

TONBRIDGE & MALLING BOROUGH COUNCIL

STREET SCENE and ENVIRONMENT SERVICES ADVISORY BOARD

09 February 2021

Report of the Director of Planning, Housing & Environmental Health

Part 1- Public

Matters for Recommendation to Cabinet - Non-Key Decision (Decision may be taken by the Cabinet Member)

1 PRIORY WOOD, TONBRIDGE – LANDFILL GAS INVESTIGATION UPDATE

SUMMARY

- 1.1 Since 1988 this Council has been monitoring landfill gas levels at the Priory Wood site in Tonbridge which now comprises a public open space owned and maintained by the Council. Following a desktop review of the site in order to create a specific risk assessment, a more detailed investigation was deemed necessary and in August 2019, 17 new gas monitoring boreholes were drilled across the site and monitoring fortnightly for 12 months undertaken in order to produce a Quantitative Risk Assessment. That risk assessment has determined that currently the gases generated within the landfill pose a moderate to low risk to site users and those properties in the immediate vicinity.

1.2 Background

- 1.2.1 The site known as Priory Wood is a closed landfill site now used as a public open space. It lies to the southeast of Deakin Leas in Tonbridge and is bordered on its eastern and southern sides by the Tonbridge to Hastings railway line and the A21 respectively (See attached plan in **Annex 1**). The site was quarried before accepting waste between approximately 1956 and 1975.
- 1.2.2 Gas monitoring has been undertaken by this Council since 1988 at a selection of boreholes, which overtime became lost by overgrown vegetation or unusable due to ground movements breaking connections and flooding. In early 2019 only 2 useable boreholes remained along with an additional monitoring point on the gas pump which was installed as part of the gas control measures.
- 1.2.3 In response to the landfill gas issue at the former Jocpit site in Borough Green and a review of similar sites in Tonbridge and Malling, a desktop study of the Priory Wood site found that whilst there were no current peaks in landfill gas levels recorded at Priory Woods, a suitable and sufficient Risk Assessment could not be created as there was a lack of monitoring coverage given only two boreholes remained in use along with a monitoring point on the gas pump.

1.2.4 Due to the limitations in the data available, in June 2019 Members approved an intrusive investigation including the installation of 17 new gas monitoring boreholes and an extended period of monitoring to allow a robust gas risk assessment to be undertaken.

1.3 Detailed Investigation outcomes and recommendations

1.3.1 Our consultants Ecologia have now concluded the 12 months of fortnightly monitoring at each of the new 17 boreholes and produced a Quantitative Risk assessment which can be seen in **Annex 2**.

1.3.2 The conclusions of this body of work are that;

- The landfill area is still generating high concentrations of methane and carbon dioxide gas, although the flow rates were low indicating that gases were being adequately ventilated by the active gas extraction system and/or naturally via vertical emission from soils.
- Risks to on-site receptors comprising workers are **low** on the basis that mitigation can be provided through appropriate workplace exposure controls in accordance with the Health and Safety at Work Act.
- Risks to on-site receptors comprising recreational users of the Site as a public open space are considered **low** on the basis that exposure would be of low duration and gas emissions are low and readily diluted in the atmosphere.
- Risks to off-site receptors comprising residential properties at Deakin Leas are **moderate to low** based on elevated carbon dioxide concentrations identified in boreholes near to the properties. It is considered that there remains uncertainty as to whether this data reflects gas migration from the landfill or natural sources.
- Risks to off-site school receptors are **moderate to low** on the basis that gas concentrations in the landfill measured up to 44% methane within nearby waste material and that gas monitoring has not been undertaken between the waste material and the school boundary. Risks to existing school buildings are considered likely to be **low** based on limited monitoring completed during planning, however, the potential for gas migration into the school land has not been directly assessed.
- There is uncertainty with respect to whether monitoring included a period of ‘worst case’ pressure fall, the potential for continuous water body in shallow soils at the Site and if this extends to residential properties, whether gas migration occurs between the waste area and the school boundary, and whether the known faults in underlying bedrock could act as a preferential pathway for ground gases, should the gas extraction system cease operation.

1.3.3 In order to address the identified uncertainties which remain, Ecologia have made several recommendations to further refine the risk assessment. These are listed in the table below. Also listed are their considered pros and cons given the cost implications of the further work, as whilst this work would be phased and potentially not all required if early results were favourable, the full suite if considered necessary would require additional spending in excess of £15,000, as shown in the quotes for the works at **Annex 3 and Annex 4**.

