



Cefn Lodge Care Home

Drainage Strategy & Flood Risk Statement

Client: Oxford Care Holdings (BIRA CARE)

Project Ref: CC2696

Report Revision: P01

CAMBRIA

Report Control Sheet

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Project	Cefn Lodge Care Home
Project ref	CC2696
Document title	Drainage Strategy & Flood Risk Statement
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Reviewed and authorised by	L Mitchell MEng (Hons) CEng MICE FFB

Document naming protocol

Project Ref.	Originator	Vol.	Level	Type	Role	Number
CC2696	CAM	XX	XX	RP	C	0001

Current issue

Revision	Status	Date	Description	Prepared by	Authorised by
P01	S2	18/07/25	First issue	L Mitchell	G Mitchell

Contents

Cefn Lodge Care Home	
1 Introduction.....	1
2 Development Context.....	2
2.1 Site Location & Existing Use	2
2.2 Topography	3
2.3 Flood Risk	3
3 Proposed Development.....	5
4 Existing Drainage	6
5 Proposed Foul Drainage	7
6 Proposed Surface Water Drainage	8
6.2 Standard S1 – Surface Water Runoff Destination	9
6.3 Standard S2 - Surface Water Runoff Control.....	10
6.4 Standard S3 – Water Quality	10
6.5 Standard S4 & S5 – Amenity & Biodiversity	11
6.6 Standard S6 - Design of drainage for Construction, Operation and Maintenance and Structural Integrity.....	11
7 Conclusions.....	12
Appendix A: Topographic Survey	A
Appendix B: Proposed Development Drawings	B
Appendix C: Calculations	C

1 Introduction

- 1.1.1 Cambria Consulting Limited are the appointed Civil & Structural consulting engineers for the development of a new building which will provide an additional 50 beds on grounds within the site currently occupied by Cefn Lodge Care Home.
- 1.1.2 This drainage strategy and flood risk statement is prepared primarily to support the scheme's planning application and the objectives are:
- ▶ Identify suitable disposal method / outfall locations for the development generated surface water and foul water.
 - ▶ Provide feedback on any statutory consultations undertaken.
 - ▶ Undertake preliminary hydraulic calculations to identify peak design flows or restrictions to the development and any subsequent attenuation / storage requirements.
 - ▶ Provide a schematic layout of the proposed foul and surface water drainage proposals.
 - ▶ Demonstrate that a drainage design, compliant to the National SuDS standards, is achievable within the proposed planning layout and that effective management of surface water run-off has been considered.

2 Development Context

2.1 Site Location & Existing Use

- 2.1.1 The application site is located within the residential area of Skewen, approximately 2.4 miles south-west of Neath City Centre. It has a total area of 5,950m² and is split in two with the western portion comprising an existing 33 bed care home and the eastern portion comprising previously undeveloped vegetated ground which is the location of the proposed development. This area is therefore considered greenfield in nature.
- 2.1.2 Vehicular access is gained from Cefn-Parc on the site's northwestern corner and there is a pedestrian link to Pen-Yr-Heol to the east.



Figure 1 – Site Location

- ▶ Site address: Cefn Lodge Nursing Home, Cefn-Parc, Skewen, Neath SA10 6YR
 - ▷ National grid reference: SS7212196558
 - ▷ National grid reference (6 figure): SS721965
 - ▷ Easting (X): 272121
 - ▷ Northing (Y): 196558

2.2 Topography

- 2.2.1 A topographic survey has been undertaken by Surveybase (reference SB10589 – TOPO – April 2024) and is available within Appendix A.
- 2.2.2 The western portion of the site is a relatively flat / gently sloping plateau comprising the existing 33 bed care home at a level of approximately 45.5mAOD. Beyond this, to the east, the levels fall steeply in an easterly direction towards Pen-Yr-Heol.
- 2.2.3 In order to develop this land and respond to this challenging topography the proposed building is split across three-storeys. Significant earthwork reprofiling and retaining walls are required to facilitate the proposed development.
- 2.2.4 The site is also constrained by existing mature trees and a requirement to observe associated root protection zones.

2.3 Flood Risk

TAN 15 Planning Policy

- 2.3.1 A revised TAN15 was implemented on the 31st March 2025. The TAN outlines the actions that should be taken when considering development in different flood zones which are defined by the Flood Map for Planning and the Flood Risk Assessment Wales (FRAW) maps which together make up the Wales Flood Map.

Table: Flood Zones			
Flood Zone	Flooding from Rivers	Flooding from the Sea	Flooding from surface water and small watercourse
1	Less than 1 in 1000 (0.1%) (plus climate change) chance of flooding in a given year.		
2	Less than 1 in 100 (1%) but greater than 1 in 1000 (0.1%) chance of flooding in a given year, including climate change.	Less than 1 in 200 (0.5%) but greater than 1 in 1000 (0.1%) chance of flooding in a given year, including climate change.	Less than 1 in 100 (1%) but greater than 1 in 1000 (0.1%) chance of flooding in a given year, including climate change.
3	A greater than 1 in 100 (1%) in a given year, including climate change.	A greater than 1 in 200 (0.5%) in a given year, including climate change.	A greater than 1 in 100 (1%) in a given year, including climate change.
TAN 15 Defended Zones	Areas where flood risk management infrastructure provides a minimum standard of protection against flooding from rivers of 1:100 (plus climate change and freeboard)	Areas where flood risk management infrastructure provides a minimum standard of protection against flooding from the sea of 1:200 (plus climate change and freeboard)	Not Applicable.

Flood Zone Classification

- 2.3.2 The proposed development is considered **‘highly vulnerable’** end use.
- 2.3.3 The Flood Map for Planning shows the site is located in **Flood Zone 1** being at little or no risk of flooding from tidal or fluvial sources.
- 2.3.4 There is however, a small area of surface water flood risk. This is representative of a localised low spot where some ponding could be experienced and not an overland flow path which would warrant further consideration.

