

Dublin City Council  
Comhairle Cathrach Bhaile Átha Cliath

Drainage Division  
Floor 2, Block 1  
10-02-09

Mr. Patrick Byrne  
EPA  
McCumiskey House  
Richview,  
Clonskeagh,  
Dublin 14

Re: **Ringsend Waste Water Treatment Works  
Existing Discharge Licence Application**

Dear Mr. Byrne

We refer to our meeting in your office on 28<sup>th</sup> January 2008 in relation to the above. It is our understanding that EPA requires a submission from Dublin City Council (DCC) that addresses the following issues:

1. Proposals from DCC to bring the treatment plant into compliance with the required standards in respect of Total Suspended Solids (TSS).
2. A comprehensive statement from DCC regarding the requirements for the WWTP to achieve a Total Nitrogen standard and Total Phosphorus standard (if necessary) - per UWWT Directive, and DCC proposals to bring the treatment plant into compliance.
3. Impact of 'primary' discharge (treated waste water) on receiving water. This is required as the current loading is in excess of the design loading and is, therefore, outside the EIS assessment carried out in 1997. This will need to be carried out using a water quality model.
4. Impact of 'secondary' discharge (storm tank overflow) on receiving water, which will also be modelled.
5. An Appropriate Assessment of the discharge on Natura 2000 sites.

In response, we propose to undertake the activities described as follows:

1. **Compliance with the required standards in respect of Suspended Solids.**

DCC is currently constructing an extension to the sludge treatment process. As part of this project, we will be adding three more surplus activated sludge (SAS) thickeners. This will double the SAS thickening capacity and reduce the amount of SAS that is co-thickened with primary sludge in the lamella settlers.

Other facets of the extension project will improve process reliability, thereby reducing recycle loads to the lamella settlers. The project is scheduled to be commissioned in mid 2010.

While the sludge stream improvements will unquestionably reduce the loadings to the lamella settlers and hence to the sequencing batch reactors (SBRs), at this stage we are not fully confident that they will be sufficient to bring the SBR discharge into full compliance with discharge standards. We, therefore, propose to also reduce the wind impacts on the exposed upper level of the double-decked SBRs.

Since the works began operation, strong winds have caused wave action in the upper level SBRs, mixing the water column and re-suspending settled solids, resulting in TSS exceedances. The operating level was reduced by approximately one metre to reduce wave formation, but the shallower tanks are now more prone to re-suspension of settled solids, especially under high flow conditions. DCC proposes to install wind screens to attenuate the impacts of wind on the upper level SBRs and to restore their operating depth to the original design level.

DCC will undertake the design and testing of a prototype wind barrier to be installed on one of the basins (four tanks) and monitor its effluent quality as compared to that of the other tanks. Once sufficient data have been collected and success verified, DCC will have permanent wind barriers installed on all of the basins. The permanent wind barriers will be installed on or before the completion of the sludge stream improvements.

DCC believes these two measures will be sufficient to bring the works into compliance with its TSS limit. However, as a precaution, DCC will also be prepared to install final effluent filters for a portion of the flow from the upper levels of the SBRs should additional works be necessary. We will design these filters in parallel with the sludge stream and wind barrier installations so the project will be ready for tender should they be necessary.

## **2. Compliance with the required standards in respect of Nitrogen**

Methods for reducing nitrogen in the treated effluent discharge are currently being examined. DCC have already reached the conclusion that a de-nitrification system will need to be installed. Given the schedule of the works' extension (completion in November 2015), it appears that a separate project will be required to achieve compliance in respect of nitrogen within the time frame that the EPA have suggested.

Planning of the de-nitrification system must be done in concert with other works' improvements because: (1) there is very little open space on the site and its use must be coordinated with the ultimate works extension and improvements; (2) the de-nitrification system must be compatible with the remainder of the works' improvements (i.e. will need to be permanent). Thus, we propose initiating the design of the denitrification facilities immediately upon the completion of the work's extension Design Review Report, scheduled for completion in October 2009.

This Design Review Report will also consider the need to meet a phosphorus standard in the discharge. Should this be necessary (it is not expected to be) then we will also initiate the design of facilities that will remove phosphorus to the UWWT limit.

Design, tender, construction and commissioning of de-nitrification and, perhaps, phosphorus removal facilities is anticipated to be completed no later than April 2012.

### 3. Impact of Primary and Secondary discharges on receiving water.

DCC has commissioned computer modelling of the impact of the treated waste water discharge on water quality in the Liffey Estuary/Dublin Bay. The model, which was developed by the Danish Hydraulic Institute (DHI), is a 3D model and has previously been used to model impacts arising from the Waste-to-Energy facility in Ringsend. Model runs will cover spring and neap tides and will include peak organic and hydraulic loads on the plant. The modelling will also include an assessment of the nitrogen discharge.

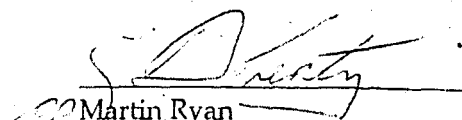
Collation of loading data and background water quality data, carrying out of model runs and the preparation of interpretative reports on the model outputs will require a period of 10 weeks. We would, therefore, anticipate submitting to the EPA the results of this modelling during week commencing 21 April 2009.

### 4. Appropriate Assessment of the treated waste water discharge on Natura 2000 sites.

Work has commenced on the preparation of an Appropriate Assessment of the treated waste water discharge on Natura 2000 sites. DCC is consulting with Ms. Karen Creed (EPA) as well as the Department of Parks and Wildlife to fully scope the assessment. DCC anticipates that a consultant will be engaged to prepare the Assessment under the purview of its Biodiversity Officer. At this time a schedule for completion of the Assessment would be premature, but DCC can commit to providing EPA with a scope of work for its review during the week of 3 March 2009.

We trust that the proposals described above meet your satisfaction. However, should you require any further information, or would like to meet to discuss this proposal, please contact Mr. G. Doherty, 01-222 2930.

Regards,

  
Martin Ryan  
Divisional Engineer

