PROJECT:

GCB Cocoa Factory
Glemsford

DOCUMENT TITLE:

Drainage Strategy and SuDS

PREPARED FOR:

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P01	11/12/20	BJ	First issue

Contents

1 INTRODUCTION

The proposed development is located at the former Philips Avent manufacturing plant in Glemsford. The National Ordnance Survey (OS) Grid Reference for the approximate centre of the site is TL835465.

The proposal is to repurpose the existing facility to suit a cocoa production plant which includes the demolition and re-construction of some of the buildings with greater clear height, introduction of a new building and modification of external hardstanding areas to suit incoming and outgoing operations. The affected areas are located within Flood Zone 1 which has less than 1 in 1,000 annual probability of river or sea flooding.

2 SURFACE WATER DRAINAGE STRATEGY

Generally, the new buildings will occupy the existing building footprints with the exception of the new Boiler House building which is proposed to be located at the southwest corner of the existing car park. By inspection, the proposed re-development will not generate additional impermeable area and, therefore, the surface run off rates will remain as the currently approved design.

According to the record drawings and site observations, the existing surface water drainage system is a gravity network taking run-off from the building roofs and external pavements. The underground drainage network converges at an attenuation pond located at the southeast corner of the site prior to discharge to River Stour.

The alterations to the surface water drainage network will involve the connection of new building roof drainage systems to the nearest existing surface water drainage. This will require localised installation of new underground drainage pipes and diversion of existing underground drainage pipes that interfere with the proposed building footprints and structure.

The existing attenuation feature and discharge point will be retained for the proposed development. The existing petrol interceptors will be re-used as part of the proposed development to provide protection to the receiving watercourse.

A drawing illustrating the proposed drainage schematic is included in Appendix A.

3 SUSTAINABLE DRAINAGE SYSTEMS (SuDS)

The philosophy of Sustainable Drainage Systems (SuDS) is about maximising the benefits and minimising the negative impacts of surface water runoff from developed areas. The SuDS approach involves the improvement of water quality, slowing down and reducing the quantity of surface water runoff from a developed area. The objective is to manage downstream flood risk and to reduce the risk of runoff pollution (CIRIA C753, 2015).

A Management Train is fundamental to designing a successful SuDS scheme to mimic natural catchment processes as closely as possible. The hierarchy of techniques that should be considered to reduce pollution, flow rates and volumes of storm water discharge from the site are as follows:

1. **Prevention** – the use of good site design and site housekeeping measure to prevent runoff and pollution and rainwater reuse/harvesting.
2. **Source Control** – control of runoff at or very near its source (eg soakaways, other infiltration methods, green roofs, pervious pavements).
3. **Site Control** – management of water in a local area or site (eg routing water from building roofs and car parks to a large soakaway, infiltration or detention basin).
4. **Regional Control** – management of runoff from a site or several sites, typically in a balancing pond or wetland.

The drainage techniques for this development will seek to re-use the existing SuDS features including, where possible, prevention, source control and site control measures that are already in place.

From record information and site observations, it is understood that the existing attenuation is formed as a detention basin with a gravel low flow channel to the base. The proposal is to continue to utilise the existing attenuation basin located to the southeast corner of the site within the proposed re-development of the site.

During the detailed design stage, the potential for incorporating additional SuDS features within the redevelopment of the existing car park to the west of the site will be explored.

4 FOUL WATER DRAINAGE STRATEGY

The existing foul water drainage system is located around the buildings, accepting flows from the sanitary appliances and the canteen area. The underground gravity drainage network converges at a foul water pumping station located at the southeast corner of the site adjacent to the attenuation pond. According to record drawings, the rising main from the pumping station runs westward along the southern site boundary, bends northward to exit the site at the northwest corner and head towards Glemsford. It is understood that the rising main connects to Anglian Water foul public sewer.

The proposed foul water drainage work will involve the connection of new sanitary appliances and internal floor drains to the nearest existing foul water manhole, installation of new underground extension pipes and diversion of existing underground drainage pipes that interfere with the proposed building footprints.

