

SuDS Plan - 22 Chudleigh Road, Twickenham, TW2 7QR

HAZARD REDUCTION, MITIGATION AND WATER EXCLUSION STRATEGY

Landscaping to Rear and Front Gardens: The proposed gardens will have ground soil, a wooden decking with steps from the proposed bi folding doors. This will allow water to drain away directly back into the ground soil. The gardens will be laid to fall away from the building.

The proposed extension will be constructed using resistant construction techniques and resilient materials with a concrete floor to the lower part of the proposed extension and hard floor finishes. This construction will provide structural strength and integrity in respect of potential future flood events to proposed ground FFL

PLANNED EVACUATION

The proposed ground floor levels are above Flood Zone depths predicted on Chudleigh Road at the site frontage, which are predicted at less than 100mm. Estimated Flood levels from surface water are predicted at 300mm or below, and would impact the lower part of the extension if at all. Escape is up the steps to the kitchen and remainder of the property, both of which are above EA estimated flood levels.

Twickenham Rainfall Statistics / Flash Flooding

- Based on maximum rainfall (risk of flooding) the rainfall/month = 60mm
- Rainfall/ day = 2.00mm (per square metre)
- Based on average flood period/rainfall storm of 1hr = 2 x average rainfall/day =4.00mm

WATER INFILTRATION TEST

Pit dug in the rear garden of 22 Chudleigh Road.



Width (mm)
300
Length (mm)
300
Depth (mm)
600

Date and start time	Time taken to drain from 75% to 25% (from 300mm)	Vp number
7/12/2024 13.12	58 mins / 3480 secs	3480/150 = 23.2
8/12/2024 10.43	67 mins / 4020 secs	4020/150 = 28.01
Average Vp number		25.6

The Vp number is between 15 and 100. The ground is therefore suitable for a soakaway.

SURFACE WATER RUN-OFF REDUCTION

Rainwater run-off from the house roofs will be taken at the rear and front of the existing house to a soakaway in the rear garden, 5m from nearby buildings.

The new extension roof area is 48m².

Additional Flows (storm):

- Average additional rainwater flow (Twickenham/day) : 2mm x 48m² = 96mm²/day= 96 litres/day =4 litres /hr
- Storm flash flood flow = 8 litres /hr /sqm
 - = 0.13 litres/minute storm water for the additional extension area

For residential applications, the most commonly used size for a soakaway is 1m³ for 50m² of roof area, which requires crates with a water storage volume of 1,000 litres. **The proposed geocellular soakaway will be 1.2m³, allowing for any additional rainwater.**

SUMMARY OF PROPOSAL IMPACTS

Through increase in the net area of permeable surfaces on the site, and the attenuation of surface water flows from residual permeable surfaces, the proposals will provide a positive contribution to borough wide efforts to reduce flood risk through a reduction in run-off relative to the existing.

Chudleigh Road Run-off estimate below

Calculated by:	Faraz Nasir
Site name:	Chudleigh Road
Site location:	Twickenham

Site Details

Latitude:	51.45330° N
Longitude:	0.33815° W
Reference:	3591358148
Date:	Oct 02 2024 22:31

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Runoff estimation approach

Site characteristics

Total site area (ha):

Methodology

Q_{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Notes

(1) Is $Q_{BAR} < 2.0$ l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

Soil characteristics

	Default	Edited
SOIL type:	2	2
HOST class:	N/A	N/A
SPR/SPRHOST:	0.3	0.3

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

Hydrological characteristics

	Default	Edited
SAAR (mm):	600	600
Hydrological region:	6	6
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

(3) Is $SPR/SPRHOST \leq 0.3$?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Q_{BAR} (l/s):	0.15	0.15
1 in 1 year (l/s):	0.13	0.13
1 in 30 years (l/s):	0.35	0.35
1 in 100 year (l/s):	0.49	0.49
1 in 200 years (l/s):	0.57	0.57