

Attachment D

Environmental Health

Before the Selwyn District Council

In the matter of The Resource Management Act 1991

And

In the matter of Plan Change 34 – Roxburgh Property Developers Ltd
Rezoning of rural land at Southbridge for residential
development

Statement of evidence of Russell Malthus on behalf of Selwyn District Council

Introduction

1. My name is Russell Charles Malthus. I am Senior Environmental Health Consultant with Novo Group Ltd, a Christchurch based specialist planning traffic and development consultancy.
2. My qualifications include a Bachelor of Applied Science (Environmental Health) from Massey University, New Zealand as well as diplomas issued by the Royal Society of Health in Public Health Inspection, Air Pollution Control and Noise Control. I am a full member of the New Zealand Acoustical Society and a registered member of the New Zealand Institute of Environmental Health.
3. My relevant experience in relation to the matters I will address in this evidence includes over twenty years employment with the Christchurch City Council as an Environmental Health Officer assisting with Resource Management Act applications and development of the Christchurch City Plan. Since 2004, I have provided independent consultant advice on such matters to private clients and consenting authorities locally and elsewhere in New Zealand.

Scope of evidence

4. I have been engaged by the Selwyn District Council to review and advise on the proposed provisions and assessments in Plan Change 34, and public submissions on the proposal, relating to:
 - Noise
 - Light spill and Glare
 - Hazardous Substances
 - Reverse sensitivity
5. I carried out a site visit on 7 January for the purposes of my assessment.
6. In preparing this evidence I have given appropriate regard to relevant guidance in the Code of Conduct for Expert Witnesses in the Environment Court Practice Note. The evidence I am giving is within my area of expertise, except where I state I am relying on the opinion or evidence of other witnesses. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed. I understand it is my duty to assist the hearing committee impartially on relevant matters within my area of expertise and that I am not an advocate for the party that has engaged me.

The Proposal

7. The proposal, as described in the application documents prepared by Golder Associates, is to rezone the subject land from Rural Outer Plains (Rural OP) to Living 1 (L1), to provide for a future subdivision consent application for residential development of the land.
8. Further information is provided in letters to Mr Rhodes from Ms West, Golder Associates' Senior Planner dated 14 November 2012 and 22 January 2015.

Site and environs

9. The block of land covered by the application is in the Rural OP zone on the west side of High Street in Southbridge.
10. The land on the opposite (east) side of the street is zoned L1 and contains existing dwellings.
11. The Rural OP zone extends westwards from an unformed road (Bellfield/Robinson St) on the west boundary of the block, and southwards from Brooks Road on the south boundary. There is currently a single dwelling located approximately centrally within the block, and a small number of rural dwellings also lie within the Rural OP zone in the vicinity of the block.

12. Land in the Rural OP zone on the north boundary of the block is used by McMillan Drilling Limited for the storage and handling of materials, vehicles and machinery as part of their business operations in the adjoining Business 2 zone to the north. The Outline Development Plan (ODP) in Appendix E of the application includes a "reverse sensitivity buffer area" which the RFI response states is approximately 18 m wide. The RFI concludes that this area provides ample room for mitigation options to be put in place to provide reverse sensitivity protection to the McMillan site, and I will discuss this in more detail with regard to that company's submission.

Selwyn District Plan Assessment

- Compatibility with the existing Living zone

13. The proposed change from Rural Open Plains to Living zoning would apply the Activities rules in Townships Volume Part C10 of the Selwyn District Plan to activities on the site. Activities in the new L1 zone would then be subject to the same standards for noise, lighting and hazardous substances that currently apply to the existing L1 zone on the east side of High Street.

- **Noise**

14. Noise from residential spiritual or educational activities is not controlled by performance standards within the L1 zone (Part C10 rule 10.6). In lieu of standards, reliance is placed on sections 16 and 326-328 of the Resource Management act (RMA) for the avoidance of unreasonable noise and control of excessive noise from such activities. Levels of noise emitted between the two L1 zones that is controlled on that basis would be acceptable, taking into account noise attenuation by distance across High Street. Should noise standards be introduced in the District Plan in the future, the same standards would apply in the new zone and the existing L1 zone on the east side of High Street, ensuring that noise effects are compatible.