Additionally, the proposed production facility will generate trade effluent from the process equipment. The discharge from this equipment will be treated by an onsite wastewater treatment plant prior to connection to the foul water drainage system. It is anticipated that the equipment will generate 96m^3 of trade effluent per day, based on a maximum outflow of 4m^3/hr from the wastewater treatment plant. We understand that the existing pump set and rising main are suitable to take this flow. A Trade Effluent Discharge Consent will be sought from Anglian Water as part of the detailed design.

The proposed development will utilise the existing foul water pumping station to discharge the foul water flows off-site.

5 DRAINAGE ASSETS MAINTENANCE PLAN

The following table indicates the maintenance regime that needs to be followed to ensure optimal drainage performance:

Element	Access Method	Method of Maintenance	Frequency Required
Pumps	In accordance with health and safety regulations	Monitored to ensure no blockages develop in accordance with the manufacturer's recommendations	Bi-annual inspection or in accordance with the manufacturer's recommendations, whichever occurs sooner.
Oil / Petrol Separators	Access manholes in accordance with manufacturer's guidance	Refer to manufacturer's guidance.	Bi-annual inspection and emptying
Kerb Drains/ Channel Drains	Access points and catchpits located along the linear drains	Monitored to ensure no blockages develop. Jet cleaning where required.	Bi-annual jet cleaning of linear drains.
Silt-traps and Gullies	Hinged or removeable cover or gully grating	Monitored to ensure no blockages develop. Removal of rubbish and debris where required.	Bi-annual inspection and clearance of all silt traps and gullies.
Attenuation Pond	In accordance with health and safety regulations	Maintain and cut back vegetation, clear any debris from outfall flow control device	Include grass cutting as part of regular seasonal maintenance (as per other grass cutting)

6 CONCLUSION

The surface water drainage strategy for the re-development is to direct all surface water runoff to the existing attenuation basin before ultimately out falling into the watercourse via the existing flow control. Any new surface water drainage will be connected to the existing site wide surface water drainage system. The redevelopment of the existing factory building will not adversely affect the existing surface water drainage strategy as no increase in impermeable areas is proposed.

The use of the existing SuDS with the existing flow control will maintain the existing agreed runoff volumes and water quality. This will ensure that there is no increase in flood risk impact on the surrounding areas.

APPENDIX A: PROPOSED DRAINAGE SCHEMATIC

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Existing foul pumping main understood to discharge to Anglian Water Public Sewer towards Glemsford

Potential area for incorporation of additional SuDS features within redevelopment of car park area

Existing surface water drainage to be amended to suit new site entrance layout. Additional drainage to be installed to suit new layout as required

LOWER ROAD

38.7m

All new foul water drainage to be connected to existing foul water network

All new foul water drainage to be connected to existing foul water network

All new foul water drainage to be connected to existing foul water network

Approximate extent of existing surface water drainage to be amended / divereted to suit new building structure

Existing surface water drainage to be amended to suit new building and hardstanding

Proposed diesel re-fueling area to be connected to existing surface water drainage via new interceptor

New roof drainage to be connected to existing site wide surface water

New roof drainage to be connected to existing site wide surface water

New roof drainage to be connected to existing site wide surface water

Approximate route of existing foul water pumping main

Existing private foul water pumping station. To be retained and re-used as part of the redevelopment

Existing flow control chamber and flow control device to be retained and re-used as part of the redevelopment

Existing attenuation formed as a detention basin structure with gravel low flow channel. To be retained and re-used as part of the re-development

Existing outfall to River Stour to be retained and re-used

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NOTES:

1. If this drawing has been received electronically it is the recipients responsibility to print the document to the correct scale.
2. All dimensions are in millimetres unless stated otherwise. It is recommended that information is not scaled off this drawing.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.
4. Existing Site Drainage taken from Record Drawings and subject to verification.

Key

- Existing Surface Water Pipe
- Existing Foul Water Pipe
- Existing Roof
- Proposed Roof

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P01	GD	BJ	SL	11/12/20
	Initial Issue.			
	Drawn By:	Checked By:	Approved By:	Date:
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Project: GCB Cocoa Facility

Title: Proposed Drainage Schematic

Drawing Number:

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BE Design

Drainage Schematic
Scale 1:500

10m SCALE 1:500