



- Notes
- All information provided on this drawing is intended for preliminary engineering appraisal purposes only. NOT FOR CONSTRUCTION
 - The drawing is based upon limited information provided. As such, it is advised that detailed discussions should undertake with relevant bodies e.g. Local Highway Authority, Local Sewerage Undertaker, Local SuDS Adoption Body etc in order to ascertain the acceptability of the proposals.
 - All drainage/SuDS information is indicative only. Subject to detailed design.
 - Infiltration testing will be required in order to ascertain the feasibility of soakaways and alternative infiltration measures, and to determine attenuated storage requirements.
 - Additional investigation of the existing surface water drainage network is required in order to calculate pre-development brownfield discharge rates. It is assumed that proposed site discharge rates will be restricted to pre-development brownfield rates with an allowance for betterment included. All to be agreed with the local SAB.
 - Additional site investigation required in order to confirm whether there is a requirement for clean capping to gardens. This may affect proposed development levels somewhat.

KEY

- Proposed Ground Level
- Masonry Retaining Wall (Height Indicated)
- Exposed Facing Brickwork (Height Indicated)
- 1 in 2 max Embankment
- 64,300
- Finished Floor Level
- Steps (No. Indicated)
- Existing Foul Water Drain/Sewer
- Domestic storm water drainage
- Silt trap (on outlet from permeable pavements)
- Type 4 SW Inspection Chamber
- Type 3 SW Inspection Chamber
- Domestic storm water drainage (Adoptable SAB)
- Silt trap (on outlet from permeable pavements SAB)
- Type 4 SW Inspection Chamber (Adoptable SAB)
- Type 3 SW Inspection Chamber (Adoptable SAB)
- Storm Water Manhole (Adoptable SAB)
- Highway Drain (Adoptable 5.38)
- Highway Drain Manhole (Adoptable 5.38)
- Highway Gully & 150# Connection (Adoptable 5.38)
- Foul Water Drain (Non-Adoptable)
- Type 4 FW Inspection Chamber (Non-Adoptable)
- Type 3 FW Inspection Chamber (Non-Adoptable)
- Foul Water Sewer (Adoptable)
- Type 4 FW Inspection Chamber (Adoptable)
- Type 3 FW Inspection Chamber (Adoptable)
- Foul Water Manhole (Adoptable)
- Porous asphalt driveway
- Rain Garden to provide interception and Treatment
- Swale and linear SuDS basins to provide interception, treatment and storage of highway runoff
- Water Butt
- GreenBlue Urban SuDSpot o.s.a to intercept and attenuate roof runoff where appropriate
- Land drainage (French drain with perforated pipe)
- Existing tree root protection area

EXISTING & PROPOSED SURFACE WATER DISCHARGE RATES

Note: NPT SAB have requested that proposed development discharge rates be restricted to the pre-development brownfield rate and not the pre-development brownfield rate. Therefore:-

Pre-development Greenfield Catchment Area = 1.3966ha

Based on table, the area within proposed site area contributing to runoff is pre-development brownfield rate (see above)

Allowable Greenfield Runoff Rates (1.3966ha)

Q ₉₀	= 25.0 l/s
1 in 1yr	= 21.9 l/s
1 in 30yr	= 44.4 l/s
1 in 100yr	= 54.5 l/s
1 in 100yr +40%	= 76.3 l/s

Rates calculated using HR Watfordford 'Greenfield runoff rate estimation'

Peak Development

Approx Impervious Area = 0.770ha

Post-Development peak flow rate

1 in 1yr	= 20.3 l/s (-1.6 l/s)
1 in 30yr	= 23.1 l/s (-21.3 l/s)
1 in 100yr	= 23.3 l/s (-31.2 l/s)
1 in 100yr +40%	= 24.0 l/s

Discharge Volume (100yr 365mm)

*Post-Dev - 1 in 100yr (365mm) = 497.6m³

Total Volume = 171.1m³ + 136.6m³ = 307.7m³ *Note: All flows restricted to pre-development, brownfield, Q₉₀ rate. Therefore, discharge volumes are provided for information only.

SuDS Measures

The above post-development flow rates are based on a traditional piped system with a 3 minute concentration time. However, all runoff is to be conveyed to pass through a SuDS feature which will further reduce the above discharge rates and volume.

The SuDS components will effectively increase concentration time, reduce flow velocities and rates, and providing significant volume losses through evaporation and evapotranspiration. Losses are difficult to quantify and will vary depending on plant species, level of saturation and varied ground conditions across the site.