

**BEFORE THE INDEPENDENT HEARING COMMISSIONERS  
IN CHRISTCHURCH**

**TE MAHERE Ā-ROHE I TŪTOHUA MŌ TE TĀONE O ŌTAUTAHĪ**

**IN THE MATTER OF**      Resource Management Act 1991

**AND**

**IN THE MATTER**      of the hearing of submissions on Plan Change 14  
                                 (Housing and Business Choice) to the Christchurch  
                                 District Plan

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**JOINT WITNESS CONFERENCING STATEMENT OF PLANNERS ON THE  
RAVENSDown INDUSTRIAL INTERFACE**

18 April 2024

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## INTRODUCTION

1. This joint witness statement relates to expert conferencing on the topic of the Ravensdown industrial interface.
2. The expert conferencing was held between December 2023 and April 2024.
3. Attendees at the conference were:
  - (a) Brittany Ratka, planning expert for Christchurch City Council. Brittany Ratka is the author of the s42A report for Industrial Interface, Significant and Other Trees, and Natural Hazards Qualifying Matters (QMs), dated 11 August 2023, and rebuttal dated 9 October 2023.
  - (b) Jane Whyte, planning expert for Ravensdown Limited (#243). Jane Whyte is the author of planning evidence relating to Ravensdown, dated 20 September 2023.

## CODE OF CONDUCT

4. This joint statement is prepared in accordance with sections 9.4 to 9.6 of the Environment Court Practice Note 2023.
5. We confirm that we have read the Environment Court Practice Note 2023 and agree to abide by it.

## PURPOSE OF CONFERENCING

6. The purpose of conferencing was to address the Panel's request on 20 November 2023 (Item 58 of the IHP Requests and Actions table) that conferencing be undertaken regarding the relief sought by Ravensdown to progress a buffer related to its Hornby works site as part of the Industrial Interface Qualifying Matter (QM) for Plan Change 14.
7. Both parties reviewed relevant **s32 report, evidence, s42A report, and other reports** relevant to the Ravensdown site in advance of the conferencing.
8. In addition to inform the s32 evaluation Ms Ratka and Ms Whyte also considered the Ravensdown consent conditions, and glass assessment maps and the most recent annual monitoring report that was made available to the planners by Ravensdown.
9. **Annexure A** records the agreed issues, areas of disagreement and the reasons, along with any reservations.

10. **Appendix 1 and 2** to this evidence contains an updated s32 analysis addressing Options 5 and 6 related to provisions addressing the matters raised in evidence by Ravensdown, Option 4 addressing noise, and Option 7 addressing odour (track change and clean versions respectively) which can be treated as a s32AA evaluation. **Appendix 3<sup>1</sup>** contains the updated provisions to address air discharges of sulphur dioxide, which at higher concentrations is associated human health issues, and fluoride which can result in clouding of windows. **Appendices 4 through 6** contain the Ravensdown consent conditions, glass assessment maps and the most recent annual monitoring report. **Appendix 7** contains an AES acoustic memo. **Appendix 8** contains a memo from Environment Canterbury (ECan) and three attachments on complaints data. **Appendix 9** contains Ms Ratka's recommended updated provisions. Appendices 1 – 9 are attached as separate documents.

## SCOPE OF CONFERENCING

11. The planners during conferencing worked constructively on matters related to the air discharges addressed in the submission and evidence of Ravensdown presented at the hearing, relating to considering and developing provisions to address air discharges of sulphur dioxide, and fluoride.
12. Ms Whyte records that she has only contributed to this Joint Witness statement in relation to the matters addressed in the evidence presented by Ravensdown. She has not been involved in any conferencing on and has not participated in those parts of this Joint Witness Statement, any recommended plan provisions, or any Section 32 evaluation relating to noise or odour.
13. Ms Ratka acknowledges Ms Whyte has not considered noise and odour matters as part of the Joint Witness Statement. However, Ms Ratka considers that new information is relevant and therefore considers there is an obligation to take it into account to assist the Panel.
14. In term of noise, at the hearing on the 2<sup>nd</sup> of November Commissioner Munro posed questions to Ms Ratka on the effectiveness and efficiency of the proposed blanket 40m noise buffer and discretionary status compared

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<sup>1</sup> It is recognised that the provisions in Appendix 3 do incorporate the changes to noise provisions of Ms Ratka. This is to show the relationship between the noise and other provisions. Ms Whyte has had no input into the development of these provisions and expresses no view as to their merits or otherwise.

to a design requirement for acoustic insulation. In response to these questions Ms Ratka has assessed the merits of a more enabling acoustic insulation approach<sup>23</sup> and has changed her recommendation<sup>4</sup> in favour of a new built form standard with acoustic design controls. Ms Ratka considers noise, particularly the updated recommendation, to be an appropriate consideration for conferencing given it is relevant information as part of the Industrial Interface Qualifying Matter.

15. With respect to odour, Ms Ratka made a routine request of ECan for information relevant to compliance with Ravensdown consent conditions. To enable consideration of the information supplied Ms Ratka requested and subsequently obtained a memo from ECan<sup>5</sup> which she provided to Ms Whyte on the 9<sup>th</sup> of April. Ms Ratka advised Ms Whyte on the 10<sup>th</sup> of April that in response to this memo she has undertaken an assessment<sup>6</sup> and has changed her recommendation to residential properties within the 240m Ravensdown buffer retaining the operative zoning, being Residential Suburban.
16. ECan's compliance information included material relevant to broader issues (odour) than had previously been considered under this Qualifying Matter. Ms Ratka considers that this information is relevant to the appropriateness of the Qualifying Matter provisions. That being the case, she considers it likely to be of more assistance to the Panel to express an expert planner's view factoring in that information (noting that the Panel, potential scope issues aside, has broader powers under Schedule 1 Clause 99 (2) (b) of the Act). Ms Ratka therefore also considers it is appropriate to invite Ms Whyte likewise to express views in the conferencing context.

## **BRIEF SUMMARY OF INDUSTRIAL INTERFACE QM TO DATE**

### **Original section 32 analysis**

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<sup>2</sup> Refer to Option 4 in Appendices 1 and 2, as well as the noise provisions in Appendices 3 and 9.

<sup>3</sup> Option 4 relies on a new memo from AES (attached as Appendix 7) considering acoustic insulation, balcony orientation, and noise limits as a means to address noise exposure for new units three storeys and above.

<sup>4</sup> Within the 40m noise buffer over Medium Density Residential Zones (MRZ) and High Density Residential Zones (HRZ) adjoining industrial zones, a built form standard applies requiring mechanical ventilation and air conditioning units be installed above 8m where there is line of sight to industrial zones, and balconies are oriented away from these zones. Where this standard is not met resource consent would be required for a restricted discretionary activity with assessment matters considering noise mitigation and reverse sensitivity. The AES memo considers that an acoustic insulation approach would need to be accompanied by changes to the noise limits section of the Plan as insulation would not address there being a new noise measurement location and potential for non-compliance. It is recommended increase the residential noise limits by 10dB within the Industrial Interface overlay above 8m. Ms Ratka also recommends replacing the notified version of new Objective 14.2.12 by relying on Strategic Objective 3.3.14 Incompatible activities, and that the notified new Policy 14.2.12.1 is updated to reflect the potential for noise mitigation.

<sup>5</sup> Attached as Appendix 8.

<sup>6</sup> Refer to Option 8 in Appendix 1 and 2, as well as the proposed map at the end of Appendix 9.



17. The Part 2 Qualifying Matters s32 report, in section 6.22, included an assessment for the proposed Industrial Interface QM. It was accompanied by an acoustic report and memo from Acoustic Engineering Services, set out in Appendices 39 and 40 Part 2 Qualifying Matters s32 report.
18. The preferred option was a discretionary activity status for new development above 7m/two storeys within 40m of industrial zones and included a new objective and policy.

### **Section 42A analysis**

19. The s42A report of Ms Brittany Ratka considered requested changes from submitters and proposed minor changes to the new policy wording. Also, the proposed height limit of 7m was changed to 8m.

### **Ravensdown evidence**

20. The evidence of Ravensdown supported the relief sought by Ravensdown to progress an air discharge buffer as part of the Industrial Interface Qualifying Matter (QM) for Plan Change 14.

### **Rebuttal evidence**

21. In response to Ravensdown's evidence, Ms Ratka's rebuttal evidence considered that there could be merit in pursuing a Ravensdown air discharge buffer.

### **Hearing**

22. The Panel requested (on 20 November 2023) that conferencing be undertaken with Ravensdown to progress a potential air discharge buffer, associated controls and s32 assessment.

### **PROPOSED RAVENSDOWN BUFFER**

23. Following the hearing, at the request of the Panel, Ms Ratka and Ms Whyte through expert conferencing have considered options for a Ravensdown air discharge component to the Industrial Interface QM.
24. The manufacturing of fertiliser at the Ravensdown site (312 Main South Road, Hornby) has been undertaken since 1922 when the surrounding area was predominantly rural with few residences. Over time the area has increasingly become dominated by low density residential activities to the south of the site. Ravensdown operate under the ECan air discharge

consent CRC080001 which controls its air discharges and includes intensive monitoring.

25. The focus of Ms Ratka and Ms Whyte's conferencing was on potential methods to manage more people being exposed to air discharges of sulphur dioxide, which at higher concentrations is associated human health issues, and fluoride which can result in clouding of windows. The effects and modelling of these discharges have been covered in Mr Chilton's evidence<sup>7</sup>.
26. Option 5 in the s32AA assessment<sup>8</sup> considers a 240m buffer over residential properties to the south of Ravensdown. These residential properties within the buffer would be zoned MRZ (noting over half of these properties were HRZ as notified/in the Residential s42A). Development above 8m would be permitted where standards that manage effects of glass clouding are met (requiring glass that is resistant to clouding), and becomes a non-complying activity where not met. Development above 14m would be a non-complying activity (as opposed to restricted discretionary under MRZ zoning). Policy 14.2.12.1 would include a specific sub policy addressing this. Appendix 3B sets out these provisions in full.
27. Option 6 in the s32AA assessment is the same as Option 5 except those properties initially proposed as HRZ would remain proposed as HRZ.
28. Out of the two above options for dealing with human health and glass clouding, the agreed preferred option is Option 5 given that it effectively balances management of glass clouding and human health effects with enabling further development where these concerns can be addressed. As set out further above, Ms Ratka has subsequently changed her recommendation given the information set out in the ECan memo, and now recommends a 240m buffer over residential properties to the south of Ravensdown which would result in these properties retaining the operative zoning, being Residential Suburban<sup>9</sup>. It is also noted that Ms Ratka has updated her recommendation with respect to noise controls for the Industrial Interface Qualifying Matter<sup>10</sup>.

Date: 18 April 2024

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<sup>7</sup> [Ravensdown Limited #243 - Evidence Richard Chilton - Air Quality](#).

<sup>8</sup> Refer to Appendix 1 and 2 (track change and clean versions respectively)

<sup>9</sup> Refer to Option 7 in Appendix 1 and 2, and provisions/mapping in Appendix 9.

<sup>10</sup> Refer to Option 4 in Appendix 1 and 2, and provisions in Appendix 9.

A handwritten signature in black ink that reads "Brittany Ratka". The signature is written in a cursive style with a large, looping 'B' and a long horizontal stroke at the bottom.

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**Brittany Ratka**

A handwritten signature in black ink that reads "Jane Whyte". The signature is written in a cursive style with a large, looping 'J' and a long horizontal stroke at the bottom.

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**Jane Whyte**

## ANNEXURE A – EXPERT CONFERENCING ON INDUSTRIAL INTERFACE QUALIFYING MATTER RAVENSDOWN PROVISIONS

Participants: Brittany Ratka, and Jane Whyte

Issue	Position	Comments
Changes to the Industrial Interface QM to better manage potential reverse sensitivity associated with noise, and additionally consented air discharges at the Ravensdown fertilizer manufacturing site at 312 Main South Road.	Agree that the provisions and s32AA assessment related to Option 5 address matters relating to human health and glass clouding.	Ms Whyte has not addressed matters relating to noise or odour.  Ms Ratka having considered potential effects of odour is recommending an option other than Option 5 which retains status quo zoning within a 240m buffer adjoining Ravensdown.
Scope of issues addressed in JWS.	Ms Whyte has not considered matters relating to noise or odour addressed in this Joint Witness Statement.  Ms Ratka has addressed matters of noise and odour.	This has been addressed in the Joint Witness Statement.

**APPENDIX 1 – UPDATED S32 EVALUATION (TRACK CHANGE VERSION) (ATTACHED AS SEPARATE DOCUMENT)**

**APPENDIX 2 – UPDATED S32 EVALUATION (CLEAN VERSION) (ATTACHED AS SEPARATE DOCUMENT)**

**APPENDIX 3 – PROVISIONS ADDRESSING MATTERS RAISED BY RAVENSDOWN (OPTION 5) (ATTACHED AS SEPARATE DOCUMENT)**

## **APPENDIX 4 – CRC080001 RAVENSDOWN CONDITIONS (ATTACHED AS SEPARATE DOCUMENT)**



## **APPENDIX 5 – RAVENSDOWN GLASS REPLACEMENT MAPS (ATTACHED AS SEPARATE DOCUMENT)**

**APPENDIX 6 – RAVENSDOWN ANNUAL AIR DISCHARGE CONSENT REPORT (2022) (ATTACHED AS SEPARATE DOCUMENT)**

## **APPENDIX 7 – AES MEMO ON ACOUSTIC MITIGATION (ATTACHED AS SEPARATE DOCUMENT)**

## **APPENDIX 8 – ECAN MEMORANDUM (ATTACHED AS SEPARATE DOCUMENT)**

## **APPENDIX 9 – MS RATKA’S RECOMMENDED PROVISIONS (OPTION 7) (ATTACHED AS SEPARATE DOCUMENT)**

## 6.22 Residential-Industrial Interface Area Section 32 evaluation

- 6.22.1 **Identification and spatial extent of proposed qualifying matter (s77K (1)(a) and s77Q (1)(a))** - The extent of the proposed residential-industrial interface area ~~where a height/storey limit is proposed,~~ is identified as an qualifying matter overlay under the Planning Maps.
- 6.22.2 **Issue** – The result of applying MDRS and Policy 3 of the NPSUD means that there is potential for much greater residential density along industrial/residential interfaces than currently enabled in the District Plan. Enabling development ~~up to of~~ three or more storeys may result in currently complying levels of noise from industrial activities exceeding the residential noise limits. This has the potential to result in ~~nuisance health,~~ safety and amenity effects on future occupants, and reverse sensitivity effects on industrial activities, potentially affecting their commercial viability. The activities enabled in the industrial general zone (which tend to buffer residential zones from industrial heavy zones – except for a few cases such as in Hornby) are those that have lesser impacts in terms of noise, traffic movements, odour than compared with land zoned industrial heavy. The industrial chapter in the District Plan includes specific measures to minimise impacts on adjoining residentially zoned land such as setbacks, recession planes, screening of outdoor storage, landscaping and building height. Chapter 6.1 of the District Plan also contains maximum noise limits for both residential zoned land and industrial zoned land.
- 6.22.3 Noise has been the most prevalent issue raised in complaints<sup>1</sup> from residents near industrial activities. This includes, but is not limited to, noise originating from the use of machinery (such as site scraping, trucks and forklifts), banging and clanging of metal, and the moving of containers. Advice from Acoustic Engineering Services (refer Appendix 39) indicates that noise limits which control the industrial-residential interface are in line with best practice (including the directives of the National Planning Standards) and put the onus on industrial operators to comply with ‘residential level’ limits by the time their noise reaches residential areas. This is because noise generated in any of the Industrial zones when received at a residential zoned property is required in the District Plan to comply with the Residential noise limits (50 dB LAeq between 0700 and 2200 hours, and 40 dB LAeq / 65 dB LAFmax between 2200 to 0700 hours). The District Plan requires compliance with these noise limits is measured and assessed in accordance with NZS6801:2001 Acoustics – Measurement of environmental sound, and NZS 6802:2008 Acoustics – Environmental noise. The NZS6802:2008 requires assessment of compliance at 1.2 – 1.5 metres at the façade above any floor level of interest, and also 1.2 – 1.5 metres above ground level over the entire outdoor area of the site.

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<sup>1</sup> Sourced from the Regulatory Compliance Unit, Citizen and Customer Services Unit and the Office of the Chief Executive for the period between 1st December 2016 and 20th March 2019

6.22.4 The AES report<sup>2</sup> indicates that the vast majority of the dwellings at the industrial-residential interface are currently single storey. In this situation, in the majority of layouts there is screening blocking direct line of sight between many industrial source and residential properties – either provided by buildings, or site fencing. The report sets out that effectiveness of screening depends on the height of the screen, as well as the location of the screen relative to the source and the receiver. The key issue in this case is that if the height of the receiver is increased from 1.5 metres above ground level (single level dwelling) to approximately 7.5 metres above ground level (the third-floor level of a dwelling), the effectiveness of any screening may be reduced. If there is now direct line of sight between the industrial noise source and sensitive residential receiver, the screening may reduce to zero. In that case, a noise source which is relying on the screening to comply with a noise limit of 50 dB LAeq at ground level, would generate a noise level above 50 dB LAeq when received at the third-floor level of the new dwelling. Figure 1 below indicates the area where new noise receivers would necessitate new noise assessment locations and result in potential new non-compliances for currently compliant industrial activities.

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<sup>2</sup> Appendix 39 of the Part 2 Qualifying Matters s32 report.

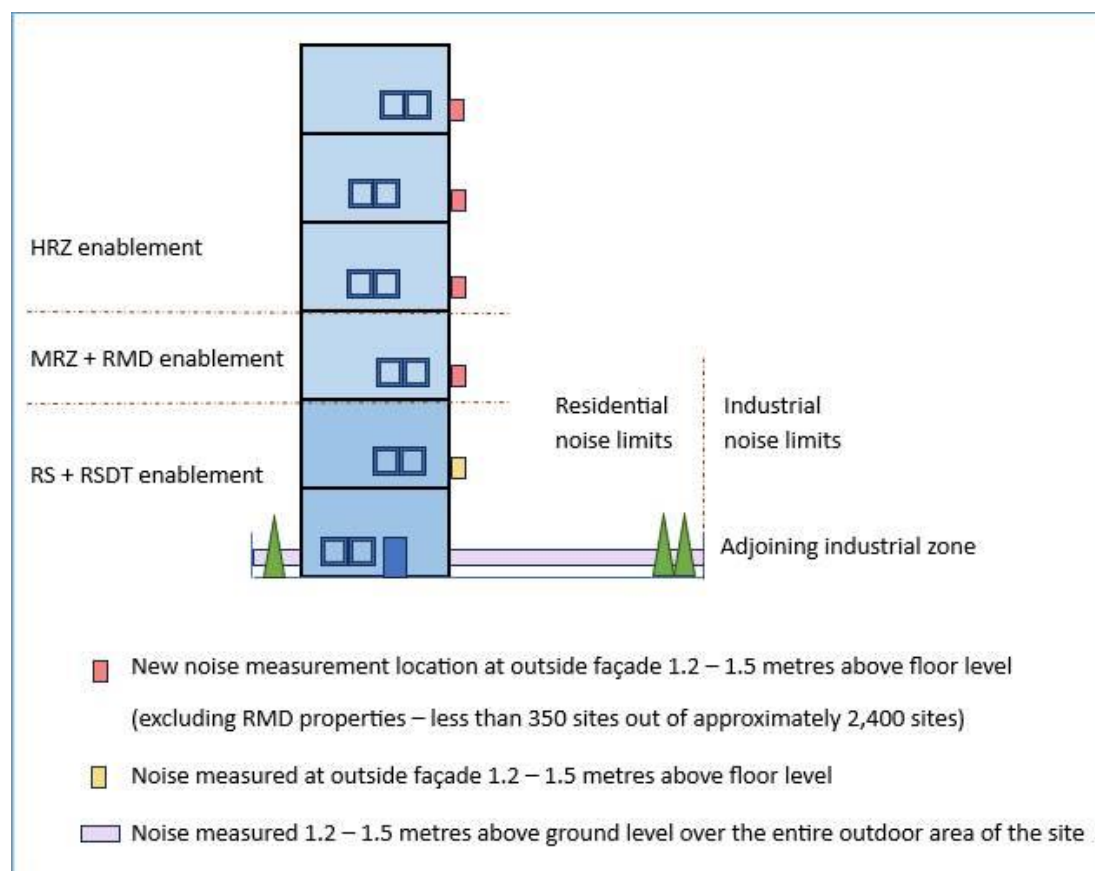


Figure 1. Noise compliance measurement locations

6.22.5 MDRS [and Policy 3](#) may provide further incentive to redevelop those sites, and new dwellings in that case may be ~~up to~~ three [or more](#) storeysies which may result in currently complying levels of noise from industrial activities exceeding the noise limits. This may result in undue [health, safety and](#) amenity effects on occupants of the new three [or more](#) storey development in terms of noise disturbance. This has the potential to therefore result in reverse sensitivity effects on industrial activities, and could unduly constrain the operation of businesses. The issue is to determine what level of intensification is appropriate so as not to unduly impact currently complying industrial activities and providing for intensification that would not cause disturbance and reduced amenity to future occupants. The Act enables a qualifying matter to potentially be applied in respect of this issue under s771 (i) and s770 (i) 'the requirement in the NPS-UD to provide sufficient business land suitable for low density uses to meet expected demand'.



6.22.5A In addition to the above, a site specific issue has been identified relating to the interface between the Heavy Industrial Zone where the Ravensdown Manufacturing Facility is located at 312 Main South Road in Hornby and the Proposed High Density Residential Zone located on the south side of Main South Road. The key issue with this interface relates to the discharges to air that occur from the manufacturing operations this site in accordance with the resource consent conditions (attached as Appendix 5) that apply to the activity. The air discharge consent CRC080001 (which expires in 2030) imposes a number of conditions on their operations<sup>3</sup>. This includes monitoring, surveying, complaints recording, glass replacement, emission rates, testing, dust management, and odour management. Environment Canterbury (ECan) undertake a comprehensive site inspection and data reviewal at least annually to monitor compliance with this consent. The key issues arising at the residential interface with Ravensdown include glass clouding due to fluoride, human health effects associated with sulphur dioxide and odour due to hydrogen sulphide. Mr Chiton's evidence<sup>4</sup> outlines that the discharge of sulphur dioxide (SO<sub>2</sub>) gas, which is discharged out of the acid plant stack, is a potent respiratory irritant when inhaled, and fluoride gas, which is discharged out of the manufacturing plant stack, has the ability to cloud glass surfaces and is less of a concern in terms of potential human health effects. He outlines there are relatively small increases in contaminant concentrations for residential properties up to 4-storeys in height, although the horizontal extent of impact increases. He considers that contaminant concentrations at heights up to 4 storeys are unlikely to have a significant impact, but above that height the concentrations increase markedly, to the extent that they would likely impact on Ravensdown's ability to manage its off-site air quality effects to an acceptable level.

6.22.5.B The evidence<sup>5</sup> of Peter Hay on behalf of Ravensdown outlines that the manufacture of fertiliser started at the Hornby site in 1922 and the immediate area only contained five residences at the time. In the 1940s, based on the photograph supplied by Mr Hay, more housing had been developed to the south west of the site. The area to the south west and south has become fully developed since then as low density residential. The air discharge consent from ECan was sought in 2007 and was granted, following an appeal, in 2010. Based on Mr Hay's evidence this site has a history of air discharge going back 100 years well before the area to the south west was fully developed for residential use. The discharge consent resulted in improvements being made to reduce the effects of the air discharge including increasing the stack height, use of a biofilter, and intensive monitoring of air discharges by Ravensdown and ECan. The 2022 monitoring report outlines that complaints had been received from residents relating to the air discharges.

6.22.5.C In terms of odour, this matter has not been raised as a reverse sensitivity concern previously, including in submissions or evidence to date. This matter was raised by ECan when information was sought from them by Ms Ratka. ECan have provided a memo<sup>6</sup> upon request. It details that residential areas are already highly sensitive receptors, and further intensification will only increase this sensitivity further. It sets out that while conditions of

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<sup>3</sup> Additionally, Appendix 5 to the Joint Witness Statement contains the Ravensdown annual air discharge report required under their consent.

<sup>4</sup> Ravensdown Limited #243 - Evidence Richard Chilton - Air Quality.

<sup>5</sup> Ravensdown-Limited-243-Evidence-of-Peter-Hay-Company-Final-10-October-2023.pdf (ihp.govt.nz).

<sup>6</sup> Refer to Appendix 8 to the Joint Witness Statement.

consent are in place, reliance on conditions is problematic as compliance is not guaranteed as a range of factors such as site activities, climatic conditions, and mechanical faults can cause a site to discharge offensive and objectionable odours. With respect to Ravensdown it sets out that ECan has logged 105 incidents relating to offensive and objectionable odour over the last five years. Consideration of odour is likely out of scope noting there have been no submissions or evidence on this, however the Panel is not limited in its consideration under Schedule 1 Clause 99 (2) (b) of the Act. Whilst the ECan memo includes other industrial sites in Hornby and further afield where odour complaints have arisen from residences, this memo was very late in the piece, and it is challenging to progress this in a way that is fair and in the interests of submitters and serves this process. There is a potential plan change being considered for industrial zones, including the residential interface which could look at this issue more closely in more detail.

6.22.5.D The result of applying High Density Residential Zoning (HRZ), or even Medium Density Residential Zoning (MRZ), opposite an Industrial Heavy Zone means that there is potential for much greater height of residential units along the industrial/residential interface than currently enabled in the District Plan. Enabling development greater than two storeys may result in changes to the receiving environment from the current discharges. This has the potential to result in health, safety and amenity effects on future occupants, and reverse sensitivity effects on the existing consented industrial activity, potentially affecting its commercial viability. The site-specific issue is to determine what level of intensification is appropriate so as not to unduly impact the currently consented industrial activity and providing for intensification that would not cause reduced health, safety and amenity for future occupants. The Act enables a qualifying matter to potentially be applied in respect of this issue under s77I (i) and s77O (i) 'the requirement in the NPS-UD to provide sufficient business land suitable for low density uses to meet expected demand'.

6.22.6 **Option evaluation** – The table 29 below summarises the assessment of costs and benefits for each option based on their anticipated environmental, economic, social, and cultural effects, as well as the efficiency and effectiveness of the option and the risk of acting or not acting. ~~Preceding the an assessment of the proposed change in respect of the additional relevant assessments required in the Act for qualifying matters in residential zones and/or in non-residential zones (Part 5, sub-part 3) and in the NPS-UD (Clause 3.33).~~ The assessment is supported by the information obtained through technical reports, and consultation.

6.22.7 **Additional assessment under the Act (Sections 77I – 77R) and the NPS-UD (Clause 3.33)** - Section 77I and Section 77O allow for territorial authorities to apply building height or density requirements enabling less development, than would otherwise be required to be enabled, where a qualifying matter applies. Qualifying matters specifically include, under s77I (i) and s77O (i), 'the requirement in the NPS-UD to provide sufficient business land suitable for low density uses to meet expected demand'. Business land, in the NPS UD, includes land in any industrial zone.

6.22.8 **Reason the area is subject to a qualifying matter (s77I (3)(a)(i))** - As set out above, there is potential for much greater residential density along industrial/residential interfaces under MDRS and Policy 3 than currently enabled in the District Plan. This could result in ~~nuisance~~ health, safety and amenity effects on future residential occupants, and reverse sensitivity effects on industrially zoned land, particularly with respect to noise and air

discharge. The noise limits within the District Plan are determined by the zoning of the receiving activity and therefore noise generated in any of the industrial zones when received at a residential zoned property are required to comply with the residential noise limits. MDRS enables residential dwellings to be constructed up to three storeys in height in MRZ, and Policy 3 allows for even higher in HRZ, compared to the two storeys permitted in the current Plan (except 11m is permitted within the Residential Medium Density (RMD) Zone), although currently it is predominantly single level dwellings at the interface with industrially zoned land. The greater development potential may mean that the third storey of new dwellings ‘overlook’ industrial activities to a greater extent, and do not acoustically benefit from the screening of typical boundary fences, or intervening buildings. Additionally, as NZS6802:2008 requires assessment of noise compliance at 1.2 – 1.5 metres above any floor level of interest, there may be compliance locations created which receive higher noise levels than in the current situation, and this may result in currently complying levels of noise from industrial activities exceeding the noise limits. It is noted that changes to the industrial zone rules is outside scope of this IPI and would require a separate future plan change. In relation to the site-specific interface between the Industrial Heavy Zone at 312 Main South Road and the HRZ on the opposite side of Main South Road, Hornby, the greater development potential may mean that the receiving environment in relation to existing consented discharges to air will change, with residential units occurring at potentially higher elevations.

6.22.9 **Reason the qualifying matter is incompatible with the level of development permitted (s77J (3)(a)(ii))** – PC14 will encourage redevelopment at a rate which is currently not experienced. Three or more storey residential development abutting industrially zoned land has the potential to generate health, safety and amenity effects on future occupants, and reverse sensitivity effects on industrial activities, potentially affecting their commercial viability. The District Plan currently permits residential development up to two storeys (except 11m within RMD as noted above) whereas the MDRS provides for development up to three storeys, and Policy 3 allows for even more storeys in HRZ. Changes to subdivision controls through MDRS also mean that there cannot be any minimum allotment size around existing or proposed dwellings. This means there is potential for much greater density along industrial/residential interfaces than currently possible. This has the potential to unduly constrain industrial activities that would comply with the District Plan noise limits as they are currently, however may no longer comply due to compliance locations created which receive higher noise levels. There is potential for noise-disturbance-health, safety and amenity effects at the three storey level and associated reverse sensitivity effects on industrial activities. In relation to the site-specific matter at Ravensdown in Hornby, PC14 will encourage redevelopment at a rate which is currently not experienced. Higher development opposite an Industrial Heavy Zone has the potential to generate reverse sensitivity effects on industrial activities, potentially affecting their commercial viability. In addition, changing the relationship between the existing air discharges on the site and the residential receiving environment has potential implications on health, safety and amenity values and quality of the residential environment experienced in this area. There is potential for sensitive land uses to move vertically into an area not previously occupied where ambient air contaminant concentrations resulting from Ravensdown’s operation are likely to be higher.

6.22.10 **Impact of lesser enablement under the proposed qualifying matter (s77J (3)(b))** - ~~The impact that limiting development capacity, building height, or density (as relevant) will have on the provision of development capacity is set out in Section 2.3, Table 6 of this report. Note it is unlikely that apartments will be established in these locations, and therefore this qualifying matter may only impact one floor which could impact the number of~~

~~bedrooms, and unit typology rather than number of units. The enabled capacity impacted is 8300 units, while 1150 of these units are considered feasible. With respect to the 40m noise buffer, the impact on theoretical feasible development capacity is 180 units (on the basis that feasible capacity for two storey typologies is 1260 units, and feasible capacity for three storey typologies is 1440 units)<sup>7</sup>. Turning to the 240m Ravensdown buffer, the impact on theoretical feasible development capacity is 60 units (on the basis that feasible capacity for two storey typologies is 390 units, and feasible capacity above two storeys is 450 units).~~

6.22.11 **The costs and broader impacts of imposing lesser enablement (s77J (3)(c))** - The costs and broader impacts of imposing those limits are set out in the below s32 evaluation table.

6.22.12 **Requirements if qualifying matter applies (NPS-UD, clause 3.33)** - For similar reasons the proposed changes relating to this issue are considered to also satisfy the assessment requirements of clause 3.33 of the NPS-UD.

Table 29 – Options evaluation for the residential-industrial interface areas		
Option 1 – <del>Apply MDRS and Policy 3 with no qualifying matter</del>	Option 2 – <del>Proposed change</del> 40m noise buffer, discretionary activity status	Option 3 – 15m noise buffer, discretionary activity status
<b>Option description</b> This option is to apply MDRS <del>and Policy 3</del> in residential zones, without an industrial interface qualifying matter.	<b>Option description</b> This option would introduce a two storey height limit buffer for residential properties directly adjoining industrial zoned land. The two storey requirement would extend over 40m within the properties adjoining industrial land. In the case of properties fronting across the road from industrial zoned land, the same requirement would apply. Resource consent would be required for development over two storeys within this buffer. This buffer represents the potential extent of elevated noise area into the Residential zone at third floor level where industrial noise sources currently comply with the CDP limits at ground floor. The vast majority of the dwellings at the industrial-residential interface are currently single storey. Increasing to a three storey level may result in overlooking	<b>Option description</b> This option introduces a two storey height buffer for residential development within 15m of the industrial zoned land. The 15 metre buffer represents the potential extent of elevated noise area into the Residential zone at third floor level where industrial noise sources would currently comply with the CDP limits at both ground and second floor. This reflects that difference between what is required to comply at second floor level, and what is required to comply at third floor level, is not as great compared to a change from ground floor level to third floor level.

