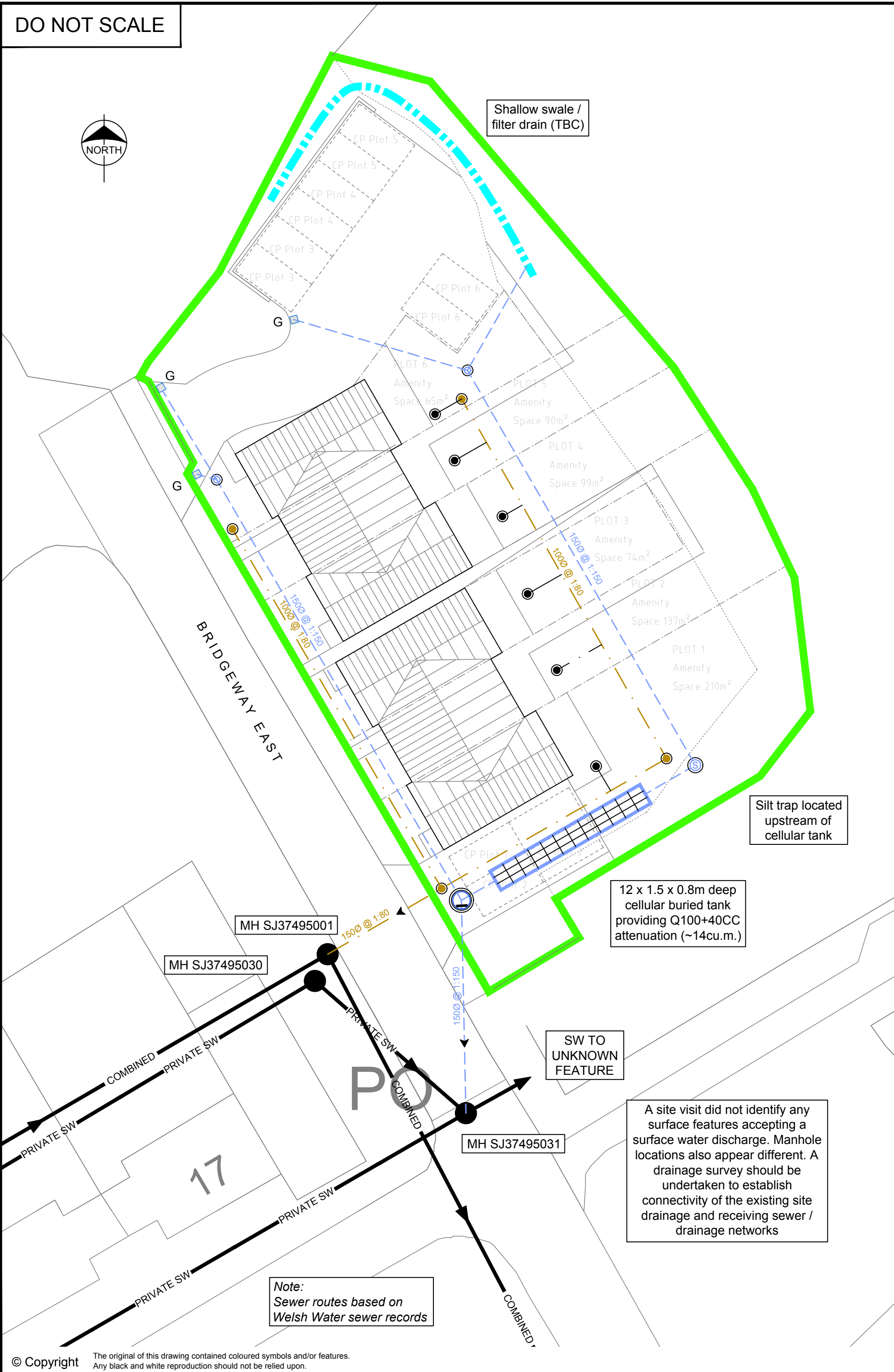




Surface Water Flow Rates

Developable Site Area = 1650sq.m.