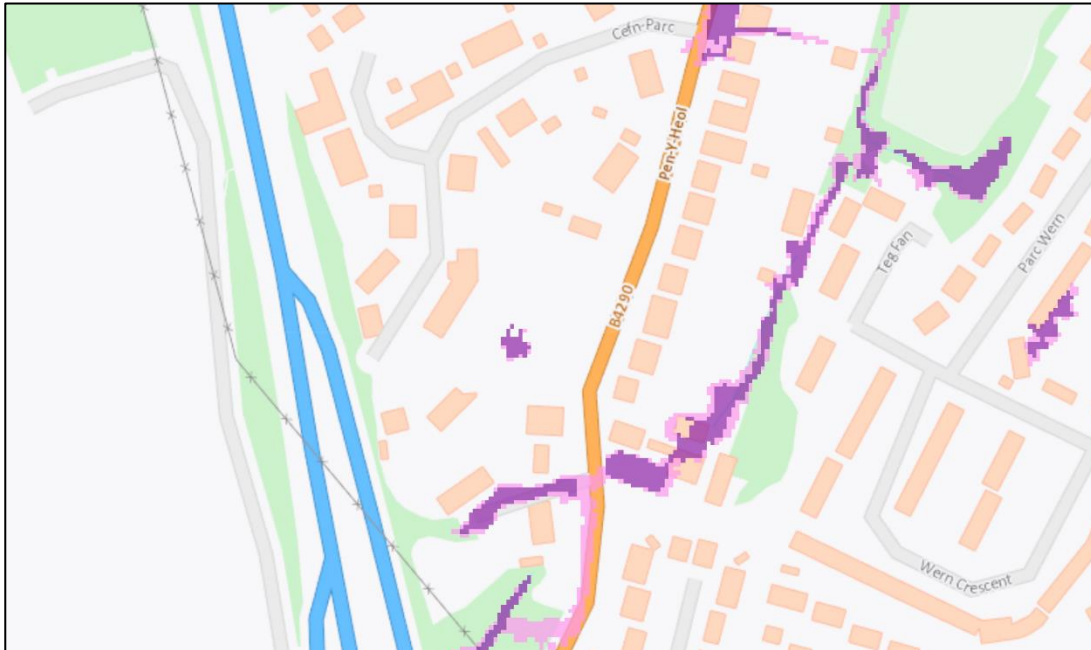


Figure 2 – NRW Flood Map for Planning (FMfP) – Surface Water

- 2.3.5 Surface water flooding will typically be mitigated against by proposed external levels making sure that areas fall away from buildings.
- 2.3.6 This source of flood risk will be eliminated as a result of the proposed ground reprofiling and introduction of positive drainage provision through redevelopment.
- 2.3.7 Due consideration for overland flow paths, exceedance routes etc will form part of the SAB application process.

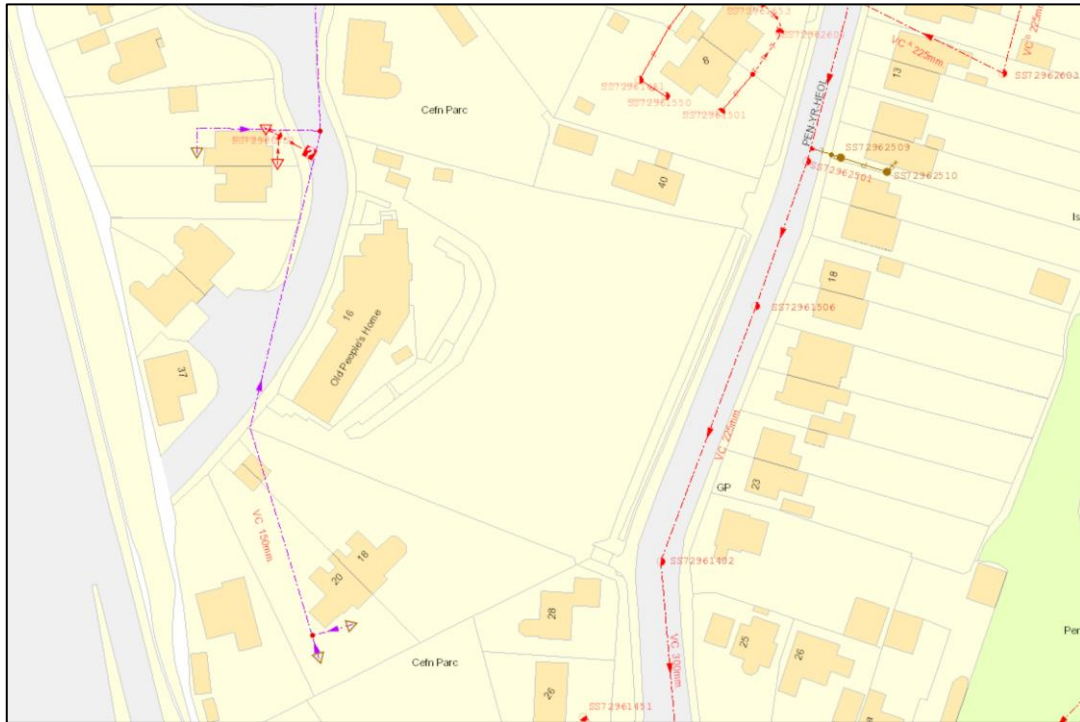
3 Proposed Development

- 3.1.1 The proposed care home for older people will provide 50 beds laid out in flexible wings delivering living and communal spaces for residents over 3 storeys.
- 3.1.2 Modifications to the upper existing plateau include additional parking, delivery and ambulance spaces and bin and cycle storage.



Figure 3 – Proposed Development – CGI Rendered Image

4.1.1 DCWW public sewer records indicate that the local area is served by a combined sewerage system.



- 4.1.2 The system within Cefn Parc is a 150mm asset whereas the network in Pen-yr-heol is a 225mm dia asset which upsizes to 300mm immediately south of the proposed development.
- 4.1.3 There are no DCWW sewerage or water supply assets crossing the site that would need to be considered as part of the proposed development.
- 4.1.4 There is evidence of a traditional kerb-gully drainage system draining the highway of Pen-Yr-Heol however, it is unknown whether this is an independent network or whether it discharges to the DCWW combined system.
- 4.1.5 No definitive drainage investigation / utility survey has been undertaken to determine how the existing site is drained. The topographical survey has however, identified a number of chambers and several invert levels that suggests there is an existing foul sewer running along the southern boundary in an easterly direction which speculatively could connect to the DCWW combined system in Pen-Yr-Heol. This will be investigated in the next stage to ascertain connectivity and suitability for re-use to serve the proposed development.

5 Proposed Foul Drainage

- 5.1.1 It is proposed to drain the proposed development's foul flows to the DCWW combined system located in Pen-Yr-Heol.
- 5.1.2 Given the site's steep topography, a gravity connection is readily achievable.
- 5.1.3 With reference to the calculations contained within Appendix C, the anticipated peak flow rate of a 50 bed care home is 1.34l/s.
- 5.1.4 DCWW did not provide a response as part of the planning pre-app consultation process and as such, spare capacity in the existing network is yet to be explored and determined.
- 5.1.5 The potential existing foul asset running along the southern boundary should be investigated as it may provide an opportunity for reuse and avoid intrusive works in Pen-yr-Heol. Should connectivity be proven, along with suitable condition for reuse, this connection would be subject to a S106 agreement only with DCWW. If proven otherwise, a new off-site connection will be required which would be subject to S104 and S106 agreements.
- 5.1.6 It is assumed that any grease treatment for hot food preparation will be undertaken via chemical dosing prior to connection to the below ground drainage network.

6 Proposed Surface Water Drainage

6.1.1 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.

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

SuDS schemes should aim to:

- 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.

6.1.3 An illustrative proposed drainage layout showing the drainage strategy and design intent is available within the drawings provided in Appendix B.

6.2 Standard S1 – Surface Water Runoff Destination

Standard S1 - Surface Water Runoff Destination

6.2.1 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;

6.2.2 Rainwater harvesting is not currently being considered for inclusion on this scheme owing to cost and there are no perceived water supply concerns anticipated in this area.

6.2.3 A cost viability assessment will be required to support the Full SAB Application.

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

6.2.4 No site investigation has been undertaken to date. Until proven otherwise, the illustrative drainage strategy assumes that the underlain ground conditions will support infiltration as an ultimate disposal method for surface water.

6.2.5 Soakaway testing (to BRE Digest 365) will be required to validate this approach and inform detailed design and subsequent SAB application.

6.2.6 As infiltration potential has not been proven, further consideration has been given to lower hierarchy disposal methods in the interest of providing a robust approach to this drainage strategy and to ensure surface water run-off can be appropriately managed in the event that infiltration is not supported.

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

6.2.7 Mapping suggests that there is a culverted ordinary watercourse south of the proposed development site which could provide a potential outfall location. This would need to be investigated further and consultation undertaken with the Local Authority drainage department to explore as a connection point.

