall Road / Fford Llys Nant

New Access Point

N 383,000.000 m
E 307,025.000 m

Mostyn Ave

Gronant Rd

LB

6000

Nant Mill Cottage

The Coach House

Proposed Sub Station

Existing Sub Station

Existing Vehicular Access to Sub Station

REV	DESCRIPTION	DATE	BY
C	PAC ISSUE	20/03/26	AL
B	EASEMENT ANNOTATED	27/02/26	ED
A	UPDATED RED LINE BOUNDARY	05/11/25	ED

PROJECT

BODNANT AVE, PRESTATYN
for ADRA

DRAWING TITLE

PROPOSED SITE LAYOUT

SCALE	DATE	DRAWN	CHECKED
1 : 500 @A1	24/10/24	ED	SV

DRAWING STATUS: PLANNING

JOB No	DRAWING No	REVISION
C1148	010	C

AINSLEY GOMMON ARCHITECTS
THE OLD POLICE STATION, 15 GLYNNE WAY, HAWARDEN, CH5 3NS
Tel: 01244 537 100 | wales@agarchitects.co.uk | www.agarchitects.co.uk
Ainsley Gommon Architects Ltd. Registered in England & Wales No.4187948
Registered Office: 1 Price Street, Hamilton Square, Birkenhead CH41 6JN

PRINTED: 19/03/2026 10:34:55

A1

PROPOSED SITE LAYOUT

SCALE: 1 : 500

0m 10m 20m 30m 40m 50m

VISUAL SCALE 1:500 @ A1

N

APPENDIX 4

Proposed Drainage

PROPOSED INFILTRATION BASIN PROVIDING 737m³ STORAGE FOR THE 1 IN 100 YEAR EVENT +30% FOR CLIMATE CHANGE.
SIDE SLOPES TO BE 1 IN 3 GRADIENTS.
TOP OF BASIN = 7.134m
TOP OF WATER LEVEL = 7.056m (1 IN 100YR + 30%CC)
BASIN BASE = 4.834m
INFILTRATION RATE = 0.036 m/hr
SAFETY FACTOR = 5
(POND TAKES PLACE OF PIPE 1.011)

SW26
HYDRO-BRAKE FLOW CONTROL CHAMBER
DESIGN HEAD = 1.3m
DESIGN FLOW = 3.7 l/s

SW25
POND OUTLET HEADWALL

SW24
POND INLET HEADWALL

SW15
FLOW CONTROL CHAMBER, 175mmØ ORIFICE

INFILTRATION TRENCH PROVIDING 27m³ STORAGE FOR 1 IN 100 YEAR EVENT +20% FOR CLIMATE CHANGE.
TRENCH DEPTH = 1.0m MIN.
TRENCH WIDTH = 2.0m
INFILTRATION RATE = 0.036 m/hr
SAFETY FACTOR = 5

PROPOSED TYPE 3 PUMPING STATION INDICATIVE LOCATION

15m BUFFER ZONE (TBC BY DCWW)- MINIMUM DISTANCE FROM WET WELL TO HABITABLE BUILDING

FW22
RISING MAIN BREAK CHAMBER

FW23
NEW CONNECTION TO EXISTING FW PIPE

EXISTING SW MANHOLE

EXISTING FW MANHOLE

SW27_OUT
EXISTING SW MANHOLE

Bodnant Community School

Ffordd Parc Bodnant

Prestatyn Road

Public Open Space 2330m²

Caravan Park

Nant Isaf Cottage

The Coach House

Bodnant Ave

Nant Isaf Road / Ffordd Cae Nant

Proposed Sub-Station

Existing Sub-Station

NOTES

1. DO NOT SCALE FROM THIS DRAWING, WORK FROM FIGURED DIMENSIONS ONLY. ALL DIMENSIONS ARE IN METRES AND ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM UNLESS NOTED OTHERWISE.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALIST DRAWINGS AND SPECIFICATIONS.

SURFACE WATER STRATEGY

1. ALL ROADS WILL DRAIN TO THE INFILTRATION BASIN.
2. HIGHLIGHTED SEWERS WILL DRAIN VIA. THE INFILTRATION TRENCH AND A FLOW CONTROL WILL BE PROVIDED DOWNSTREAM OF THE TRENCH TO RESTRICT FLOWS TO THE INFILTRATION BASIN
3. PROPERTIES HIGHLIGHTED WILL DRAIN TO PRIVATE SOAKAWAYS. ALL OTHER PROPERTIES WILL DRAIN DIRECTLY TO THE INFILTRATION BASIN.
4. THE INFILTRATION BASIN AND INFILTRATION TRENCH HAVE BEEN SIZED USING WORST CASE INFILTRATION RATE OF 0.036 m/hr WITH A SAFETY FACTOR OF 10.

