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**GRAHAM SCHOFIELD
ASSOCIATES**

**CONSULTING CIVIL AND STRUCTURAL
ENGINEERS**

Suite 3 Balfour Court
Off Hough Lane
Leyland PR25 2TF

Tel (01772) 459383
Website: grahamschofieldassociates.co.uk
Email: reception@gsa72.co.uk

**FOUL AND SURFACE WATER DRAINAGE
STRATEGY**

FOR

**PROPOSED INDUSTRIAL REDEVELOPMENT
OF UNITS 9 AND 10**

AT

**FISHWICK INDUSTRIAL ESTATE
KILBUCK LANE, HAYDOCK,
ST HELENS, WA11 9SZ**

Project : 2021.128
Date : June 2021
Engineer : S P Douglas

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1.0 EXECUTIVE SUMMARY

Graham Schofield Associates have been appointed by Fishwick's to prepare a Drainage Strategy in support of a planning application that fulfils the requirements of St Helens Council, The Environment Agency and United Utilities all where applicable.

The site of existing units 9 and 10 is located at Kilbuck Lane, Haydock, St Helens, WA11 9SZ. It currently comprises two single storey masonry buildings with surfaced yard areas. It is understood that existing surface water run-off and foul sewage is currently discharged to public combined sewer in Kilbuck Lane.

The site is to be redeveloped by construction of a single B2/B8 industrial unit of 10,000 square feet area.

The site lies within Environment Agency Flood Zone 1 and is less than 1 ha in area. According to The Guidance a site specific flood risk assessment is not considered necessary.

There are public combined sewers within reasonable reachable distance of the site. There are no separate foul or surface water sewers within reasonable reachable distance of the site.

It is proposed to undertake onsite percolation testing to determine the potential for surface water disposal by infiltration. If percolation testing is successful, site surface water after development will be discharged to local soakaway structures on site where possible. Should disposal by infiltration not be viable, surface water from the development will be attenuated to not more than 50% existing 1-year peak flow for all rainfall events up to the 100-year event with allowance for 40% increase in rainfall intensities due to climate change and discharged to local combined sewer with attenuation storage being incorporated into the new drainage network.

New foul sewage will also be directed to local combined sewer, combining with attenuated surface water prior to discharge.

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2.0 INTRODUCTION

Fishwick's are proposing to redevelop the site of existing units 9 and 10 of Fishwick Industrial Estate, St. Helens, to provide a new 10,000 square foot B2/B8 unit with office and concrete service yard, asphalt concrete car parking and soft landscaped area

Graham Schofield Associates have been appointed by Fishwick's to prepare a Drainage Strategy in support of a planning application that fulfils the requirements of St. Helens Council, The Environment Agency and United Utilities, all where applicable.

3.0 SITE CHARACTERISATION

3.1 Site Location

The 0.25 hectare site is located within the Fishwick Industrial Estate, Kilbuck Lane, St. Helens, WA11 9SZ, approximately 4 miles northeast of St. Helens town centre. The centre grid reference for the site is E356615, N397771. The site location plan at Figure 3.1 below shows the site with “red line” boundary, together with adjoining blue line boundary of land within the same ownership.

