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HISTORIC LANDFILL AT AHASCRA, CO. KERRY

STAGE 1 APPROPRIATE ASSESSMENT SCREENING REPORT FOR THE REMEDIATION OF HISTORIC LANDFILL SITE, AHASCRA, COUNTY KERRY

Prepared for: Kerry County Council

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Abstract: This document comprises the Stage One: Appropriate Assessment Screening Report for the Historic Landfill at Ahascra, Co. Kerry. Appropriate Assessment is required under Article 6 (3) of the Habitats Directive for any project or plan that may give rise to significant effects on a European (Natura 2000) site.

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

Fehily Timoney and Company (FT) were commissioned by Kerry County Council to prepare a Stage 1 Appropriate Assessment Screening Report, as required by Article 6 of Council Directive 92/43/EEC (Habitats Directive). The preparation of the Appropriate Assessment Screening Report (AA Screening) follows the completion of a Tier 2 and 3 Risk Assessments (see Appendix 2) and recommendations for remediation works to the Historic Landfill at Ahascra Co. Kerry (see Figure 1-1 for location).

In compliance with the provisions of Article 6 of the Habitats Directive, as implemented by Part XAB of the Planning and Development Act 2000, as amended, in circumstances where a proposed plan or project is likely to have a significant effect on a European (Natura 2000) site, either individually or in combination with other plans or projects, an Appropriate Assessment (AA) must be undertaken by the competent authority, of the implications for the site in view of the site's conservation objectives.

European sites comprise both Special Protection Areas (SPAs) for birds and Special Areas of Conservation (SACs) for habitats and species. The Habitats Directive formed a basis for the designation of SACs. Similarly, SPAs are legislated for under the Birds Directive (Council Directive 79/409/EEC on the Conservation of Wild Birds). In general terms, European sites are considered to be of exceptional importance in terms of rare, endangered or vulnerable habitats and species within the European Community.

Article 6 of the Habitats Directive envisages a two-stage process, which is implemented in some detail by the provisions of sections 177U and 177V of the Planning and Development Act. Screening for appropriate assessment in accordance with section 177U is the first stage of the AA process (Stage One), in which the possibility of there being a significant effect on a European site is considered. Plans or projects that have no appreciable effect on a European site are thereby excluded, or screened out, at this stage of the process. Where screening concludes that there is the potential for significant effects, then it is necessary to carry out an AA (Stage Two) for the purposes of Article 6(3), and a Natura Impact Statement (NIS) is produced. The NIS, which forms the basis of the AA, considers the effects of a project or plan on the integrity of a European site and on its conservation objectives, and where necessary, draws up mitigation measures to avoid/minimise negative effects.

The competent authority, in carrying out an AA, is required to make an examination, analysis, evaluation, findings, conclusions and a final determination as to whether or not the proposed works would be likely to have significant effects on the relevant European site(s) in view of their conservation objectives. To evaluate the potential effect(s) of the proposed development on the European sites, all sites located within a 15km radius of the development or those which are ecologically linked were considered. Please note that while a 15km buffer is recommended for plans, there is no hard and fast rule for buffer size (EPA, 2009). A 15 km buffer was used as it encompasses a distance in which the qualifying features and special conservation interests of European sites may potentially be impacted with regards to the proposed development separately and in combination with other developments. However, European sites located outside of the 15km buffer with potential links to the proposed development were also considered (e.g., hydrological connections).

The historic landfill is not located within any European site. Five European sites are located within 15km of the proposed development:

- *Lower River Shannon cSAC (002165)*
- *Kerry Head SPA (004189)*
- *Stack's to Mullaghareirk Mountains West Limerick Hills and Mount Eagle SPA (004161)*

- *River Shannon and River Fergus Estuaries SPA (004077)*
- *Moanveanlagh Bog cSAC (002351)*

1.1 Legislative Requirements

The requirements for an AA are set out in the Habitats Directive 92/43/EEC. Articles 6(3) and 6(4) of this Directive states:

> *6(3) Any plan or project not directly connected with or necessary to the management of the site (Natura 2000 sites) but likely to have significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the site in view of the site's conservation objectives.*
>
> *In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.*
>
> *6(4) If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.*

The statutory agency responsible for European sites is the National Parks and Wildlife Service (NPWS) of the Department of Culture, Heritage and the Gaeltacht (DCHG). In December 2009 '*Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities, Department of the Environment, Heritage and Local Government*' was published with a minor amendment in 2010 (DoEHLG, 2010). This guidance document was prepared jointly by the NPWS and Planning Divisions of DoEHLG (now DCHG), with input from local authorities. Previously, in 2001, the European Commission issued a guidance document. This guidance document has been updated in the published European Commission (2018) '*Managing Natura 2000 sites the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*'. This Appropriate Assessment Screening Report has been prepared in accordance with the relevant Irish and European Commission Guidance.

1.1.1 Regulatory Context

In 1997, the Habitats Directive was transposed into Irish National Law by the European Communities (Natural Habitats) Regulations, SI 94/1997 (as amended by S.I. 233/1998 & S.I. 378/2005). The European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477/2011) revoked the 1997 Regulations (and amendments) as well as the European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010. The purpose of the 2011 Regulations was to address transposition failures identified in the Court of Justice of the European Union (CJEU) judgements.

Following additional amendments in 2013 (S.I. 499/2013) and 2015 (S.I. 355/2015) the regulations are now cited as the European Communities (Birds and Natural Habitats) Regulations 2011 to 2015.

The Regulations have been prepared to address several judgments of the CJEU against Ireland, notably cases *C-418/04 (Commission v Ireland*) and *C-183/05 (Commission v Ireland),* in respect of failure to transpose elements of the Birds Directive and the Habitats Directive into Irish law.

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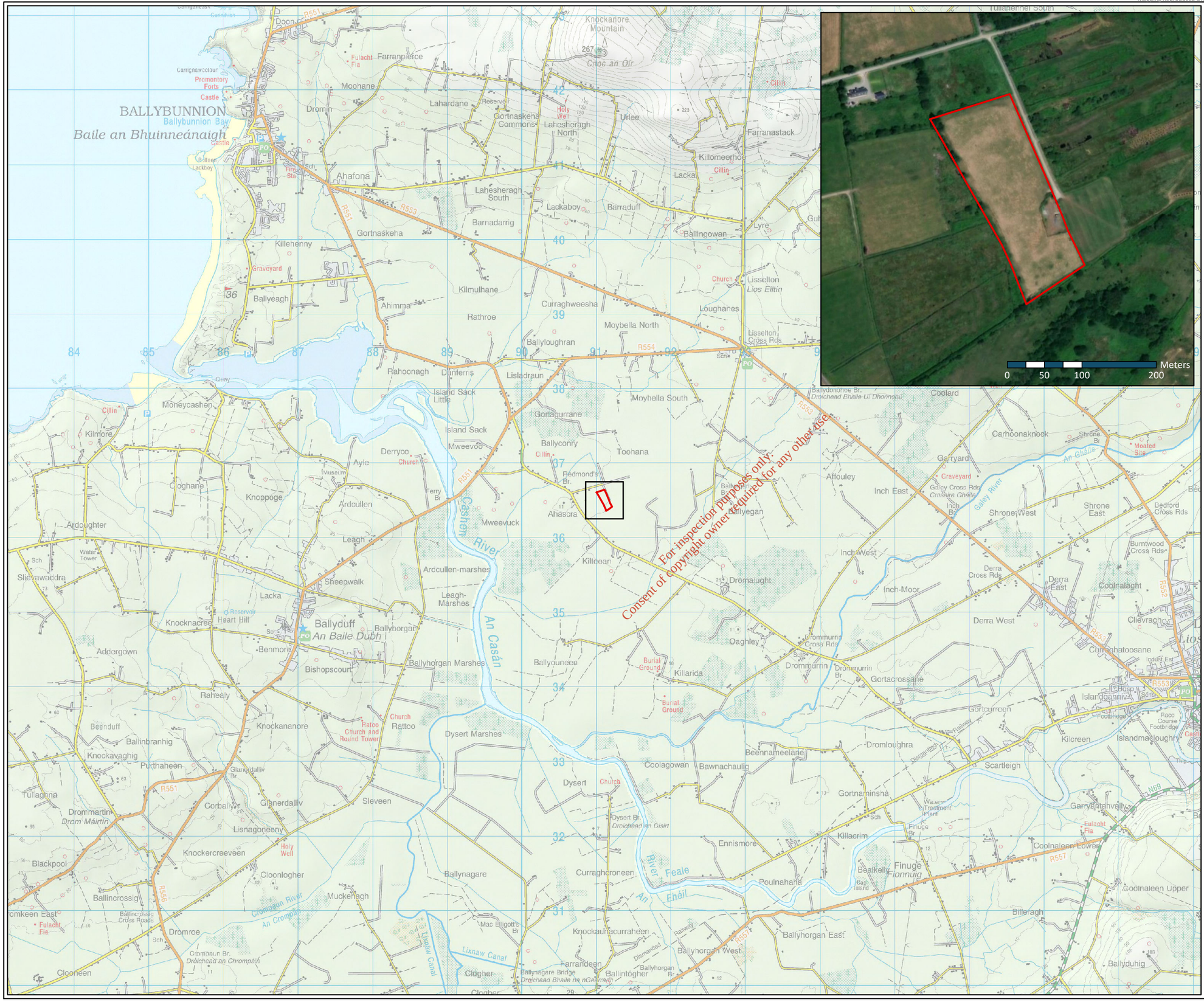