<sup>7</sup> ~~This does not take into account any overlapping change in zone as a consequence of another QM extent (i.e. the impact is likely lower).~~

	industrial activities and associated greater exposure to noise, whereas in the existing situation there is likely sufficient screening at ground floor level by site fencing and/or buildings.	
<b>Appropriateness in achieving the objectives and higher order documents</b>		
<p><b>Efficiency</b> – This option is not considered an efficient way to achieve the objectives of the Plan given the potential undue impacts on future occupants of <u>residential development</u> three storey <del>and above residential development</del> and potential undue impacts on industrial businesses.</p> <p><b>Benefits</b> - Sites are able to realise their development potential to a three storey envelope, <u>or higher</u>. This may provide economic benefits with a higher density enabled in these areas. This option is less likely to require consents than for all other options. Enabling development to three storeys could provide for increased social opportunities and benefits with a higher density of residents. There may be cultural benefits associated with properties being able to realise their full development potential.</p> <p><b>Costs</b> – There is potential for <u>health, safety and amenity</u> impacts on occupants of three <u>or more</u> storey development at the industrial interface, and potential for reverse sensitivity impacts on industrial activities. Existing and future industrial activities could have their operations restricted due to reverse sensitivity from three <u>or more</u></p>	<p><b>Efficiency</b> – While this option reduces the enablement from three <u>or more</u> storey to two storey development adjoining industrial zoned land, it ensures development does not unduly impact on the operation of industrial activities in industrial zones, and protects the amenity of occupants of residential development. <del>Therefore this option is considered the most efficient way to achieve the objectives of the Plan.</del></p> <p><b>Benefits</b> - This option has the least impact on businesses in industrial zones. The AES acoustic memo<sup>8</sup> demonstrates there are realistic scenarios where the construction of three level dwellings would lead to elevated noise being experienced at the third storey façade from currently compliant industrial activities. This option would reduce potential for reverse sensitivity effects on industrially activities, which could potentially affect their commercial viability. It reduces potential for undue nuisance effects on residential activities adjoining the industrial interface, helping maintain amenity and wellbeing of occupants. There may be cultural benefits associated with limiting development to two storey close to industrial areas.</p>	<p><b>Efficiency</b> – This option is not as efficient as option <del>2-4</del> noting that a 15m buffer would be most suitable where permitted two storey development is replaced by three storey development given the minimal difference in noise between these levels. The existing environment at the industrial interface is predominantly comprised of single level dwellings. The 15m buffer would not afford suitable distance to ensure reverse sensitivity is appropriately managed.</p> <p><b>Benefits</b> - The 15m buffer would still afford a level of separation reducing potential noise impacts on three <u>or more</u> storey development and associated reverse sensitivity effects on industrial activities. However the 15m buffer is based on permitted two storey development being replaced with three storey development, which does not reflect the existing situation with predominantly single level dwellings adjoining industrial zoned land. A 15m buffer would still provide a level of protection, although there is still potential for currently complying industrial activities to breach the noise rules should three <u>or more</u> storey development be undertaken at the interface, potentially unduly impacting on the operation of the activity. There would be economic benefits with a smaller buffer in that more three storey development</p>

<sup>8</sup> Appendix 40 of the Part 2 Qualifying Matters s32 report.

<p>storey development occurring at the interface, potentially affecting their commercial viability. There may be cultural cost associated with enabling three <u>or more</u> storey development close to industrial zoned land.</p> <p><b>Effectiveness</b> – This option would not be as effective as option <u>42</u> in providing for industrial business land under Policy 2 of the NPS UD. Allowing for three <u>or more</u> storey development at the industrial interface would not protect the operation of industrial activities from reverse sensitivity effects. <u>The option of not applying a QM would not align with Strategic Objective 3.3.14 Incompatible activities. It would not manage potential for adverse effects.</u></p> <p><b>Risk of Acting/Not Acting</b> – It is considered that there is certain and sufficient information on which to assess the appropriateness of this option. The risk of not acting is that three <u>or more</u> storey development will be enabled at the interface with industrial land, potentially restricting the operation of previously complying industrial activities, and new industrial activities due to noise exposure on the residential receivers.</p>	<p><b>Costs</b> - Some sites may not be able to realise their development potential in that they are limited to two storey level, or require a resource consent. However there is sufficient development capacity within the city without additional or more intensified development in this location. There may be uncertainty and higher development costs for three <u>or more</u> storey development in these areas. Restricting intensification to two storey <u>may</u> to a small extent restrict the ability of the community to provide for its housing needs. There may be cultural costs associated with properties not being able to realise their full development potential.</p> <p>It is noted that there is the potential cost of subduing three <u>or more</u> storey residential development within the buffer area in many situations where potential reverse sensitivity effects would not arise including where industrial activities are low noise emitting, the noise source is effectively screened even where the receiver is a three <u>or more</u> storey dwelling, the noise source is far from the interface, or where the noise source is close to the interface with no screening and the noise exposure is relatively similar for three storey and below. It is also noted that there may be low demand for three <u>or more</u> storey residential development adjoining industrial land given the vast number of higher amenity areas in the City available for redevelopment.</p> <p><b>Effectiveness</b> – This option ensures business land is provided in accordance with Policy 2 of the NPS UD</p>	<p>can occur near the interface without requiring resource consent and potential mitigation. This option would to an extent provide for social needs in that there is more ability to develop three <u>or more</u> storey residential development closer to the industrial interface. However, it is noted that there may be low demand for three <u>or more</u> storey residential development adjoining industrial land given the vast number of higher amenity areas in the City available for redevelopment. There may be cultural benefits associated with limiting development to two storey close to industrial areas.</p> <p><b>Costs</b> - The buffer would restrict development within 15m of industrial zoned land to two storey which may impact on development potential. As mentioned above the 15m buffer is not considered an adequate distance to minimise potential for amenity effects on future occupants and reverse sensitivity effect on industrial activities. This option may result in higher costs in developing at the interface however not to the same extent as option <u>42</u>. This option may expose more people to undue noise effects than option <u>42</u> and may result in reverse sensitivity effects on currently complying industrial activities which may then constrain their operation.</p> <p><b>Effectiveness</b> - This option would not be as effective as option <u>42</u> in providing for business land under Policy 2 of the NPS UD given the greater potential for reverse sensitivity effects on industrial activities.</p>
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	<p>by protecting industrial activities from reverse sensitivity effects that might occur through allowing three <u>or more</u> storey development in close proximity to these interfaces.</p> <p><b>Risk of Acting/Not Acting</b> – It is considered that there is certain and sufficient information on which to assess the appropriateness of this option. The risk of not acting is that there is potential for reverse sensitivity effects on industrial activities due to the greater height allowance and associated noise exposure for residential development adjoining industrial land.</p>	<p><b>Risk of Acting/Not Acting</b> – It is considered that there is certain and sufficient information on which to assess the appropriateness of this option. The risk of applying the 15m buffer is that it is not fit for purpose, with more potential for reverse sensitivity effects than option <u>42</u>. However not applying any buffer at all could unduly impact industrial businesses.</p>
<p><b>Recommendation:</b> Option 2 is recommended as it is the most appropriate way to achieve the applicable statutory requirements, including giving effect to the objectives of the District Plan and higher order direction.</p>		

Table 29 Continued – Options evaluation for the residential-industrial interface areas			
<u>Option 4 – 40m noise buffer adjoining IG, IH and IP with built form standards on acoustic insulation and balconies</u>	<u>Option 5 – MRZ adjoining Ravensdown with glass standard and height limit + Option 4</u>	<u>Option 6 – HRZ adjoining Ravensdown + Option 4</u>	<u>Option 7 – Status quo zoning adjoining Ravensdown + Option 4 (Preferred)</u>
<p><b>Option description</b> This option proposes the following:</p> <ul style="list-style-type: none"> <li>- A 40m noise buffer (as outlined in Option 2) applying to medium density residential zones (MRZ) and high density residential zones (HRZ) measured from the legal boundary of sites zoned Industrial General (IG,</li> </ul>	<p><b>Option description</b> This option incorporates Option 4, and additionally proposes:</p> <ul style="list-style-type: none"> <li>- A 240m buffer over residential zoning to the south of Ravensdown at 312 Main South Road, Hornby.</li> <li>- Residential properties within the buffer are zoned MRZ (previously some properties were notified as HRZ as within</li> </ul>	<p><b>Option description</b> This option incorporates Option 4, and additionally proposes:</p> <ul style="list-style-type: none"> <li>- Zoning of properties within the 240m buffer adjoining Ravensdown are zoned HRZ (where already notified as HRZ) instead of MRZ.</li> </ul>	<p><b>Option description</b> This option incorporates Option 4, and additionally proposes:</p> <ul style="list-style-type: none"> <li>- A 240m buffer over residential zoning to the south of Ravensdown at 312 Main South Road, Hornby.</li> <li>- These properties retain their status quo zoning of Residential Suburban (RS)</li> </ul>



<p><u>Industrial Heavy (IH), and Industrial Park<sup>9</sup> (IP).</u></p> <ul style="list-style-type: none"> <li>- <u>New built form standard - development above 8m is permitted where mechanical ventilation and air conditioning requirements are met and balconies do not have a line of site to industrial zones.</u></li> <li>- <u>Where not achieved this would become a restricted discretionary activity, with associated assessment matters relating to noise mitigation and reverse sensitivity.</u></li> <li>- <u>Increase the residential noise limits by 10dB within the Industrial Interface overlay above 8m.</u></li> <li>- <u>A new Objective which is existing Strategic Objective 3.3.14 Incompatible activities. It also includes new Policy 14.2.12.1. Refer to Appendix 9 for these provisions<sup>10</sup>.</u></li> </ul>	<p><u>Hornby Town Centre walkable catchment).</u></p> <ul style="list-style-type: none"> <li>- <u>Development above 8m is permitted where standards that manage effects of glass clouding are met (requiring glass that is resistant to etching), and becomes a non-complying activity where not met</u></li> <li>- <u>Development above 14m is a non-complying activity (as opposed to restricted discretionary under MRZ zoning).</u></li> </ul>		<ul style="list-style-type: none"> <li>- <u>Refer to Appendix 9 for the mapping.</u></li> </ul>
<b><u>Appropriateness in achieving the objectives and higher order documents</u></b>			
<b><u>Efficiency</u></b> –This option provides benefits to industrial operators,	<b><u>Efficiency</u></b> –This option provides benefits to Ravensdown, developers	<b><u>Efficiency</u></b> – This option is not considered efficient given that there is	<b><u>Efficiency</u></b> – This option would ensure odour, a known reverse sensitivity

<sup>9</sup> Note industrial activities are permitted within Industrial Park Zones.

<sup>10</sup> Appendix 9 includes provisions for Option 4 and Option 7.



<p>developers and the community and enables greater development capacity where adverse effects can be mitigated. It provides a realistic and feasible means to manage the interface of industrial zones and intensified new residential development. Furthermore, it helps plug the gaps in the Plan which does not currently envisage greater building heights at the interface.</p> <p><b>Benefits</b> – This option is well tailored to the issues identified, ensuring that the QM is enabling of development while balancing the need to manage adverse effects, acknowledging that the more development occurring above 8m in height at the interface, the chances are much higher of reverse sensitivity and health, safety and amenity issues being encountered.</p> <p>This option reduces potential exposure of future residential occupants to elevated industrial noise levels through a combination of managing internal noise levels/balcony orientation as well as setting a reasonable noise limit that</p>	<p>and the community and enables greater development capacity where adverse effects of consented air discharges, specifically fluoride (which clouds glass) and sulphur dioxide (concerning for human health), can be mitigated. It, however, does not address odour effects (arising from hydrogen sulphide) which are a known effect arising in complaints.</p> <p><b>Benefits</b> – This option reduces potential exposure to elevated air discharges of sulfuric dioxide and fluoride, which can result in human health and glass clouding effects, from Ravensdown operations. Fluoride amenity effects on the additional residential development opportunities provided can be managed with appropriate glazing, while sulphur dioxide effects on human health are potentially serious and cannot be easily mitigated, resulting in a strict height limit being proposed alongside an avoid policy.</p> <p>This option continues to support and provide certainty to Ravensdown that their historically established activities</p>	<p>very limited ability for the HRZ enablement to be realised. This approach is considered to result in the costs outweighing benefits.</p> <p><b>Benefits</b> – The high density zoning is in line with the Hornby Town Centre walking catchment, and provides greater enablement on the face of it.</p> <p><b>Costs</b> – Proposing the zoning as HRZ would signal that high density is envisaged however this would be incompatible with the QM which seeks to avoid development above 14m in height. This option would have a greater impact on development enablement than if the zoning is MRZ within 240m buffer. It would be challenging or not realistic to obtain consent and would result in uncertainty for developers and the community given the ‘mixed messaging’.</p> <p><b>Effectiveness</b> – This option would not align with Strategic Objective 13.3.14 Incompatible activities. In addition, it would not be fit for purpose as it would appear to allow for high density</p>	<p>issue for this site, is not made significantly worse by the MDRS and Policy 3 enablement. It acknowledges that the Ravensdown Hornby site is a historical fertiliser manufacturer with known effects beyond their boundary resulting from consented air discharges. There are a significant number of complaints that have been received over a span of several years relating to odour. Unlike for Option 5 where it is considered that glass clouding and human health effects (from fluoride and sulphur dioxide respectively) can be mitigated via glass standards and strict building height controls, odour (from hydrogen sulphide) cannot be mitigated, as set out in ECan’s memo<sup>15</sup>.</p> <p>Noting that complaints have been received even further than 240m from Ravensdown, a greater buffer distance could be considered, for instance a 400m buffer, (aligning with the most frequent complaint as set out in Attachment 1 of the ECan Memo) or even retaining status quo zoning over all residential properties east of Shands Road and north of Springs Road. However as outlined in the ECan</p>
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<sup>15</sup> Refer to Appendix 8 to the Joint Witness Statement.

<p>would not constrain currently compliant industrial activities or be unreasonable to residential receivers<sup>11</sup>. Without these measures future occupants may be subject to noise levels greater than the permitted residential limits and industrial activities may need to change their operations given they would be subject to a new measurement location above 8m in height, creating a new non-compliance.</p> <p>This option continues to support and provide certainty to industrial operators that their activities can operate as currently authorised without undue constraint by ensuring that new residential development above 8m occurs in a manner compatible with existing adjoining industrial zones.</p> <p>Finally, this approach protects against potential cumulative effects that could arise at the interface, especially if there is good uptake of MRDS and Policy 3.</p>	<p>can operate as currently authorised by their consent.</p> <p>This option also benefits developers and the community, in terms of economic and social impacts, by providing a relatively enabling, not cost-prohibitive and clear pathway for intensified residential development, while ensuring health, safety and amenity are protected.</p> <p>Finally, this approach to an extent protects against potential cumulative effects that could arise at this interface, especially if there is good uptake of MRDS and Policy 3.</p> <p><b>Costs</b> – This option will result in an impact on development capacity, however to a lesser extent than most of the other options. The impact on theoretical feasible development capacity is 60 units (on the basis that feasible capacity for two storey typologies is 390 units, and feasible capacity above two storeys is 450 units).</p> <p>This option would result in potential additional development costs in terms</p>	<p>development whilst the QM would effectively limit height to 14m.</p> <p><b>Risks of acting/not acting</b> – In assessing this option it is considered there is sufficient and certain information. Not acting could give rise to undue reverse sensitivity, amenity and health and safety effects.</p>	<p>memo it is difficult to justify a suitable distance given the varied nature of odour. The 240m distance would be suitable for not only odour but also the glass clouding and human health effects discussed in Option 5. It is noted that there could still be reverse sensitivity effects of intensifying beyond 240m.</p> <p><b>Benefits</b> – Retaining the operative zoning will ensure current reverse sensitivity issues are not worsened by more people being exposed to odour. This zoning would, to an extent, ensure Ravensdown is not unduly constrained by not enabling greater heights and densities as permitted activities. The current industrial framework sets the expectation of lower amenity for residential properties at the interface and in this case the site is IH with no IG buffer from residential sites.</p> <p>The existing zoning can be utilised without any further planning intervention and is understood by developers and the community.</p>
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<sup>11</sup> Refer to the 2024 AES memo attached as Appendix 4 to the Joint Witness Statement.

<p><b>Costs</b> – This option will result in an impact on development capacity, however to a lesser extent than most of the other options. The impact on theoretical feasible development capacity is 180 units (on the basis that feasible capacity for two storey typologies is 1260 units, and feasible capacity for three storey typologies is 1440 units)<sup>12</sup>.</p> <p>This option would result in potential additional development costs in terms of mechanical ventilation and air conditioning units above 8m within the 40m buffer.</p> <p>This option would require resource consent where the new built form standard is not met, resulting in consenting and mitigation costs and time.</p> <p>A small portion of the proposed industrial interface buffer is currently within the Residential Medium Density (RMD) Zone. This equates to approximately 350 existing residential sites. There are at least four existing dwellings which are three storeys. The 2024 AES memo (attached as</p>	<p>of glass clouding resistant glazing above 8m within the 240m air discharge buffer.</p> <p>This option would require resource consent where the new built form standard is not met, resulting in consenting and mitigation costs and time.</p> <p>The consent pathway for development above 14m within the 240m air discharge buffer would be challenging, with uncertainty in whether consent will be obtained.</p> <p>It is likely that reverse sensitivity effects will nevertheless arise given that the glass clouding standard and height limit do not address the effects of odour.</p> <p><b>Effectiveness</b> – This option aligns with <i>Strategic Objective 3.13.14 Incompatible activities</i> and balances enabling greater development with managing air discharge at the interface in potential new receiving locations.</p>		<p><b>Costs</b> – This option would restrict development opportunities to what is enabled in the status quo RS zoning (i.e. one unit per 450m<sup>2</sup> and a minor unit).</p> <p>It is noted that the existing consent framework does not address reverse sensitivity for exceeding building heights, so where a height limit is breached this will not be a consideration in the consent.</p> <p><b>Effectiveness</b> – This option is effective in addressing the issue of possible reverse sensitivity, amenity and health and safety effects.</p> <p><b>Risks of acting/not acting</b> – In assessing this option it is considered there is sufficient and certain information. Not acting could give rise to undue reverse sensitivity, amenity and health and safety effects</p>
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<sup>12</sup> This does not take into account any overlapping change in zone as a consequence of another QM extent (i.e. the impact is likely lower).

<p><u>Appendix 7 to the Joint Witness Statement) includes an example of a preschool requiring an acoustic barrier to mitigate noise emissions on one of these three storey dwellings. The QM would not impact the proposed zoning of these RMD properties, however it will mean that any new dwellings above 8m require mechanical ventilation and air conditioning installed, and balconies to not have line of site to industrial zones or a restricted discretionary resource consent. This restriction is more onerous than the current RMD requirements. Furthermore, the proposed 10dB increase for residential noise limits (to the parts of the residential development exceeding 8m in height above ground level within the 40m buffer) would potentially impact amenity of occupants in the at least four existing three storey residential units. I note this impact would only be limited to these existing three storey developments, which much of the RMD within the 40m buffer not being developed at three storeys. I have included an exemption to the increased noise limits for residential</u></p>	<p><u>The new policy addresses potential for glass clouding and human health issues adjoining Ravensdown and seeks avoidance of development above 8m where mitigation is not an option.</u></p> <p><u>The 240m buffer is broadly consistent with the bulk of properties needing window replacements and also the BRANZ glass replacement assessment zone<sup>14</sup> for the consent. Mr Chilton considers the 240m buffer aligns with the main area of peak impact from the stacks (it is noted however that the modelling did not take into account odour). The 240m Ravensdown buffer accommodates the 40m noise buffer plus provision of an additional 200m which reflects the extent of off-site locations where Ravensdown carries out monitoring and survey work under Consent CRC080001, and where windows of residential dwellings have been replaced, as required by the consent due to etching of glass. The proposed rules would require clouding resistant glazing above 8m and becomes a non-complying activity where this is not met.</u></p>		
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<sup>14</sup> Refer to Appendix 4 to the Joint Witness Statement.

<p><u>unit/s exceeding 8m in height above ground level existing at the plan change operative date. The 2024 AES memo emphasises that the more development occurring at these heights at the interface, the chances are much higher of reverse sensitivity and amenity issues being encountered.</u></p> <p><b><u>Effectiveness</u></b> – This option aligns with <i><u>Strategic Objective 3.13.14 Incompatible activities</u></i> and balances <u>enabling greater development with managing noise at the interface in potential new receiving locations.</u></p> <p><u>In terms of the provisions being fit for purpose, the 2024 AES memo sets out that an acoustic insulation QM approach would need to address internal noise and ensure balconies do not overlook industrial zones, and furthermore provide direction on what noise levels the insulation would be protecting against. The memo considers that an acoustic insulation approach would need to be accompanied by changes to the noise limits section of the Plan as insulation would not address there being a new noise measurement location and potential for non-compliance.</u></p>	<p><u>Development above 14m is a non-complying activity. The avoidance of development above 14m reflects that above this height human health issues are more likely and cannot be managed with mechanical ventilation or orientation of balconies such as is proposed for within the 40m noise buffer. This option would apply MRZ zoning across from Ravensdown, rather than the originally proposed HRZ due to the Hornby Town Centre walking catchment. It will balance enablement with managing effects.</u></p> <p><u>The new standard requiring specific glazing will manage adverse amenity effects of glass clouding. While potential additional development costs of meeting with standard will fall on those undertaking residential developments between 8-14 metres in height, meeting the glazing standard does enable appropriate amenity values to be achieved for new residential development. Therefore, meeting the standard enables additional development opportunities provided by PC14 to be realised within the Ravensdown interface area.</u></p> <p><b><u>Risks of acting/not acting</u></b> – In <u>assessing this option it is considered</u></p>		
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The 2024 AES memo<sup>13</sup> considers a limit 10 dB higher would be appropriate taking into account the current noise limits where received at ground and first floors, and the elevated noise environments outlined in the modelling. It provides three potential approaches to an insulation rule, and recommends mechanical ventilation, whereas the other two approaches are more onerous and potentially unnecessary. In terms of updating the noise limit, it is not considered necessary to introduce a new objective or policy in sub-chapter 6.1.2 given that existing Objective 6.1.2.1, and Policy 6.1.2.1.1 are sufficient.

This option requires a restricted discretionary consent for development over 8m not providing the specified mechanical ventilation, air conditioning and balcony orientation. The assessment matters ensure suitable internal noise levels are achieved. It also provides for consideration of any adequate screening from noise sources. In addition, consideration is given to

there is sufficient and certain information. Not acting could give rise to undue reverse sensitivity, amenity and health and safety effects.

<sup>13</sup> Refer to Appendix 7 to the Joint Witness Statement.

<p><u>impact on existing or future permitted industrial activities, and impact of permitted noise levels from industrial activities on residential health safety and amenity. The assessment matters provide flexibility over ways to ensure sound levels are appropriate and adverse effects are mitigated. The restricted discretionary status is considered enabling and fit for purpose.</u></p> <p><u>The proposed new policy is clear that it only applies within the industrial interface which will avoid unintended consequences of it being considered outside the buffer area. It aligns with the abovementioned strategic objective and provides direction on the key issues.</u></p> <p><b><u>Risks of acting/not acting – In assessing this option it is considered there is sufficient and certain information. Not acting could give rise to undue reverse sensitivity, amenity and health and safety effects.</u></b></p>			
<p><b><u>Recommendation:</u></b> Option 7 is recommended<sup>16</sup> as it is the most appropriate way to achieve the applicable statutory requirements, including giving effect to the objectives of the District Plan and higher order direction.</p>			

<sup>16</sup> Recommended by Ms Ratka.

## **6.22 Residential-Industrial Interface Area Section 32 evaluation**

- 6.22.1 **Identification and spatial extent of proposed qualifying matter (s77K (1)(a) and s77Q (1)(a))** - The extent of the proposed residential-industrial interface area is identified as a qualifying matter overlay under the Planning Maps.
- 6.22.2 **Issue** – The result of applying MDRS and Policy 3 of the NPSUD means that there is potential for much greater residential density along industrial/residential interfaces than currently enabled in the District Plan. Enabling development of three or more storeys may result in currently complying levels of noise from industrial activities exceeding the residential noise limits. This has the potential to result in health, safety and amenity effects on future occupants, and reverse sensitivity effects on industrial activities, potentially affecting their commercial viability. The activities enabled in the industrial general zone (which tend to buffer residential zones from industrial heavy zones – except a few cases such in Hornby) are those that have lesser impacts in terms of noise, traffic movements, odour than compared with land zoned industrial heavy. The industrial chapter in the District Plan includes specific measures to minimise impacts on adjoining residentially zoned land such as setbacks, recession planes, screening of outdoor storage, landscaping and building height. Chapter 6.1 of the District Plan also contains maximum noise limits for both residential zoned land and industrial zoned land.
- 6.22.3 Noise has been the most prevalent issue raised in complaints<sup>1</sup> from residents near industrial activities. This includes, but is not limited to, noise originating from the use of machinery (such as site scraping, trucks and forklifts), banging and clanging of metal, and the moving of containers. Advice from Acoustic Engineering Services (refer Appendix 39) indicates that noise limits which control the industrial-residential interface are in line with best practice (including the directives of the National Planning Standards) and put the onus on industrial operators to comply with ‘residential level’ limits by the time their noise reaches residential areas. This is because noise generated in any of the Industrial zones when received at a residential zoned property is required in the District Plan to comply with the Residential noise limits (50 dB LAeq between 0700 and 2200 hours, and 40 dB LAeq / 65 dB LAFmax between 2200 to 0700 hours). The District Plan requires compliance with these noise limits is measured and assessed in accordance with NZS6801:2001 Acoustics – Measurement of environmental sound, and NZS 6802:2008 Acoustics – Environmental noise. The NZS6802:2008 requires assessment of compliance at 1.2 – 1.5 metres at the façade above any floor level of interest, and also 1.2 – 1.5 metres above ground level over the entire outdoor area of the site.

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<sup>1</sup> Sourced from the Regulatory Compliance Unit, Citizen and Customer Services Unit and the Office of the Chief Executive for the period between 1st December 2016 and 20th March 2019



6.22.4 The AES report<sup>2</sup> indicates that the vast majority of the dwellings at the industrial-residential interface are currently single storey. In this situation, in the majority of layouts there is screening blocking direct line of site between many industrial source and residential properties – either provided by buildings, or site fencing. The report sets out that effectiveness of screening depends on the height of the screen, as well as the location of the screen relative to the source and the receiver. The key issue in this case is that if the height of the receiver is increased from 1.5 metres above ground level (single level dwelling) to approximately 7.5 metres above ground level (the third-floor level of a dwelling), the effectiveness of any screening may be reduced. If there is now direct line of sight between the industrial noise source and sensitive residential receiver, the screening may reduce to zero. In that case, a noise source which is relying on the screening to comply with a noise limit of 50 dB LAeq at ground level, would generate a noise level above 50 dB LAeq when received at the third-floor level of the new dwelling. Figure 1 below indicates the area where new noise receivers would necessitate new noise assessment locations and result in potential new non-compliances for currently compliant industrial activities.

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<sup>2</sup> Appendix 39 of the Part 2 Qualifying Matters s32 report.

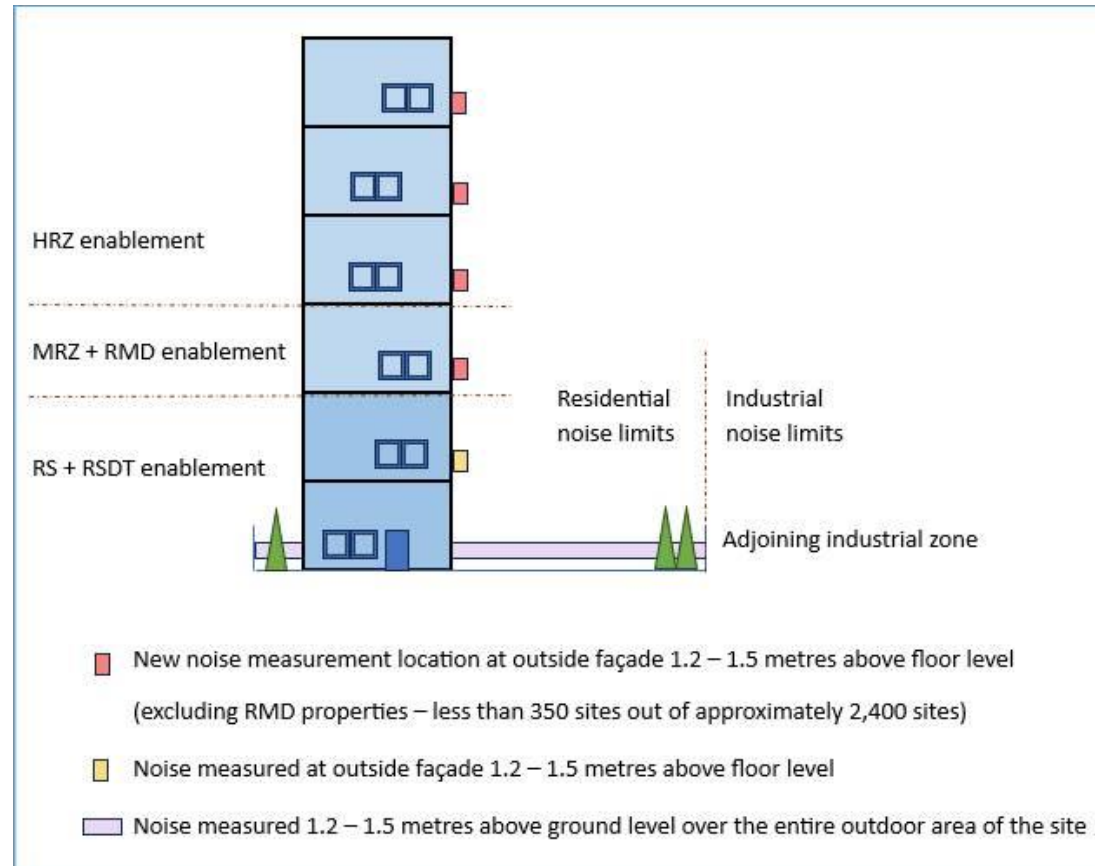


Figure 1. Noise compliance measurement locations

6.22.5 MDRS and Policy 3 may provide further incentive to redevelop those sites, and new dwellings in that case may be three or more storeys which may result in currently complying levels of noise from industrial activities exceeding the noise limits. This may result in undue health, safety and amenity effects on occupants of the new three or more storey development in terms of noise disturbance. This has the potential to therefore result in reverse sensitivity effects on industrial activities, and could unduly constrain the operation of businesses. The issue is to determine what level of intensification is appropriate so as not to unduly impact currently complying industrial activities and providing for intensification that would not cause disturbance and reduced amenity to future occupants. The Act enables a qualifying matter to potentially be applied in respect of this issue under s771 (i) and s770 (i) *'the requirement in the NPS-UD to provide sufficient business land suitable for low density uses to meet expected demand'*.

6.22.5A In addition to the above, a site specific issue has been identified relating to the interface between the Heavy Industrial Zone where the Ravensdown Manufacturing Facility is located at 312 Main South Road in Hornby and the Proposed High Density Residential Zone located on the south side of Main South Road. The key issue with this interface relates to the discharges to air that occur from the manufacturing operations this site in accordance with the resource consent conditions (attached as Appendix 5) that apply to the activity. The air discharge consent CRC080001 (which expires in 2030) imposes a number of conditions on their operations<sup>3</sup>. This includes monitoring, surveying, complaints recording, glass replacement, emission rates, testing, dust management, and odour management. Environment Canterbury (ECan) undertake a comprehensive site inspection and data review at least annually to monitor compliance with this consent. The key issues arising at the residential interface with Ravensdown include glass clouding due to fluoride, human health effects associated with sulphur dioxide and odour due to hydrogen sulphide. Mr Chiton's evidence<sup>4</sup> outlines that the discharge of sulphur dioxide (SO<sub>2</sub>) gas, which is discharged out of the acid plant stack, is a potent respiratory irritant when inhaled, and fluoride gas, which is discharged out of the manufacturing plant stack, has the ability to cloud glass surfaces and is less of a concern in terms of potential human health effects. He outlines there are relatively small increases in contaminant concentrations for residential properties up to 4-storeys in height, although the horizontal extent of impact increases. He considers that contaminant concentrations at heights up to 4 storeys are unlikely to have a significant impact, but above that height the concentrations increase markedly, to the extent that they would likely impact on Ravensdown's ability to manage its off-site air quality effects to an acceptable level.

6.22.5.B The evidence<sup>5</sup> of Peter Hay on behalf of Ravensdown outlines that the manufacture of fertiliser started at the Hornby site in 1922 and the immediate area only contained five residences at the time. In the 1940s, based on the photograph supplied by Mr Hay, more housing had been developed to the south west of the site. The area to the south west and south has become fully developed since then as low density residential. The air discharge consent from ECan was sought in 2007 and was granted, following an appeal, in 2010. Based on Mr Hay's evidence this site has a history of air discharge going back 100 years well before the area to the south west was fully developed for residential use. The discharge consent resulted in improvements being made to reduce the effects of the air discharge including increasing the stack height, use of a biofilter, and intensive monitoring of air discharges by Ravensdown and ECan. The 2022 monitoring report outlines that complaints had been received from residents relating to the air discharges.

6.22.5.C In terms of odour, this matter has not been raised as a reverse sensitivity concern previously, including in submissions or evidence to date. This matter was raised by ECan when information was sought from them by Ms Ratka. ECan have provided a memo<sup>6</sup> upon request. It details that residential areas are already highly sensitive receptors, and further intensification will only increase this sensitivity further. It sets out that while conditions of

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<sup>3</sup> Additionally, Appendix 5 to the Joint Witness Statement contains the Ravensdown annual air discharge report required under their consent.

<sup>4</sup> [Ravensdown Limited #243 - Evidence Richard Chilton - Air Quality](#).

<sup>5</sup> [Ravensdown-Limited-243-Evidence-of-Peter-Hay-Company-Final-10-October-2023.pdf \(ihp.govt.nz\)](#).

<sup>6</sup> Refer to Appendix 8 to the Joint Witness Statement.

consent are in place, reliance on conditions is problematic as compliance is not guaranteed as a range of factors such as site activities, climatic conditions, and mechanical faults can cause a site to discharge offensive and objectionable odours. With respect to Ravensdown it sets out that ECan has logged 105 incidents relating to offensive and objectionable odour over the last five years. Consideration of odour is likely out of scope noting there have been no submissions or evidence on this, however the Panel is not limited in its consideration under Schedule 1 Clause 99 (2) (b) of the Act. Whilst the ECan memo includes other industrial sites in Hornby and further afield where odour complaints have arisen from residences, this memo was very late in the piece, and it is challenging to progress this in a way that is fair and in the interests of submitters and serves this process. There is a potential plan change being considered for industrial zones, including the residential interface which could look at this issue more closely in more detail.

