IN THE MATTER	of the Resource Management Act 1991 ("RMA" or "the Act")
AND	
IN THE MATTER	of an application under section 88 of the Act to **WAIKATO REGIONAL COUNCIL** and **WAIKATO DISTRICT COUNCIL** (ref LUC0488/22) by **GLEESON MANAGED FILL LIMITED** to establish and operate a managed fill disposal activity at 310 Riverview Road, Huntly.

STATEMENT OF EVIDENCE OF RODERICK WILLIAM LIDGARD

CONTAMINATED LAND - ASBESTOS

Dated 21 November 2022

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1. INTRODUCTION

1.1 My full name is Roderick (Rod) William Lidgard. I am a Technical Director in Contaminated Land at Pattle Delamore Partners Limited ("PDP").

1.2 This evidence is given in respect of resource consent application LUC0488/22 by Gleeson Managed Fill Limited ("GMF") to Waikato Regional Council ("WRC") and ("Waikato District Council") ("WDC") to establish and operate a managed fill disposal activity at 310 Riverview Road, Huntly ("Site").

Qualifications and experience

1.3 I am a contaminated land specialist with over fifteen years' work experience in managing and undertaking contaminated land investigation, remediation, and management projects. These have and continue to include a significant amount of asbestos impacted sites – as building materials and inclusions in impacted soil/fill products, including many current and historic fill sites.

1.4 I am an accredited CEnvP (SC), SQEP and formerly as a Licensed Asbestos Assessor. I have been heavily involved in strategic and global resource consenting under regional plans and national regulations, including the BRANZ Asbestos Regulations throughout NZ.

Involvement in the project

1.5 I was engaged by GMF in July 2019 to undertake a technical assessment related to the filling of asbestos containing materials and asbestos soils at the proposed site. I authored, reviewed and approved the *Huntly Managed Fill – Asbestos Fill Management Plan* which was attached as Appendix 6.5 to the resource consent application.

1.6 I was then subsequently engaged by GMF in June 2022 to prepare the *Huntly Managed Fill – Asbestos Air Monitoring Plan* (a previous recommendation of the fill management plan in 1.6); attached as Appendix 6.11 to the resource consent application.

Site visits and background material

1.7 The technical reports completed by myself were done so from desktop studies. I completed a site visit on 10 October 2022 to refamiliarise myself with the site, and the nature of this site walkover included no intrusive works but rather familiarisation with site layout, including operational areas, haul roads, proposed fill areas, and the physical distances between these and the relevant receptors when considering asbestos impact assessments.

1.8 In preparing this evidence I have read and am familiar with the:

(a) Assessment of Effects Proposed Overburden & Managed Fill Activity Riverview Road Huntly, 12 July 2022 (AEE) prepared by Paua Planning.

(b) Huntly Site & Fill Management Plan, Revision 08 July 2022 ("SFMP").

(c) The Officer's Report and the supporting documentation, including WRC's Technical Assessment Air Discharges Gleeson's Managed Fill, 2 August 2022, prepared by Jonathan Caldwell.

(d) The submissions that are relevant to my area of expertise.

Purpose and scope of evidence

1.9 The purpose of my evidence is to is to summarise the 2019 Asbestos Fill Management Plan ("AFMP") and the 2022 Asbestos Air Monitoring Plan

("AAMP") and provide information where the Officer's Report, submissions and draft consent conditions may deviate from my understanding of the proposal.

1.10 My evidence is structured as follows:

(a) Briefly describes the site (Section 3);

(b) Briefly describes the proposal (Section 4);

(c) Sets out the key policy matters (Section 5);

(d) Addresses any relevant asbestos filling and resultant air quality issues arising (Section 6);

(e) Comments on issues raised by the Officer's Report relevant to my area of expertise (Section 7);

(f) Comments on issues raised by Submitters relevant to my area of expertise (Section 8);

(g) Comments on the draft resource consent conditions (Section 9;

(h) Provides a brief conclusion (Section 10).

1.11 A summary of my evidence is contained in Section 2.

1.12 My evidence should be read together with the evidence of:

(a) Deborah Ryan when considering air quality effects as a result of asbestos acceptance to the proposed managed fill site.

