

Before the Selwyn District Council

under: the Resource Management Act 1991

in the matter of: Proposed Private Plan Changes 81 and 82 to the
Operative District Plan: Dunns Crossing Road, Rolleston

and: **Rolleston Industrial Developments Limited** and
Brookside Road Residential Limited
Applicant

Supplementary evidence of Donovan Van Kekem (Odour)

Dated: 24 November 2022

Reference: JM Appleyard (jo.appleyard@chapmantripp.com)
LMN Forrester (lucy.forrester@chapmantripp.com)

chapmantripp.com
T +64 4 499 5999
F +64 4 472 7111

PO Box 993
Wellington 6140
New Zealand

Auckland
Wellington
Christchurch



SUMMARY OF EVIDENCE OF DONOVAN VAN KEKEM

- 1 My full name is Donovan van Kekem. I am the managing director of NZ Air Limited. My qualifications and experience are detailed in my evidence in chief.
 - 2 In this evidence I provide a response to the evidence¹ Mr Andrew Curtis presented in the hearing for the Proposed Plan Changes PC81 and PC82.
 - 3 Mr Curtis has replaced Mr Chris Bender as the air quality expert reviewer for Selwyn District Council (*SDC*) due to Mr Bender's lack of availability for the hearing and other proceedings in coming months. In the hearing Mr Curtis provided his own expert opinions as to the potential for odour and dust reverse sensitivity effects on the Pines Wastewater Treatment Plant (*PWTP*) and Pines Resource Recovery Plant (*PRRP*) composting operation as a result of the proposed PC81 and PC82 developments.
- The Pines Wastewater Treatment Plan**
- 4 Mr Curtis states in Paragraph 6.4 of his evidence that he considers that the proposed 1,000 m setback distance between PC81/82 and the PWTP is sufficient. As all of the experts agree on this point I have no further comment on the potential for reverse sensitivity odour effects on the PWTP operations as a result of the proposed PC81/82 development.
- The Pines Resource Recover Park**
Perceived effects and reverse sensitivity
- 5 Mr Curtis appears to consider that reverse sensitivity can occur based on "perceived" odour effects. To support this premise in paragraph 4.2 of his evidence Mr Curtis has quoted the proposed definition of reverse sensitivity in the proposed Selwyn District Plan.
 - 6 My understanding is that this proposed plan has no legal standing at this point and therefore the definition cannot be enforced as a part of these proceedings. I note that other definitions of reverse sensitivity do not include 'perceived' effects.
 - 7 Ms Appleyard will describe in legal submissions what reverse sensitivity effects are. I am of the view that the threshold for assessing the potential for reverse sensitivity odour effects on the PRRP composting operation is not that there be no observable odour, but that there is odour which could result in annoyance or an offensive or objectionable effect. Any future odour complaint would

¹ Summary Statement of Andrew Curtis - In the matter Requests by Rolleston Industrial Developments Limited and Brookside Road Residential Limited to rezone land in Rolleston (PC81 and PC82)

need to be valid, i.e. not vexatious or from a perceived or imagined effect.

Odour complaints

- 8 Environment Canterbury is the regulatory authority which has the responsibility for investigating the validity of any odour complaint in the Canterbury region. Environment Canterbury has published criteria for “*determining whether or not a discharge of odour from an activity is likely to, or has caused “offensive or objectionable” effects beyond the property boundary*”² in Schedule 2 of the Canterbury Air Regional Plan (CARP).
- 9 This criterion involves undertaking a FIDOL³ assessment. FIDOL assessments are used both to assess the validity of an odour complaint(s) and to assess the potential for adverse odour effects from any given odour discharging activity.
- 10 Odour complaints are the reverse sensitivity effect which could inhibit/constrain the PRRP composting plant operations. Therefore, in my opinion and experience, the CARP Schedule 2 criterion, which is explicitly used for assessing complaints by Environment Canterbury’s enforcement team, is the most applicable bar against which we should be assessing potential reverse sensitivity effects, rather than a ‘perceived’ effect.

