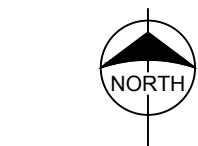


DO NOT SCALE



Note:
Existing drainage from Westerdale (existing dwelling) currently unknown. A drainage survey should be undertaken to establish connectivity of the existing site drainage and possible live connections to public sewer network. Diversion into proposed drainage networks may be required.

Note:
No topographical survey currently available for the site. General topography falls east towards Gardden Road so drainage proposals should be achievable but will need to be reviewed further when a site survey has been undertaken.

Foul and surface water connections into existing combined public sewer subject to Welsh Water approval.

Flush kerbs to be provided along northern channel of adopted highway to allow highway surface run-off into SUDS features.

OPTION 1
Surface water discharge into highway drain subject to approval from Wrexham SABS and confirmation a gravity connection is achievable.

OPTION 2
Surface water discharge into surface water public sewer subject to approval from Welsh Water. Only to be considered should a connection to highway drain prove unfeasible.

Drainage Strategy

Existing Drainage

We have no information on the existing site drainage from Westerdale. Foul drainage is assumed to connect into the sewers in Gardden Road. Surface water connections are unclear. A drainage survey should be undertaken to establish how the existing site is currently drained and whether any drainage needs diverting or offers a potential point of connection from the proposed development.

Proposed Foul

Discharge to existing combined sewer network in Gardden Road via a new manhole subject to Welsh Water approval.

Proposed Surface Water

1. Collection for re-use
Water butts to be installed to rear RWPs on individual properties. It is currently assumed the proposed dwellings will not be providing rainwater harvesting for re-use within the property (eg. toilet flushing and washing machine).

2. Infiltration
Local geology maps and available BGS boreholes nearby indicate infiltration techniques for disposal of surface water from the development is unlikely. Furthermore, the BGS Infiltration Report also indicates potential as low and subsequent site investigation has also confirmed the site is underlain with clay and is therefore unsuitable for infiltration to dispose of surface water flows from the development.

3. Watercourse
There are no watercourses within the vicinity of the site, the nearest being approximately 300m south east of site (Stry Las Park). A connection is considered unviable due to cost and potential third party land issues. A route along the highway would be in excess of 600m.

4. Highway Drain
A CCTV survey has confirmed the presence of highway drainage network in Gardden Road approximately 50m to the south of the site. However its not clear if a gravity connection from the development site is achievable.

4. Surface Water Sewers
The nearest surface water public sewer are in Maes Y Ficerdy approximately 175m south east of the site. A gravity connection can be achieved from the site and subject to Welsh Water approval will be a suitable receptor.

5. Combined Sewers
Combined sewers are located in Gardden Road and would allow for a gravity connection from the site.

Discussions with Wrexham SAB / Welsh Water are advised early in the design process to establish an acceptable solution. A connection to the highway drain will be the preferred destination providing a gravity connection is achievable. A connection into the surface water sewer will be required otherwise.

Water Quality

Roof

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

Access road and driveways

Permeable paving and shallow dry basins to provide a sufficient level of treatment.

Surface Water Flow Rates

Existing Greenfield Run-off Rates
(Based on 3140sq.m. Site area)

1yr = 1.7 l/s
30yr = 3.4 l/s
100yr = 4.1 l/s

Proposed Run-off Rates

1yr = 1.7 l/s
30yr = 3.4 l/s
100yr = 4.1 l/s

Proposed impermeable areas = 1340sq.m.

100yr attenuation storage = approx 62cu.m
(+40% climate change)

Maintenance / Responsibilities

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

A 'Private Management Company' should be set-up to maintain the SABS approved surface water network in the future. WRCB 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 defects 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.

Shallow SUDS (dry basin)

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

Permeable paving:

To be maintained by private 'Management Company' SUDS Management Plan to be produced to address frequency and type of maintenance activities. Or to be maintained by individual property owner when located within private drives.

Flow Control:

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.
- 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.
- The surface water network will be subject to Wrexham SABS Approval. Surface water drainage systems must be designed and built in accordance with mandatory standards for sustainable drainage published by Welsh Ministers. These systems must be approved by the local authority acting in its SUDS Approving Body (SAB) role before construction work begins. The SAB will have a duty to adopt compliant systems so long as it is built and functions in accordance with the approved proposals, including any SAB conditions of approval.
- The surface water destination is to direct surface water flows to the combined sewer. An evidence based report will be required for Wrexham SAB / Welsh Water to consider the proposal. A topographical survey, existing site drainage survey and site investigation will be required before such a report can be has been undertaken. See Drainage Strategy notes for consideration of surface water destinations. Higher in the hierarchy than discharge to a public combined sewer.

Legend

- Site Boundary
- Existing Combined Sewer
- Existing Surface Water Sewer
- Existing Foul Water Sewer
- Existing Highway Drain
- Proposed Foul Sewer
- Proposed Surface Water Sewer
- Proposed Flow Control Manhole
- Shallow SUDS Basin
- Permeable Paving
- Surface Water flow direction into SUDS features
- Trial pits TP01 - TP04 excavated by Coopers on 13 October 2020

PRELIMINARY

B	22.02.21	SW drainage strategy updated following further investigation	PW	AJ
A	14.10.20	Trial pits added	OS	AJ

Rev	Date	Revision	By	Appt
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Client

Xanfinity Pension Trustees Ltd

Project

WESTERDALE
RHOS, WREXHAM

Title

Drainage Layout

DRAWING NUMBER

7406 - SK01

SCALE at A1 1:250

DATE July 2020

DRAWN AJ

CHECKED AJ

REVISION

B