Land off Tenby Road, St Clears

Drainage Strategy Report

Client: Draycott Group
Project Ref: CC2610
Report status: S2 Rev P01

CAMBRIA

Report Control Sheet

Client	Draycott Group
Project	Land off Tenby Road, St Clears
Project ref	CC2610
Document title	Drainage Strategy Report
Document reference	CC2610-CAM-52-XX-RP-C-0001
Prepared by	J Drewitt BEng (Hons) GMICE
Reviewed and authorised by	B Whyman MEng (Hons) GMICE MCIHT

Document naming protocol

Project Ref.	Originator	Vol.	Level	Type	Role	Number
CC2610	CAM	52	XX	RP	C	0001

Current issue

Status	Date	Description	Prepared by	Authorised by
S2-P01	01/11/24	Issue for Pre-SAB (CC2610-CAM-52-XX-RP-C-0001)	J Drewitt	B Whyman

Contents

Figures

1 Introduction

1.1.1 Cambria Consulting Ltd have been appointed by Draycott Group to develop a Drainage Strategy Report in support of a planning and SAB application for the development of a residential development off Tenby Road, St Clears.

1.1.2 As a result of the enactment of Schedule 3 of the Flood Management Act 2010 by Welsh Government, the development will require Sustainable Drainage (SuDS) approval, as well as planning approval, to be constructed.

1.1.3 The objectives of this report are:

- Identify a suitable discharge strategy for the Surface Water and Foul Water from the proposed development.
- Undertake hydraulic calculations to identify appropriate discharge rates and attenuation requirements.
- Consult with the SAB regarding the proposals.
- Provide a schematic layout of the proposed foul and surface water drainage proposals.
- Demonstrate compliance with the National SuDS standards.

2 Site Description

2.1 Site Location

2.1.1 St Clears is located 13.5km West Southwest of Camarthen. The nearest postcode is SA33 4JN and the Ordnance Survey Grid Reference is 227481E, 216343N. The site area is approximately 4.76ha.

2.1.2 The site is bordered by agricultural farmland to the North, East and West. There is a Service Station to the Southwest and commercial buildings to the Southeast. Tenby Road and adjacent dwellings lie to the South of the site.

2.1.3 The site can be accessed via Tenby Road which can be accessed from the A40 or A477.

2.1.4 There are no known existing utilities underlying the site.

2.1.5 A site location plan is shown in Figure 2-1 below.

Figure 2-1 – Site location plan (Google Earth)

2.2 Topography

2.2.1 Zenith Land Surveys LTD conducted a Topographical survey on 1 August 2023.

2.2.2 The site slopes from the Northwest to the Southeast. Hedgerows and trees surround the agricultural farmland. There is an existing hedgerow with trees between the two fields. The highest existing elevation is 46.52mAOD in the Northwest and the lowest existing elevation is 21.16mAOD to the Southeast.

2.2.3 The topographic survey drawings are included in *Appendix A*.

2.3 Ground Conditions

2.3.1 An intrusive ground investigation was undertaken by Terra Firma (TF) from 2nd to the 4th July which comprised 10 Dynamic Cone Penetrometer tests and 25 trial pits with 5 soakaway tests. The Geotechnical and Geoenvironmental report was published on August 2024 (Ref: 130824-TF-24-252-CA-02).

2.3.2 All five of the BRE365 soil infiltration soakaway tests that were undertaken failed to demonstrate sufficient infiltration and had to be terminated early. Therefore, an insufficient infiltration rate was calculated. It is assumed that an infiltration solution is not viable for the site and lower priority levels will need to be explored.

2.3.3 Groundwater was not encountered during the Intrusive Ground Investigation. Trial pits on site were to a maximum depth of 3m, so it is considered that the groundwater levels on site are less than 3m BGL.

2.3.4 Made ground is anticipated to the Southwest of the site near to the constructed road to the existing service station. Made ground was also found within three trial pits at a depth of 0.25 – 0.4m.

2.3.5 A significant pollution incident occurred 26m East of the site in March 1995 with Farm effluent/slurry and another 63m South where specific waste material containers had significant impact on water. It is considered that the main potential sources of contamination could occur from either made ground or contaminated soils or bedrock. Radon gas is considered a medium risk that can be mitigated with basic radon gas protection measures.

2.3.6 An exceedance of a speciated PAH (Dibenzo(ah)anthracene) was found during soil testing within the made ground of TP02. It is considered that this will be resolved during the site topsoil strip, with made ground to be disposed of at a suitably licensed landfill site. Alternatively, it is recommended that the area around TP02 is capped by the proposed buildings and hardstandings to prevent access.

2.4 Flood Risk

2.4.1 The site lies within Flood Zone A and Flood Zone 1 of the Natural Resources Wales (NRW) Development Advice Map and NRW Flood Map for Planning. The NRW Flood Map for Planning shows a small extent of High flooding risk from surface water and small watercourses just North of Tenby Road and South of plots 1 & 2. It is considered that this area is at the location of the recently culverted open ditch and so it is considered appropriate that flood risk is mapped at this location.

