

## 6. SITE HISTORY, AND SOIL AND GROUNDWATER BASELINE SURVEYS

### 6.1 Site Description

The site for the Ringaskiddy waste management facility has an area of approximately 12 hectares. The topography of the site and the surroundings are described in section 5.5 of the EIS.

The site has been partly in agricultural use, with the remainder unused. There is a Martello Tower on the crest of the ridge to the south of the site.

At some stage in the past, possibly when the Ringaskiddy port was being constructed in the mid 1970s and substantial areas of land were being reclaimed from Cork Harbour, a large amount of material appears to have been removed for the site. This is thought to account for the irregular topography and very steep slopes over the central portion of the site.

### 6.2 Geology and Soils

The regional and local geology and the soils underlying the site are described in section 11 of the EIS.

The overburden on the site consists of a shallow topsoil layer underlain by soft silty clays with some fine sands and gravels. Depth to bedrock varies across the site, from 1 metre below ground level to greater than 9 metres below ground level. This thickness variation is a reflection of the undulating pre-glacial topography and the removal of the material from the site in the past. The bedrock consists of pale green/grey mudstone, of the Lower Carboniferous Kinsale Formation (Cuskenny Member).

Sands were encountered in some areas and these areas are likely to allow water to be stored and to move through the subsurface. As some of the overburden is less than 1.0 metre in thickness, vertical migration of water directly into the bedrock aquifer is likely.

### 6.3 Due Diligence Site Investigation

Prior to the purchase of the site, KT Cullen and Co. Ltd. was commissioned to undertake a soil and hydrogeological investigation of the site. The investigation comprises excavation of trial pits, the installation of groundwater monitoring wells and the testing of samples of soil and groundwater.

The conclusion of the investigation was that there was no significant soil or ground water contamination at the site. High inorganics in the bedrock aquifer could most likely be attributed to agricultural activities on a site with little or no overburden cover. The levels of inorganics in the groundwater are only slightly elevated above background.

A copy of the KT Cullen and Co. Ltd. Report, dated February 2001, is provided in appendix A6.1.

### 6.4 Arup Trial Pits

Arup Consulting Engineers excavated three trial pits in June 2001. The purpose of the trial pits was to provide additional geotechnical information, for foundation design purposes, at locations where the KT Cullen trial pits were widely spaced. The trial pit logs are provided in Appendix A6.2.

## 6.5 AWN Consulting Soil Dioxin Survey

AWN Consulting carried out a survey of the levels of PCDD/F, PCB and PAH at eight locations in the Lower Cork Harbour area and compared the levels with existing data.

The soil PCDD/F concentrations found by AWN were very low and very similar to the levels found by the EPA, at the same or adjacent locations, during a similar survey in December 2001. The one exception was a sample at the Martello Tower, where the AWN sample gave a marginally higher reading. The comparison with the levels recorded in previous studies undertaken in the Harbour area indicated that the PCDD/F concentrations have decreased significantly since the early 1990s. The PCDD/F concentrations in the Cork Harbour area were low when compared to data from other countries. The PCB and PAH concentrations in the soils were also low, when compared to the Dutch Target and Intervention values.

A copy of the AWN Consulting report is provided in Appendix A6.3.

## 6.6 Ground Water Monitoring Wells

In the course of their investigation, KT Cullen installed four ground water wells on the site. A considerable amount of earthworks and the construction of new concrete retaining walls will be required for the waste management facility. It is probable that at least three of the four wells will have to be removed. The profile of the ground will be altered significantly during construction due to the excavation and filling operations. With the agreement of the EPA, it is proposed to delay installation of new groundwater monitoring wells until the earthworks and foundations are completed and a new ground water flow regime establishes itself on site.

## 6.7 Appendix 6

- A6.1 Soil and Hydrogeological Investigation Greenfield Site, Ringaskiddy, Co. Cork, Final Report February 2001 prepared by KT Cullen and Co. Ltd.
- A6.2 Trial Pit Logs
- A6.3 Sampling and analysis of soil samples in the Cork Harbour Area for PCDD/F, PCB and PAH and comparison with existing data, prepared by Awn Consulting, October 2001.