

03/ 04/ 12

Your Ref:-

Senior Engineer (Drainage &
Coastal),
Engineering Services,
Arun District Council
Second Floor,
Arun Civic Centre,
Maltravers Road,
Littlehampton,
BN17 5LF

For the attention of Paul Cann

Dear Mr Cann,

ASDA WORTHING.
FOUL AND SURFACE WATER MANAGEMENT AND DESIGN STATEMENT

I refer to your email of the 30th March 2012 to Philip Satchel and Lee Martin regarding the site drainage at the proposed ASDA store in Worthing. We have had extensive discussions with the Environment Agency and Southern Water in this regard they have approved the drainage strategy and Flood Risk Assessment which we submitted in October 2011. I attach for your information:

1. Water Environment Flood Risk Assessment
2. GD Partnership foul drainage arrangements drawing 11-046-C.104-P1
3. GD Partnership surface water drainage arrangements drawing 11-046-C.01
4. Environment Agency response to consultation on Flood Risk Assessment and site drainage strategy.

Foul Drainage

Foul from the store is to be discharged to the public sewer system connecting to an existing public manhole ref 9401 at the A259/Langbury Lane junction. Levels are such that a fully gravity connection is not possible.

The store foul and condensate drainage comprise gravity systems from the store to a pump station PS43F located in the car park adjacent to the SE corner of the store (ref drawing no 11-046-C01). The pump station has been sized as required for Building Regulations, to cater for the predicted 24-hour flow from the store. The rising main from the pump station discharges into chamber MH100F at the NE corner of the car park and then by gravity to the public manhole 9401.

Manhole MH100aF and the downstream gravity pipework to the existing public manhole 9401 is to become an adopted public sewer by Southern Water via a Section 104 Sewer Adoption Agreement. (Drawing numbers 0046-C104 and C23).

Surface-Water Drainage

The surface water drainage comprises a gravity system discharging to the existing stream at a combined rate restricted to 61l/s as determined by the Flood Risk Assessment by Water Environment Ltd. The rate of runoff was agreed with the Environment Agency as an equivalent greenfield runoff rate and represents a substantial reduction of more than 90% in runoff rate when compared to the existing site.

With the limited discharge rate storage has to be provided to accommodate the design flows from a 1 in 100 year storm event + climate change. Storage is provided by utilising a porous sub-base below the car park area and cellular storage facilities to cater for the runoff from the store roof and service yard area. The porous sub-base will be lined with a porous geofabric which will permit infiltration into the ground, although the component of infiltration is not relied upon in the design calculations.

Car Park

The main car park has been divided in to 4 areas. Three areas in the main car park and a separate overflow parking area. The surface runoff is collected via channel drains which are connected to the porous sub-base with a number of perforated pipe connections to allow the water to flow into and out from the porous sub-base. Each area in the main car park is separated with a zone of non porous sub-base. The outflow from the end of each channel drain is controlled by a vortex flow control device. All of the flows from the car park areas pass through a full retention interceptor before outfalling to the existing ditch.

Roof and service yard/access road

The roof and service yard/access road are gravity systems with cellular storage facilities provided adjacent to the front of the store to cater for the inflow to provide the storage volume required. Prior to discharging into the cellular storage the delivery yard area runoff passes through a full retention interceptor. The flow from the storage is controlled by a vortex flow control device.

A small pump station (PS3) is provided to lift any runoff from the low dock leveller area.

The hardstanding access to the east of the store discharges to the existing ditch via a full retention interceptor.

Below-ground maintenance procedures for Surface Water drainage

Maintenance of the surface water drainage has been specified by GD Partnership, who carried out the detailed design, and summarised here for convenience. The surface water network is generally a gravity system discharging at a restricted rate to the existing stream. A small pump station is included in the low dock leveller area. The network comprises the following elements:

- Pipework
- Cellular storage with vortex flow control devices to limit discharge rates
- Porous subbase
- Gullies with trapped outlets
- Channel drains
- Manholes,
- Catchpits
- Oil separator
- Pump Station

The gravity systems should function without specific regular maintenance. The pump station will require regular maintenance. Inspection will be undertaken following which maintenance operations could be necessary. The inspection periods and possible maintenance requirements are identified below:

Gullies, Channel drains and catchpits – Annually inspect all traps and sumps and if debris build up noted clear using a suction tanker.

Manholes, pipework, storage facilities – Inspect manholes annually. If water build up/blockages noted carry out jetting of pipework and CCTV survey to identify any defects. Defects to be repaired as appropriate.

Vortex flow controls – Inspect annually and operate any overflow flap. If not in working order contact manufacturer to undertake required remedial work.

Oil separator – Inspect every 6 months to determine if silt/oil requires removal. If required clear using a suction tanker.

Pump Station – A maintenance agreement to be undertaken to service the plant. Plant details and the maintenance company contact details to be included in the operational and maintenance file kept permanently at the store.

A log will be kept of all the above inspections for the surface water system and any maintenance work undertaken as necessary as soon as practically possible.

Below-ground maintenance procedures for Foul Water/ Condensate Drainage

Maintenance of the foul water drainage has been specified by GD Partnership, who carried out the detailed design, and summarised here for convenience. The foul water and condensate networks are gravity systems discharging to a foul pump station that pumps the flows to a gravity public sewer system. The networks comprise the following elements:

- Pipework
- Gullies with trapped outlets
- Manholes,
- Pump Station

The gravity systems should function without specific regular maintenance. The pump station will require regular maintenance. Inspection will be undertaken following which maintenance operations could be necessary. The inspection periods and possible maintenance requirements are identified below:

Gullies – Annually inspect all traps and sumps and if debris build up noted clear using a suction tanker.

Manholes, pipework – Inspect manholes annually. If water build up/blockages noted carry out jetting of pipework and CCTV survey to identify any defects. Defects to be repaired as appropriate.

Pump Station – A maintenance agreement to be undertaken to service the plant. Plant details and the maintenance company contact details to be included in the operational and maintenance file kept permanently at the store.

A log will be kept of all the above inspections for the foul water system and any maintenance work undertaken as necessary as soon as practically possible.

I trust that the information contained in this package is sufficient to address your queries relating to the surface and foul drainage design and management for the site. If you have any questions, please feel free to contact us.

Yours sincerely,

P H Trow