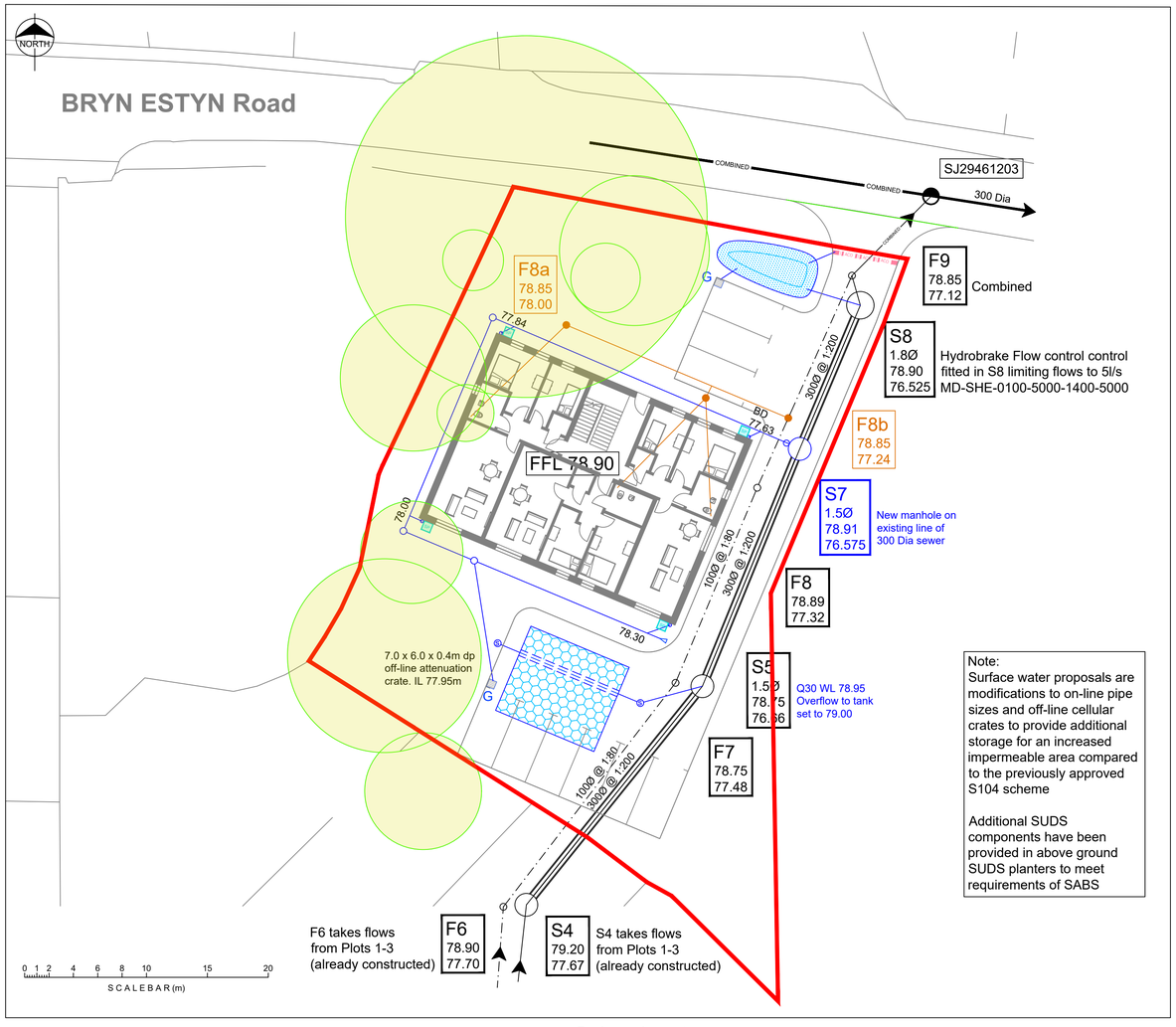
DO NOT SCALE



Drainage Layout
1:250

Note:
Surface water proposals are modifications to on-line pipe sizes and off-line cellular crates to provide additional storage for an increased impermeable area compared to the previously approved S104 scheme

Additional SUDS components have been provided in above ground SUDS planters to meet requirements of SABS

Legend

Site Boundary

Existing

Existing Combined Sewer

S104 SW Sewer (constructed)

S104 FW Sewer (constructed)

S104 Combined sewer (constructed)