No complaints covenants

- 11 Mr Curtis has concerns that the increased density of sensitive receptors beyond 600 m and within 1,000 m will increase the risk that there are complaints. He appears to consider that the proposed no complaints covenants will have little effect at reducing the potential for complaints to occur within this buffer distance.
- 12 I disagree with this. Ms Appleyard considers no complaints covenants further in her submissions and how they can be used effectively to provide an additional layer of protection against potential reverse sensitivity effects. I also consider that these covenants will reduce the potential for hypersensitive individuals to be present within 1,000 m. By definition, these no complaints covenants seek to reduce/eliminate complaints, which are the subject of the potential for reverse sensitivity effects in this hearing. They also alert potential prospective purchasers to the presence of the PRRP and the possibility that odour may from time to time be experienced.

² Page 8-8 of Schedule 2. Canterbury Air Regional Plan - Te mahere ā-rohe mō te hau o Waitaha 2017

³ Frequency, Intensity, Duration, Offensiveness and Location

Where should the setback be measured from?

- 13 Mr Curtis has expressed his opinion that a 1,000 m set back distance should be measured from the PRRP active composting area and the maturation area (paragraph 5.4 of Mr Curtis' evidence). However, there is some inconsistency in where Mr Curtis considers the separation distance should be measured from. In paragraph 7.3 of Mr Curtis' evidence he states that the separation distance should be from the property boundary.
- 14 There is a small difference (10 - 30 m) in these two starting points (maturation area or property boundary). Currently this space is planted by a pine shelterbelt on the southern boundary and a native planting area on the eastern boundary.
- 15 I consider that it is not appropriate to measure the separation distance from the property boundary as odour producing activities do not extend to the property boundary. Rather the most appropriate point at which to measure a separation distance is the nearest extent of the odour producing activity (which is well defined in the current PRRP air discharge consent as being the active composting area, not the maturation area or property boundary).
- 16 The closest point of the maturation area to the closest proposed sensitive receptor within PC82 is approximately 545 m.
- 17 I fundamentally disagree with Mr Curtis's assertion that odour discharges from the maturation area have the potential to result in reverse sensitivity effects within 1,000 m of the maturation area. Whilst I agree with Mr Curtis that odour discharges from turning and screening mature compost do occur, these are at a much lower intensity and of a weak musty earthy character, which is less offensive to the general population. This type of odour is consistent with what I observed during my PRRP site visit when I was acting as the Environment Canterbury technical peer reviewer for the recent air discharge consent application. Given the low intensity of these odour emissions I do not consider that the resultant odour plume from the maturation area will extend to and be detectable within any part of PC82 (approx. 545m away).
- 18 In addition, I note that in SDC's application for its air discharge consent all separation distances on all the figures were measured from the active composting area and odour discharges from the maturation area were disregarded for the same reasons I have outlined above and in my evidence in chief. Similarly, the ODMP measures separation distances from the active composting area and focuses on management of odour from the receivals/mixing and active composting areas. There is no discussion of odour discharges from the maturation area in the ODMP.

Forced aeration composting

- 19 Mr Curtis also comments in paragraphs 8.14 and 8.15 of his evidence that should the site operations move to a forced aeration composting method that odour discharges from the maturation area could increase. If the use of a forced aeration composting method were to be used on the PRRP site, this would in my opinion reduce the potential for odour effects beyond the boundary of the site. This composting methodology (forced aeration) is considered to be a better methodology and have lower odour emission rates overall (primarily as a result of the ability to treat odour discharged from the active composting phase via a biofilter). This is supported by a number of publications, including published separation distance guides (i.e. the VIC EPA recommended separation distances half from 2,000m to 1,000m and the Netherlands recommended separation distances reduce from 700 m to 200 m).
- 20 In paragraphs 124 – 139 of my evidence in chief I discussed other composting operations in New Zealand and assessments which have been undertaken at these facilities. I note that assessments at composting operations which use forced aeration have concluded that odour is not observable beyond ~200 m of this type of operation. Whereas assessments at facilities which use open windrow composting operations have observed odour out to ~400 m from the site.
- 21 I agree with Mr Curtis that there is the potential that there could be an increase in the odour emissions from the maturation phase of compost produced in a forced aeration operation (primarily due to the shorter active composting timeframes). However, there are odour control methodologies to minimise odour emissions from this maturation process which can and are employed at forced aeration composting sites. Furthermore, there is no knowing how the site might be reconfigured to accommodate such a change in composting methodology (including the location of the maturation piles), so assessing the theoretical potential for odour effects beyond the boundary of the site from such an operation is artificial.

