

This Report has been cleared for submission to the Board by Programme Manager, Warren Phelan.

Signed: Warren Phelan Date: 22/06/2022



OFFICE OF ENVIRONMENTAL SUSTAINABILITY

REPORT OF THE TECHNICAL COMMITTEE ON REPRESENTATIONS MADE ON A DRAFT CERTIFICATE OF AUTHORISATION

TO: Board of Directors

FROM: Technical Committee Circular Economy Programme

DATE: 22 June 2022

RE: Representation on draft Certificate of Authorisation issued to Kildare County Council for a closed landfill at Prusselstown, Athy, County Kildare.
Certificate of Authorisation Register Number **H0209-01**.

APPLICATION DETAILS

Type of facility:	Closed landfill as defined in the Regulations ¹ .
Application received:	09 October 2020
Draft Certificate issued:	05 July 2021
First party representation received:	28 July 2021

1. Background to this report

The privately owned site is located in the townlands of Prusselstown and Gallowshill, 1.6km north-east of the centre of Athy town and covers an area of 4.4ha. In the centre of the site lies a hotel, with an associated carpark and a field located to the west and a grazing area located to the east and south of the site. The site is surrounded by agricultural lands, domestic houses, farmyard, agricultural buildings and commercial premises. The nearest residential dwellings are located 15m east, 75m north-east and 150m north-west of the landfill site. There is also a residential estate 160m south-west of the site and a B&B 115m east of the site. It is noted that a petrol station is located 160m south-west of the site.

¹ Waste Management (Certification of Historic Unlicensed Waste Disposal and Recovery Activity) Regulations 2008 (S.I. No. 524 of 2008).

The landfill was operational from 1st January 1981 to 2nd February 1982 and comprises of approximately 160,888 tonnes of municipal solid waste (MSW), construction and demolition waste (C&D), commercial waste and industrial waste. The extent of the waste body is 1.7ha with waste deposited in a few areas within the site.

Post remedial works, the site will continue to be used as a hotel, including an associated car park, and a grazing area for animals.

The risk assessment has categorised the site as moderate risk (Class B) with the pollutant linkages identified as:

- Human health exposure pathway of off-site lateral migration of landfill gas into nearby buildings (SPR10); and
- Vertical landfill gas migration to onsite receptors (SPR11).

2. Consideration of the Representation

This report considers one valid first party representation from Kildare County Council in relation to a number of requirements set out in the draft Certificate of Authorisation (CoA) which are summarised below.

The representation should be referred to at all times for greater detail and expansion of particular points.

The Technical Committee (TC) comprising of Michelle Reddy (Chair) has considered all the issues raised in the representation and this report details the Committee's comments and recommendations following the examination of the representation.

2.1 Condition No. 3.1 (b) "Install a low permeability landfill cap, minimum 1m, with 1mm thick low permeability geomembrane, or equivalent, to achieve a hydraulic conductivity of less than or equal to 1×10^{-9} m/s. The cap shall be installed over all areas where waste is deposited excluding the hardstanding areas".

The applicant states that the existing capping material encountered during the site investigations was identified as brown, very gravelly, very sandy clay with a thickness of 0.6 to 1.4m and a low permeability of 4.9×10^{-9} m/s. The applicant contends that the low permeability of the capping material overlying the imported material would impede rainfall infiltration and therefore reduce the generation of leachate. The applicant notes that the Environmental Risk Assessment (ERA) carried out states that any remedial measures are proposed depending on the results of the Qualitative Risk Assessment, which concluded that no landfill cap was deemed necessary or required.

The applicant contends that "any potential environmental risk to the underlying aquifer or potential receptors could be managed by the proposed monitoring of leachate, groundwater, the Athy Stream and private on-site well as specified in Condition 3.9 of the draft CoA".

Technical Committee's Evaluation:

It is considered that rainwater ingress is not being prevented by the existing cover sufficiently enough to reduce the generation of leachate. The TC notes that permeability testing on the existing landfill cover material was only carried out on one soil sample (GW04). The TC considers that the existing cap does not achieve the required hydraulic conductivity standard due to the

variable depth of the existing material. This will not prevent rainwater ingress to the standard required and will lead to an increased volume of leachate being generated.

