



REVISIONS:

1. DRAINAGE STATEMENT

- Foul Drainage**
- Heyford Park served by an existing private foul sewerage system and treatment works.
  - The existing sewers immediately downstream of Phase 9 have been deemed not to be an adoptable standard due to proximity to existing and proposed buildings and shallow gradients. As such, it will be necessary to provide a pump station to convey the proposed foul sewerage from the site to a previously agreed connection point towards the east of Phase 4.
  - The foul pumping station with these 4 has been designed and installed to accept flow from Phase 9 via Harris Road.
  - The proposed foul sewerage systems, including pumping station and rising main are to be adopted by County Water Ltd as part of a Section 104 Agreement.
- Surface Water Drainage**
- The natural topography of the site drains towards Gallos Brook, which originates on the southern boundary within the south eastern corner of the site prior to flowing south. Immediately north of the existing outfall to Gallos Brook is an existing surface water treatment works which serves a 2500 cu m capacity which crosses the site in a north-south direction.
  - The existing 5250 culvert transfers flow from the outfall to the north of Camp Road which runs adjacent to the northern site boundary and as such we will have to be maintained but diverted to eliminate a significant restraint on the proposed layout and drainage strategy.
  - The existing surface water treatment works will be removed and replaced with an modern equivalent Hydro International's Downstream Defender or similar approved located to eliminate a significant restraint on the proposed layout and drainage strategy.
  - The site is comprised predominantly of limestone with local borehole records showing the geology to be clay with much limestone gravel. The underlying geology therefore has the potential to provide infiltration as a means of discharging surface water. Targeted in-situ infiltration testing will be required in order to determine this and until such time as the potential has been established, the proposed drainage strategy must ensure that infiltration cannot be achieved.
  - The proposed surface water drainage strategy shall consist of a combination of a conventional drainage network and Sustainable Urban Drainage Systems (SUDS) using the natural topography of the site to convey surface water run-off to a strategically placed attenuation basin located adjacent to the existing outfall to Gallos Brook on the southern boundary.
  - A flow control device shall be placed downstream of the proposed attenuation basin, restricting flow to the permitted outfall rate for the 1 in 100 Year event.
  - The attenuation basin shall comprise of a soft landscaped feature with banks ranging from 1.5 minimum - 1.3 maximum, a depth of 1.92m minimum - 3.33m maximum (maximum depth of water = 1.54m) and a total volume of 450m<sup>3</sup> providing storage for the 1 in 100 Year event plus 30% (climate change) with a freeboard allowance of 478mm. The attenuation area will be constructed in turf and graded to existing ground levels.
  - Finished floor levels are to be set a minimum of 600mm above the maximum water level of 120.42.
  - The following SUDS measures are to be incorporated in the proposed surface water drainage strategy:
    - Swales adjacent to private roads and driveways. The use of swales will provide visual and ecological amenity while assisting in improving the quality of the surface water runoff by filtering out organic matter, silt and hydrocarbons as the water passes through the sub-landscaped channel.
    - Open Channel Watercourse adjacent to adoptable carriageway. The use of watercourse will provide visual and ecological amenity while assisting in improving the quality of the surface water runoff by filtering out organic matter, silt and hydrocarbons as the water passes through the sub-landscaped channel.
    - Permeable Paving within private roads, driveways and courtyards, tanked with an outfall to the downstream sewers. The use of permeable paving will assist in improving the quality of the surface water runoff by filtering out organic matter, silt and hydrocarbons as the water passes through the geo-textile and stone layers.
    - Rain Gardens within public open space (i.e. a 200mm deep depression with a planted filter bed at the base and drain covering flows through the rain garden towards an outfall to downstream SUDS or sewers. The use of rain gardens will provide visual and ecological amenity while assisting in improving the quality of the surface water runoff by filtering out organic matter, silt and hydrocarbons as the water passes through the filter bed.
    - Water Butts - each affordable dwelling will be provided with a water butt attached to a rainwater pipe in rear garden. This will allow surface water runoff from roof areas to be stored for reuse in the garden.
  - All adoptable foul and surface water drainage is to be designed in accordance with Sewers for Adoption 7th Edition and the Building Regulations.

LEGEND:

- Site Boundary
- Existing Surface Water Sewer
- Existing Foul Water Sewer
- Surface Water Sewer
- Foul Water Sewer
- Foul Water Rising Main
- Swale
- Open Channel Watercourse
- Permeable Paving
- Rain Garden
- Attenuation Pond
- Sewer Easement
- Water Butt



PROPOSED SURFACE WATER SEWERS DESIGNED TO PASS OVER PROPOSED CULVERT DIVERSION WITH SUFFICIENT CLEARANCE

EXISTING 5250 CULVERT TO BE DIVERTED THROUGH PROPOSED DEVELOPMENT ENSURING EXISTING CAPACITY IS MAINTAINED

EXISTING TREATMENT WORKS TO BE REMOVED AND 5250 CULVERT DIVERTED AROUND PROPOSED POND TO EXISTING OUTFALL

ATTENUATION POND (4308m<sup>3</sup>) 3.33m (MAX) DEPTH WITH BANKS RANGING FROM 1:3 (MAX)-1:5 (MIN) AND 478mm (MIN) FREEBOARD

FLOW CONTROL CHAMBER RESTRICTING FLOWS TO 12.9/s