Expert Witness Code of Conduct

1.13 I have been provided with a copy of the Code of Conduct for Expert Witnesses contained in the Environment Court's 2014 Practice Note. I have read and agree to comply with that Code. This evidence is within m area of expertise, except where I state that I am relying upon the specified evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

1.14 I understand and accept that it is my overriding duty to assist the Independent Commissioner in matters which are within my/our expertise as a contaminated land and asbestos specialist.

2. SUMMARY OF EVIDENCE

2.1 My evidence includes key points relating to my engagement by GMF to prepare an AFMP and an AAMP for the proposed managed fill site, and includes a description of:

(a) Key policy matters:

(i) How asbestos containing materials ("ACM") and asbestos impacted soils can be accepted to the site safely and compliantly in accordance with the current national Health and Safety at Work (Asbestos) Regulations 2016 ("HSWA (Asbestos) Regulations");

(ii) The management requirements for this process of acceptance (i.e. record keeping, manifest documentation, licensing, roles and responsibilities, etc) are also compliant with the HSWA (Asbestos) Regulations;

(iii) The associated asbestos air monitoring during the disposal of ACM/asbestos in soil products to demonstrate resultant air quality criteria for asbestos fibre concentrations in air are met (and/or provide response actions if they are not).

(b) Issues raised by the Officer's Report with respect to the filling and airborne risk associated with asbestos (and/or other airborne pollutants such as erionite/tremolite) – of which I have none as I concur with the findings of this report with respect to asbestos management and its effect on air quality.

(c) Issues raised by various submissions, either as a whole or directly, include:

(i) Addressing the general concerns from several submitters around risks associated with the filling of ACM/asbestos-in-soils at the site, reactivation of these materials, and resultant concentrations of asbestos in air as a result of this activity – including comments on truck cover/wrapping requirements;

(ii) Comments on the general concerns around dust effects relating asbestos to the proposed managed fill operation;

(iii) Comments on the monitoring by third parties (in response to submissions from Denise Lamb, Gary and Audrey Cox,

Colleen Earby and Waikato District Council ("WDC")), and the duration of this monitoring.

(iv) Comments on the PDP windrose information and direct measurements to assess risk in response to the Thomas family, and Huntly Community Board (HCB) submissions.

(v) In response to the Huntly Community Boards submission, the following items (not already covered above), including: erionite and tremolite inclusions in the proposed waste material; and general mitigation measures described for the managed fill.

3. SITE DESCRIPTION AND LOCALITY

3.1 The key areas of the site and surrounds as the apply to my involvement with the site are Fill Areas 2, 3 and 4; and the closest residents at 95a Hillside Heights and 232 Riverview Road; who's dwellings are located approximately 775m north-west of FA2 and 720 m west of FA3 and 290 m north-east of FA4 (respectively) from the nearest proposed fill area.

4. DESCRIPTION OF PROPOSAL

4.1 The managed fill facility is proposed to accept ACM and asbestos-in-soil. Other fill areas in the Waikato region also accept these waste products. GMF engaged PDP to prepare an AFMP which would provide controls and processes for the site to comply with the HSWA (Asbestos) Regulations. Subsequent recommendations within the AFMP also had PDP prepare an AMMP which indicates the nature, frequency and disposal events that require air monitoring to be undertaken to ensure that the AFMP controls are working effectively to mitigate and manage airborne asbestos risks.

5. KEY POLICY MATTERS

6. There are no specific rules/clauses/schedules within the Waikato District Plan or the Waikato Regional Plan which prevent or expressly prohibit asbestos, ACM or asbestos-in-soil from being disposed of within a Managed Fill type facility within the Waikato district or region. No further assessment of the planning rules within these plans has been undertaken as part of this AFMP.

6.1 Accordance with the HSWA (Asbestos) Regulations has driven the content of the AFMP and AAMP. Specific regulations and how they are to be addressed and complied with are included in the AFMP and AAMP.