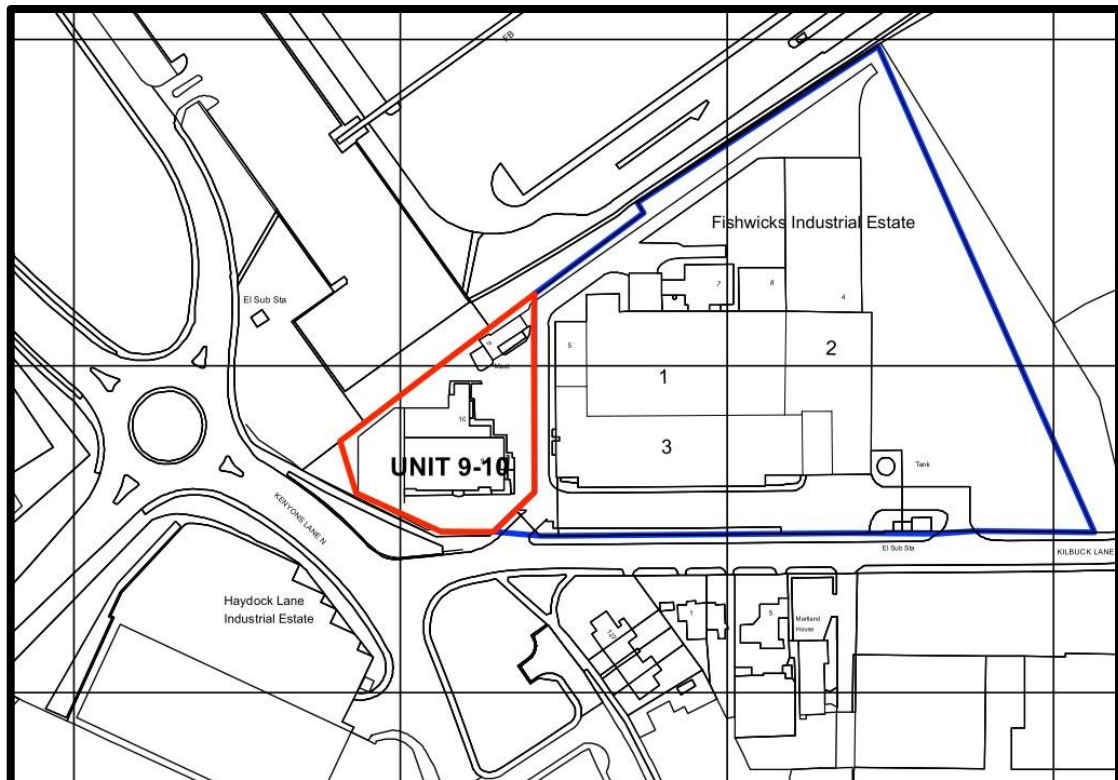


Figure 3.1 – Site Location Plan

3.2 Site Description

The site lies to the north of the Kenyons Lane/Kilbuck Lane junction. A major supermarket distribution centre lies to the north of the site, Further existing units of the industrial estate lie to the east, with Kenyons Lane and Kilbuck Lane forming the western and southern boundaries.

There are currently two masonry buildings on the site, one forming existing units 9 and 10; the other, a small outbuilding on the northern boundary. There are existing drained concrete and macadam external pavings and a small landscaped area. The total existing drained area onsite is 0.22 hectares

3.3 Geology

Reference is made to the e3p Phase I and Phase II geo-environmental site assessment report ref12-639-r2 dated October 2018. The geological sequence beneath the site comprises Till – Diamicton (formerly identified as boulder clay), overlying Pemberton Rock of The Pennine Middle Coal Measures.

3.4 Hydrology and Hydrogeology

The nearest known surface watercourses are the Ellams Brook system approximately $\frac{3}{4}$ mile to the east and Clipsley Brook approximately $\frac{1}{2}$ mile to the west.

By further reference to the e3p report, aquifer designation is confirmed as Secondary – Undifferentiated within the drift measures and Secondary A within solid measures.

3.5 Existing Drainage

Reference to United Utilities 1:1250 sewer record sheets (included in Appendix A) indicates that there are public combined sewers within both Kenyons Lane and Kilbuck Lane to the front of the site. There are no separate system foul or surface water sewers within reachable distance of the site.

Inspections on site confirm existing private drainage, although locations of communication with the public sewers is not confirmed. It is understood that combined private drainage communicates with the combined sewer in Kilbuck Lane to the front of the site.

