

Before the Selwyn District Council

under: the Resource Management Act 1991

in the matter of: Proposed Private Plan Change 73 to the Operative
District Plan: Dunns Crossing Road, Rolleston

and: **Rolleston West Residential Limited**
Applicant

Statement of Evidence of Cathy Nieuwenhuijsen (Odour)

Dated: 13 September 2021

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STATEMENT OF EVIDENCE OF CATHY NIEUWENHUIJSEN

INTRODUCTION

- 1 My full name is Catherine (Cathy) Elizabeth Nieuwenhuijsen.
- 2 I am a Senior Air Quality consultant at Golder Associates New Zealand Limited, now owned by WSP. I have a degree in Chemical and Process Engineering and I am a Certified Air Quality Professional. I have nearly 20 years' experience in wide range of Air Quality Assessments.
- 3 With regards to odour assessments I have:
 - 3.1 been a project manager and a technical lead in preparing assessments for various chicken farms, including Brinks Poultry (Canterbury and Waikato) and Cobb Vantross poultry farm (Waikato).
 - 3.2 been an internal technical reviewer for a number of other assessments, including Lamond Poultry (a free-range layer farm) in Christchurch, and working for potentially affected neighbours in undertaking a review of two meat chicken farms in Canterbury.
 - 3.3 been the technical lead and Project Manager of assessments on Rendering sites, including Hawkes Bay proteins and Tuakau Proteins.
 - 3.4 worked as Environment Canterbury's expert for the review of a composting operation, including attending Environment Court Mediation.
 - 3.5 assisted with assessment of odour and contaminants from Ravensdown's three fertiliser factories and several Alliance meat processing operations, including rendering/fellmongering and wastewater treatment plants.
 - 3.6 significant atmospheric dispersion modelling experience and have been technical lead on numerous air quality assessments involving complex dispersion models. These include assessment of energy plant, milk powder driers, pyrolysis plants, generators, and refinery emissions.
- 4 I was the project manager and technical lead in the preparation of the assessment (Golder 2020) in support of this plan change application and prepared the response (Golder 2021) to the further information request in relation to odour matters.

- 5 I am familiar with the plan change application by Rolleston West Residential Limited (the *Applicant*) to rezone approximately 160 hectares of land in two separate locations on Dunns Crossing Road, Rolleston to enable approximately 2,100 residential sites and two commercial areas. Due to COVID restrictions, I have not been able to visit the site, but will have prior to attending the hearing.

CODE OF CONDUCT

- 6 Although this is not an Environment Court hearing, I note that in preparing my evidence I have reviewed the Code of Conduct for Expert Witnesses contained in Part 7 of the Environment Court Practice Note 2014. I have complied with it in preparing my evidence. I confirm that the issues addressed in this statement of evidence are within my area of expertise, except where 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.

SCOPE OF EVIDENCE

- 7 My assessment for the plan change and Mr Benders report appended to the s42a report generally align. Mr Bender's sole concern regarding the potential reverse sensitivity concerns are the risk of odour effects from 'upset conditions' at the Rolleston Resource Recovery Park (RRRP).
- 8 Therefore, my evidence focuses on RRRP and in particular the composting operation. I have also provided comment on Mr Boyd's report appended to the s42a report as well as on submissions relating to odour.

BACKGROUND

- 9 Golder in 2020 and 2021 provided a review of the consented and existing activities in the vicinity of the blocks. The activities include the Pines Wastewater treatment plant (WWTP) and Rolleston Resource Recovery Park (RRRP), which have the potential to impact on the Holmes Block, and the Tegel Breeder Farm, located off Dunns Crossing Road, that has the potential to impact on the Skellerup Block. From this review, Golder 2020 identified recommended setbacks on the Holmes and Skellerup blocks (shown **Appendix 1** Figure 1) and these formed part of this plan change application.
- 10 I have reviewed the Section 42A report prepared by Ms Liz White in relation to the PC73 application. I have also reviewed Appendix 8 of Ms White's report, which is an odour review prepared for SDC by Mr Chris Bender of PDP Ltd, and concerns raised by Mr Boyd, Solid Waste Manager for SDC.