- 6.22.5.D The result of applying High Density Residential Zoning (HRZ), or even Medium Density Residential Zoning (MRZ), opposite an Industrial Heavy Zone means that there is potential for much greater height of residential units along the industrial/residential interface than currently enabled in the District Plan. Enabling development greater than two storeys may result in changes to the receiving environment from the current discharges. This has the potential to result in health, safety and amenity effects on future occupants, and reverse sensitivity effects on the existing consented industrial activity, potentially affecting its commercial viability. The site-specific issue is to determine what level of intensification is appropriate so as not to unduly impact the currently consented industrial activity and providing for intensification that would not cause reduced health, safety and amenity for future occupants. The Act enables a qualifying matter to potentially be applied in respect of this issue under s77I (i) and s77O (i) 'the requirement in the NPS-UD to provide sufficient business land suitable for low density uses to meet expected demand'.
- 6.22.6 **Option evaluation** – Table 29 below summarises the assessment of costs and benefits for each option based on their anticipated environmental, economic, social, and cultural effects, as well as the efficiency and effectiveness of the option and the risk of acting or not acting. The assessment is supported by the information obtained through technical reports, and consultation.
- 6.22.7 **Additional assessment under the Act (Sections 77I – 77R) and the NPS-UD (Clause 3.33)** - Section 77I and Section 77O allow for territorial authorities to apply building height or density requirements enabling less development, than would otherwise be required to be enabled, where a qualifying matter applies. Qualifying matters specifically include, under s77I (i) and s77O (i), 'the requirement in the NPS-UD to provide sufficient business land suitable for low density uses to meet expected demand'. Business land, in the NPS UD, includes land in any industrial zone.
- 6.22.8 **Reason the area is subject to a qualifying matter (s77J (3)(a)(i))** - As set out above, there is potential for much greater residential density along industrial/residential interfaces under MDRS and Policy 3 than currently enabled in the District Plan. This could result in health, safety and amenity effects on future residential occupants, and reverse sensitivity effects on industrially zoned land, particularly with respect to noise and air discharge. The noise limits within the District Plan are determined by the zoning of the receiving activity and therefore noise generated in any of the industrial zones when received at a residential zoned property are required to comply with the residential noise limits. MDRS enables residential dwellings to

be constructed up to three storeys in height in MRZ, and Policy 3 allows for even higher in HRZ, compared to the two storeys permitted in the current Plan (except 11m is permitted within the Residential Medium Density (RMD) Zone), although currently it is predominantly single level dwellings at the interface with industrially zoned land. The greater development potential may mean that the third storey of new dwellings 'overlook' industrial activities to a greater extent, and do not acoustically benefit from the screening of typical boundary fences, or intervening buildings. Additionally, as NZS6802:2008 requires assessment of noise compliance at 1.2 – 1.5 metres above any floor level of interest, there may be compliance locations created which receive higher noise levels than in the current situation, and this may result in currently complying levels of noise from industrial activities exceeding the noise limits. It is noted that changes to the industrial zone rules is outside scope of this IPI and would require a separate future plan change. In relation to the site-specific interface between the Industrial Heavy Zone at 312 Main South Road and the HRZ on the opposite side of Main South Road, Hornby, the greater development potential may mean that the receiving environment in relation to existing consented discharges to air will change, with residential units occurring at potentially higher elevations.

**6.22.9 Reason the qualifying matter is incompatible with the level of development permitted (s77J (3)(a)(ii))** – PC14 will encourage redevelopment at a rate which is currently not experienced. Three or more storey residential development abutting industrially zoned land has the potential to generate health, safety and amenity effects on future occupants, and reverse sensitivity effects on industrial activities, potentially affecting their commercial viability. The District Plan currently permits residential development up to two storeys (except 11m within RMD as noted above) whereas the MDRS provides for development up to three storeys, and Policy 3 allows for even more storeys in HRZ. Changes to subdivision controls through MDRS also mean that there cannot be any minimum allotment size around existing or proposed dwellings. This means there is potential for much greater density along industrial/residential interfaces than currently possible. This has the potential to unduly constrain industrial activities that would comply with the District Plan noise limits as they are currently, however may no longer comply due to compliance locations created which receive higher noise levels. There is potential for health, safety and amenity effects at the three storey level and associated reverse sensitivity effects on industrial activities. In relation to the site-specific matter at Ravensdown in Hornby, PC14 will encourage redevelopment at a rate which is currently not experienced. Higher development opposite an Industrial Heavy Zone has the potential to generate reverse sensitivity effects on industrial activities, potentially affecting their commercial viability. In addition, changing the relationship between the existing air discharges on the site and the residential receiving environment has potential implications on health, safety and amenity values and quality of the residential environment experienced in this area. There is potential for sensitive land uses to move vertically into an area not previously occupied where ambient air contaminant concentrations resulting from Ravensdown's operation are likely to be higher.

**6.22.10 Impact of lesser enablement under the proposed qualifying matter (s77J (3)(b))** - With respect to the 40m noise buffer, the impact on theoretical feasible development capacity is 180 units (on the basis that feasible capacity for two storey typologies is 1260 units, and feasible capacity for three

storey typologies is 1440 units)<sup>7</sup>. Turning to the 240m Ravensdown buffer, the impact on theoretical feasible development capacity is 60 units (on the basis that feasible capacity for two storey typologies is 390 units, and feasible capacity above two storeys is 450 units).

6.22.11 **The costs and broader impacts of imposing lesser enablement (s77J (3)(c))** - The costs and broader impacts of imposing those limits are set out in the below s32 evaluation table.

6.22.12 **Requirements if qualifying matter applies (NPS-UD, clause 3.33)** - For similar reasons the proposed changes relating to this issue are considered to also satisfy the assessment requirements of clause 3.33 of the NPS-UD.

<b>Table 29 – Options evaluation for the residential-industrial interface areas</b>		
<b>Option 1 – Apply MDRS and Policy 3 with no qualifying matter</b>	<b>Option 2 –40m noise buffer, discretionary activity status</b>	<b>Option 3 – 15m noise buffer, discretionary activity status</b>
<b>Option description</b> This option is to apply MDRS and Policy 3 in residential zones, without an industrial interface qualifying matter.	<b>Option description</b> This option would introduce a two storey height limit buffer for residential properties directly adjoining industrial zoned land. The two storey requirement would extend over 40m within the properties adjoining industrial land. In the case of properties fronting across the road from industrial zoned land, the same requirement would apply. Resource consent would be required for development over two storeys within this buffer. This buffer represents the potential extent of elevated noise area into the Residential zone at third floor level where industrial noise sources currently comply with the CDP limits at ground floor. The vast majority of the dwellings at the industrial-residential interface are currently single storey. Increasing to a three storey level may result in overlooking industrial activities and associated greater exposure to noise, whereas in the existing situation there is	<b>Option description</b> This option introduces a two storey height buffer for residential development within 15m of the industrial zoned land. The 15 metre buffer represents the potential extent of elevated noise area into the Residential zone at third floor level where industrial noise sources would currently comply with the CDP limits at both ground and second floor. This reflects that difference between what is required to comply at second floor level, and what is required to comply at third floor level, is not as great compared to a change from ground floor level to third floor level.

<sup>7</sup> This does not take into account any overlapping change in zone as a consequence of another QM extent (i.e. the impact is likely lower).

	likely sufficient screening at ground floor level by site fencing and/or buildings.	
<b>Appropriateness in achieving the objectives and higher order documents</b>		
<p><b>Efficiency</b> – This option is not considered an efficient way to achieve the objectives of the Plan given the potential undue impacts on future occupants of residential development three storey and above and potential undue impacts on industrial businesses.</p> <p><b>Benefits</b> - Sites are able to realise their development potential to a three storey envelope, or higher. This may provide economic benefits with a higher density enabled in these areas. This option is less likely to require consents than for all other options. Enabling development to three storeys could provide for increased social opportunities and benefits with a higher density of residents. There may be cultural benefits associated with properties being able to realise their full development potential.</p> <p><b>Costs</b> – There is potential for health, safety and amenity impacts on occupants of three or more storey development at the industrial interface, and potential for reverse sensitivity impacts on industrial activities. Existing and future industrial activities could have their operations restricted due to reverse sensitivity from three or more storey development occurring at the interface, potentially affecting their commercial viability.</p>	<p><b>Efficiency</b> – While this option reduces the enablement from three or more storey to two storey development adjoining industrial zoned land, it ensures development does not unduly impact on the operation of industrial activities in industrial zones, and protects the amenity of occupants of residential development.</p> <p><b>Benefits</b> - This option has the least impact on businesses in industrial zones. The AES acoustic memo<sup>8</sup> demonstrates there are realistic scenarios where the construction of three level dwellings would lead to elevated noise being experienced at the third storey façade from currently compliant industrial activities. This option would reduce potential for reverse sensitivity effects on industrially activities, which could potentially affect their commercial viability. It reduces potential for undue nuisance effects on residential activities adjoining the industrial interface, helping maintain amenity and wellbeing of occupants. There may be cultural benefits associated with limiting development to two storey close to industrial areas.</p> <p><b>Costs</b> - Some sites may not be able to realise their development potential in that they are limited to two storey level, or require a resource consent. However there is sufficient development capacity</p>	<p><b>Efficiency</b> – This option is not as efficient as option 4 noting that a 15m buffer would be most suitable where permitted two storey development is replaced by three storey development given the minimal difference in noise between these levels. The existing environment at the industrial interface is predominantly comprised of single level dwellings. The 15m buffer would not afford suitable distance to ensure reverse sensitivity is appropriately managed.</p> <p><b>Benefits</b> - The 15m buffer would still afford a level of separation reducing potential noise impacts on three or more storey development and associated reverse sensitivity effects on industrial activities. However the 15m buffer is based on permitted two storey development being replaced with three storey development, which does not reflect the existing situation with predominantly single level dwellings adjoining industrial zoned land. A 15m buffer would still provide a level of protection, although there is still potential for currently complying industrial activities to breach the noise rules should three or more storey development be undertaken at the interface, potentially unduly impacting on the operation of the activity. There would be economic benefits with a smaller buffer in that more three storey development can occur near the interface without requiring resource consent and potential mitigation. This option</p>

<sup>8</sup> Appendix 40 of the Part 2 Qualifying Matters s32 report.

<p>There may be cultural cost associated with enabling three or more storey development close to industrial zoned land.</p> <p><b>Effectiveness</b> – This option would not be as effective as option 4 in providing for industrial business land under Policy 2 of the NPS UD. Allowing for three or more storey development at the industrial interface would not protect the operation of industrial activities from reverse sensitivity effects. The option of not applying a QM would not align with Strategic Objective 3.3.14 Incompatible activities. It would not manage potential for adverse effects.</p> <p><b>Risk of Acting/Not Acting</b> – It is considered that there is certain and sufficient information on which to assess the appropriateness of this option. The risk of not acting is that three or more storey development will be enabled at the interface with industrial land, potentially restricting the operation of previously complying industrial activities, and new industrial activities due to noise exposure on the residential receivers.</p>	<p>within the city without additional or more intensified development in this location. There may be uncertainty and higher development costs for three or more storey development in these areas. Restricting intensification to two storey may to a small extent restrict the ability of the community to provide for its housing needs. There may be cultural costs associated with properties not being able to realise their full development potential. It is noted that there is the potential cost of subduing three or more storey residential development within the buffer area in many situations where potential reverse sensitivity effects would not arise including where industrial activities are low noise emitting, the noise source is effectively screened even where the receiver is a three or more storey dwelling, the noise source is far from the interface, or where the noise source is close to the interface with no screening and the noise exposure is relatively similar for three storey and below. It is also noted that there may be low demand for three or more storey residential development adjoining industrial land given the vast number of higher amenity areas in the City available for redevelopment.</p> <p><b>Effectiveness</b> – This option ensures business land is provided in accordance with Policy 2 of the NPS UD by protecting industrial activities from reverse sensitivity effects that might occur through allowing three or more storey development in close proximity to these interfaces.</p>	<p>would to an extent provide for social needs in that there is more ability to develop three or more storey residential development closer to the industrial interface. However, it is noted that there may be low demand for three or more storey residential development adjoining industrial land given the vast number of higher amenity areas in the City available for redevelopment. There may be cultural benefits associated with limiting development to two storey close to industrial areas.</p> <p><b>Costs</b> - The buffer would restrict development within 15m of industrial zoned land to two storey which may impact on development potential. As mentioned above the 15m buffer is not considered an adequate distance to minimise potential for amenity effects on future occupants and reverse sensitivity effect on industrial activities. This option may result in higher costs in developing at the interface however not to the same extent as option 4. This option may expose more people to undue noise effects than option 4 and may result in reverse sensitivity effects on currently complying industrial activities which may then constrain their operation.</p> <p><b>Effectiveness</b> - This option would not be as effective as option 4 in providing for business land under Policy 2 of the NPS UD given the greater potential for reverse sensitivity effects on industrial activities.</p> <p><b>Risk of Acting/Not Acting</b> – It is considered that there is certain and sufficient information on which to assess the appropriateness of this option. The risk of applying</p>
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	<p><b>Risk of Acting/Not Acting</b> – It is considered that there is certain and sufficient information on which to assess the appropriateness of this option. The risk of not acting is that there is potential for reverse sensitivity effects on industrial activities due to the greater height allowance and associated noise exposure for residential development adjoining industrial land.</p>	<p>the 15m buffer is that it is not fit for purpose, with more potential for reverse sensitivity effects than option 4. However not applying any buffer at all could unduly impact industrial businesses.</p>
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Table 29 Continued – Options evaluation for the residential-industrial interface areas			
Option 4 – 40m noise buffer adjoining IG, IH and IP with built form standards on acoustic insulation and balconies	Option 5 – MRZ adjoining Ravensdown with glass standard and height limit + Option 4	Option 6 – HRZ adjoining Ravensdown + Option 4	Option 7 – Status quo zoning adjoining Ravensdown + Option 4 <u>(Preferred)</u>
<p><b>Option description</b> This option proposes the following:</p> <ul style="list-style-type: none"> <li>- A 40m noise buffer (as outlined in Option 2) applying to medium density residential zones (MRZ) and high density residential zones (HRZ) measured from the legal boundary of sites zoned Industrial General (IG, Industrial Heavy (IH), and Industrial Park<sup>9</sup> (IP).</li> <li>- New built form standard - development above 8m is permitted where mechanical ventilation and air</li> </ul>	<p><b>Option description</b> This option incorporates Option 4, and additionally proposes:</p> <ul style="list-style-type: none"> <li>- A 240m buffer over residential zoning to the south of Ravensdown at 312 Main South Road, Hornby.</li> <li>- Residential properties within the buffer are zoned MRZ (previously some properties were notified as HRZ as within Hornby Town Centre walkable catchment).</li> <li>- Development above 8m is permitted where standards that manage effects of glass</li> </ul>	<p><b>Option description</b> This option incorporates Option 4, and additionally proposes:</p> <ul style="list-style-type: none"> <li>- Zoning of properties within the 240m buffer adjoining Ravensdown are zoned HRZ (where already notified as HRZ) instead of MRZ.</li> </ul>	<p><b>Option description</b> This option incorporates Option 4, and additionally proposes:</p> <ul style="list-style-type: none"> <li>- A 240m buffer over residential zoning to the south of Ravensdown at 312 Main South Road, Hornby.</li> <li>- These properties retain their status quo zoning of Residential Suburban (RS)</li> <li>- Refer to Appendix 9 for the mapping.</li> </ul>

<sup>9</sup> Note industrial activities are permitted within Industrial Park Zones.

<p>conditioning requirements are met and balconies do not have a line of site to industrial zones.</p> <ul style="list-style-type: none"> <li>- Where not achieved this would become a restricted discretionary activity, with associated assessment matters relating to noise mitigation and reverse sensitivity.</li> <li>- Increase the residential noise limits by 10dB within the Industrial Interface overlay above 8m.</li> <li>- A new Objective which is existing Strategic Objective 3.3.14 Incompatible activities. It also includes new Policy 14.2.12.1. Refer to Appendix 9 for these provisions<sup>10</sup>.</li> </ul>	<p>clouding are met (requiring glass that is resistant to etching), and becomes a non-complying activity where not met</p> <ul style="list-style-type: none"> <li>- Development above 14m is a non-complying activity (as opposed to restricted discretionary under MRZ zoning).</li> </ul>		
<b>Appropriateness in achieving the objectives and higher order documents</b>			
<p><b>Efficiency</b> –This option provides benefits to industrial operators, developers and the community and enables greater development capacity where adverse effects can be mitigated. It provides a realistic and feasible means to manage the interface of industrial zones and intensified new residential</p>	<p><b>Efficiency</b> –This option provides benefits to Ravensdown, developers and the community and enables greater development capacity where adverse effects of consented air discharges, specifically fluoride (which clouds glass) and sulphur dioxide (concerning for human health), can be mitigated. It, however, does not</p>	<p><b>Efficiency</b> – This option is not considered efficient given that there is very limited ability for the HRZ enablement to be realised. This approach is considered to result in the costs outweighing benefits.</p> <p><b>Benefits</b> – The high density zoning is in line with the Hornby Town Centre</p>	<p><b>Efficiency</b> – This option would ensure odour, a known reverse sensitivity issue for this site, is not made significantly worse by the MDRS and Policy 3 enablement. It acknowledges that the Ravensdown Hornby site is a historical fertiliser manufacturer with known effects beyond their boundary resulting from consented air</p>

<sup>10</sup> Appendix 9 includes provisions for Option 4 and Option 7.

<p>development. Furthermore, it helps plug the gaps in the Plan which does not currently envisage greater building heights at the interface.</p> <p><b>Benefits</b> – This option is well tailored to the issues identified, ensuring that the QM is enabling of development while balancing the need to manage adverse effects, acknowledging that the more development occurring above 8m in height at the interface, the chances are much higher of reverse sensitivity and health, safety and amenity issues being encountered.</p> <p>This option reduces potential exposure of future residential occupants to elevated industrial noise levels through a combination of managing internal noise levels/balcony orientation as well as setting a reasonable noise limit that would not constrain currently compliant industrial activities or be unreasonable to residential receivers<sup>11</sup>. Without these measures future occupants may be subject to noise levels greater than the</p>	<p>address odour effects (arising from hydrogen sulphide) which are a known effect arising in complaints.</p> <p><b>Benefits</b> – This option reduces potential exposure to elevated air discharges of sulfuric dioxide and fluoride, which can result in human health and glass clouding effects, from Ravensdown operations. Fluoride amenity effects on the additional residential development opportunities provided can be managed with appropriate glazing, while sulphur dioxide effects on human health are potentially serious and cannot be easily mitigated, resulting in a strict height limit being proposed alongside an avoid policy.</p> <p>This option continues to support and provide certainty to Ravensdown that their historically established activities can operate as currently authorised by their consent.</p> <p>This option also benefits developers and the community, in terms of economic and social impacts, by providing a relatively enabling, not</p>	<p>walking catchment, and provides greater enablement on the face of it.</p> <p><b>Costs</b> – Proposing the zoning as HRZ would signal that high density is envisaged however this would be incompatible with the QM which seeks to avoid development above 14m in height. This option would have a greater impact on development enablement than if the zoning is MRZ within 240m buffer. It would be challenging or not realistic to obtain consent and would result in uncertainty for developers and the community given the ‘mixed messaging’.</p> <p><b>Effectiveness</b> – This option would not align with Strategic Objective 13.3.14 Incompatible activities. In addition, it would not be fit for purpose as it would appear to allow for high density development whilst the QM would effectively limit height to 14m.</p> <p><b>Risks of acting/not acting</b> – In assessing this option it is considered there is sufficient and certain information. Not acting could give rise</p>	<p>discharges. There are a significant number of complaints that have been received over a span of several years relating to odour. Unlike for Option 5 where it is considered that glass clouding and human health effects (from fluoride and sulphur dioxide respectively) can be mitigated via glass standards and strict building height controls, odour (from hydrogen sulphide) cannot be mitigated, as set out in ECan’s memo<sup>15</sup>.</p> <p>Noting that complaints have been received even further than 240m from Ravensdown, a greater buffer distance could be considered, for instance a 400m buffer, (aligning with the most frequent complaint as set out in Attachment 1 of the ECan Memo) or even retaining status quo zoning over all residential properties east of Shands Road and north of Springs Road. However as outlined in the ECan memo it is difficult to justify a suitable distance given the varied nature of odour. The 240m distance would be suitable for not only odour but also the glass clouding and human health effects discussed in Option 5. It is</p>
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<sup>11</sup> Refer to the 2024 AES memo attached as Appendix 4 to the Joint Witness Statement.

<sup>15</sup> Refer to Appendix 8 to the Joint Witness Statement.

<p>permitted residential limits and industrial activities may need to change their operations given they would be subject to a new measurement location above 8m in height, creating a new non-compliance.</p> <p>This option continues to support and provide certainty to industrial operators that their activities can operate as currently authorised without undue constraint by ensuring that new residential development above 8m occurs in a manner compatible with existing adjoining industrial zones.</p> <p>Finally, this approach protects against potential cumulative effects that could arise at the interface, especially if there is good uptake of MRDS and Policy 3.</p> <p><b>Costs</b> – This option will result in an impact on development capacity, however to a lesser extent than most of the other options. The impact on theoretical feasible development capacity is 180 units (on the basis that feasible capacity for two storey typologies is 1260 units, and feasible</p>	<p>cost-prohibitive and clear pathway for intensified residential development, while ensuring health, safety and amenity are protected.</p> <p>Finally, this approach to an extent protects against potential cumulative effects that could arise at this interface, especially if there is good uptake of MRDS and Policy 3.</p> <p><b>Costs</b> – This option will result in an impact on development capacity, however to a lesser extent than most of the other options. The impact on theoretical feasible development capacity is 60 units (on the basis that feasible capacity for two storey typologies is 390 units, and feasible capacity above two storeys is 450 units).</p> <p>This option would result in potential additional development costs in terms of glass clouding resistant glazing above 8m within the 240m air discharge buffer.</p> <p>This option would require resource consent where the new built form standard is not met, resulting in consenting and mitigation costs and time.</p>	<p>to undue reverse sensitivity, amenity and health and safety effects.</p>	<p>noted that there could still be reverse sensitivity effects of intensifying beyond 240m.</p> <p><b>Benefits</b> – Retaining the operative zoning will ensure current reverse sensitivity issues are not worsened by more people being exposed to odour. This zoning would, to an extent, ensure Ravensdown is not unduly constrained by not enabling greater heights and densities as permitted activities. The current industrial framework sets the expectation of lower amenity for residential properties at the interface and in this case the site is IH with no IG buffer from residential sites.</p> <p>The existing zoning can be utilised without any further planning intervention and is understood by developers and the community.</p> <p><b>Costs</b> – This option would restrict development opportunities to what is enabled in the status quo RS zoning (i.e. one unit per 450m<sup>2</sup> and a minor unit).</p> <p>It is noted that the existing consent framework does not address reverse sensitivity for exceeding building</p>
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<p>capacity for three storey typologies is 1440 units)<sup>12</sup>.</p> <p>This option would result in potential additional development costs in terms of mechanical ventilation and air conditioning units above 8m within the 40m buffer.</p> <p>This option would require resource consent where the new built form standard is not met, resulting in consenting and mitigation costs and time.</p> <p>A small portion of the proposed industrial interface buffer is currently within the Residential Medium Density (RMD) Zone. This equates to approximately 350 existing residential sites. There are at least four existing dwellings which are three storeys. The 2024 AES memo (attached as Appendix 7 to the Joint Witness Statement) includes an example of a preschool requiring an acoustic barrier to mitigate noise emissions on one of these three storey dwellings. The QM would not impact the proposed zoning of these RMD properties, however it will mean that any new dwellings</p>	<p>The consent pathway for development above 14m within the 240m air discharge buffer would be challenging, with uncertainty in whether consent will be obtained.</p> <p>It is likely that reverse sensitivity effects will nevertheless arise given that the glass clouding standard and height limit do not address the effects of odour.</p> <p><b>Effectiveness</b> – This option aligns with <i>Strategic Objective 3.13.14 Incompatible activities</i> and balances enabling greater development with managing air discharge at the interface in potential new receiving locations.</p> <p>The new policy addresses potential for glass clouding and human health issues adjoining Ravensdown and seeks avoidance of development above 8m where mitigation is not an option.</p> <p>The 240m buffer is broadly consistent with the bulk of properties needing window replacements and also the BRANZ glass replacement assessment</p>		<p>heights, so where a height limit is breached this will not be a consideration in the consent.</p> <p><b>Effectiveness</b> – This option is effective in addressing the issue of possible reverse sensitivity, amenity and health and safety effects.</p> <p><b>Risks of acting/not acting</b> – In assessing this option it is considered there is sufficient and certain information. Not acting could give rise to undue reverse sensitivity, amenity and health and safety effects</p>
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<sup>12</sup> This does not take into account any overlapping change in zone as a consequence of another QM extent (i.e. the impact is likely lower).

<p>above 8m require mechanical ventilation and air conditioning installed, and balconies to not have line of site to industrial zones or a restricted discretionary resource consent. This restriction is more onerous than the current RMD requirements. Furthermore, the proposed 10dB increase for residential noise limits (to the parts of the residential development exceeding 8m in height above ground level within the 40m buffer) would potentially impact amenity of occupants in the at least four existing three storey residential units. I note this impact would only be limited to these existing three storey developments, which much of the RMD within the 40m buffer not being developed at three storeys. I have included an exemption to the increased noise limits for residential unit/s exceeding 8m in height above ground level existing at the plan change operative date. The 2024 AES memo emphasises that the more development occurring at these heights at the interface, the chances are much higher of reverse sensitivity</p>	<p>zone<sup>14</sup> for the consent. Mr Chilton considers the 240m buffer aligns with the main area of peak impact from the stacks (it is noted however that the modelling did not take into account odour). The 240m Ravensdown buffer accommodates the 40m noise buffer plus provision of an additional 200m which reflects the extent of off-site locations where Ravensdown carries out monitoring and survey work under Consent CRC080001, and where windows of residential dwellings have been replaced, as required by the consent due to etching of glass. The proposed rules would require clouding resistant glazing above 8m and becomes a non-complying activity where this is not met.</p> <p>Development above 14m is a non-complying activity. The avoidance of development above 14m reflects that above this height human health issues are more likely and cannot be managed with mechanical ventilation or orientation of balconies such as is proposed for within the 40m noise buffer. This option would apply MRZ zoning across from Ravensdown, rather than the originally proposed</p>		
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<sup>14</sup> Refer to Appendix 4 to the Joint Witness Statement.

<p>and amenity issues being encountered.</p> <p><b>Effectiveness</b> – This option aligns with <i>Strategic Objective 3.13.14 Incompatible activities</i> and balances enabling greater development with managing noise at the interface in potential new receiving locations.</p> <p>In terms of the provisions being fit for purpose, the 2024 AES memo sets out that an acoustic insulation QM approach would need to address internal noise and ensure balconies do not overlook industrial zones, and furthermore provide direction on what noise levels the insulation would be protecting against. The memo considers that an acoustic insulation approach would need to be accompanied by changes to the noise limits section of the Plan as insulation would not address there being a new noise measurement location and potential for non-compliance.</p> <p>The 2024 AES memo<sup>13</sup> considers a limit 10 dB higher would be appropriate taking into account the current noise limits where received at</p>	<p>HRZ due to the Hornby Town Centre walking catchment. It will balance enablement with managing effects.</p> <p>The new standard requiring specific glazing will manage adverse amenity effects of glass clouding. While potential additional development costs of meeting with standard will fall on those undertaking residential developments between 8-14 metres in height, meeting the glazing standard does enable appropriate amenity values to be achieved for new residential development. Therefore, meeting the standard enables additional development opportunities provided by PC14 to be realised within the Ravensdown interface area.</p> <p><b>Risks of acting/not acting</b> – In assessing this option it is considered there is sufficient and certain information. Not acting could give rise to undue reverse sensitivity, amenity and health and safety effects.</p>		
---	---	--	--

<sup>13</sup> Refer to Appendix 7 to the Joint Witness Statement.

ground and first floors, and the elevated noise environments outlined in the modelling. It provides three potential approaches to an insulation rule, and recommends mechanical ventilation, whereas the other two approaches are more onerous and potentially unnecessary. In terms of updating the noise limit, it is not considered necessary to introduce a new objective or policy in sub-chapter 6.1.2 given that existing Objective 6.1.2.1, and Policy 6.1.2.1.1 are sufficient.

This option requires a restricted discretionary consent for development over 8m not providing the specified mechanical ventilation, air conditioning and balcony orientation. The assessment matters ensure suitable internal noise levels are achieved. It also provides for consideration of any adequate screening from noise sources. In addition, consideration is given to impact on existing or future permitted industrial activities, and impact of permitted noise levels from industrial activities on residential health safety and amenity. The assessment matters provide flexibility over ways to ensure sound levels are appropriate and



<p>adverse effects are mitigated. The restricted discretionary status is considered enabling and fit for purpose.</p> <p>The proposed new policy is clear that it only applies within the industrial interface which will avoid unintended consequences of it being considered outside the buffer area. It aligns with the abovementioned strategic objective and provides direction on the key issues.</p> <p><b>Risks of acting/not acting</b> – In assessing this option it is considered there is sufficient and certain information. Not acting could give rise to undue reverse sensitivity, amenity and health and safety effects.</p>			
<p><b>Recommendation:</b> Option 7 is recommended<sup>16</sup> as it is the most appropriate way to achieve the applicable statutory requirements, including giving effect to the objectives of the District Plan and higher order direction.</p>			

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<sup>16</sup> Recommended by Ms Ratka.

## APPENDIX 3B – Provisions addressing matters raised by Ravensdown (Option 5)

### Key:

Any operative text is shown as normal text or in **bold**, any text proposed to be added by the plan change (following the hearing) is shown as **bold underlined**. Note – The master copy of PC14 provisions to be provided in Council's right of reply will show all changes including deletions since the s32 and s42a recommendations.

Text in [blue](#) font indicates links to other provisions in the district Plan and/or external documents. These will have pop-ups and links, respectively, in the on-line Christchurch District Plan.

Text in [green](#) font identifies existing terms in Chapter 2 – Definitions.

Text in **bold red underlined** are either placeholders for new numbering or notes for clarity and do not form part of the provisions.

### **(Existing Strategic Objective) 3.3.15 Objective – Incompatible activities**

- a. The location of activities is controlled, primarily by zoning, to minimise conflicts between incompatible activities; and
- b. Conflicts between incompatible activities are avoided where there may be significant adverse effects on the health, safety and amenity of people and communities.

### **14.2.12 Objective – Residential interface with industrial zones**

**a. This Objective is [Objective 3.3.15](#) in Chapter 3 Strategic Directions.**

#### **14.2.12.1 Policy – Residential amenity and reverse sensitivity within the Industrial Interface overlay**

**a. Within medium and high density zoned areas within the Industrial Interface overlay, avoid [residential units](#) above 8m in [height](#) except where effects of noise and air discharges from lawfully established [industrial activities](#) are mitigated by the [residential unit/s](#) to ensure that health, safety, and amenity effects on occupants are no more than minor, and reduce the likelihood of [reverse sensitivity](#) effects on activities in industrial zones.**

**b. Recognise that the Ravensdown fertiliser manufacturing activity (Lot 10 DP 1391, Pt Lots 6,7,8 DP 1391, Lot 9 DP 1391, Pt Lot 1 DP 2899, Lots 13,14,15,16,17 DP 2899, Pt Lots 2,3,4 DP 2899, Lots 1,2 DP 3189, Lot 1 DP 3910, and Lot 1 DP 25992) cannot internalise all adverse effects of its consented air discharges, and avoid adverse effects on human health and structures, through applying a 240m buffer area surrounding the plant where:**

- i. New [residential units](#), or additions to existing [residential units](#) shall be required to use glazing that avoids the adverse effects of fluoride gas; and**
- ii. [Residential activity](#) is avoided in those parts of [buildings](#) exceeding 14m in [height](#) as exposure to air discharges may endanger human health.**

**14.5.2 Built form Standards (*Medium Density Residential Zone (MRZ)*) / 14.6.2 Built form standards (*High Density Residential Zone (HRZ)*)**

**14.5.2.20(*MRZ*) / 14.6.2.19 (*HRZ*) Residential units within the Industrial interface overlay**

**a. New residential units and/or extensions to existing residential units with habitable room window/s in any part of a building at or above 8m in height above ground level, where these windows have line of sight to a site or sites zoned Industrial General, Industrial Heavy, or Industrial Park:**

**i. Habitable rooms that contain these windows shall have mechanical ventilation systems and air conditioning units installed that meet the following specifications when in operation:**

**A. Satisfy clause G4 Ventilation of the New Zealand Building Code, or any amendment to or replacement of that clause, as if the windows and external doors cannot be opened;**

**B. Emit noise not exceeding 35 dB LAeq (30s) between 2200-0700 hours when received in bedrooms when measured 1 metre away from any grille or diffuser; and**

**C. Emit noise not exceeding 40 dB LAeq (30s) in any other space at any time when measured 1 metre away from any grille or diffuser.**

**b. Residential units shall not have balconies located above 8m in height above ground level that have line of sight to any site or sites within an Industrial General, Industrial Heavy or Industrial Park Zone.**

**c. For the purposes of a. and b. above, line of sight means sites within industrial zones are visible (whether partially obstructed or not) from any position within the habitable space out the window or windows or from any part of the balcony.**

**d. The following additional requirements apply to new residential units or additions to existing residential units within the 240m Ravensdown buffer in [Appendix 14.16.12 Ravensdown Buffer](#):**

**i. Windows in buildings above 8m in height above ground level shall use self-cleaning glazing that has an exterior titanium dioxide coating.**

**ii. Buildings containing residential units shall not exceed 14m in height above ground level.**

**14.5.1.3 (*MRZ*) / 14.6.1.3 (*HRZ*) Restricted discretionary activities**

Activity		The Council's discretion shall be limited to the following matters:
RD33/RD26	a. Residential units that do not meet a. or b. under <a href="#">Rule 14.5.2.20/14.6.2.19 – Residential units within the Industrial interface</a>	Industrial Interface – <a href="#">Rule 14.15.44</a>

#### 14.5.1.5 (MRZ) / 14.6.1.5 (HRZ) Non-complying activities

Activity	
NC5/NC9	a. <b>Residential units</b> that do not meet d.i or d.ii under <a href="#">Rule 14.5.2.20/14.6.2.19</a> – <b>Residential units within the Industrial interface overlay.</b>

### 14.15 Rules – Matters of control and discretion

#### 14.15.44 Industrial Interface

a. The provision of a report from an acoustic specialist which demonstrates that the **residential unit/s** will achieve an internal sound level of 35 dB LAEq(1h) for bedrooms and 40 dB LAEq(1h) for other habitable spaces above 8m in **height** where there is line of sight to industrial zones. The above internal sound levels shall be based on the noise standards that industrial activities need to achieve in Table 1 clause ‘e’ of [Rule 6.1.5.2.1](#).

b. The necessity of acoustic mitigation for habitable rooms and the effects of noise received at **balconies**, taking into account the adequacy of any screening from existing and anticipated industrial activities generating noise at levels permitted within the relevant industrial zone.

c. The impact of the **residential activity** on the ability of existing or future permitted industrial activities to operate or establish without undue constraint.

d. The degree to which the health, safety and amenity of residential occupants may be adversely affected by permitted industrial noise levels.

e. The effects of not providing the required mechanical ventilation on the health of occupants.

f. The effects of noise from mechanical ventilation or air conditioning units on the health, comfort and wellbeing of occupants.