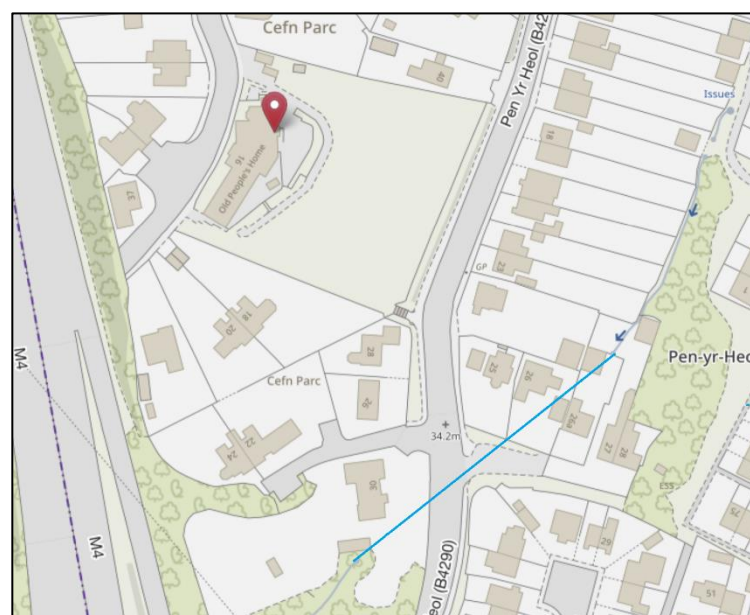


Figure 5 – Existing Culverted Watercourse

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

- 6.2.8 As stated previously, there is evidence of a traditional kerb-gully drainage system draining the highway of Pen-Yr-Heol however, it is unknown whether this is an independent network and dedicated surface water system or whether it discharges to the DCWW combined system.
- 6.2.9 Consultation would be required with the Local Authority if a connection was sought to this network.

Priority Level 5: Discharge to a Combined Sewer

- 6.2.10 Conveyance to combined sewer is considered the least sustainable approach and the lowest order disposal method. On this basis a connection to the combined network in Pen-Yr-Heol will be resisted by both DCWW and SAB unless all higher disposal methods are fully explored and discounted.

6.3 Standard S2 - Surface Water Runoff Control

- 6.3.1 The split building floor levels steers the proposed drainage strategy to be split into two catchments serving the upper and lower plateaus respectively.
- 6.3.2 Soakaway testing is required to validate the drainage strategy and inform detailed design. The preliminary drainage proposals and resulting soakaway sizes are based on a moderate uptake of $1 \times 10^{-5} \text{m/s}$ and factor of safety of 5 applied. The indicated soakaway sizes, equating to a total of approximately 84 - 188m³ of storage, is subject to site specific infiltration rates.
- 6.3.3 In the event that soakaway testing proves the ground conditions unsuitable to support infiltration, a positively draining solution will be sought. Given the greenfield nature of the development site, the proposed drainage system would be designed to restrict runoff conveyed off-site to appropriate greenfield rates. With reference to the calculations contained within Appendix C, a site specific QBAR greenfield rate of 10.8l/s/ha which based on a contributing hardstanding area of 1,508m² equates to a rate of 1.6l/s. Quick storage estimates indicate that attenuation in the range of 103 - 175m³ would be required in this scenario.
- 6.3.4 In either instance, the surface water drainage system will be sized to cater for the 1 in 100 year storm event with a +40% allowance for climate change.
- 6.3.5 Urban creep is not considered appropriate in this instance given building footprint is maximised within the developable area and any future extensions would be regulated through the planning process.

6.4 Standard S3 – Water Quality

- 6.4.1 The pollution hazard score associated with the proposed development is 'low'.
- 6.4.2 SUDS features / components are located in pockets across the site responding 'at source' wherever possible.
- 6.4.3 It is proposed to integrate a mixture of features including bioretention / raingardens and permeable paving.

- 6.4.4 The Simple Index Approach method will be adopted to ensure sufficient treatment measures are met. This will be provided within the Full SAB application.
- 6.4.5 Detailed calculations will be provided in the Full SAB application demonstrating interception criteria and the retention of the first 5mm of rainfall is met.

6.5 Standard S4 & S5 – Amenity & Biodiversity

- 6.5.1 A variety of 'soft' green SUDs features are to be integrated at surface level into the external landscaping proposals, to provide attractive amenity spaces, promoting dual functionality.
- 6.5.2 The accessible raingardens will consist of a diverse range of planting habitats. Interactive, well planted raingardens will bring a range of amenity benefits to the resident end users.
- 6.5.3 Robust, low maintenance planting will be prioritised with a focus on native species which will be developed and presented through the Full SAB application.

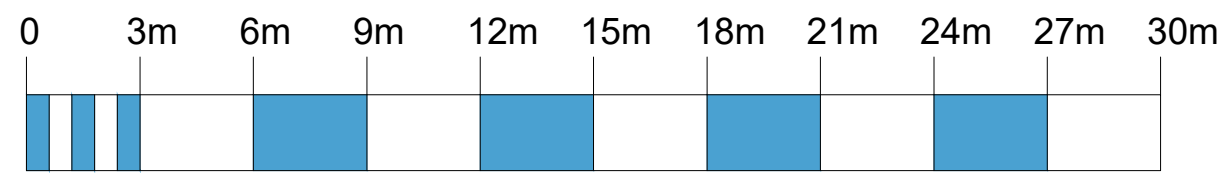
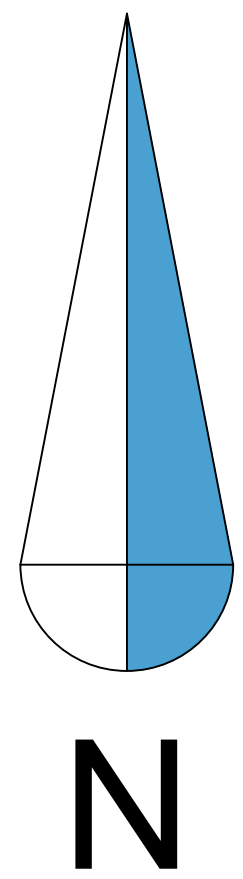
6.6 Standard S6 - Design of drainage for Construction, Operation and Maintenance and Structural Integrity

- 6.6.1 All SUDS features will need to be designed and constructed in accordance with CIRIA C753 The SUDS Manual and C768 Guidance on the Construction of SUDS.
- 6.6.2 The soakaways shown observe a 5m exclusion zone to structures and boundaries. Slope stability checks by an appropriately qualified geotechnical engineer will be required to support the use of soakaways on this site.
- 6.6.3 The site is under single ownership and as such the SAB is not required to adopt any SUDs features.

7 Conclusions

- 7.1.1 The development's foul drainage is proposed to make gravity connection to the existing DCWW combined system in Pen-Yr-Heol.
- 7.1.2 Surface water is proposed to discharge to ground via soakaways, subject to soakaway testing to BRE Digest 365 and slope stability checks. In the event that the ground conditions do not support infiltration, a positively draining solution will be sought looking firstly at connection to the culverted watercourse or highway surface water system ahead of the DCWW combined system with flows attenuated to greenfield rates. In either scenario storage will be provided to cater for the Q100+40%cc critical storm event.
- 7.1.3 Once a disposal method has been established, the outline proposals should be presented through the SAB Pre-Application process to receive feedback and give confidence to take forward the detailed design and full SAB Application.
- 7.1.4 Whilst the proposals remain subject to detailed design, SAB approval and formal agreements, this drainage strategy demonstrates that drainage aspects can be responsibly and effectively managed, following the principles of a SAB compliant scheme, with sufficient robustness to support the development's planning application.

