Certificate of Authorisation Application Form

Waste Management (Certification of Historic Unlicensed Waste Disposal and Recovery Activity) Regulations, 2008

Site: Digby Bridge, Sallins, Co. Kildare

S22-02432

Attachment A.1

Non-Technical Summary

Site Location:

Digby Bridge legacy landfill site is located south east of Digby Bridge, in the townland of Barrettstown, less than three kilometres from Sallins (Figure 1 of Attachment D1: Tier 2 Report). The total area of the site is in the region of 9 Hectares, although site investigations (trial pitting, installation of boreholes and a geophysical survey) have calculated the area of the site underlain by imported material to be in the region of 4.7ha. The site is privately owned and is laid out in fields for grazing sheep and horses.
Surrounding lands are mainly used for agriculture and there are several dwellings residential dwellings close to the site. The Grand Canal is to the north of the site.

Site History:

The Ordnance Survey Ireland (OSI) Map from (1837-1842), shows gravel pits present and three buildings along the northern boundary of the site. The OSI Map from (1888-1913) of the site shows an increase in the size of the gravel pits with accessway tracks. The aerial photograph from 1995, shows that the pits have been infilled. The aerial photograph from 2005 shows the site largely unchanged from the 1995 photograph.
The site has always been privately owned and, according to County Council, was operated by Kildare County Council as a landfill for the county for disposal of municipal, commercial and industrial wastes from June 1980 to December 1982.
Site investigations (trial pitting, installation of boreholes and a geophysical survey) have estimated the quantity of waste at 513,240 tonnes. The waste is a mix of municipal, construction/demolition and commercial.
Following closure of the site the area was capped with a layer of sub-soil and topsoil, found from site investigations to range from 0.45 to 1.8 meters.

Environmental Characteristics:

Geology

Geology: The GSI Quaternary Geology map shows that the site is underlain by deposits of gravels derived from limestone. The land north of the site is underlain by alluvium, which follows the course of the Grand Canal, the sequence moving in a northerly direction from the canal is alluvium, gravels and till.
The GSI Bedrock Geology map indicates the site is underlain by a massive, unbedded, cherty and often dolomitised limestone of the Rickardstown Formation. This formation is Dinantian (Lower Carboniferous), has also been described as a pure bedded limestone and is thought to be more than 100m thick. The formation is mostly
surrounded by the Waulsortian limestones. The Waulsortian Limestones are massive, unbedded/ crudely bedded lime-mudstones. They are of older Dinantian age and are typically 300m to 500m thick.

Hydrogeology: The GSI National Bedrock Aquifer map identifies the site as being underlain by a Locally Important Karstified Aquifer (Lk), the Rickardstown Formation. The eastern boundary of the site is a 100 m from the intersection between the Rickardstown Formation (Lk) and the Waulsortian Limestones. The Waulsortian Limestones are classed as a Locally Important Aquifer (Ll) and are moderately productive only in local zones. The Rickardstown Formation is commonly very cherty and often dolomitised. In areas where dolomotisation has been intense, groundwater yields are found to be high.
The gravel unit at the site has not been delineated and designated by the GSI as an aquifer unit, this is most likely due to its limited extents.
The GSI Groundwater Vulnerability map shows that the site has been classed as 'H – High'.
According to the GSI database, there are potentially seven groundwater abstraction points within 1km of the site, four of which have a yield classed as poor, less than 35 m 3/day.
The site is not on a Public Source Protection Zone (SPZ) or that of a Group Water Scheme (GWS). The nearest SPZ is Robertstown Public Water Supply which is 4.8 km to the west of the site.

Hydrology: The site is in the WFD Eastern River Basin Districts (RBDs). The stretch of the River Liffey that runs east of the site has been classed as moderate (interim overall status).
Running along the northern boundary is the Grand Canal, which starts at Shannon Harbour and finishes at Grand Canal Dock in Dublin. It is a navigable waterway with water flowing from west to east. The River Liffey is approximately 1km to the south east of the site, and the Grand Canal crosses the River Liffey via an aqueduct. There are no streams which flow through the site. The EPA surface water body map shows two streams mapped 140 m north east of the site (other side of canal) as tributaries of the River Liffey. A drainage ditch exists to the northwest of the site, which separates the main field with the yard of the adjacent house.

Ecology: The Grand Canal, which comes to within 50 m of the northern boundary of the site is a proposed Natural Heritage Area. The site is not otherwise within or directly adjacent to any Natural Heritage Area (NHA), Special Area of Conservation (SAC) or Special Protection Area (SPA).