### 6.1.5.2 Noise Standards

#### 6.1.5.2.1 Zone noise limits outside the Central City

**Table 1: Zone noise limits outside the Central City**

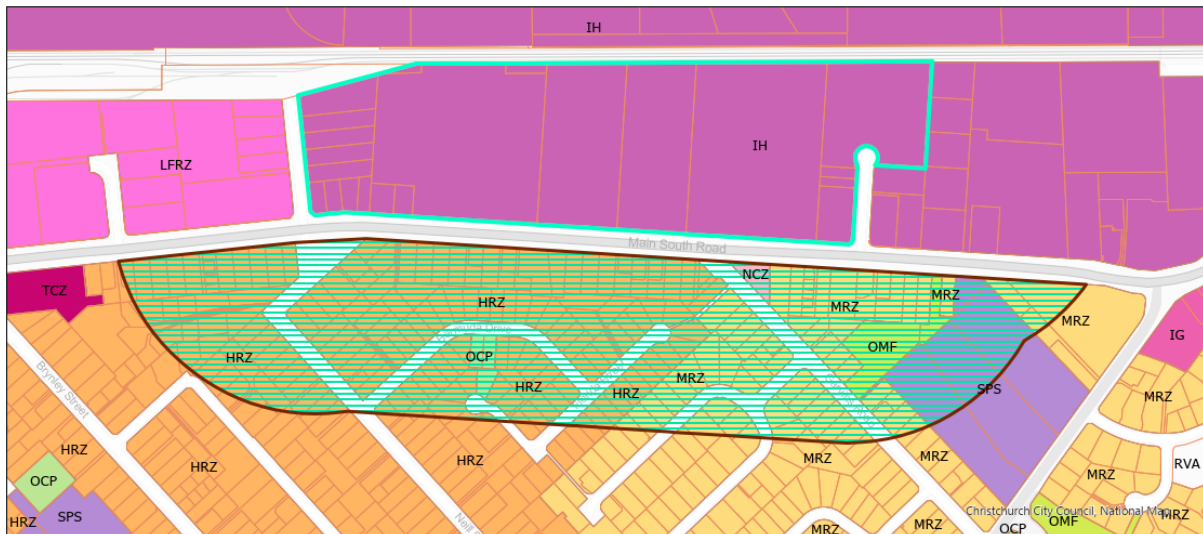
Zone of site receiving noise from the activity	Time (hrs)	Noise Limit (dB)	
		LAeq	LAmx
a. All residential zones (other than in the Accommodation and Community Facilities Overlay <b>and in e. below</b> )	07:00-22:00	50	n/a
b. All rural zones, except Rural Quarry Zone, assessed at any			

point within a notional boundary c. Specific Purpose (Flat Land Recovery) and Specific Purpose (Ōtākaro Avon River Corridor) Zones d. Papakāinga/Kāinga Nohoanga Zone	22:00-07:00	40	65
e. <u>Within medium and high density zoned areas within the Industrial Interface overlay, any parts of new residential unit/s exceeding 8m in height above ground level (except residential unit/s exceeding 8m in height above ground level existing at ...(insert PC14 operative date) a. above applies instead)</u>	<u>07:00-22:00</u>	<u>60</u>	<u>n/a</u>
	<u>22:00-07:00</u>	<u>50</u>	<u>75</u>

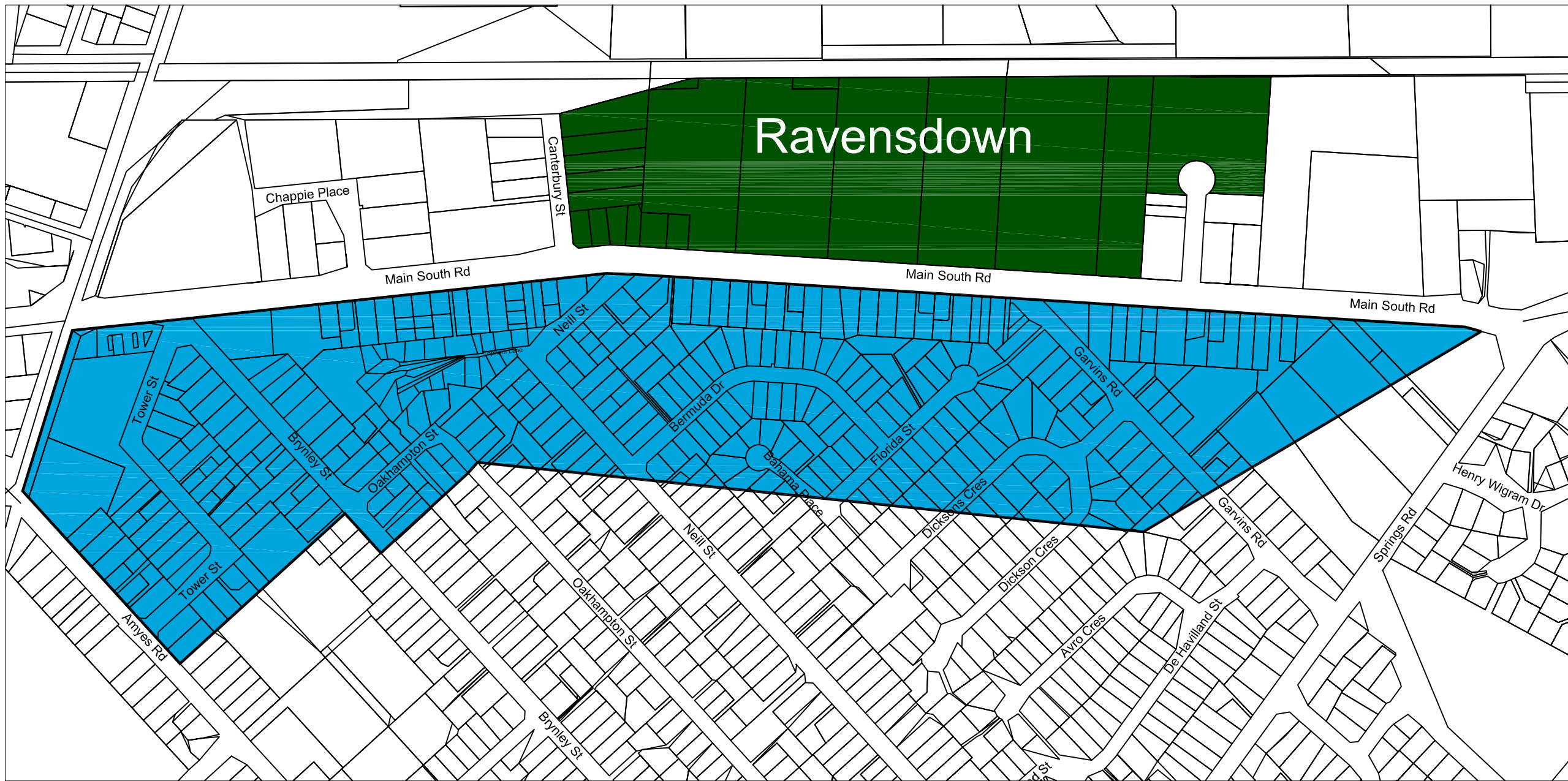
#### 14.16 Appendices

##### Appendix 14.16.12 Ravensdown Buffer

a. The residential **sites** outlined below are within the 240m Ravensdown air discharge buffer.



***(Placeholder image – final image to have HRZ within 240m buffer changed to MRZ)***



BRANZ ZONE  AS INDICATED IN REPORT DZ802

			BY	CHECKED	DATE
		DESIGN	CD	CB	03/07
		DRAWN	CD	CB	03/07
		APPROVED			
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AMENDMENT	APP'D	DATE			



Christchurch  
Property Services  
PO Box 1482  
Christchurch, New Zealand  
Tel: 03 363 5400  
Fax: 03 363 5428

TITLE RAVENSDown WINDOW ASSESSMENT PROGRAMME					
BRANZ ZONE					
STATUS	IN PROGRESS			FILE	6-G1053.00
SCALE	NTS	PLOT DATE	MARCH 07	FEATURE IDENTIFIER	CODE
					SHEET 01
					REVISION






LEGEND:

- COMPLETED  Total 219
- PENDING  Total 1


# RESIDENTIAL REPLACEMENTS 18/07/11

- NOTE:
- 3 OUTSIDE MAP AREA
  - 3 DIX STREET
  - 53 HARVARD AVENUE
  - 1 THORNHILL PLACE

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**Ravensdown Fertiliser**  
Co-operative Ltd



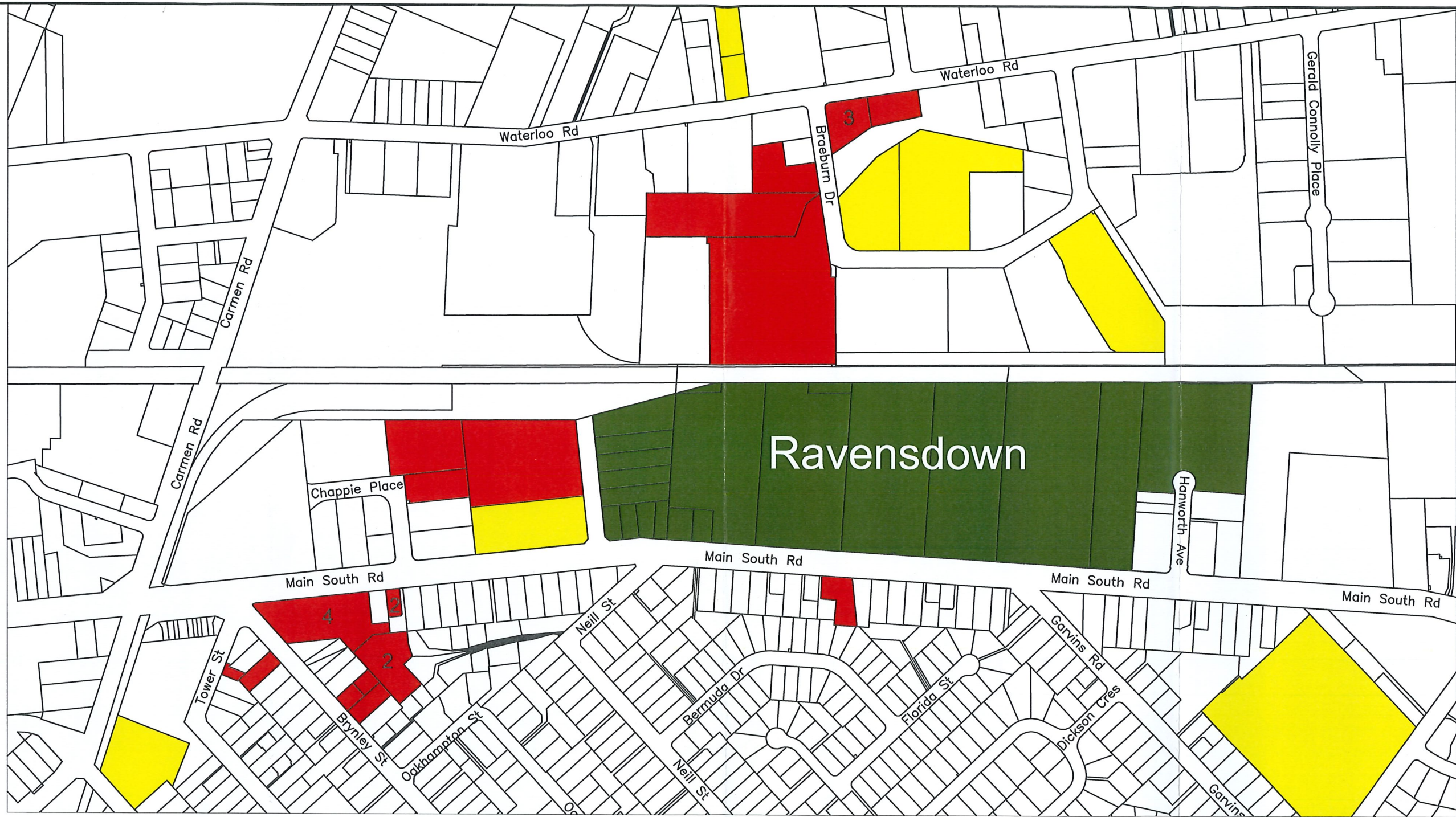
**Christchurch Property**

PO Box 1482  
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Tel: +64 3 363 5400  
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TITLE RAVENSDOWN RESIDENTIAL WINDOW ASSESSMENT PROGRAM					
RESIDENTIAL REPLACEMENTS					
STATUS IN PROGRESS		FILE 6-G1053.00			
SCALE NTS	PLOT DATE MARCH 2008	FEATURE IDENTIFIER	CODE	SHEET 02	REVISION



200 mm  
100  
50  
0 10 mm




LEGEND:

COMPLETED		Total 24
PENDING REPLACEMENT		Total 0
PENDING		Total 8

# COMMERCIAL REPLACEMENTS 18/07/11

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**Ravensdown Fertiliser**  
Co-operative Ltd



Christchurch  
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PO Box 1482  
Christchurch, New Zealand  
Tel: 03 363 5400  
Fax: 03 363 5428

TITLE RAVENSDOWN COMERCIAL WINDOW ASSESSMENT					
COMMERCIAL REPLACEMENTS					
STATUS IN PROGRESS		FILE 6-G1053.00			
SCALE NTS	PLOT DATE MARCH 08	FEATURE IDENTIFIER	CODE	SHEET 02	REVISION



# GLASS REPLACEMENT LOCATIONS SINCE 2012

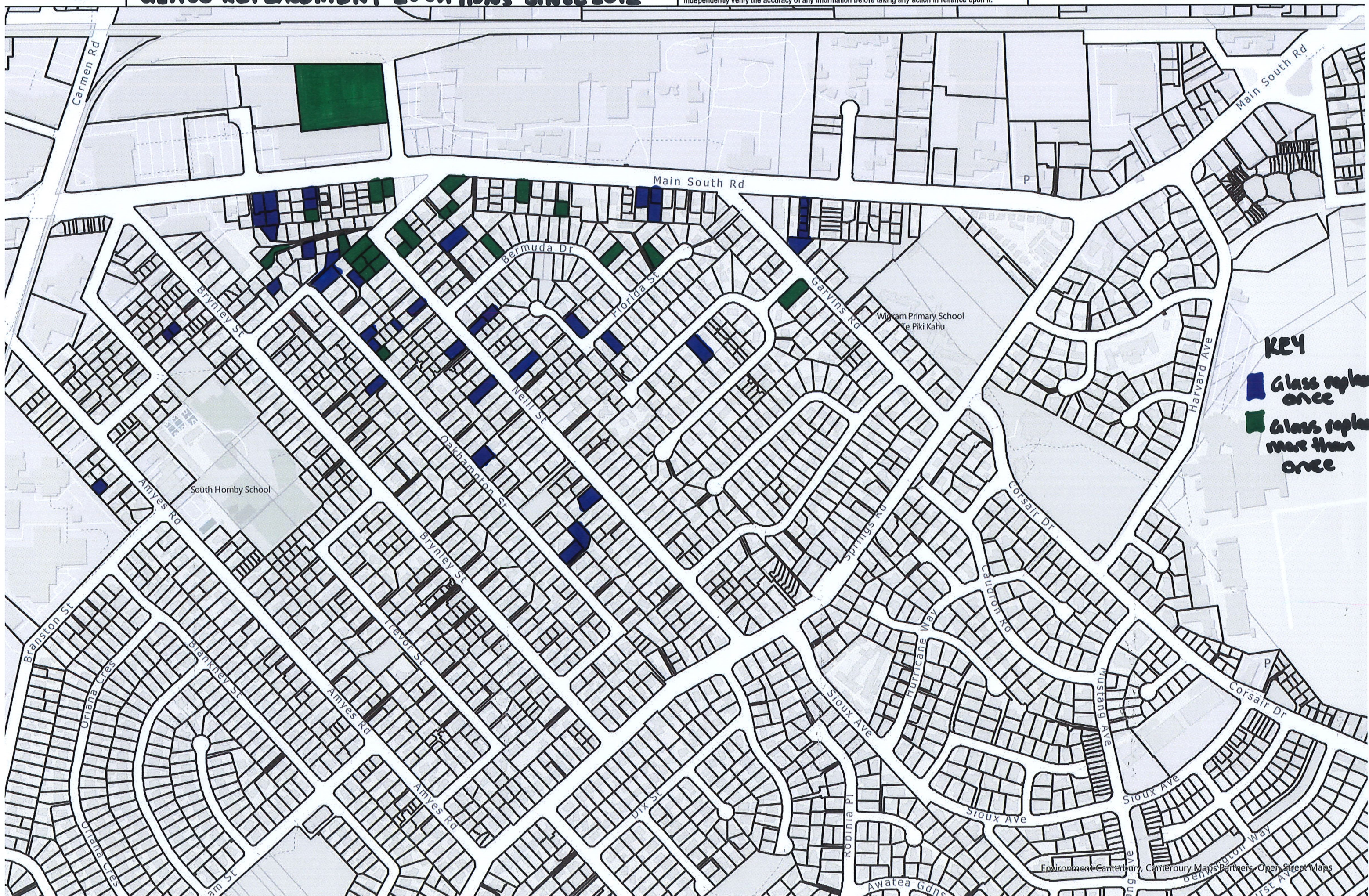
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0 0.07 0.14 0.21 0.28 Kilometres

Scale: 1:5,000 @A3

Map Created by Canterbury Maps on 28/11/2023 at 12:56 PM





# Christchurch Works Annual Air Discharge Consent Report CRC080001

**1st January 2022 - 31st December 2022**

**Author: Angela Doudney**

**8 June 2023**

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# CRC080001

## 1.0 Introduction

### 1.1 Background

This report provides a summary of air quality monitoring results that were measured at the Ravensdown Ltd site in Christchurch during 2022 in accordance with the site discharge to air consent (CRC080001).

This consent was given effect to on 4 February 2010. Condition 52 of this consent requires the provision of an annual summary of the monitoring for the preceding year. This report was prepared to meet the reporting requirements of Condition 52 and covers the period between 1 January 2022 and 31 December 2022.

Condition 52 states:

- a) *The consent holder shall provide to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, a yearly summary that includes but is not necessarily limited to all monitoring undertaken in accordance with the requirements of this consent.*
- b) *The yearly report shall include an assessment of the actual and potential environment effects associated with the matters considered.*

### 1.2 Report Structure

This report is structured in four segments:

- 1) *Introduction, site layout and location of monitoring sites*
- 2) *Compliance with the consent condition*
- 3) *An assessment of the actual and potential environmental effects*
- 4) *A summary of the overall compliance with resource consent CRC080001.*

Compliance with consent conditions is covered by examining each condition with all sub conditions. The requirements of each sub condition are addressed individually to assess the overall compliance with the consent condition.

### 1.3 Site Information

The Ravensdown site comprises of approximately 14 hectares and is located within the Hornby Industrial area situated between State Highway 73 and the Main West Coast rail trunk line to the south and west of the city (see Figure 1).

The manufacture of superphosphate at the Ravensdown Christchurch site has been carried out since 1922. The site produces up to approximately 160,000 tonnes per year of superphosphate and stores up to 13,000 tonnes of sulphur and 45,000 tonnes of phosphate rock. The site also manufactures approximately 60,000 tonnes of sulphuric acid per year. Sulphuric acid and raw phosphate rock are the primary inputs to the superphosphate manufacturing process.

### 1.4 Location of Monitoring Sites

The locations of the ambient sulphur dioxide (SO<sub>2</sub>) and fluoride monitors are shown in Figure 1 and listed in Table 1. One ambient SO<sub>2</sub> monitor is located at 15 Bermuda Drive. Two of the three ambient fluoride monitors are located at the east and west ends of the site, the third being located north of the site.

**Table 1: Location of ambient monitoring sites.**

Site name	Type	Location
15 Bermuda Drive	Ambient sulphur dioxide	43°32'37.9" S 172°32'02.1" E
West fluoride monitor	Ambient fluoride	43°32'33.25" S 172°31'50.5" E
East fluoride monitor	Ambient fluoride	43°32'28.5" S 172°32'22.5" E
Iplex fluoride monitor	Ambient fluoride	43°32'24" S 172°32'11.5" E



Figure 1: Location of Ravensdown Christchurch and monitoring sites.

## 2.0 Compliance of Consent Conditions

### 2.1 General

#### 2.1.1 Conditions 1 and 2 – Discharge contaminants

Condition 1 states the following:

*The discharge into air shall be only from the manufacture of sulphuric acid and superphosphate fertiliser and associated activities, located at 312 Main South Road, Christchurch, at or about map reference NZMS 260 M35:7260-4050.*

During 2022, the discharges into air were only from the manufacture of sulphuric acid and superphosphate fertiliser and associated activities.

The requirements of Condition 1 have been met.

Condition 2 states the following:

*The discharge shall not cause odour or particulate matter, which is offensive or objectionable, beyond the boundary of the property on which the consent is exercised.*

During 2022, Ravensdown received fourteen odour complaints, of which eight were not substantiated and two were notified as not offensive, as determined by a council officer in response to a complaint. Four other odour complaints were not able to be substantiated by a council officer, though Ravensdown accept there was odour beyond the boundary, we were unable to determine if it was offensive or objectionable.

The requirements of Condition 2 have been met.

### 2.1.2 Condition 3 – Notification of malfunction/breakdown

Condition 3 states the following:

*The consent holder shall notify the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, as soon as practicable of any plant malfunction or breakdown that results in an abnormal discharge to air*

During the 2022 year there were no abnormal discharges to air as a results of plant malfunction or breakdown so no notifications to Canterbury Regional Council (CRC) were made.

The requirements of Condition 3 have been met.

### 2.1.3 Condition 4 – Complaint/incident log

Condition 4 states the following:

*The consent holder shall keep a log of all complaints relating to discharge to air at the site.*

- a) *The log shall include:*
  - (i) *the date and time of the complaint or incident;*
  - (ii) *the nature of the complaint or incident;*
  - (iii) *the location;*
  - (iv) *weather conditions at the time;*
  - (v) *plant operating parameters at the time; and*
  - (vi) *any action undertaken in response.*
- b) *The complaints log shall be provided to the Canterbury Regional Council upon request.*

A complaints record was kept at Ravensdown, including the date, time and location of the incident, the weather conditions at the time of the complaint, the operational status of the plant and any actions taken in response to a complaint. This information is available to CRC on request.

The requirements of Condition 4 have been met.

### 2.1.4 Condition 5 – Sampling and survey qualification

Condition 5 states the following:

- a) *All sampling and surveys shall be carried out by an independent suitably qualified person or by the consent holder or its representative where the Canterbury Regional Council has agreed to this in writing.*
- b) *Where the consent holder or its representative carries out testing or monitoring, an independent suitably qualified person shall audit the monitoring and testing methodology at least once per year, unless otherwise agreed in writing by the Canterbury Regional Council*
- c) *The independent auditor shall provide a written report describing the extent of compliance with the required protocols.*
- d) *A copy of the audit report shall be supplied to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 10 working days of receipt by the consent holder.*

The ambient SO<sub>2</sub> monitor is operated by Watercare Services Limited (Watercare). Sampling onsite was either undertaken by accredited laboratories (see Condition 6) or carried out by onsite staff. The ambient fluoride detectors were operated by Ravensdown.

An audit was conducted by Verum Group in December 2022 and a copy of the report was forwarded to CRC in March 2023.

The requirements of Condition 5 have been met.

### 2.1.5 Condition 6 – Laboratory accreditation

Condition 6 states the following:

*All analyses in accordance with conditions on this consent shall be carried out by an independently accredited laboratory to ISO/IEC Guide 25, or to the satisfaction of the Canterbury Regional Council.*

All external testing is carried out by laboratories that hold current accreditation by International Accreditation New Zealand (IANZ). This includes ambient SO<sub>2</sub> monitoring and mill emissions testing.

The requirements for Condition 6 have been met.



## 2.1.6 Condition 7 – Review of consent conditions

Condition 7 states the following:

*The Canterbury Regional Council may, once per year, on any of the last five working days of October, serve notice of its intention to review the conditions of this consent for the purposes of:*

- a) Dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or*
- b) Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment caused by the exercise of this consent; or*
- c) Dealing with an adverse effects of building material corrosion that an independent person who is qualified and suitably experienced, has attributed to the discharge allowed by this consent, based on monitoring results under condition (51).*

Ravensdown did not receive a notice of review from CRC during 2022.

Therefore, Condition 7 is not considered further.

## 2.2 Outside Storage

### 2.2.1 Condition 8 to 16

All raw and processed materials were stored within enclosed buildings in 2022.

The requirements of Conditions 8 through 16 have been met.

## 2.3 Acid Manufacturing Plant

### 2.3.1 Condition 17 – Discharge stack

Condition 17 states the following:

- a) The discharge from the acid manufacturing plant shall be via a stack with its outlet at least 40 metres above ground level.*
- b) If during the term of this consent the Christchurch City Plan provides for a stack height of 50 metres or more above ground level to be an activity for which a consent should be obtained, the consent holder shall apply for resource consent to raise the stack height to at least 50 metres above ground level within six months of the rule becoming operative. The stack shall be raised to at least 50 metres within twelve months of any such consent being granted.*

The acid manufacturing stack is 67.2m high, as consented for by Christchurch City Council on 7<sup>th</sup> June 2012 and installed June 2014.

The requirements for Condition 17 have been met.

### 2.3.2 Condition 18 – Obscuration records

Condition 18 states the following:

*With the exception of a period of no more than two hours following start-up of the acid plant, the discharge from the acid plant emission stack shall be clear and colourless at all times.*

In 2022, the Acid Plant had a winter maintenance shutdown, and the cold start was from 27<sup>th</sup> July. The opacity of the stack emission was monitored throughout the startup process and was recorded as being clear. On occasion there has been a slight visible plume while operating during the production year, in these circumstances we check and adjust the plant conditions to ensure the plant is operating as it should.

The requirements for Condition 18 have been met.

### 2.3.3 Condition 19 – Stack emission: sulphur dioxide

Condition 19 states the following:

- a) Subject to conditions (19) (b), (c) and (d), the acid manufacturing plant sulphur dioxide emission rate shall not exceed 86 kilograms per hour at any time.*
- b) The acid manufacturing sulphur dioxide emission rate shall not exceed 77 kilograms per hour measured as a 10-minute average more than ten percent of the time over any twelve month period.*
- c) If the discharge rate of sulphur dioxide exceeds 86 kilograms per hour over a 10-minute period, measured as a 10-minute average, the sulphur dioxide emission rate shall be reduced immediately.*

- d) A system shall be installed within six months of granting this consent that automatically shuts down the sulphuric acid production process if the discharge rate of sulphur dioxide from that process exceeds 86 kilograms per hour over a 30 minute period, measured as three consecutive 10-minute averages.

An in-stack monitor measures the SO<sub>2</sub> concentrations from the acid manufacturing plant, and a second monitor measures the flow rate. From the concentration and flow rate data, the SO<sub>2</sub> emission rate is calculated. In-stack SO<sub>2</sub> emissions from the acid manufacturing plant were logged every minute with 10-minute averages calculated based on the 1-minute readings.

During 2022 there were no exceedances of 77kg/hr or 86kg/hr which is compliant with both conditions 19 (a) and (b) as shown in figure 2. The gap in data from May to August is when the acid plant was shut down for annual maintenance work.

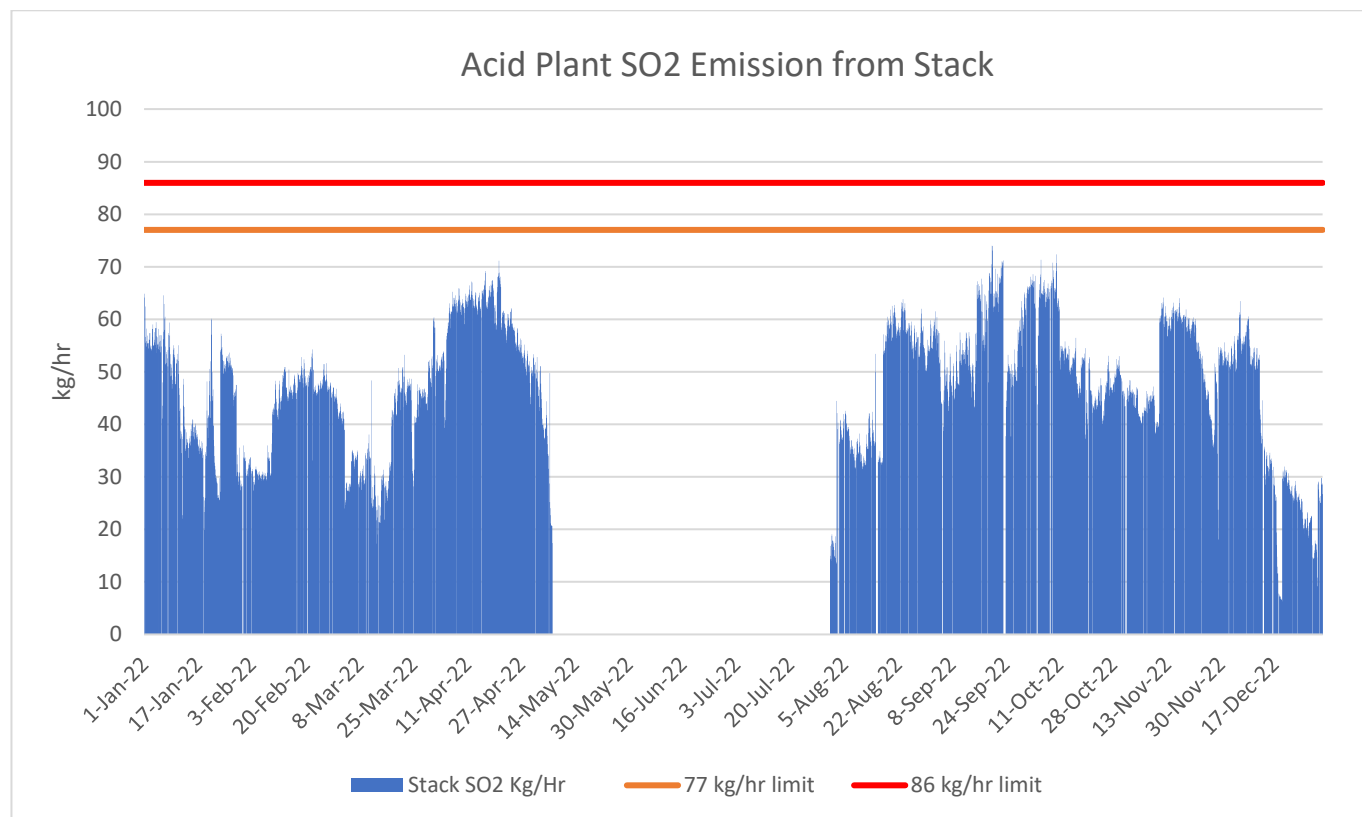


Figure 2: Acid Plant Sulphur Dioxide measurements 2022

The requirements for condition 19 have been met.

### 2.3.4 Condition 20 – In-stack monitoring

Condition 20 states the following:

- The gas flow rate in the acid manufacturing plant stack shall be measured on a continuous basis with measurements recorded at least every minute.
- The sulphur dioxide concentration in the acid manufacturing plant stack shall be measured on a continuous basis with measurements recorded at least every minute.
- The measurements of the sulphur dioxide concentration shall be by method ISO 7935:1992(E) or equivalent.
- All measurements that show exceedances of 19(a) of this consent shall be notified to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 24 hours of the exceedances.

The gas flow rate is measured continuously in the acid manufacturing stack with measurements logged every minute. Likewise, an instantaneous measurement of SO<sub>2</sub> is logged every minute.

The in-stack SO<sub>2</sub> concentrations are measured using method ISO 7935:1992(E).

The requirements for Condition 20 have been met.

### 2.3.5 Condition 21 – Gas flow and sulphur dioxide concentration

Condition 21 states the following:

- a) *The gas flow in the acid manufacturing plant stack shall be measured manually at least once per month.*
- b) *The sulphur dioxide concentration in the acid manufacturing plant stack shall be measured manually at least once per month.*
- c) *The manual measurement of the sulphur dioxide concentration shall be by USEPA method 8 or equivalent.*
- d) *A copy of the gas flow rates and sulphur dioxide test results shall be supplied to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 10 working days of receipt by the consent holder.*

Gas flow rate and sulphur dioxide concentrations were manually measured at least twice per month on an approximately fortnightly basis. SO<sub>2</sub> concentrations were measured using USEPA Method 8.

A copy of the gas flow rates and SO<sub>2</sub> concentrations were supplied to the CRC within 10 days.

The requirements of Condition 21 have been met.

### 2.3.6 Condition 22 – Repair of leaks

Condition 22 states the following:

*The consent holder shall repair any detected leaks of sulphur dioxide in the acid manufacturing plant as soon as practicable.*

In 2022 there were no sulphur dioxide leaks at the acid plant.

The requirements for Condition 22 have been met.

### 2.3.7 Condition 23 - Stack emissions: sulphur trioxide and sulphuric acid mist

Condition 23 states the following:

*The combined rate of discharge of sulphur trioxide and sulphuric acid mist from the acid manufacturing plant stack, expressed as sulphur trioxide, shall not exceed 0.6 kilograms per hour.*

The combined discharge rate of sulphur trioxide and sulphuric acid mist from the acid manufacturing plant stack is presented in Figure 3. The combined rate in 2022 remained significantly less than the consented limit, and is consistent with previous years of monitoring.