The existing drained area on site has been measured as approximately 2,200 square metres. Adopting a flat rate rainfall intensity of 50mm/hour as that from a short storm of 1-year return, existing run-off from the site is estimated as:-

$$Q = \frac{A k I}{0.36} = \frac{0.22 \times 0.9 \times 50}{0.36} = 27.5 \text{ litres/second.}$$

Where A is impermeable area = 0.22 hectares

K is a run-off coefficient taken as 0.9

I is rainfall intensity of 50mm/hour.

With only domestic sanitary appliances on site it is estimated that existing foul flows from the site will not exceed 1 litre/sec peak.

3.6 Environment Agency Flood Mapping (Rivers and Sea) Map

The <<gov.uk>> Guidance on Flood Risk and Coastal Change (The Guidance) states that a site specific flood risk assessment is required for development sites of 1 hectare or greater located in Flood Zone 1, all proposals for new development (including minor development and change of use) in Flood Zone 2 and 3, or in an area within Flood Zone 1 which has critical drainage problems (as notified to the local planning authority and the EA and where proposed development or a change of use to a more vulnerable class may be subject to other sources of flooding).

The area of the proposed site is approximately 0.25 hectares and by reference to the EA published Flood Map at Figure 4.1 below, lies in Flood Zone 1. With no other indication that the site may have any critical drainage issues likely to demand special consideration, it is understood a site specific flood risk assessment is NOT required.