Ecologia Recommendation	Pros	Cons
Install 2no new boreholes between the waste fill and the school land	Would address uncertainties in risk to occupants of the school buildings.	Potential unnecessary spend given monitoring during construction of school buildings in 2014 did not identify landfill gas. Also significant buffer of school playing fields separate the waste fill from the school buildings.
Surface emissions monitoring of the waste area	Would refine risk to those using the site for recreation or maintenance.	Unnecessary spend. There are no receptors on site that are stationary and low to the ground (apart from Scientific Officer during monitoring).
Replace BH1 (old borehole nearest residential receptor)	May refine data regarding the risk from landfill gas to the nearest residential receptor.	Potential unnecessary spend. Proposed borehole will still be prone to flooding as BH1 was, and may therefore be unusable. New borehole WS1 is also outside of the waste fill and only a little over 5m from BH1 location.
Continuous monitoring of select boreholes	May provide information about how the gases behave during pressure/weather changes.	Low pressure events have been captured during previous monitoring, additional information is therefore likely to be minimal.

Carbon isotope testing to determine source of elevated carbon dioxide	Will confirm whether the elevated carbon dioxide is coming from the landfill or another source.	Unlikely to be a significant alternative source of carbon dioxide.
Infrastructure report for the gas extraction system	Will confirm the integrity of the gas extraction system, which is the only protection for the residential receptors.	May identify the need for additional maintenance costs.

1.4 Next Steps

- 1.4.1 The results of the Quantitative Risk Assessment report (QRA) (**Annex 2**) show no High or Imminent risks have been identified in respect of Landfill Gas at the Priory Wood Site.
- 1.4.2 Whilst some moderate risk has been identified due to monitoring uncertainties, the cost to benefit of the recommendations made by Ecologia to address these uncertainties has not been proven (as shown in 1.3.3), except in respect of the Infrastructure Report for the gas extraction system. This system is identified as important in safeguarding residential properties. It is therefore recommended to proceed with this recommendation which has been quoted by Ecologia at £1152 as shown separately to other works in **Annex 4**.
- 1.4.3 It is important to note that this infrastructure report may identify works which are required to rectify any identified faults/issues with the system, the costs of which cannot be guessed at this time.
- 1.4.4 Whilst it is not recommended to press ahead with any other recommendations in the QRA report at this time, Officers from the EP team have resumed in house monthly monitoring of gas levels in the new boreholes and will be in a position to keep the situation under review and report back to members if the situation changes in the future.

1.5 Legal Implications

- 1.5.1 Part 2A of the Environmental Protection Act 1990 places a duty on all local councils to investigate where land in its area might have been contaminated because of the way it was used in the past or how it is currently used. The council then has to put any sites they find in order of priority based on the risk they might cause to human health or the wider environment. We have been doing this in line with our Contaminated Land Inspection Strategy.

- 1.5.2 Having identified a potential issue at this location, we have carried out a further investigation and have identified suitable further steps and will be progressing with these.
- 1.5.3 On conclusion of the investigation and in the context of advice from our consultants and expert legal advice it is considered that the site does not need to be 'declared' under part 2A of the Contaminated Land regime at this time.

1.6 Financial and Value for Money Considerations

- 1.6.1 No provision for the cost of these investigative works is, or could reasonably have been, specifically included in the Council's budget. However, funds for the identified works at this site will be funded from within existing budgets. Should it be necessary to extend the nature of investigations to include remedial works for example to the gas extraction system then additional funds will need to be identified in due course.

1.7 Risk Assessment

- 1.7.1 Part of the investigation into potential contaminated land required under Part 2A of the Environmental Protection Act 1990 includes the creation of a detailed risk assessment for the site which has now been completed.

1.8 Policy Considerations

This investigation is in line with the Council's Contaminated Land inspection strategy updated in 2016 which can be found online at <https://www.tmbc.gov.uk/services/environment-and-planning/pollution/pollution-control-contaminated-land>.

1.9 Recommendations

- 1.9.1 It is **RECOMMENDED** that Cabinet **ENDORSE** the next steps as put forward in sections 1.4.2 and 1.4.4 of this report.

The Director of Planning, Housing & Environmental Health confirms that the proposals contained in the recommendation(s), if approved, will fall within the Council's Budget and Policy Framework.

Background papers:

Nil

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