The TC notes that the risk assessment categorised the site as low risk in relation to migration of leachate into the aquifer and groundwater, and subsequently, into surface water bodies. Although the particular SPR scores for leachate migration in this instance are low, a source—pathway-receptor still exists. Leachate with high nitrogen and ammoniacal nitrogen concentrations has the greatest potential to adversely impact upon surface waters and groundwaters. Ammoniacal nitrogen concentrations ranged from 31mg/l N to 39.03mg/l N at leachate monitoring location L1A, which when compared, exceed the maximum groundwater regulation value of 0.065mg/l and surface water regulation of 0.040mg/l.

The TC notes that a number of parameters (including potassium, manganese, calcium and arsenic) in the landfill leachate also exceeded relevant standards; the leachate sampling results obtained from L1A show that the concentration for manganese 1,331 µg/l and potassium 28.3mg/l exceeded the guideline values for the protection of groundwater. In comparison to the EPA publication 'Towards setting guideline values for the protection of groundwater in Ireland-Interim Report' 2003, a maximum concentration of 50 µg/l for manganese, and potassium 5mg/l is recommended. The TC notes that the site is underlain by a bedrock that is classified as a Locally Important Aquifer and with high groundwater vulnerability. Monitoring results show that an arsenic concentration of 17.1µg/l at leachate monitoring location L1A exceeds the groundwater regulation value of 7.51µg/l. The groundwater monitoring results show that the landfill is impacting groundwater quality, with arsenic (8.1µg/l) exceeding the groundwater regulation value at GW1A, located downgradient of the waste body. Furthermore, it is noted that it cannot be determined whether the actual concentrations for benzo(a)pyrene and Total PAHs were within the relevant standards as the limit of detection for the monitoring methods are above the EQSs. The TC therefore considers the landfill cap to be of the utmost importance in minimising this risk of leachate migration to groundwater and surface water.

The TC considers that the monitoring required under Condition 3.9 provides information to assess the impacts of the closed landfill on the underlying aquifer and potential receptors and in this regard is not a form of preventative action.

The TC recommends no change to Condition No. 3.1 (b).

Reason for Decision:

The TC has reached its conclusion on the basis of the following consideration:

- In the interest of the protection of the environment and human health from leachate migration to groundwater and surface water.

Recommendation: No change

2.2 Condition No. 3.1 (c) "Install Gas management system in all areas where waste is deposited within six months of the date of grant of this Certificate of Authorisation..."

The applicant states that "the very low flow rates and VOC monitoring surveys on and off-site and within the hotel building demonstrated that the imported material is not actively generating landfill gas and that it is therefore not migrating vertically or laterally and would not affect any potential receptors (on or off-site)". The applicant further states "the linkages of most concern in the preliminary conceptual site model includes the risk of landfill migration to off-site receptors (SPR10) and the risk of landfill gas migration to onsite receptors (SPR11)". The applicant contends that "the observed landfill gas concentrations do not pose a risk to human health or the environment and that the pollutant linkages SPR10 and SPR11 are no longer valid" and that "a gas venting system is not deemed necessary for the site".

Technical Committee's Evaluation:

The TC notes that the Tier 3 assessment determined the overall risk score for the closed landfill as moderate due to the risk of migration of landfill gas to off-site receptors i.e. the hotel and residential houses (SPR10) and the risk of landfill gas migration to onsite receptors (SPR11). It is further noted that landfill gas is still being generated within the waste body as demonstrated by methane levels detected at monitoring points L1A (6.1% v/v), which is located only 30m from the hotel, and L3A (1.4 % v/v) which is located 70m from the hotel, and carbon dioxide levels measured at L1A, L2A, L3A (12.5% v/v, 7.9% v/v and 9.2% v/v). The TC also notes that the risk assessment stated that no gas flow was detected in the gas monitoring locations, however it is considered that landfill gas is migrating outside the waste body as evidenced by carbon dioxide levels exceeding the trigger value of 1.5% v/v, at locations GW2A and GW3A (3.8% and 4.6%). This poses a potential risk to the hotel and off-site receptors.

Also, once the waste body has been capped, the pressure caused by the cap may result in increased lateral movement and flow of gas towards the hotel and off-site receptors. This may result in further exceedances of carbon dioxide trigger levels outside the waste body (1.5% v/v) and the potential for exceedance of methane trigger levels (1.0% v/v). The TC therefore considers it necessary that Condition 3.1 (c) is retained, as a gas venting system is deemed appropriate to manage landfill gas at the reported levels, and to prevent lateral gas migration into the hotel and adjacent buildings.

Consequently, the TC recommends no change to Condition No 3.1 (c).

Reason for Decision:

The TC has reached its conclusion on the basis of the following consideration:

- In the interest of the protection of the environment and human health from potential migration of landfill gas off-site.