2.4.2 It is considered that in extreme rainfall events, overland flows could occur from adjacent fields. These are unmapped events. Site proposals will include land drainage at the perimeter of plots and at the Southern perimeter of the site to mitigate against this scenario.

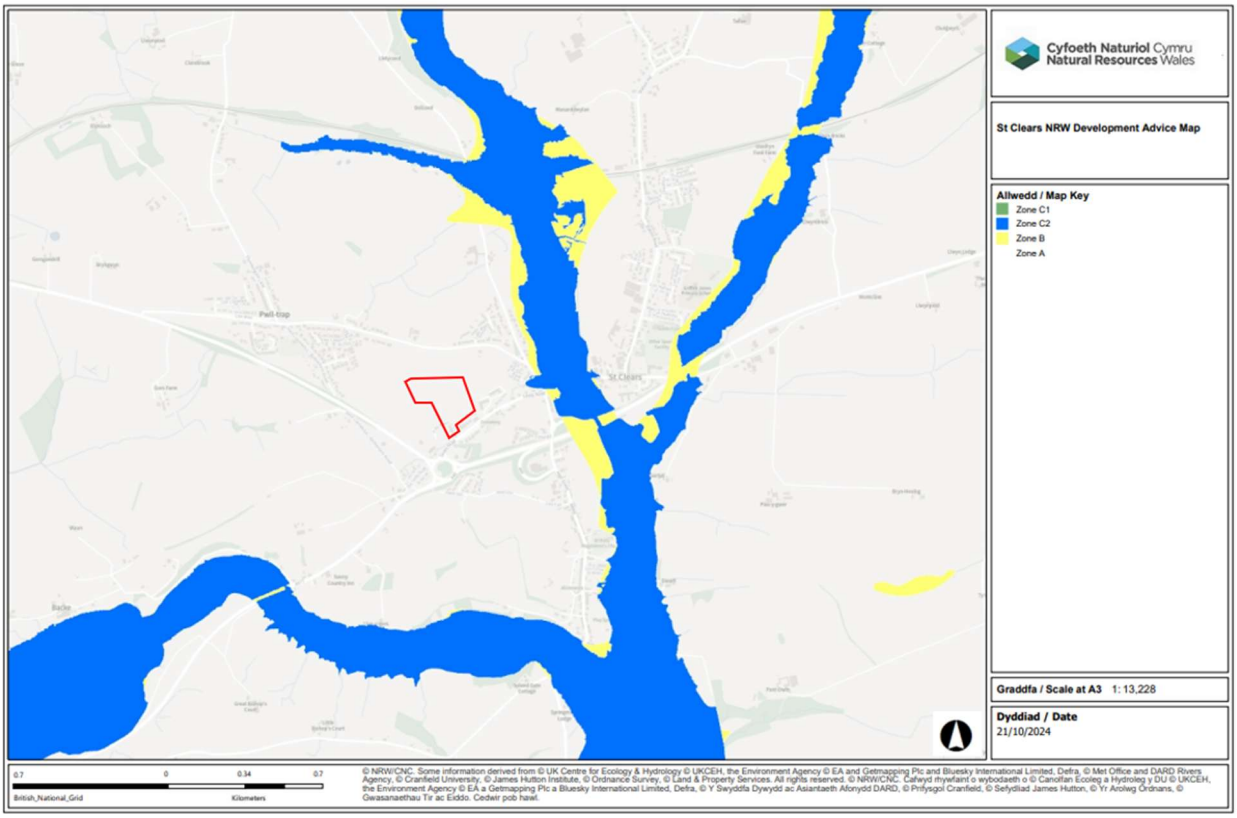

Figure 2-2 – Extract from NRW Development Advice Map

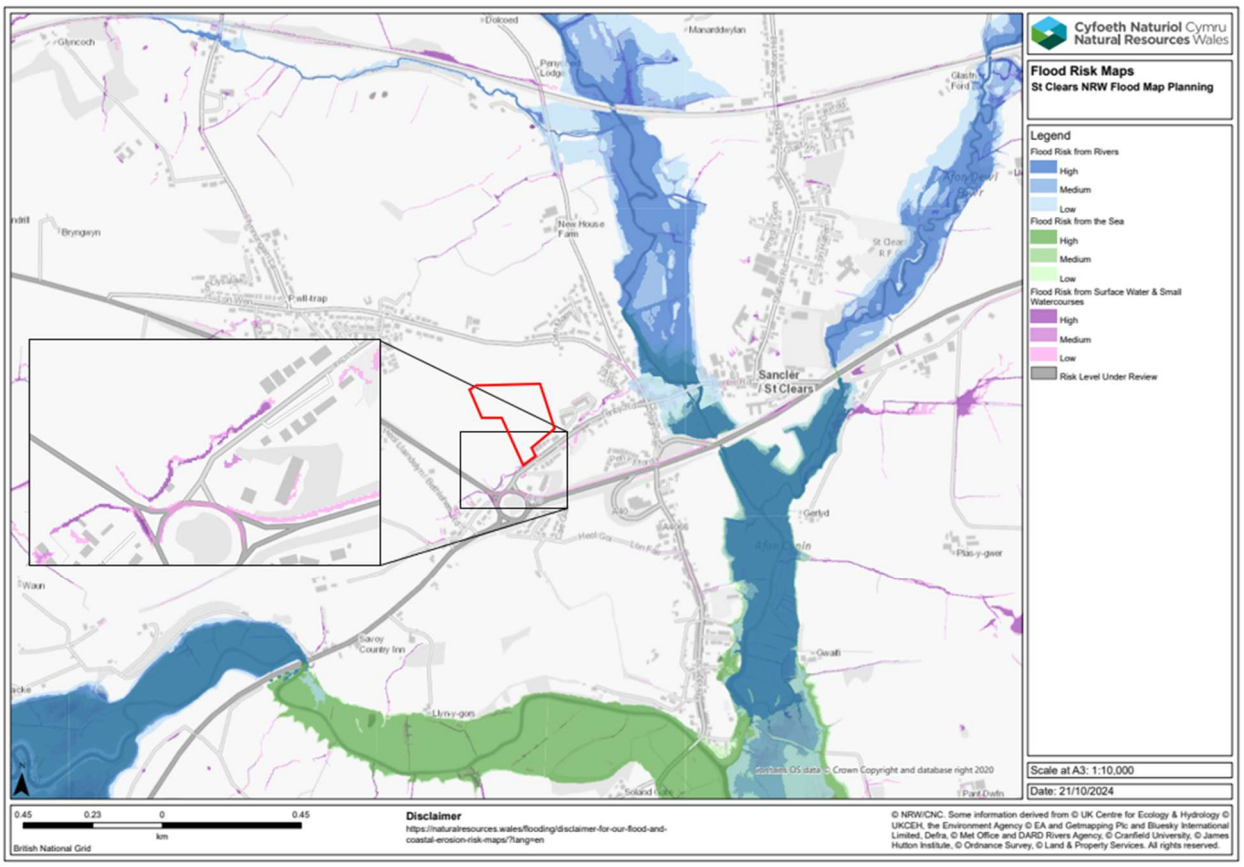

Figure 2-3 – Extract from NRW Flood Map for Planning

2.5 Proposed Development

2.5.1 Full planning permission is to be sought for the proposed construction of 115 new dwellings, which are to be constructed on existing greenfield land North of Tenby Road.

2.5.2 The proposed development will comprise roads and footways, car parking spaces, dwellings and gardens, children's play areas and green space. The existing ditches will be retained. The trees and vegetation between/surrounding the two fields will be retained.

2.5.3 The proposed site layout design has been produced by Hammond Architectural Ltd, an extract of the layout is shown in Figure 2-4 below and included in *Appendix B*.

Figure 2-4 –Planning Layout (Hammond Architectural Ltd)

3 Existing Drainage

3.1.1 The site is currently drained by adjacent drainage ditches. There is a drainage ditch along the Southwest boundary of the site and another near the Southeastern corner which capture surface runoff from the site. The existing site contours suggest a longitudinal depression along the southern boundary of the northern field and diagonally across the southern half of the Southern field that could constitute a drainage ditch/channel.

