

Waterford County Council



Environmental Risk Assessment for Unregulated Waste Disposal Site

Non-Technical Summary Document

Coolfinn, Portlaw Landfill

Attachment A.1

Waterford County Council
Civic Offices
Dungarvan
Co Waterford

June 2011

Table of Contents

	Page No.
1.0 Introduction	3
2.0 Site Location	3
3.0 History of the Site	3
4.0 Hydrogeology & Ecology of the Site	4
5.0 Risk Category of the Site	5
6.0 Potential Environmental Impacts	5
7.0 Conclusions & Recommendations	6

For inspection purposes only.
Consent of copyright owner required for any other use.

1.0 Introduction

Waterford County Council has undertaken an inventory and preliminary risk assessment of all unregulated waste disposal sites within the county (as per the COP). A number of Tier 1 desk studies and reports have been completed and Waterford County Council was included in a pilot project for proceeding to the next phase (Tier 2 & Tier 3) for one particular site located at Coolfinn, Portlaw, Co. Waterford.

Waterford County Council has completed an exploratory and main Tier 2 site investigation on this particular site located at Coolfinn, Portlaw, Co. Waterford. The exploratory field investigation was performed in November 2009 incorporating Waterford County Council technical staff. Waterford County Council commissioned Priority Geotechnical, PGL, to carry out the main Tier 2 intrusive ground investigation on the historic landfill in December 2009. The purpose of this geotechnical ground investigation was to obtain information on the extent and nature of the historic landfill for completion of the Tier 2 Risk Assessment (as per the COP). In 2010, Waterford County Council compiled the Tier 3 Risk Assessment for the historic landfill. This Tier 3 document includes the following, quantitative risk assessment, flood risk assessment, refined conceptual site model, appropriate assessment & remediation proposal.

2.0 Site Location

This historic landfill is located in the Townland of Coolfinn, just on the perimeter of Portlaw town. The GPS co-ordinates of the site are 247,450 (x) & 114,930 (y). The site is located within Portlaw town area and the lands on which the site is located are zoned for agricultural use/development. The residential zoning extends to 135m from the southern boundary and amenity zoning extends to 230m also from the southern boundary. The site can be accessed from Shanahan Lane off the R680, Kilmeaden to Carrick-on-Suir road. The northern boundary of the site is the River Clodiagh, which is designated as a Special Area of Conservation. To the west, again the River Clodiagh is located and also to the east but to the southeast, a temporary farm is located outside the boundary ditch. To the southern boundary is Shanahan Lane (local access road) and within 20 meters proximity is a residential dwelling which has been present since 2004.

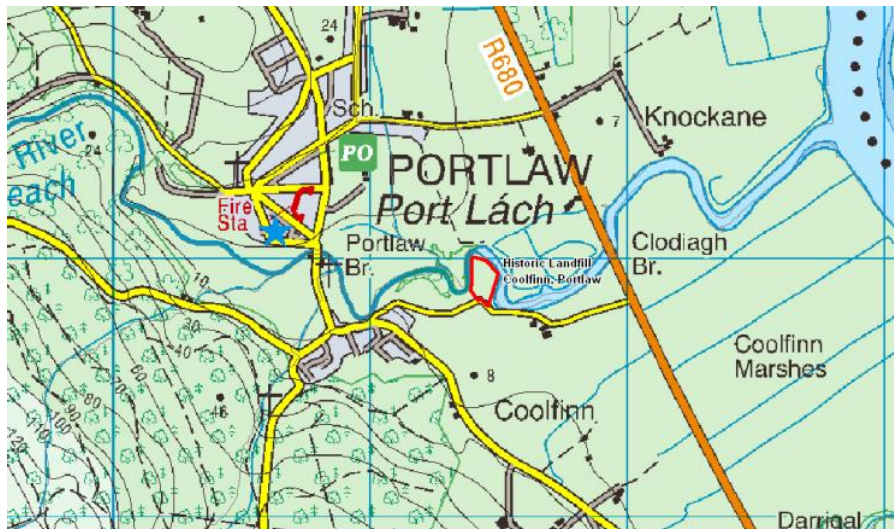


Figure 2.1: Site Location

3.0 History of Site

The Portlaw site was used as a municipal landfill site. Though an exact commencement date for the site was not determined, it is known that the site closed in 1994. The site was leased and operated by Waterford County Council. The size of the site is 2 acres approximately.

The Portlaw landfill accepted domestic and commercial and possibly a small quantity of industrial waste, although sources of industrial waste are unknown. The site is reported to be 5 – 10m deep. At closure, the landfill was capped with approximately 0.3m of topsoil.

4.0 Geology, Hydrogeology & Ecology of the Site

4.1 Geology:

The Geological Survey of Ireland, 1:100,000 mapping (sheet 22/23x) indicated the geology of the area was characterized by the Ballymartin Formation (BT) and the Ballysteen Formation (BA). The Ballymartin Formation was described Limestone and dark-grey calcareous shale. The Ballysteen Formation was described as Dark muddy Limestone, shale.

Sub soil mapping (Teagasc, South Eastern Region) indicated the area to be characterized by Alluvial (A, orange) deposits and glacial till derived from sandstone (TDS_c, red).

4.2 Hydrogeology:

The historic landfill on lands at Coolfinn, Portlaw, Co. Waterford is located within an area which consists of a Locally Important Aquifer. Bedrock which was Moderately Productive only in Local Zones of interim high to low vulnerability. Karst features (springs) were identified 4.6km east of the study area at 252,099 northing and 114,192 easting. The nearest well was identified 1.4km north west of the site.