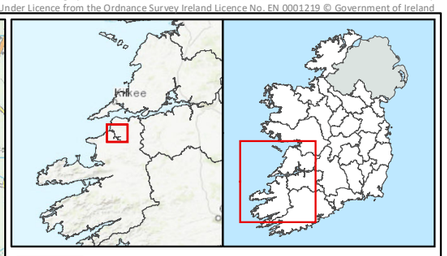

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FIGURE NO:	1.1		
CLIENT:	Kerry County Council		
SCALE:	1:50000	**REVISION:**	0
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2. METHODOLOGY

2.1 Stages of Appropriate Assessment

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures to be addressed in the AA process. Firstly, a project should aim to avoid any negative effects on European sites by identifying possible effects early in the project and should design the project in order to avoid such effects.

There are four stages in an AA, as outlined in the European Commission Guidance document (2001). The following is a brief summary of these steps:

- *Stage One - Screening: This stage examines the likely effects of a project either alone or in combination with other projects upon a European Site and considers whether it can be objectively concluded that these effects will not be significant.*
- *Stage Two - Appropriate Assessment: In this stage, the effect of the project on the integrity of the European site is considered with respect to the conservation objectives of the site and to its structure and function. Mitigation measures should be applied to the point where no adverse effects on the site(s) remain.*
- *Stage Three - Assessment of Alternative Solutions: Should the Appropriate Assessment determine that adverse effects are likely upon a European site, this stage examines alternative ways of implementing the project that, where possible, avoid these adverse effects.*
- *Stage Four - Assessment where no alternative solutions exist and where adverse effects remain: Where imperative reasons of overriding public interest (IROPI) exist, an assessment to consider whether compensatory measures will or will not effectively offset the damage to the Natura site will be necessary. European case law highlights that consideration must be given to alternatives outside the project area in carrying out the IROPI test. It is a rigorous test which projects are generally considered unlikely to pass.*

In the preparation of this assessment therefore regard has been given to the Habitats Directive and the European Communities (Birds and Natural Habitats) Regulations 2011, and with reference to the relevant guidance, in particular:

- Assessment of Plans and Projects significantly affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, European Commission 2001.
- *Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin 2010.
- European Commission (2018). *Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC. Brussels, 21.11.2018 C (2018) 7621 final*.

2.1.1 Impact Assessment

The first step in the screening process is to develop a list of European sites potentially affected by the proposed development.

Each European site is reviewed to establish whether or not the proposed development is likely to have a significant effect on the integrity of the site, as defined by its structure and function, and its conservation objectives.

The qualifying interests of each European site are identified, and the potential threats are summarised into the following categories for the screening process, and described within the screening matrix as follows:

- Direct effects refer to habitat loss or fragmentation arising from land-take requirements for development or agricultural purposes. Direct effects can be as a result of a change in land use or management, such as the removal of agricultural practices that prevent scrub encroachment.
- Indirect and secondary effects do not have a straight-line route between cause and effect, and it is potentially more challenging to ensure that all the possible indirect effects of the plan (or project) – in combination with other plans and projects - have been established. These can arise when a development alters the hydrology of a catchment area, which in turn affects the movement of groundwater to a site, and the qualifying interests that rely on the maintenance of water levels. Deterioration in water quality can occur as both an indirect or direct consequence of development, which in turn changes the aquatic environment and reduces its capacity to support certain plants and animals. The introduction of invasive species can also be defined as an indirect effect, which results in increased movement of vectors (humans, fauna, surface water), and consequently the transfer of alien species from one area to another.
- Disturbance to fauna can arise directly through the loss of habitat (e.g., bat roosts) or indirectly through noise, vibration and increased activity associated with construction and operation.

2.2 Desktop Study

In order to complete the Screening for Appropriate Assessment certain information on the existing environment is required. A desk study was carried out to collate available information on the site's natural environment. This comprised a review of the following publications, data and datasets:

- Kerry County Development Plan 2015-2021
- Kerry County Council Planning Enquiry System (www.kerrycoco.ie/planning/online-planning-enquiry/)
- National Parks and Wildlife Service (NPWS) website and metadata available (www.npws.ie)
- OSI Aerial photography and 1:50,000 mapping
- National Biodiversity Data Centre (NBDC) (on-line map-viewer: www.biodiversityireland.ie)
- BirdWatch Ireland website (www.birdwatchireland.ie)
- Geological Survey Ireland (GSI) area maps (www.gsi.ie)
- Environmental Protection Agency (EPA) (on-line map-viewer: www.epa.ie)
- River Catchment & Sub-catchment WFD datasets
- Tier 2 Risk Assessment Report for Ahascra Historic Landfill
- Tier 3 Risk Assessment Report for Ahascra Historic Landfill

2.3 Field Study

A site walkover was undertaken of the site on 14th February 2019. Habitats were identified and classified according to '*A Guide to Habitats in Ireland*' (Fossitt, 2000). The site walkover included a search for invasive species. Birds, mammals and other taxa observations or signs were also recorded during the site walkover.

3. DESCRIPTION OF THE EXISTING SITE

The historical landfill site is approximately 2.65 ha in size and covers an area of open land located in a rural, primarily agricultural area in North Kerry. The site walkover and Tier 3 Risk Assessment indicates that the existing site has a basic soil cap with an established grass cover. There is also evidence of in-situ mixed municipal solid waste as well as leachate breakouts.

During the site walkover the majority of the site was categorised under Fossitt (2000) as 'improved grassland' (GA1) with field signs indicating the site is grazed by cattle. A smaller overgrown yard is located at the site entrance and was categorised as 'buildings and artificial surfaces' (BL3). No invasive species were observed during the site walkover. Two birds species were recorded; Snipe was flushed from vegetation in front of the site and Meadow Pipit was recorded on site which is associated with the grass covering the site. No qualifying species of any European sites within 15 km of the proposed development were recorded during the site visit.

GSI mapping classifies the quaternary sediments within the site as 'Cut over raised peat'. Pockets of sandstone and shale tills surround the adjacent peat bog area. Site investigation works identified the presence of peat and areas of sand and gravel till. The GSI bedrock geology mapping, shows the bedrock beneath to be found on a single formation. The entirety of the site and surrounding area is underlain by the Waulsortian Limestone formation (CDWAUL) which is generally made up of Dinantian 'massive, unbedded lime-mudstone'. GSI national bedrock aquifer mapping classifies both the Glenflesk Formation as a 'Regionally Important Aquifer – Karstified (Diffuse) Bedrock (Rkd)'. The GSI Online mapping data set identifies the vulnerability of groundwater to contamination as 'Moderate'. This facilitates a relatively easy route for rainfall and leachate to enter the underlying groundwater aquifer.