- **Light spill and glare**

15. Under Part C10 rule 10.7.1, the following standards apply to light in Living zones:
 - 10.7.1.1 Any fixed, exterior lighting if it is directed away from adjacent properties and roads.
 - 10.7.1.2 Any lighting if it does not have a lux spill (horizontal or vertical) of more than 3 on to any part of any adjoining properties.

16. In my experience these standards are easily complied with by standard lighting systems in residential areas, and would ensure that light emissions and glare effects are avoided and mitigated satisfactorily taking into account attenuation by distance across High Street. On this basis I would expect lighting effects between the new and existing L1 zones would be compatible, and any effects on road users would be avoided.

- **Hazardous substances**

17. Section 6.3.5 of the application discusses the possibility of hazardous substances (fuels and oil) to be discharged from motor vehicles onto the land and into stormwater catchment and drainage systems, which would be mitigated by the design of those systems.
18. The assessment does not consider the storage of common hazardous substances in the new L1 zone which is permitted under Townships volume Part C8 subject to quantity limits in Appendix E9. As the same limits apply in the existing L1 zone on the east side of High Street and effects in the new and existing zones, effects of storage in the zones would therefore be compatible. In any case the potential for adverse effects is very low and localised to individual properties, taking into account the small quantities and the integrity of the small containers that are involved. Again the distance across High Street is a mitigating factor.

- **Land contamination**

19. Ms West's letter of 14 November 2012 states that the land has no known history of land use that could have contaminated the site. I accept that a formal assessment is not necessary for the purpose of this plan change, and in any case I understand the proposed change in land use would be examined by the Council under the National Environmental Standard for Assessing and Managing Contaminants in Soils to Protect Human Health (NES) at the time of subdivision.

- **Compatibility with activities in the Rural Open Plains zone**

- **Noise**

20. Noise emitted from a Living zone into a Rural zone is not controlled by the Activities rules in Part C10 of the Townships volume. However the control of noise under sections 16, 326 and 328 of the RMA zone would avoid unreasonable noise being received at residential properties in the Rural OP zone, taking into account that Brook Street and the unformed road on Bellfield Street are buffers for noise.
21. Conversely, noise emitted by permitted activities in the Rural OP zone would be controlled by noise standards at the new L1 zone boundary, under Rural volume Part C9. The permitted activity limits in rule 9.16.1

Table C9.2 apply generally to activities in the Rural OP zone, while the more stringent standards in C9.15 specifically apply to audible bird scaring devices. Noise controlled by these standards would be reasonable in terms of the RMA, because the standards are consistent with limits of acceptability in residential environments in NZS 6802:1991 *Assessment of Environmental Sound* which is referenced in Part C Rural Rules - Introduction To Rules, and also with current guidance in its successor NZS 6802:2008 *Acoustics – Environmental Noise*.

- **Light spill and glare**

22. Light spill from activities in the new L1 zone into the Rural OP zone, and vice-versa, is controlled by the same standard (3 lux) under Townships volume Part C10 rule 10.7.1 and Rural volume Part C rule 9.18.1.2. The rural zone rule does not require exterior lighting to be directed away from adjacent properties and roads, however Brook Street and the unformed road on Bellfield Street would mitigate such effects.

