

Canterbury

District Health Board

Te Poari Hauora o Waitaha

Submission on an application for resource consent under the Resource Management Act 1991 by Fulton Hogan Ltd. to establish Roydon Quarry

To: Environment Canterbury
PO Box 345
Christchurch 8140

Submitter: Canterbury District Health Board

Attn: Matt Willoughby
Community and Public Health
C/- Canterbury District Health Board
PO Box 1475
Christchurch 8140

SUBMISSION ON ROYDON QUARRY RESOURCE CONSENT APPLICATION

Details of submitter

1. Canterbury District Health Board (CDHB).
2. The submitter is responsible for promoting the reduction of adverse environmental effects on the health of people and communities and to improve, promote and protect their health pursuant to the New Zealand Public Health and Disability Act 2000 and the Health Act 1956. These statutory obligations are the responsibility of the Ministry of Health and, in the Canterbury District, are carried out under contract by Community and Public Health under Crown funding agreements on behalf of the Canterbury District Health Board.

Details of submission

3. We welcome the opportunity to comment on the resource consent application by Fulton Hogan Limited to establish a gravel quarry at a site within a block of land bound by Dawsons Road, Curraghs Road, Maddisons Road, and Jones Road, Templeton.
4. Health is influenced by a wide range of factors beyond the health sector. These influences, or determinants of health, are the conditions in which people are born, grow, live, work and age, and are impacted by environmental, social and behavioural factors.
5. This submission discusses a number of health considerations related to the proposed quarry development and operation, including air quality, noise and vibration, and general wellbeing considerations for nearby residents and the local community.
6. The CDHB has developed a number of recommendations which are necessary to protect the health of nearby residents and the wider community if the application is to be approved.

Specific comments

Air Quality

7. A number of activities occurring at the quarry are likely to result in dust generation that have the potential to negatively impact human health if not managed according to best practice principles. Dust emissions can occur from aggregate excavation; loading and handling of aggregate; transportation of aggregate on unsealed and sealed roads; crushing; storage of aggregate; and exposed unsealed aggregate.
8. Dust particles vary in size. Some of these particles are big enough to be seen, while others are so small that they are invisible to the human eye. Particles smaller in size than 10 µm (micrometre) diameter are known as PM10. Particles less than 2.5 µm are called PM2.5. Course and/or fine particles (i.e. particles less than 10 µm), can get deeper into the respiratory tract and lungs and may cause breathing-related problems.
9. Health effects from dust depend on the size of the particles, the quantity present, the composition, how long people are exposed, and pre-existing health conditions. The most common symptoms experienced during a period of high dust exposure are irritation to the eyes, ear, nose, throat and upper airways.
10. Course and fine particulate matter (PM₁₀ and PM_{2.5}) and Respirable Crystalline Silica (RCS) are likely to be present within a 500m radius of the dust generating activity with no mitigation in place. The CDHB used the following guidelines, standards and regulations for assessing the potential risk to human health of proposed activities at sensitive offsite locations:
 - i) PM₁₀ – No more than one exceedance in a 12 month period of 50 micrograms per cubic metre expressed as a 24-hour mean (50 µg/m³ - 24-hour average)¹,
 - ii) PM₁₀ – Any exceedance of 150 micrograms per cubic metre as a 1-hour mean set as a trigger level to prompt action to control dust (150µg/m³ - 1 hour average) ²

¹ Resource Management (National Environmental Standard for Air Quality) Regulations 2004

² MfE Ministry for the Environment – Good Practice Guide for Assessing and Managing Dust - <http://www.mfe.govt.nz/sites/default/files/media/Air/good-practice-guide-dust-2016.pdf>, VicEPA Guideline.

- iii) PM_{2.5} – Ambient concentration of PM_{2.5} not to exceed 25 micrograms per cubic metre as a 24-hour mean (25 µg/m³ -24-hour average)³
- iv) RCS – Ambient concentrations of RCS not to exceed 3 micrograms per cubic metre as an annual average (3 µg/m³ - annual average)⁴

11. As proposed by the Ministry for the Environment guidance document *Good Practice Guide for Assessing and Managing Dust*, the CDHB recommends that the applicant ensures consistency with the Environment Protection Authority Victoria, Australia Guidelines – *Recommended Separation Distances for Industrial Residual Air Emissions*⁵ in mitigating and monitoring dust generation in the absence of similar guidelines for New Zealand.

12. The CDHB recommends comprehensive reference monitoring for PM₁₀ to assess compliance (or otherwise) with National Environmental Standards for Air Quality, as current proposals falls short of technical requirements for monitoring.

13. The CDHB recommends the following best practice dust control measures be employed for all dust generating activities:

- i) Enclosing dust generation points on mobile plant
- ii) Water sprays at all transfer points (as proposed by applicant)
- iii) Paving/sealing heavily trafficked areas to mobile plant and/or fixed water sprays on unsealed, trafficked areas from extraction area to conveyor
- iv) Water sprays on trafficked surfaces (as proposed by applicant)
- v) Water sprays on any storage piles likely to generate PM₁₀.

14. The CDHB recommends that any mobile processing plant is located at least 500m from all sensitive offsite receptors, as opposed to the 250m setback proposed by the applicant.

15. The CDHB recommends a minimum distance from sensitive receptors of 500m for onsite truck movements that have not gone through the truck wash.