Review of historical mapping shows a network of man-made drainage channels which were likely excavated to assist the drainage of the Kiltean Bog. Surface water flow from these land drains directs flow in a south-westerly course towards the River Feale/Lower River Shannon cSAC (002165). Locally, a peatland drainage channel with very low flow rate was identified along north-eastern boundary of site during the site walkover. During periods of increased rainfall, flow direction within the drainage channel is likely south to north. Aerial photography indicates that there is also a drainage channel located along the sites south-eastern boundary and it is likely to drain in a south west direction. Observations of the localised topography indicate that drainage channels from the surrounding peatlands and field boundaries eventually drain into the River Feale approximately 1.5km south-west of the site (direct distance).

The EPA mapviewer indicates that the:

- site is located within the catchment of the Tralee Bay-Feale, sub-catchment Glouria_sc_010 and river sub-basin Glouria_010. The Glouria River (EPA code:23G75), second order waterbody, is the closest waterbody to the site, located approximately 1.11km south-east of the site and flows in a south-westerly direction before turning west eventually meeting the River Feale. A review of aerial photography indicates that there is no surface water connection between the Glouria River and the drainage channels connected to the historic landfill site.
- that River Feale, 6th order waterbody which is located approximately 1.5km south-west of the site at its closest point, is hydrologically connected to the historic landfill site via drainage channels.
- a section of the River Feale with a hydrological link to the historic landfill site is estuarine with a Water Framework Directive (WFD) status (2013-2018) of 'poor' or Q-Value 2-3 and the waterbody is also 'at risk'.
- historic landfill site is located within the Ballybunnion ground waterbody and is of 'good' WFD status (2013-2018) and the ground waterbody risk status is currently under review by the EPA.

4. TIER 2 AND 3 RISK ASSESSMENT FINDINGS

The Tier 3 Risk Assessment reviewed the findings of the Tier 1 Risk Assessment undertaken by Kerry County Council, the Tier 2 site investigation and Risk Assessment (undertaken by FT) and assessed and determined the overall risk the site may pose to the receiving environment. Based on the potential overall risk of the site on the environment, the Tier 3 Risk Assessment determined appropriate remediation measures for the site.

Site investigation and monitoring was undertaken in 2019 as part of Tier 2 Risk Assessment and included the following elements:

- 1 no. Geophysical survey (2D resistivity and seismic refraction profiling),
- 5 No. Trial pit excavations,
- Installation and monitoring of 2 No groundwater boreholes, and
- Topographical Survey.

Groundwater, landfill gas and surface water quality monitoring were undertaken as part of the Tier 2 Risk Assessment. Two rounds of groundwater quality monitoring were undertaken at two boreholes within the site on the 16th July and 3rd September 2019. One round of landfill gas monitoring was undertaken at two boreholes on site. In the absence of a free-flowing surface waterbody near the site, surface water monitoring locations were selected within a man-made peatland drainage channel adjacent to the landfill footprint. Two surface water monitoring rounds were carried out on the 19th July and 6th September 2019. For monitoring parameters and results please see Appendix 3.

Waste material comprising mainly plastic bags, glass bottles, fragments of cloth, wood and concrete was encountered to the base of the excavation of between 1.7m – 2.6m in all 5 No. trial pits. Groundwater was not encountered during trial pitting. The findings of the site investigation suggest the waste material is deposited in a single infill area tending north-west to south-east across the site and is between approximately 250m in length and 92m in width. The total area covered by the waste body is approximately 23,000 m^2. The waste material was found to be consistent with commercial and domestic waste.

Groundwater monitoring detected Ammoniacal Nitrogen, Chloride, Arsenic, Manganese, Iron and mineral oil in exceedance of groundwater threshold values (as per the S.I. No.9 of 2010). The slightly elevated Iron and Manganese concentrations are typical of the local bedrock hydrochemistry, whilst elevated concentrations of Ammoniacal Nitrogen, Chloride, Arsenic and mineral oil indicate that the landfill waste body may be negatively impacting groundwater quality.

Surface water monitoring was conducted at upstream and downstream locations on a small stream located east of the site. Monitoring identified exceedances in the BOD concentrations at both upstream and downstream monitoring locations. Leachate breakout was observed during the site walkover, exposed leachate presents a risk of leachate run-off into adjacent surface water and drainage features.

Landfill gas monitoring indicates that gas concentrations are within the range typical for inert waste with no exceedances.

Based on the findings of the modelling exercises and quantitative risk assessment, the Tier 3 assessment determined that:

- Based on the estimated recharge values for the site it is expected that rainfall, after infiltrating into the waste body will result in low volumes of leachate discharging to the underlying aquifer unless remedial works are carried out.
- Assimilative capacity assessment and mass balance calculations indicates that a potential breakout of leachate to the adjacent river is likely to have an impact on water quality downstream of the site.
- Potential risk to the groundwater and subsequently surface water from leachate migration from the site is very low to negligible. Remediation works are proposed to reduce or eliminate any risk to the regionally important aquifer underlying the site and potential sensitive surface water receptors from the historical site.
- Landfill gas will continue to be generated for several years although in minimal quantities. Gas monitoring did not indicate the presence of gas at that time and the calculated the risk from landfill gas is relatively low. Taking into the account the relative proximity of the site to an existing residential unit, it is recommended that landfill gas control measures should be installed at the site to further minimise the risk of landfill gas migration

5. PROPOSED REMEDATION WORKS

The historic landfill site has a basic soil cap and an established grass cover used for grazing. An engineered cap is proposed to isolate the waste body from rainfall inputs which contribute to leachate generation which have the potential to contaminate surface and groundwaters. The proposed engineered cap will also facilitate passive venting of landfill gas.

5.1 Overview

Proposed works for the historic landfill are outlined in Section 5 - Remedial Action Plan of the Tier 3 Risk Assessment report. The proposed works are comprised of the following elements:

- Engineered cap,
- Subsurface drainage (on cap),
- Surface drainage with outfall,
- Barrier System,
- Landfill gas collection system,
- Landfill Gas Management (including Risk Assessment),
- Groundwater, surface water and landfill gas monitoring regime.

The remediation plan is presented in drawing P1766-0100-0003 which is appended to the Tier 3 Risk Assessment, located in Appendix 2 of this report.

The site is currently grazed by cattle. Following remediation works the site will continue to be farmed.

5.1.1 Construction Phase

The total extent of the cap is 23,000 m^2. The landfill cap shall be designed in accordance with the '*EPA Landfill design manual for non-inert, non-hazardous landfills*'. The engineered cap shall comprise:

- 200 mm (4,600m^3) topsoil, located on (from the surface of the engineered cap down),
- 800 mm (18,400m^3) subsoil located on,
- Surface drainage system will outfalls located on,
- Subsurface drainage system located on,
- 1mm LLDPE located on,
- Gas collection geocomposite and collection pipework located on,
- Waste.

It is intended to clear the site of vegetation (an area of 23,000 m^2) and to regrade the site's existing surface (approximately 11,500m^3) in preparation of the installation of the engineered cap. Any excavated soil will be reused as part of the topsoil and subsoil layer of the proposed engineered cap.

The landfill gas collection system will be placed on top of the regraded site surface and shall be comprised of an under-liner gas collection geocomposite or similar approved stone drainage layer. The gas collection layer will accommodate passive venting of landfill gas above the liner as well as the management of below liner leachate breakouts following secondary consolidation or condensate using gravel soakaways. Gas vent stacks if required shall link the gas collection system to the surface of the engineered cap and terminate at least 3.0 m above the surface and will to prevent rainfall ingress and insertion of ignition sources. Biological methane oxidation filters if used shall be excavated into the cap and fenced off. Existing wells on site shall be capped and retained for future monitoring.