3.1.2 A Utility survey has not been completed for the greenfield site at this stage. Prior to construction, a CCTV survey for the connecting surface water manhole will need to be undertaken to ascertain the condition of the chamber. The chamber was constructed recently as part of the service station development to the Southwest, so the chamber should be in good working condition.

3.1.3 An existing surface and foul water drainage network was constructed as part of the recent Commercial development to the Southwest of the Proposed site. Manhole and stub connections for the Proposed site were constructed as part of the St Clears McDonalds & Greggs project in the existing access road to the proposed site.

3.1.4 The existing surface water drainage network runs South in the existing road towards Tenby Road into an oversized 1200mm dia. pipe where surface runoff is attenuated. Runoff discharges East of the road at 2.1l/s into the existing surface water culvert/ditch adjacent to Tenby Road.

3.1.5 The existing foul water drainage network conveys flows South to the Existing DCWW manhole (EXMH SN27164101).

3.1.6 A construction drawing is attached in *Appendix D* for information.

4 Surface Water Drainage

4.1.1 In October 2018, Welsh Government published the 'Statutory standards for sustainable drainage systems – designing, constructing, operating, and maintaining Surface Water Drainage Systems'. This standard is now mandatory for new developments with either a construction area greater than 100m² or more than 1 dwelling.