- 11 As part of the application for this plan change, I recommended the following buffer distances expected to avoid reverse sensitivity due to odour from residential dwellings and incorporated into the ODPs for the Plan Change sites:

Facility	Recommended buffer distance for odour mitigation
Pines WWTP - treatment	500m from facility
Pines WWTP – biosolids production	400m from drying facility
Pines WWTP – Irrigation	100m from land used for wastewater irrigation (based on pathogen risk)
Pines WWTP biosolids land spreading	500m from land disposal area
RRRP – waste transfer operations	300m from facility
RRRP – composting	600m from active compost area
Tegel Poultry Operation	150m from sheds

- 12 With the exception of setbacks from the composting operation, I understand that the other setbacks are accepted as appropriate by Mr Bender, and Mr van Kekem also agrees that they are appropriate. Therefore, the remainder of my evidence focusses on appropriate setback from the composting operation at the RRRP.

COMPOSTING OPERATION AT RRRP

- 13 Composting of green waste and putrescible waste is carried out onsite using an open windrow system.
- 14 Consent has recently (May 3, 2021) been granted for a composting operation that can have inputs of up to 53,000 tonnes per annum (tpa) (CRC211594). This consent was granted on a non-notified basis as the effects were considered to be minor or less than minor on all nearby sites, including the Holmes Block. Mr van Kekem provided technical review of the application for Canterbury Regional Council (CRC). Condition 15 of CRC211594 states "*The discharge shall not cause odour or particulate matter (including airborne*

pathogens) which is offensive or objectionable beyond the boundary of the property on which the consent is exercised."

- 15 This is an increase from the 4,200 tpa previously assessed during the assessments I completed as part of the application. While I considered that there could be some level of increase within the existing footprint, this is a larger scale than I had anticipated.
- 16 As part of the increase, there were several conditions added to the consent, including an odour management plan (OMP) that sets out leachate and raw material management. There are key measures to mitigate odour included in the consent conditions and the OMP. These include:
 - **Leachate management systems.** It is understood that the ground is relatively free draining. Additionally, there are key measures in the odour management plan to prevent the build-up of runoff around the compost piles. This includes spacing between the piles and active management of the soakage pit and removal of standing water. Additionally, the site does not reuse the runoff water to maintain compost dampness, and this means there is no storage of leachate. This reduces the chance of anaerobic conditions and consequent odorous discharges occurring. This is a key mitigation measure that is expected to significantly reduce the potential for offsite odour.
 - **Area for active composting.** The height and width of the windrows and the location where active composting can be undertaken is set and this effectively limits the throughput of the operation.
 - **Process controls.** There are temperature monitoring and oxygen requirements of the windrows, as well as Carbon:Nitrogen ratios specified.
 - **Raw material control.** There are limits on material type, material acceptance criteria and time limits on the storage of raw materials.
- 17 Overall, there are several controls on the composting process that the resource consent decision concluded would reduce the likelihood of adverse effects during normal operation and minimise the risk of process upsets that result in offsite odour. Overall odour effects were concluded to be less than minor during the application process.
- 18 Based on my understanding and experience of the activities at the RRRP, and a review of three Australian EPA buffer criteria, I considered a buffer distance of 600 m from the active composting

area for the RRRP composting operations was appropriate for the 4,200 tpa throughput.

