| Item | | Appendix 6 – Geotechnical Factual Report | Response Post Report Update |
|---|---|---|---|
| | **4.2** | **Section 2.2 2: Expected lithologies** | |
| a | | Please provided more detail on the distribution, thickness, and nature of the Loess | GIR Section 3.2.5<br>Loess distibution will be part of detailed design if proceed with a loess liner |
| | **4.3** | **Section 2.2 3: Nearby Faults** | |
| a | | We understand that GHD intend to carry out a site-specific seismic hazard assessment for the site. We consider that assessment should, in particular, consider the potential for rupture of nearby faults, (certainly closer than the distant Alpine Fault which is currently identified as the closest active fault). Please clarify whether your site-specific seismic hazard assessment will include such an active fault assessment and will consider information in more detail relating to nearby faults and their likely recurrence intervals. | GIR Section 4.5<br>GFR Section 2.2.3 |
| | **4.4** | **Section 3.1: General** | |
| a | | The Report advises that portions of the proposed landfill site, in the south-east and along the western edge, were unable to be accessed due to existing tree cover and for environmental reasons. That meant that only about 60% of the overall proposed landfill footprint was investigated. Please advise the extent of investigations proposed for the remaining 40% and when these will be carried out. | Landfill re-design has reduced lack of coverage.<br>GIR Section 3.5 |
| b | | What further investigations are proposed to fill in the 'gaps' in the current model and to provided additional information for the detailed design? In particular, the distribution of the Loess, and its properties, and the extent and nature of current slope instability identified in the Report to date | This will depend on detailed design. |
| | **4.5** | **Section 3.8.1 and 3.8.2: Laboratory test schedule** | |
| a | | We understand that the Loess will be removed from under the proposed landfill footprint although presumably will remain in-situ on slopes outside that footprint. The Report notes that the Loess is identified as potential low-permeability liner material. What additional sampling and laboratory testing is proposed for the Loess to assess its stability in areas where it will not be removed, and for its potential reuse as low-permeability liner? What further investigations and laboratory testing is proposed for the Loess materials to confirm its distribution and geotechnical design parameters? | Loess liner will be part of detailed design.<br>Loess permeability discussed in GIR |
| b | | Initial testing of the Loess identified an assessed permeability of remoulded sample between 2.8 x 10-8 m/sec and 5.3 x 10-10 m/sec, with a mean of 1.6 x 10-8 m/sec. Such values suggest that the Loess would not be suitable for use as a low-permeability liner material without some form of pre-treatment What additional testing is proposed to confirm that the Loess, if used for liner, with or without additives, can provide a reliable low-permeability material. | Further testing on loess is part of detailed design<br>GFR Section 3.8.3 |
| c | | If Loess is used for liner material where will the proposed borrow area(s) be and what investigations and assessment will be carried out to ensure there is an adequate supply of acceptable materials? | This will be part of detailed design |
| d | | Henley Breccia is proposed for use as engineered fill. What additional testing and investigations are proposed to determine the material's suitable for engineered fill, in particular confirmation of geotechnical design parameters. | GFR Section 3.8.5 Tables 20 and 21<br>Part of detailed design |
| e | | The Henley Breccia is interbedded siltstone, sandstone and conglomerate. Are different geotechnical design parameters proposed for each of those different materials, both in-situ, and when reused as engineered fill? | GIR Section 7.4.2 Table 2.1 |
| | **4.6** | **Appendix B: Borehole and Test Pit Logs** | |
| a | | For boreholes where piezometers were installed there are (a) and (b) borehole logs, e.g. BH03a and BH03b, both with identical borehole logs. Please clarify whether these represent two separate boreholes or whether it is a convenient means of showing each separate piezometer installation? | For BH logs where double piezometers are installed (a and b), we have reduced these logs to a single log showing the double piezometer installation.<br>GFR Section 3.3 |
| b | | How were the various borehole and test pit target depths selected? | GFR Section 3.2<br>GFR Section 3.1.1<br>GIR Section 2.3.1 |
| c | | Taratu Formation was identified in BH 9a/9b between RL 130.2 m and RL 123.7 m; in BH 10a/10b between RL 136.7 m and RL 129.5 m; in BH 203 between RL 182 m (ground level) and RL 177 m; and in BH 209 between RL 128.9 m and below RL 122 m. Table 7 indicates there are a number of other borehole and bulk sample locations which are higher elevation. However, logs for those boreholes and samples make no reference to the Taratu Formation, even though the Report notes that unit generally outcrops along ridgelines, i.e. higher ground.<br>Can you confirm that the materials were correctly logged for those boreholes/samples? Are the Taratu Formation and Henley Breccia materials readily able to be distinguished? If the Taratu Formation distribution is more extensive than the Report indicates, what effect could that potentially have on the landfill design, e.g. stability and the reuse of material as engineered fill? | |
| | **4.7** | **Appendix C: Laboratory Testing Results** | |
| a | | The triaxial permeability tests have been carried out using de-aired tap water. Is it the intention to carry out further tests, including using leachate as the permeant liquid? | Additional testing will be part of detailed design |