- **Hazardous substances**

23. Significantly greater quantities of hazardous substances are permitted in the Rural OP zone under the provisions of Rural volume Part C7 and Appendix E15 than those that would be permitted in the new L1 zone under Townships volume Part C8 and Appendix E9. This reflects the scale and nature of rural land use activities within the zone.
24. In her letter of 14 November 2012 Ms West of Golder Associates provides answers to questions I had asked through Mr Rhodes, regarding protection of residential land use in the Plan Change area from spray drift from crop spraying on the adjoining rural land. I accept Ms West's opinion that compliance with the appropriate controls in the Canterbury Natural Resources Regional Plan (NRRP) would avoid any effects that are objectionable or offensive, when the mitigation provided by Brook Street and the unformed road on Bellfield Street is taken into consideration.
25. A consent search supports the statement in Ms West's letter of 14 November 2012 that there is no significant hazardous substances storage on adjacent farm properties in the Rural OP zone within 30 m of the plan change site. However my site visit on 7 January revealed that there is also a small explosives magazine at the western end of the Rural OP part of McMillan Drilling Ltd's site which adjoins the north boundary of the Plan Change area which is approximately 20 m from the common boundary. I will address this matter in my comments on the McMillan's submission.
26. Any future installations of significant quantities of hazardous substances on adjacent farm land or on the McMillan site in the Rural OP zone would be subject to specific safety and containment controls under the Hazardous Substances and New Organisms legislation (HSNO) on any

site, and consenting requirements under the District plan and the NRRP, which would satisfactorily address potential effects. Distances across Brook Street and the unformed road on Bellfield Street would be significant risk mitigation factors.

- **Reverse sensitivity effects on McMillan Drilling Ltd's operations**

27. The submission of McMillan Drilling Ltd raises concerns that the proposed residential development of the Plan Change area could adversely affect the company's operations.
28. The company's website provides background information on their drilling and water analysis business which extends throughout New Zealand and into the Pacific.
29. I visited McMillan Drilling Limited's site at 120 High Street on 7 January and met Mr and Mrs McMillan to discuss their submission regarding potential reverse sensitivity issues at the interface of their land with the PC34 area. This company's site adjoins the north boundary of the Plan Change area. It is their principal operating base and the site is fully utilised for all aspects of its drilling business including the manufacture and maintenance of drilling rigs, the overnight storage of machinery and trucks, and the delivery, storage and despatch of well pipes and other components. The general operating hours are 7 am to 6 pm, but outside those times trucks can return to the site and some loading of containers and trucks with machinery and well pipes also occurs if necessary to meet shipping schedules.
30. The various aspects of the operation involve the operation of heavy machinery at various times, security lighting and the storage and use of hazardous substances which could potentially affect occupiers of dwellings in the proposed subdivision area unless mitigated satisfactorily.
31. The applicant proposes to mitigate any effects involving the McMillan's site by including an 18 m reverse sensitivity buffer within the plan change area, along the common boundary. I understand that dwellings would not be constructed in this buffer area. I have assessed the effectiveness of that buffer as follows.

• **Noise**

32. The company's offices, water testing laboratory and manufacturing and maintenance workshops are at the north end of the site in the Business 2 zone, about 120 m from the common boundary with the PC34 area - or about 140 m from the closest dwellings in the PC34 area when the proposed 18 m noise buffer is included. I consider that distance, in conjunction with acoustic mitigation in the Plan Change area which will

be discussed further, would be sufficient to avoid adverse noise effects from that part of McMillan's operations.

33. The south end of the McMillan's site, in the Rural OP zone, is used for equipment and materials storage and handling. Most of the area along the common PC34 boundary is used for pipe storage, which involves off-and on-loading trucks and movement of pipes on and off their storage cradles using a large diesel-powered forklift, and also sorting and stacking of pipes with a range of diameters. These activities generate significant noise.
34. I observed four large pipes being moved and loaded onto a truck. This took about five minutes, including the truck movement. While each unloading / loading or sorting / stacking event would take only a matter of seconds or minutes, the McMillans advised me such activity in this area is often sustained for an hour or more depending on demands of contracts, for example when a number of trucks being serviced or a container is being packed. This occurs on a number of occasions at any time of the day, on any day and occasionally at weekends and during the evening.
35. The standards in Rural rule 9.16.1 Table C9.2 would apply to McMillan's operation at the new L1 zone boundary if the Plan Change is approved.
36. Taking into consideration that the noise from moving pipes has an impulsive character, it is valid to apply a "penalty" adjustment of - 5 dBA to those standards. On that basis, the following adjusted noise standards would apply at the common boundary:

