

MANOR FARM & COPSEYS NURSERIES

DENVILLES, HAMPSHIRE

Surface Water Drainage

- The proposed surface water drainage strategy for the planned housing development at Manor Farm and Copsey's Nursery is a dependable and robust system which affords complete protection to the surrounding area and a significant positive improvement in flood protection to the existing properties both adjacent to the development and downstream of the site.
- This is achieved by strictly controlling and reducing the overall peak rate of surface water runoff from the development into the Nore Farm Stream at the eastern boundary of the site.
- This will help mitigate and improve the historical flooding incidences that have been recorded downstream of the site along the Nore Farm Stream catchment.
- At present the Copseys Nursery area of the site is predominantly impermeable hardstanding, with storm runoff discharging directly into the Nore Farm stream at an uncontrolled rate.
- Once the proposed storm drainage system is in place, the peak flows leaving the Copseys Nursery area of site into the Nore Farm stream will be reduced to the equivalent of the site in its Greenfield state.
This will considerably reduce the peak runoff from the current Copsey Nursery site and into the Nore Farm Stream from the current 486l/s down to 16l/s.
- The post development flows leaving the Manor Farm area of site into the Nore Farm stream will be also be restricted to the equivalent of the Manor Farm site in its Greenfield state, equating to a maximum runoff rate of 12l/s.
- These tightly controlled surface water discharge rates from the proposed site will ensure that the development complies with the stringent requirements of the Environment Agency and provides a significant level of betterment in terms of flood risk to the area of Denvilles.
- The principle surface water drainage strategy for the proposed development is to utilise SUDS (sustainable urban drainage systems) with all runoff draining into the underlying ground using features such as permeable block paving which will drain runoff from the road network and driveways, and cellular crate soakaway cells which will dispose of runoff from roofs by discharging directly into the underlying soils.
- The philosophy of SuDS is to replicate as closely as possible the natural drainage regime of the site before development and to improve the quality of the runoff, reducing and improving the impact on the receiving groundwater and watercourses.
- The completed surface water drainage system will be designed with a significant factor of safety.
All SUDS will be designed to manage storm runoff from the exceptionally rare, but intense 1 in 100year storm event (1% chance of occurrence each year) plus an additional 30% for predicted climate change effects.

- In the rare occurrence of an exceedance event or during periods of exceptionally high groundwater, a 'back-up' overflow system will be incorporated into the drainage system to safely direct any excess runoff into a series of shallow attenuation basins situated at the eastern boundary of the site.
- These shallow basins will temporarily contain runoff prior to discharging into the existing Nore Farm Stream watercourse at a maximum combined controlled rate of **28l/s**, equivalent to the existing Greenfield runoff rate for the whole site.
For the vast majority of time these basins will be completely dry and can be safely utilised as grassed areas of public open space.
- The Environment Agency's Flood Zone Map shows the proposed development site to be located within the lowest risk Flood Zone 1, therefore is not within an area subject to either flooding from watercourses, rivers or sea.
Although the site has no official recorded history of flooding, evidence from local residents has indicated incidences of flooding in Fifth Avenue as well as flooding to rear gardens.
- Whilst the construction of the proposed development will not impact on flood risk to the existing adjoining properties, a new land drainage system will be installed at the western boundary of the site to intercept and safely dispose of any overland flood flows experienced by existing home owners, improving the current flooding risk situation.
- The Flood Risk Assessment produced for the development has assessed flood risk to and from this site including the highly sensitive Nore Farm Stream and the associated flooding issues experienced by property owners adjacent to the site and within the downstream catchment of this watercourse.
The potential effects of developing this site upon the existing properties to the west and downstream of site has taken a significant importance in the assessment of flood risk, the fundamental design of the surface water drainage strategy and the positive improvements it can provide to the area.