Before an Independent Hearings Panel

The Proposed Waikato District Plan (Stage 1)

IN THE MATTER OF the Resource Management Act 1991 (**RMA**)

IN THE MATTER OF hearing submissions and further submissions on the Proposed Waikato District Plan (Stage 1): <u>Topic 25 – Zone Extents</u>

PRIMARY EVIDENCE OF ANDREW FERGUSON CURTIS ON BEHALF OF HAVELOCK VILLAGE LIMITED

17 February 2021

BUDDLEFINDLAY

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1. SUMMARY OF EVIDENCE

- 1.1 My full name is Andrew Ferguson Curtis. I am Technical Director Air Quality at Pattle Delamore Partners, with over 30 years' experience and have specialised for over 24 years in air quality.
- 1.2 I am providing evidence in relation to potential air quality related reverse sensitivity effects in relation to proposed rezoning sought by Havelock Village Ltd ("HVL")¹ of land at 5 Yashili Drive, 88 Bluff Road, 242 (in part) and 278 Bluff Road, Pokeno ("the Site").
- 1.3 HVL is proposing to incorporate a Pokeno Industrial Buffer² on the Site, to provide separation between industrial activities and sensitive land uses.
- 1.4 While this buffer is less distance than that proposed by some submitters, it is my opinion that the proposed buffer is appropriate to ensure that lawfully established activities within both the Industrial and Heavy Industrial zoned land do not experience potential reverse sensitivity effects from any residual air discharges they may emit from sensitive activities located within Site that forms part of the rezoning proposed by HVL.
- 1.5 This level of separation is better than that proposed in the PWDP for the other boundaries with the industrially zoned land.

2. INTRODUCTION

- 2.1 My full name is Andrew Ferguson Curtis. I am Technical Director at Pattle Delamore Partners specialising in Air Quality. I am a Chemical Engineer with over 30 years' experience and have specialised for over 24 years in air quality, providing advice to clients in New Zealand, Australia and overseas.
- 2.2 I have Bachelors' Degree in Chemical and Materials Engineering from Auckland University, a Post Graduate Certificate in Sustainable Management from the Open Polytechnic, and a Post Graduate Diploma in Toxicology (with Distinction) from RMIT University. I am a member of the Clean Air Society of Australia and New Zealand and Certified Air Quality Professional and an approved Resource Management Act Hearing Commissioner.
- 2.3 I have extensive experience in dealing with the issue of reverse sensitivity as it relates to air quality, with some of my recent experience as follows:

¹ Submitter 862 and further submitter 1291.

² Refer proposed Rules 16.3.9.2 P2 and 16.4.12 RD2 in the evidence of Mr Tollemache

- (a) Preparing an assessment for Villa Maria on the potential for reverse sensitivity impacts as a result of a proposed private plan change in Auckland.
- (b) Preparing reports and evidence on the potential reverse sensitivity issues associated with establishing a child care facility adjacent to an industrial area.
- (c) Presenting evidence to a council hearing and the Environment Court on the potential reverse sensitivity issues associated with establishing industrial units incorporating worker accommodation within a Light Industry zone.
- (d) Preparing reports and evidence in relation to the air quality implications, and in particular, potential for reverse sensitivity effects from rezoning of rural land on the outskirts of Tuakau to residential.
- 2.4 I have been involved in the rezoning proposal by HVL since October 2020, when I was engaged to respond to submissions made on the Proposed Waikato District Plan ("PWDP"), that had potential to impact on HVL's rezoning proposal. Specifically, as discussed later in my evidence, these submissions sought to introduce separation distances between residences and industrial activities to manage the potential for reverse sensitivity effects on those industrial activities.
- 2.5 I visited the site and the existing Pokeno Industrial zone on 6 October 2020.

Scope of evidence

- 2.6 My evidence assesses the potential impact of the further submissions of Hynds and Synlait on the proposed rezoning sought by HVL³, as well as the potential for reverse sensitivity effects to occur if the proposed rezoning occurs.
- 2.7 My evidence relies on and should be read in conjunction with that of:
 - (a) Mr Mark Tollemache
 - (b) Mr Jon Styles
 - (c) Mr Ian Munro

³ Submitter 862 and further submitter 1291.