Daytime	7.30 am – 8.00 pm	50 dBA L10 / 85 dBA Lmax
---------	-------------------	--------------------------

Night-time	8.00 pm - 7.30 am	35 dBA L10 / 70 dBA Lmax
------------	-------------------	--------------------------

37. During the loading of the four large pipes, I measured levels of 91 dB LAE and 94 dBA LAFmax at a distance of 10 m. This indicates noise levels at the common boundary with the Plan Change area would be about 68 dB L10 / 94 dB LAFmax if pipes were being handled relatively continuously for an hour or more. These levels significantly exceed the adjusted noise standards above, by 18 dBA L10 during daytime and by 33 dBA L10 at night-time. Tilt slab walls several meters high, or other materials of similar density, would need to be installed at the boundary to reduce noise so as to achieve compliance.
38. However new dwellings would not be constructed close to the common boundary and it is more appropriate to assess the levels of noise that would be received at new dwelling sites, which will be set back by at least 18 m from the boundary because of the reverse sensitivity buffer. I calculate that levels of 59 dB L10 / 85 dB LAFmax would be received

at that distance. This indicates that noise would need to be reduced by 9 dBA during daytime and by 24 dBA at night-time, in order to comply with the adjusted L10 limits.

39. Golder's noise expert John Cawley has suggested in his letter appended to Ms West's letter dated 14 November 2012 that earth bunding and/or acoustic fencing 2.0 to 2.5 m high and appropriate building construction would achieve reasonable levels of outdoor and indoor amenity and sleep protection at dwellings in the future subdivision.
40. I consider that it would be practicable achieve the 9 dBA reduction to meet the daytime standards by constructing an acoustic bund and/or fencing within the setback buffer area however I consider the minimum height should be 3 m, taking into account the operating heights if the machinery operating on the McMillan's site. This would be achieved by a bund 2 m high topped by a fence 1 m high, extending along the full length of the buffer area. The minimum construction of the fence that is recommended by Mr Cawley, i.e. surface mass of 10 kg/m² and no gaps between or below the components, would be sufficient for this purpose.
41. I agree with Mr Cawley that it would not be practicable to comply with the lower night-time limit in the District Plan, which starts at 7:30 pm. He has suggested that the more lenient upper noise limits recommended in NZS6802:1991 could be considered as acceptable, however this would need to be assessed in more detail when the design and construction of individual houses is being decided.
42. Further assessment in the context of the existing ambient noise climate (including noise from the McMillan site) and guidelines for residential amenity and sleep protection would be necessary to determine which standards of protection are appropriate. In that context any additional acoustic treatment in individual dwelling design and construction would also need to be assessed, over and above the upgrading of windows at first floor levels of dwellings or installing alternative mechanical ventilation which Mr Cawley has suggested.
43. In her letter of 14 November 2012, Jane West of Golder Associates considers this more detailed assessment would be determined more appropriately at the time of subdivision, rather than by specific detail being required in the plan change. I understand Mr Rhodes supports this approach. To give this effect, Ms West's letter of 22 January 2015 advises that the applicant has offered the following new Rule 12.1.3.44 and Assessment matter 12.1.4.80:

12.1.3.44 *That an acoustic bund, fence and/or tree planting within the area shown as reverse sensitivity buffer area be put in place prior to the construction of any dwelling on the site covered by the area of land shown in Appendix E43, at High Street, Southbridge.*

12.1.4.80 *The extent to which noise attenuation works are proposed within the reverse sensitivity buffer area on the site covered by the area of land shown in Appendix E43, at High Street, Southbridge.*

44. I consider that the wording of the rule and assessment matter are too uncertain to provide the desired outcome because tree planting (which is likely to be ineffective as noise mitigation) could be chosen as the preferred option. Also, there is no provision for dwelling construction or the performance of the acoustic mitigation to be considered with regard to the existing noise climate or guidelines of acceptability. I therefore recommend that the following alternative wording to rule 12.1.3.44 and assessment matter 12.1.4.80 should apply:

12.1.3.44 An acoustic bund and/or fence of 3m high shall be constructed in the reverse sensitivity buffer as shown in Appendix E43, at High Street, Southbridge.