The following SACs and SPAs are located within 10 km of the site. A number of these are also listed as pNHAs:

- Grand Canal pNHA (002104) – approximately 50 m to the north of the site;
- Ballynafagh Bog SAC (000391) – approximately 5.7 km to the north west;
- Ballynafagh Lake SAC (00713) – approximately 7.1 km to the north west;
- Hodgestown Bog NHA (001393) – approximately 8.7 km to the north west; and
- Mouds Bog SAC (002331) - approximately 7.9 km to the north east.

An Appropriate Assessment Stage 1 Screening Report (AA) was prepared for the site (see Attachment E1- Appropriate Assessment Screening). It concluded that the proposed remediation works will not have any effects on the conservation objectives of any Natura 2000 sites, in the vicinity of the works. site does not currently have any adverse effect on any European Designated sites or any of their designated features of interest.

Risk Category of the Site:

The initial risk rating of the site, carried out as part of the Tier 1 Assessment, classified the site as High Risk due to the possibility of the landfill gas migration (lateral and vertical) to human receptors on and off site (residential dwellings). Following the extensive intrusive and non-intrusive site investigations carried out, and the updated conceptual site model, the site classification remains High Risk due to the risk of impacted groundwater migrating off site and the potential of lateral migration of landfillgas. During the data assessment, it was concluded that the pathways to the receptors for vertical landfill gas migration were broken as it was proven that the landfill cap/cover acts as a barrier to gas flow.

Actual and potential environmental impacts:

There is the potential for impacted groundwater with in the landfill to migrate through the gravel formation and the underlying limestone formation (Rickardstown Formation). A hydraulic relationship between impacted ground water and small springs/seeps and land drains to the north of the canal is possible but has not be ascertained. Risks of impact to the River Liffey are low to negligible due to the distance from the site, the attenuation that would occur in the groundwater between the site and the river and the significant dilution.

Proposed remediation including timescale:

As a result of the risk assessment findings, the consultant has recommended the following remediation measures:

Landfill Gas: An initial testing phase involving the Installation of three additional wells MW-17, MW-18 and MW19 in to the waste mass, gas connection lines and a gas extraction system with a temporary flare system. A more permanent gas extraction system and flaring system will be designed and sized based on the results of the initial testing phase. The layout of the proposed infrastructure is shown on Figure 1 of Attachment D1 Remediation Plan.

Groundwater: Adaptive groundwater monitoring is proposed to address SPR5 (Groundwater is impacted within landfill and migrating off-site) and SPR6 (Impacted groundwater potentially connected to drains north of the canal and River Liffey). The recommendations have been tabulated and are presented in the table below.

Recommendations for Adaptive Monitoring of Groundwater

Recommendation	Detail	Comment
Onsite		
Routine sampling of leachates	Chemical sampling, including hazardous substances, quarterly	
Routine sampling of groundwater	Chemical sampling, including hazardous substances, quarterly	
Routine monitoring of groundwater levels	Quarterly measurement of water levels with a water level meter	Timed with wet or dry weather events to the extent possible.
Installation of pressure transducers (x4) in monitoring wells	Continuous recording of leachate and groundwater level fluctuations	One well at the upgradient site boundary One well at the downgradient site boundary One (leachate) well in the waste mass One groundwater well near the waste mass
Offsite		
Drilling and installation of off-site monitoring wells	Two nested well pairs (Gravel Formation / Rickardstown Formation) Two individual wells in the Gravel Formation One individual well in the Rickardstown Formation	At suitable locations between the site and Liffey. Will require landowner agreements. Placement of wells must consider the existence of potential off-site sources of pollution
Routine sampling of groundwater	Chemical sampling, including hazardous substances, quarterly	Duration and scope of sampling may be reduced in time depending on results
Initial sampling of the shallow springs and seep and land drains north of the Grand Canal	Chemical sampling assumed at three locations.	Done during dry weather conditions so that the samples are not influenced by surface run-off.
Installation of pressure transducers (x2)	Continuous recording of groundwater level fluctuations	One well in Gravel Formation One well in Rickardstown Formation
Offsite reconnaissance and topographic survey	Ground-truthing of springs and seeps, as well as land drain details, to the north of the Grand Canal, with measurements of flow and other karst features in a wider area downstream of the site	One-time field activity

Timescale: Given the extent of the Remediation works proposed it is likely to be early 2021 before they are complete. This may be impacted by availability of grant funding from the Department of Communications, Climate Action and Environment.