Proposed

Surface Water (SAB) — 450Ø IC

Foul Water Drain (Private) — 450Ø IC

Cellular Attenuation Tank

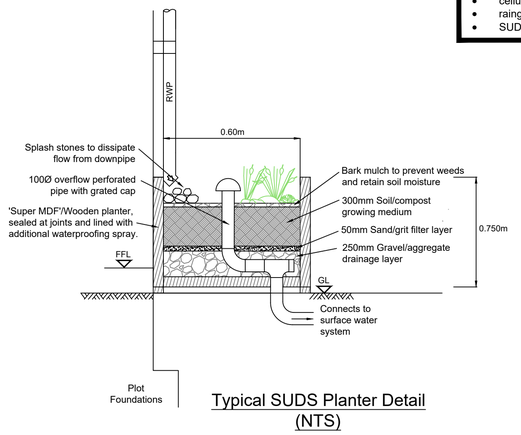
Rain Garden

SUDS Planter

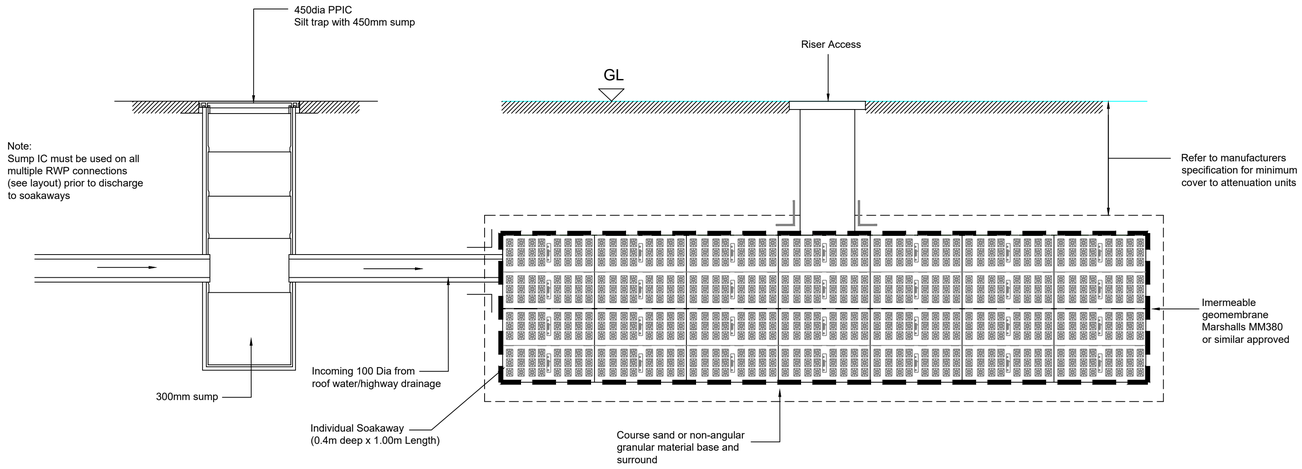
Yard Gully — G

ACO Drainage Channel

Proposed Slab Level — FFL 78.90



Typical SUDS Planter Detail
(NTS)



Typical Geocellular Tank Soakaway System Section
(NTS)
SDS or similar approved with riser access for inspections and future maintenance

Drainage Strategy

Existing Drainage

The site has approval for a 5 plot development. 3 plots (southern end of site) are constructed and occupied, but the client is proposing to substitute the last 2 plots for a apartment block with associated access and parking. The revised layout has an increase in impermeable areas of 130sq.m

Proposed Foul

Foul flows from the development will drain into the foul public sewer constructed for the existing development. This will require a variation to the existing S104 Approval from Welsh Water.

Proposed Surface Water

1. Collection for re-use
Client is not proposing rainwater harvesting on this development and there is no demand for a water butt for garden re-use.

2. Infiltration
Infiltration testing has determined the site is unsuitable for infiltration to dispose of surface water flows. The site is also susceptible to high groundwater.

3. Watercourse
There are no watercourses within the vicinity of the site.

4. Surface water sewer
There are no surface water sewers within the vicinity of the site.

5. Combined sewer
We are proposing to discharge into the existing 300mm Dia combined sewer in Bryn Estyn Road as per proposals for the approved 5 plot development. Surface water flows are restricted to 5 l/s with 30-year storage provided within on-line pipes and manholes, and 100-year storage within a off-line buried cellular attenuation tank.

The surface water proposals will require a variation to the existing S104 Approval from Welsh Water for the surface water sewers already constructed within the site.

Surface water proposals will also be subject to SAB Approval from Wrexham County Borough Council. We are proposing a management company will be responsible for SAB components upstream of the S104 sewer. These will consist of:

- pipes and associated access points
- silt traps
- cellular crates
- raingardens
- SUDS Planters