The maintenance shut occurred between 9 May and 1 August where no data was collected, as shown in Figure 3.

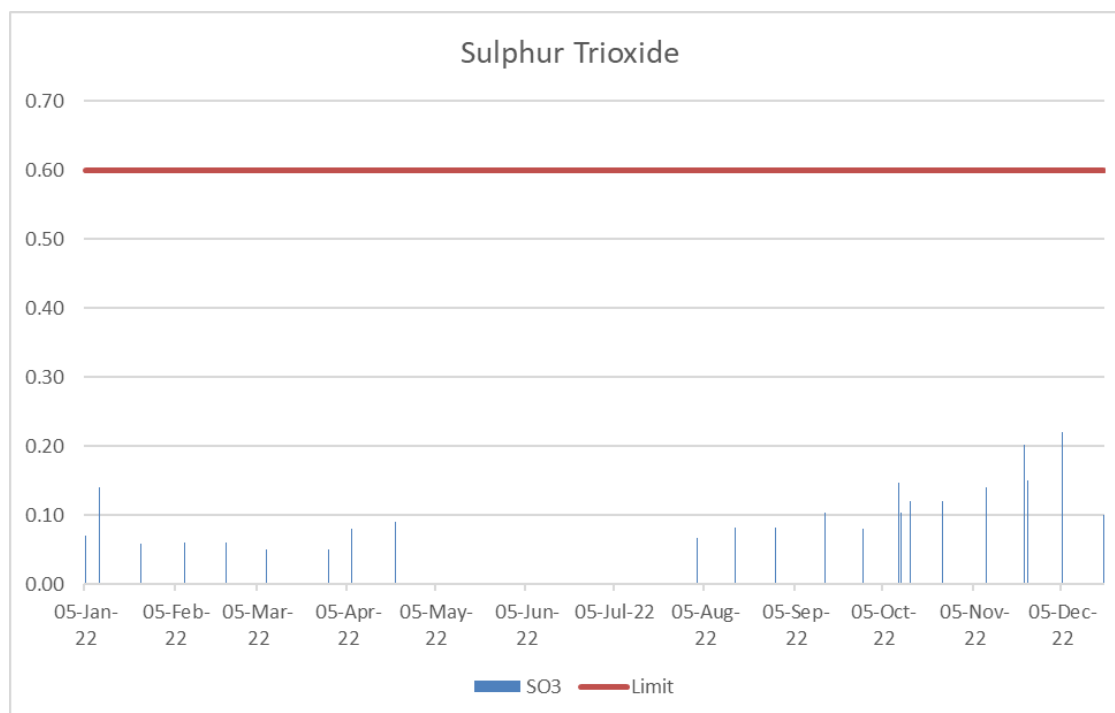


Figure 3: Mass emission rate for sulphur trioxide and sulphuric acid for the acid manufacturing plant stack. The red line indicates the consent discharge limit of 0.6kg/hr.

The requirements of Condition 23 have been met.

### 2.3.8 Condition 24 – Measurement of sulphur trioxide and sulphuric acid mist

Condition 24 states the following:

- a) *The sulphuric acid and sulphur trioxide concentration, expressed as sulphur trioxide, in the acid manufacturing plant stack shall be measured at least once every two weeks.*
- b) *The measurement of the sulphuric acid and sulphur trioxide concentration shall be by USEPA method 8 or equivalent.*
- c) *A copy of the sulphuric acid and sulphur trioxide test results shall be supplied to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 10 working days of receipt by the consent holder.*

The sulphuric acid and sulphur trioxide concentrations from the acid manufacturing plant stack were measured at least once every two weeks in 2022 except for one occasion where testing was not completed in the two-week time frame, on 25 March. This was due to multiple days of rain and the Lab staff at 50% due to COVID 19 restrictions.

Sulphuric acid and sulphur trioxide tests were carried out using USEPA method 8.

A copy of the sulphuric acid and sulphur trioxide concentrations was supplied to the CRC within 10 days.

Condition 24 has been met.

### 2.3.9 Condition 25 – Monitoring hydrogen sulphide

Condition 25 states the following:

- a) *At least once per week the consent holder shall measure the hydrogen sulphide concentration in the discharge from the sulphur melter biotrickling filter.*
- b) *The measurement of the hydrogen sulphide concentration shall be by a method approved by the consent authority.*
- c) *A copy of the hydrogen sulphide test results shall be supplied to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager upon request.*

The hydrogen sulphide concentration in the discharge from the sulphur melter biotrickling filter was measured every Tuesday and Friday each week of Acid Plant operation.

The test method was previously checked and approved as part of the annual CRC compliance audit. In 2023, we are installing new equipment which will continue the same method but provide continual monitoring of the hydrogen sulphide concentration.

A copy of the hydrogen sulphide test results is available upon request.

The requirements of Condition 25(a) 25(b) and (c) have been met.

### 2.3.10 Condition 26 – Bio-trickling filter maintenance

Condition 26 states the following:

- a) *The sulphur meter biotrickling filter shall be maintained and operated to ensure that at least 98 percent of the hydrogen sulphide in the discharge is removed by the filter system for 90 percent of any 12 month period, measured as a rolling average.*
- b) *Operation and maintenance shall include, but not be limited to, maintaining the correct operating temperature and ensuring that the filter medium does not become blocked.*
- c) *This condition shall be read in conjunction with condition 2, as the maintenance of the biotrickling filter is for the purpose of odour management.*

Figure 4 presents data illustrating the 98% removal efficiencies of the bio-trickling filter. The bio-trickling filter inlet and outlet concentration are measured to an accuracy of 1ppm. The bio-trickling filter has performed above 98% for some periods through 2022. The period from August to November was less consistent and changes were made which provided improvements. Results at the end of 2022 show more consistent removal rate above 98%.

Changes made in the Acid Plant included:

- A caustic wash after initial start-up in August 2022
- Improved sealing of melter pit lids to ensure negative airflow and better collection of gasses October 2022
- Coil replacement in the biofilter on November 3<sup>rd</sup>, 2022
- Reduced production rate.

An Engineering resource was also allocated to assess improvements to the biotrickling filter, the scope was to look at the biofilter operation, data recording and presentation. The findings include:

- The method of data calculation and presentation of hydrogen sulphide was reviewed to ensure the calculations used to provide graph presentations remain correct. This review found that the 'non-data' during the shut period was affecting the rolling average result calculations. This was corrected and this finding was shared with CRC in January 2023.
- Improvements to equipment monitoring hydrogen sulphide in the biofilter. New equipment has been sourced which will continue the same monitoring method but provide continual monitoring of the hydrogen sulphide concentration. This equipment is ordered and we are waiting for delivery.

Figure 5, illustrates the 12 month rolling average for removal of hydrogen sulphide in 2022, and shows the year started above 90%. The reduction in removal rate from August to November, reduced the 12 month average, however this has not dropped below 80% and remained constant above the 80% average.

Through 2022 there has been a period where odour complaints relating to hydrogen sulphide have been received (and justified). These are consistent with the August to November period where hydrogen sulphide removal above 98% was less consistent.

Figures 4a and 5a:

As requested for CRC's Compliance Monitoring of the **2021 Annual Monitoring Report for Christchurch Works**, graphs of the 98% removal efficiencies and the 12month rolling average for the period 1st January to 31st March 2023 are shown in figures 4a and 5a. Figure 4a shows the 98% removal efficiencies for the period 1<sup>st</sup> January to 31<sup>st</sup> March 2023.

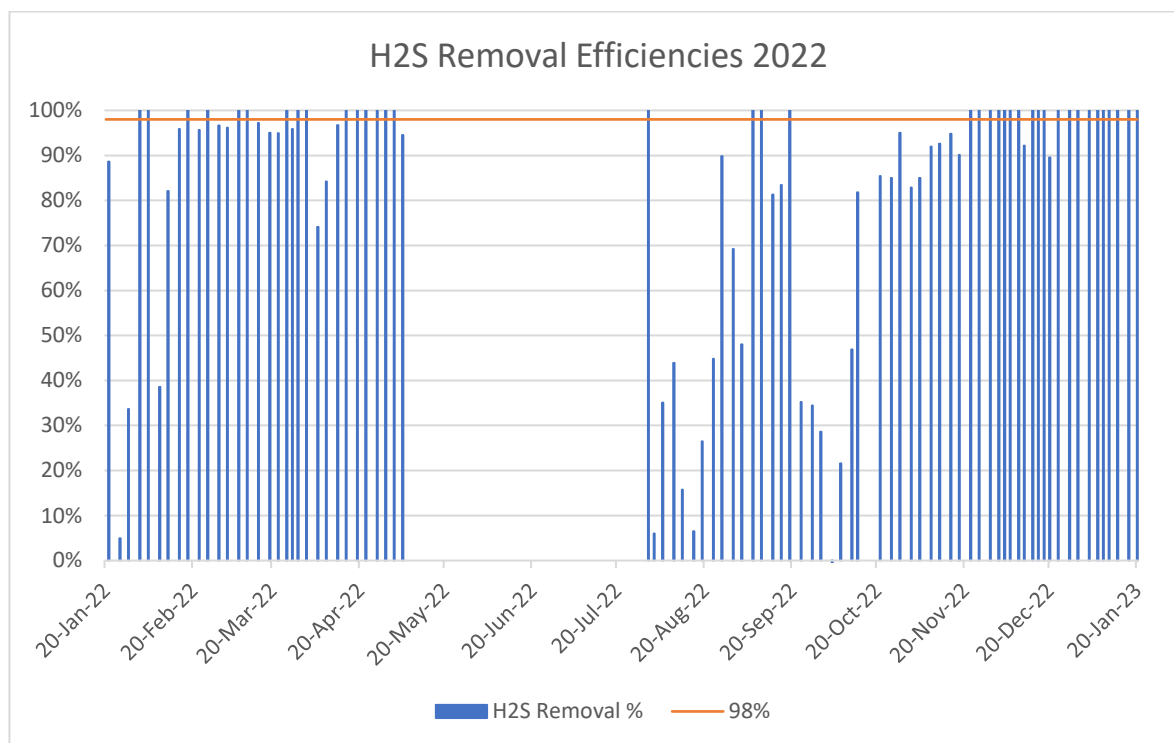


Figure 4: Percentage of hydrogen sulphide removal efficiencies of the sulphur melter bio-trickling filter.

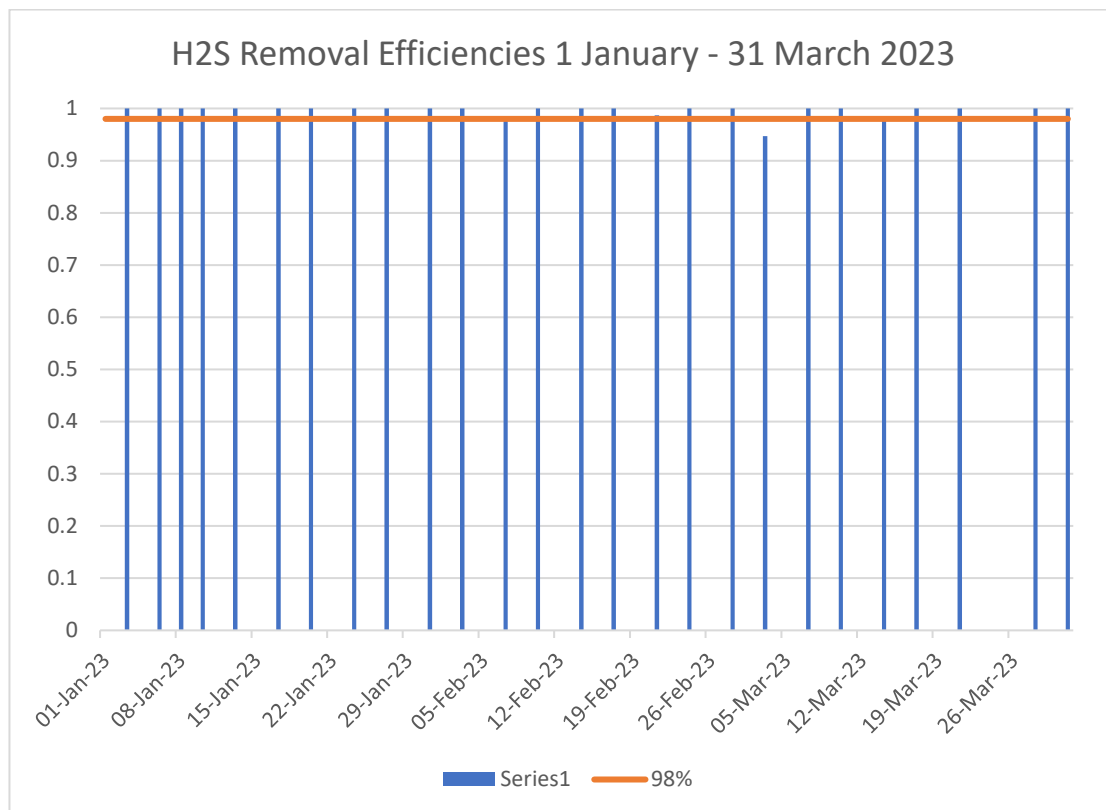


Figure 4a: Percentage of hydrogen sulphide removal efficiencies of the sulphur melter bio-trickling filter, 1 January – 31 March 2023.

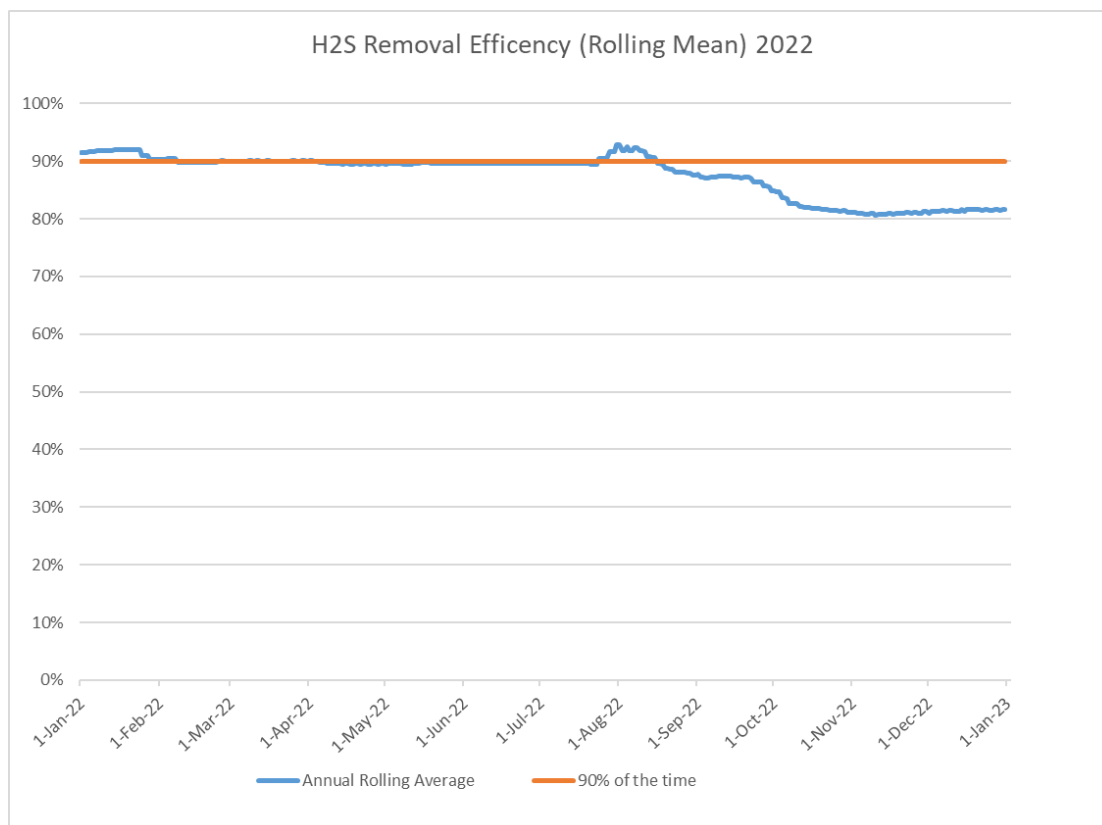


Figure 5: 12 Month removal efficiency (rolling mean) of hydrogen sulphide removed by the sulphur melter bio-trickling filter.

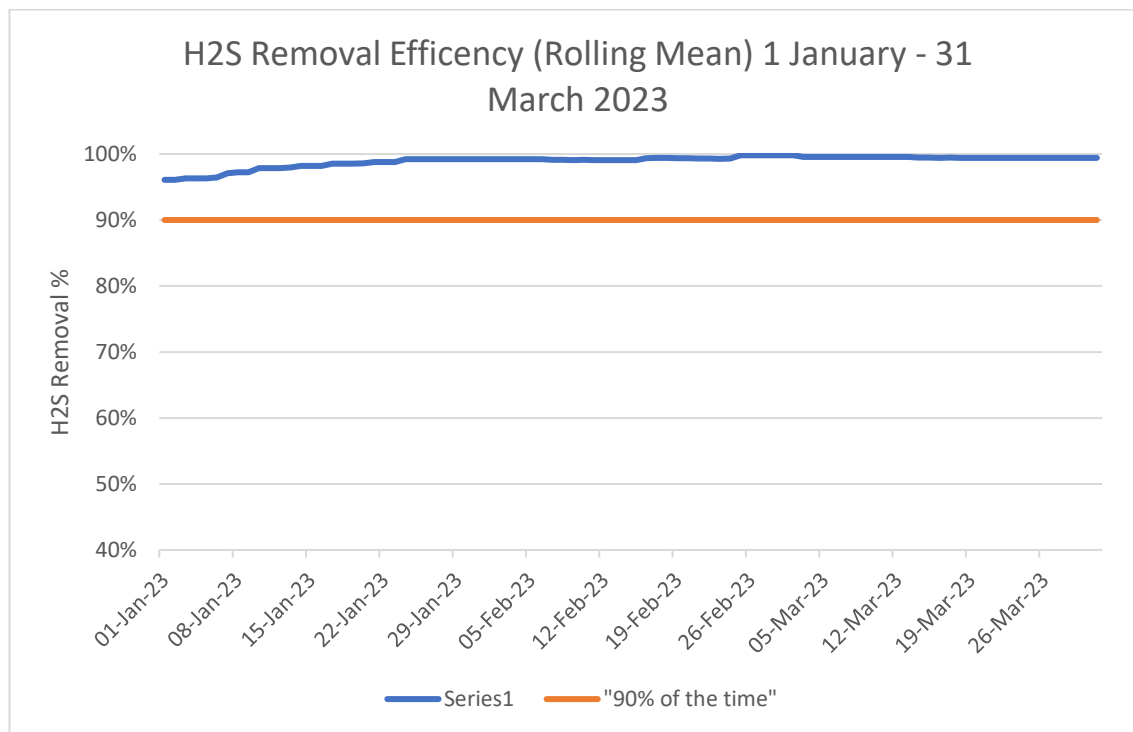


Figure 5a: 12 Month removal efficiency (rolling mean) of hydrogen sulphide removed by the sulphur melter bio-trickling filter, 1 January – 31 March 2023.

The requirements of Condition 26(a), viewed in conjunction with Condition 2, have not been met 100% percent of the time.

### 2.3.11 Condition 27 - Sulphur dioxide detectors

Condition 27 states the following:

- a) *The consent holder shall:*
  - i) *install sulphur dioxide detectors in the sulphur storage and processing areas; and*
  - ii) *operate sulphur dioxide detectors at all times.*
  - iii) *Ensure that the sulphur dioxide detectors are connected to an alarm system to provide warning of sulphur fires.*
- b) *Within six months of the date of commencement of this consent, the consent holder shall install and operate at least four sulphur dioxide detectors around the acid manufacturing plant in order to detect fugitive sulphur dioxide emissions.*
- c) *The monitoring programme and the method of measurement shall be approved in writing by the Canterbury Regional Council.*

All sulphur dioxide detection systems for condition 27 are in place and operating along with a maintenance and calibration contract with APC Techsafe.

Condition 27 (c) – we can confirm that the CRC approval of our monitoring programme was received in February 2023.

The requirements of Condition 27 have been met.

### 2.3.12 Condition 28 – Cold start notification

Condition 28 states the following:

- a) *The consent holder shall notify the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, whenever an acid plant cold start is to occur.*
- b) *Cold start notification shall be made at least five working days prior to the commencement of the event. For the purpose of this consent “working day” is as defined in the Resource Management Act.*

- c) Cold start notification information shall include:
- i) the date and time of the commencement of the event;
  - ii) the name and contact details of the staff member in charge of the commencement event.

There was one cold start in 2022, this was in July and CRC was notified in advance, sulphur heating began on 27<sup>th</sup> July. The requirements of Condition 28 have been met.

## 2.4 Fertiliser Manufacturing Plant

### 2.4.1 Condition 29 – Discharge stack

Condition 29 states the following:

*All manufacturing den scrubber and hygiene scrubber emissions from the fertiliser manufacturing plant shall be discharged via a stack with its outlet at least 41.5 metres above ground level.*

The manufacturing stack height is 41.9 metres above ground level.

The requirement of Condition 29 has been met.

### 2.4.2 Condition 30 – Stack emissions

Condition 30 states the following:

*The fertiliser plant stack total fluoride compounds emission rate shall not exceed:*

- a) one kilogram per hour for 90 percent of samples taken in any 12-month period, measured on a rolling average; and
- b) two kilograms per hour at any time.

Measured emission rates of total fluoride compounds from the fertiliser manufacturing plant stack are presented in Figure 6.

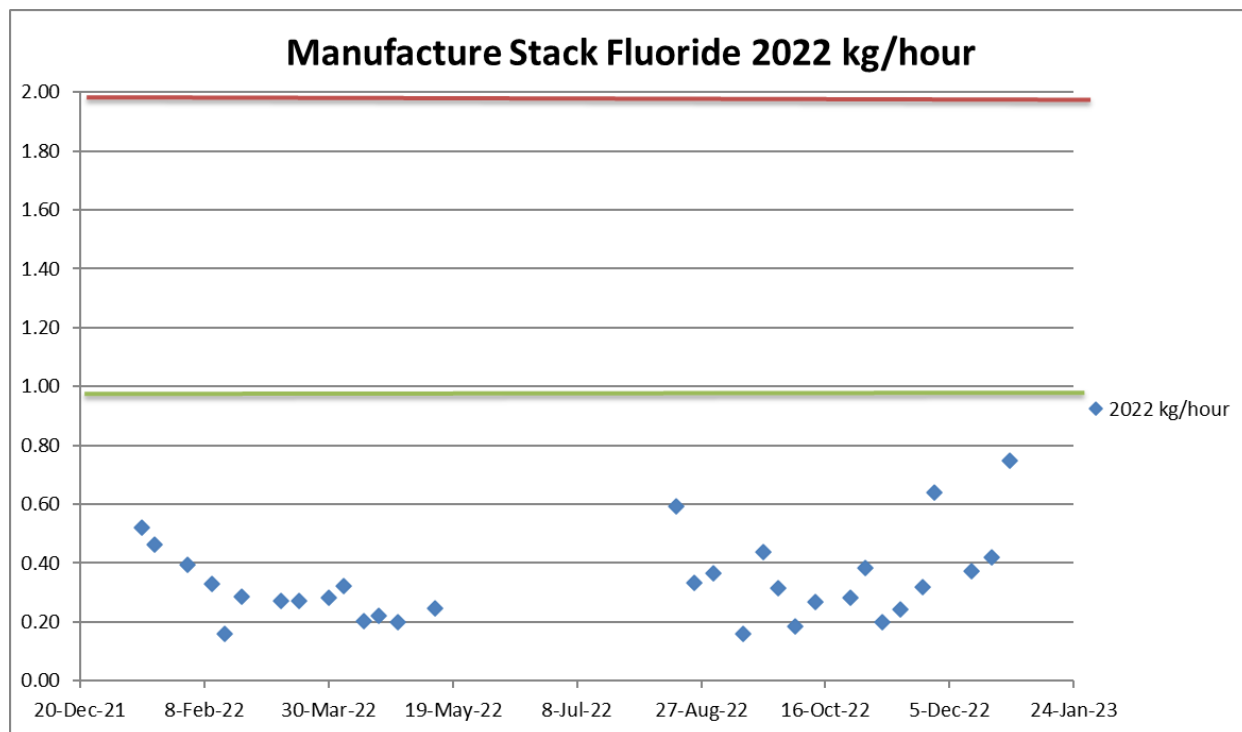


Figure 6: Fluoride emission rate from the fertiliser manufacturing plant stack. The green line indicates the limit for the 90<sup>th</sup> percentile of the fluoride emission rate of 1.0 kg/hr. The red line indicates the absolute limit of 2.0 kg/hr.

For the calendar year of 2022 the rolling average of total fluoride measured out of the Manufacture Stack did not exceed 1 kg per hour. There was no exceedance of the 2.0kg/hr limit on any occasion in 2022.

Where there are gaps in the data, this is due to the maintenance shut and some weeks where superphosphate production was limited so testing was not able to be undertaken due to the time required for the test.

The requirements of Condition 30 have been met.



### 2.4.3 Condition 31 – Fluoride monitoring

Condition 31 states the following:

- The total fluoride compounds concentration in the discharge from the fertiliser manufacturing plant stack shall be measured at least once per week, provided that where a weekly test returns a result greater than one kilogram per hour, daily testing shall be carried out until such a time as a result of one kilogram per hour or less is measured. Weekly testing may then resume.*
- The measurement shall be undertaken during superphosphate manufacture and no test may commence within one hour of starting acidulation.*
- The measurement of the total fluoride compounds concentration shall be by, USEPA Method 13B (Total fluoride specific ion electrode) or an alternative method approved, in writing, by the Canterbury Regional Council.*
- A copy of the total fluoride test results shall be supplied to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, upon request.*

Total fluoride compounds discharged from the fertiliser manufacturing plant were measured once per week during periods when superphosphate was being manufactured, apart from those times where measurements couldn't be taken due to production schedules, breakdowns or poor weather conditions.

Total fluoride measurements were not undertaken in the weeks between 9 May and 1 August due to maintenance shut. Total fluoride measurement were not able to be taken in the weeks starting 24 January, 21 March, 2 May, 8 August, 5 September, 17 October and 5 December due to limited production, staffing and weather conditions, and the measurement taken week starting 26 December was cut short to 34 minutes instead of the full 60 minutes. The measurement of the total fluoride compounds concentration uses USEPA Method 13B.

Copies of the total fluoride test results are available to the CRC, on request.

The requirements of Condition 31 have been met.

### 2.4.4 Condition 32 – pH

Condition 32 states the following:

*The fertiliser manufacturing plant stack gas condensate pH shall not be less than 3.0.*

The measured pH for the fertiliser manufacturing plant stack gas condensate is presented in Figure 7. Measurements are made once a week during periods that the plant is operating in compliance with condition 33a.

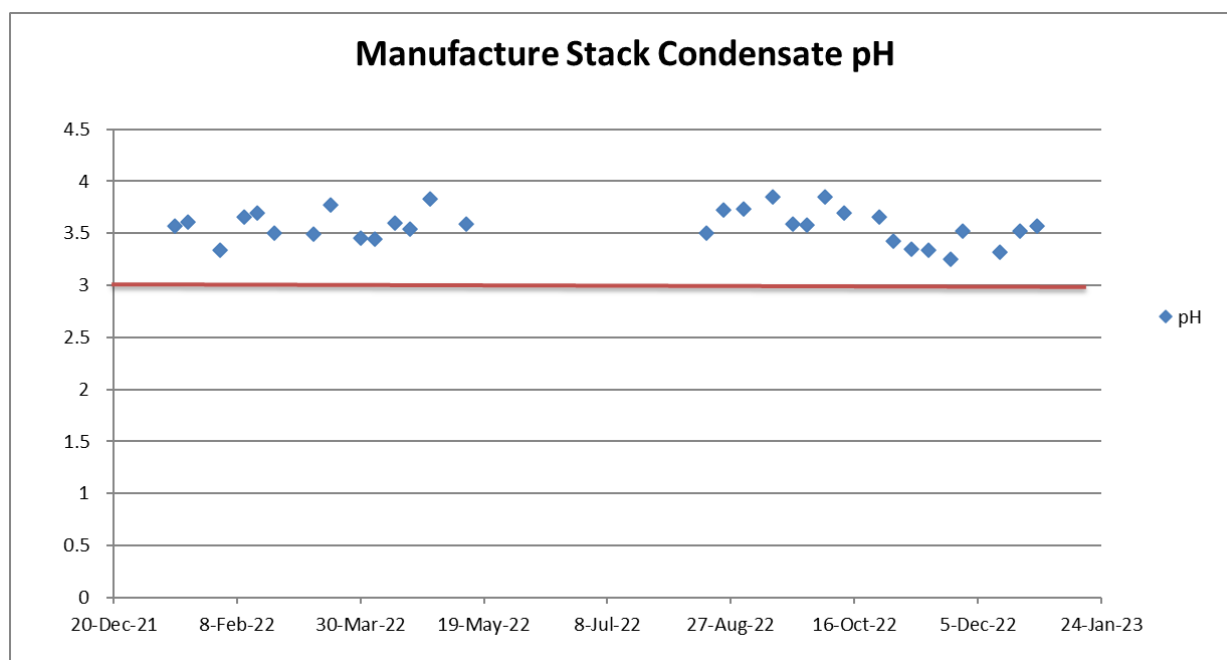


Figure 7: pH measurements for manufacturing plant stack gas condensate. The redline indicates the lower limit for pH.

All pH measurements are above the consent requirement of 3.0.

The requirements of Condition 32 have been met.

## 2.4.5 Condition 33 – Monitoring of condensed phase pH

Condition 33 states the following:

- a) *The pH of the condensate in the fertiliser manufacturing plant stack gas shall be measured at least once per week.*
- b) *A copy of the pH test results shall be supplied to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, upon request.*

The pH of the condensate in the fertiliser manufacturing plant stack gas was measured once per week during periods when the plant was operating except on those occasions where testing could not be completed which aligns with the dates and reasons discussed in condition 31. The results of the pH testing are displayed in figure 7.

The requirements of Condition 33 have been met.

## 2.4.6 Condition 34 – TSP discharge

Condition 34 states the following:

- a) *The total suspended particulate (TSP) matter discharges from the mill vents shall not exceed:*
  - i) *A concentration of 20 milligrams per cubic metre adjusted to zero degrees Celsius and one atmosphere, and*
  - ii) *A combined mass emission rate of 0.45 kilograms per hour.*
- b) *The concentrations and emission rates of TSP matter, PM10 and PM2.5 in the discharges from the mill vents shall be measured during manufacturing at least once every three months during the first year after the commencement of the consent and at least three times every year thereafter, two of which measurements are to take place in June, July or August.*
- c) *The method of sampling and analysis shall be ISO 9096: 2003, ASTM D3685-98, USEPA Method 17 or equivalent method.*
- d) *The organisation performing the testing shall be currently accredited under ISO 17025, to undertake the method used to perform the testing.*
- e) *A copy of the mill vents test results shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 10 days of receipt by the consent holder.*

The concentrations of TSP did not exceed 20 mg per m<sup>3</sup> and the combined mass emission rate was below 0.45 kg per hour. TSP discharges from the mill vents were measured by Verum Group in April, August and October/December in 2022 which is outside the condition 34 b), but the plant was not operating between June and July. The deviation of timing has previously been raised with CRC and it has been discussed that the time of the year does not impact on our mill emissions.

A summary of the TSP concentrations and mass emission rates is presented in Table 3. All testing of the 12 and 20 Mill returned results that were below the required consent conditions of less than 20mg/m<sup>3</sup> for TSP concentrations and less than 0.45kg/hr for the total TSP emission rate. Throughout all testing, the TSP mass emission rate remained in compliance with the consent.

Verum Group is accredited under ISO 17025. Testing was carried out using ISO 9096:2003(E) (Determination of PM<sub>10</sub> and PM<sub>2.5</sub>).

A copy of the mill vent test results has been provided to the CRC.

**Table 3: Mill TSP emissions**

Parameter	Mill vent	Consent limit mg/dsm <sup>3</sup>	April 2022 kg/hr	August 2022 kg/hr	Oct/Dec2022 kg/hr
TSP concentration (dry, 0°C, 1atm)	Mill 12	20	2	2	2
	Mill 20		4	3	8
TSP mass emission rate	Mill 12	-	0.02	0.02	0.02
	Mill 20	-	0.06	0.04	0.12
	Total	0.45	0.08	0.06	0.14
PM10 emission rate	Mill 12	0.45	<0.01	0.02	0.02
	Mill 20		0.01	0.06	0.06

The requirements of condition 34 have been met for both mills.

## 2.4.7 Condition 35 - TSP monitoring

Condition 35 states the following:

- a) *Each mill baghouse shall be fitted with a continuously monitored dust sensor device.*
- b) *The dust sensor devices shall be connected to an automatic control system.*
- c) *If the dust sensor devices indicate that there has been a bag failure, the baghouse and associated processing equipment shall cease operation.*
- d) *The consent holder shall keep a log of all bag failures.*
- e) *The log shall include the following:*
  - i) *Date and time of the failure;*
  - ii) *Time that discharges from the bag filters ceased; and*
  - iii) *Action undertaken in response.*
- f) *The baghouse and associated processing equipment shall commence operation only when the baghouse is fully functional.*
- g) *The bag failure log shall be provided to the Canterbury Regional Council upon request.*

Each mill baghouse is fitted with a continuously monitored dust sensor device. This alarms the manufacture control room if it is nearing any limits. The dust sensors are connected to an automatic control system which will stop the mills if the limits are exceeded. Any maintenance of the baghouses are logged in our maintenance system.

The bag failure log is available to the CRC upon request, there were no failures in 2022.

The requirements of Condition 35 have been met.

## 2.5 Cooling Towers

### 2.5.1 Condition 36 – *Legionellae* monitoring

Condition 36 states the following:

- a) *Testing for Legionellae spp in the cooling towers shall be undertaken at least once per calendar month.*
- b) *The response to measured Legionellae spp concentrations shall follow the consent holder's Legionella Management Plan.*
- c) *A copy of the Legionella management plan shall be provided to the Canterbury Regional Council within three months of the date of commencement of this consent and when any revision is completed.*

Testing for *Legionellae* spp was carried out as per the "Legionella management plan". During 2022, each tower was sampled 11 times, once per month of operation, during the period the plant was running. On each occasion, the testing levels were less than <10CU, except for the 4 April test where a positive result was received from both cooling towers and that the standard process of treatment with chemicals was followed.