³ World Health Organisation.- World Health Organisation (WHO) – Ambient Outdoor Air Quality and Health - [https://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health)

⁴ California Office of Environmental Health Hazard Assessment (OEHHA), Chronic Reference Exposure Levels (CREL) - <https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary>

⁵ Available from: https://www.epa.vic.gov.au/~/_/media/Publications/1518.pdf

- i) The location of the truck wash should be located 500m from any sensitive receptor.
 - ii) The truck wash should be located near to the fixed processing plant and the road from the truck wash to the site entrance should be sealed
16. The CDHB recommends that all trucks go through the truck wash before leaving the site.
17. The CDHB recommends that a conveyor is used to transport excavated aggregate from the working quarry face to the mobile crusher.
18. The CDHB recommends that the access road from Jones Rd to the fixed processing plant be sealed.
19. The CDHB recommends that vehicle movements be restricted to SH1 to reduce the likelihood of offsite dust deposition.
20. The CDHB recommends that mobile water sprays are available in addition to regular vacuuming and sweeping of internal roads.

Noise and vibration

21. Environmental noise and vibration can cause a range of adverse health effects on affected communities. The World Health Organisation (WHO) has identified health effects caused by environmental noise, including ischaemic heart disease, annoyance and sleep disturbance. Vulnerable populations, including young children, older people and those with intellectual disabilities, may be more sensitive to noise.
22. Noise and vibration would be generated on-site by gravel extraction, processing equipment and off-site by trucks travelling on SH1 and local roads.
23. The CDHB recommends the following to minimise generation of noise and vibration:
- i) Proposed daytime activity and noise limits be amended to start from 0700h rather than 0600h.
 - ii) Evening and night activity should be set back from sensitive offsite locations.

- iii) All vehicles should access and leave the site directly from SH1/Dawsons Road/Jones Road intersection. Site entrances should be configured to prevent use of local roads.
- iv) The roads between the site and SH1 should be upgraded to achieve a smooth surface with no discontinuities in wheel paths.
- v) The new Jones/Dawsons Road roundabout should be designed with geometry, landscaping, lighting, signage and speed limits to result in gradual braking and acceleration.
- vi) Night-time truck movements should be limited.
- vii) No equipment or vehicles should be allowed on the site if they have tonal alarms or are capable of having audible engine braking systems.
- viii) Noise limits should apply for all receivers including any near the site entrances.

Community wellbeing

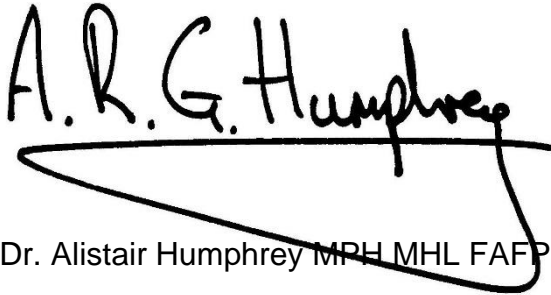
24. The CDHB notes that the potential health effects of the proposed quarry development are not limited to the physical effects related to environmental exposures such as dust, noise and vibrations.
25. In reviewing the impact of the proposed introduction and/or operation of extractive operations and other industrial activities on the wellbeing of individuals and communities living nearby, it was found that wellbeing may be affected as much by the decision-making process as by the proposed activity itself. Studies have revealed substantial self-reported impacts on individuals and community wellbeing of proposals including: ongoing uncertainty, worry and fear, hostility and community division, loss of sleep, fatigue, and high blood pressure.
26. Concerns of individuals and communities are likely to be wide-ranging; from nuisance concerns (e.g. the potential for increased traffic, dust, odour, noise), to concerns about environmental pollution, potential for technological issues (e.g. concerns about containment technologies and other scientific uncertainties), concern about ongoing relationships with the companies involved, and the potential negative impacts on health and property values.
27. A perceived lack of appreciation for 'core community values' and for 'country life' by proponents of proposals can be a major issue for communities; proposed activities are likely to be at odds with the reasons why residents appreciate their community and originally chose to reside there e.g. prefer the quiet, small town feel; this had been deliberately chosen over 'city life' and its perceived negative consequences such as noise, traffic, and pollution.
28. For the reasons outlined above, the CDHB supports the establishment of a Community Liaison Group. It is recommended that the group undertake the following roles:
- i) Share monitoring data with residents, such as through a regular newsletter.
 - ii) Provide a process for addressing concerns raised by individuals or community groups.

Conclusion

29. The CDHB does wish to be heard in support of our submission

30. Thank you for the opportunity to submit on the Roydon Quarry resource consent application.

Person making the submission

A handwritten signature in black ink that reads "A. R. G. Humphrey". The signature is written in a cursive style. Below the signature, there is a large, hand-drawn loop that extends from the end of the signature back towards the beginning, underlining the name.

Dr. Alistair Humphrey MPH MHL FAFPHM FRACGP Date: 4th June 2019
Public Health Physician, Canterbury District Health Board

Contact details

Matt Willoughby
For and on behalf of
Community and Public Health
C/- Canterbury District Health Board
PO Box 1475
Christchurch 8140

P +64 3 364 1777

F +64 3 379 6488

Matt.willoughby@cdhb.health.nz