Appendix A: Topographic Survey



Notes: Coordinate System

The survey has been orientated to the O.S. National Grid (OSGB36) via GPS and the O.S. Active Network. True OSGB36 coordinates have been established at:
Station: ST1 E: 272087.549 N: 196526.671 EL: 45.319
and a further OSGB36 point established to create a true O.S. bearing for angle orientation. A scale factor of 1 has been applied to the survey therefore the coordinates shown are arbitrary.
All levels are related to O.S. Datum.

Station	Easting	Northing	Level
ST1	272087.549	196526.671	45.319
ST2	272101.523	196551.257	43.974
ST3	272095.056	196555.106	45.400
ST4	272120.826	196579.795	45.360
ST5	272127.783	196569.724	44.664
ST6	272096.175	196618.161	44.826
ST7	272125.472	196545.149	44.504
ST8	272158.402	196573.009	43.971
ST9	272134.588	196542.655	42.890
ST10	272151.548	196502.716	39.623
ST11	272170.076	196493.969	36.517
ST13	272162.695	196564.386	42.753

All Stations are marked with a MAG Nail.

ON DETAIL SURVEY		
A/C Air Conditioning Unit	GV Gas Valve	S/A Soakaway
AV Air Valve	GV Gully	Stay Stay
BL Bed Level	IC Inspection Cover	SC Stop Cock
BB Bells Beacon	IL Invert Level	SV Stop Valve
BOL Bollard	JB Junction Box	S Stump
BV Borehole	KD Kerk Outlet	SW Surface Water
BK Brick	LP Lamp Post	STN Survey Control Station
BEP Brick paving	LI Light	Tac Tactile Paving
BT British Telecom	MH Manhole Cover	TP Telegraph Pole
CAB Cabinet	Mir Marker Post	TCB Telephone Call Box
CP Catch Pit	MB Multiple Bole	THL Threshold Level
Co Concrete	NVP No Visible Pipes	T/F Top Of Fence
CL Cover Level	OVS Overgrown	T/P Top Of Parapet Level
CUL Culvert	O/H Overhead	T/V Top Of Vegetation
di Disapland	PM Parking Meter	T/W Top Of Wall
DCD Drainage Channel	PS Paving Slab	TL Traffic Lights
ER Earth Rod	PO Post	UTL Unable to Lift
EP Electricity Pole	PB Post Box	VP Vent Pipe
FR Fire Hydrant	RI Rise	WL Water Level
FB Flower Bed	RE Rodding Eye	WM Water Meter
FW Foul	RS Road Sign	WO Water Wash Out
GP Sign Post		

ON FENCES/WALLS/DIVISIONS		
A/B Armo Crash Barrier	P/L Palisade Fence	BW Brick Wall
B/W Barbed Wire Fence	P/H Picket Fence	CW Concrete Wall
C/L Chain Link Fence	P/R Post and Rail Fence	RW Retaining Wall
C/B Close Boarded Fence	P/W Post and Wire Fence	SW Stone Wall
E/F Electric Fence	S/F Safety Fence	TW Timber Wall
H/F Horra Fence	T/F Trench Fence	
H/R Hand Rail	W/M Wire Mesh Fence	
I/R Iron Rail Fence		

ON BUILDINGS		
CHM Chimney	FRL Flat Roof Level	RL Ridge Level
DH Door Head	FL Floor Level	SH Sill Height
DP Down Pipe	HH Head Height	SWP Soil Pipe
EL Eave Level	PL Parapet Level	THL Threshold Level

Rev	Comments	By	Chkd	Date
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-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-



SURVEYBASE
PRECISION DIGITAL SURVEYORS

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Project Name
Cefn Lodge Nursing Home, 16 Cefn-Parc,
Skewenm, Neath Port Talbot SA10 6YR

CAD Drawing Name
SB10589 - TOPO

Drawing Title
Topographical Survey of (1 OF 1 A0)

Client Cefn Lodge	Date 29/04/2024
	Scale A0 @ 1:200

Drawn By SB - JG	Checked By SB - CW	SB Code SB10589	Revision -
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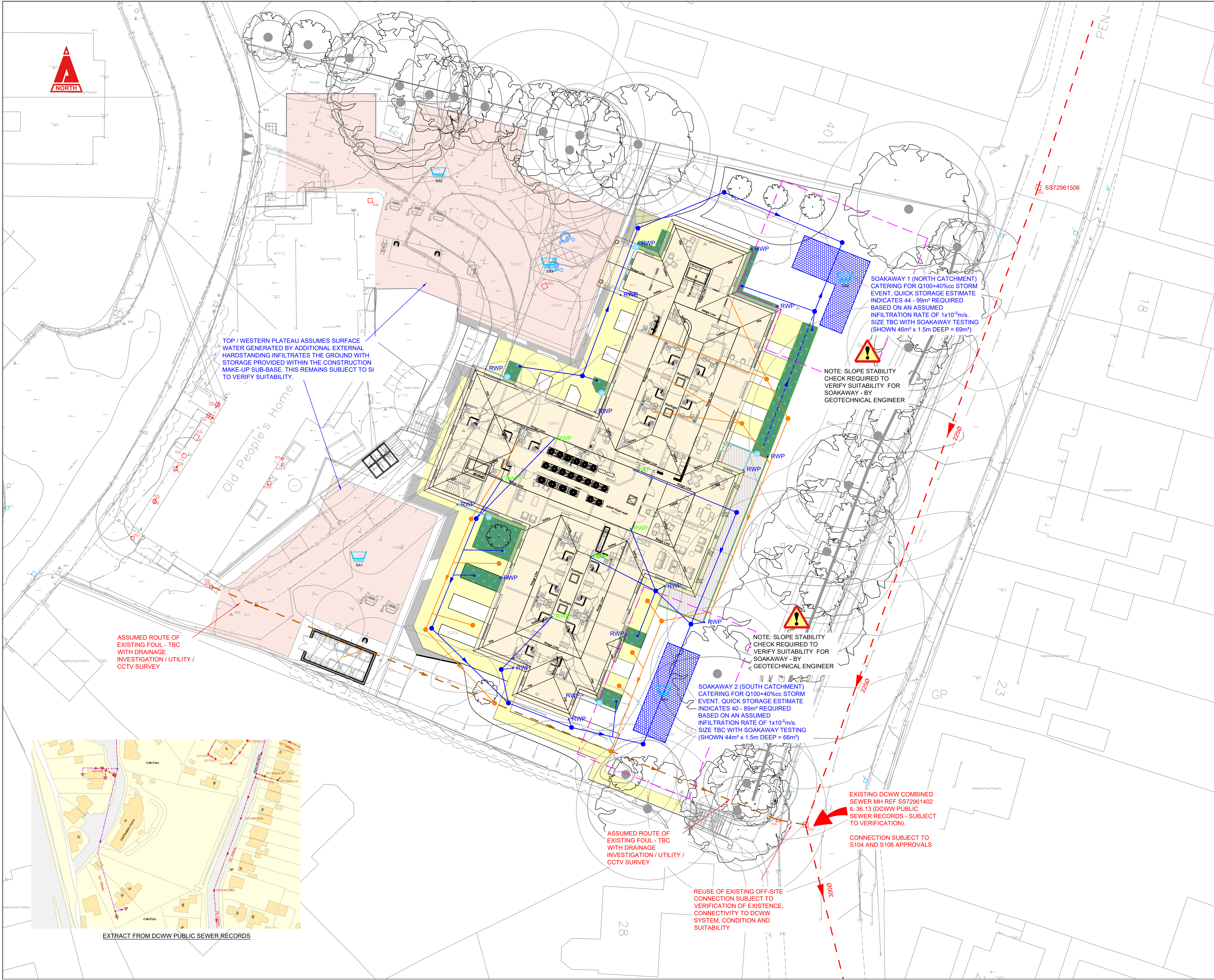
Grid Orientation NORTH GPS	Site Level Datum OS GPS
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All dimensions are to be checked on site where applicable. This drawing must not be scaled, and only written dimensions should be respected.

