MEMO

ARCADIS Design & Consultancy for natural and built assets

SUBJECT
Cog Moors WwTW AAD Drainage Strategy

OUR REF
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Cog Moors WwTW AAD Drainage Strategy

1. Introduction

This memo sets out the drainage strategy for Cog Moor WwTW. There are three types of drainage on site that need to be dealt with, surface water, process drainage and land drains.

2. Existing Site System

2.1 Surface Water

This is generated by rainfall on impermeable areas. There are a series of road gullies that collect the surface water and transfer it, by gravity, into the Sully Sewer. This is then pumped by the Inlet Pumping Station into the main treatment plant.

2.2 Process Drainage

This is generated by runoff from potentially contaminated areas such as pump slab wash downs, de grit sump washouts and tank overflows. This gravitates to the Liquor Pumping Station from where it is pumped to the Supernatant Holding Tank and ultimately sent to the main treatment plant.

2.3 Land Drains

There are a series of land drainage ditches that run around and through the site.

3. Proposed System

The detailed proposals for the drainage as part of the new works have not yet been developed however the engineering design will follow the principles of the existing works and those set out below.

3.1 Surface Water

The new works will create additional impermeable area and this will increase the amount of surface water produced. In keeping with the existing system, it is proposed to send the new surface water to the Sully Sewer. This is the preferred disposal route as there is a risk that this surface water might come into contact with sewage sludge on the site. A new system of road gullies will be installed around the new layout to collect the surface water and gravitate it into a new connection on the Sully Sewer. Roof drainage will also be collected by this system. The design will consider whether roof run-off may be disposed of to the existing site ditches and thus avoid it being returned into the treatment process.

3.2 Process Drainage

New sources of process drainage will gravitate either into the existing Liquor Return Pumping Station or the new Liquor Return Pumping Station. It is not proposed to alter the existing drainage arrangements in the digester area. The existing Supernatant Tank will be demolished so the discharge from the existing Pumping Station will need to be diverted to a new location. This location and the discharge location for the new Liquor Return Pumping Station will send flows through the main treatment process, however the exact point where flows will enter the process has not yet been determined.

3.3 Land Drains

Five sections of land drainage ditch, totalling approximately 150m in length, that run East to West through the proposed development site, will be permanently filled and covered by hardstanding areas. Any run-off from this area will be captured by the proposed surface water drainage system.

A further section of land drainage ditch, totalling approximately 150m in length, that runs North to South along the Eastern boundary of the proposed development will be diverted. The existing drain will be filled in and replaced by a combination of realigned ditches and a new box culvert. New ditches will be dug to connect this into the existing land drainage system.

Modification of existing drains will be managed appropriately and in consultation with the Vale of Glamorgan as the Lead Local Flood Authority (LLFA). Where appropriate an application will be made for Ordinary Watercourse Consent (OWC).