Notes

1. All dimensions are in millimetres unless otherwise shown.
2. All private drainage works are to comply fully with Part H of the Building Regulations.
3. All existing invert levels to be checked by the contractor at the start of works and any other discrepancies notified to the Engineer prior to commencing works. All levels are based on topographical survey information provided by others.
4. It is the responsibility of the Contractor to verify all information given with regards to existing services and drainage connections etc. prior to commencing the works.
5. The Contractor shall adhere to the CDM Regulations at all times.
6. Only trained personnel shall be permitted to enter confined spaces.
7. Drain trenches should not be excavated lower than the foundations of any building nearby unless either:
   a) The trench is within 1m of the foundation, the trench is filled with concrete up to the lowest level of the foundation, or
   b) Where the trench is further than 1m from the building, the trench is filled with concrete to a level bellow the lowest level for the building equal to the distance from the build, less 150mm.
8. All SVP and RWP connections are indicative and shall be confirmed by the client.
9. Pipe gradients out of the building to connecting manhole to be laid at 1:40 in accordance with Building Regulations, Part H, Table 6.
10. Where pipe sizes are not indicated :
    100Ø to be used for foul
    100Ø to be used for surface water unless stated otherwise.
11. Minimum surface water gradients shall be:
    100Ø laid at 1:100 with the exception of the first connection which shall be minimum 1:60
    150Ø laid at 1:150
12. Minimum 100Ø foul drainage gradient to be 1:80 with the exception of the first connection which shall be minimum 1:40.
13. Manhole covers to be marked FWS or SW as appropriate.
14. All manhole covers and frames shall comply with BS EN124. Covers in roads to be grade D400 and be 150mm deep. Manhole covers in car parking areas and drives to be grade B125 and covers in landscaping areas to be grade A15. All to be sized in accordance with Building Regulations Part H, Tables 11 & 12. "In-fill" type covers should not be used. Where a cover is located in an area of block paving, the bottom of the frame should be 150mm deep.
15. Precast concrete rings to be reinforced.
16. Backdrops in private manholes / inspection chambers to be internal
17. Private drains laid under adopted / private roads to be Class S granular bed and surround with a minimum of 1.2m cover, where this cannot be achieved a Class Z concrete bed and surround shall be provided.
18. Private drains located under landscape areas or driveways / car parking bays to be Class B granular bed and surround with a minimum 0.6m cover, where this cannot be achieved a Class Z concrete bed and surround shall be provided.
19. Pipes have not been designed to accommodate construction traffic loading. The contractor is responsible for providing adequate protection to the pipes during construction.
20. Slab levels shall not be varied without reference to the Engineer for guidance.

Water Quality

Roof

Generally run-off from roof can be considered clean run-off and will not require any this treatment. All flows from the RWP's will drain to above ground SUDS Planters with overflows into the surface water network

Hardstanding

Flows from the hardstanding areas will be directed into SUDS features such as rain gardens where possible

Maintenence / Responsibilities

Adoption and maintenance of all surface water components serving 2 or more properties subject to SAB approval.

This development is a apartment block requiring SAB adoption. The developer will set up a maintenance company who will be responsible for the future maintenance of the surface water network.

All piped networks to have CCTV survey at end of construction activities. Any debris to be removed. Future maintenance to involve inspections to ensure no silt build ups within network.

A SUDS Management Plan will be produced to address frequency and type of maintenance activities for the SUDS components

SUDS Strategy

The prime function of SuDS, as with conventional drainage, is to provide effective surface water drainage, ensuring the greatest degree of flood risk protection over the long term both within and downstream of the development and prevent pollution. However, SuDS approaches can bring wider benefits too. Appropriately designed, constructed and maintained, SuDS are more sustainable than conventional drainage systems and can help to:

- Reduce run-off surface water flow-rates and/or volumes and hence reduce the risk of flooding
- Encourage natural groundwater re-charge
- Reduce pollutant concentrations in storm water
- Provide habitat for wildlife.

There are many site-specific factors which will influence the choice of any single or combination of SuDS devices used within a development. The primary factors are:

- Whether the development is domestic, commercial or industrial
- Whether the underlying ground is contaminated. If so, infiltration systems will most probably not be permitted.
- Whether the underlying ground is permeable enough for infiltration systems to be considered.
- Whether the ground water levels are deep enough for infiltration systems to be considered
- Whether the site is steeply sloping and its general topography
- The availability of space inside the development for each potential SUDS facility.
- Health & Safety aspects should the development be likely to be inhabited or used by children.

To ensure no increased flood risk to offsite land and development, disposal of surface water to the ground is encouraged and runoff volumes will be reduced through the SuDS management train where ground conditions permit. Where ground conditions are unsuitable, a discharge to an open water body / sewer will be necessary with rates restricted to the existing site conditions.

PLANNING

coopers
chartered consulting engineers
Park House
Sandpiper Court
Chester Business Park
Chester
CH4 9QU
Tel: 01244 684910
Email: admin@coopers.co.uk
Web: http://coopers.co.uk

Client
HARTHILL HOMES LTD

Project
22 BRYN ESTYN ROAD
WREXHAM.

Title
Drainage Strategy

DRAWING NUMBER	SCALE at A1	1:200	
8382 / SK01	DATE	May 2024	REVISION
	DRAWN	AJ	
	CHECKED	AJ	

© Copyright The original of this drawing contained coloured symbols and/or features. Any black and white reproduction should not be relied upon.