Tree species and sizes on this drawing are not guaranteed, and if critical should be verified by an arboriculturist. Tree spreads are average about the bole, and heights are approximate at the time of the survey.



Appendix B: Proposed Development Drawings



THIS DRAWING IS COPYRIGHT © CAMBRIA CONSULTING LTD.
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.

LEGEND / KEY TO SYMBOLS

- EXISTING DCWW COMBINED SEWER
- EXISTING FOUL SEWER - ASSUMED SUBJECT TO FURTHER INVESTIGATION
- PROPOSED SURFACE WATER SEWER
- PROPOSED FOUL DRAINAGE
- ACO LINEAR DRAIN
- ACO OVERFLOW
- RWP RAINWATER DOWNPIPE (EXTERNAL)
- RWP RAINWATER DOWNPIPE (INTERNAL)
- SUGGESTED SOAKAWAY TESTING POSITIONS - TBC

SUDS FEATURES:

- RAINGARDEN
- PERMEABLE PAVING (TYPE TBC)
- SOAKAWAY CRATES SDS GEOLIGHT OR EQUIVALENT APPROVED
- SOAKAWAY 5m EXCLUSION ZONE

NOTES

- PROPOSALS ARE HIGH LEVEL AND INDICATIVE OF DESIGN INTENT ONLY. THEY REMAIN SUBJECT TO FURTHER SURVEYS, SITE INVESTIGATION (SOAKAWAY TESTING), DETAILED DESIGN AND CONSULTATION WITH SAB.
- FOUL SVP POSITIONS TBC
- ANY GREASE TREATMENT REQUIREMENTS ASSUMED VIA CHEMICAL DOSING PRIOR TO CONNECTION TO BELOW GROUND DRAINAGE SYSTEM.
- SPRINKLER DRAIN DOWN RATES TO BE CONFIRMED - MAY REQUIRE INCREASED PIPEWORK DIAMETERS FOR CAPACITY AND HIGH INTENSITY INTAKE GULLY
- SHOULD SOAKAWAY TESTING FAIL DRAINAGE INVESTIGATION AND CCTV SURVEY WILL BE REQUIRED TO INVESTIGATE THE EXISTING HIGHWAY DRAINAGE SYSTEM AND CULVERTED WATERCOURSE TO THE SOUTH AS A POTENTIAL DISPOSAL METHOD FOR SURFACE WATER
- UTILITY SURVEY HAS NOTE BEEN UNDERTAKEN - PRESENCE OF UNDERGROUND SERVICES TO BE PROVIDED TO INFORM DETAILED DESIGN.

P01	FIRST ISSUE	LM	LM	LM
Rev.	Description	By	Chk	App

Client:
OXFORD CARE HOLDINGS (BIRA CARE)

Project:
CEFN LODGE CARE HOME

Drawing Title:
PROPOSED DRAINAGE LAYOUT

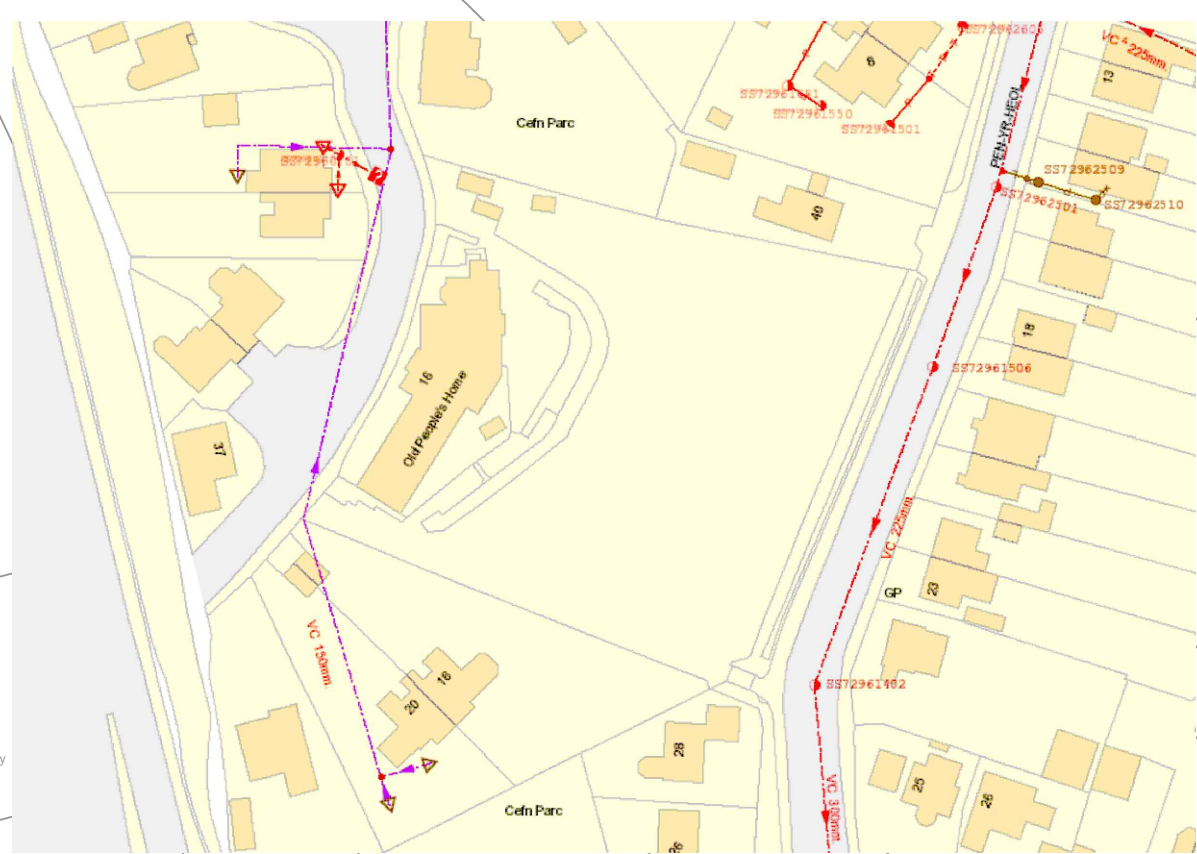
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Project	Originator	Vol.	Level	Type	Role	Number
S1	PRELIMINARY		1:200		P01	