The barrier system will be placed on top of the gas collection system. This barrier will also require vertical cut-offs on all boundaries outside the interred waste body (where possible) which will provide a backup measure in the event of lateral landfill gas migration.

The subsurface drainage layer will be placed on top of the cap barrier and below the subsoil layer and will collect any surface runoff which percolates below the surface of the cap, this water will be directed to the surface drainage system. The subsoil layer will be located between the subsurface drainage layer and topsoil layer. The topsoil will form the surface of the engineered cap and will be graded to ensure no localised surface depressions and will be seeded with a robust grassland mix. The surface drainage will be located on the surface of the engineered cap and will be comprised of grassed drains which will collect and direct surface water runoff and subsurface drainage outfall flows to one or more dedicated surface drainage outfalls into the existing surface water perimeter drains. Collected runoff within surface drains and entering receiving waters will not give rise to suspended solids. Limited works will be required to install outfalls on the margins of existing drains.

5.1.2 Operational Phase / Post Construction

There will no operational activities associated with this site other than conducting environmental mentoring. This includes no further ground excavations.

Groundwater monitoring shall be carried out at the two existing perimeter wells and surface water monitoring shall be carried out at the proposed surface water discharge outfall in the north west corner of the site annually. The parameters for monitoring will adhere to Table C.2 of the EPA's *Landfill Manuals - Landfill Monitoring, 2nd Edition (2003).*

Gas monitoring shall be carried out at existing site boreholes (6 No.) and at any future oxidation or venting outlets. Gas sampling will be undertaken for Methane, Carbon Dioxide, Oxygen, Carbon Monoxide and temperature.

For the purposes of this AA Screening the unmitigated effects of the proposed works are only being considered. This AA Screening report does not consider measures included to reduce and or avoid potential significant effects to a European site.

6. STAGE ONE – SCREENING REPORT

6.1 Brief Description of the European Sites within 15km of the Development

There are five European sites within the zone of influence (15km) of the project (see Figure 6-1). Of these five European sites, two are SACs and three are SPAs. Table 6-1 lists these European sites, including their qualifying interests, conservation objectives and known threats to these sites (according to information provided by the NPWS (www.npws.ie). The five sites are as follows:

- Lower River Shannon cSAC (002165) - 1.5km from historic landfill
- Kerry Head SPA (004189) - 7.9km from historic landfill
- Stack's to Mullaghareirk Mountains West Limerick Hills and Mount Eagle SPA (004161) – 9.9km from historic landfill
- River Shannon and River Fergus Estuaries SPA (004077) – 11.2km from historic landfill
- Moanveanlagh Bog cSAC (002351) – 12.2km from historic landfill

Direct Hydrological Link

None of the European sites have a direct hydrological link to the historic site landfill.

Indirect Hydrological Link

The Following European site has an indirect hydrological link to the historic landfill site:

- Lower River Shannon cSAC (002165)

Two historic landfill perimeter drains travel 1.6km from the historic landfill site before feeding into the River Feale which is designated as part of the Lower River Shannon cSAC (002165).

Remote Indirect Hydrological Link

The following European sites have a remote indirect hydrological link to the historic landfill site:

- Kerry Head SPA (004189)
- River Shannon and River Fergus Estuaries SPA (004077)
- Stack's to Mullaghareirk Mountains West Limerick Hills and Mount Eagle SPA (004161)
- Moanveanlagh Bog cSAC (002351)

Kerry SPA (004189) is located adjacent to the Lower River Shannon cSAC (002165) and along the shore of the Shannon Estuary. The River Feale discharges into the Shannon Estuary.

River Shannon and River Fergus Estuaries SPA (004077) overlaps with the Lower River Shannon cSAC (002165) and is located within the Shannon Estuary which receive waters from the River Feale.

Stack's to Mullaghareirk Mountains West Limerick Hills and Mount Eagle SPA (004161) is located upstream of the River Feale and overlaps with sections of the Lower River Shannon cSAC (002165).

Moanveanlagh Bog cSAC (002351) is located upstream of the River Feale.

Ground Water link

The following European site is located within the same ground water body as the historic landfill site:

- Lower River Shannon cSAC (002165)

Screening

Screening continues for all five European sites in Section 6.2

Table 6-1: European Sites within the zone of influence

Designated Site (Site Code)	Conservation Objectives	Qualifying Interests	Threats and Pressures	Direct Distance from Historic Landfill Site (km)
Lower River Shannon cSAC (002165)	To maintain **(M)** and restore **(R)** the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected (further details available in Appendix 4) Conservation Objectives available for site: 07 August 2012 [Version 1]	• Sandbanks which are slightly covered by sea water all the time [1110] **(M)** • Estuaries [1130] **(M)** • Mudflats and sandflats not covered by seawater at low tide [1140] **(M)** • Coastal lagoons [1150] * **(R)** • Large shallow inlets and bays [1160] **(M)** • Reefs [1170] **(M)** • Perennial vegetation of stony banks [1220] **(M)** • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] **(M)** • Salicornia and other annuals colonising mud and sand [1310] **(M)** • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] **(R)** • Mediterranean salt meadows (*Juncetalia maritimi*) [1410] **(R)** • Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] **(M)** • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] **(M)** • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] * **(R)**	<u>High Level (inside site)</u> not applicable <u>High Level (outside site)</u> not applicable <u>Medium Level (inside site)</u> A08 Fertilisation E03 Discharges A04 Grazing J02.01.01 Polderisation <u>Medium Level (outside site)</u> A08 Fertilisation E01 Urbanised areas, human habitation H04 Air pollution, air-borne pollutants E03 Discharges K02.03 Eutrophication (natural) J02.01.02 Reclamation of land from sea, estuary or marsh <u>Low Level (inside site)</u> I01 Invasive non-native species D01.01 Paths, tracks, cycling tracks	1.5

Designated Site (Site Code)	Conservation Objectives	Qualifying Interests	Threats and Pressures	Direct Distance from Historic Landfill Site (km)
		• *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] **(R)** • *Petromyzon marinus* (Sea Lamprey) [1095] **(R)** • *Lampetra planeri* (Brook Lamprey) [1096] **(M)** • *Lampetra fluviatilis* (River Lamprey) [1099] **(M)** • *Salmo salar* (Salmon) [1106] **(R)** • *Tursiops truncatus* (Common Bottlenose Dolphin) [1349] **(R)** • *Lutra lutra* (Otter) [1355] **(R)**	G01.01 Nautical sports B Sylviculture, forestry F01 Marine and Freshwater Aquaculture E03.01 Disposal of household / recreational facility waste C01.01.02 Removal of beach materials C01.03.01 Hand cutting of peat J02.12.01 Sea defence or coast protection works, tidal barrages J02.10 Management of aquatic and bank vegetation for drainage purposes <u>Low Level (outside site)</u> not applicable	

Designated Site (Site Code)	Conservation Objectives	Qualifying Interests	Threats and Pressures	Direct Distance from Historic Landfill Site (km)
Kerry Head SPA (004189)	To maintain and restore the favourable conservation condition of the Annex I species for which the SPA has been selected (further details available in Appendix 4). Generic Conservation Objectives available: 21/02/2018 [Version 6]	• Fulmar (*Fulmarus glacialis*) [A009] • Chough (*Pyrrhocorax pyrrhocorax*) [A346]	<u>High Level (inside site)</u> not applicable <u>High Level (outside site)</u> not applicable <u>Medium Level (inside site)</u> not applicable <u>Medium Level (outside site)</u> E05 Storage of materials E04.01 Agricultural structures, buildings in the Landscape <u>Low Level (inside site)</u> A04.03 Abandonment of pastoral systems, lack of Grazing A02 Modification of cultivation practices <u>Low Level (outside site)</u> A01 Cultivation A07 Use of biocides, hormones and chemicals	7.9

