

An infiltration test has confirmed that this site is unsuitable for a soakaway. It is therefore proposed to dispose of the surface water into the existing surface water drainage system via an attenuation tank comprising of two layers of heavy duty Aquaplastic crates stack within the front forecourt area. Design considerations and calculations for the sizing of the tank are as set out below.

GENERAL DATA
Site location: England and Wales
60 min rainfall depth of 5 year return period 'R' [mm] = 20
M5-60 to M5-2d rainfall ratio 'r' = 0.50
Proposed discharge rate 'v ₁ ' [litre/s] = 0.50
Proposed discharge rate 'v ₂ ' [litre/s] =
Allowance for climate change: 20%

Required storage volume for discharge rate ' v_1 ' =	12.80	m ³
Required storage volume for discharge rate ' v_2 ' =		m ³

AREA DATA	Impermeability [%]	Effective area [m ²]
Impermeable area 'A _i ' [m ²] = 253	100.00	253
Landscaping and/or green roof area 'A _g ' [m ²] = 0	80.00	0
Other partially permeable area 'A _s ' [m ²] = 197	20.00	39.4
AREA DRAINED TO ATTENUATION TANK = 292.4 m²		

* Z2 is a growth factor from M5 rainfall

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Car parking/turning area
The existing gravel surfacing to the whole of the front forecourt parking and turning area is to be covered with a 3D Geogrid cellular matting on a geotextile membrane prior to the commencement of any demolition or construction works. The matting is to be backfilled with Type 1 stone to provide the oversite for the construction phase works. On completion, the Car parking/turning area will be surfaced throughout with Marshall's Tegula Piora Permeable Block Paving in Harvest. It will also feature matching kerbing as necessary. Paving laid in accordance with Marshall's specifications and details to provide a sustainable drainage system with 50mm of 6mm clean crushed stone laid directly onto the Geogrid matting. Individual car space markings as shown on drawings using white paint.

The pathways to the front and sides of the new building will be finished with Marshall Chancery Flagstones in a Grey Green shade. Slabs to be laid on a mortar bed and consolidated hardcore sub-base. Private patios and the communal seating area to the rear will also be finished in the Chancery Flagstones. Private garden areas will be enclosed by a 1.0m high timber picket fence and planted hedging as noted. Paving between building and boundary fencing to be provided with 100mm wide drainage gravel strip each side.

Stormwater from new building and collection pits to discharge into new Attenuation tank to be provided in front forecourt area as shown on plans. Tank to be formed with Aquaplastic or similar heavy duty storage crates, to 4.0m sq. and to 800mm deep. Crates wrapped in sealed geotextile membrane with all joints taped and backfilled with compacted 20mm clean crushed concrete as above. Provide 500mm cover to crates with permeable paving build up over as noted above.

Drain outlet from tank to be provided with 5L/sec Flow Restrictor Valve to discharge into external sump chamber with pumped connection to existing stormwater sewer in roadway, subject to agreement with Thames Water.



Church Gardens, Church Hill, Harefield, Middlesex UB9 6DU



McHugh RIBA
7632833

PROJECT: 137 SWAKELEYS ROAD
ICKENHAM

DRG NO:
2110|13

DRAWN: 