7. ACM / ASBESTOS-IN-SOIL ACCEPTANCE

7.1 As the WDC/WRC policies and plans do not preclude ACM/asbestos-in-soil disposal at the site, the AFMP was established to describe the operational processes and frameworks to comply with the HSWA (Asbestos) Regulations.

7.2 Regulation 9 requires: *"the exposure of a person at the workplace to airborne asbestos is eliminated as far as is reasonably practicable; and if it is not reasonably practicable to eliminate exposure to airborne asbestos, exposure is minimised as far as is reasonably practicable. A PCBU with management or control of a workplace must ensure that the airborne contamination standard for asbestos is not exceeded at the workplace".*

7.3 For the purposes of these regulations, the airborne contamination standard for asbestos is an average concentration over any 8-hour period of 0.1 respirable asbestos fibres per mL of air; the trace level under these regulations is set at 0.01 fibres/mL of air.

Site processes and site management of ACM/asbestos-in-soil

7.4 Site processes described within the AFMP note the requirement for:

(a) Pre-approval of waste material acceptance and material identification and record keeping;

(b) Signage and demarcation of active work zones, decontamination chambers;

(c) Site inductions, training and awareness for workers involved in asbestos operations;

(d) Required PPE/RPE for specific tasks, personal decontamination, and health monitoring;

(e) Load placement and daily cover requirements;

(f) Vehicle decontamination;

(g) Dust suppression;

(h) Airborne asbestos air monitoring (i.e. at site boundaries and/or activity-based sampling) and regular reporting;

(i) Emergency processes and control actions; and,

(j) Annual Monitoring Reporting.

7.5 Each of these processes meets or exceeds the requirements of the HSWA (Asbestos) Regulations.

Management and reporting processes

7.6 Particular attention should be drawn to Items 7.2 (a), (b), (i) and (j) of the AFMP – all of which require various forms of reporting to be recorded and provided to the district and regional authorities either in response to an event, or as part of a regular and frequent reporting requirement.

7.7 The Annual Monitoring Report proposed for asbestos elements within the proposed Managed Fill include:

(a) The nature of the filling activities which have occurred – i.e. the volume of asbestos/ACM waste and asbestos-in-soil imported to the site and deposited into each of the active fill areas;

(b) The broad categorisation of the waste accepted into these areas – i.e. Class A asbestos and/or Class B ACM, Class A soils, Class B soils, Asbestos Related Work Soils, Unlicensed Asbestos Work Soils, etc;

(c) Summary air monitoring results including any corrective actions taken for results above the trigger levels indicated in Section 7.7.1;

(d) Summary information for any complaints/breaches to the AFMP and/or any incidents which occurred within the Managed Fill facility (related to asbestos/ACM waste and asbestos-in-soil) during the monitoring period.

Asbestos air monitoring

7.8 As a requirement of the HSWA (Asbestos) Regulations (Regulation 51), an Asbestos Air Monitoring Programme is to be established which monitors the effectiveness of the AFMP controls put in place at the site.

7.9 Asbestos air monitoring is a regulated requirement when disturbing and removing Class A ACM at the source site. It is not required for the disturbance or removal of Class B ACM, although it can be used for what is commonly called 'reassurance monitoring'. Asbestos air monitoring is recommended under the BRANZ Guidelines for Assessing and Managing Asbestos in Soil for asbestos-in-soil at concentrations analogous to Class A, Class B and Asbestos Related Works. As GMF as the PCBU in this case cannot confirm Regulation 9 (their duty to ensure that exposure of a person at the workplace to airborne asbestos is eliminated so far as is reasonably

practicable, and if unable to be eliminated, minimised so far as is reasonably practicable), then it is recommended air monitoring be undertaken as required by Regulation 51.

7.10 This AAMP is proposed to be 'performance-based' - more intensively monitoring the asbestos/ACM waste and asbestos-in-soil disposal operation and associated activities during the early stages of the filling operation, with favourable results (and WDC/WRC approval), potentially reducing the monitoring in time.