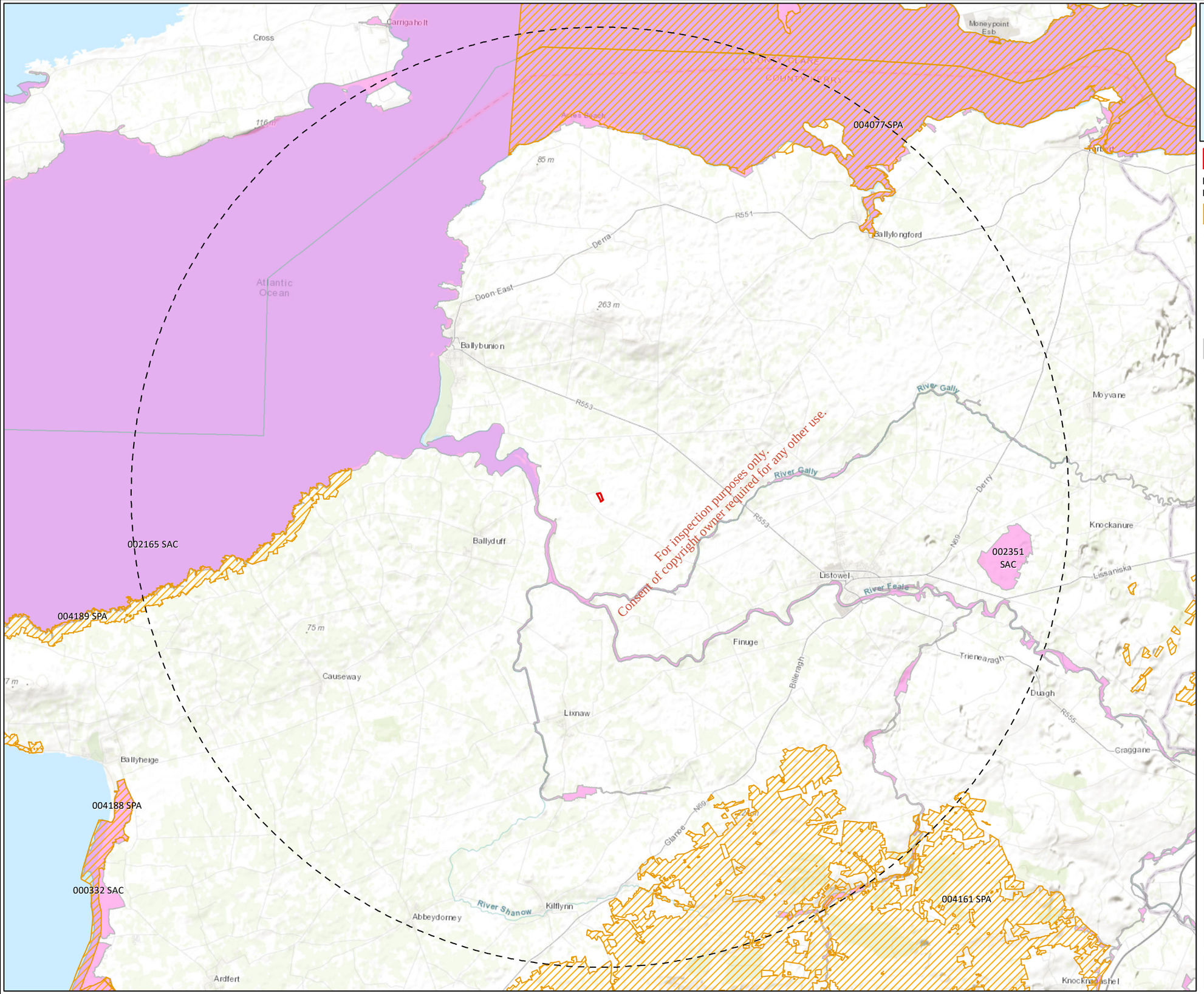
Designated Site (Site Code)	Conservation Objectives	Qualifying Interests	Threats and Pressures	Direct Distance from Historic Landfill Site (km)
Stack's to Mullaghareirk Mountains West Limerick Hills and Mount Eagle SPA (004161)	To maintain or restore the favourable conservation condition of the Annex I species for which the SPA has been selected (further details available in Appendix 4). Generic Conservation Objectives available: 21/02/2018 [Version 6]	• Hen Harrier (*Circus cyaneus*) [A082]	<u>High Level (inside site)</u> B Sylviculture, forestry <u>High Level (outside site)</u> not applicable <u>Medium Level (inside site)</u> C01.03 Peat extraction <u>Medium Level (outside site)</u> not applicable <u>Low Level (inside site)</u> not applicable <u>Low Level (outside site)</u> A09 Irrigation E01.03 Dispersed habitation D01.02 Roads, motorways D01.01 Paths, tracks, cycling tracks	9.9

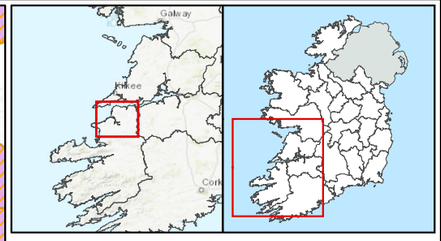
Designated Site (Site Code)	Conservation Objectives	Qualifying Interests	Threats and Pressures	Direct Distance from Historic Landfill Site (km)
River Shannon and River Fergus Estuaries SPA (004077)	To maintain **(M)** the favourable conservation condition of the Annex I species for which the SPA has been selected (further details available in Appendix 4). Conservation Objectives available for site: 17 September [Version 1.0]	• Cormorant (*Phalacrocorax carbo*) [A017] **(M)** • Whooper Swan (*Cygnus cygnus*) [A038] **(M)** • Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] **(M)** • Shelduck (*Tadorna tadorna*) [A048] **(M)** • Wigeon (*Anas penelope*) [A050] **(M)** • Teal (*Anas crecca*) [A052] **(M)** • Pintail (*Anas acuta*) [A054] **(M)** • Shoveler (*Anas clypeata*) [A056] **(M)** • Scaup (*Aythya marila*) [A062] **(M)** • Ringed Plover (*Charadrius hiaticula*) [A137] **(M)** • Golden Plover (*Pluvialis apricaria*) [A140] **(M)** • Grey Plover (*Pluvialis squatarola*) [A141] **(M)** • Lapwing (*Vanellus vanellus*) [A142] (**M**) • Knot (*Calidris canutus*) [A143] **(M)** • Dunlin (*Calidris alpina*) [A149] **(M)** • Black-tailed Godwit (*Limosa limosa*) [A156] **(M)** • Bar-tailed Godwit (*Limosa lapponica*) [A157] **(M)** • Curlew (*Numenius arquata*) [A160] **(M)** • Redshank (*Tringa totanus*) [A162] **(M)** • Greenshank (*Tringa nebularia*) [A164] **(M)** • Black-headed Gull (*Chroicocephalus ridibundus*) [A179] **(M)** • Wetland and Waterbirds [A999] **(M)**	<u>High Level (inside site)</u> A03 Mowing / cutting of grassland <u>High Level (outside site)</u> E02 Industrial or commercial areas A08 Fertilisation E01 Urbanised areas, human habitation <u>Medium Level (inside site)</u> G01.01 Nautical sports D03.02 F01 Marine and Freshwater Aquaculture <u>Medium Level (outside site)</u> not applicable <u>Low Level (inside site)</u> not applicable <u>Low Level (outside site)</u> not applicable	11.2

Designated Site (Site Code)	Conservation Objectives	Qualifying Interests	Threats and Pressures	Direct Distance from Historic Landfill Site (km)
Moanveanlagh Bog cSAC (002351)	To restore **(R)** the favourable conservation condition of the Annex I habitat(s) which the SAC has been selected (further details available in Appendix 4). Conservation Objectives available for site: 07 Dec 2015 [Version 1]	• Active raised bogs [7110] * **(R)** • Degraded raised bogs still capable of natural regeneration [7120] **(R)** • Depressions on peat substrates of the *Rhynchosporion* [7150] **(R)**	<u>High Level (inside site)</u> J01 Fire and fire suppression C01.03 Peat extraction <u>High Level (outside site)</u> not applicable <u>Medium Level (inside site)</u> A01 Cultivation E03.01 Disposal of household / recreational facility waste J02.01 Landfill, land reclamation and drying out, general <u>Medium Level (outside site)</u> A04 Grazing A01 Cultivation <u>Low Level (inside site)</u> I01 Invasive non-native species A04 Grazing <u>Low Level (outside site)</u> D01.01 Paths, tracks, cycling tracks C01.03 Peat extraction E03.01 Disposal of household / recreational facility waste	12.2

Designated Site (Site Code)	Conservation Objectives	Qualifying Interests	Threats and Pressures	Direct Distance from Historic Landfill Site (km)
			J02.01 Landfill, land reclamation and drying out, general	

* indicates a priority Annex I habitat.