4.1.2 The principles that underpin the design of surface water management schemes to meet the standards area as follows:

- Manage water on or close to the surface and as close to the source of the runoff as possible;
- Treat rainfall as a valuable natural resource
- Ensure pollution is prevented at source, rather than relying on the drainage system to treat or intercept it;
- Manage rainfall to help protect people from increased flood risk, and the environment from morphological and associated ecological damage resulting from changes in flow rates, patterns and sediment movement caused by the development;
- Take account of likely future pressures on flood risk, the environment and water resources such as climate change and urban creep;
- Use the SuDS Management Train, using drainage components in series across a site to achieve a robust surface water management system (rather than using a single "end of pipe" feature, such as a pond, the serve the whole development);
- Maximise the delivery of benefits for amenity and biodiversity;
- Seek to make the best use of available land through multifunctional usage of public spaces and the public realm;
- Perform safely, reliably and effectively over the design life of the development taking into account the need for reasonable levels of maintenance;
- Avoid the need for pumping where possible;
- Be affordable, taking into account both construction and long-term maintenance costs and the additional environmental and social benefits afforded by the system

4.2 Standard S1 – Surface Water Runoff Destination

4.2.1 This standard reviews the disposal routes for surface water run-off. The destinations are split into 5 levels with level 1 being the most preferential and level 5 being the least preferred and only used in exceptional circumstances.

Priority Level 1: Surface water runoff is collected for use;

4.2.2 The installation of rainwater harvesting tanks is not deemed practical for this proposal, see the below exemption criteria as per the Statutory Standards for SuDS:

- There is no foreseeable demand for non-potable water on the site throughout its design life;
- There is no foreseeable need to harvest water at the site as the relevant water undertakers water resources and drought management plans do not identify potential stresses on mains water supplies;
- The use of rainwater harvesting is not a viable/cost-effective part pof the solution for managing water runoff on the site, taking account of the potential water supply benefits of such a system.

4.2.3 From the above exemption criteria, it is considered that point 2 is in effect; there is no foreseeable need to harvest water at the site.

Priority Level 2: Surface water runoff is infiltrated to ground;

4.2.4 As discussed in Section 2.3, an intrusive investigation has been undertaken by Terra Firma, which has confirmed via BRE 365 Digest infiltration testing, that there was insufficient infiltration recorded within all five soakaway test locations, and it was not possible to calculate a design infiltration rate/soil permeability.

4.2.5 An infiltration-based solution is therefore deemed not suitable for the site. A lower priority level will need to be considered for surface water disposal from the site.

Priority Level 3: Surface water runoff is discharged to a surface water body;

4.2.6 The existing ditch to the Southeast of the site is to be extended and will receive the majority of surface runoff.

Priority Level 4: Surface water runoff is discharged to a surface water sewer, highway drain or other drainage;

4.2.7 Not considered, a higher priority level is feasible.

Priority Level 5: Discharge to a Combined Sewer

4.2.8 Not considered, a higher priority level is feasible.

4.3 Standard S2 – Surface Water Hydraulic Control

4.3.1 The Proposed Surface Water Catchment Plan CC2610-CAM-CX-XX-DR-C-0500, included in *Appendix E*, shows a total impermeable catchment area of **20640m²** or **2.064ha**.

4.3.2 The site is undeveloped agricultural farmland. It is therefore proposed to restrict runoff from the proposed development to greenfield runoff rates, to mimic predevelopment conditions. The greenfield runoff rates have been calculated using ReFH2 data, and input into the ReFH2 software to generate the greenfield runoff rate summarized in Table 1 below:

Table 1: Greenfield Runoff Rates (ReFH2)		
Storm Event	**Greenfield Runoff Rate (l/s/ha)**	**Restricted Greenfield Runoff Rates (l/s)**
QBar	**5.31**	**13.30**
1 in 1 year	4.81	11.17
1 in 30 year	11.03	27.75
1 in 100 year	13.86	35.18

4.3.3 The surface water drainage strategy proposes a discharge restriction of QBar 5.31 l/s/ha which equates to ***10.96 l/s*** for the proposed development.

4.3.4 There will be 2no. discharge outfalls from site. One outfall will be located at the Southeastern corner of the Southern field and will serve most of the site. Another outfall will be located further South near the headwall adjacent to Tenby Road and will serve plots 1 & 2. The discharge rate pro-rata for the northern site will be ***10.7l/s***. The southern outfall will discharge at a maximum of ***0.5l/s*** as this is considered a practical and achievable outfall rate with a Hydrobrake flow control device.

4.3.5 Outline attenuation storage volumes have been assessed using the Quick Storage Estimate tool in MicroDrainage. The attenuation requirements for the site are shown in Table 2. The calculations are based on FEH rainfall and CV values of 1. A 10% uplift factor has been applied to account for urban creep.

Table 2: Attenuation Storage Volume Range (1 in 100 year + 40%CC)		
Storm Event	**Minimum Storage Volume (m^3)**	**Maximum Storage Volume (m^3)**
North Catchment (2.220ha w/ urban creep)	1937	3679
South Catchment (0.504ha w/ urban creep)	34	57
Total (2.724ha w/ urban creep)	1971	3736
One-third Design Value	2559	

4.3.6 The attenuation storage will be delivered through a combination of above and below ground features. Attenuation storage will be maximised within shallow raingardens between the proposed footways and dwellings and permeable paving for the car parking bays and low trafficked roads. Three detention basins have been proposed at the southeastern corners of each field. To the north, two basins will comprise a stepped basin arrangement that will assist in providing attenuation and across a slope. To the South, a larger basin has been proposed prior to outfall of surface runoff from site. Due to the site topography and development proposals, not all attenuation storage can be stored above ground, storage will be provided within underground cellular storage crates beneath proposed car parking bays, play areas and green space where appropriate.