3. CODE OF CONDUCT

3.1 I have read the Environment Court's Code of Conduct for Expert Witnesses, and I agree to comply with it. My qualifications as an expert are set out above. I confirm that the issues addressed in this brief of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

4. SITE CONTEXT AND CHARACTERISTICS

- 4.1 The HVL proposal is described in the evidence of Mr Tollemache, and I do not intend to reiterate that here, other than noting that, in relation to air quality and reverse sensitivity the proposed rezoning includes a Pokeno Industrial Buffer around industrially zone land in Pokeno within which sensitive land uses are not permitted. This is in my opinion better than the notified version of Chapter 16 of the PWDP, which would permit sensitive activities to build in the existing residential developments adjacent to industrial activities in the Industrial⁴ Zone in Pokeno, which includes the Yashili Dairy factory.
- 4.2 The other aspect that is important from an air quality point of view is that the Site is located to the west of existing industry and is elevated. I will discuss the importance of these two points later in my statement.
- 4.3 Finally, HVL has proposed separation distances for noise purposes (refer evidence of Mr Styles) that are greater than the separation distances between existing residences and much of the existing industrial activities. This can be seen on Figure 1 (Operative Plan) and Figure 2 (PWDP). HVL is consequently proposing a level of protection that is comparable with or better than that previously considered acceptable within this part of Pokeno.
- 4.4 One of the aspects of the local area that is important when considering the potential for air quality effects, especially those associated with odour and dust is meteorological conditions.
- 4.5 As far as I am aware there is no publicly available meteorological data for Pokeno, with the closest data in Patumahoe approximately 15 kilometres to the northwest. Given the differences in topography and the high percentage of low wind speeds measured at that location, I have some concerns about how applicable the data is to Pokeno.

⁴ Zoning term used in the Operative Waikato District Plan (which equates to the proposed Light Industrial Zone in the PWDP).

- 4.6 Therefore, I extracted a wind rose from a CALMET dataset⁵ developed by Auckland Council, which I have attached as Figure 3, and a have provided a breakdown of the wind frequencies in Table 1.
- 4.7 The wind rose indicates that the predominant winds are likely to be experienced from the southwest, including the majority of the lower speed winds (less than 3 m/s) that are generally associated with carrying odour and higher wind speeds (greater than 5 m/s) which are generally associated with dust nuisance. These high percentages are not surprising given the topography and the significant elevation change (approximately 90 metres at its highest) between the Site and the industrial land to the northeast.

Table 1: Wind Speed Frequency Distribution				
Direction	Windspeed (m/s)			
	0-3	3-5	>5	I Otal (%)
North	2.7	2.0	0.4	5.2
North northeast	3.1	2.1	0.8	6.0
Northeast	2.8	2.2	1.7	6.7
East northeast	6.2	2.0	1.3	9.5
East	3.0	1.5	0.9	5.4
East southeast	1.1	0.9	0.5	2.6
Southeast	0.4	0.7	0.4	1.4
South southeast	0.7	0.5	0.3	1.4
South	0.9	0.3	0.1	1.2
South southwest	1.2	1.5	0.6	3.2
Southwest	2.1	4.8	4.3	11.1
West southwest	9.2	4.2	3.7	17.0
West	4.5	3.2	2.6	10.3
West northwest	3.0	1.8	1.6	6.4
Northwest	2.4	1.9	1.0	5.4
North northwest	2.3	1.4	0.2	3.9
Notes: Calms 3.2%				

4.8 Finally, I have considered what degree of separation currently exists between residential properties or activities that may be sensitive to air discharges and existing industrial areas.

⁵ This CALMET data set incorporated information from a wide range of monitoring sites in the Auckland region and is used for dispersion modelling.

