



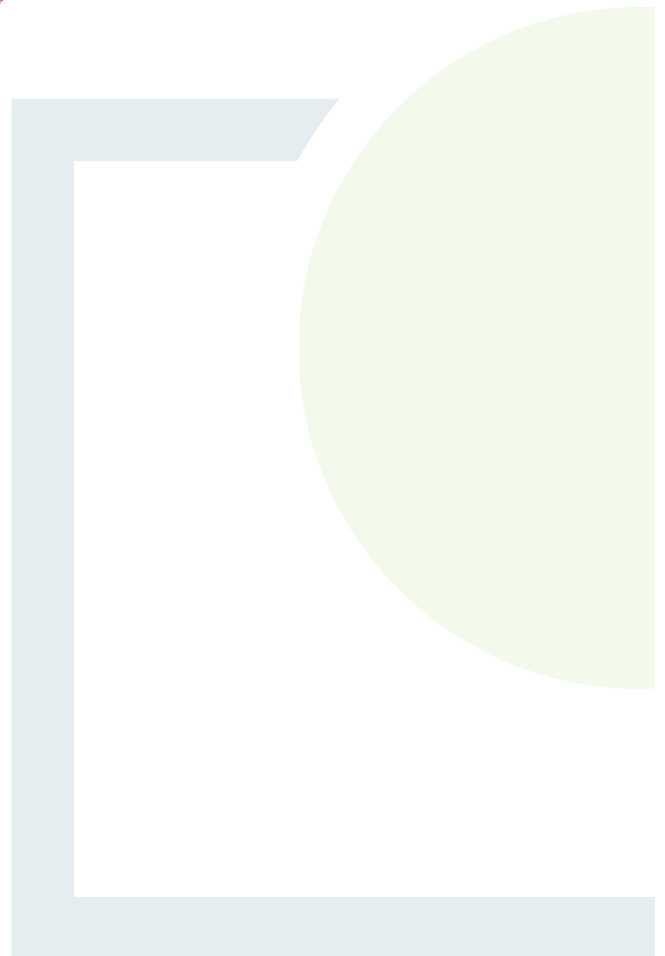
**FEHILY
TIMONEY**

**CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE
& PLANNING**

Attachment **A.1**

Non-Technical Summary

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HISTORICAL LANDFILL AT ARDFERT, CO. KERRY

NON- TECHNICAL SUMMARY

Prepared for: Kerry County Council



Comhairle Contae Chiarraí
Kerry County Council

Date: August 2021

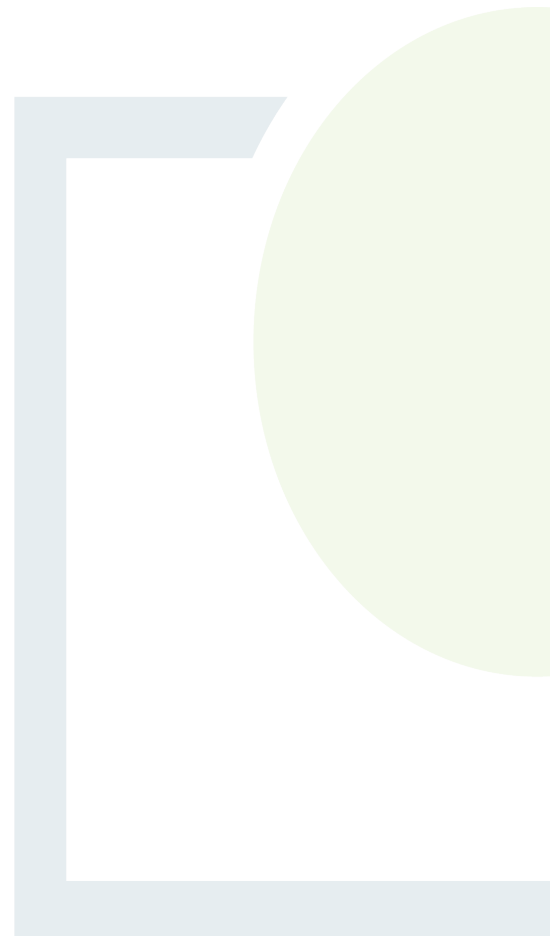
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NON- TECHNICAL SUMMARY HISTORICAL LANDFILL AT ARDFERT, CO. KERRY

REVISION CONTROL TABLE, CLIENT, KEYWORDS AND ABSTRACT User is responsible for Checking the Revision Status of This Document

Rev. No.	Description of Changes	Prepared by:	Checked by:	Approved by:	Date:
1	Final	DM/AM	BG	BG	18/08/2021

Client: Kerry County Council

Keywords: Site Investigation, Environmental Risk Assessment, Waste

Abstract: This report presents a non-technical summary of the Tier 2 and Tier 3 risk assessment for the Ardfert Historic Landfill, Co. Kerry. The non-technical summary has been prepared to accompany the certificate of authorisation application for the site.

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1. NON-TECHNICAL SUMMARY

1.1 Overview

Fehily Timoney and Company (FT) was appointed by Kerry County Council (KCC) to complete a Tier 1 environmental risk assessment (ERA), a Tier 2 ERA, a Tier 3 ERA and Certificate of Authorisation Application Form (COA) for the Ardfert Historic Landfill. The ERA was conducted in accordance with the Environmental Protection Agency (EPA) Code of Practice (CoP) (2007): Environmental Risk Assessment for Unregulated Waste Disposal Sites.

