

From: [REDACTED]
Sent: 10 June 2021 15:24
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: 7745 - Walleys Landfill Permit Variations 2019

[REDACTED]

I am reviewing the Schedule 5 response alongside the SRA addendum and require some further clarification to our question 13b:

13 b) Assess the effects on the capping system by incorporating the groundwater drainage system beneath the sidewall lining system, which will provide preferential pathways for groundwater potentially under artesian pressure under the side slope lining.

In response to this question, Land & Minerals provided a response [their ref: 00733/200625, 09/04/2021] which states *this assessment has not been undertaken*, with no additional explanation given.

The possible presence of groundwater under artesian pressure within the under cell drainage system at the edges of the capping system may be an important consideration in the overall capping slope stability; without modelling or further clarification of the engineering configuration, the conceptual risk remains.

Can you please provide further explanation/justification for the response provided? If this aspect is not considered a risk to the capping stability, please provide an explanation, including any relevant engineering drawings, such as the cap-side wall tie-in design detail and the interaction with the under cell drainage system.

Please call if you require further clarification.

From: [REDACTED]
Sent: 02 July 2021 16:56
To: [REDACTED]
Cc: [REDACTED]
[REDACTED]
Subject: RE: 7745 - Walleys Landfill Permit Variations 2019

Hi [REDACTED]

Further to your e-mail of the 10th of June 2021 regarding further clarification to your question 13b:

13 b) Assess the effects on the capping system by incorporating the groundwater drainage system beneath the sidewall lining system, which will provide preferential pathways for groundwater potentially under artesian pressure under the side slope lining.

As you note, in response to this question Land & Minerals provided a response [their ref: 00733/200625, 09/04/2021] which states this assessment has not been undertaken, with no additional explanation given.

Apologies, this was my omission, I meant to submit a statement at the time but neglected to do so.

The proposed geosynthetic capping system ties in by anchor trench to the top of the engineered low permeability sidewall liner at a level of approximately 125mAOD . Therefore, the groundwater drainage system, and the water within that system is separated from the capping system by an

engineered low permeability barrier together with any additional cohesive fill required to achieve the 1:3 slope for the sidewall liner.

The groundwater drainage system comprises a series of “spine drains” of varying areas and depths, some with pipework surrounded by gravel and others comprising gravel only. All eventually feed into the pumped sump beneath Cell 4. A drawing (1038.C4.06) showing the layout of the system is attached, this is from 2010 and we are not aware of any further drains being installed since this date.

The drains were installed during construction of the formation and located at areas of seepage identified in the quarry face. It should be noted that most of these drains were installed in the sub-formation ahead of a significant quantity of cohesive fill being placed to create the 1:3 slope on which the sidewall liner is located.

The only evidence that can be found of the drains being installed in the formation rather than the sub-formation is during the 2007 Cell 1 Sidewall Lining Works in the northwest corner of the site where 4 No. Type 4 drains were installed at levels 114-121mAOD prior to installation of the Sidewall Lining.

During the same construction works connections were made at lower level (118mAOD) using Type 2 and 4 Drains.

During the 2019 and 2020 Sidewall Lining Works undertaken to complete the sidewall lining of Cells 1, 3 & 4 to final height (approx. 125mAOD) no groundwater drains were encountered in the formation.

To this end we can conclude that other than 4 No. Type 4 drains in Cell 1 there are no groundwater drains located beneath the sidewall lining system within 5m of the level at which the anchor trench for the proposed geosynthetic capping system for Cell 1 and within 15m in Cells 3 & 4.

From historic records we can assume this is similar for Cell 2.

For future reference we have calculated the surface area of installed drains above 110mAOD (for both those at formation level and those at sub-formation level) and this is 1,628 sq.m compared to an overall surface area for the sidewall lining above 110mAOD of 52,800 sq.m, only 3 %, and a majority of these are the smaller Type 4 gravel only drains.

Based on the above that we do not believe it is necessary to assess the effects on the capping system of the installed groundwater drainage system beneath the sidewall lining system. As not only does it not sit beneath the sidewall lining system in a majority of instances, but below the sub-formation level. It also does not reach a height anywhere near that of the anchor trench for the capping system (approximately 125mAOD) to have an impact should it experience any artesian pressures.

We trust this addresses your query. However, if you require any further information on the above, please do not hesitate to contact me.

I also attach the updated SRA and Addendum. This is Revision 3 for the main report and Revision 1 for the Addendum Report. The only amendment is the Table referring to the Model sections and Landfill Phasing which appears as Table SRA4 on Page 11 of the main report and Table SRA1 which appears on Page 3 of the addendum report.