Rivenhall Airfield

Integrated Waste Management Facility

Flood Risk Statement

Gent Fairhead & Co Limited

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Rivenhall Integrated Waste Management Facility (IWMF)
Flood Risk Statement

Introduction

This statement considers potential effects on flood risk associated with the proposed minor modification of the consented layout of the IWMF plant area and the proposed site access road to reflect changes made during the detailed design of the site infrastructure.

As part of the original planning application a detailed review of flood risk was undertaken and required mitigation measures were formulated to ensure the proposed development was neither at flood risk nor increased flood risk to third parties. This assessment was undertaken using best practice guidance and was reviewed, and approved, by the Environment Agency and Essex County Council.

Sources of Flood Risk

The Flood Risk Assessment[1] that was prepared in support of the IWMF application assessed all sources of flooding in accordance with best practice[2] at the time the assessment was completed and in accordance with current best practice guidance[3].

The original application confirmed that the proposed development was at 'low' risk of flooding from river, tidal and coastal sources. Given the site location, and following review of current published flood mapping[4], it is confirmed that the proposed modifications to the site access and IWMF remain at 'low' flood risk from these sources.

The original application identified that the proposed IWMF plant may be subject to an elevated risk of flooding from groundwater and surface water without appropriate controls. Mitigation measures, which included control measures during construction and operation of the IWMF, were identified to manage these risks. The measures proposed are industry standard, and included use of site pumps and attenuation of groundwater and surface water flows.

Surface Water Management

The 'allowable' off-site rate of surface water runoff from site was limited to 5 l/sec/hectare in the original application. This is a commonly accepted rate of Greenfield runoff and one which remains valid. The required volume of storm water attenuation on site was calculated and it was confirmed that 20,481m^3 of storm water storage would be required. The design storm event considered was a 24-hr duration storm with an annual probability of occurrence of 1% (e.g. the 100-yr event). A climate change allowance of 10% was included and added to the estimated rainfall in accordance with applicable guidance at that time (PPS25).

The area of the IWMF and associated hardstanding considered in the original application is slightly less than that currently proposed. The formation level and floor level of the IWMF are also virtually the same with the main IWMF building(s) constructed at a level at or around 35 mAOD.

[1] Ground and Surface Water Assessment: Rivenhall Airfield eRCF, Golder Associates, August 2008.
[2] Planning Policy Statement 25 (PPS25): Development and Flood Risk, Defra, 2006.
[3] National Planning Policy Framework, (NPPF), Department for Communities and Local Government, 2012 and the Planning Practice Guidance (PPG), Department for Communities and Local Government, 2014.
[4] http://watermaps.environment-agency.gov.uk

Modifications to the elevation of the roads in and around the IWMF are considered an insignificant change with respect to overall flood risk, e.g. the modifications along the frontage where levels have been lowered from 41 mAOD to 35 mAOD, do not affect the total impervious footprint. The IWMF (as considered in the original application) is located below surrounding ground levels and temporary storage of rainfall runoff needs to be provided adjacent to the plant as there is no pathway or route for runoff to be shed, via gravity, to surrounding ground and third party land.

It is noted that current guidance (NPPF and PPG) also states that a 1% annual probability storm should be used for the design of drainage infrastructure. Current guidance also states that a 10% uplift in rainfall intensity should be applied for developments with a design life of up to 25 years e.g. the calculations presented in the original application remain valid and appropriate.

It is concluded, therefore, that drainage from the proposed IWMF area can be managed in accordance with the principles detailed in the original planning application, and without increasing flood risk to third parties.

As the detailed site design progresses further, the drainage principles would be agreed with the Environment Agency and Essex County Council in accordance with Condition 23 of the existing planning permission. As part of this design, the potential effects of surcharging site drainage system and potential flood flow paths, and of differing storm durations and intensities should be assessed though it is noted that this will not alter the findings of this or the original assessment.

Groundwater Management

The original application quantified the potential influx of groundwater to the IWMF platform and confirmed that the volume of inflow was small (123 – 246m^3/d) compared to the potential volume of surface water runoff. It was confirmed that this volume of runoff could be readily managed by the proposed surface water management system.

As the location, elevation and size of the IWMF are similar to those considered in the original application it is confirmed that groundwater can be managed in the same manner as originally proposed and as part of the surface water drainage system.

Surface Water Lagoons

It is confirmed that the surface water lagoons proposed at site will be designed and constructed in accordance with CIRIA Guidance[5] and where required the Reservoirs Act[6] and the Flood and Water Management Act[7].

As a result, with mitigation and management, residual flood risks to the IWMF and off-site areas are expected to remain low as per the findings of the assessment that accompanied the original application.

[5] Design of Flood Storage Reservoirs. CIRIA Report B14, 1993 and Small Embankment Reservoirs, CIRIA Report 161, 1996
[6] Reservoirs Act 1975
[7] Flood and Water Management Act 2010

Closure

This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

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