7.11 The monitoring will comprise a number of monitoring points during each monitoring round which could include locations:

(a) At/near the property boundaries closest to the neighbouring sites (i.e. to the north and east of the site);

(b) Within the cab of at least one machine operating in the nearest vicinity of an operational asbestos zone; and/or,

(c) Adjacent to any simultaneous work that may be occurring within the Managed Fill area.

7.12 Asbestos air monitoring programme shall be implemented and overseen by a Competent Person/LAA who is independent of the Managed Fill operation. Air monitoring analysis is to be completed by an IANZ laboratory in accordance with the NOHSC:3003 (2005) method.

Other Pollutants

7.13 Other pollutants – such as erionite and tremolite – have not been considered in the AFMP or AAMP assessments due to no established regulations or framework surrounding the disposal to land for these pollutants.

8. ISSUES RAISED BY COUNCIL OFFICER'S REPORT

8.1 I have read the WRC/WDC S42A reports, with particular emphasis on Appendix 5 – Technical Assessment of Air Discharges (incl. asbestos).

9. I concur with the relevant expert review findings within this report.

ISSUES RAISED BY SUBMITTERS

9.1 A total of 42 submissions have been received. The topics raised in submissions that I can comment are as follows:

(a) General concerns around deposition of ACM/asbestos-in-soil at the site, rework of these materials and associated dust effects and resultant concentrations of asbestos in air, including truck cover/wrapping requirements.[1]

(b) Monitoring by third parties, and the duration of this monitoring.[2]

(c) PDP windrose and direct measurements at neighbouring sites.[3]

(d) Erionite and tremolite presence and resultant risk in waste soils.[4]

Deposition and reworking of asbestos fill materials and resulting asbestos fibres in dust, including truck cover/wrapping requirements

9.2 The AFMP sets out the relevant site management and operational controls to maintain asbestos fibre in air concentrations below 'trace level' (0.01 fibres/mL) if they are appropriately followed. These controls include:

(a) GMF's requesting and understanding relevant information on asbestos concentrations for waste materials that they are due to receive, and providing adequate time and resources to manage the safe disposal of these materials at the tip face.

(b) This information is expected to be provided by the waste supplier and must be reviewed to be accurate and complete by GMF as the waste receiver (records of this process are required by the AFMP).

(c) Once receipt is approved, disposal can be arranged and GMF can provide the waste supplier and cartage contractor the relevant information on how the waste should be transported and received to the site (i.e. covered, wrapped, or covered and wrapped).

(d) Immediately prior to the waste receipt it will be GMF's responsibility to provide the relevant site personnel (and with the relevant training and licensing in some cases) to supervise the disposal of the waste.

(e) These personnel would be asbestos trained or licensed to the level required by the waste to be disposed.

[1] Submissions from: W. and M. Rutherford, D. Lamb, J. Malloy, A. Johnston, K. Wickens, D. Thomas, G&A Cox, J. Rix, B&C Mounsey, C. Earby, HCB, W. Dickinson, N. Maplesden, and WDC
[2] Submissions from: D. Lamb, G&A Cox, C. Earby and WDC
[3] Submissions from: K. Thomas and HCB
[4] Submissions from: HCB

(f) These personnel will prepare the tip head to receive the waste, including appropriate exclusion of other 'non-essential' personnel.

9.3 ACM/asbestos waste materials are expected to arrive damp and covered (at a minimum with the truck cover), and may also be wrapped, commensurate with their asbestos concentration/category. These trucks will be directed by the GMF personnel to the tip face where they will be unloaded and covered with non-asbestos soil material (as required by the AFMP); all while being kept damp with water spray to minimise dust during their disposal. At the completion of tipping the location of the ACM/asbestos-in-soil material is to be logged using handheld GPS/survey coordination, and all relevant plant and personnel decontaminated (by washing, removing protective clothing, etc) prior to exiting the asbestos area.

9.4 The disposal of ACM/asbestos in soil is not necessarily expected to be undertaken at the site on a daily basis. Rather the acceptance and disposal of asbestos waste will be contingent upon the waste suppliers and their required loads at the time. As such, asbestos air monitoring is expected to be undertaken as required by the HSWA (Asbestos) Regulations – i.e. during any disturbance/disposal of Class A ACM – and, during general asbestos waste disposal times. The intent is to capture several days of asbestos disposal under typical use of the AFMP controls, through varying environmental conditions, to determine effectiveness and demonstrate compliance with HSW (Asbestos) Regulations 2016; Regulation 9.