4.3.7 Interception of the first 5mm of rainfall has been provided by rain gardens, permeable paving and detention basins.

4.3.8 The Proposed Drainage Strategy, CC2610-CAM-XX-XX-DR-C-1105, is included in *Appendix C.* This shows the principal SuDS areas and general routing of the drainage networks.

4.4 Standard S3 – Water Quality

4.4.1 The sensitivity of the receiving water body (open ditch watercourse) will be agreed with the SAB. Sufficient levels of treatment within a SUDs treatment train will be needed prior to surface water runoff being discharged from site.

4.4.2 The Simple Index Approach method will be adopted to ensure sufficient treatment measures are in place. Due to the site's usage it's likely some areas of the site would be deemed as having medium pollution potential, such as the roads.

4.4.3 A mix of SuDS features are proposed as part of a SuDS management train, including rain gardens and detention basins. Proprietary treatment chambers could be used for locally constrained catchments.

4.5 Standard S4 – Amenity

4.5.1 The integration of above ground SUDs features has been maximised throughout the development. Several planted rain gardens are proposed between the proposed footways and dwellings taking direct runoff from the roof canopies, footways and roads. Downstream detention basins can be planted to provide amenity benefits.

4.6 Standard S5 – Biodiversity

4.6.1 It is proposed that the trees and vegetation surrounding much of the fields will be retained along with what is believed to be an existing drainage ditch South of the Northern field.

4.6.2 The drainage design maximises the use of above ground soft SuDs features on site, which allow ample opportunity for planting within street raingardens and public open spaces, whilst considering the site proposals and levels constraints.

4.7 Standard S6 - Design of drainage for Construction, Operation and Maintenance and Structural Integrity

4.7.1 The SuDS solution will be designed in accordance with the SuDS manual and the site is generally served by shallow SuDS features, reducing the capital cost and long-term maintenance costs of the scheme.

4.7.2 SuDS systems serving more than 1 dwelling will be adopted by the SAB.

4.7.3 Generally, the above ground SuDS features will be dry during normal conditions and limited to 100mm in terms of water depths during extreme events. The proposed Detention Basins are limited to 1m depth with 0.3m freeboard (0.7m water level in the extreme storm event).

4.7.4 Any residual risks associated with the SuDs features will be highlighted within the designer's risk assessment submitted as part of the SuDS application.

5 Foul Drainage

5.1.1 It is considered that the proposed foul water drainage network will connect, via gravity, into the nearby F101 foul water drainage manhole constructed as part of the adjacent Commercial development. F101 lies in the existing access road to the Southwest that links Tenby Road with the Existing Commercial development and the Proposed site.

5.1.2 Plots 1-5 will discharge separately to F103 downstream of F101, due to the site levels constraints.

5.1.3 The connection will be subject to confirmation from Welsh Water there is sufficient capacity within their network. The new adopted network would be delivered via a Section 104 agreement. A Section 106 agreement will be required to connect into the sewerage network.

5.1.4 Proposed Drainage Strategy is shown on CC2610-CAM-XX-XX-DR-C-1105, included in *Appendix C* and the St Clears McDonalds & Greggs Proposed Drainage layout (Sheet 2 of 2) is included in *Appendix D*.

6 Conclusions

6.1.1 An infiltration surface water discharge solution has been discounted on site as a result of the BRE Digest 365 soakaway testing. It is therefore proposed to discharge to the ordinary watercourse to the southeast of the site and the culverted watercourse to the South of the site (for plots 1 & 2), mimicking predevelopment conditions.

6.1.2 The peak surface water discharge for the northern and southern catchments will be restricted to, QBar, ***10.7l/s*** and ***0.5l/s*** respectively and will require attenuation storage of 2518m³ and 42m³ respectively for the 1 in 100 year +40% climate change storm event.

6.1.3 Interception of the first 5mm of rainfall will be provided by permeable paving, rain gardens and detention basins.

6.1.4 The surface water strategy will be subject to SAB approval and further detailed design.

6.1.5 It is proposed that plots 6-115 will discharge via gravity to existing manhole F101 in the existing access road to the Southwest. Plots 1-5 will also discharge via gravity, but to existing manhole F103. These manholes were constructed as part of the recent Commercial development to the Southwest of the proposed site. Connections subject to approval by Welsh Water.