The requirements for Condition 36 have been met.

## 2.6 Diesel Combustion

### 2.6.1 Condition 37 – Discharge stack

Condition 37 states the following:

- a) *The discharge shall occur via a stack at a height at least 5.8 metres above ground level.*
- b) *The discharge shall be directed vertically into the air and shall not be impeded by any obstruction above the stack that decreases the vertical efflux velocity below that which would occur in the absence of such obstruction."*

There have been no changes to the diesel furnace stack, the stack height has been measured and is the height of 6.58m above ground level. Discharge is directed vertically into the air and is unimpeded by any obstructions (Condition 37b).

The requirements for condition 37 have been met.

### 2.6.2 Condition 38 – Diesel emissions

Condition 38 states the following:

*The diesel-oil burning rate shall not exceed 550 litres per hour.*

The diesel-oil burning rate is in the order of 1,000 litres per day, which is approximately 42 litres per hour. This rate is less than the consented maximum burning rate of 550 litres per hour.

The requirement of Condition 38 has been met.

### 2.6.3 Condition 39 – Sulphur content

Condition 37 states the following:

*The sulphur content of the diesel-oil used shall not exceed 0.006 percent by weight.*

The regulations for fuel in New Zealand have changed since the release of “Engine Fuel Specifications Regulations 2011” (SR 2011/352). The government requires the sulphur content of diesel oil to be < 10 mg/kg, 0.001 percent by weight. This is below the requirement for this consent condition.

The requirement of Condition 39 has been met.

### 2.6.4 Condition 40 – Obscuration records

Condition 40 states the following:

*The opacity of the stack discharge shall not be darker than the Ringelmann Shade 1 as determined in accordance with the New Zealand Standard 5201:1973, except for a period not exceeding two minutes in each hour of operation.*

Discharges from the diesel furnace emission stack were recorded as clear throughout the start-up process in 2022.

The requirement of condition 40 has been met.

### 2.6.5 Condition 41 – Servicing

Condition 41 states the following:

- a) *The furnace shall be serviced at least once every three years by a person competent in the servicing of such appliances. This servicing shall include:*
  - i) *Testing of the ratio of combustion gases discharged i.e., carbon monoxide, carbon dioxide and oxygen, using suitably calibrated instrument; and*
  - ii) *Adjustment if necessary of the fuel to air ratio*
- b) *Service reports shall be prepared and retained, and copies shall be provided to the Canterbury Regional Council upon request.*

Lyttelton Engineering carries out a full inspection at least annually. Servicing and calibrations are completed at the time of inspection. The boiler system was serviced in the winter shut in 2022.

The requirements for Condition 41 have been met.

## 2.7 Dust and Odour Management

### 2.7.1 Condition 42 – Dust and odour management

Condition 42 states the following:

- a) *The consent holder shall maintain and comply at all times with a Dust and Odour Management Plan.*
- b) *The consent holder shall take all practicable steps to minimise the discharge of particulate matter and odour.*
- c) *Minimising steps shall include, but not limited to:*
  - i) *Road sweeping on a regular basis;*
  - ii) *Hardstand area sweeping on a regular basis;*
  - iii) *Covering of potential discharge points on outdoor conveyors;*
  - iv) *Maintaining the high-speed doors on the superphosphate dispatch (B)building; and*
  - v) *Inspecting and changing the bag filters as necessary.*
- d) *The consent holder shall notify the Canterbury Regional Council: Attention: RMA Compliance and Enforcement Manager, at least five working days prior to desludging the stormwater pond.*
- e) *A copy of the Dust and Odour Management Plan shall be provided to the Canterbury Regional Council: Attention: RMA Compliance and Enforcement Manager, within three months of the date of commencement of this consent and when any revision is completed.*

There is a Dust Management Plan and an Odour Management Plan in place for the site. These were last reviewed in 2019, both updated copies have been provided to CRC.

De-sludging of the of the western storm water pond (what we call the green ponds) was carried out on a gradual basis over a couple of months between June and August 2022 and we realise we had neglected to notify CRC at that time. No odour complaints were received through this time period.

The requirements of Condition 42 a), b), c), & e) have been met, the requirements of Condition 42 d) were not met.

## 2.8 Environmental Monitoring

### 2.8.1 Condition 43 – Meteorological station

Condition 43 states the following:

- a) *The consent holder shall operate and record from a meteorological monitoring station.*
- b) *The meteorological monitoring station shall be located:*
  - i) *On the applicant site; and*
  - ii) *In a position that provides data on typical conditions at the site.*
- c) *The meteorological monitoring station shall record wind speed, wind direction, ambient temperature and relative humidity.*
- d) *The meteorological monitoring data shall be recorded at intervals of not more than 10 minutes.*
- e) *All recording equipment shall be:*
  - i) *Regularly calibrated; and*
  - ii) *Maintained in good condition.*
- f) *Meteorological monitoring data shall be retained, and copies shall be provided to the Canterbury Regional Council upon request.*

A Vaisala (WXT520) meteorological station is operated at the Ravensdown site and is located at the eastern end of the site near Hanworth Ave and Laing Homes (15 Hanworth Avenue). The station measures wind speed, wind direction, air temperature, relative humidity, and atmospheric pressure at one-minute intervals. Maintenance is carried out by Ravensdown. The instrumentation is replaced and updated biennially. Data is downloaded and stored by Ravensdown for 12 months.

The requirements of Condition 43 have been met.

### 2.8.2 Condition 44 – Ambient sulphur dioxide monitoring

Condition 44 states the following:

- a)
  - i) *The consent holder shall operate and record data from at least two ambient sulphur dioxide monitoring stations;*
  - ii) *The monitoring required under (i) shall continue for the term of this consent for one monitor, and at least five years for the second monitor; and*
  - iii) *After the five year period required by (ii) above, monitoring from one of the ambient monitors required by (i) may cease provided that: (1) there have been no recorded exceedances of the ambient trigger concentrations specified in condition (45)(a) attributable to the consent holder's operations for at least the preceding two years at any of the monitors; and (2) at least 10 working days prior to the cessation of the ambient monitor, the consent holder has provided to the Canterbury Regional Council a report demonstrating compliance with Condition (44)(a)(iii)(1).*
- b) *The sulphur dioxide monitoring station(s), including that remaining following the exercise of condition (44)(a)(iii)(1), shall be located at sites approved by the Canterbury Regional Council.*
- c) *The sulphur dioxide monitoring stations shall continuously record ambient sulphur dioxide.*
- d) *The data from the monitors shall be relayed in real time to the acid manufacturing plant control room.*
- e) *The measured sulphur dioxide concentrations shall be taken into account in operating the acid manufacturing plant.*
- f) *The method of sulphur dioxide monitoring shall be in accordance with that recommended by the National Environmental Standards for air quality.*
- g) *The consent holder shall retain sulphur dioxide monitoring data, and copies shall be provided to the Canterbury Regional Council upon request.*

Ambient SO<sub>2</sub> is monitored at 15 Bermuda Drive (43°32'37.9" S 172°32'02.1" E). A second monitor was in place at 321 Main South Road however as part of condition 44 (a)(iii) the second site has been removed in 2018 following five years of operation and approval from CRC to cease using this site.

The Bermuda Drive monitoring site is located approximately 350 m southwest of the acid plant stack. The shed is located on a residential backyard 100 m south of Main South Road (State Highway 73). The area is flat residential land with residential buildings and trees between the plant and monitoring shed. The area north of Main South Road is industrial. This site was commissioned on 28 October 2009 and valid data commenced on 30 October 2009 at 14:00.

In 2021 the monitoring station was moved slightly within the same property as we were requested by the new property owner to relocate it to a more convenient location within their back yard.

The equipment is owned by Ravensdown and operated on their behalf by Watercare Service Ltd. The shed and sample inlets are sited in accordance with AS/NZS 3580.1.1.2007 Ambient Air Guide for the Siting of Sampling Units and the location is approved by the CRC. SO<sub>2</sub> concentrations are measured continuously and logged every 10 minutes.

Monitoring is undertaken in accordance with AS/NZS 3580.4.1.2008 as recommended by the National Environmental Standards for air quality.

A copy of the SO<sub>2</sub> monitoring data is available to the CRC upon request.

The requirements of Condition 44 have been met.

### 2.8.3 Condition 45 – Ambient sulphur dioxide concentrations

Condition 45 states the following:

- a) *If the data collected in accordance with condition (44) indicates that ambient sulphur dioxide concentrations exceed an average of 450 micrograms per cubic metre for 10 minutes; or a single exceedance of 300 micrograms per cubic metre (1 hour average), the consent holder shall take steps to determine whether the exceedance is attributable to the consent holder's operations, including assessing the meteorological conditions and the sulphur dioxide emission rate. The consent holder shall immediately reduce the sulphuric acid production rate if:*
  - i) *the emission rate is above 50 kilograms per hour; and*
  - ii) *a contribution to the exceedance from the consent holder's operations cannot be excluded due to the meteorological conditions; and*
  - iii) *a second consecutive average of more than 450 micrograms per cubic metre for 10 minutes or exceedance of 300 micrograms per cubic metre (1 hour average) occurs.*
- a) *The consent holder shall keep a log of all sulphuric acid production rate reductions undertaken as a result of (a).*
- b) *The log shall include the following:*
  - i) *date and time of the reduction; and*
  - ii) *the rate of production at the time of the exceedance in (a) and the level the rate of production is reduced to as a results of (a).*
- c) *A copy of the acid reduction log shall be provided to the Canterbury Regional Council upon request.*

In 2022, ambient sulphur dioxide was continuously measured at the Bermuda Drive site with real time data fed back to the acid plant control room.

The 10-minute trigger level was exceeded on three occasions in 2022, however these exceedances were not consecutive and dropped below 450 µg/m<sup>3</sup> in the following 10-minute averages, as shown in Figure 8.

Date	Time	Hornby - Bermuda Dr 10 min average SO <sub>2</sub> µg/m <sup>3</sup>
05/01/2022	13:50	456.76468
05/01/2022	14:00	71.41624
05/01/2022	14:30	659.36176
05/01/2022	14:40	196.84949
22/02/2022	09:10	637.34863
22/02/2022	09:20	68.21239

Figure 8: Sulphur dioxide ambient concentrations exceeding the 10 minute trigger level of 450 µg/m<sup>3</sup> and the measure in the following 10 minute average, measured at 15 Bermuda Drive from 1 January 2021 to 31 December 2021.

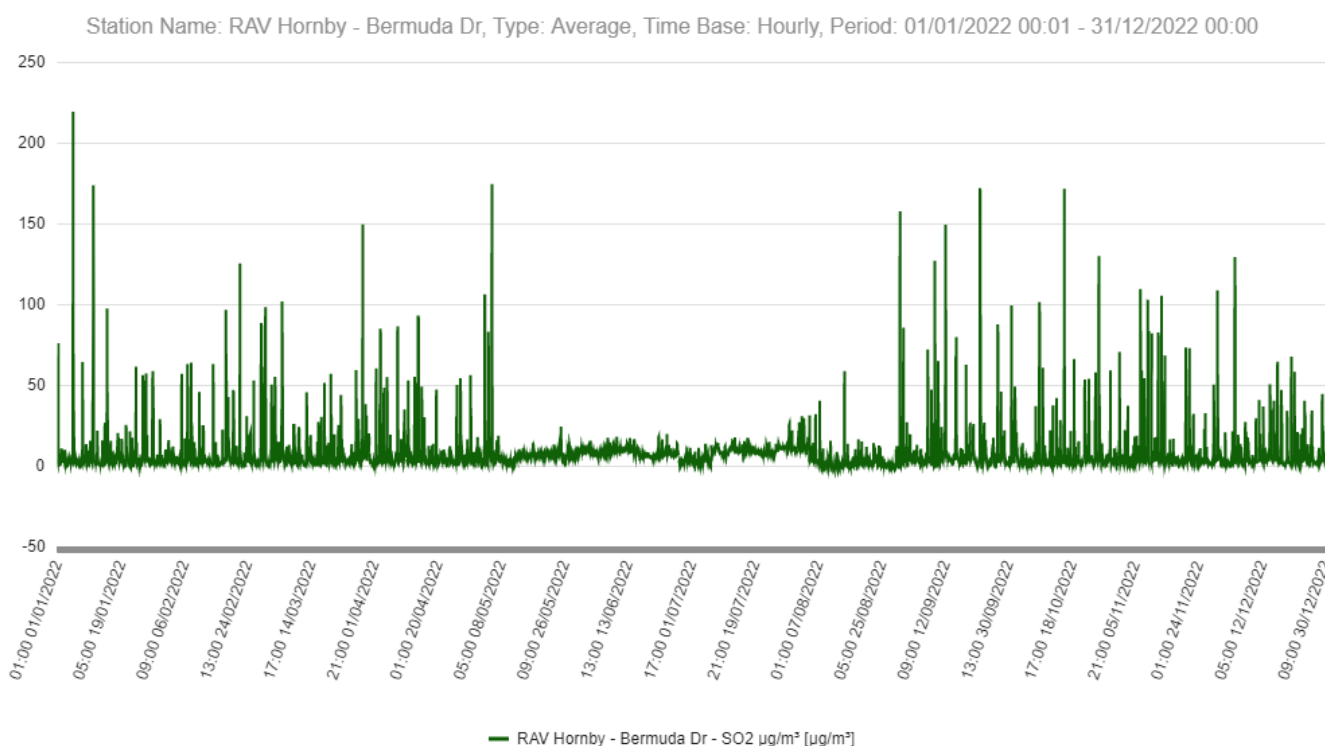


Figure 9: 1-hour average sulphur dioxide ambient concentrations measured at 15 Bermuda Dive from 1 January 2022 to 31 December 2022 and shows the 1hr average was well below the 300 µg/m³ limit for the site throughout 2022. Graph generated from WaterCare monitoring records.

The requirements of Condition 45 have been met.

#### 2.8.4 Condition 46 – Ambient fluoride

Condition 46 states the following:

- a) The consent holder shall operate and record data from at least three ambient fluoride monitoring stations for the term of this consent.
- b) These fluoride monitoring stations shall be located at the western end of the site at or about map reference NZMS 260 M35:7228-4045, at the eastern end of the site at or about map reference NZMS 260 M35:729405 and near the Iplex building at or about map reference NZMS 260 M35:726-407, or as otherwise agreed in writing by the Canterbury Regional Council.
- c) The fluoride monitoring stations shall continuously monitor ambient fluoride.
- d) The method of fluoride monitoring shall be AS 3580.13.2-1991 or equivalent.
- e) Fluoride monitoring data shall be retained, and copies shall be provided to the Canterbury Regional Council upon request.

During 2021, Ravensdown operated three ambient fluoride monitoring stations. The monitoring stations are located at the west end of the site (43°32'33.25" S 172°31'50.5" E), the eastern end of the site (43°32'28.5" S 172°32'22.5" E) and at the IPLEX site (43°32'24" S 172°32'11.5" E). The locations of the monitoring sites are shown in Figure 1.

Ambient fluoride has been measured using method AS 3580.13.2-1991. Filters are exposed continuously for 7 days and then changed and analysed.

A copy of the fluoride ambient monitoring data is available to the CRC upon request.

The requirements of Condition 46 have been met.

#### 2.8.5 Condition 47 – Ambient total suspended particulate

Condition 47 states the following:

- a) The consent holder shall operate and record data from two ambient total suspended particulate (TSP) monitoring stations at all times that phosphate rock is stored outside.



- b) *The TSP monitoring stations shall be located at sites located near the site boundary and the phosphate rock storage bund and determined with the approval of the Canterbury Regional Council.*
- c) *The TSP monitoring shall be undertaken:*
  - i) *With low or medium volume samplers or a continuous monitoring instrument approved by the Canterbury Regional Council; and*
  - ii) *With an averaging period of 24 hours or less.*
- d) *The TSP monitoring required by condition (47)(a) shall:*
  - i) *Commence at least seven days prior to the outside storage of phosphate rock;*
  - ii) *Continue for the duration of outside storage; and*
  - iii) *Continue for at least seven days after the outside storage is complete.*
- e) *The method of TSP monitoring shall be in accordance with accepted practices for nuisance dust management.*
- f) *TSP monitoring data shall be retained, and copies shall be provided to the Canterbury Regional Council upon request.*

Phosphate rock has not been stored outside during this period and the requirements of Condition 47 are not applicable.

## 2.9 Surveys

### 2.9.1 Condition 48 – Community odour surveys

Condition 48 states the following:

- a) *Within two years of the commencement of this consent and at five yearly intervals thereafter, the consent holder shall undertake a community odour survey or an odour diary programme.*
- b) *The odour survey or odour diary programme shall be undertaken using accepted methodology, to the approval of the Canterbury Regional Council.*
- c) *A copy of the odour survey or odour diary programme results shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 10 days of receipt by the consent holder.*

The community odour survey was carried out by Tony Dons limited, Environmental and Resource Management Consultants, in November 2022. The survey report was provided to CRC on receipt. The next survey is due in 2027.

The requirements of condition 48 have been met.

### 2.9.2 Condition 49 – Vegetation injury survey

Condition 49 states the following:

- a) *Within two years of the commencement of this consent and at least every three years thereafter for the term of this consent, the consent holder shall undertake a vegetation injury survey.*
- b) *The survey shall be undertaken in a manner consistent with previous vegetation surveys (as described in Dr. D. Doley's report titled "Assessment of the Visible Effects of Atmospheric Emissions from the Ravensdown Fertiliser Works on Vegetation in the Hornby Area"), using accepted methodology to the approval of the Canterbury Regional Council.*
- c) *A copy of the vegetation injury survey results shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 10 working days of receipt by the consent holder.*

The vegetation survey was completed by Wildlands Consultants and supplied to CRC in 2021. The next survey is due in 2024.

The requirements of condition 49 have been met.

### 2.9.3 Condition 50 – Fluoride etching survey

Condition 50 states the following:

- a) *Within three years of the commencement of this consent, and every three years thereafter, the consent holder shall undertake a survey of the effects of fluoride etching on window glass.*
- b) *The survey shall be of at least 15 representative dwellings located within the outlined area shown in figure A1 of BRANZ report DZ082 dated October 2004, which is attached to this consent,*
- c) *The survey shall be undertaken using methodology outlined in BRANZ report DZ082.*
- d) *Should the survey undertaken in accordance with conditions (b) and (c) above show window replacement is necessary in more than 20 percent of the dwellings surveyed, the consent holder shall undertake further investigations of at least five properties within 100 metres of each of the affected dwellings where replacement is requirement.*



- e) *Any windows found to be affected to pen test level 3 or where Light Gloss Units (LGU) are equal to or less than 120 in the location and according to the method described in the BRANZ report DZ082 dated October 2004, shall be replaced by the consent holders cost if the owner wishes the glass to be replaced.*
- f) *A copy of the fluoride etching survey results shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 10 working days of receipt by the consent holder.*

The fluoride etching survey was completed in November 2022 by BRANZ using the methodology outlined in the BRANZ report DZ082. A copy of the report was sent to Canterbury Regional Council on 30<sup>th</sup> January 2022. The report concluded that window replacement was not necessary in any of the 16 properties surveyed. The next survey is due in 2025.

The requirements of condition 50 have been met.

#### 2.9.4 Condition 51 – Building materials monitoring plan

Condition 51 states the following:

- a) *The consent holder shall comply with the attached Building Materials Monitoring Plan (BMMP) dated July 2009 and any variation under conditions (51)(b), until such time, if ever, that the Canterbury Regional Council advised by written notice that the purpose of the BMMP has been met and that notice shall not be given before the 6<sup>th</sup> anniversary of the exercise of this consent. The purpose of the BMMP shall be determined if corrosion rates within the discharge plume of the Hornby Works (as defined in the BMMP) exceed those considered normal for corrosion rates of building materials in an industrial area.*
- b) *The BMMP may be varied with the written agreement of the Canterbury Regional Council at any time. Any such variation may include, without limitation:*
  - i) *The number and location of test racks;*
  - ii) *The positioning/orientation of test racks;*
  - iii) *The materials to be tested;*
- c) *The frequency of testing after the 6<sup>th</sup> anniversary of the exercise of this consent the consent holder may give written notice to the Canterbury Regional Council, request that the requirement for compliance with condition (51)(a) be suspended because its purpose has been met. Any notice by the consent holder to suspend compliance with the BMMP must be accompanied by a report from a suitably qualified expert setting out how the purpose of the BMMP has been met. The Canterbury Regional Council shall notify the consent holder of any decision. If following a period of discontinuance of the BMMP, the Canterbury Regional Council becomes aware of any circumstance which warrants the recommencement of the BMMP, the Canterbury Regional Council may give written notice to the consent holder specifying the circumstances and giving a date by which the BMMP must be recommenced. Any recommenced BMMP shall be subject to all the provisions of this consent.*
- d) *All results from monitoring under the BMMP will be reported to the Canterbury Regional Council no less frequently than annually, and will form part of the yearly report required pursuant to condition (52).*

On 29 May 2018 Ravensdown received confirmation from CRC that Ravensdown could be relieved of the monitoring requirements for building materials. No further BMMP reporting will be provided to CRC as part of this resource consent condition.

The requirements of Condition 51 have been met.

#### 2.9.5 Condition 52 – Annual report

Condition 52 states the following:

- a) *The consent holder shall provide to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, a yearly summary that includes but is not necessarily limited to all monitoring undertaken in accordance with the requirements of this consent.*
- b) *The yearly report shall include an assessment of the actual and potential environmental effects associated with the matters considered.*

This report satisfies the requirements of Condition 52.

#### 2.9.6 Condition 53 – Community consultation

Condition 53 states the following:

- a) *Within one year of the commencement of this consent, and every year thereafter, the consent holder shall undertake consultation with a community representative group.*

- b) The consultation shall be in regard to the discharges authorised by this consent.
- c) A copy of the consultation outcomes shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 10 working days of the consultation.

Community consultation was held with members of the 'Greater Hornby Residence Association' on the 3rd of November 2022. Notification was submitted to CRC on 16<sup>th</sup> November 2022.

The requirements of this condition have been met.

### 2.9.7 Condition 54 – Notification of exceedances

Condition 54 states the following:

*The consent holder shall notify the Canterbury Regional Council as soon as practicable of any exceedance of National Environment Standards or Ministry for the Environment guidelines for contaminants measured during ambient monitoring required under this consent.*

There were no exceedances of NES or MfE guidelines in 2021 therefore no notification was required.

**Table 4: Number of NES and AAQG exceedances for ambient sulphur dioxide and maximum measured concentrations.**

Averaging period	Criteria type	Criteria value	Number of exceedances	Maximum concentration
1-hour	NES <sup>†</sup>	570 µg/m <sup>3</sup>	0	219.2µg/m <sup>3</sup>
	NES <sup>†</sup>	350 µg/m <sup>3</sup>	0	
24-hour	AAQG <sup>§</sup>	120 µg/m <sup>3</sup>	0	27.3µg/m <sup>3</sup>

<sup>†</sup> National environmental standards (MfE, 2008).

<sup>‡</sup> 9 exceedances allowed per year.

<sup>§</sup> Ambient air quality guidelines (MfE, 2002)

The requirements of condition 54 have been met.

## 3.0 An Assessment of Actual and Potential Environmental Effects

In 2022, the environmental effects from the operations of Christchurch Works were mostly managed within the consent requirements.

The ambient sulphur dioxide concentrations exceedances of an average of 450 micrograms per cubic metre for 10 minutes occurred on three occasions in 2022. The stack emission rates at the time of the ambient monitor measurement was 53kg/hr and the wind direction was ENE. The next 10-minute average was well below 300 µg/m<sup>3</sup> so a production rate reduction was not required. No environmental effect was noted as a result of this minor exceedance which was within the limits of condition 45.

The bio-trickling removal rate of hydrogen sulphide did not meet the requirements Condition 26 at times during the year. This condition is also be read in conjunction with Condition 2; odour issues were identified, and fourteen complaints were received throughout the year. Of these complaints, eleven occurred when the biofilter was not operating to its optimal level. Staff have made changes to the Acid Plant with improvements detailed in the report under Condition 26. The graphed data for the end of 2022 and the January-March 2023 graph demonstrate improvements in the bio-trickling function.

During the 2022 reporting period there were no exceedances of the national environmental standard (NES) 24-hour SO<sub>2</sub> guideline concentration at the Bermuda Drive monitoring site. The measured SO<sub>2</sub> concentrations at Bermuda Drive was well within health guidelines during 2022 and complied with the Ministry for the Environments NES for 1-hour ambient SO<sub>2</sub> (see Figures 8 and 10).

The manufacture plant fluoride and pH emissions were consistently well within consent limits throughout 2022.

Complaints received by Ravensdown either directly or via CRC numbered fourteen in 2022, of which twelve were not substantiated and two were prescribed as not offensive by Ecan Officer. Though none resulted in actions being requested of Ravensdown by CRC, Ravensdown made changes at the Acid Plant which provided improvements, as detailed under Condition 26.

Christchurch Works continues to work to improve our operations and reduce the effects of discharges to the environment.

## 4.0 Summary of Compliance in 2022

**Table 5: Summary of compliance for 2022 Monitoring Period**

Consent Condition	Description	Compliance
<b>General</b>		
Condition 1	Discharge of contaminants	Yes
Condition 2	Discharge of contaminants	Yes
Condition 3	Notification of malfunction/breakdown	Yes
Condition 4	Incident log	Yes
Condition 5	Sampling and survey qualification	Yes
Condition 6	Laboratory qualification	Yes
Condition 7	Review of consent conditions	Not applicable
<b>Outside Storage</b>		
Condition 8	Enclosed buildings	Yes
Condition 9	Volume of phosphate rock	Yes
Condition 10	Outside storage of phosphate rock	Not applicable
Condition 11	Dust suppression	Not applicable
Condition 12	Outside stockpile	Not applicable
Condition 13	Compliance with condition 42	Not applicable
Condition 14	Notification of outside storage	Not applicable
Condition 15	Outside storage during high wind conditions	Not applicable
Condition 16	Outside sweeping	Not applicable
<b>Acid Manufacturing Plant</b>		
Condition 17	Discharge stack	Yes
Condition 18	Obscuration records	Yes
Condition 19	Stack emissions: Sulphur dioxide	Yes
Condition 20	In-stack monitoring	Yes
Condition 21	Gas flow and sulphur dioxide concentration	Yes
Condition 22	Repair of leaks	Yes
Condition 23	Stack emissions: sulphur trioxide and sulphuric acid mist	Yes
Condition 24	Measurement of sulphur trioxide and sulphuric acid mist	Yes
Condition 25	Monitoring hydrogen sulphide	Yes
Condition 26	Bio-trickling filter maintenance	No
Condition 27	Sulphur dioxide detectors	Yes
Condition 28	Cold start notification	Yes
<b>Fertiliser Manufacturing Plant</b>		
Condition 29	Discharge stack	Yes
Condition 30	Stack emissions	Yes
Condition 31	Fluoride monitoring	Yes
Condition 32	pH	Yes
Condition 33	pH monitoring	Yes
Condition 34	TSP discharges	Yes
Condition 35	TSP monitoring	Yes
<b>Cooling Towers</b>		
Condition 36	Legionellae monitoring	Yes
<b>Diesel Combustion</b>		
Condition 37	Discharge stack	Yes
Condition 38	Diesel emissions	Yes
Condition 39	Sulphur content	Yes
Condition 40	Obscuration records	Yes
Condition 41	Servicing	Yes
<b>Dust and Odour Management</b>		
Condition 42	Dust and odour management	a,b,c - Yes d - No

Consent Condition	Description	Compliance
<b>Environmental Monitoring</b>		
Condition 43	Meteorological station	Yes
Condition 44	Ambient sulphur dioxide monitoring	Yes
Condition 45	Ambient sulphur dioxide concentrations	Yes
Condition 46	Ambient fluoride	Yes
Condition 47	Ambient total suspended particulate	Not applicable
<b>Surveys</b>		
Condition 48	Community odour surveys	Yes
Condition 49	Vegetation injury survey	Yes
Condition 50	Fluoride etching survey	Yes
Condition 51	Building materials monitoring plan	Yes
Condition 52	Annual report	Yes
Condition 53	Community consultation	Yes
Condition 54	Notification of exceedances	Yes

# RESOURCE CONSENT CRC080001

*Pursuant to Section 104 of the Resource Management Act 1991*

**The Canterbury Regional Council (known as Environment Canterbury)**

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**GRANTS TO:** Ravensdown Fertiliser Co-Operative Limited

**A DISCHARGE PERMIT:** To discharge contaminants to air.

**COMMENCEMENT DATE:** 4 February 2010

**EXPIRY DATE:** 4 February 2030

**LOCATION:** 312 MAIN SOUTH ROAD, HORNBY

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## **SUBJECT TO THE FOLLOWING CONDITIONS:**

### **GENERAL**

- 1) The discharges into air shall be only from the manufacture of sulphuric acid and superphosphate fertiliser and associated activities, located at 312 Main South Road, Christchurch, at or about map reference NZMS 260 M35:7260-4050.
- 2) The discharges shall not cause odour or particulate matter, which is offensive or objectionable, beyond the boundary of the property on which the consent is exercised.
- 3) The consent holder shall notify the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, as soon as practicable of any plant malfunction or breakdown that results in an abnormal discharge to air.
- 4) The consent holder shall keep a log of all complaints relating to discharges to air at the site.
  - (a) The log shall include:
    - (i) the date and time of the complaint or incident;
    - (ii) the nature of the complaint or incident;
    - (iii) the location;
    - (iv) weather conditions at the time;
    - (v) plant operating parameters at the time; and
    - (vi) any action undertaken in response.
  - (b) The complaints log shall be provided to the Canterbury Regional Council upon request.
- 5)
  - (a) All sampling and surveys shall be carried out by an independent suitably qualified person, or by the consent holder or its representative where the Canterbury Regional Council has agreed to this in writing.
  - (b) Where the consent holder or its representative carries out testing or monitoring, an independent suitably qualified person shall audit the monitoring and testing methodology at least once per year, unless otherwise agreed in writing by the Canterbury Regional Council.
  - (c) The independent auditor shall provide a written report describing the extent of compliance with the required protocols.
  - (d) A copy of this audit report shall be supplied to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 10 working days of receipt by the consent holder.
- 6) All analyses in accordance with conditions on this consent shall be carried out by an independently accredited laboratory to ISO/IEC Guide 25, or to the satisfaction of the Canterbury Regional Council.

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- 7) The Canterbury Regional Council may, once per year, on any of the last five working days of October, serve notice of its intention to review the conditions of this consent for the purposes of:
- (a) Dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or
  - (b) Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment caused by the exercise of this consent; or
  - (c) Dealing with an adverse effects of building material corrosion that an independent person who is qualified and suitably experienced, has attributed to the discharge allowed by this consent, based on monitoring results under condition (51).

#### OUTSIDE STORAGE

- 8) With the exception of phosphate rock, all raw materials and processed fertiliser shall be stored in enclosed buildings.
- 9) No more than 30,000 cubic metres of phosphate rock shall be stored outside at any time.
- 10) Outside storage of phosphate rock shall occur only:
- (a) When covered storage is not practicable;
  - (b) In the existing bunded area at the east of the site;
  - (c) In a stockpile at a height at least 0.5 metres below the height of the bund;
  - (d) For a total of no more than 180 days during the rolling average of any five year period.
- 11) The consent holder shall prevent dust escaping from the outside storage pile by either:
- (a) establishing and maintaining an automated dust suppression sprinkler system that covers the storage pile, except for the working face, which will activate and remain operational for the duration of outside product pile storage, including unloading and loading; or
  - (b) covering the top surface of the outside storage pile with impermeable material.
- 12) Phosphate rock stored outside shall be used in preference to phosphate rock stored in the enclosed building. Notwithstanding this, the consent holder shall endeavour to minimise the number of occasions that the outside stockpile is disturbed and utilised.
- 13) Notwithstanding conditions (11) and (12) above the consent holder shall ensure that at all times outside storage complies with the requirements of the management plan prepared under condition (42) of this consent.
- 14) (a) The consent holder shall provide notice to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, at least 10 working days prior to the outside storage of phosphate rock that outside storage is to occur.
- (b) This notice shall include:
- (i) an explanation of why outside storage is necessary;
  - (ii) the type and source of phosphate rock to be stored outside;
  - (iii) the volume of phosphate rock to be stored outside;
  - (iv) an estimated date and time of arrival of the phosphate rock to be stored outside; and
  - (v) an estimated duration of outside storage of the phosphate rock.
- 15) Stockpiles of outside stored phosphate rock shall not be loaded onto, or broken into, when the gust wind speed measured on-site exceeds five metres per second.
- 16) (a) The phosphate rock outside storage area entrance, and associated internal road areas, shall be swept in order to remove deposited dust.
- (b) Sweeping shall be done:
- (i) before unloading or loading operations commence; and
  - (ii) upon completion of unloading or loading operations.