LEGEND

- PROPOSED SURFACE WATER SEWER
- PROPOSED FOUL WATER SEWER
- PROPOSED FOUL WATER RISING MAIN
- EXISTING SURFACE WATER SEWER
- EXISTING FOUL WATER SEWER
- PROPOSED SURFACE WATER CHAMBER
- PROPOSED FOUL WATER CHAMBER
- EXISTING SURFACE WATER CHAMBER
- EXISTING FOUL WATER CHAMBER
- PROPOSED SURFACE WATER SEWER DRAINING TO INFILTRATION TRENCH
- PROPOSED INFILTRATION TRENCH
- PROPOSED FOUL WATER EASEMENT ZONE 3.0m EACH SIDE (6.0m TOTAL WIDTH)
- TREE WITH ROOT PROTECTION ZONE
- G PROPOSED ROAD GULLY
- DG PROPOSED DOUBLE ROAD GULLY
- SITE BOUNDARY

P04	FOUL RISING MAIN ADDED. EXISTING DRAINAGE ADDED	JE	NO	NO	25.03.26
P03	DRAINAGE LAYOUT UPDATED TO SUIT CURRENT ARCHITECTS SITE PLAN. FOUL WATER ADDED.	JE	NO	NO	10.03.26
P02	BASIN UPDATED. OUTFALL ADDED	JE	JES	JES	01.09.25
P01	ISSUED FOR INFORMATION	CR	JES	JES	04.02.25
REV	MODIFICATIONS	BY	RE	AP	DATE

PURPOSE OF ISSUE: FOR INFORMATION — STATUS: S2

CLIENT: Adra

PROJECT: BODNANT AVENUE, PRESTATYN

TITLE: PROPOSED DRAINAGE GENERAL ARRANGEMENT CONCEPT LAYOUT

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
CR	CR	JES	JES
DATE	SCALE @ A1	JOB REF:	REVISION
JAN. 25	1:500	5986	P04

DRAWING NUMBER: 5986-CAU-XX-XX-DR-C-1600

Caulmert engineering environmental planning

WWW.CAULMERT.COM

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319

APPENDIX 5

Greenfield Run Off Calculations

Greenfield runoff rate estimation tool

www.uksuds.com | Greenfield runoff rate estimation tool (https://www.uksuds.com/)

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	23/03/2026
Calculated by	Jim Emmerson
Reference	5986 - Bodnant Avenue
Model version	2.2.3

Location

Site name	Bodnant Avenue
Site location	Prestatyn

Site easting (British National Grid)	307178
Site northing (British National Grid)	383098

Site details

Total site area (ha)	1.95 ha

Greenfield runoff

Method

Method	IH124

IH124

	My value		Map value
SAAR (mm)	718 mm		718
How should SPR be derived?	WRAP soil type		
WRAP soil type	2		2
SPR	0.3		
QBar (IH124) (l/s)	3.7 l/s		

Growth curve factors

	My value		Map value
Hydrological region	9		9
1 year growth factor	0.88		
2 year growth factor	0.93		
10 year growth factor	1.42		
30 year growth factor	1.78		
100 year growth factor	2.18		
200 year growth factor	2.46		

Results

Method	IH124	
Flow rate 1 year (l/s)	3.2	l/s
Flow rate 2 year (l/s)	3.4	l/s
Flow rate 10 years (l/s)	5.2	l/s
Flow rate 30 years (l/s)	6.5	l/s
Flow rate 100 years (l/s)	8.0	l/s
Flow rate 200 years (l/s)	9.0	l/s

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent 'zero' figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

APPENDIX 6

Pollution Index Calculations

CALCULATION SHEET

Client:	Site:	Project:	Caulmert
ADRA	Bodnant Avenue	Drainage Design	

Made by:	Date:	Checked by:	Date:	Sheet no.:
Jim Emmerson	24.03.26	Nick Owen	24.03.26	1

Water Quality Summary

Water quality assessed using Simple Index Approach as described in Section 26.7.1 of the SuDS Manual.

Land Use Type	low traffic road (residential)	residential Parking	Residential Roof	
Pollution Hazard Level	Low	Low	Very Low	
Pollution Hazard Indices				
TSS	0.50	0.50	0.20	
Metals	0.40	0.40	0.20	
Hydrocarbons	0.40	0.40	0.05	
SuDS components proposed				
Component 1	Filter Drain	Permeable Paving	Filter Strip	
Component 2	Infiltration Basin	Infiltration Basin	Infiltration Basin	
Component 3				
SuDS Pollution Mitigation Indices				
TSS	1.1	1.4	1.1	
Metals	1.1	1.3	1.1	
Hydrocarbons	0.9	1.2	0.9	
Groundwater Protection Type	None	None	None	
GW protection Pollution Mitigation Indices				
TSS	0	0	0	
Metals	0	0	0	
Hydrocarbons	0	0	0	
Combined Pollution Mitigation Indices				
TSS	1.1	1.4	1.1	
Metals	1.1	1.3	1.1	
Hydrocarbons	0.9	1.2	0.9	
Acceptability of Pollution Mitigation				
TSS	Sufficient	Sufficient	Sufficient	
Metals	Sufficient	Sufficient	Sufficient	
Hydrocarbons	Sufficient	Sufficient	Sufficient	

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p

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