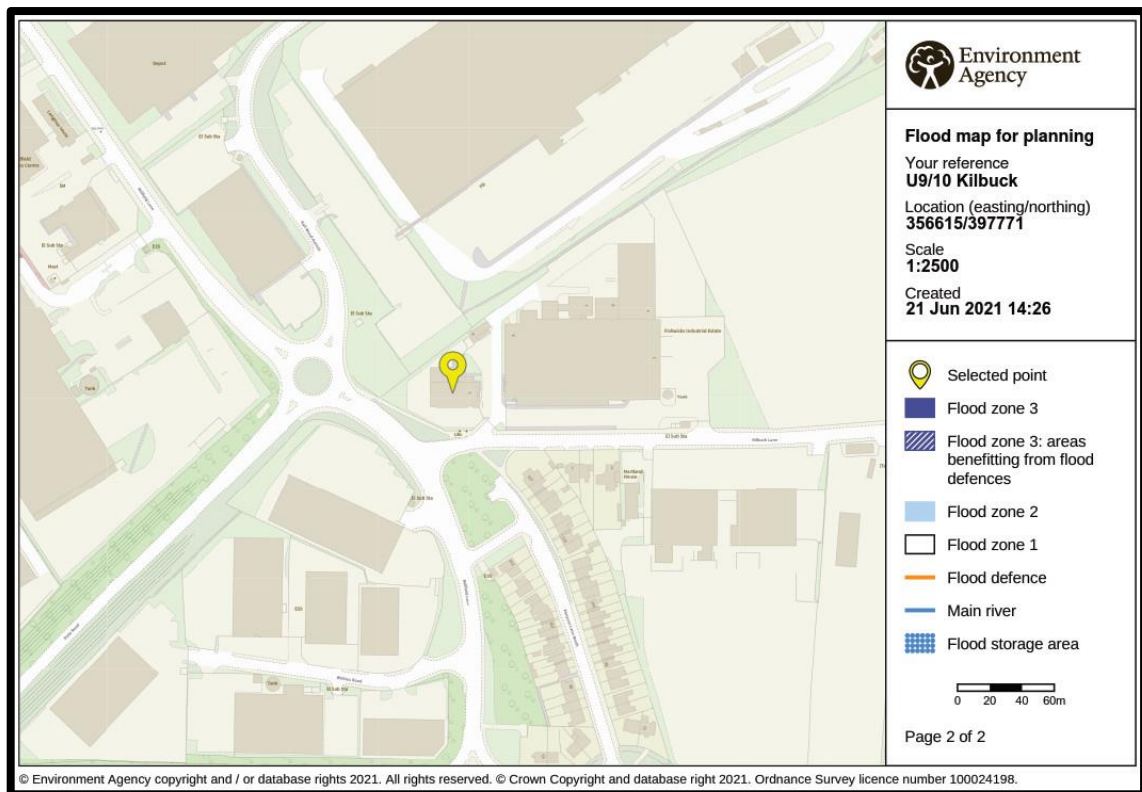


Figure 3.2 — EA online Flood Map for Planning - Rivers & Sea

4.0 DEVELOPMENT DRAINAGE PROPOSALS

4.1 Surface water drainage

The development proposals comprise demolition of existing buildings on site and the construction of a single 10,000 square foot B2/B8 industrial unit together with associated concrete and asphalt concrete pavings and an area of soft landscaping. See the development proposals drawing at Appendix B.

Proposed impermeable area of roofs, roads and parking areas on site will be approximately 2070 square metres. Minor paths and other small hard areas will be laid to falls encouraging run-off to flow to adjacent landscaped areas.

Although anecdotal advice and the anticipated geological conditions as indicated in the e3p report, together with evidence of most recent developments in the immediate vicinity, suggest that soils will not be suitable to sustain surface water disposal via infiltration, it is proposed that site percolation testing be carried out in order to determine the potential for disposal of surface water on site.

In the event that ground conditions are proven suitable for surface water disposal by SuDS infiltration on site, all surface water will be directed to onsite soakaways where possible, designed in accordance with current good practice.

Reference to the User Guide to the St. Helens Council Strategic Flood Risk Assessment has identified requirements for allowable surface water discharges from redeveloped brownfield sites where testing proves that the soils are not suitable for disposal of surface water by infiltration.

Section 3.6.7.7 of the guide confirms that **reduction** in surface water flows from previous should be at least 50%. With an existing estimated site run-off during a 1-year rainfall event of 27.5 litres/second, it is proposed to limit run-off from the developed site to not exceeding 50% of the existing 1-year peak rate, for all rainfall events up to and including the 100-year event enhanced by 40% for the effects of future climate change.

In this case, attenuated surface water will be discharged to local combined sewer subject to the approval of and at a maximum rate agreed with United Utilities, Sewerage Provider.

Using MicroDrainage by XP Solutions Source Control storage estimate

The estimated required attenuation storage V cubic metres is as follows

	Discharge as above	
1-year (100%)	q (litres/sec)	V (cu.m)
	13.75	1<V<9
30-year (3.33%)	q (litres/sec)	V (cu.m)
	13.75	18<V<37
100-year cc (1%+40%)	q (litres/sec)	V (cu.m)
	13.75	50<V<87

Impermeable area A = 0.207 hectares

M5-60 = 19.3 R = 0.366
Permitted pass forward flow = 13.75 litres/sec

Whilst any necessary attenuation storage to protect the site against flooding for all events up to and including the 30-year rainfall event must be provided underground, additional attenuation storage up to the 100-year+climate change event may be provided on the surface of the site provided it does not present risk of flooding to buildings or other vulnerable areas or risk of overland flows from the site.

The form and arrangement of these storage volumes will be subject to detailed design and will be confirmed should there be no option for any disposal by infiltration.

4.2 Foul water drainage

It is proposed that the site be drained on a separate foul water system to the point where private drains leave the site, when foul flows should be combined with attenuated surface water flows before discharge to local combined public sewer.

Flood map for planning

Your reference
U9/10 Kilbuck

Location (easting/northing)
356615/397771

Created
21 Jun 2021 14:26

Your selected location is in flood zone 1, an area with a low probability of flooding.