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## ACID MANUFACTURING PLANT

- 17) (a) The discharge from the acid manufacturing plant shall be via a stack with its outlet at least 40 metres above ground level.
- (b) If during the term of this consent the Christchurch City Plan provides for a stack height of 50 metres or more above ground level to be an activity for which a consent could be obtained, the consent holder shall apply for resource consent to raise the stack height to at least 50 metres above ground level within six months of the rule becoming operative. The stack shall be raised to at least 50 metres within twelve months of any such consent being granted.
- 18) With the exception of a period of no more than two hours following startup of the acid plant, the discharge from the acid plant emission stack shall be clear and colourless at all times.
- 19) (a) Subject to conditions (19)(b), (c) and (d), the acid manufacturing plant sulphur dioxide emission rate shall not exceed 86 kilograms per hour at any time.
- (b) The acid manufacturing sulphur dioxide emission rate shall not exceed 77 kilograms per hour measured as a 10-minute average more than ten percent of the time over any twelve month period.
- (c) If the discharge rate of sulphur dioxide exceeds 86 kilograms per hour over a 10 minute period, measured as a 10-minute average, the sulphur dioxide emission rate shall be reduced immediately.
- (d) A system shall be installed within six months of granting this consent that automatically shuts down the sulphuric acid production process if the discharge rate of sulphur dioxide from that process exceeds 86 kilograms per hour over a 30 minutes period, measured as three consecutive 10-minute averages.
- 20) (a) The gas flow rate in the acid manufacturing plant stack shall be measured on a continuous basis with measurements recorded at least every minute.
- (b) The sulphur dioxide concentration in the acid manufacturing plant stack shall be measured on a continuous basis with measurements recorded at least every minute.
- (c) The measurement of the sulphur dioxide concentration shall be by method ISO 7935:1992(E) or equivalent.
- (d) All measurements that show exceedances of 19(a) of this consent shall be notified to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 24 hours of the exceedances.
- 21) (a) The gas flow rate in the acid manufacturing plant stack shall be measured manually at least once per month.
- (b) The sulphur dioxide concentration in the acid manufacturing plant stack shall be measured manually at least once per month.
- (c) The manual measurement of the sulphur dioxide concentration shall be by USEPA method 8 or equivalent.
- (d) A copy of the gas flow rates and sulphur dioxide test results shall be supplied to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 10 working days of receipt by the consent holder.
- 22) The consent holder shall repair any detected leaks of sulphur dioxide in the acid manufacturing plant as soon as practicable.
- 23) The combined rate of discharge of sulphur trioxide and sulphuric acid mist from the acid manufacturing plant stack, expressed as sulphur trioxide, shall not exceed 0.6 kilograms per hour.

- 24) (a) The sulphuric acid and sulphur trioxide concentration, expressed as sulphur trioxide, in the acid manufacturing plant stack shall be measured at least once every two weeks.
- (b) The measurement of the sulphuric acid and sulphur trioxide concentration shall be by USEPA method 8 or equivalent.
- (c) A copy of the sulphuric acid and sulphur trioxide test results shall be supplied to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 10 working days of receipt by the consent holder.
- 25) (a) At least once per week the consent holder shall measure the hydrogen sulphide concentration in the discharge from the sulphur melter biotrickling filter.
- (b) The measurement of the hydrogen sulphide concentration shall be by a method approved by the consent authority.
- (c) A copy of the hydrogen sulphide test results shall be supplied to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, upon request.
- 26) (a) The sulphur melter bio-trickling filter shall be maintained and operated to ensure that at least 98 percent of the hydrogen sulphide in the discharge is removed by the filter system for 90 percent of any 12 month period, measured as a rolling average.
- (b) Operation and maintenance shall include, but not be limited to, maintaining the correct operating temperature and ensuring that the filter medium does not become blocked.
- (c) This condition shall be read in conjunction with condition (2), as the maintenance of the bio-trickling filter is for the purpose of odour management.
- 27) (a) (a)The consent holder shall:
  - (i) install sulphur dioxide detectors in the sulphur storage and processing areas; and
  - (ii) operate sulphur dioxide detectors at all times.
  - (iii) Ensure that the sulphur dioxide detectors are connected to an alarm system to provide warning of sulphur fires.
- (b) Within six months of the date of commencement of this consent the consent holder shall install and operate at least four sulphur dioxide detectors around the acid manufacturing plant in order to detect fugitive sulphur dioxide emissions.
- (c) The monitoring programme and the method of measurement shall be approved in writing by the Canterbury Regional Council.
- 28) (a) The consent holder shall notify the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, whenever an acid plant cold start is to occur.
- (b) Cold start notification shall be made at least five working days prior to the commencement of the event. For the purpose of this consent "working day" is as defined in the Resource Management Act.
- (c) Cold start notification information shall include:
  - (i) the date and time of the commencement of the event;
  - (ii) the name and contact details of the staff member in charge of the commencement event.

#### FERTILISER MANUFACTURING PLANT

- 29) All manufacturing den scrubber and hygiene scrubber emissions from the fertiliser manufacturing plant shall be discharged via a stack with its outlet at least 41.5 metres above ground level.
- 30) The fertiliser manufacturing plant stack total fluoride compounds emission rate shall not exceed:
  - (a) one kilogram per hour for 90 percent of samples taken in any 12 month period, measured as a rolling average; and
  - (b) two kilograms per hour at any time.

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- 31) (a) The total fluoride compounds concentration in the discharge from the fertiliser manufacturing plant stack shall be measured at least once per week, provided that where a weekly test returns a result greater than one kilogram per hour, daily testing shall be carried out until such time as a result of one kilogram per hour or less is measured. Weekly testing may then resume.
- (b) The measurement shall be undertaken during superphosphate manufacture and no test may commence within one hour of starting acidulation.
- (c) The measurement of the total fluoride compounds concentration shall be by, USEPA Method 13B (Total fluoride specific ion electrode) or an alternative method approved, in writing, by the Canterbury Regional Council.
- (d) A copy of the total fluoride test results shall be supplied to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, upon request.
- 32) The fertiliser manufacturing plant stack gas condensate pH shall not be less than 3.0.
- 33) (a) The pH of the condensate in the fertiliser manufacturing plant stack gas shall be measured at least once per week.
- (b) A copy of the pH test results shall be supplied to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, upon request.
- 34) (a) The total suspended particulate (TSP) matter discharges from the mill vents shall not exceed:
- (i) a concentration of 20 milligrams per cubic metre adjusted to zero degrees Celsius and one atmosphere, and
- (ii) a combined mass emission rate of 0.45 kilograms per hour.
- (b) The concentrations and emission rates of TSP matter, PM<sub>10</sub> and PM<sub>2.5</sub> in the discharges from the mill vents shall be measured during manufacturing at least once every three months during the first year after the commencement of this consent and at least three times every year thereafter, two of which measurements are to take place in June, July or August.
- (c) The method of sampling and analysis shall be ISO 9096: 2003, ASTM D3685- 98, USEPA Method 17 or an equivalent method.
- (d) The organisation performing the testing shall be currently accredited under ISO 17025, to undertake the method used to perform the testing.
- (e) A copy of the mill vents test results shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 10 working days of receipt by the consent holder.
- 35) (a) Each mill baghouse shall be fitted with a continuously monitored dust sensor device.
- (b) The dust sensor devices shall be connected to an automatic control system.
- (c) If the dust sensor devices indicate that there has been a bag failure, the baghouse and associated processing equipment shall cease operation.
- (d) The consent holder shall keep a log of all bag failures.
- (e) The log shall include the:
- (i) Date and time of the failure;
- (ii) Time that discharges from the bag filters ceased; and
- (iii) Action undertaken in response.
- (f) The baghouse and associated processing equipment shall commence operation only when the baghouse is fully functional.
- (g) The bag failure log shall be provided to the Canterbury Regional Council upon request.

#### COOLING TOWERS

- 36) (a) Testing for *Legionellae* spp in the cooling towers shall be undertaken at least once per calendar month.
- (b) The response to measured *Legionellae* spp concentrations shall follow the consent holder's "Legionella management plan".

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- (c) A copy of the Legionella management plan shall be provided to the Canterbury Regional Council within three months of the date of commencement of this consent and when any revision is completed.

#### DIESEL COMBUSTION

- 37) (a) The discharge shall occur via a stack at a height at least 5.8 metres above ground level.
- (b) The discharge shall be directed vertically into air and shall not be impeded by any obstruction above the stack that decreases the vertical efflux velocity below that which would occur in the absence of such - obstruction.
- 38) The diesel-oil burning rate shall not exceed 550 litres per hour.
- 39) The sulphur content of the diesel-oil used shall not exceed 0.006 percent by weight.
- 40) The opacity of the stack discharge shall not be darker than the Ringelmann Shade 1 as determined in accordance with the New Zealand Standard 5201:1973, except for a period not exceeding two minutes in each hour of operation.
- 41) (a) The furnace shall be serviced at least once every three years by a person competent in the servicing of such appliances. This servicing shall include:
  - (i) testing of the ratio of combustion gases discharged i.e., carbon monoxide, carbon dioxide and oxygen, using a suitably calibrated instrument; and
  - (ii) adjustment if necessary of the fuel to air ratio.
- (b) Service reports shall be prepared and retained, and copies shall be provided to the Canterbury Regional Council upon request.

#### DUST AND ODOUR MANAGEMENT

- 42) (a) The consent holder shall maintain and comply at all times with a Dust and Odour Management Plan.
- (b) The consent holder shall take all practicable steps to minimise the discharge of particulate matter and odour.
- (c) Minimising steps shall include, but not be limited to:
  - (i) road sweeping on a regular basis;
  - (ii) hardstand area sweeping on a regular basis;
  - (iii) covering of potential discharge points on outdoor conveyors;
  - (iv) maintaining the high-speed doors on the superphosphate dispatch (B) building; and
  - (v) inspecting and changing bag filters as necessary.
- (d) The consent holder shall notify the Canterbury Regional Council: Attention: RMA Compliance and Enforcement Manager, at least five working days prior to desludging the-stormwater pond.
- (e) A copy of the Dust and Odour Management Plan shall be provided to the Canterbury Regional Council: Attention: RMA Compliance and Enforcement Manager, within three months of the date of commencement of this consent and when any revision is completed.

#### ENVIRONMENTAL MONITORING

- 43) (a) The consent holder shall operate and record data from a meteorological monitoring station.
- (b) The meteorological monitoring station shall be located:
  - (i) on the applicant's site; and
  - (ii) in a position that provides data on typical conditions at the site.
- (c) The meteorological monitoring station shall record wind speed, wind direction, ambient temperature and relative humidity.
- (d) The meteorological monitoring data shall be recorded at intervals of not more than 10 minutes.
- (e) All recording equipment shall be:

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- (i) regularly calibrated; and
    - (ii) maintained in good condition.
  - (f) Meteorological monitoring data shall be retained, and copies shall be provided to the Canterbury Regional Council upon request.
- 44) (a)
- (i) The consent holder shall operate and record data from at least two ambient sulphur dioxide monitoring stations; and
  - (ii) The monitoring required under (i) shall continue for the term of this consent for one monitor, and at least five years for the second monitor; and
  - (iii) After the five year period required by (ii) above, monitoring from one of the ambient monitors required by (i) may cease provided that:
    - (1) there have been no recorded exceedances of the ambient trigger concentrations specified in condition (45)(a) attributable to the consent holder's operations for at least the preceding two years at any of the monitors; and
    - (2) at least 10 working days prior to the cessation of the ambient monitor, the consent holder has provided to the Canterbury Regional Council a report demonstrating compliance with condition (44)(a)(iii)(1).
  - (b) The sulphur dioxide monitoring station(s), including that remaining following the exercise of condition (44)(a)(iii)(1), shall be located at sites approved by the Canterbury Regional Council.
  - (c) The sulphur dioxide monitoring stations shall continuously record ambient sulphur dioxide.
  - (d) The data from the monitors shall be relayed in real time to the acid manufacturing plant control room.
  - (e) The measured sulphur dioxide concentrations shall be taken into account in operating the acid manufacturing plant.
  - (f) The method of sulphur dioxide monitoring shall be in accordance with that recommended by the National Environmental Standards for air quality.
  - (g) The consent holder shall retain sulphur dioxide monitoring data, and copies shall be provided to the Canterbury Regional Council upon request.
- 45) (a) If the data collected in accordance with condition (44) indicates that ambient sulphur dioxide concentrations exceed an average of 450 micrograms per cubic metre for 10 minutes; or a single exceedance of 300 micrograms per cubic metre (1 hour average), the consent holder shall take steps to determine whether the exceedance is attributable to the consent holder's operations, including assessing the meteorological conditions and the sulphur dioxide emission rate.
- The consent holder shall immediately reduce the sulphuric acid production rate if:
- (i) the emission rate is above 50 kilograms per hour; and
  - (ii) a contribution to the exceedance from the consent holder's operations cannot be excluded due to the meteorological conditions; and
  - (iii) a second consecutive average of more than 450 micrograms per cubic metre for 10 minutes or exceedance of 300 micrograms per cubic metre (one hour average) occurs.
- (b) The consent holder shall keep a log of all sulphuric acid production rate reductions undertaken as a result of (a).
  - (c) The log shall include the:
    - (i) date and time of the reduction; and
    - (ii) the rate of production at the time of the exceedance in (a) and the level the rate of production is reduced to as a result of (a).
  - (d) A copy of the acid reduction log shall be provided to the Canterbury Regional Council upon request.

- 46) (a) The consent holder shall operate and record data from at least three ambient fluoride monitoring stations for the term of this consent.
- (b) These fluoride monitoring stations shall be located at the western end of the site at or about map reference NZMS 260 M35:7225-4045, at the eastern end of the site at or about map reference NZMS 260 M35:729405 and near the Iplex building at or about map reference NZMS 260 M35:726-407, or as otherwise agreed in writing by the Canterbury Regional Council.
- (c) The fluoride monitoring stations shall continuously monitor ambient fluoride.
- (d) The method of fluoride monitoring shall be AS 3580.13.2-1991 or equivalent.
- (e) Fluoride monitoring data shall be retained, and copies shall be provided to the Canterbury Regional Council upon request.
- 47) (a) The consent holder shall operate and record data from two ambient total suspended particulate (TSP) monitoring stations at all times that phosphate rock is stored outside.
- (b) The TSP monitoring stations shall be located at sites located near the site boundary and the phosphate rock storage bund and determined with the approval of the Canterbury Regional Council.
- (c) The TSP monitoring shall be undertaken:
- (i) with low or medium volume samplers or a continuous monitoring instrument approved by the Canterbury Regional Council; and
  - (ii) with an averaging period of 24 hours or less.
- (d) The TSP monitoring required by condition (47)(a) shall:
- (i) commence at least seven days prior to the outside storage of phosphate rock;
  - (ii) continue for the duration of outside storage; and
  - (iii) continue for at least seven days after the outside storage is complete.
- (e) The method of TSP monitoring shall be in accordance with accepted practices for nuisance dust management.
- (f) TSP monitoring data shall be retained, and copies shall be provided to the Canterbury Regional Council upon request.

#### SURVEYS

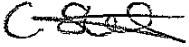
- 48) (a) Within two years of the commencement of this consent and at five yearly intervals thereafter, the consent holder shall undertake a community odour survey or an odour diary programme.
- (b) The odour survey or odour diary programme shall be undertaken using accepted methodology, to the approval of the Canterbury Regional Council.
- (c) A copy of the odour survey or odour diary programme results shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 10 working days of receipt by the consent holder.
- 49) (a) Within two years of the commencement of this consent and at least every three years thereafter for the term of this consent, the consent holder shall undertake a vegetation injury survey.
- (b) The survey shall be undertaken in a manner consistent with previous vegetation surveys (as described in Dr D. Doley's report titled *"Assessment of the Visible Effects of Atmospheric Emissions from the Ravensdown Fertiliser Works on Vegetation in the Hornby Area"*), using accepted methodology to the approval of the Canterbury Regional Council.
- (c) A copy of the vegetation injury survey results shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 10 working days of receipt by the consent holder.
- 50) (a) Within three years of the commencement of this consent, and every three years thereafter, the consent holder shall undertake a survey of the effects of fluoride etching on window glass.
- (b) The survey shall be of at least 15 representative dwellings located within the outlined area shown in Figure A1 of BRANZ report DZ082 dated October 2004, which is attached to this consent.

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- (c) The survey shall be undertaken using the methodology outlined in BRANZ report DZ082.
  - (d) Should the survey undertaken in accordance with conditions (b) and (c) above show window replacement is necessary in more than 20 percent of the dwellings surveyed, the consent holder shall undertake further investigations of at least five properties within 100 metres of each of the affected dwellings where replacement is required.
  - (e) Any windows found to be affected to pen test level 3 or where Light Gloss Units (LGU) are equal to or less than 120 in the location and according to the method described in the BRANZ report DZ082 dated October 2004, shall be replaced by the consent holder at the consent holders cost if the owner wishes the glass to be replaced.
  - (f) A copy of the fluoride etching survey results shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 10 working days of receipt by the consent holder.
- 51)
- (a) The consent holder shall comply with the attached Building Materials Monitoring Plan ("BMMP") dated July 2009 and any variation under condition (51)(b), until such time, if ever, that the Canterbury Regional Council advised by written notice that the purpose of the BMMP has been met and that notice shall not be given before the 6<sup>th</sup> anniversary of the exercise of this consent. The purpose of the BMMP shall be determined if corrosion rates within the discharge plume of the Hornby Works (as defined in the BMMP) exceed those considered normal for corrosion rates of building materials in an industrial area.
  - (b) The BMMP may be varied with the written agreement of the Canterbury Regional Council at any time. Any such variation may include, without limitation:
    - (i) the number and location of test racks;
    - (ii) the positioning/orientation of test racks;
    - (iii) the materials to be tested;
    - (iv) the frequency of testing.
  - (c) After the 6<sup>th</sup> anniversary of the exercise of this consent the consent holder may by written notice to the Canterbury Regional Council, request that the requirement for compliance with condition (51)(a) be suspended because its purpose has been met. Any notice by the consent holder to suspend compliance with the BMMP must be accompanied by a report from a suitably qualified expert setting out how the purpose of the BMMP has been met. The Canterbury Regional Council shall notify the consent holder of any decision. If, following a period of discontinuance of the BMMP, the Canterbury Regional Council becomes aware of any circumstance which warrants the recommencement of the BMMP, the Canterbury Regional Council may give written notice to the consent holder specifying the circumstances and giving a date by which the BMMP must be recommenced. Any recommenced BMMP shall be subject to all the provisions of this condition.
  - (d) All results from monitoring under the BMMP will be reported to the Canterbury Regional Council no less frequently than annually, and will form part of the yearly report required pursuant to condition (52).
- 52)
- (a) The consent holder shall provide to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, a yearly summary that includes but is not necessarily limited to all monitoring undertaken in accordance with the requirements of this consent.
  - (b) The yearly report shall include an assessment of the actual and potential environmental effects associated with the matters considered.
- 53)
- (a) Within one year of the commencement of this consent, and every year thereafter, the consent holder shall undertake consultation with a community representative group.
  - (b) The consultation shall be in regard to the discharges authorised by this consent.
  - (c) A copy of the consultation outcomes shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, within 10 working days of the consultation.

- 54) The consent holder shall notify the Canterbury Regional Council as soon as practicable of any exceedance of National Environmental Standards or Ministry for the Environment guidelines for contaminants Measured during ambient monitoring required under this consent.

Issued at Christchurch on 23 March 2010



Carly Steers  
**TEAM LEADER CONSENTS OPERATIONS**  
on behalf of the Canterbury Regional Council

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# Memorandum

To: Brittany Ratka, Christchurch City Council

From: Jonathan Prins, Acoustic Engineering Services

File Reference: AC22386 – 05 – R2

Date: Tuesday, 20 February 2024

Project: CCC Proposed Plan Change 14 – Industrial-Residential interface  
Review of proposed noise insulation rules

Pages: 7

Meeting

☐

Telephone

☐

Memorandum

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File Note

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Dear Brittany,

We have previously reviewed whether the current Christchurch District Plan (CDP) noise limits are sufficient to address noise effects from three storey residential developments which would be enabled by Plan Change 14 (PC14) adjoining Industrial zones. We subsequently provided advice on an appropriate buffer size to control potential noise effects arising at this interface. Our analysis and findings were outlined in the following reports:

- Report titled *CCC Proposed Plan Change 14: Industrial-Residential interface – Review of potential noise issues* (AES file reference AC22386 – 02 – R3), dated the 20<sup>th</sup> of January 2023.
- Memorandum titled *CCC Proposed Plan Change 14 – Industrial-Residential interface – Review of potential buffer size* (AES file reference AC22386 – 03 – R2), dated the 7<sup>th</sup> of February 2023.

We have been engaged to provide commentary on an alternative approach to control potential noise effects considering both amendments to noise limits and acoustic insulation for new noise sensitive receivers close to this interface.

Please find a summary of our advice and recommendations below.

## 1.0 APPROPRIATE NOISE LIMITS

The current CCC noise limits already provide a good level of protection for residential receivers, and do not leave much room for legitimate complaints. However, one of the problems with applying the current CCC noise limits to the third storey (and above) of a multi-storey dwelling is that received noise levels higher up the building are likely to be greater than those received 1.5 metres above the ground.

This is because as the dwelling height increases, industrial noise sources are less likely to benefit from screening provided by intervening structures. An industrial zoned site that only just complies with current noise limits at ground level, may not comply three (or more) storeys above the ground, resulting in an exceedance of the District Plan noise limits. Where a new three (or more) storey dwelling is built next to an industrial site, it could cause noise levels from the industrial site to become non-compliant. This could also result in uncertainty for the site generating the noise as to what level of noise would be permissible.

While it could be argued that current industrial zoned activities would have existing use rights, there have been examples where the noise generated from an activity was judged to be unreasonable at newly built dwellings that were built closer to an activity than other existing houses.

A further issue is if the industrial operator goes on to change anything – e.g. replace or update a chiller. Any new equipment would not be covered by existing use rights, and a Resource Consent would need to be sought where noise levels exceed the District Plan noise limits, even if the neighbouring dwellings have been constructed with consideration of louder external noise levels.

This demonstrates the importance of ensuring noise effects are appropriately managed even where a site may have existing use rights. At the same time it is important to ensure that existing industrial sites are not penalised with stricter limits due to the construction of a multistorey building built adjacent to the site.

In the assessment presented in our 7<sup>th</sup> of February 2023 memorandum, our daytime modelling scenarios confirmed that in the majority of cases (11 out of 17) where noise level compliance was achieved at ground level, levels of 51 – 55 dB  $L_{Aeq}$  would be received at third floor level. There were three scenarios where levels of 56 – 60 dB  $L_{Aeq}$  would be received at that height, and three where levels would be less than 50 dB  $L_{Aeq}$ , showing that it is possible for noise levels to be up to 10 dB higher at higher levels when compared to ground level.

Increasing the residential noise limits by 10 dB at third storey (and above) receiver locations where this adjacency may occur, would therefore relieve pressure on industrial operators to reduce noise levels further than what is currently required by the District Plan. This would necessitate a daytime noise limit of 60 dB  $L_{Aeq}$ , and night-time noise limits of 50 dB  $L_{Aeq}$  and 75 dB  $L_{AFmax}$ . Such a change in noise limits would need to be accompanied by a sound insulation control to ensure residents are not exposed to unreasonable levels of noise. This is discussed further in section 2.0 below.

## 2.0 APPROACHES TO ACOUSTIC INSULATION

A solution to the issue of potentially louder noise levels at the third storey (and above) of new buildings is to require the new building to have noise insulation to achieve appropriate internal noise levels.

Rules pertaining to sound insulation requirements should address internal and external noise levels as discussed in sections 2.1 and 2.2, and include requirements around where balconies can be placed, as discussed below in section 2.4.

### 2.1 External noise levels

There are a few different ways that noise could be assessed in the situation where there is a three (or more) storey residential building neighbouring an industrial zoned site:

- Investigation by a suitably qualified Acoustic Engineer on a case-by-case basis.
- A worst-case external noise level could be assumed, based on current noise limits.

Individual investigations are vulnerable to someone undertaking a spot visit and missing a key noise generating aspect. A more robust method would be to require assessment based on the current maximum permitted noise levels as a worst-case scenario.

### 2.2 Internal noise levels

An internal noise level of 35 dB  $L_{Aeq (1h)}$  for bedrooms at night, and 40 dB  $L_{Aeq (1h)}$  for other habitable spaces is considered a reasonable target for internal noise levels. This is effectively the target for the rail and road rules in the Plan, after accounting for the 24-hour averaging period of the road rule and is consistent with the guidelines for internal noise levels given in AS/NZS 2107:2016 *Acoustics – Recommended design sound levels and reverberation times for building interiors*. Noise insulation should therefore be required so that these internal noise levels can be achieved.



Even where external noise levels are a maximum of 60 dB  $L_{Aeq}$ , a noise insulation rule would not need to be very onerous to achieve 35 or 40 dB  $L_{Aeq}$  internally. A standard modern dwelling with windows closed would achieve an outside to inside reduction of 23 – 28 dB for most typical sources.

### 2.3 Noise rule options for acoustic insulation

We have outlined three potential options for how to structure a rule to ensure an appropriate level of acoustic insulation in any parts of residentially zoned buildings that are three stories high or above. These are summarised below:

- Option 1: Requiring mechanical ventilation be installed in accordance with 6.1.7.2.1 a.v. so residents can keep their windows closed. Including a requirement for air conditioning would also be valuable and consistent with the infrastructure rules in the Plan, since people open windows for temperature control. Mechanical ventilation and air conditioning would only be required in rooms that have line of sight to an industrial zoned site.
- Option 2: Requiring external façade constructions for applicable spaces to be in line with, or acoustically equivalent to the 30 dB façade insulation constructions given in Appendix 6.11.4 of the Plan.
- Option 3: Setting the internal level that needs to be met and requiring a specific acoustic assessment to show it can be achieved.

Of the three options above, Option 1 is considered to be the most reasonable approach. Even with a lightweight construction and industrial site generating the maximum industrial zone noise limits, the internal noise levels are still likely to be less than the target internal noise levels described above. Option 2 would tend to be excessive in most situations but would ensure that the building is not made of an unusually light construction. Option 3 would require a bespoke assessment from an acoustic engineer, however in the majority of cases this should demonstrate a similar outcome to Option 1 above.

Matters of discretion for a noise rule could be similar to those used for Rule 6.1.7.2.1 as follows:

- The extent to which a reduced level of acoustic insulation may be acceptable due to mitigation of adverse noise impacts through other means, e.g. screening by other structures, or distance from noise sources.
- The ability to meet the appropriate levels of acoustic insulation through alternative technologies or materials.
- The provision of a report from an acoustic specialist which provides evidence that the level of acoustic insulation is appropriate to ensure the amenity of present and future residents of the site.

As mechanical ventilation and air conditioning would be the only requirements under Option 1, the following could also be adjusted as a matter of discretion:

- The extent to which windows will need to be closed to achieve suitable internal noise levels due to mitigation of adverse noise impacts through other means, for example, screening by other structures, or distance from noise sources.

### 2.4 Balconies

Unlike internal spaces in dwellings, noise levels received at a balcony cannot be easily mitigated.

The main consideration with balconies is whether there is line of sight from the point of view of the person using the balcony to neighbouring industrial activities – where elevated noise levels may be received. Where the balcony is side on to an industrial site it may be more easily screened, but noise levels could still be problematic. To avoid the potential for high noise levels received in balcony areas, a rule could be structured so that balconies at third floor level and above are not permitted with line of sight to industrial zones.

### 3.0 RESIDENTIAL MEDIUM DENSITY / INDUSTRIAL GENERAL ZONE INTERFACE CASE STUDIES

There are some examples in Christchurch of where three-storey dwellings have been constructed in a Residential Medium Density (RMD) zone within 40 metres of an industrial zone. A review of these locations provides some insight into possible adjacencies, and we have provided commentary on four locations below.

Many of the examples did not result in a change in activity to the neighbouring property, due to the location and nature of the building and neighbouring activity. However, this does not mean that it could not become an issue in the future.

While situations at the interface between RMD and Industrial General (IG) zones that cause a problem with noise at higher levels may not be likely, a situation that does result in complaints could have severe consequences. A three (or more) storey building completed next to an industrial site with no other practicable ways for the industrial operator to reduce noise could result in an unsolvable problem if residents decided to complain about noise emissions.

#### 3.1 353 Cashel Street case study

The building at 353 Cashel Street is a block of residential townhouses that is located across a Collector Road from an IG zone. The townhouses are shown below in figure 3.1.



Figure 3.1 – Three-storey dwelling at 353 Cashel Street (Source: Google Street View)

In this case there is a significant distance between the three-storey building and the IG zone, due to the road and the setback of the building from the boundary. Windows at higher levels on the building that face the IG zone are also not openable which will mitigate noise levels received inside the building. The balconies are not located on the third floor and are also mostly shielded by partitions and foliage.

If noise limits at the third storey were increased to 60 dB  $L_{Aeq}$ , it is not expected that noise effects would change from the current situation, as it is likely that the 50 dB  $L_{Aeq}$  limit at 1.5 metres above the ground will be the limiting factor on noise emissions.

This kind of building is likely to be typical of the kind of houses that would be built in a RMD zone. There are no balconies built on the third floor of this building, so an assessment for the balcony would not be required in this case.

### 3.2 378 – 380 Cashel Street preschool case study

We had previously provided an acoustic assessment when the preschool at 378 and 380 Cashel Street, was established in an IG zone, next to a three-storey residential building in a RMD zone.

Having a three-storey residential building adjacent to the preschool site was problematic in terms of controlling noise, and an acoustic shelter had to be implemented on the site to mitigate noise emissions to the third storey. The preschool would not have required the acoustic shelters had the building in the adjacent site been a single storey building.

The acoustic shelter installed at the preschool is shown below in figure 3.2.



Figure 3.2 – Acoustic shelter at 378 – 380 Cashel Street (Source: Google Street View)

The above example shows that the height of a residential property can affect the required acoustic mitigation of a neighbouring industrial activity.

If noise limits were to be increased by 10 dB, noise levels up to 60 dB  $L_{Aeq}$  would be permissible at the third storey of the neighbouring dwelling. With windows open the neighbouring three-storey house is expected to have an external to internal noise reduction in the order of 15 dB. Therefore it could be possible that internal noise levels exceed the guidelines for internal noise levels in this situation.

However, the three-storey house in this case is not expected to be typical of what would be newly built within a RMD zone. Any new houses would be built with appropriate acoustic insulation to ensure appropriate internal levels can be achieved.



### 3.3 436 Cashel Street case study

The building at 436 Cashel Street is a three-storey house, which is on a section that backs on to an industrial zone. The house is shown below in figure 3.3.



**Figure 3.3 – Three-storey dwelling at 436 Cashel Street (Source: Google Street View)**

In this case there is another two-storey house at 436 B Cashel Street, which serves as a barrier between the three-storey building and the industrial activity in the neighbouring property. The closest IG zoned area is also used as a storage space, and is not expected to be high noise generating. Therefore noise is not expected to be an issue in this case.

In the case that 436B was built up to three stories, and the nature of the adjacent industrial zone changed there could be potential for complaints about noise from the top storey where balconies faced the industrial site, or where windows were left open for ventilation.

This kind of building is another example of what could be expected under PC14. In this case there is no balcony attached to the third storey, and the house is unlikely to be affected by a 60 dB  $L_{Aeq}$  noise limit at the third floor.

### 3.4 20 – 24 Stanmore Road case study

The building at 20 – 24 Stanmore Road is a three-storey block of apartments, that is located across from an industrial zone. The apartment is shown below in figure 3.4.



**Figure 3.4 – Three-storey dwelling at 20 – 24 Stanmore Road (Source: Google Street View)**

In this case there is a Collector Road in between the residential building and the industrial sites on the other side, which results in a larger distance to the building from the industrial site, and also means that noise from the industrial site is somewhat masked by traffic noise. Windows on the sides of the building also do not have a direct line of sight to the industrial zone, and therefore noise is not expected to be an issue in this situation.

In this case there is a balcony associated with each floor, and the closest balcony does have a direct line of sight to the adjacent industrial zone. The balconies would be the only outdoor area associated with each apartment.

This kind of building is also expected to be typical of what could be expected under PC14. If up to 60 dB  $L_{Aeq}$  was permitted at the third storey, the internal spaces would likely achieve the recommended internal noise levels (with windows and doors closed). If such a building was constructed with balconies overlooking an industrial site, noise levels on the balcony could be elevated, exceeding typical guidance levels for outdoor residential spaces – which may lead to complaints.

## Memo

Date	8 April 2024
To	Brittany Ratka, Policy Planner, Christchurch City Council
CC	Sarah Oliver, Team Leader City Planning, Christchurch City Council
From	Tess Hindle-Daniels, Resource Management Officer, Environment Canterbury Martin King, Resource Management Technical Lead

### **Response to request for information on industrial air discharges and reverse sensitivity issues**

Tēnā koe Brittany

This memorandum responds to your request for information about industrial air discharges and reverse sensitivity issues in Christchurch City, in the context of the Industrial Interface Qualifying Matter (**IIQM**) proposed as part of Plan Change 14 (**PC14**) to the Christchurch District Plan.

I understand that PC14 as currently proposed would rezone residential areas adjacent to industrial sites to medium density, or in some cases high density, subject to the IIQM provisions that apply within 40 metres of any industrial zone. The IIQM provisions allow for dwellings up to 8 metres as a permitted activity, and any residential dwellings over 8 metres would require a resource consent. The proposed IIQM provisions do not limit the density of dwellings, and therefore up to three houses could be built per site (or more if zoned high density). Beyond the 40 metre buffer there are no restrictions relating to the industrial interface.

I understand that the information you've requested from Environment Canterbury will inform expert planning conferencing on the IIQM both generally, and specifically for the Ravensdown fertiliser manufacturing plant at 312 Main South Road.

### **Experience of complaint trends, including distance between industrial sites and sensitive receptors**

Over the last five years, Environment Canterbury has logged 105 incidents relating to offensive and objectionable odour from the Ravensdown Hornby plant. Some of these incidents capture more than one complaint. The distance between the Ravensdown Plant and the complainant's location ranges from 400m to 1600m.

There are other odour sources in the Hornby area, including Prime Environmental at 2 Mountview Place, Hornby. Over the last five years we have logged 28 incidents relating to offensive and objectionable odour from Prime Environmental. We have also logged 13 incidents relating to offensive and objectionable odour from Tegel Foods at 112 Carmen



Road, Hornby. See attachment 3 for all offensive and objectionable odour incidents logged with Environment Canterbury for the last five years.

Environment Canterbury has recorded a number of complaints from various distances to the source, up to 1km in some cases. See attachment 1 for details. In our experience, both working for Environment Canterbury and other organisations, when intensification occurs in an area, the number of complaints exponentially increases. An example is Meadow Mushrooms in Selwyn, where numerous complaints were received, up to 11km away from the source, following intensification. A further example is in Mosgiel, Dunedin, where further intensification of urban development near the industrial zone of Mosgiel resulted in the exponential increase in complaints about Wallace Group Silverstream facility (a rendering plant).