Recommendation: No change

3. Appropriate Assessment – Technical Committee Review

The TC has reviewed the Inspector's Appropriate Assessment in the Inspector's Report and, taking into account all representations received, and the content of this TC report, the TC is satisfied that the Inspector's Report provides an adequate examination and evaluation of the effects of the activity on the European Site(s) concerned, River Barrow and River Nore SAC (Site Code: 002162), in the light of its conservation objectives.

4. Overall Recommendation

It is recommended that the Board of the Agency grant a certificate of authorisation to the applicant

- (i) for the reasons outlined in the draft certificate of authorisation and
- (ii) subject to the conditions and reasons for same in the draft certificate of authorisation, and
- (iii) subject to the reasons set out in this report.

Signed



Date 21 June 2022

Michelle Reddy

Inspector

for and on behalf of the Technical Committee

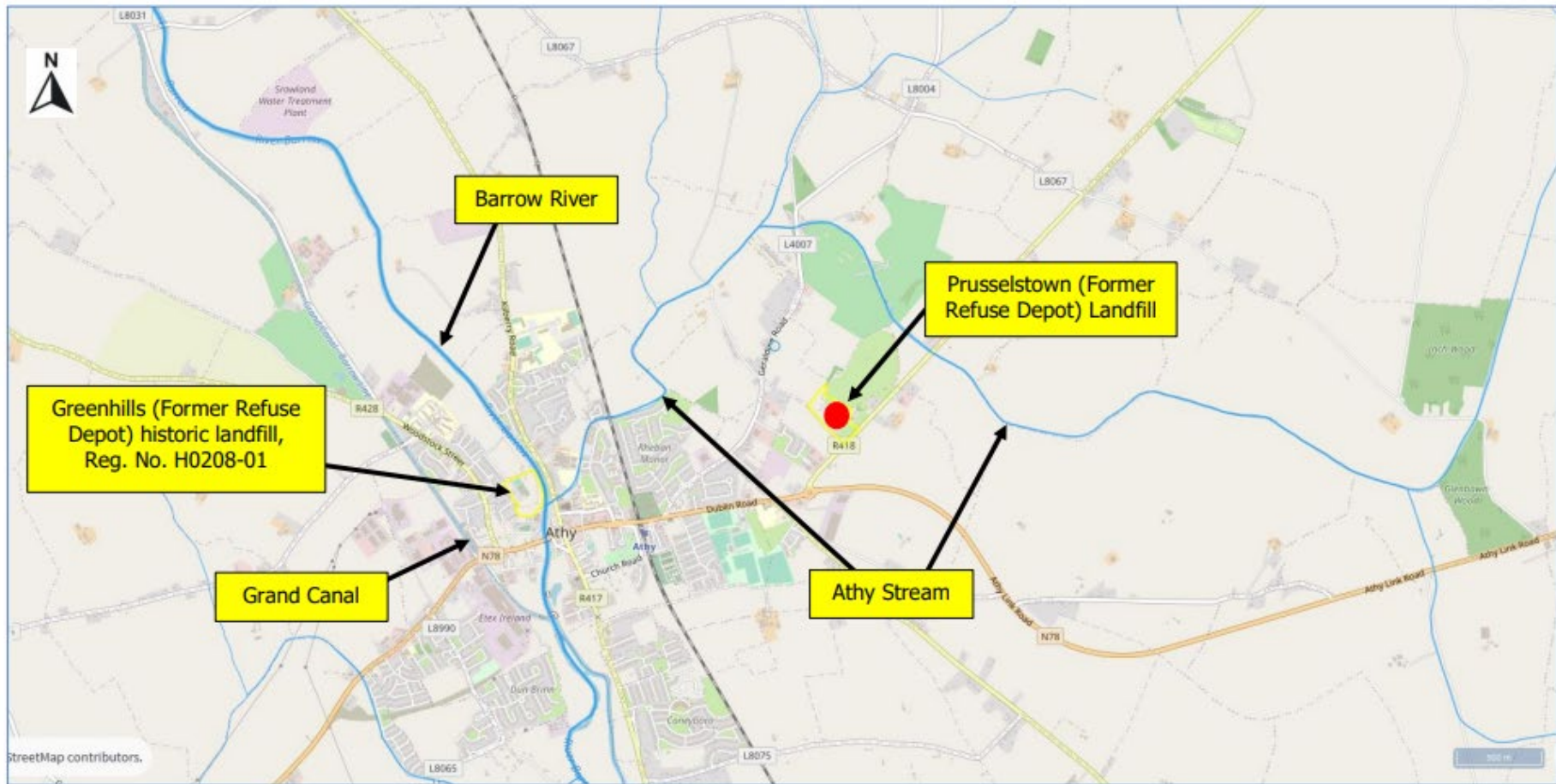


Figure 1: Location of Prusselstown (Former Refuse Depot) Landfill

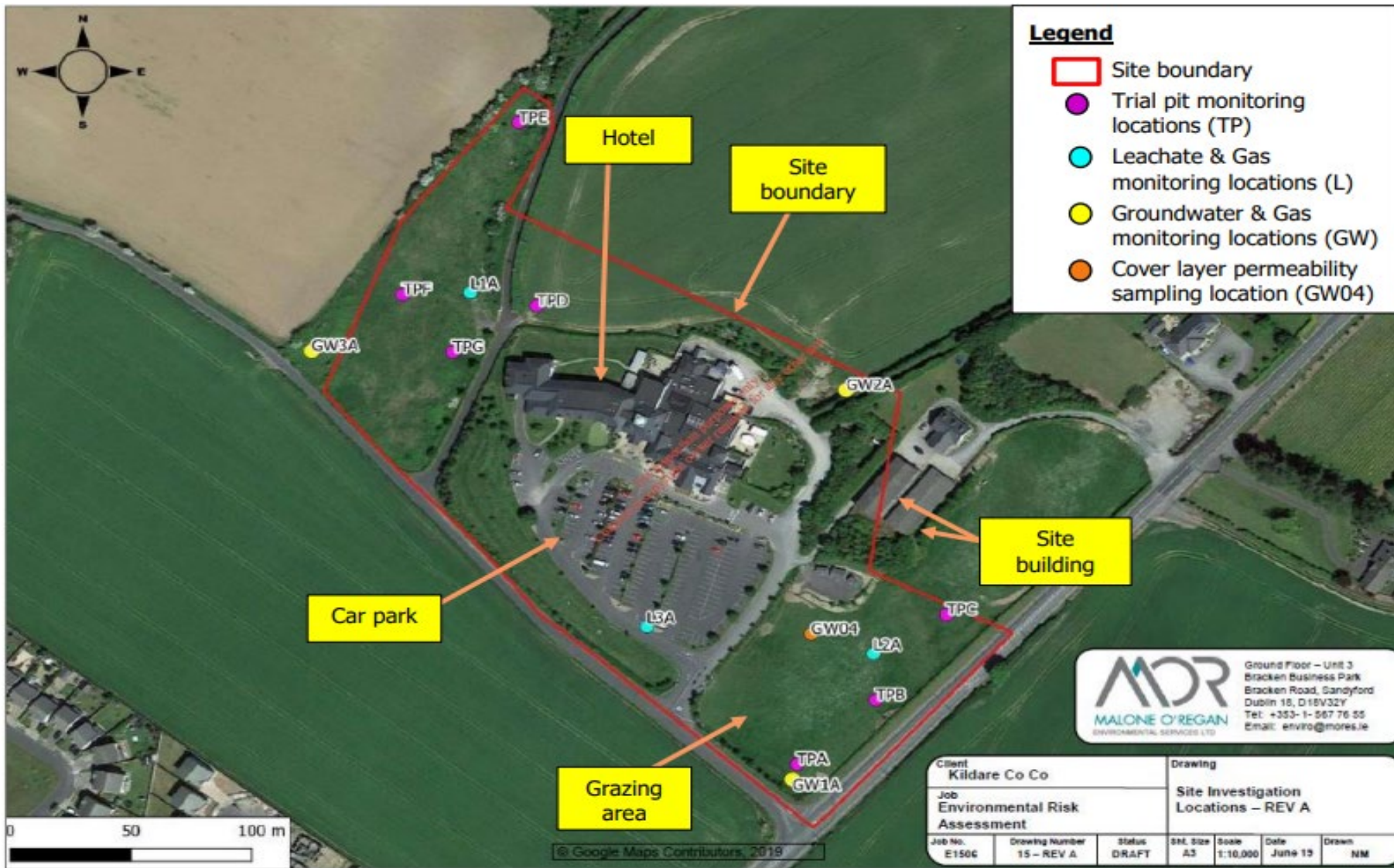


Figure 2: Site layout & surroundings and site investigation locations



Figure 3: Approximate extent of deposited waste