This means:

- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage problems

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

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<https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

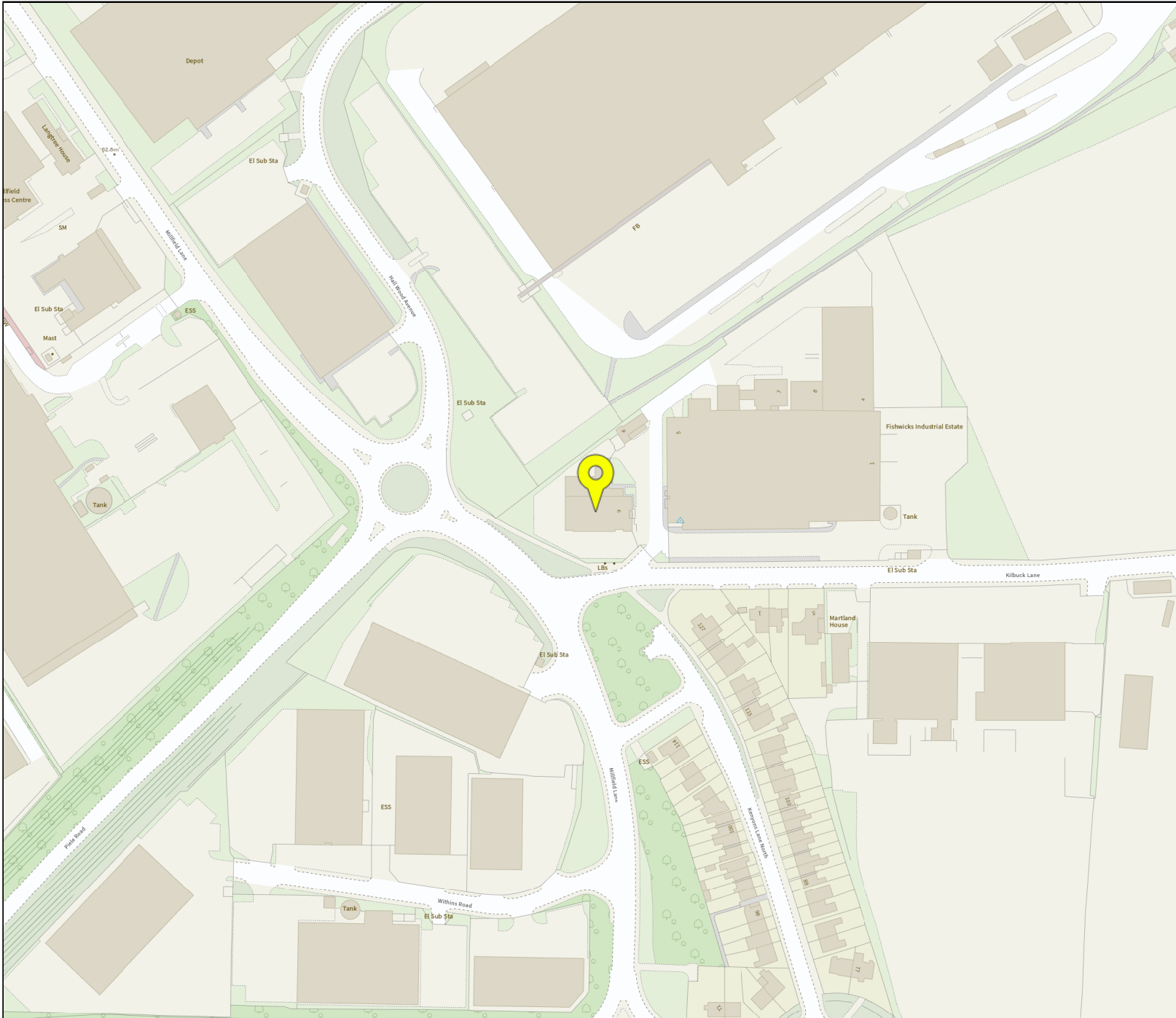
Flood map for planning

Your reference
U9/10 Kilbuck

Location (easting/northing)
356615/397771

Scale
1:2500

Created
21 Jun 2021 14:26



-  Selected point
-  Flood zone 3
-  Flood zone 3: areas benefiting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Flood storage area