The odour scouting survey

- 22 Mr Curtis also commented on the relevance of the odour scouting survey in paragraph 6.22 of his evidence. He considers that as the PRRP composting plant is only operating at ~16% of its consented capacity the odour scouting survey does not provide *“any useful information on the future odour potential from the site”*.
- 23 I disagree with this. Much of the odour scouting surveys were undertaken directly downwind of the raw materials receivals area, the area where new/fresh windrows are formed and the area where immature windrows are formed (i.e. the southwestern corner of the site). Furthermore, some surveys were undertaken whilst windrows were being turned. The experts have agreed that the forming and

turning of active windrows is the activity which has the highest potential to discharge odours from the site. Therefore, I consider that the length of the odour plume from these activities is directly relevant to the potential for odour effects beyond the boundary of the site.

- 24 As I describe in my evidence in chief, I consider that there will be an increase in the frequency and duration of odour discharges from the site (primarily due to more frequent blending of feedstocks and more frequent turning of windrows). However, I consider that it is unlikely that there will be a significant increase in the intensity of odour discharged from the site (particularly at distance from the site). This is based on my understanding that it is not proposed that there will be concurrent turning of windrows when the site is at peak capacity (i.e. there will still only be one loader turning windrows, not multiple loaders) and that there will still only be one shredder operating on the site.

Wind conditions

- 25 Mr Curtis comments on the potential that the site will need to turn windrows during westerly wind conditions (I'm assuming he is including north westerly conditions as this is the direction under which the nearest point of PC82 is downwind). He considers that it is possible that the site will need to turn the windrows during wind conditions that blow towards PC82. Particularly in the future when there is a requirement for more frequent turning activities as the rate of composting on-site increases.
- 26 Mr Curtis and Mr Boyd have commented on the use of the word "avoid" when referring to turning windrows under certain wind conditions.
- 27 Whilst I accept that there may be occasions where persistent incompatible weather conditions may result in the site finding it difficult to avoid turning the windrows during wind conditions which blow towards PC82, I consider that this will be a very rare/infrequent occasion. Once again SDC proposed these restrictions as a part of its consent application and considered at the time that even at the full capacity avoiding turning the windrows during these wind conditions was practical. I am unsure why SDC and its experts are now stating that this may be impractical.
- 28 In the hearing there was discussion about the effect of the pine plantation. Mr Curtis has stated in paragraph 6.26 of his evidence that he does not consider that the presence of the pine plantation can be relied on to provide additional dispersion of the odour plume (as it may be harvested in the future). As I stated in the hearing the presence of the pine plantation is a nice to have, in that it does provide the benefit of additional dispersion of the odour plume, but not mandatory for my conclusions to remain valid.

29 Mr Curtis also commented on the frequency of winds blowing towards PC82 in paragraph 6.27 of his evidence. The Burnham wind data shows a lower average wind speed distribution than other weather datasets in the vicinity of the site. This is likely to be a result of observations made on a shorter mast (i.e. a 6 m mast as opposed to a 10 m mast). I consider that Mr Curtis' comment that low windspeeds from the northwest occur 18% of the time to be misleading. The Lincoln EWS dataset shows that westerly - north westerly (W, WNW and NW) winds below 3 m/s only occur ~5% of the time. For the Christchurch aero dataset this is 8% of the time. Whilst I agree that there may be some local variance in the wind conditions between Rolleston and Lincoln/Christchurch Airport, I consider that the Burnham windspeed data needs to be analysed with caution.

Increasing capacity at the PRRP

30 Mr Curtis also comments in paragraph 8.7 that he considers that with an increased proportion of food waste potentially being incorporated into the composting operation in the future that there may be a requirement to turn more frequently. I disagree with this as the ODMP stipulates different mix ratios (including for food waste) to ensure that the optimal C:N ratios are maintained. With consistent C:N ratios the frequency of turning should remain similar.