9.5 Based on the record keeping/logging, wrapping and covering of ACM/asbestos-in-soils at depth, along with the dampening required at the tip face during any disposal of these soils, the reworking of these materials is not considered to present an increased risk with respect to asbestos fibre concentrations in air.

Monitoring by third parties, and the duration of this monitoring

9.6 Asbestos as ACM, asbestos-in-soil and asbestos air monitoring will all be forms of reporting submitted to, and prepared for, GMF as part of the AFMP and AAMP. Each monitoring requirement is expected to be completed by an independent organisation (a third party) who is separate from GMF. The following monitoring is anticipated with respect to ACM/asbestos:

(a) Waste supplier monitoring information provided to GMF to determine ACM/asbestos waste category and concentration. Waste supplier information for ACM/asbestos waste shall be provided by suitably qualified and experienced practitioners in the asbestos industry.

(Waste record summaries to be provided to WDC/WRC as part of the consent and GMF: Asbestos Management Plan);

(b) Asbestos air monitoring results collected during days of asbestos disposal at the proposed fill areas provided to GMF and stakeholders (WRC, WDC, etc). The asbestos air monitoring programme shall be implemented and overseen by a Competent Person/LAA who is independent of the GMF operation. Air monitoring analysis is to be completed by an IANZ laboratory in accordance with the NOHSC:3003 (2005) method.

9.7 The AAMP notes that the duration of this monitoring should continue for the life of the fill areas (i.e. as material is being accepted and disposed).

9.8 The duration of air monitoring which might extends beyond the completion of filling and closure of the proposed Managed Fill sites is not necessary. Based on the 2 m of asbestos-free cover material proposed to cap the completed fill sites and the lack of a remobilisation activity occurring at the site (i.e. excavations, etc), there should be no reason for the remobilisation of any ACM/asbestos materials, and hence no risk associated with asbestos fibres being released to air.

PDP windrose and direct measurements at neighbouring sites

9.9 Several submitters have noted that the PDP windrose provided in the Air Quality technical assessment (and also provided in the AAMP) is not considered to be the most accurate for the site. It should be noted that as no meteorological station exists near the proposed fill area currently (this is expected to change in time), these windroses were selected as the most appropriate surrogates to provide this information.

9.10 While these may not provide specific data as to eddies and back-currents of wind at the site, they do provide an indicative assessment of the prevailing wind conditions. Nonetheless, the subsequent AAMP provides for the potential for asbestos impacted dust to be identified in any direction moving away from the active tip face/s as the monitoring points are expected to surround the active asbestos disposal area/s at the time of assessment.

9.11 Mrs. Deborah Ryan's (of PDP) expert evidence provides further update of the PDP windrose using CAMLET. This is expected to provide more accurate wind direction assessment which is expected to more closely link to the meteorological conditions at the site.

9.12 The AAMP indicates that during any asbestos air monitoring the then-current fill site being monitored will be surrounded by air monitoring instruments which will be used to collect relevant 'real-time' data to assess asbestos fibres/mL of air. At least four air monitors will be installed during the disposal of asbestos waste material, ensuring that air monitors are located between the tip face and the nearby receptors (at Hillside Heights and Riverview Road). These monitors will provide real-time and site-specific assessments of air quality (with respect to asbestos) at/near the nearby residential dwellings.

9.13 Asbestos air monitoring results are on-sent to an IANZ laboratory for analysis (typically within the same day) and results provided promptly to assess effectiveness of controls, and follow required actions (i.e. continue with works, stop and investigate, stop and notify).