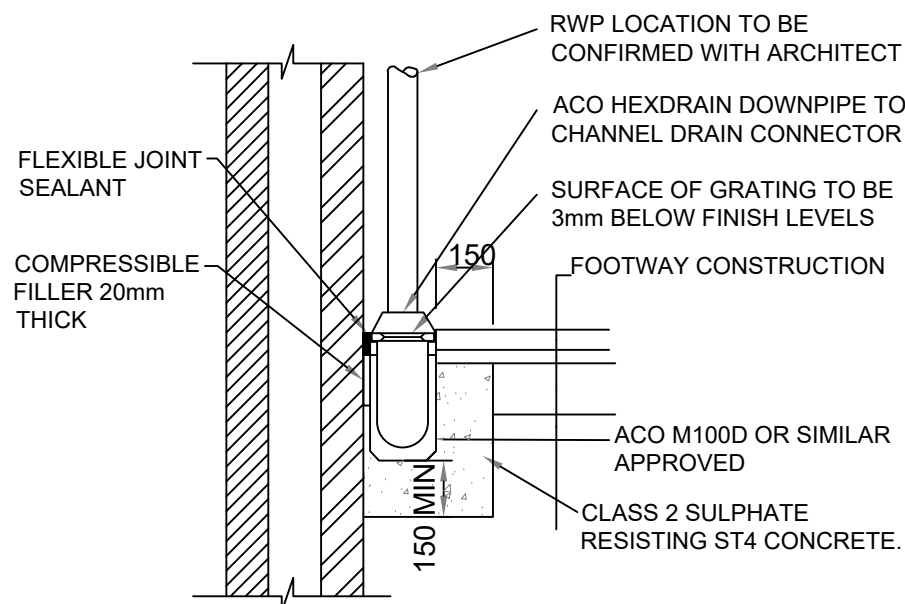
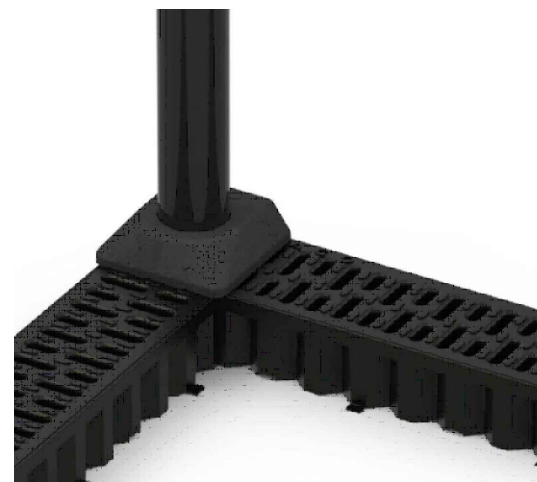
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EXTRACT FROM DCWW PUBLIC SEWER RECORDS



- NOTES:
1. DRAINAGE CHANNELS TO BE ACO M150D OR SIMILAR APPROVED
 2. FOUNDATION FOR CHANNELS TO BE LAID ON A ROLLED SUB-BASE OF 150mm MINIMUM THICKNESS.
 3. GRATING LOAD CLASSIFICATION TO BE C250/ D400
 4. RWPS TO HAVE ACO HEXDRAIN CONNECTORS TO CHANNEL GRATINGS - REFER TO MANUFACTURERS GUIDELINES

**RWP OUTLETS TO
LINEAR DRAIN DETAIL**
SCALE - NTS

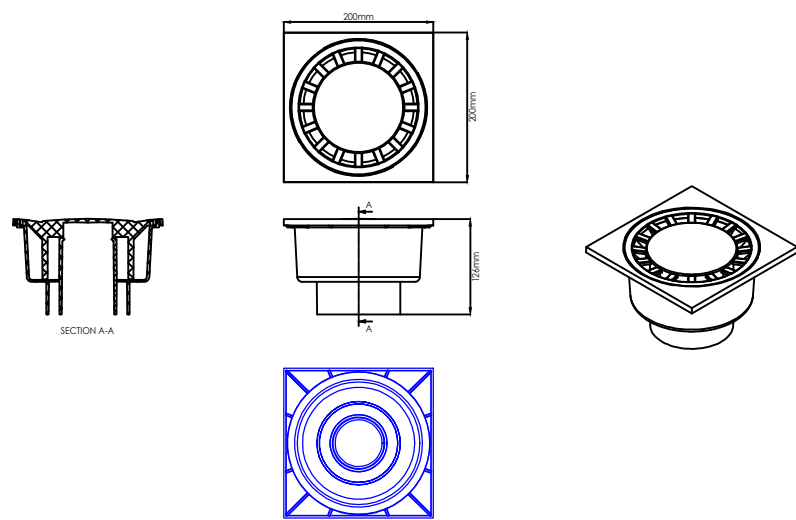
SOIL SPECIFICATION

PLANTING LAYER
SOIL SPEC GREEN BLUE URBAN ARBORSOIL
HYDRO OR EQUIVALENT APPROVED

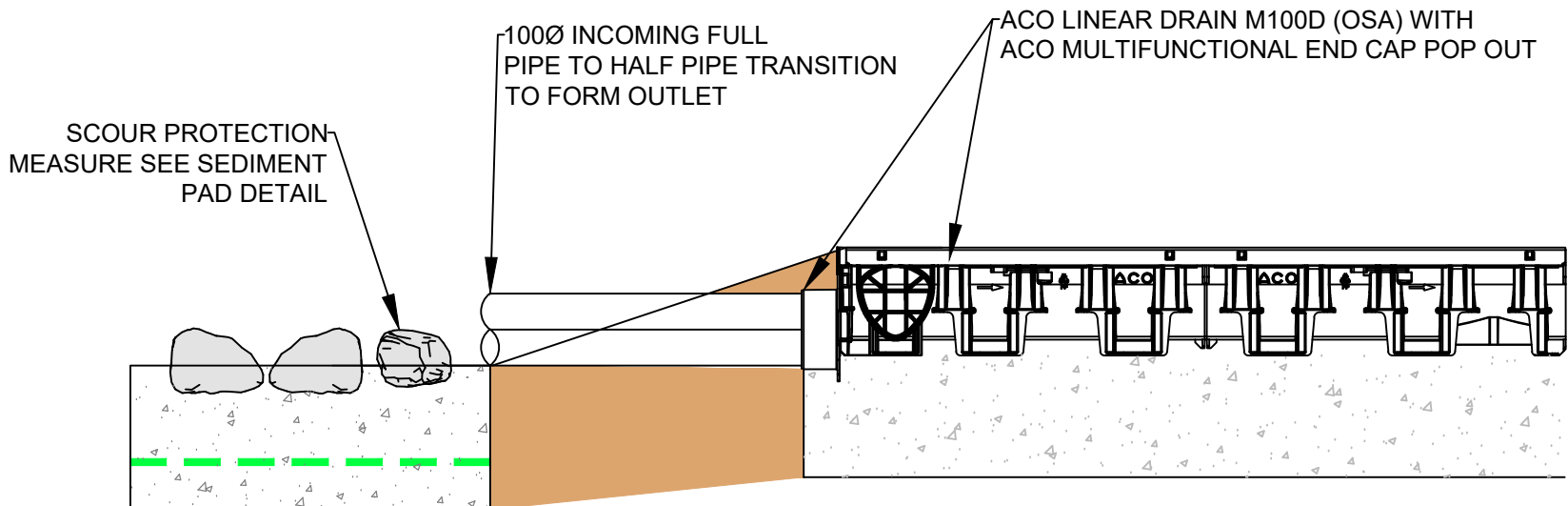
DRAINAGE LAYER
SINGLE SIZED (30-80mm), COARSE GRAVEL /
CLEAN STONE TO ACHIEVE A MINIMUM 30%
VOID RATIO

OTHER SOIL SPECIFICATION PARAMETERS TO BE
APPROPRIATE FOR RAINGARDEN PLANTING SPECIES TO
RAINGARDENS AND IN ACCORDANCE WITH CIRIA SUDS
MANUAL BOX 18.1 CRITERIA.