- 4.9 The area immediate (within 20 metres) to the northwest of Yashili Drive bounding the Industry Zone is residential, as are the areas bounded by Hitchen Road and Gateway Park. In other words, there does not appear to be any allowance for any form of separation between these two zones.
- 4.10 There is also no separation, other than the North Island Main Truck Railway, between the Heavy Industrial Zone and the area of land bounded by McDonald and Averill Roads. This land is zoned Business in the PWDP and as I discuss later a wide range of sensitive activities, including residential, are permitted within it.
- 4.11 Finally, I note that the Yashili Dairy factory is located within the Industrial zone, and is approximately 250 metres from existing and proposed houses, and has not had any reverse sensitivity issues⁶, with the other large industrial activities Synlait and Hynds further from the existing houses (approximately 500 and 590 metres respectively).
- 4.12 I also understand that the consented Pokeno Nutritional Plant Ltd will also be located within the Industrial Zone and be located in the order of 100 metres from the nearest residence.

5. WHAT IS REVERSE SENSITIVITY

- 5.1 One of the key issues that has been raised in some of the submissions is reverse sensitivity, and the need to have appropriate separation between residential and industrial areas to avoid the potential for reverse sensitivity effects.
- 5.2 There is no definition of reverse sensitivity in the PWDP, and as it is one of the keys to dealing with submissions in relation to Pokeno is important to understand what it means.
- 5.3 There is a definition⁷ in the Franklin section of the Operative Waikato District Plan which states:

REVERSE SENSITIVITY is used to refer to the effects of the existence of sensitive activities on other activities in the vicinity, particularly by leading to restraints in the carrying on of those other activities. An example of reverse sensitivity would be where the establishment of an educational facility in proximity to a long established manufacturing plant caused the closure of the manufacturing plant as a result of the adverse effects of odour and noise.

⁶ Email from WRC dated 17 February 2021, confirmed that there was only one air quality related complaint for Yashili, which was investigated and not substantiated, and none for either Synlait or Hynds.

⁷ Operative Waikato District Plan, Franklin Section, Part 50 Definitions

- 5.4 This definition is generally acceptable, although I do note the following in terms of my understanding of reverse sensitivity effects:
 - (a) It is normally the introduction or intensification of sensitive activities near existing lawfully established effects-generating activities which may give rise to reverse sensitivity effects, rather than the "existence" of the sensitive activities. For example, the establishment of a new industrial activity near existing residential activity, giving rise to complaints from those existing residents, is **not** an example of reverse sensitivity.
 - (b) The example attached to the definition, while consistent with the above, provides a very black and white picture of the potential results, which I do not consider is always appropriate. Resolving reverse sensitivity effects can include a requirement for the existing activity to introduce or upgrade control equipment on the effects-generating activities or introduce other controls or restrictions, rather than requiring the outright cessation of the activity.
- 5.5 Further, in New Zealand all discharges to air from industrial or trade premises are prohibited by Section 15 (1)(c) of the Resource Management Act 1991 (RMA) unless they are expressly allowed by a national environmental standard or rule in a regional plan or a resource consent. Section 15 subsections (2) and (2A) similarly deal with discharges from other sources.
- 5.6 Consequently, if an industrial or trade premises had a discharge that was not consented or it was not complying with its resource consent in relation to any air discharges, a requirement to cease or mitigate the effects of the discharge on sensitive activities nearby would also not comprise a reverse sensitivity effect because that requirement was not generated by the sensitive activity.
- 5.7 There is also a definition in the Waikato Regional Policy Statement⁸ which states:

Reverse sensitivity – is the vulnerability of a lawfully established activity to a new activity or land use. It arises when a lawfully established activity causes potential, actual or perceived adverse environmental effects on the new activity, to a point where the new activity may seek to restrict the operation or require mitigation of the effects of the established activity"

5.8 Given that this definition addresses the concerns I have outlined about I consider it is a better definition of reverse sensitivity.