Existing Brownfield Run-off Rates
(Based on 410sq.m. existing impermeable area)

1yr = 3.0 l/s (26.37 mm/hr rainfall)
30yr = 7.4 l/s (64.50 mm/hr rainfall)
100yr = 9.5 l/s (83.22 mm/hr rainfall)

Proposed Run-off Rates
(30% betterment on existing flow rates)

1yr = 2.1 l/s
30yr = 5.2 l/s
100yr = 6.7 l/s

Proposed impermeable areas = 590sq.m. (36% Imp)

100yr attenuation storage = approx 14cu.m (+40% climate change)

Drainage Strategy

Existing Drainage

We have no information on the existing site drainage. External RWP's from the existing roof are taken below ground level and are assumed to combine with foul flows before discharging into the combined sewer. A drainage survey should be undertaken to establish how the existing building is currently drained.

Proposed Foul

Discharge to existing combined sewer (MH SJ37495001) subject to Welsh Water approval

Proposed Surface Water

1. Collection for re-use
Water butts to be installed to rear RWPs on individual properties

2. Infiltration
Local geology maps and available BGS boreholes nearby indicate infiltration techniques for disposal of surface water from the development is unlikely. However, infiltration testing will be undertaken following the intrusive site investigation should ground conditions indicate presence of suitable strata (sands / gravels)

3. Watercourse
There are no watercourses within the vicinity of the site, the nearest being approximately 200m north west of site. A connection is considered unviable due to levels and cost

4. Surface water sewer
The Welsh Water sewer records show the Bridgewater East housing to the west of the site being served by a private surface water network although the outfall is unclear. A site visit has not identified any surface feature which this network could discharge so it may discharge either into a culverted watercourse (no evidence) or the combined sewer network. This network should be investigated further by means of a drainage / CCTV survey to establish levels and connectivity. At this stage we assume a surface water connection into the sewer network will be acceptable as higher priority options are unviable.

Water Quality

Roof

Generally run-off from roof can be considered clean run-off and will not require any treatment

Car parking

There may be opportunity to direct run-off from the car park to areas of landscaping. A grassed surface feature or filter drain could provide sufficient treatment before flows are passed forward. Site levels are likely to require gullies at site entrance. As the catchment area is too small to install a bypass interceptor (not cost effective) Naylor Smart Gully Adaptors are to be installed in the gullies to capture any potential oil spills. These adaptors are used for oil filtration & pathogen removal utilising a true absorbent which absorbs then locks in polluting hydrocarbons and oil derivatives from surface water effectively, while still allowing high flow through rates. For small car parks the Naylor Smart Sponge are a cost effective solution in lieu of a bypass interceptor

Maintenance / Responsibilities

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

A 'Private Management Company' should be set-up to maintain the SAB approved surface water network in the future. WCBC SABS will require details of the Management Company. Maintenance requirements will be considered further at detailed design stage and a SUDS Management Plan will be produced to address the frequency and type of maintenance activities. Residents will be required to pay an annual fee to the Management Company. Details /costs to be determined for Full SABS Application.

Pipes and manholes:

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. SUDS Management Plan to be produced to address frequency and type of maintenance activities

Buried cellular attenuation:

To be maintained by private 'Management Company' SUDS Management Plan to be produced to address frequency and type of maintenance activities.

Flow Control:

To be maintained by private 'Management Company' SUDS Management Plan to be produced to address frequency and type of maintenance activities.

Gullies:

To be maintained by private 'Management Company' SUDS Management Plan to be produced to address frequency and type of maintenance activities.

Shallow swale / Filter drain:

To be maintained by private 'Management Company' SUDS Management Plan to be produced to address frequency and type of maintenance activities.

Note

- This is a preliminary design demonstrating a drainage solution is achievable to discharge flows from the proposed development. A topographical survey, full site investigation and drainage survey work is required prior to undertaking full design, however; it should be noted the site does currently drain at unrestricted flow rates with no known flooding issues and the proposed scheme will provide a betterment on the existing situation.
- The specification in all respects shall be in accordance with the current Wrexham CBC Specification and Construction publication in force in the county at the time of construction.

Legend

- Site Boundary
- Existing Combined Sewer
- Existing Private Surface Water Drain (TBC)
- Proposed Foul Sewer
- Proposed Surface Water Sewer
- Proposed Flow Control Manhole
- Proposed Cellular Tank
- Naylor Smart Gully
- Surface Feature (swale / filter drain)

PRELIMINARY

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Client: **KEITH WEST**

Project: **SCALLYWAGS DAY NURSERY
PENTRE MAELOR, WREXHAM**

Title: **Drainage Strategy
in support of SABS
Pre-Application Advice on SuDS**

DRAWING NUMBER	SCALE at A2	1:250	REVISION
7266 / SK02	DATE	April 2019	
	DRAWN	AJ	
	CHECKED	AJ	