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DRAINAGE MANAGEMENT



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DRAINAGE MANAGEMENT

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DRAINAGE MANAGEMENT

1 SCOPE

This document outlines the drainage management for the Barry EFW project. For the design of the surface water network see GHDL document BARRY_01_REP_01_20063.

2 DRAINAGE DESIGN PHILOSOPHY

The design of the surface water drainage network was designed for a variety of return periods and storm durations, ranging from:

- 1 in 1 year storm event with an allowance for +20% climate change
- 1 in 30 year storm event with an allowance for +20% climate change
- 1 in 100 year storm event with an allowance for +20% climate change

Storm durations varied between 15 minutes and 10080 minutes (7 days) for each of the return period scenarios, as detailed in GHDL surface drainage design calculations BARRY_01_REP_01_20063.

The system was designed to prevent any flooding of manholes for a 1:30 return period, and to prevent any flooding from the site for a 1 in 100 year return period.

Surface water runoff is collected by high level gutter systems with downpipes, or by positive drainage to ACO Qmax channel drains or gullies. Plastic drainage pipes, resistant to industrial effluents, oils, petrol, diesel, road salts and de-icing agents, direct collected runoff through a full retention oil separator for storage before discharge in a Tubosider attenuation tank (652m³). An integral pumping station within the Tubosider tank discharges the surface water to the local ABP existing surface water drainage network at a restricted rate, advised by PCML, of 3l/s. The interceptor specified is sized for the total drainage area and complies with the anticipated flow rates.

Due to site space constraints, and due to the areas of impermeable hardstanding and roof areas, there would be limited use of SuDS applied to the site. The drainage design implemented accommodates an appropriate attenuation volume suitable for the site and storm period with a 20% allowance for climate change with all pollutants contained within the interceptor system provided.



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3 MANAGEMENT OF DRAINAGE SYSTEMS

All drainage solutions have been designed with consideration for ease of maintenance for the design life of the system. These include:

- Frequent day to day care – collection of litter, checking inlet and outlets where water enters or leaves
- Infrequent tasks – managing and removal of silt/sediment that builds up in any gutters, routine and regulatory inspection and cleaning of Tubosider tank
- Remedial work – repair of any damage as necessary

Any fuel/oil spillages are to be cleaned up immediately. Diesel spillages are to be cleaned immediately at source.

Any French Drains are to be inspected for blockages and build-up of silt/sediment and cleared out when required. Rodding of pipework may be required if pipework becomes blocked.

4 MANHOLES

Manholes are to be inspected as required:

- Manhole covers should be secure upon inspection and in good operating order allow for ease of entry/exit from the manhole
- A confined space entry sign should be present, if required, either on the underside of the manhole cover or at the first ladder rung
- Any ladders to be inspected for connection to the ladder uprights, signs of damage, missing/worn/loose rung non-slip surface
- Ladder mounting brackets should be securely fastened to the manhole wall
- Ladder rungs may need periodic cleaning to keep them free of bio slime or other debris that may become a slip hazard

5 GULLIES

Gullies are to be inspected on an infrequent basis:

- Gullies should be periodically inspected to ensure there are no blockages with any silt/sediment/blockages being cleaned and removed



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6 TUBOSIDER TANK

The Tubosider product itself requires little to no maintenance. Tubosider products have a minimum design life of 60 years, the design life can be extended to suit individual project requirements. The Tubosider product has been specifically designed with manhole access points with ladders, to gain entry to the system and it is the system that will require inspection.

We would recommend that the first inspection is carried out 12 months after the product has been installed in line with Tubosider recommendations. Over a period of time all attenuation tanks will have a very gradual build-up of silt, the level of build-up needs to be monitored and from this information the frequency of inspection can be decided. A gully sucker can be used to remove any silt build up or this can be done manually. The tank inspection needs to be carried out by someone who has successfully completed a confined space training course.

7 CONDOR TANK

The light liquid separators requires regular maintenance. The period between maintenance operations can vary depending on the location and use of separator, therefore routine inspections shall be undertaken at least every six months, in line with Condor recommendations. A log shall be maintained recording inspection date, depth of oil, depth of silt and details of any cleaning that is undertaken.

A condor Envirotector is fitted to every separator to give automatic warning that the light liquid capacity has been reached. Access to the separator is to be kept clear and not used for storage.