Chronic effects

31 Mr Curtis appears to consider that there is a risk for chronic effects in PC82 within 1,000 m as a result of frequent low intensity exposure to odour from the normal operation of the PRRP composting plant. Based on my recollection of the proceedings to date (including those for PC73), this is at odds to the expert opinions of all of the other air quality experts. My understanding is that all experts (with the exception of Mr Curtis) consider that during normal operations there will not be adverse odour effects beyond 600 m from the composting operation and that the primary concern is the potential for 'upset conditions' resulting in adverse effects beyond 600 m.⁴

32 For the reasons I outlined in my evidence in chief I do not consider that there will be chronic effects within PC82. I consider that any observable odour in PC82 will occur infrequently and for short durations. I also consider that it will be unlikely that there will be hypersensitive individuals within these nearest points to the PRRP composting operations as a result of the proposed no complaints covenants. Therefore, it is unlikely that any observable odour will result in complaints/reverse sensitivity effects on the PRRP composting operations.

⁴ Refer to Commissioner's recommendation on Private Plan Change 73 dated 1 March 2022, at [163] and [210].

Enforcement of complaints

- 33 In the unlikely event that complaints are received these will be investigated by Environment Canterbury and any commitment of time by SDC will be limited. It is my expert opinion that should the PRRP composting operation be operating in accordance with its consent conditions and the ODMP and a complaint occur within PC82, that the odour observed will not be deemed offensive or objectionable by Environment Canterbury when assessed against the FIDOL criteria in Schedule 2 of the CARP.
- 34 Whilst Environment Canterbury is not bound by the no complaints covenants at these nearest receptors, it is my opinion that its compliance team will have to take into account the covenants when assessing the level of nuisance effect (particularly when considering the relative sensitivity of the receiving environment). Residents living in this area have been forewarned that they may experience odour from time to time. In my professional opinion such observable odour would occur rarely, be of a low intensity, and be of a short duration (if at all).

Other examples

- 35 In paragraph 6.16 Mr Curtis uses the Uruti composting facility as an example to support his assertions that even when composting operations are running well, complaints can occur. I consider that the Uruti composting operation is a poor example, as this facility has a track record of very poor composting practices and numerous breaches of consent. The site has been subject to infringement fines and abatement notices for illegal discharges to water and to air. In my opinion the complaints record for this site is not a good representation of the potential for effect from the PRRP composting operation.
- 36 I agree with Mr Curtis that upset conditions (referred to as industrial residual air emissions (IRAEs) in Mr Curtis's evidence), can occur even in well run composting operations as a result of unforeseen circumstances.
- 37 However, for the reasons I have outlined in my evidence in chief I consider that these will be very rare and there is a very low potential that they would result in offensive or objectionable odour in PC82. If such an effect was to occur, it would be a breach of a number of conditions in SDC's existing air discharge consent relating to on-site procedural requirements. Furthermore, the presence of existing sensitive receptors along Brookside Road closer (closest being ~555 m from the active composting area) to the PRRP composting operations means that an adverse effect/breach of the consent is likely to occur if PC82 was established or not.

Leachate collection

- 38 Mr Curtis appears to disagree with me that the absence of leachate collection and treatment on-site is a significant factor in reducing the potential for upset conditions. Based on my experience with other composting operations across New Zealand, there are three primary sources of odour discharges which result in offensive or objectionable effects beyond the boundary of the site. These are; acceptance and processing of rotten feedstock, anaerobic conditions in the compost, and anaerobic conditions in the leachate. Removing one of these three potential causes is in my opinion a significant reduction in risk and an important factor supporting the proposed reduced separation distance.