⁸Waikato Regional Council Regional Policy Statement for the Waikato Region 4 December 2018

6. PROPOSED SEPARATION DISTANCE

- 6.1 HVL has proposed a set back within its property to minimise the potential impacts of noise from industrial activities on residences. This setback is shown on a figure attached to the evidence of Messrs Styles and Tollemache and ranges between 166 and 330 metres of existing industrial activities within the Industrial and Heavy Industrial Zones.
- 6.2 I have previously provided evidence⁹ that in my opinion a separation distance of about 150 metres is reasonable between residential activities and industry, to deal with the inevitable residual air discharges (dust and odour) that can occur, even for activities that are operating within the requirements of their resource consents.
- 6.3 The location of existing residences and industry in Pokeno appears to indicate that this distance may not be required in this instance or at least a decision has been made in the past that it is not necessary for the District Plan to expressly include such a separation distance. In my expert opinion it is appropriate to have some buffer between industrial activities and sensitive activities and the potential for reverse sensitivity effects is significantly reduced if there is a buffer. For that reason, the existing situation in Pokeno is not ideal.
- 6.4 I therefore consider there is considerable merit in having some separation and cannot see a reason why this distance needs to be greater than the 150 metres I have recommended elsewhere.
- 6.5 I understand HVL has proposed a buffer with a distance of between 166 and 330 metres from existing industrial activities to minimise the potential for noise impacts. This distance is greater than that I consider necessary for air quality related reasons (i.e. 150 metres) and so HVL's proposed setback will minimise the potential for residential activities to experience any air quality effects associated with industry, and consequently reduces the potential for reverse sensitivity effects to occur.

7. COMMENTS ON SUBMISSIONS AND RELATED EVIDENCE

Hynds

7.1 In its submission, and in planning evidence presented to Hearing 18, Hynds raised concerns about the potential effects of rezoning rural land adjacent to its site on its

⁹ Evidence prepared for 2 Sens Limited and Tuakau Estates (submission 299) Hearing 25, 17 February 2021.

ability to operate, and the potential for this to result in reverse sensitivity effects on its operations.

- 7.2 I have some sympathy for this concern, however, I do not agree from an air quality perspective with its proposed rule to impose a 500 metre buffer around the two sides of the Heavy Industry zone of the PWDP.
- 7.3 Firstly, as I outlined above all discharges to air are controlled by Section 15 of the RMA, and this means for activities in the Waikato, that in addition to requirements set out in the Operative Waikato District Plan or PWDP, there is also a need in accordance with the RMA for any activity with discharges to air to comply with the Waikato Regional Council's ("WRC") Waikato Regional Plan ("WRP"). Chapter 6 of the WRP sets out the rules relating to discharges to air.
- 7.4 Broadly speaking, the WRP is also permissive although it does set out in Rule 6.1.9.2 a non-exclusive list of industrial and trade premise activities which are discretionary.
 Based on my experience, the list includes all of the types of activities that are most likely to experience reverse sensitivity effects due to the types of discharges they emit.
- 7.5 However, the "manufacture of concrete" is specifically identified in the General Permitted Activity Rule (Rule 6.1.9.1 (26)) and therefore Hynds' operation does not require a resource consent for air discharges, unless it is not able to meet the standard conditions set out in Section 6.1.8 which are as follows:
 - there shall be no discharge of contaminants beyond the boundary of
 the subject property* that has adverse effects on human health, or the health
 of flora and fauna.
 - b the discharge shall not result in odour that is objectionable to the extent that it causes an adverse effect at or beyond the boundary of the subject property.
 - c there shall be no discharge of particulate matter that is objectionable to the extent that it causes an adverse effect at or beyond the boundary of the subject property.
 - d the discharge shall not significantly impair visibility beyond the boundary of the subject property.
 - e the discharge shall not cause accelerated corrosion or accelerated deterioration to structures beyond the boundary of the subject property.