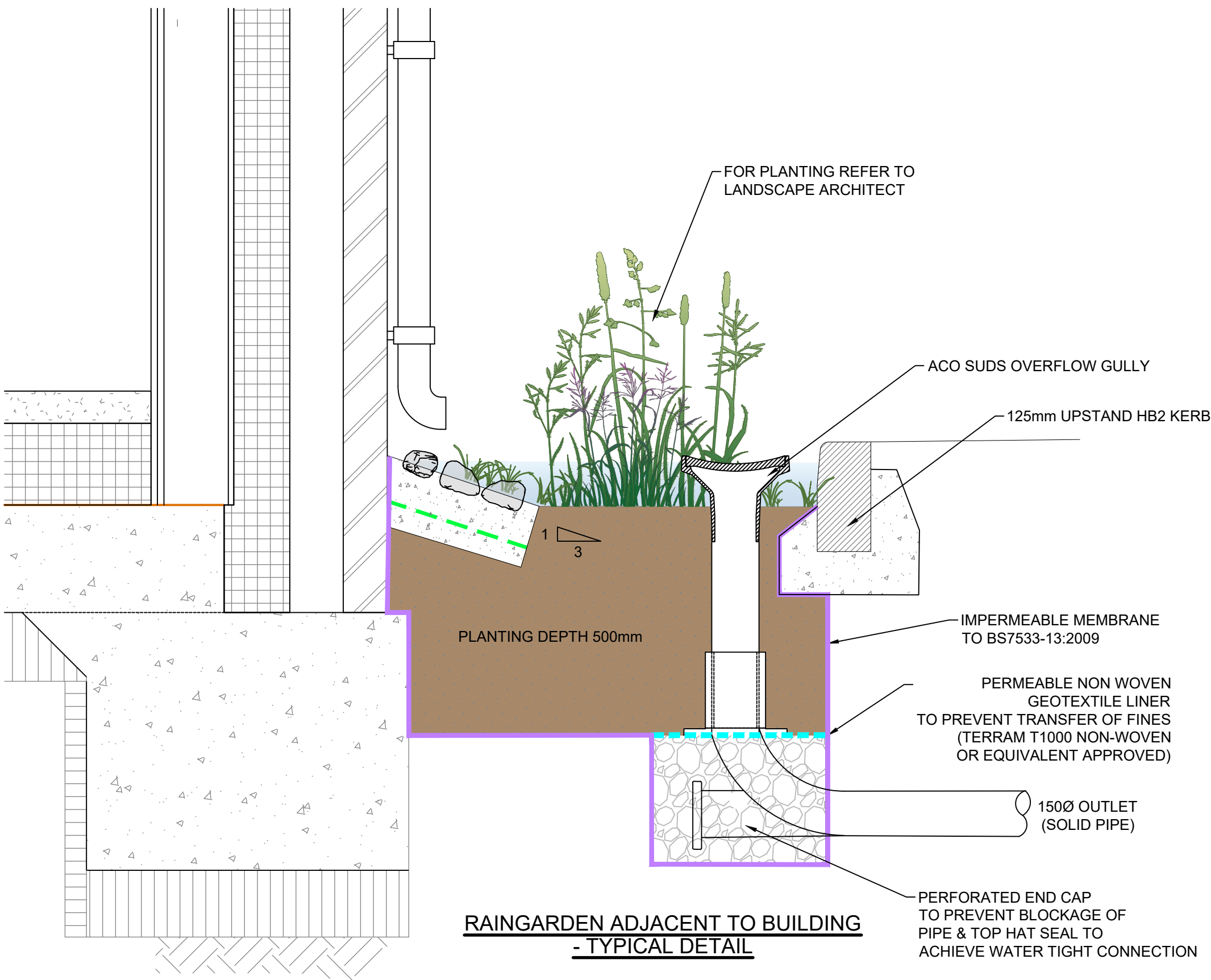
ONSITE SOIL TO BE TESTED IN ADVANCE IF INTENDED
FOR RE USE.