1.2 Site Location and History

Ardfert Historical Landfill is in a relatively small area of open land located at the northern edge of Ardfert village, immediately north-west of Ardfert Cathedral of St. Brendan and c. 240m north-west of centre of Ardfert village. Ardfert village is located approximately 8km north-west of Tralee town.

The site is approximately 1.01 hectares. The site is bounded to the west by the R551 road and further west beyond the road is agricultural land. To the south and east the site is bound by lands connected to Ardfert Cathedral of St. Brendan. An access road runs along the northern and eastern boundary of the site. The site is bound by agricultural land to the north. A single dwelling is also located on this land.

Available evidence suggests that the site closed, and landfilling ceased in 1980. Since its closure the site has reverted to private ownership, with the lands currently used for agriculture. The site has been capped with a soil cover, but no other remediation works have been carried out.

A site investigation (S.I.) programme was completed in 2019. The findings of the site investigation work suggest the municipal solid waste material is deposited in a single infill area tending west to east across the site and between approximately 58m in length and 25m in width. The total area covered by the waste body is approximately 1,675 m². A review of S.I. data indicates an interred waste volume of approximately 7,035 tonnes.

1.3 Hydrogeology and Ecology

The Quaternary Map provided by GSI Online identifies the quaternary sediments at the site as 'Karstified bedrock outcrop or subcrop (KaRck)' indicating shallow rock and outcrops dominate locally. To the north and south of this band of rock outcrop, quaternary sediments are characterised as 'Till derived from Namurian sandstones and shales'. Further north alluvium deposits are present following the Tyshe River. In general, wet, poorly drained soils and peats occupy the landscape.

The GSI online 1:100,000 scale bedrock geology map, shows the bedrock beneath to be found on a single formation. The entirety of the site and surrounding area are underlain by the Cloonagh Limestone formation (CDCLNH) which is generally made up of Dinantian '*Bedded bioclastic limestone*'.

The GSI shows that the groundwater body (GWB) is named Ardfert GWB and has a karstic flow regime and is defined as being at *Good Status* under the Water Framework Directive (WFD). The WFD risk to groundwater quality is currently in 'Review'. There are no recorded groundwater dependent ecosystems in the area.



The GSI Online mapping data set identifies the vulnerability of groundwater to contamination is classified as rock at or near surface or karst and extreme vulnerability, given the presence of bedrock outcrop at the site and thin overburden cover.

The site is located within the catchment of the Tralee Bay-Feale, Sub-catchment Ardfert-Oughter and river subbasin Tyshe_020. The River Tyshe is located approximately 70m north of the site and flows in a westerly direction before turning north-west and north eventually meeting the sea at Black Rock on Banna Beach approximately 5km north-west of the site.

The site is not within or directly adjacent to any Natural Heritage Area (NHA), proposed NHA (pNHA), Special Area of Conservation (SAC) or Special Protection Area (SPA). The nearest SAC is Akeragh, Banna and Barrow Harbour SAC (Site Code:000332) located approximately 2.4km west of the site. This SAC is also classified as a proposed Natural Heritage Area (pNHA). The nearest SPA is Tralee Bay Complex (Site Code: 004188), located approximately 2.4km west of the site.

1.4 Risk Assessment and Environmental Impacts

An initial Tier 1 risk assessment was completed by KCC in 2007 which determined that the site had a moderate risk (Class B) to the environment, with the highest score of 50% indicating the risk of leachate impacting on private groundwater wells and impact on the underlying aquifer groundwater. The Tier 1 was updated by KCC in 2013 and remained classified as moderate risk (Class B), with the highest score of 50% being assigned to leachate migration to groundwater via groundwater flow.

Following a site walkover by FT in February 2019 it was noted that the location of the KCC site walkover was incorrect. The KCC report had identified the potential waste body in an adjacent field c.10-20m away. A revised Tier 1 assessment was completed which also determined a site classification of Moderate - Class B. The principal risk identified on the site were leachate migration via a groundwater pathway to groundwater receptor.

Based on the results of the Tier 2 and Tier 3 risk assessments, the site was classified as a **Moderate Risk Classification (Class B)**. The principal risks identified on the site are the risk posed to underlying groundwater aquifer from the migration of leachate from the waste body.

The Tier 3 assessment further examined and quantified those risks/impacts through generation of models allowing a prediction of both the current and future impacts on groundwater quality, surface water and the current and future extent landfill gas being generated by the waste present on site.

This information was used to inform appropriate remedial and mitigation measures to be implemented on site to either eliminate or reduce these risks.

Estimation of leachate generation at the site indicates that groundwater concentrations were above groundwater quality thresholds and may be impacting groundwater quality locally.

LandGEM was utilised to estimate the quantity of landfill gas produced by the waste underlying the site. Model results suggest that the site will continue to produce landfill gas and methane in minimal quantities, thereby requiring landfill gas management measures to be implemented.



1.5 Proposed Remediation

The Tier 3 assessment determined the need for minor remedial and monitoring works for the existing cap to reduce rainfall inputs and to mitigate the impacts of leachate generated on site on the underlying aquifer and receptors downgradient. The proposed remedial capping works will reduce the risk of rainfall inputs percolating into the waste body that might otherwise encourage vertical or lateral movements of leachate into receiving ground and surface waters and encourage vertical passive venting of landfill gas as may be present and so reduce the risk of lateral gas migration from the waste body into adjacent lands.

To monitor the efficacy of the proposed remediation measures, an additional groundwater monitoring location is proposed downstream of the site. Groundwater monitoring is to occur in both existing and proposed wells. Gas monitoring is to be completed in the existing monitoring wells. Surface water monitoring locations are to be monitored as per the Tier 2 investigation.

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