- 7.6 Given that these standards are required to be met at the property boundary, there should be no adverse effect on human health and no offensive or objectionable odour or dust effects occurring off-site if the activity is operating within the standard conditions, and consequently no potential to experience reverse sensitivity effects from activities that may be located beyond the site boundary.
- 7.7 In addition, condition k in Hynds land use consent (FLUCL08196) states:

The consent holder shall carry out all operations on the site in such a manner to ensure that dust emissions are kept to a practicable minimum and that no dust, as a result of the activities authorised by this resource consent, causes any objectionable or offensive effects beyond the boundary of the site the satisfaction of the Group Manager: Environmental Services.

- 7.8 If the activity is not meeting either of these sets of standards, then any off-site effects that might occur cannot be considered to be reverse sensitivity effects. In those circumstances it is the responsibility of the activity (i.e. Hynds) to ensure compliance or obtain an air discharge resource consent.
- 7.9 Secondly there does not appear to be any justification for a 500 metre buffer. While this distance is the same as the setback distance proposed for hard rock quarries in the Rural Zone (Rule 22.3.7.2), I do not consider that distance to be appropriate for Hynds or in fact any other activities that might occur in the Heavy Industrial Zone, based on the type of discharges that could occur from Hynds activities.
- 7.10 It is generally accepted that dust effects from well controlled sites typically only occurs within 50 metres, and in stronger winds (greater than 5 m/s) out to about 100 metres. It is only poorly performing sites where effects can occur out to 200 metres or more, and in my opinion, this would most likely indicate that a site was not operating in accordance with either the WRP requirements or its land use consent. 200 metres is also consistent with the setback distance in Rule 22.3.7.2 for sand quarries, which is more analogous with the level of dust nuisance effects that might occur from activities in the Heavy Industrial Zone that are not operating in accordance with the permitted activity standards for dust.
- 7.11 Consequently, given the local wind conditions if Hynds was to generate dust that resulted in some form of off-site effects it would most likely affect the Business zone to the north west or Yashili and Synlait to the east south east. Given the nature of the activities undertaken by these two organisations, I would also consider them to be sensitive to the presence of dust.

- 7.12 In addition to distances indicated above it is also important to understand where the separation distance is measured from. The general approach in the PWDP is to measure the set back or separation as the distance between the sensitive land use and the activity that could give rise to the effect. This approach is consistent with that adopted by Auckland Council¹⁰, and also the VicEpa¹¹. "urban" method. This latter approach, as shown in Figure 2.1 of that document (reproduced as Figure 2) requires the activity generating the effect to internalise some of the effects within its property. I consider that this approach is appropriate.
- 7.13 Tonkin & Taylor¹² who have previously prepared a report on separation distances around industrial activities in Tuakau for WDC, stated in its report that:

if the separation distance were measured from the property boundary of the industrial site this would fully externalise the separation distance and could be seen as unnecessarily limiting the use of land outside the industrial site when the likelihood and nature/scale of any future expansion is unknown.

and

In the context of informing decisions about the appropriateness of re-zoning land, the recommended separation distances should be measured from the activity boundary (of the industrial site) to the proposed boundary of the more sensitive zone as this will become the boundary of the nearest sensitive land use.

- 7.14 I consider that this approach is reasonable and appropriate.
- 7.15 In its proposal Hynds appear to have proposed that the entire buffer is measured from the boundary of the Heavy Industry Zone over the land of others which is not something that I consider represents good practice.
- 7.16 I will come back to the issue of what I consider an appropriate separation distance later in my evidence, but would reiterate at this point that I consider that there is no potential that Hynds would experience reverse sensitivity effects from the proposed rezoning, given that the closest part of its site to the HVL land is over 300 metres away with the nearest residence over 450 metres away. These distances are well beyond the those that effects might be expected to occur within, even for activities that had no form of dust control.