9.14 Mandatory and regular reporting requirements for this air monitoring are noted in 7.10 above.

Erionite and tremolite in waste soils

9.15 The presence of erionite and tremolite in waste soils has been raised as a health concern for surrounding residents via the inhalation pathway (in a similar way that asbestos may adversely affect human health via this pathway). Tremolite is an amphibole silicate, included as one of the types of asbestos and therefore covered by the controls set out in the AFMP and AAMP. Erionite is known to be present in Auckland rocks and soils, but at concentrations that are not well characterised at this time.

9.16 For erionite, there is no toxicological data (national or international) for this mineral fibre and its associated health risks available at this time. *Brook et al*'s report provided within the submission document from the HCB identifies erionite as potential risk to human health, due to its 'asbestos like' morphology (i.e. mineral fibre size, etc), especially from construction and quarrying activities. The report concludes that: the potential effects of exposure through handling, use and disposal of erionite-bearing rock in both occupational and non-occupational settings in New Zealand remain unknown. Further research on the source occurrence, and airborne transport of erionite would be advantageous, as well as epidemiological research to improve understanding of the extent of exposure to erionite in the population and who is most at risk. This could include developing testing regimes and occupational exposure limits, and then appropriate management of erionite exposure within a hierarchy of controls.

9.17 Personal communications with Martin Brook and Jenny Salmond (co-authors of the above paper) confirm the following:

(a) The paper presented by HCB is an opinion paper within a medical opinion – as noted in its 'Viewpoint' header – and it contains speculative discussion points relating to the understanding of erionite and its associated health risks at that time;

(b) All of the conclusions of this opinion piece remain valid now as limited published progress has been achieved in the understanding of erionite to date. In 2020, funding was provided to academia and industry to develop and understanding of these factors related to erionite (i.e. source and provenance, toxicological data, exposure limits, etc). However, all of these avenues are currently being worked on by national and international researchers with no published data or guidance yet available; and,

(c) Preliminary investigations into source and provenance of erionite in Auckland rocks has determined 'trace level' concentrations in disparate and very specific rock area deposits (i.e. in Kaipara, Riverhead, and Te Henga areas).

9.18 Currently no regulations, human health or environmental standards are available in NZ (or internationally) for erionite.

9.19 As erionite is known to be an 'asbestos-like' mineral fibre Martin and Jenny both agree that if the type of dust control measures set out in the AFMP (and other air quality plans – i.e. the AQTA and DMP) are followed, the risk of inhalation of erionite and other mineral fibres is expected to be negligible.

Summary

9.20 The discharge of asbestos (and other mineral fibres) to air from the activities associated with the proposed fill site is not expected to result in a significant dust nuisance or health effects relative to asbestos air quality standards, provided that the proposed mitigation and monitoring methods discussed in the AFMP and AAMP are implemented to the level described.

10. COMMENT ON CONDITIONS

10.1 I have reviewed the draft conditions as proffered with the application.

10.2 Draft condition 20 requires that all asbestos importation should be overseen by a staff member with a Class A certification in the handling of asbestos.

This level of certification goes beyond the level required for all of the asbestos operations proposed at the site. Only when importing and disposal of Class A ACM and/or asbestos-in-soils is a Class A license required (as noted in the AFMP). During the import and disposal of other ACM and asbestos materials lesser licenses, and in some case no license is required.

10.3 Draft condition 26 notes that dampened asbestos water and/or asbestos contaminated fill material should be covered by at least 1 m of locally sourced fill material as per the AMP. This statement goes far beyond what is noted in the AFMP (and therefore the relevant regulations and guidelines), with proposed cover of ACM/asbestos-in-soil with 0.2 m of cover. This is considered to be more than enough on an active fill site where the disposed materials will be actively logged and monitored throughout the fill operation. A depth of cover of 1 m is considered to be overkill and expects that a significant amount of available cover would be available for this purpose.

10.4 All other draft conditions are considered to be generally aligned with the AFMP.

11. CONCLUSIONS

11.1 The discharge of asbestos (and other mineral fibres) to air from the activities associated with the proposed fill site will not result in a significant dust nuisance or health effects relative to asbestos air quality standards, provided that the proposed mitigation and monitoring methods discussed in the AFMP and AAMP are implemented to the level described.

Roderick William Lidgard
Pattle Delamore Partners Limited
21 November 2022