Site Boundary

15km Distance from Site Boundary

Special Protection Area (SPA)

Site Code, Site Name, Distance (km)

004189, Kerry Head SPA, 7.9

004161, Stack's to Mullaghareirk Mountains West Limerick Hills and Mount Eagle SPA, 9.9

004077, River Shannon and River Fergus Estuaries SPA, 11.2

Special Area of Conservation (SAC)

Site Code, Site Name, Distance (km)

002165, Lower River Shannon SAC, 1.5

002351, Moanveanlagh Bog SAC, 12.2

TITLE:	Designated European Sites		
PROJECT:	AA Screening for Ahascra Historic Landfill, Co. Kerry		
FIGURE NO:	6.1		
CLIENT:	Kerry County Council		
SCALE:	1:120000	**REVISION:**	0
DATE:	27/04/2020	**PAGE SIZE:**	A3

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6.2 Conservation Objectives

According to the Habitat's Directive, the *conservation status of a natural habitat* will be taken as 'favourable' within its biogeographic range when:

- Its natural range and areas it covers within that range are stable or increasing; and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and
- The conservation status of its typical species is favourable as defined below.

According to the Habitat's Directive, the conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations. The conservation status will be taken as 'favourable' within its biogeographic range when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The specific conservation objectives for each site are available on www.npws.ie. These have been accessed for the sites listed in Table 6-1 above on the 20th August 2020.

Generic conservation objectives were available for:

- Kerry Head SPA (004189); published 21/02/2018 [Version 6]
- Stack's to Mullaghareirk Mountains West Limerick Hills and Mount Eagle SPA (004161); published 21/02/2018 [Version 6]

Detailed site-specific conservation objectives were available for the following sites:

- Lower River Shannon cSAC (002165); published 07 August 2012 [Version 1]
- River Shannon and River Fergus Estuaries SPA (004077); published 17 September [Version 1.0]
- Moanveanlagh Bog cSAC (002351); published 07 Dec 2015 [Version 1]

Conservation objectives and supporting documents for these sites are available from the NPWS through the protected sites search portal at https://www.npws.ie/protected-sites.

No management plans were available for any of the sites.

6.3 Potential Cumulative Effects

In considering whether the proposed development, by itself or in combination with other plans and projects, has the potential to affect the conservation objectives of the designated sites within 15km of the proposed development, the following were considered:

- Kerry County Council Planning Enquiry System
- Kerry County Development Plan 2015-2021
- Permitted projects in the vicinity of the development
- Proposed projects in the vicinity of the development

A planning search limited to applications submitted within the townlands overlapping and surrounding the historic landfill site (Ahascra, Kilteean, Mweevuck, Toohana and Ballyconry) during the previous 5 years was conducted on 20th August 2020.

No other applications of a scale or type that could act cumulatively with the proposed remediation works at the historic landfill site are proposed or consented in the townlands overlapping and surrounding the site. Consented and proposed developments in these townlands are few and comprised of the construction and/or retention of residential and farm related developments.

Other Historic Landfills

Within Ahascra historic landfill's 15km buffer there are 5 European sites. Of these five European sites, one or more is located within the 15km buffer of five other historical landfills which require remediation works (see Table 6-2 below for more information). Of these five historic landfills, two are located in north County Kerry (Ardfert, Listowel) and three are located in mid County Kerry (Castleisland, Rockfield Tralee). The closest historic landfill to Ahascra historic landfill is Listowel historic landfill, located ca. 8.9km southeast of Ahascra historic Landfill.

Pathways for surface water runoff (containing suspended solids) and leachate from Ahascra historic landfill site are via existing drainage channels which feed into the lower reaches (estuarine) of the River Feale. The potential cumulative effect (if any) between Ahascra historic landfill site and the other historical sites on the European sites within Ahascra historic landfill's 15km buffer are assessed below.

Table 6-2: European sites located within 15km of Ahascra Historic Landfill and Five Other Historic Landfills (Requiring Remediation)

European sites within Ahascra historic landfill's 15km buffer	North Kerry Historic Landfills		Mid Kerry Historic Landfills		
	Ardfert	Listowel	Castleisland	Rockfield	Tralee
	Distance between Historic Landfill sites and European Sites (km)				
Kerry Head SPA (004189)	8.9				
Lower River Shannon cSAC (002165)	11.9	0.008	6.1		13.2
Moanveanlagh Bog cSAC (002351)		3.6			
River Shannon and River Fergus Estuaries SPA (004077)		11.2			
Stack's to Mullaghareirk Mountains West Limerick Hills and Mount Eagle SPA (004161)	9.2	5	2.9	12	7.2

Lower River Shannon cSAC

The ground waterbody of the Ahascra historic landfill overlaps with that of the Lower River Shannon cSAC (002165). The existing capped area will not be removed and there will be no excavation of the interred waste body. As there will be no excavation into the interred waste body and as the new engineered cap will be placed immediately on top of the existing cap, remediation works will not result in the production of additional leachate.

With regards to surface water and leachate, there is an indirect hydrological link between Ahascra historic landfill and the Lower River Shannon cSAC (002165) via the River Feale. As the waste waterbody will not be excavated remediation works will not increase leachate production and existing levels of leachate entering perimeter drainage channels will not be affected during remediation works.

Surface water runoff will leave the site via existing perimeter drainage channels. The surface water runoff maycontain low – negligible levels of suspended solids which will be diluted within the receiving drainage channels. On entering the River Feale/SAC (1.7km direct distance) suspended solid levels will be low- negligible. Within the River Feale any suspended solids will be further diluted to negligible levels. Receiving habitats (qualifying interests) of the SAC are estuarine habitats and are non-sensitive to suspended solids (see Table 6-1). The Drainage channels are maintained habitat of low Ecological value which will not provide feeding or breeding habitat for the transitory qualifying interests (Sea Lamprey, Brook Lamprey, River Lamprey, Salmon and Otter) of the SAC. As water will be diluted further at the River Feale discharge point and suspended solid levels will be negligible, there will be no significant effect on commuting salmonids (Sea Lamprey, Brook Lamprey, River Lamprey and Salmon) or feeding/breeding otter (transitory qualifying interests of the SAC). As there will be no effect on the qualifying interests of the Lower River Shannon cSAC (002165) due to surface water runoff, there can be no cumulative in combination effects with any other historical landfill sites. See Section 6.5 for more information.

Ahascra historic landfill site will not have any impact on the Lower River Shannon cSAC (002165) and therefore will not result in cumulative / in combination effects with any other historical landfill sites.

Other European sites

Kerry SPA (004189), River Shannon and River Fergus Estuaries SPA (004077), Stack's to Mullaghareirk Mountains West Limerick Hills and Mount Eagle SPA (004161) and Moanveanlagh Bog cSAC (002351) are located 7.9km or greater form Ahascra historic landfill site and do not receive waters from the site. The site also does not provide suitable habitat for any of the SPAs special conservation interests and Moanveanlagh Bog cSAC (002351) does not have any transitory qualifying interests. Due to there being no direct hydrological link between Ahascra historic landfill and the four aforementioned European sites there will be no impact on them from the remediation of Ahascra historic landfill. As remedial works to Ahascra historic landfill site will have no impact on the aforementioned European sites, the proposed project will not result in cumulative / in combination effects with any other historical landfill sites.