Separation distances

- 39 The published separation distances take into account the potential for upset conditions (or IRAEs), the furthest extent that odour from these events could travel, and the likelihood that they would result in an adverse effect.
- 40 In paragraph 6.7 of Mr Curtis's evidence, he quotes that the VicEPA guidance allows for reduced separation distances where site specific IRAEs have been assessed. I have undertaken such an assessment which is presented in my evidence in chief and have determined that for the PRRP composting operations there is sufficient evidence to support a reduced separation distance (in this case 600 m).
- 41 In addition to all of the above, I note that SDC has a \$1.85M "Reconnect Project" underway at the PRRP. This Reconnect Project includes an education centre, micro enterprise units, a reuse shop, a garden hub and a small café. All of these facilities are planned to be located on the PRRP site (near the site entrance, within 100 m of the active composting area). In my opinion these facilities would constitute a sensitive environment, which SDC would not invest substantive amounts of money into if it considered there was a risk of nuisance odour emissions adversely affecting the use of these facilities. Given the proximity of the composting operations to this development, it is my opinion that should nuisance odours be able to be avoided within this development they most certainly will be avoided at 600 m from the operation. This is due to the fact that odour intensity/concentrations decrease exponentially from the source.

Comments on Mr Boyd's summary statement

- 42 Mr Boyd produced a summary statement to support his presentation at the hearing. I have the following comments in relation to Mr Boyd's statements.
- 43 Mr Boyd provides a number of reverse sensitivity examples in paragraphs 11 -14 of his evidence. I consider that caution needs to be applied when comparing reverse sensitivity effects which have

occurred at other facilities against the potential for such effects to occur as a result of the proposed PC81 and PC82 development. Each facility/case is different and has its own unique and site specific air discharges, mitigation measures, receiving environments, and district planning provisions.

- 44 In paragraph 21 (and repeated in paragraph 28) Mr Boyd comments on a statement I made in my evidence in chief regarding the risk factors of the compost feedstocks. Whilst I agree with Mr Boyd that food waste is a medium – high risk feedstock, food waste is a small proportion (less than 10%) of the feedstocks composted at PRRP. Greenwaste is the primary constituent of the compost feedstock which is a low risk feedstock. Therefore, on balance, the composting feedstocks at PRRP have a low risk factor relative to other composting operations, which can include higher risk feedstocks such as animal manure, paunch, animal skins, biosolids, fish by products, etc.
- 45 Mr Boyd also comments on the complaint record at Intelligro. My comments on the complaint record regarding Intelligro’s operations were based on the record I had to hand at the time of my technical reviews on behalf of ECAN. I have now obtained an updated complaint record for the last five years of operation.
- 46 There have been 21 complaints recorded in ECAN’s records over the last five years. Of these, there are four recorded site visits by an ECAN enforcement officer. Of these four visits odour was detected beyond the boundary on two occasions. Once it was a pleasant woodchip smell and the other time composting related odour was observed by the compliance officer but it was deemed to not be offensive or objectionable.
- 47 Whilst ECAN is receiving complaints, as none of these complaints are being verified there is little impact on the composting operator’s operations. Much of the complaint investigation is being undertaken by ECAN, and the site’s compliance with its consent conditions is only being further upheld by the ECAN records.
- 48 I consider that the point I was trying to make in my evidence, that a composting operation similar to that undertaken at PRRP can be undertaken without generating adverse effects beyond 600 m is still supported by the Intelligro example (where there are 12 dwellings within 250 m of the site).
- 49 My final comment on Mr Boyd’s statement is in regard to his comments in paragraph 31. Mr Boyd discusses a technical assessment I undertook on behalf of Envirofert where I supported a 1,000 m setback. The reason for my conclusions in this instance was based on the fact that there are no sensitive receptors within 1,000 m of the site, therefore I considered that the existing

separation distances are sufficient for that operation. I also want to point out that my assessment of potential effects was based on the proposed operation of the Envirofert site. The Envirofert site has a number of legacy issues which it is dealing with as it redevelops the site (there are a number of very big changes being made to the site design and operations). There is also an active landfill on the site which has had some historic odour discharge issues which are also being addressed by Envirofert. I don't believe complaints which are occurring during these site improvements and as a result of the landfill are a valid comparison to the PRRP operations.

- 50 In conclusion, I continue to stand by the conclusions I have presented in my evidence in chief despite the opinions expressed, and additional information presented, by Mr Curtis and Mr Boyd.

Dated: 24 November 2022

Donovan van Kekem