Appendix A: Zenith Land Topographical Survey

Station	Easting	Northing	Level
Z1	227479.264	216207.119	25.742
Z2	227464.097	216242.878	26.894
Z3	227498.228	216310.912	26.365
Z4	227562.265	216365.651	23.938
Z5	227548.536	216406.280	26.019
Z6	227453.746	216403.572	33.607
Z3A	227570.665	216296.767	22.212
Z3A1	227585.796	216279.086	21.730
Z3B	227375.152	216350.638	34.554
Z3C	227434.242	216268.398	28.071
ZA	227305.127	216417.676	43.294
ZB	227316.789	216333.883	37.751

General Survey Legend

- Solid feature as annotated
- Opening in solid feature
- Edge of surface as annotated
- Change in surface gradient
- Top / foot of bank
- Slope indicator
- Hedge line
- Foliage line
- Water line
- Gate
- Electric line
- elp Electric lamp post
- ep Electric pole
- tp Telecom pole
- gas Gas valve
- FH Fire hydrant
- G Gully
- mkr Marker post
- Telecom line
- Surface water sewer
- Foul water sewer
- Unknown sewer type
- sv Sluice valve
- st Stop tap
- sp Sign post
- wm Water cover
- Manhole
- Manhole
- Level as annotated
- Survey Station
- Deciduous tree
- Coniferous tree
- Bush
- ms Multi stem tree

Notes

Survey Grid: Local Plane Grid related to O.S. National Grid at Survey Control Point Z1.
Survey Datum: O.S. Datum Newlyn.
North Point: O.S. Grid North.
OSGB36 position/orientation and ODN level determined via Network RTK GNSS using the OSTN15/OSGM15 transformations.
This survey must only be used in accordance with the instructions for proper use of this survey.

Title

Land At St.Clears, Carmarthenshire

Description

TOPOGRAPHICAL SURVEY

Client: Draycott Investments & Developments LLP

Zenith Land Surveys Ltd.
GPS Positioning, Topographical Land & Building Surveys
Mill House, Old Caerphilly Road,
Nantgarw, R.C.T., CF15 7TA
Telephone: (01443) 845018
E-mail: office@zenithlandsurveys.com

Scale: 1:250 @ A0
Surveyed: IMM
Date: 1 August 2023
Drawn: IMM & SC

21893_A

Zenith Land Surveys LTD

Station	Easting	Northing	Level
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Foliage line
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Electric line
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ep Electric pole
tp Telecom pole
gas Gas valve
FH Fire hydrant
G Gully
mkr Marker post
Telecom line
Surface water sewer
Foul water sewer
Unknown sewer type
sv Sluice valve
st Stop tap
sp Sign post
wm Water cover
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Manhole
Level as annotated
Survey Station
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Telephone: (01443) 845018
E-mail: office@zenithlandsurveys.com

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Zenith Land Surveys LTD

Appendix B: Hammond Architectural Ltd Planning Layout, Rev 3

Accomodation Schedule

House Name	Code	Beds	(NIA) ft²	No of Units	Total Area
Open Market Units					
2 Bed Detached Bungalow	2B-3P	2	724	9	6516
3 Bed Detached Bungalow	3B-5PV2	3	928	4	3712
3 Bed Semi-Detached House	3B-4P	3	861	20	17220
3 Bed Detached House	3B-5P	3	968	8	7744
3 Bed Detached House	3B-5P	3	1008	3	3024
4 Bed Detached House	4B-6P	4	1371	6	8226
Sub Total				***50***	***46442***

House/Flat Name	Code	Beds	(NIA) ft²	No of Units	Total Area
Affordable Units					
Low Cost Home Ownership					
3 Bed Semi-Detached House	3B-5P	3	1030	5	5150
Sub Total				***5***	***5150***
Social Rented Units					
Flats					
1 Bed Ground Floor Flat	1B-2P	1	549	5	2745
1 Bed First Floor Flat	1B-2P	1	594	5	2970
Houses					
2 Bed Semi-Detached House	2B-3P	2	898	38	34124
3 Bed Semi-Detached House	3B-5P	3	1030	12	12360
Sub Total				***60***	***52199***
Total				**115**	**103791**

N

Scale 1:500

0 10 20 50

SITE KEY

Boundary Treatments

- Site Boundary
- 1.8m High timber hit & miss fence
- 1.8m High Screen wall
- 1.8m High Close Board Fence
- 1m High hoop top metal railings
- 1.1m High ball top metal railings
- 0.45m High Timber Knee Rail
- Indicative Retaining Wall Location *(Refer to Engineer drawing for exact location and height of retaining walls)*

Access Points

- Primary door to dwelling *(Part M)*
- Secondary door(s) to dwelling
- Garage door
- 1.8m high gate *(Approximate gate location - gates to be located behind meter box locations)*
- Parking Space

Hard Surfacing

- Highway - *Tarmacadam Finish*
- Highway Footpath - *Tarmacadam Finish*
- Permeable Block Paving Type A
- Local Area of Play
- Bin Collection Point - *PCC Slab Finish* *(For Plots accessed off of a shared private drive)*
- Private Footpath - *PCC slabs*

Soft Surfacing

- Front Garden
- Rear Garden
- Amenity Space / Green Infrastructure / POS
- Bio-retention System Feature / Attenuation System
- Ecology Buffer
- Attenuation Basins
- Existing Tree / Vegetation *(Indicatively drawn canopies)*
- Indicative Ornamental Tree Planting Location *(refer to Landscaping drawing for exact location and specimen type)*

Site Features

- Affordable Unit - Social Rented Units
- Affordable Unit - Shared Ownership
- Shed Storage
- Bin Store Slab - *PCC Slab Finish*
- Rotary Line
- Air Source Heat Pump *(Locations to be confirmed by site contractor)*
- 1-2m Maintenance Corridor to Existing Hedgerows

REV.	DESCRIPTION	DATE

CLIENT
Draycott Group

JOB TITLE
Bryncaerau, St Clears.