- 19 Mr Bender has raised concerns with the assessment of the composting operation relating to the recent expansion and whether the 600 m buffer is still appropriate. Mr Boyd and Mr Bender have identified that for the increased operation, using Victoria EPA guidance a 2000 m distance is calculated and other Australian state guidance documents indicate around 1000 m.
- 20 The Australian buffer guidance for this throughput is between 1,000 m and 2,000 m, depending on which state's guidance documents are considered. I agree with Mr Bender's statement in Paragraph 23 where he states: *"It is noted that the separation distances are guidelines only and lower separation distances may be adequate depending on other factors such as the specific makeup of organic waste, procedures for ensuring the waste remains aerobic, and FIDOL criteria such as the prevalence of winds which may carry odour from the composting site toward the sensitive locations."*
- 21 Due to this change in scale, I have considered whether a 600m buffer is still appropriate. I have considered this from two aspects:
 - 21.1 the potential for offsite odour effects; and
 - 21.2 whether the Holmes block rezoning (with dwellings beyond 600 m) increases the sensitivity of the compost operation receiving environment.
- 22 The consented turned windrow system is a low technology system that has a higher risk of upset conditions compared to, for example covered forced aeration systems. Countering this, as I have discussed in Paragraph 16, there are several mitigation measures that are now included in the consent that provide further confidence in the management and potential of offsite odour. Mr van Kekem has expanded on this, based on his experience with the site. I have only been able to undertake a desktop based assessment of the composting operation.
- 23 I have reviewed the application, conditions of consent, including raw material inputs and the existing receiving environment and on balance consider that at consented throughput, there is likely to be observable odour on occasions beyond the RRRP site boundary, and on occasions it is possible that this may cause an offsite effect that is more than minor. For the current receiving environment as the composting operation increases in scale to its consented limit, it is my opinion that further onsite mitigation at the RRRP (and as required by

the conditions of CRC211594) is likely to be required to ensure acceptable offsite effects.

CHANGES TO THE RECEIVING ENVIRONMENT

- 24 As part of the SDC assessment of effects of the recent expansion of the composting operation (CRC211594), the existing receiving environment was considered. The existing environment includes both the existing houses and those that can be established (including those under the Living 3 zoning of the Holmes Blocks).
- 25 There are currently two existing houses within 600 m of the composting plant, and using the currently operative ODP for the Living 3 zoning, 4 more houses could be established on the Holmes block within this distance. This proposal would remove the allowance for those unbuilt houses within 600m.
- 26 When considering the area within 650m of the composting operation, current zoning allows for up nine houses (three existing and six that can be established). Based on a review of possible subdivision plans for the Holmes block if rezoned, the proposal will provide for approximately 29 dwellings (between 600 and 650 m). If a 700m distance is considered, the number of houses increase to 14 (current) and approximately 68 (proposed).
- 27 A summary of existing, current potential and proposed dwellings are provided in Table 1 below. The images at **Appendix 1** (Figure 2 and Figure 3) show the dwellings in the current ODP and the indicative ODP respectively.
- 28 I have considered the number and location of houses currently allowed under the existing ODP, and those proposed under this plan change application. On balance, I consider that the proposal does not change the receiving environment from that which is currently established or can be established under the current plan zoning.
- 29 This is primarily due to:
 - 29.1 The increased distance provided by this proposal, i.e no houses within 600 m.
 - 29.2 The existing environment already has a number of houses on the Holmes Block allowed for so that there is high sensitivity to odour effects (due to the residential nature of the activity), the proposed additional dwellings does not change this.

29.3 Living 3 zone amenity expectations are not substantially different to Living Z zone amenity expectations. Mr Van Kekem covers this further in his paragraphs 37 to 42.

- 30 Therefore, I consider the requirement of the composting facility to avoid offsite odour effects is dictated by the existing environment. This proposal (including the proposed 600m setback) is not a substantial change to that environment that would require further mitigation should upset conditions occur (noting that this would be a breach of Condition 15 of CRC211594 whether the proposed plan change is granted or not).

Table 1: Current and Proposed number of dwellings compared to distance to active composting area.