4.3 Ecology:

The historic landfill site is contained within the boundary of the Lower River Suir SAC and surrounded on its northern, eastern and western boundaries by the River Clodiagh, a tributary of the River Suir. The Clodiagh joins the Lower River Suir some 1.5km away from the historic landfill site. The site is approximately 0.5km from the western boundary of the pNHA Coolfinn Marshes.

The site itself consists of approximately 1.0 ha of agricultural grassland overlying the landfill. Bounded by the River Clodiagh on 3 of 4 boundaries, the site is enclosed by the river banks which are lined with vegetation typical of riparian banks and dominated by *salix sp.* trees. Entrance to the site is bounded by a stone wall and a tree line of Leyland Cypress. Stands of the invasive alien plant Japanese Knotweed also occur along the site boundary.

While the site is within the designated boundary of the Lower River Suir SAC its function is to serve as a buffer to the river rather than providing any ecological value in itself.

5.0 Risk Category of the Site

The conceptual site model (CSM) compiled in the Tier 1 Risk Assessment identified leachate and landfill gas as the sources; surface waters, groundwater and humans as the potential receptors. The risk assessment linkages which provide potential risk of environmental pollution are as follows: SPR 1(50%), SPR 2 (50%), SPR 3 (50%), SPR 4 (50%), SPR 7 (50%), SPR 8 (50%), SPR 9 (50%), and SPR 10 (50%). The overall site classification was Class B – ‘moderate risk’.

In December 2009, Waterford County Council commissioned Priority Geotechnical, PGL, to carry out ground investigation at the unregulated landfill situated at Coolfinn, Portlaw, Co. Waterford. The Tier 2 intrusive Risk Assessment identified that a Quantitative Risk Assessment was required to assess the Leachate Migration Risk to groundwater and surface waters.

6.0 Potential Environment Impacts

6.1 Potential Pathways:

With regard to the historic landfill located on lands at Coolfinn, Portlaw, Co. Waterford, the potential pathways for the said lands are identified below in table 6.1.

Potential Pathway	Route
Groundwater	Contamination to the water table via the slightly clayey sandy GRAVEL subsoil and LIMESTONE bedrock.
Surface Water/Protected area	Leachate migration from the landfill discharging into the River Clodiagh and designated Special Area of Conservation.
Air/Soil	Landfill gas migration to residential dwellings along the subsurface or surface pathway.

Table 6.1 Potential Pathways

6.2 Potential Receptors:

With regard to the historic landfill located on lands at Coolfinn, Portlaw, Co. Waterford, the potential receptors for the said lands are identified below in table 6.2.

Potential Receptor	Type
Groundwater	Locally important aquifer beneath the site
Surface Water/Protected area	River Clodiagh and designated Special Area of Conservation.
Human Beings/Animals	Agricultural Activity and Residential Dwelling adjacent to the site

Table 6.2 Potential Receptors

7.0 Conclusions and Recommendations

7.1 Conclusions:

Risk Category – The Tier 2 Exploratory and Intrusive Investigations identified that there is no major contamination with the historic landfill located on lands at Coolfinn, Portlaw, Co. Waterford. With regard to the laboratory analysis of the waste body, all 45 parameters complied with the leachate standard for waste characterization – indicating the waste is determined to be inert waste (as per Council decision of 19 December 2002 Establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC (2003/33/EC)).

The surface water monitoring data and findings indicate that the landfill is not having a significant impact on the River Clodiagh and designated Special Area of Conservation. This has reduced SPR 8 and SPR 9 to a Low Risk (from a previous moderate risk) following a re-run of the SPR linkages scores.

The historic landfill on lands at Coolfinn, Portlaw, Co. Waterford is located within an area which consists of a Locally Important Aquifer – Bedrock which was Moderately Productive only in Local Zones of interim high to low vulnerability. Karst features (springs) were identified 4.6km east of the study area. This information has reduced SPR 1, SPR 2, SPR 3, SPR 4 & SPR 7 to a Low Risk (from a previous moderate risk) following a re-run of the SPR linkages scores.

Landfill gas is localised to the northern part of the site and located in excess of 200m from the nearest human receptor. No human presence is located directly above the historic landfill. The landfill gas risk has reduced as the soil analysis concludes in the soil being classified as having Sand & Clay properties thus providing a pathway for natural dispersion of methane gas to the atmosphere. Therefore, this has reduced the risk of landfill gas build up in the underlying waste. This has reduced SPR 10 to a Low Risk (from a previous moderate risk) following a re-run of the SPR linkages scores.

7.2 Recommendations:

As outlined in Chapter 7 of the CoP, the selection of suitable remediation options is dependent on the results of the quantitative risk assessment process. It is apparent within this QRA indicates that there is no significant Source-Pathway-Receptor linkage existing from the historic landfill located on lands at Coolfinn, Portlaw, Co. Waterford.

Having regard to the above report and information obtained, Waterford County Council (WCC) recommends that the following be implemented;

- Routine monitoring on a quarterly basis of surfacewater and groundwater sources for year 1. If no significant changes in results of such monitoring are encountered, WCC recommends this monitoring to be carried on a bi-annual status for year 2. Following results and analysis, WCC to review thereafter.

- Routine monitoring on a bi-annual basis for presence of gas within the northern part of the site.
- No further works to be performed that might seal of the capping layer and reduce its potential to act as a ventilation pathway for gas.

Waterford County Council considers following the findings and information provided within the Tier 1, Tier 2 & Tier 3 risk assessment reports, that these recommendations as outlined above will lead to the protection of the environment and health of the local population within the surrounding lands of the historic landfill.

*For inspection purposes only.
Consent of copyright owner required for any other use.*