DRAWING TITLE
Planning Layout

SCALE @ A1	DATE	DRAWN BY
1:500	July '24	KE
JOB NO.	DRAWING NO.	REVISION
2404	PL-01	3

hammond Architectural Ltd
10 Gold Tops
Newport
NP20 4PH
t. 01633 844970
e. info@hammond-ltd.co.uk
www.hammond-ltd.co.uk

Appendix C: Drainage Design Drawing

KEY:

- KERB DRAINAGE
- SURFACE WATER DRAINAGE
- PERFORATED SURFACE WATER DRAINAGE
- FOUL WATER DRAINAGE
- ROAD GULLY
- LINEAR / CHANNEL DRAIN
- ATTENUATION
- SURFACE WATER CHAMBER
- FOUL WATER CHAMBER
- RE — RODDING EYE
- RWP — RAINWATER PIPE
- HEADWALL
- PERMEABLE BLOCK PAVING TYPE A
- RAINGARDEN BASE
- SITE BOUNDARY
- DETENTION BASIN
- MAIN SITE CATCHMENT
- PLOTS 1 & 2 CATCHMENT
- RAINGARDEN BATTER
- OF — OVERFLOW GULLY
- HB — HYDROBRAKE FLOW CONTROL CHAMBER
- FC — ORIFICE FLOW CONTROL CHAMBER

ReFH2 SITE RURAL RUNOFF RATE = 10.9l/s

SITE QUICK STORAGE ESTIMATE = 1971 - 3736m3
SITE 1/3 DESIGN VALUE = 2559m3
TOTAL CRATE AND BASIN VOLUME = 2590m3

PERMEABLE PAVING = 246m3
RAIN GARDENS = ~391m3

Rev.	Description	By	Chk	App
P01	ISSUE FOR PAC.	JD	BW	BW
		01/11/24		

Client:
DRAYCOTT GROUP

Project:
LAND OFF TENBY ROAD,
ST CLEARS

Drawing Title:
PROPOSED DRAINAGE
STRATEGY

Drawing No.
CC2610 CAM XX XX DR C 1105

Project Originator Vol. Level Type Role Number

Status: SS PRELIMINARY
Scale @A1: 1:500
Rev: P01

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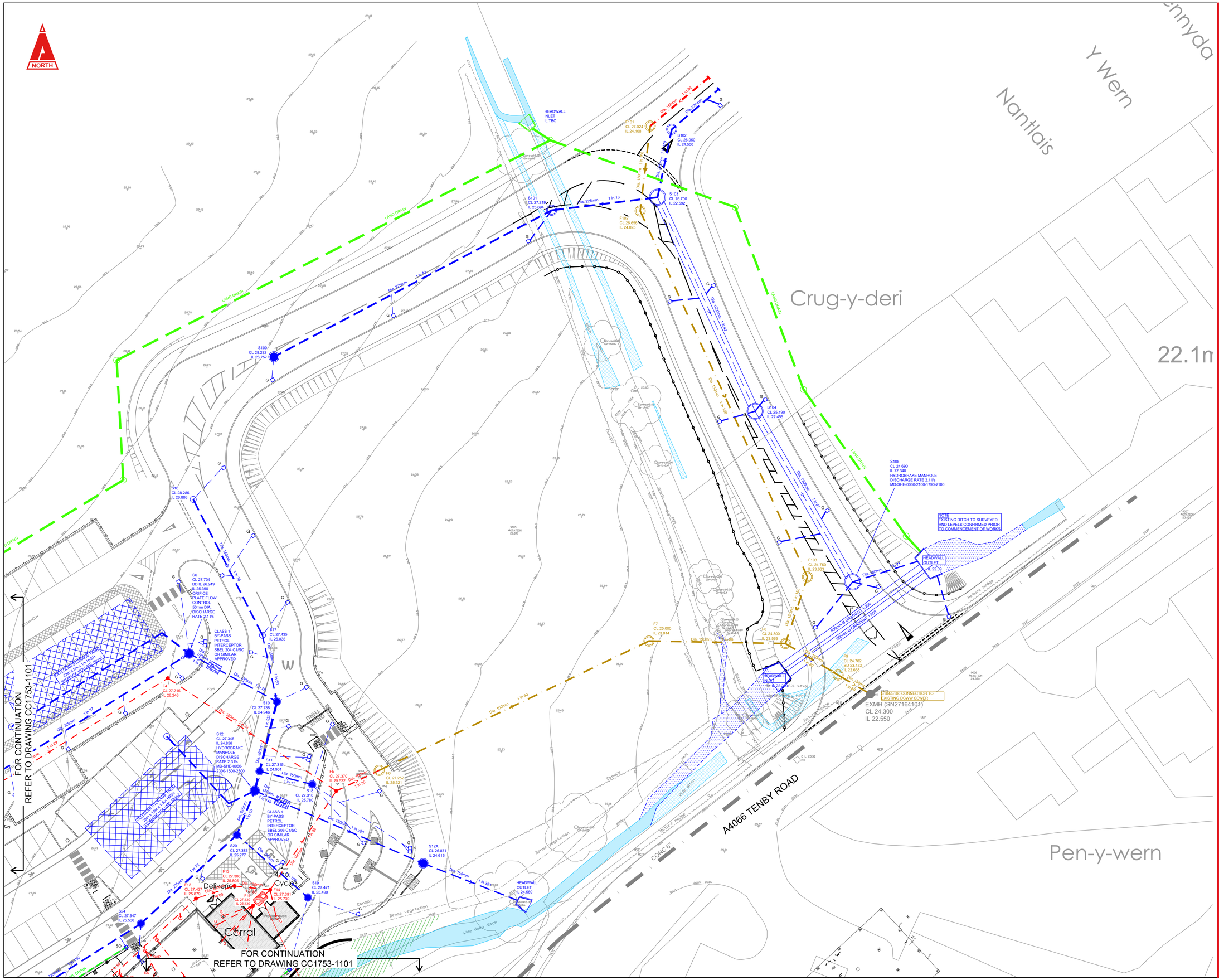
Appendix D: CC1753 St Clears McDonalds & Greggs Project Design Drainage Drawing (for information only)