¹⁰ Emission Impossible, Separation Distances for Industry, prepared for Auckland Council July 2012

¹¹ Victoria EPA, Recommended Separation Distances for Industrial Air Emissions – Guideline, March 2013

¹² Tonkin & Taylor Ltd, Tuakau Structure Plan – Assessment of Air Quality Effects and Separation Distances, August 2015

- 7.17 Finally, I note that Hynds has not proposed any form of buffer on land zoned Business that immediately adjoins the Heavy Industry Zone to the north. This seems inconsistent with the approach proposed elsewhere given the wide variety of activities that could occur in that zone which could be sensitivity to air discharges if they were to occur. Based on the Table that forms part of Section 17.1.2 of the PWDP the sensitive activities that are permitted in the Business Zone includes:
 - Residential Activity;
 - Child care facility;
 - Education facility; and
 - Hauroa.

Synlait

- 7.18 Synlait has also made a submission, and presented evidence in Hearing 18, in regard to the need for a buffer zone around the proposed Heavy Industry zone.
- 7.19 I understand that the reason for the 300 metres requested is to provide alignment with the rules for intensive farming. I have already discussed my concern with this approach as that the entire separation distance has been proposed outside the zone, and that there is no recognition that, some of the separation distance should lie within the emitters land. In any event there are significant differences between an activity such as a dairy factory which is able to put in place a high level of control around odour emissions and intensive farming activities where odour control is more difficult.
- 7.20 I also note that similar to Hynds, Synlait has not proposed a similar buffer for the northern end of the Heavy Industrial Zone, where it is adjacent to the Business Zone which appears to expose occupiers of the Heavy Industrial Zone to the same issues that they are concerned about on the other boundaries of the Heavy Industrial Zone.
- 7.21 Unlike Hynds, Synlait operates under a resource consent for discharges to air issues by WRC. This consent sets discharge standards for the site which are equivalent to the General permitted activity standards in the WRP, and in particular requires in Condition 14 that:

The discharge shall not result in odour that is offensive or objectionable to the extent that it causes an adverse effect at or beyond the boundary of the subject property.

Note: Whether a discharge is offensive or objectionable is to be determined in accordance with the FIDOL (Frequency, Intensity, Duration, Offensiveness, and Location) factors.

And in Condition 15 that

There shall be no discharge of particulate matter that is objectionable to the extent that it causes an adverse effect at or beyond the boundary of the subject property.

Note: For the purposes of this consent, whether a discharge of particulate matter is objectionable is determined having regard to the frequency, intensity, duration, nature and location of the particulate matter discharge and any previous substantiated particulate matter complaints relating to the same site.

- 7.22 I consider that these conditions are appropriate and again note that they are required to be met at the site boundary not the Heavy Industrial zone boundary. I also consider that in meeting these standards and the various other requirements that are set out the consent, there is little potential for Synlait to generate discharges that would be likely to trigger the types of reverse sensitivity effects that it has indicated the proposed buffer is intended prevent.
- 7.23 Finally, the advice notes that are attached to both Condition 14 and 15, are ones that allow WRC to take into account the location of the complaints in relation to the source when considering whether the condition is met or not.
- 7.24 Consequently, I do not think a buffer of the distance proposed by Synlait is required or appropriate, with the Pokeno Industrial Buffer proposed by HVL more than appropriate to deal with any potential residual air discharges from Synlait.

8. COMMENTS ON COUNCIL SECTION 42A FRAMEWORK REPORT

8.1 I have reviewed the relevant sections of the S42A Framework report, and consider that with respects to the Request, the separation distance proposed is suitable to avoid the potential for conflict between what could be considered incompatible activities.

9. CONCLUSION

- 9.1 I have assessed the potential impact of the rezoning request by HVL, to result in reverse sensitivity effects for industrial activities located with the Pokeno Industrial areas.
- 9.2 In my opinion the Industrial buffer that HVL is proposing on its land is appropriate to deal with potential reverse sensitivity effects that may occur from any residual discharges to air that may occur from lawfully operating industrial activities that are located within the industrial zones, and meets one of the key objectives set out in the S42A Framework report.

Ino

Andrew Curtis
17 February 2021







Figure 3 Auckland Council 2007 CALMET dataset centred on the site

Figure 4 Measurement of separation distance (excerpt from Vic EPA Guidelines)