Distance from active composting area	Number of existing dwellings	CURRENT (Living 3 Zone) Number of potential land blocks / dwellings	PROPOSED (Living Z Zone) Approximate number of potential land blocks / dwellings
Within 600 m	2	4 dwellings	0
Within 650 m	3 (inclusive of the above 2)	6 (inclusive of the above 4)	29
Within 700 m	4 (inclusive of the above 3)	10 (inclusive of the above 6)	68 (inclusive of above 29)

MR BOYD'S SECTION 42A REPORT

- 31 Mr Boyd raises a number of issues including the use of the 4,200 tpa as the current throughput, the character of odour from compost and the receptor density.
- 32 Regarding the assumption of 4,200 tpa, it is appreciated that the current operation is higher than assumed in our assessment. As was clearly stated, our assessment was based on what we considered to be the consented capacity. As I have discussed above, a new consent (CRC211594) has been issued that allows for throughput of 53,000 tpa and in this evidence I have considered reverse sensitivity effects on this basis.
- 33 I agree with Mr Boyd that the character of fresh aerobic compost is similar to silage odour. This tends to be a low intensity odour that

dissipates relatively quickly from the composting location. However, in my experience, odour effects from composting are usually related to anaerobic type odours due to anaerobic leachate or anaerobic compost, particularly during turning. This odour is not consistent with rural odours and good management practices and as set out in the RRRP management plan, SDC are required to minimise the risk of these odours.

- 34 Therefore, after considering Mr Boyd's concerns, I still consider the 600 m buffer does not increase the sensitivity of the receiving environment and therefore is still an appropriate setback distance. Mr Van Kekem agrees with this position.
- 35 Regarding where the setback should be measured from, I have measured it from the active composting area as this is the area associated with the most risk of odour. The adjacent location of the mature compost area means that this setback also covers the reduced odour risk from the mature compost area. I note Mr Bender and Mr van Kekem agree with measuring from the active area.

SUBMISSIONS

- 36 Finally with regard to submissions, I have been provided with a copy of a submission from Jason Horne and I understand this to be the only submission that mentions odour. This submission raises concerns about existing odour from the Tegel farm and more generally rural type odours. The submitter raises concerns regarding the houses sitting close to existing chicken sheds. I have considered this submission and I consider the methodology relied on by Golder (Golder 2020), and a recommended buffer distance of 150m to be appropriate.

SUMMARY CONCLUSION

- 37 The majority of the findings of Mr Bender are consistent with my own assessment. With the exception of composting setbacks, Mr Bender has concurred with all other setbacks.
- 38 I agree with Mr Bender that upset conditions are the most likely conditions when offsite odour may occur. However, as I have discussed earlier, I consider that the management plan required by the conditions of CRC211594 will reduce the risk of these.
- 39 The increased density of housing may potentially result in additional complaints. However, if there is odour offsite, the risk of complaints is being reduced by the increase in distance to the nearest dwelling.

- 40 In the event that there are odour effects offsite, as I have discussed in paragraphs 0 to 30, the existing (current zoned) environment is equally or more sensitive (due to potentially closer houses) to these odour effects than the proposed zoning. Therefore I consider that any reverse sensitivity effects are mitigated by the proposed setback distances.

Dated: 13 September 2021

Cathy Nieuwenhuijsen

References

Golder, 2008. Rolleston Odour Assessment prepared by Golder Associates (NZ) for Selwyn Plantation Board Limited. Golder report reference number: SELPL-CHC-004

Golder 2020. Review of odour effects relating to Holmes and Skellerup Blocks – Rolleston West Plan Change, 11 November 2020.

Golder 2021. Response to request for further Information - PC00073 – Private Plan Change Request To The Operative Selwyn District Plan From Rolleston West Residential Limited In Rolleston, 1 February 2021.

Environmental Protection Authority Victoria, 2012. Draft guidelines for separation distances for composting facilities, EPA Victoria Publication 1445, 2012.

Environmental Protection Authority Victoria, 2017. Designing, Constructing and Operating Composting Facilities: Guideline. Publication 1588.1, June 2017.

Environmental Protection Authority South Australia, 2019, Evaluation Distances for Effective Air Quality and Noise Management. Issued August 2016, Updated March 2019.

Australian Capital Territory, 2018. Separation Distance Guidelines for Air Emissions. November 2018.

APPENDIX 1