12.1.4.80 The extent to which the proposed noise attenuation works and dwelling design and construction will achieve reasonable noise levels inside and outside the dwelling, in the context of existing ambient noise climate and with regard to current guidelines of acceptability and avoidance of sleep disturbance.

- **Lighting**

45. There are a number of security lights on poles at various points on the Business Zone boundaries of the McMillan site, which illuminate the site at night. Given the distances involved, I would not expect light spill into the PC34 area to exceed the 3 lux limit in Townships rule 10.7.1. I would also expect glare not to be an issue if the existing trees along the common boundary are retained.

- **Hazardous substances**

46. My site visit on 7 January revealed that there is also a small explosives magazine at the western end of the Rural OP part of McMillan Drilling Ltd's site which adjoins the north boundary of the Plan Change area which is approximately 20 m from the common boundary. Mr McMillan has provided a copy of a certificate dated 22 February 2013, issued by Trevor McQuoid of Haz-Safety Ltd who is a registered HSNO test certifier, which states that a distance of 42 m shall be maintained to establish a

controlled zone between the magazine and any place where low density traffic or persons up to 200 in number may be present. This distance would be achieved by the proposed 18 m buffer area, provided that people are excluded from that area. The applicant may wish to consider and comment on how that would be achieved.

47. The McMillan's site also has LPG cylinders in the workshop areas at the north end of the site, which Haz-Safety's certificate requires to be at least 2m from any low intensity traffic or land use area. This is achieved by the current site layout, and would pose no risk.
48. There are also aboveground diesel and petrol storage tanks with dispensers to refuel vehicles and equipment, centrally located on the Rural OP part of the McMillan's site. The tanks are approximately 40 m from the common boundary with PC34, or approximately 60 m from the closest dwelling site in the proposed subdivision when the reverse sensitivity buffer in the Outline Development Plan (ODP) is included. I understand the tank installations do not need to be certified by Haz-Safety. I note that the fuel tanks are about 45 m from the dwelling on that part of the site and it is reasonable to assume that the necessary separation requirements were met when the tanks were installed. Considering that the closest dwellings in proposed subdivision would be 60 m from the tanks, I consider the fuel tanks are unlikely to present any risk.

Submissions

49. I have read the public submissions which do not appear to raise any specific concerns relating to the matters I have addressed in this evidence, except for the potential reverse sensitivity effects on McMillan Drilling Ltd's operations which I have covered in detail. Therefore I consider my evidence addresses all the submissions received.

Conclusions

50. In this evidence I have reviewed and addressed the information in the application and supporting information for Plan Change 34, with regard to the relevant provisions of the Selwyn District Plan and public submissions on the proposal.
51. I consider that the the proposed change in land use is generally consistent with the local environment, provided that reverse sensitivity from noise and hazardous substances at the adjacent McMillan Drilling operation are considered and addressed under the following recommendations for the reasons set out in this evidence.

Recommendations

52. In view of the above, I recommend that the following alternative wording to rule 12.1.3.44 and assessment matter 12.1.4.80 shall apply:

12.1.3.44 An acoustic bund and/or fence of 3m high shall be constructed in the reverse sensitivity buffer as shown in Appendix E43, at High Street, Southbridge.

12.1.4.80 The extent to which the proposed noise attenuation works and dwelling design and construction will achieve reasonable noise levels inside and outside the dwelling, in the context of existing ambient noise climate and with regard to current guidelines of acceptability and avoidance of sleep disturbance.

Russell Malthus

19 February 2015