6.4 Screening Assessment Criteria

Throughout this section the line items in italics refer to suggested instructions for information to be contained in a screening assessment, and in an appropriate assessment from the guidance document 'Assessment of Plans and Projects significantly affecting Natura 2000 Sites: *Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC', (European Commission, 2001*). The standard '*Screening Matrix*' and '*Finding of No Significant Effects Report Matrix*' in Annex 2 of this guidance document are also followed.

As set out in NPWS guidance (DoEHLG, 2010), the task of establishing whether a plan or project is likely to have an effect on a European site(s) is based on an evaluation using available information and data (e.g., water quality data), supplemented as necessary by local site information and ecological surveys. This results in a determination by the competent authority as to whether there may be a significant effect on the designated site. A precautionary approach is required.

Some examples given in the NPWS guidance (DoEHLG, 2010) of effects that are likely to be significant are:

1. Any effect on an Annex I habitat,
2. A reduction in the area of a habitat of conservation interest in a European site or a reduction in the area of a European site,
3. Direct or indirect damage to the physical quality of the environment (e.g., water quality and supply, soil compaction) in the European site,
4. Serious or ongoing disturbance to species or habitats for which the European site is selected (e.g., increased noise, illumination and human activity),
5. Direct or indirect damage to the size, characteristics or reproductive ability of populations in the European site,
6. Interference with mitigation measures put in place for other plans or projects.

6.5 Screening Matrix

Assessment Criteria	Discussion of Potential Effects
Describe any likely direct, indirect or secondary impacts [effects] of the project (either alone or in combination with other plans or projects) on the Natura 2000 [European] site by virtue of: ▪ *Size and scale;* ▪ *Land-take;* ▪ *Distance from Natura 2000 site or key features of the site;* ▪ *Resource requirements;* ▪ *Emissions;* ▪ *Excavation requirements;* ▪ *Transportation requirements;* ▪ *Duration of construction, operation etc.;* ▪ *Other.*	**Size and scale** **Potential Effects:** *None.* Remediation works will be undertaken within a 2.65 ha single parcel of land and remediation works will cover an area of 2.3 ha. Remediation works will involve the use of 4,600m^3 topsoil and 18,400m^3 of subsoil spread over a 2.3ha area a barrier system which will require vertical cut-offs on all boundaries (outside the interred waste) and limited excavation (will not disturb interred waste body) will be required for the installation of landfill gas management elements located on the surface of the cap. No effects will occur on any European site due to size and scale. **Land-take** **Potential Effects:** *None.* The historic site is not located within any European site and there will therefore be no land-take of any European site. **Distance from Natura 2000 (European) sites** **Potential Effects:** *None.* The Lower River Shannon cSAC (002165) is the closest European site and is located 1.5km from the historic landfill. There will be no impact on any European site due to distance of proposed remediation works. **Resource requirements** **Potential Effects:** *None.* There will be no resource requirements from any European site as a result of the proposed remediation works. **Emissions** **Potential Effects:** *None*

Assessment Criteria	Discussion of Potential Effects
	During Remediation Works During remediation works emissions created by the works will be comprised of soil sediment. Soil sediment will be produced during: • the use of 18,400m^3 of subsoil used to reprofile the site as well 4,600m^3 topsoil which will provide a growing medium for grass. • the installation of the barrier system which will require vertical cut-offs on all boundaries (outside the area of the interred waste body). • during the installation of landfill gas management elements located on the surface of the cap (will not disturb the interred waste body). • During the installation of an outflow in the bank of a perimeter drain. The soil sediment produced during remediation works will mainly be limited to site and it is likely that a low - negligible amount of suspended solids (via surface water runoff) will enter the site's perimeter drainage channels [1] which feed into the River Feale/the Lower River Shannon cSAC (002165). At present leachate is likely to escape from the site and enter groundwater and surface waters. During remediation works leachate will continue to be produced. The existing capped area will not be removed and there will be no excavation of the interred waste body. Remediation works will therefore not result in the production of additional leachate. <u>Lower River Shannon cSAC (002165)</u> The Lower River Shannon cSAC (002165) is located within the same ground waterbody as the historic landfill. As discussed above, remediation works will not increase the levels of leachate entering the underlying ground waterbody. The Lower River Shannon cSAC (002165) has an indirect hydrological link via perimeter drainage channels which feed into the River Feale which forms part of the Lower River Shannon cSAC (002165). The SAC is located 1.7km (instream distance) from where the closest perimeter drain leaves the site and enters the River Feale/SAC. At present it is likely that leachate via leachate outbreaks is escaping from the historic landfill site into perimeter drains. Remediation works will not increase the amounts of leachate entering perimeter drains and is therefore not discussed further.

[1] Site surveys indicate that the perimeter drains were not free flowing meaning that waters entering the drainage channels may take some time to enter the River Feale with periods of time where drainage channels may not feed into the River Feale. A worst-case scenario has however been taken with the assumption made that there is a hydrological connection between the drainage channels and River Feale/ Lower River Shannon cSAC (002165).

Assessment Criteria	Discussion of Potential Effects
	Soil emissions will however be produced during remediation works. Supporting documents for the SACs conservation objectives [(NPWS, 2012b), (NPWS, 2012c)] indicate that the section of the River Feale/SAC which will receive waters from the historic landfill is estuarine in nature and of the SACs 13 qualifying interests, two habitats are found in the receiving waters (discharge point) of the River Feale/SAC; Estuaries [1130] and Mudflats and sandflats not covered by seawater at low tide [1140]. The receiving estuarine habitats/qualifying interests are not overly sensitive and suspended solids and suspended solid emissions will be further diluted from low - negligible to negligible at the discharge point. There will therefore be no effect on these two qualifying interests. Between the discharge point and where the River Feale enters the Shannon Estuary/SAC, there is a 6.4km instream distance. Discharge entering the Shannon Estuary will be further diluted and there will therefore be no effect on any other qualifying interests for which the SAC is designated due to emissions. There are 6 aquatic transitory qualifying interests of the SAC which are comprised of Sea Lamprey, Brook Lamprey, River Lamprey, Salmon and Otter. Salmonids are highly unlikely to breed within the drainage channels that links the historic landfill to the River Feale as aerial photography indicates the drainage channels are maintained and are therefore highly unlikely to contain suitable breeding habitat for salmonids. Salmonids located in the lower reaches of the River Feale will be commuting up or down the River Feale. Suspended solid emissions entering the River Feale will be low - negligible and will be further diluted to negligible levels at the discharge point. There will therefore be no direct or indirect effect on salmonids due to emissions. Otter is unlikely to inhabit the drainage channels that link the historic landfill to the River Feale as the drainage channels are a maintained habitat of low ecological value and are therefore highly unlikely to support the prey that otters feed upon. The River Feale and the Shannon Estuary are highly likely to form part of the SACs otter populations territory. Suspended solid levels entering the River Feale will be low - negligible and will be further diluted to negligible at the point of discharge. There will be no direct or indirect effect on otter due to emissions. Due to distance and dilution factor there will be no direct or indirect effect on the qualifying interests of the Lower River Shannon cSAC (002165) due to emissions. <u>Kerry Head SPA (004189)</u> Kerry SPA (004189) is located adjacent to the Lower River Shannon cSAC (002165) along the shore of the Shannon Estuary. Suspended solid levels entering the Shannon Estuary will be negligible and further diluted. The SPA is located 2.3km away (direct distance) from where the River Feale discharges into the Shannon Estuary.