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DO NOT SCALE FROM THIS DRAWING.

CONTRACTORS MUST CHECK ALL DIMENSIONS ON SITE. ONLY FIGURED DIMENSIONS ARE TO BE WORKED FROM. DISCREPANCIES MUST BE REPORTED IMMEDIATELY TO CAMBRIA CONSULTING LIMITED BEFORE PROCEEDING.

THE CONTRACTOR IS TO REFER TO THE SPECIFICATION, FULL SCHEDULE OF RESIDUAL RISKS IN THE CONTRACT DOCUMENTATION AND ALSO TO INFORMATION FROM OTHER DESIGNERS, IN PARTICULAR THE M&E CONSULTANT REGARDING EXISTING LIVE SERVICES.

THIS SYMBOL IS USED TO HIGHLIGHT INSTANCES OF RISK WITHIN THE CONSTRUCTION PROCESS.

ALWAYS CHECK FOR LATER REVISIONS OF THIS DRAWING.

KEY

- PROPOSED FW DRAINAGE
- PROPOSED S104 FW DRAINAGE
- PROPOSED SW DRAINAGE
- CELLULAR STORAGE
- LINEAR DRAINAGE
- SO LINEAR DRAIN SUMP OUTLET
- G ROAD GULLY AND 150mm DIA PIPE CONNECTION
- THRESHOLD DRAIN
- EXISTING WATERCOURSE/DITCH
- EXISTING WATERCOURSE/DITCH TO BE REMOVED OR DIVERTED

Rev.	Description	By	Chk	App
C03	McDONALD'S INTERNAL DRAINAGE UPDATED.	PY	BW	WJ
		26/10/21		
C02	FLOW CONTROL REFERENCES ADDED TO MANHOLES S6, S12 AND S105.	PY	BW	WJ
		07/10/21		
C01	ISSUED FOR CONSTRUCTION.	PY	BW	WJ
		26/08/21		

Client:
DRAYCOTT GROUP

Project:
ST CLEARS
McDONALD'S & GREGGS

Drawing Title:
PROPOSED DRAINAGE LAYOUT
(SHEET 2 OF 2)

Drawing No.
CC1753 CAM XX XX DR C 1102
Project Originator Vol. Level Type Role Number

Status: SS CONSTRUCTION
Scale @A1: 1 : 250
Rev: C03

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Appendix E: Surface Water Catchment Plan

KEY:

PROPOSED IMPERMEABLE AREA = 20,640 m²

Rev.	Description	By	Chk	App
P02	REVISED TO NEW ARCHITECTS SITE PLAN.	JD	BW	BW
		01/11/24		
P01	FIRST ISSUE.	MAC	JD	BW
		13/09/24		

Client:
DRAYCOTT GROUP

Project:
LAND OFF TENBY ROAD, ST CLEARS

Drawing Title:
PROPOSED SURFACE WATER CATCHMENT PLAN

Drawing No.
CC2610 CAM XX XX DR C 0500
Project Originator Vol. Level Type Role Number

Status:	Scale @A1:	Rev:
SS PRELIMINARY	1:500	P02

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