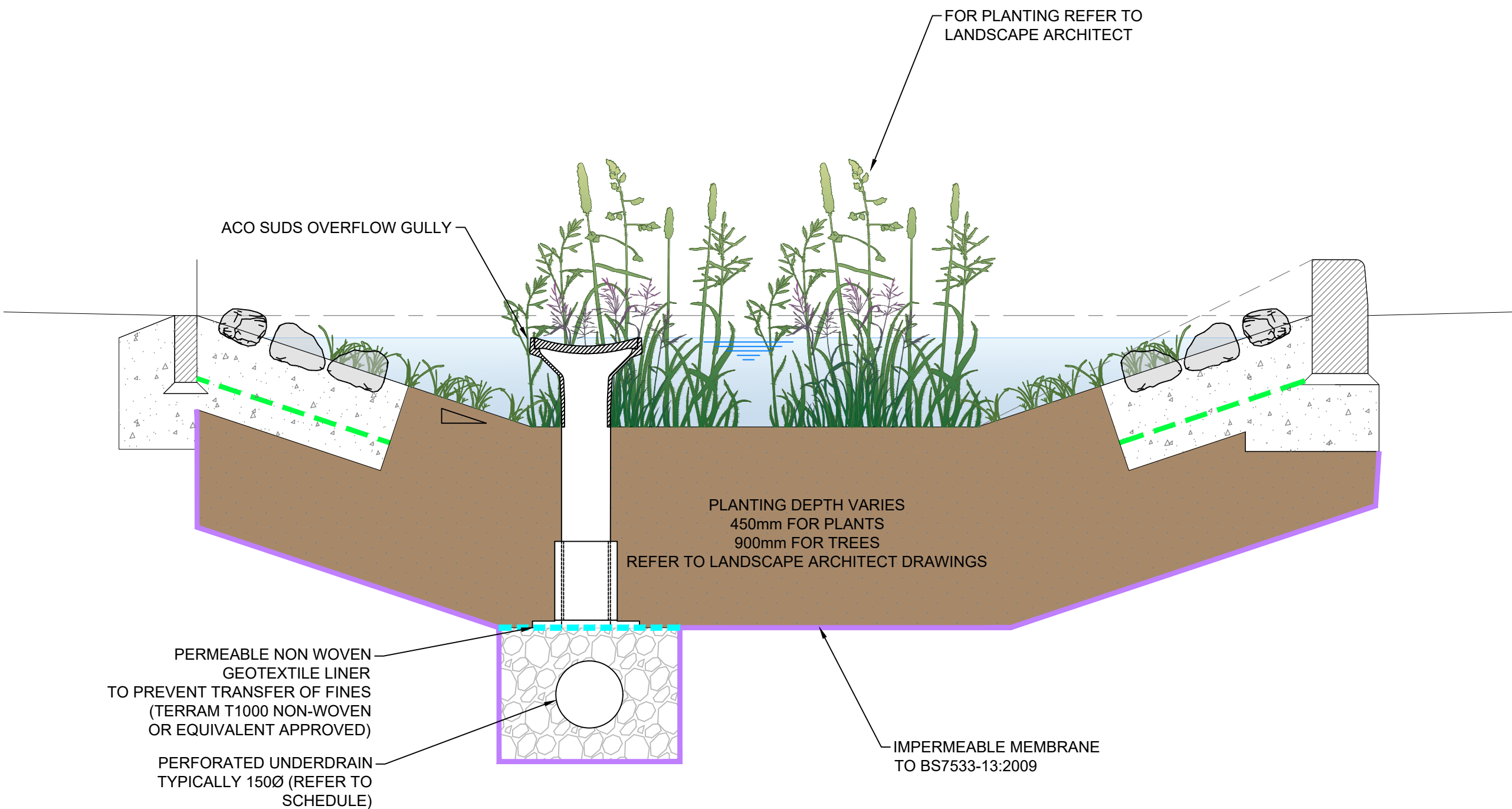
ACO SUDS OVERFLOW GULLY



**LINEAR DRAIN - DISCHARGE TO SURFACE
FEATURE - RAINARDEN**



**RAINGARDEN ADJACENT TO BUILDING
- TYPICAL DETAIL**



TYPICAL ROADSIDE RAINGARDEN DETAIL

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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.

NOTES

1. PROPOSALS ARE HIGH LEVEL AND INDICATIVE OF
DESIGN INTENT ONLY. THEY REMAIN SUBJECT TO
FURTHER SURVEYS, SITE INVESTIGATION
(SOAKAWAY TESTING), DETAILED DESIGN AND
CONSULTATION WITH SAB.

P01	FIRST ISSUE	LM	LM	LM
Rev.	Description	By	Chk	App

Client:
**OXFORD CARE HOLDINGS
(BIRA CARE)**

Project:
CEFN LODGE CARE HOME

Drawing Title:
DRAINAGE DETAILS

Drawing No.
CC2696 CAM XX XX D C 0510

Project Originator Vol. Level Type Role Number

Status: S1 PRELIMINARY Scale @A1: AS SHOWN Rev: P01

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Appendix C: Calculations

CONTRACT - Cefn Lodge Care Home

JOB NO - CC2696

CAMBRIA

Sheet No 1 of 1
Designed By LKM
Checked By LKM
Date 18/07/2025
Rev P1

Foul Sewer Design Flow British Water, Flows and Loads - 4

DATA				OUTPUT		
Per person / activity /day (unless otherwise specified)	Flow (Litres)	BOD (Grams)	Ammonia as N (Grams)	No.	Flow Rate l/day	Flow Rate l/s
DOMESTIC DWELLINGS						
Standard residential	150	60	8	0	0	0.000
Mobile home type caravans with full service	150	90	8	0	0	0.000
INDUSTRIAL						
Office / Factory without canteen	50	25	5	0	0	0.000
Office / Factory with canteen	100	38	5	0	0	0.000
Open industrial site, eg construction, quarry, without canteen	60	25	5	0	0	0.000
*Full-time Staff	90	38	5	0	0	0.000
*Part-time Staff (4 hr shift)	45	25	3	0	0	0.000
SCHOOLS						
Non-residential with canteen cooking on site	90	38	5	0	0	0.000
Non-residential without a canteen	50	25	5	0	0	0.000
Boarding school: (i) residents	200	75	10	0	0	0.000
(ii) day staff (inc. Mid-day meal)	90	38	5	0	0	0.000
HOTELS, PUBS & CLUBS						
Hotel Guest (Prestige hotels)	300	105	12	0	0	0.000
Hotel Guests (3* & 4* hotels)	250	94	10	0	0	0.000
Guests (Bedroom only - no meals)	80	50	6	0	0	0.000
Residential Training / Conference Guest (inclusive all meals)	350	150	15	0	0	0.000
Non residential Conference Guest	60	25	2.5	0	0	0.000
Drinkers	12	15	5	0	0	0.000
Holiday camp chalet resident	227	94	10	0	0	0.000
Resident Staff	180	75	10	0	0	0.000
Restaurants: - Full Meals: - luxury catering	30	38	4	0	0	0.000
- pre-prepared catering	25	30	2.5	0	0	0.000
- Snack Bars & bar meals	15	19	2.5	0	0	0.000
- Function Rooms including buffets	15	19	2.5	0	0	0.000
- Fast Food i.e. (roadside restaurants)	12	12	2.5	0	0	0.000
- Fast Food Meal (burger chain and similar)	12	15	4	0	0	0.000
Students (Accommodations only)	100	56	5	0	0	0.000
AMENITY SITES						
Toilet Blocks (per use)	10	12	2.5	0	0	0.000
Toilet (EC) (per use)	10	12	2.5	0	0	0.000
Toilet (Urinal) (per use)	5	12	2.5	0	0	0.000
Toilet Blocks in Long Stay car parks / lorry parks (per use)	10	19	4	0	0	0.000
Shower (per use)	40	19	2	0	0	0.000
Golf Club	20	19	5	0	0	0.000
Local community sports club, e.g. Squash, rugby & football	40	25	6	0	0	0.000
Swimming (where a separate pool exists without an associated sports centre)	10	12	2.5	0	0	0.000
Health Club / Sports centre	50	19	4	0	0	0.000
Tent Sites	75	44	8	0	0	0.000
Caravan Sites (i) Touring not serviced	100	44	8	0	0	0.000
(ii) static not serviced	100	44	8	0	0	0.000
(iii) Static fully serviced	180	75	8	0	0	0.000
HOSPITALS & RESIDENTIAL CARE HOMES						
Residential old people / nursing	350	110	13	50	17500	0.203
Small Hospitals	450	140	Access	0	0	0.000
Large Hospitals	Access individually					

RESULTS	
Total Average Flow =	17500.00 l/day
Total Average Flow =	0.20 l/s
Total Peak Flow =	DWF x 6 +10%
Total Peak Flow =	1.34 l/s



CC2696 - Cefn Lodge, Neath
REFH2 Brownfield / Greenfield Rates

Site Location E:272153.49 Postcode SA10 6YS
 N:196545.00

Determine Greenfield Rates (FEH / REFH2 adjustment method)

	Description	Return period (yrs)	As-rural peak flow (m ³ /s)	Greenfield (l/s/ha)	As-rural direct runoff (ML)
	1 year	1	0.009203103	9.20	0.061898652
	2 year	2	0.010421008	10.42	0.070725323
	5 year	5	0.014335511	14.34	0.099147267
	10 year	10	0.017049346	17.05	0.118893861
	30 year	30	0.021348609	21.35	0.150239215
	50 year	50	0.023429922	23.43	0.165438902
	75 year	75	0.025142207	25.14	0.177954916
	100 year	100	0.026397171	26.40	0.187134297
	200 year	200	0.029601569	29.60	0.210595121
	1000 year	1000	0.03895008	38.95	0.279202753
Per Hectare	Development Contributing Area (m ²)	10000		9.20	
				10.42	
				14.34	
				21.35	
				26.40	
			QBAR (approx Q2.3)	10.81	l/s/ha
Cabins & Hardstanding	Development Contributing Area (m ²)	1508	Q1	1.39	
			Q2	1.57	
			Q5	2.16	
			Q30	3.22	
			Q100	3.98	
			QBAR (approx Q2.3)	1.63	l/s