Assessment Criteria	Discussion of Potential Effects
	Due to distance and dilution factor there will be no direct or indirect effect on special conservation interests of Kerry SPA (004189) due to emissions. River Shannon and River Fergus Estuaries SPA (004077) River Shannon and River Fergus Estuaries SPA (004077) overlaps with the Lower River Shannon cSAC (002165) within the Shannon Estuary. Suspended solid levels entering the Shannon Estuary will be negligible and further diluted. The SPA is located 9.9km away (direct distance) from where the River Feale discharges into the Shannon Estuary. Due to distance and dilution factor there will be no direct or indirect effect on special conservation interests of the River Shannon and River Fergus Estuaries SPA (004077) due to emissions. Stack's to Mullaghareirk Mountains West Limerick Hills and Mount Eagle SPA (004161) Stack's to Mullaghareirk Mountains West Limerick Hills and Mount Eagle SPA (004161) is located 9.9km (direct distance) from the historic landfill site, is upstream of the River Feale and overlaps with sections of the Lower River Shannon cSAC (002165). The SPA does not receive waters from the River Feale. There will therefore be no effect either directly or indirectly to the SPAs sole special conservation interest, the Hen Harrier due to emissions. Moanveanlagh Bog cSAC (002351) Moanveanlagh Bog cSAC (002351) is located 12.2km (direct distance) from the historic landfill, upstream of the River Feale and does not receive waters from the River Feale tributary. There will therefore be no effect either directly or indirectly to the three bog habitats for which the SAC is designated for due to emissions. *After Remediation Works* Following remediation works leachate will continue to be produced and enter groundwater for a time. However, remediation works will prevent leachate outbreaks and they will also prevent rainwater from infiltrating the interred waste body therefore reducing the potential for leachate to be produced. During the establishment of the grass layer (will take several weeks) on the newly engineered cap, collected surface water runoff leaving the site may contain suspended solids. Levels of suspended solids will be minimal and will be produced for a limited period. Lower River Shannon cSAC (002165) Suspended solid levels (collected surface water runoff) in leaving the site will be negligible and temporary. Due to the limited amount of suspended sediment and there being no direct hydrological link there will be no effect on Shannon cSAC (002165) due to emissions.

Assessment Criteria	Discussion of Potential Effects
	Excavation requirements **Potential Effects:** *None* There will be no excavation requirements from any European site as a result of the proposed development. Excavation works will be limited to the installation of the barrier system (outside the body of interred waste), installation of above ground elements of the gas collection system and the installation of the surface water drainage system outfall (placed in the bank of an existing drainage channels). There will also be the placement of 4,600m^3 of topsoil and 18,400m^3 subsoil, which will be used to reprofile the historic landfill site; filling in any localised depressions. Surface water runoff containing suspended solids will be low-negligible. See above section on 'Emissions' for more information. **Transportation requirements** **Potential Effects:** *None* Site access will not traverse any European Site. **Duration of Construction and Operation** **Potential Effects:** *None* It is anticipated that remediation works will occur over approximately six months. Following remediation works, environmental monitoring will be undertaken annually and will be ongoing for several years. Once remediation works are complete and the grass layer has become established, the site will continue to be grazed by livestock. Following remediation works, leachate will no longer be able to escape to the surface of the site or enter surface water and rain water will no longer be able to reach interred waste and eventually leachate will no longer be created. **Cumulative Effects** **Potential Effects:** *None.* A planning search indicates that no other projects of a scale or type that could act cumulatively with the proposed remediation works at the historic landfill site are proposed or permitted in the townlands overlapping and surrounding the site. See Section 6.3 for more information. *Other Historic Landfills* Within Ahascra historic landfill's 15km buffer there are 5 European sites. Of these five European sites, one or more is located within the 15km buffer of 5 other historical landfills which require remediation works (see Table 6-2 below for more information. The closest historic landfill to Ahascra historic Landfill is Listowel historic landfill, located ca. 8.9km southeast of Ahascra historic Landfill.

Assessment Criteria	Discussion of Potential Effects
	Lower River Shannon cSAC The SAC is located within the same ground waterbody as the historic landfill site and has an indirect hydrological link to the site. Remediation works will not increase leachate production and existing levels of leachate entering groundwater and perimeter drainage channels will not be affected during remediation works. Surface water runoff containing suspended solids, leaving the site via existing drainage channels will feed into the River Feale where they will be further diluted to negligible levels. The linking drainage channels are of low Ecological value and do not provide valuable salmonid or otter foraging/breeding habitat. Ahascra historic landfill site will not have any impact on the Lower River Shannon cSAC (002165) and therefore will not result in cumulative / in combination effects with any other historical landfill sites. Other European sites The four remaining European sites are located 7.9km or greater form Ahascra historic landfill site and do not receive waters from the site. The site also does not provide suitable habitat for special conservation interests. Remediation works to Ahascra historic landfill site will have no effect on Kerry SPA (004189), River Shannon and River Fergus Estuaries SPA (004077), Stack's to Mullaghareirk Mountains West Limerick Hills and Mount Eagle SPA (004161) and Moanveanlagh Bog cSAC (002351) and will therefore not result in cumulative / in combination effects with any other historical landfill sites. For more detailed information see Section 6.3.
Describe any likely changes to the site arising as a result of: ▪ *Reduction of habitat area;* ▪ *Disturbance of key species;* ▪ *Habitat or species fragmentation;* ▪ *Reduction in species density;* ▪ *Changes in key indicators of conservation value;* ▪ *Climate change.*	The historic landfill is not located in any European Site and there will therefore be no direct reduction of habitat area to European sites. The site is located 1.5km away from the closest European site on the Lower River Shannon cSAC (002165). The historic landfill site is grazed by cattle and contains leachate breakouts and is unsuitable for SPA special conservation interests and SAC transitory qualifying interests (Moanveanlagh Bog cSAC does not have any transitory qualifying interests). The site is linked to the River Feale via maintained drainage channels which are of low ecological value to aquatic transitory qualifying interests of the Lower River Shannon cSAC (002165). There will therefore be no disturbance of key species of European sites. Proposed Remediation works during the construction phase and for a limited time after will result in surface water runoff containing suspended solids . Due to distance and dilution factor there will be no significant effect on the Lower River Shannon cSAC (002165). The other Four European sites (Kerry Head SPA (004189), River Shannon and River Fergus Estuaries SPA (004077), Stack's to Mullaghareirk Mountains West Limerick Hills and Mount Eagle SPA

Assessment Criteria	Discussion of Potential Effects
	(004161),Moanveanlagh Bog cSAC (002351)) will not be effected by suspended solid emissions due to them not having a direct hydrological link to the historic landfill. With regards to European sites there will therefore be no indirect reduction to habitat area, no fragmentation of habitat or species, reduction in species density or change to key indicators of conservation value.
Describe any likely impacts [effects] on the Natura 2000 site as a whole in terms of: ▪ *Interference with the key relationships that define the structure of the site;* ▪ *Interference with key relationships that define the function of the site.*	There will be no potential effects on the key relationships that define the structure or function of any European site considered in this Appropriate Assessment Screening due to distance (closest European site is 1.5km away) and lack of any direct hydrological link.
Provide indicators of significance as a result of the identification of effects set out above in terms of: ▪ *loss,* ▪ *fragmentation,* ▪ *disruption,* ▪ *disturbance,* ▪ *change to key elements of the site (e.g., water quality etc.).*	No effects will occur; therefore, an indicator of significance is not required.
Describe from the above those elements of the project or plan, or combination of elements, where the above impacts [effects] are likely to be significant or where the scale of magnitude of impacts [effects] is not known.	No significant effects or effects of unknown scale or magnitude, either alone or in-combination with other projects or plans will occur.

6.6 Stage One Screening Conclusion

It is concluded beyond reasonable scientific doubt that there are not likely to be significant effects from the proposed development on the five European sites identified for consideration (or any other European site), either alone or in combination with other plans or projects.

No significant effects on any of the European Sites within the zone of potential influence are predicted. Therefore, the following five European sites have been 'screened out' within the Stage 1: Appropriate Assessment Screening Report:

- Lower River Shannon cSAC (002165)
- Kerry Head SPA (004189)
- River Shannon and River Fergus Estuaries SPA (004077)
- Stack's to Mullaghareirk Mountains West Limerick Hills and Mount Eagle SPA (004161)
- Moanveanlagh Bog cSAC (002351)

See Appendix 1 for Findings of No Significant Effects Report.

7. REFERENCES

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