The risk of allowing intensification in the suburb in Hornby is that it too may result in an exponential increase in odour complaints from that area. It is for this reason that we are not able to provide an appropriate buffer zone for the mitigation of odour nuisance effects.

It is worth noting that it is currently proposed that the Living Earth composting facility, currently located in Bromley, will be relocated to Hornby within the next 4-5 years. Over the last five years, Environment Canterbury has logged 795 incidents relating to offensive and objectionable odour from this site. Please note that one incident may capture multiple complaints, up to fourteen in some instances. The risk of transferring this site to Hornby, and the proposed intensification of housing in Hornby, is that the number of complaints will further increase from an already unmanageable number.

The following attachments should be read in conjunction with the above:

- **Attachment 1** - An overview of “high complaint sites” and the distance to closest sensitive receptors. The Attachment 1 information shows that complaints often arise from up to 1km from the source.
- **Attachment 2** - A list of complaints received for the same “high complaint sites” between 1 January 2019 and 26 March 2024.
- **Attachment 3** – A list of complaints received from the Hornby area from 1 January 2019 and 21 March 2024.

### **Effect of residential intensification on the FIDOL factors**

When assessing odour, Environment Canterbury follows the Ministry for the Environment Good Management Guidelines for assessing odour. This first involves a 10-minute assessment, recording observations every ten seconds. The results from this 10-minute assessment are then compared to the FIDOL factors (described below).

F – frequency (how often the odour is detected within a 10-minute assessment)

I – intensity (how strong the odour is, on a scale of 1-6)

D – duration (how long the odour is detected for)

O – offensiveness (the characteristic of the odour)

L – location (the sensitivity of the receiving environment)

Odour characteristic can vary between industries, and between people's perception of odour. For example, some people like the smell of coffee odour, whilst others dislike it. However, most people dislike rendering odour. Sensitivity to odour varies between people, depending on the person's olfactometry system.

With regards to the proposed intensification of the Hornby area, the FIDOL factor that will be the most affected is location. Residential areas are already highly sensitive receptors, and further intensification will only increase this sensitivity further. For example, new people coming into the area, who will likely be unaware of these industries, will likely experience a greater nuisance effect from odour discharges.

An example of this is in the Selwyn District, where the Selwyn District Council allowed residential development near a piggery. The result of this has been an increase in complaints from the new residents to the area, who were unaware of the potential odour discharges in the area.

### **Resource consents**

Many industrial sites in the area do hold Environment Canterbury resource consents for their activities. A number of these consents require the site not to discharge offensive and objectionable odour beyond the property boundary. However, compliance with this condition is certainly not guaranteed, as a range of factors, such as site activities, climatic conditions, mechanical faults, can cause a site to discharge offensive and objectionable odours in contravention of this condition. Reliance on these conditions to mitigate any reverse sensitivity affects from intensification in Hornby is problematic. These factors can also affect the distance an odour may travel, and the sensitivity of the person therefore making it extremely difficult to assign an appropriate buffer boundary.

### **Challenges with proving odour nuisance**

It is challenging to show that odour is coming from a particular emitter; especially when there are multiple emitters in the area. Significant staff resourcing is required to investigate odour complaints. For complainants, the main factor is resolution of the issue, whereas for Environment Canterbury compliance and enforcement staff, the evidence required to meet the standard of proof (beyond reasonable doubt) is very challenging. It may take an acute event to demonstrate an odour breach, while nearby residents will be living with chronic exposure, and not understand the reasoning for why it is so hard for Environment Canterbury to demonstrate and enforce a non-compliance.

It is also incredibly hard to substantiate an odour (or dust) complaint in the first place, leading to a distrust between the people experiencing these issues day to day, and Environment Canterbury compliance team. It is incredibly difficult to be there at the exact moment a complainant may be experiencing the odour, and often by the time officers arrive, the odour is no longer noticeable. Odour is known to be highly temporally variable. We have



found that communities currently living with odour nuisances find this a very difficult message to digest, leading to a distrust.

Intensification of residential development in a known odour area may result in an increase in community frustrations. This impacts both residents of the area and Environment Canterbury compliance staff.

## **Mitigation**

Potential mitigation measures that have been proposed to date are height limits and a requirement for all new dwellings to be appropriately ventilated.

We have concerns with an approach that relies on height limits (which does not address fugitive odour risks, which are the most common), and for people to stay indoors exclusively, and not enjoy their outdoors spaces, in the Hornby area. This is because one of the most frequent issues residents report to Environment Canterbury is their inability to use their outdoor spaces (e.g. open windows, have outdoor BBQs, hang their washing out or having to rewash it, friends leaving due to odour) because of odour nuisances.

In relation to height limits, this will not help in all situations, as airborne contaminants are dispersed in many different ways and it depends on where the discharge is coming from (e.g. stack or from ground level).

Mechanical ventilation also will not assist. First, because the systems likely won't filter out the contaminant (e.g. odour) and secondly because this relies on people staying indoors, keeping their windows closed and drying their washing indoors.

**File reference:** (SharePoint or TRIM)

**Problem odour and dust sites**

<i>Site</i>	<i>Address</i>	<i>District Plan Zone</i>	<i>Contaminant</i>	<i>Approximate distance to CLOSEST residential area/ other sensitive location</i>
Aroma NZ	20 Senior Place <i>Bromley</i>	Industrial - Heavy	Odour	1km
Enviro NZ (also goes by Enviro Waste/Chem Waste)	10 Barton Street <i>Woolston</i>	Industrial - Heavy	Odour	200m
EPS Foam	70 – 74 Shortland Street <i>Aranui</i>	Industrial - General	Odour	200m
Heinz Watties Farm	255 Shands Road <i>Hornby</i>	Industrial – Heavy	Odour	1400m
Living Earth Composting Plant	40 Metro Place <i>Bromley</i>	Industrial - Heavy	Odour	800m
Lyttelton Port Company City Depot	41 Chapmans Road <i>Hillsborough</i>	Industrial - Heavy	Dust	450m

Prime Environmental	2 Mountview Place <i>Hornby</i>	Industrial - Heavy	Odour	800m
Ravensdown factory	292/312 Main South Road <i>Hornby</i>	Industrial - Heavy	Odour	60m BUT 400m to most frequent complainant
Sim's Metals	48 Wickham Street <i>Bromley</i>	Industrial – Heavy	Odour and dust	600m
Tegel Food Limited	112 Carmen Road <i>Hornby</i>	Industrial – Heavy	Odour	100m
Valmont Coatings	27 Washbourne's Road <i>Wigram</i>	Industrial - General	Odour	80m
Wastewater Treatment Plant	Dyers Road <i>Bromley</i>	Industrial Heavy/Industrial General	Odour	800 – 1500m

IncidentNo	NoComplainants	ReceivedAfterHours	ComplaintReceivedDatetime	Street Address or Locality	Suburb	City/Town	Categories	AllegedOffenderName
PE212232		1 WORKING HOURS	29/07/2020 11:37	Senior Place	Bromley	Christchurch	Odour	Christchurch Wastewater Treatment Plant
PE214400		1 WORKING HOURS	25/01/2021 21:02	Pine Avenue	South New Brighton	Christchurch	Odour	Christchurch City Council, Water and Waste Unit
PE215515		1 WORKING HOURS	19/04/2021 0:01	Thomas Street	Linwood	Christchurch	Odour	CCC Sewer Network or CCC WWTP??
PE215647		1 WORKING HOURS	30/04/2021 11:13	aranui	Aranui	Christchurch	Odour	Bromley Wastewater Treatment Plant
PE215704		1 WORKING HOURS	5/05/2021 14:23	Cuthberts Road	Aranui	Christchurch	Odour	Unknown
PE215785		1 WORKING HOURS	10/05/2021 10:54	Windward Lane	Bromley	Christchurch	Odour	CCC
PE223168		2 WORKING HOURS	3/11/2021 11:30	bromley	Bromley	Christchurch	Odour	Bromley Wastewater Treatment Plant
PE223213		1 WORKING HOURS	8/11/2021 16:00	bromley	Bromley	Christchurch	Odour	CCC WWTP bromley???
PE223215		1 WORKING HOURS	8/11/2021 15:30	bromley	Bromley	Christchurch	Odour	CCC WWTP
PE223195		1 WORKING HOURS	5/11/2021 16:00	bromley	Bromley	Christchurch	Odour	CCC
PE223241		2 WORKING HOURS	9/11/2021 10:18	Perth Street, Richmondn and Surrey Street, Linwood		Christchurch	Odour	CCC WWTP?
PE223254		1 WORKING HOURS	10/11/2021 16:00	bromley	Bromley	Christchurch	Odour	CCC WWTP?
PE223305		1 WORKING HOURS	15/11/2021 5:00	Bromley and surrounding areas		Christchurch	Odour	CCC WWTP
PE223313		1 WORKING HOURS	16/11/2021 1:30	bromley		Christchurch	Odour	CCC WWTP?
PE223329		1 WORKING HOURS	17/11/2021 10:30	Bromley and surrounding areas		Christchurch	Odour	CCC WWTP
PE223343		1 WORKING HOURS	18/11/2021 8:00	Matheson & Olivers Road	Phillipstown	Christchurch	Odour	CCC WWTP?
PE223360		1 WORKING HOURS	19/11/2021 8:00	bromley	Bromley	Christchurch	Odour	CCC WWTP
PE223338		1 WORKING HOURS	18/11/2021 8:00	bromley	Bromley	Christchurch	Odour	CCC WWTP?
PE223351		5 WORKING HOURS	19/11/2021 8:00	Seascape Gardens	Bromley	Christchurch	Odour	CCC WWTP
PE223385		1 WORKING HOURS	22/11/2021 8:00	multiple	multiple	Christchurch	Odour	CCC WWTP
PE223377		1 WORKING HOURS	20/11/2021 8:00	bromley odour		chch	Odour	CCC WWTP

PE223406	1 WORKING HOURS	23/11/2021 8:00 multiple	multiple	Christchurch	Odour	CCC WWTP
PE223421	1 WORKING HOURS	24/11/2021 6:30 Bromley and surrounding suburbs		Christchurch	Odour	CCC
PE223435	1 WORKING HOURS	24/11/2021 8:00 Between hereford street and Christchurch hospital	Christchurch CBD	Christchurch	Odour	CCC WWTP
PE223426	1 WORKING HOURS	25/11/2021 8:00 multiple	multiple	Christchurch	Odour	CCC WWTP
PE223451	1 WORKING HOURS	26/11/2021 4:30 Bromley and surrounding areas		Christchurch	Odour	CCC
PE223450	4 WORKING HOURS	26/11/2021 8:10 Bromley Road	Bromley	Christchurch	Odour	CCC
PE223265	1 WORKING HOURS	11/11/2021 11:00 Bromley and surrounding areas		Christchurch	Odour	CCC WWTP
PE223472	1 WORKING HOURS	29/11/2021 13:00 Bromley and surrounding suburbs		Christchurch	Odour	CCC
PE223490	1 WORKING HOURS	1/12/2021 8:00 Bromley and surrounding suburbs		Christchurch	Odour	CCC
PE223503	1 WORKING HOURS	2/12/2021 8:00 multiple	mutiple	Christchurch	Odour	CCC WWTP
PE223513	1 WORKING HOURS	3/12/2021 8:00 multiple	multiple	Christchurch	Odour	CCC WWTP
PE223539	1 WORKING HOURS	3/12/2021 8:00 Worcester Street	Central Christchurch	Christchurch	Odour	CCC
PE223577	1 WORKING HOURS	8/12/2021 8:00 Bromley and surrounding suburbs		Christchurch	Odour	CCC
PE223575	1 WORKING HOURS	7/12/2021 8:00 Bromley and surrounding suburbs		Christchurch	Odour	CCC
PE223582	1 WORKING HOURS	9/12/2021 8:00 Bromley and surrounding suburbs		Christchurch	Odour	CCC
PE223601	1 WORKING HOURS	10/12/2021 9:30 Bromley and surrounding areas		Christchurch	Odour	CCC
PE223606	1 WORKING HOURS	13/12/2021 10:00 multiple	multiple	Christchurch	Odour	CCC WWTP
PE223150	4 WORKING HOURS	1/11/2021 15:30 Cuthberts Road	Bromley	Christchurch	Smoke from burning	Bromley Wastewater Treatment Plant
PE223634	1 WORKING HOURS	14/12/2021 9:00 Bromely WWTP	Bromley	Christchurch	Odour	CCC
PE223640	1 WORKING HOURS	15/12/2021 2:00 Pages Road	Linwood	Christchurch	Odour	CCC WWTP
PE223705	1 WORKING HOURS	17/12/2021 19:00 bromley	Bromley	Christchurch	Odour	CCC

PE223709	1 WORKING HOURS	20/12/2021 8:00	Lenton Street, Aranui, Christchurch, New Zealand	Aranui	Christchurch	Odour	CCC WWTP
PE223728	1 WORKING HOURS	21/12/2021 10:00	Rolleston Avenue	Christchurch Central city	Christchurch	Odour	Unknown
PE223738	1 WORKING HOURS	22/12/2021 8:00	Shortland Street	Aranui	Christchurch	Odour	CCC WWTP
PE223767	1 WORKING HOURS	23/12/2021 8:00	Senior Place	Bromley	BROMLEY	Odour	CCC
PE223852	1 WORKING HOURS	10/01/2022 8:00	Saint Heliers Crescent	Aranui	chch	Odour	CCC
PE223868	1 WORKING HOURS	11/01/2022 13:30	Bayswater Crescent	Bromley	Christchurch	Odour	CCC Wastewater Treatment Plant
PE223892	1 WORKING HOURS	11/01/2022 17:00	shortland street	Aranui	Christchurch	Odour	CCC
PE223903	1 WORKING HOURS	12/01/2022 10:20	Breezes Road		ARANUI	Odour	CCC
PE223904	1 WORKING HOURS	13/01/2022 8:00	Carters Road,	Aranui	Christchurch	Odour	CCC
PE223923	1 WORKING HOURS	14/01/2022 8:00	CCC WWTP	Bromley	bromely	Odour	CCC
PE223974	1 WORKING HOURS	19/01/2022 15:00	WWTP bromley	Bromely	Christchurch	Odour	CCC
PE224022	1 WORKING HOURS	24/01/2022 8:00	saint johns street	Bromley	bromely	Odour	CCC
PE224030	1 WORKING HOURS	25/01/2022 8:00	Cuthberts road	Aranui	Christchurch	Odour	CCC
PE224052	1 WORKING HOURS	27/01/2022 21:30	CCC WWTP	Bromley	BROMLEY	Odour	CCC
PE224105	1 WORKING HOURS	28/01/2022 22:00	Nicholas Drive, Linwood, Christchurch, New Zealand	Linwood	Linwood	Odour	CCC
PE224132	1 WORKING HOURS	2/02/2022 8:00	Ruru Road, Bromley, Christchurch, New Zealand	Bromley	BROMLEY	Odour	CCC
PE224166	1 WORKING HOURS	3/02/2022 0:30	Bromley & surrounding suburbs		Christchurch	Odour	CCC
PE224183	1 WORKING HOURS	4/02/2022 8:00	Bayswater Crescent	Bromley	Christchurch	Odour	CCC
PE224184	1 WORKING HOURS	5/02/2022 8:00	Bayswater Crescent	Bromley	Christchurch	Odour	CCC
PE224186	1 WORKING HOURS	7/02/2022 8:00	Saint Johns Street, Bromley, Christchurch, New Zeal	Bromley	Christchurch	Odour	CCC WWTP
PE224201	1 WORKING HOURS	8/02/2022 9:00	st johns street	Bromley	Christchurch	Odour	CCC WWTP
PE224269	1 WORKING HOURS	12/02/2022 8:00	Vancouver Crescent	waioni	Christchurch	Odour	CCC WWTP

PE224330	1 WORKING HOURS	21/02/2022 8:00	Newtown Street,	Bromley	Christchurch	Odour	CCC
PE224364	1 WORKING HOURS	22/02/2022 8:00	Kearneys Road	Linwood	Christchurch	Odour	CCC WWTP
PE224396	1 WORKING HOURS	25/02/2022 11:00	Ormandy Place	Bromley	Christchurch	Odour	CCC WWTP
PE224420	1 WORKING HOURS	26/02/2022 8:00	Pateley Lane	Aranui	Christchurch	Odour	CCC
PE224453	1 WORKING HOURS	3/03/2022 8:00	Newton Street	Bromley	Christchurch	Odour	CCC
PE224448	1 WORKING HOURS	4/03/2022 9:45	Frensham Crescent	Woolston	Christchurch	Odour	CCC WWTP
PE224467	1 WORKING HOURS	4/03/2022 8:00	Barton Street	Woolston	Christchurch	Odour	CCC
PE224491	1 WORKING HOURS	5/03/2022 8:00	blake street	New Brighton	Christchurch	Odour	CCC
PE224513	1 WORKING HOURS	8/03/2022 8:00	Newton Street	Bromley	Christchurch	Odour	CCC
PE224563	1 WORKING HOURS	13/03/2022 8:00	Bayswater Crescent	Bromley	Christchurch	Odour	CCC
PE224568	1 WORKING HOURS	14/03/2022 8:00	Keighleys Road	Bromley	Christchurch	Odour	CCC
PE224598	1 WORKING HOURS	16/03/2022 13:30	Woodchester Avenue	Richmond	Christchurch	Odour	Unknown
PE224550	1 WORKING HOURS	11/03/2022 21:20	Seascape Gardens	Bromley	Christchurch	Odour	Christchurch Wastewater Treatment
PE224650	1 WORKING HOURS	22/03/2022 8:00	Mecca Place	Bromley	Christchurch	Odour	CCC
PE224657	1 WORKING HOURS	23/03/2022 7:30	Bayswater Crescent	Bromley	Christchurch	Odour	CCC
PE224665	4 WORKING HOURS	24/03/2022 9:30	Cracroft Terrace	Cashmere	Christchurch	Odour	CCC WWTP
PE224680	1 WORKING HOURS	24/03/2022 8:00	Lonsdale street	New Brighton	Christchurch	Odour	CCC WWTP
PE224683	1 WORKING HOURS	25/03/2022 8:00	Kibblewhite Street	New Brighton	Christchurch	Odour	CCC
PE224731	1 WORKING HOURS	28/03/2022 8:00	Digby Place	Bromley	Christchurch	Odour	CCC
PE224745	1 WORKING HOURS	29/03/2022 8:00	Compton street	woolsoth	Christchurch	Odour	CCC
PE224756	1 WORKING HOURS	30/03/2022 16:15	Dow Square	Wigram	Christchurch	Odour	CCC?
PE224773	1 WORKING HOURS	31/03/2022 11:15	Rosewarne Street	Spreydon	Christchurch	Odour	CCC



PE224747	1 WORKING HOURS	30/03/2022 8:00	Damien Place	Bromley	Christchurch	Odour	CCC
PE224788	1 WORKING HOURS	1/04/2022 8:00	Estuary Road	South New Brighton	Christchurch	Odour	CCC
PE224814	1 WORKING HOURS	4/04/2022 10:30	Kotare Street	Fendalton	Christchurch	Odour	CCC WWTP
PE224818	1 WORKING HOURS	4/04/2022 8:00	Mecca Place	Linwood	Christchurch	Odour	CCC
PE224835	1 WORKING HOURS	5/04/2022 8:00	Hay Street	Bromley	Christchurch	Odour	CCC
PE224896	5 WORKING HOURS	11/04/2022 9:20	Marine Parade	South New Brighton	Christchurch	Odour	CCC WWTP
PE224920	3 WORKING HOURS	12/04/2022 8:30	Ruru Road	Bromley	Christchurch	Odour	CCC WWTP
PE224937	3 WORKING HOURS	13/04/2022 11:15	Tidal View	Ferry- mead	Christchurch	Odour	CCC WWTP
PE224949	3 WORKING HOURS	14/04/2022 10:00	Hilldale Place	Hillsborou- gh	Christchurch	Odour	CCC WWTP
PE224990	2 WORKING HOURS	20/04/2022 8:30	Victoria street	Christchur- ch City	Christchurch	Odour	CCC
PE225004	1 WORKING HOURS	20/04/2022 15:00	Andover Street	Merivale	Christchurch	Odour	CCC
PE225051	4 WORKING HOURS	26/04/2022 11:00	Dyers road	New Brighton	Christchurch	Odour	CCC WWTP
PE225060	2 WORKING HOURS	27/04/2022 14:00	Woodgrove Avenue	North New Brighton	Christchurch	Odour	CCC WWTP
PE225067	3 WORKING HOURS	29/04/2022 10:00	Saint Lukes Street	Woolston	Christchurch	Odour	CCC WWTP
PE225105	1 WORKING HOURS	2/05/2022 17:15	Rudds Road	Linwood	Christchurch	Odour	CCC WWTP
PE225130	2 WORKING HOURS	4/05/2022 16:30	Raupo Street	Bromley	Christchurch	Odour	CCC
PE225155	2 WORKING HOURS	6/05/2022 14:30	Ensors Road	Woolston	Christchurch	Odour	CCC WWTP
PE225223	2 WORKING HOURS	13/05/2022 8:00	Woolston Court	Woolston	Christchurch	Odour	CCC WWTP
PE225277	1 WORKING HOURS	18/05/2022 9:00	Wairarapa Terrace	Merivale	Christchurch	Odour	CCC WWTP
PE225297	1 WORKING HOURS	19/05/2022 20:00	Jellicoe Street	South New Brighton	Christchurch	Odour	CCC WWTP

PE225317	3 WORKING HOURS	23/05/2022 0:30	Rowses Road	Aranui	Christchurch	Odour	CCC
PE225328	3 WORKING HOURS	24/05/2022 9:30	Mandeville Street	Riccarton	Christchurch	Odour	CCC WWTP
PE225355	1 WORKING HOURS	26/05/2022 13:00	Glenroy Street	Woolston	Christchurch	Odour	CCC WWTP
PE225349	1 WORKING HOURS	26/05/2022 13:30	Glenroy Street, Woolston, Christchurch, New Zealand	Woolson	Christchurch	Odour	CCC WWTP
PE225384	3 WORKING HOURS	30/05/2022 11:30	Peterborough street	Christchurch City Central	Christchurch	Odour	CCC
PE225410	1 WORKING HOURS	1/06/2022 8:00	Garlands Road	Bromley	Christchurch	Odour	CCC WWTP
PE225402	1 WORKING HOURS	31/05/2022 13:00	Laing Crescent	Heathcote	Christchurch	Odour	CCC
PE225428	2 WORKING HOURS	2/06/2022 16:00	Rowses Road	Aranui	Christchurch	Odour	CCC WWTP
PE225449	2 WORKING HOURS	7/06/2022 8:30	Mandeville Street	Riccarton	Christchurch	Odour	CCC WWTP
PE225471	2 WORKING HOURS	8/06/2022 13:00	Lynwood Avenue	Woolston	Christchurch	Odour	CCC WWTP
PE225624	1 WORKING HOURS	29/06/2022 10:00	Wyn Street	Hoon Hay	Christchurch	Odour	CCC WWTP
PE231896	1 WORKING HOURS	4/07/2022 10:28	Cashel Street	Linwood	Christchurch	Odour	CCC
PE231906	1 WORKING HOURS	5/07/2022 9:00	Cashel Street	Lindwood	Christchurch	Odour	CCC WWTP
PE231955	1 WORKING HOURS	11/07/2022 15:49	Cashel Street	Linwood	Christchurch	Odour	CCC waste water treatment plant
PE232244	1 WORKING HOURS	15/08/2022 8:15	Cashel Street	Linwood	Christchurch	Odour	WWTP
PE234109	1 WORKING HOURS	3/03/2023 15:30	Sea Scape Gardens	Bromley	Christchurch	Odour	Bromley Waste Treatment Plant
PE242581	1 WORKING HOURS	14/09/2023 8:03	Rudds Road	Linwood	Christchurch	Odour	WWTP?
PE243763	1 WORKING HOURS	10/01/2024 8:40	Saint Heliers Crescent	Aranui	Christchurch	Odour	WWTP
PE243867	1 WORKING HOURS	22/01/2024 13:50	bromley	Bromley	Christchurch	Odour	Wastewater Treatment Plant
PE243973	1 WORKING HOURS	1/02/2024 10:19	Riley Crescent	Woolston	Christchurch	Odour	CCC WWTP
PE244328	1 WORKING HOURS	3/03/2024 23:14	Pateke Place	Bromley	Christchurch	Odour	CCC WWTP

PE204162	2 AFTERHOURS	29/01/2020 19:00 bromley	Bromley	Christchurch	Odour	Sewage treatment plan
PE223217	1 AFTERHOURS	5/11/2021 22:24 Sullivan Avenue	Woolston	Christchurch	Odour	CCC WWTP???
PE223253	1 AFTERHOURS	10/11/2021 14:30 bromley	Bromley	Christchurch	Odour	CCC WWTP??
PE223283	2 AFTERHOURS	13/11/2021 13:30 Cashed Street	Linwood	Christchurch	Odour	Christchurch City Council
PE223302	1 AFTERHOURS	13/11/2021 0:00 Bromley and surrounding areas		Christchurch	Odour	CCC WWTP
PE223298	1 AFTERHOURS	12/11/2021 0:00 Bromley and surrounding areas		Christchurch	Odour	CCC WWTP
PE223304	1 AFTERHOURS	14/11/2021 2:00 Bromley and surrounding areas		Christchurch	Odour	CCC WWTP
PE223314	1 AFTERHOURS	16/11/2021 4:00 Seascape Garden	Bromley	Christchurch	Odour	Bromley Wastewater Treatment Plant
PE223380	2 AFTERHOURS	20/11/2021 11:00 Saint Martins Road and pages rd		Christchurch	Odour	CCC WWTP
PE223383	1 AFTERHOURS	22/11/2021 8:00 multiple suburbs including bromley	multiple	Christchurch	Odour	CCC WWTP
PE223372	3 AFTERHOURS	20/11/2021 17:36 Avonside Drive	Linwood	Christchurch	Odour	Bromley WWTP
PE223423	2 AFTERHOURS	23/11/2021 22:30 Ruru Road	Bromley	Christchurch	Odour	CCC
PE223463	1 AFTERHOURS	29/11/2021 8:00 multiple	multiple	Christchurch	Odour	CCC WWTP
PE223530	1 AFTERHOURS	4/12/2021 8:49 Breezes Road	New Brighton	Christchurch	Odour	CHCH WWTP
PE223535	1 AFTERHOURS	4/12/2021 8:00 Bromley and surrounding suburbs		Christchurch	Odour	CCC
PE223669	1 AFTERHOURS	16/12/2021 22:00 Pine Avenue	South New Brighton	Christchurch	Odour	CCC WWTP
PE223706	1 AFTERHOURS	18/12/2021 10:20 Smith Street	Woolston	Christchurch	Odour	CCC WWTP
PE223798	1 AFTERHOURS	23/12/2021 17:30 CCC WWTP	Bromley	BROMLEY	Odour	CCC WWTP
PE223807	1 AFTERHOURS	6/01/2022 23:30 shortland street	Aranui	Christchurch	Odour	CCC
PE223851	1 AFTERHOURS	9/01/2022 8:00 bromley	Bromley	Christchurch	Odour	CCC
PE224010	1 AFTERHOURS	22/01/2022 8:00 Bromley and surrounding suburbs		Christchurch	Odour	CCC
PE224015	1 AFTERHOURS	21/01/2022 22:00 Bromley and surrounding suburbs		Christchurch	Odour	CCC

PE224025	1 AFTERHOURS	25/01/2022 3:30	perth street	Richmond	Christchurch	Odour	CCC
PE224066	1 AFTERHOURS	27/01/2022 20:00	bromley	Bromley	chch	Odour	CCC
PE224106	1 AFTERHOURS	29/01/2022 8:00	Pages Road, Linwood, Christchurch , New Zealand	Bromley	BROMLEY	Odour	CCC
PE224318	1 AFTERHOURS	19/02/2022 8:00	Saint Johns Street, Bromley, Christchurch , New Zeal		BROMLEY	Dust	CCC
PE224437	1 AFTERHOURS	1/03/2022 6:30	smith street	Linwood	Christchurch	Odour	CCC WWTP
PE224564	1 AFTERHOURS	13/03/2022 8:00	Bayswater Crescent	Bromley	Christchurch	Odour	CCC
PE224625	1 AFTERHOURS	20/03/2022 9:30	Seascape Gardens		Christchurch	Odour	Bromley WWTP
PE224615	1 AFTERHOURS	18/03/2022 7:00	shortland street	Aranui	Christchurch	Odour	CCC WWTP
PE224634	1 AFTERHOURS	19/03/2022 8:00	New Castle Street	Phillipstown	Christchurch	Odour	Potentially WWTP
PE224639	1 AFTERHOURS	19/03/2022 8:00	Logie Place	Bromley	Christchurch	Odour	CCC
PE224663	1 AFTERHOURS	24/03/2022 1:00	Kearneys Road	Linwood	Christchurch	Odour	CCC WWTP
PE224713	1 AFTERHOURS	26/03/2022 8:00	estuary road	South New Brighton	Christchurch	Odour	CCC
PE224758	1 AFTERHOURS	30/03/2022 17:00	Level Hereford Street	Christchurch Central city	Christchurch	Odour	CCC WWTP
PE224802	1 AFTERHOURS	1/04/2022 19:14	Seascape Gardens	Bromley	Christchurch	Odour	Christchurch WWTP
PE224812	1 AFTERHOURS	2/04/2022 8:00	Digby Place	Bromley	Christchurch	Odour	CCC
PE224857	1 AFTERHOURS	5/04/2022 17:05	Doreen Street	Aranui	Christchurch	Odour	WWTP
PE224858	1 AFTERHOURS	6/04/2022 7:00	Pine Ave	South New Brighton	Christchurch	Odour	WWTP or LEL
PE224850	1 AFTERHOURS	6/04/2022 8:00	Esk Place,	Aranui	Christchurch	Odour	CCC
PE224862	1 AFTERHOURS	7/04/2022 6:30	Shaw Avenue	New Brighton	Christchurch	Odour	CCC WWTP
PE224863	1 AFTERHOURS	7/04/2022 8:00	Digby Street	Bromley	Christchurch	Odour	CCC

PE224883	1 AFTERHOURS	9/04/2022 21:00	Edmund Storr Rd	Halswell	Christchurch	Odour	WWTP
PE224888	1 AFTERHOURS	8/04/2022 8:00	Marlow road	Aranui	Christchurch	Odour	CCC
PE224891	1 AFTERHOURS	11/04/2022 7:00	Edmund Storr Road	Halswell	Christchurch	Odour	WWTP
PE224889	1 AFTERHOURS	9/04/2022 8:00	Compton Street	Woolston	Christchurch	Odour	CCC
PE224890	4 AFTERHOURS	9/04/2022 18:30	Bayswater Crescent	Bromley	Christchurch	Odour	CCC WWTP
PE224892	1 AFTERHOURS	8/04/2022 8:00	Thomas street	Linwood	Christchurch	Odour	CCC
PE224894	7 AFTERHOURS	10/04/2022 14:00	Halswell Junction Road	Halswell	Christchurch	Odour	CCC WWTP
PE224895	1 AFTERHOURS	9/04/2022 8:00	Bayswater Crescent	Bromley	Christchurch	Odour	CCC
PE224901	1 AFTERHOURS	11/04/2022 8:00	RADLEY STREET	Woolston	Christchurch	Odour	CCC
PE224902	1 AFTERHOURS	11/04/2022 8:00	Shortland Street	Aranui	Christchurch	Odour	CCC
PE224926	1 AFTERHOURS	12/04/2022 8:00	Marlow Road	Aranui	Christchurch	Odour	CCC
PE224927	1 AFTERHOURS	12/04/2022 8:00	Hay Street	Bromley	Christchurch	Odour	CCC
PE224939	1 AFTERHOURS	13/04/2022 8:00	Ariel Place	Aranui	Christchurch	Odour	CCC
PE224938	1 AFTERHOURS	13/04/2022 8:00	Kerrs Road	Avonside	Christchurch	Odour	CCC
PE224960	1 AFTERHOURS	16/04/2022 8:30	Purchas Street	Edgeware	Christchurch	Odour	Christchurch WWTP
PE224962	2 AFTERHOURS	18/04/2022 18:00	Seascape Gardens	Bromley	Christchurch	Odour	Christchurch WWTP
PE224973	3 AFTERHOURS	15/04/2022 9:30	Ti Kouka Eco Lane	Redcliffs	Christchurch	Odour	CCC WWTP
PE224951	1 AFTERHOURS	14/04/2022 8:00	Collingwood street	New Brighton	Christchurch	Odour	CCC
PE224974	4 AFTERHOURS	16/04/2022 8:30	Alexandra Street	Richmond	Christchurch	Odour	CCC WWTP
PE224975	4 AFTERHOURS	18/04/2022 9:00	St Johns Street	Bromley	Christchurch	Odour	CCC WWTP
PE224977	4 AFTERHOURS	17/04/2022 7:30	Stanbury Avenue	Somefield	Christchurch	Odour	CCC WWTP
PE224950	1 AFTERHOURS	15/04/2022 8:00	Bayswater Crescent	Bromley	Christchurch	Odour	CCC

PE224991	1 AFTERHOURS	19/04/2022 8:00	Fitzpatricks Lane	Linwood	Christchurch	Odour	CCC
PE225005	6 AFTERHOURS	21/04/2022 1:00	Tabart Street	Woolston	Christchurch	Odour	CCC WWTP
PE225000	1 AFTERHOURS	20/04/2022 8:00	Surrey Street	Linwood	Christchurch	Odour	CCC
PE225020	3 AFTERHOURS	22/04/2022 6:30	Estuary Road	New Brighton	Christchurch	Odour	CCC WWTP
PE225013	1 AFTERHOURS	21/04/2022 8:00	Keighleys Road	Bromley	Christchurch	Odour	CCC
PE225052	2 AFTERHOURS	25/04/2022 15:00	Buckleys Road	Linwood	Christchurch	Odour	CCC WWTP
PE225055	2 AFTERHOURS	23/04/2022 17:30	Armagh Street	Linwood	Christchurch	Odour	CCC WWTP
PE225056	2 AFTERHOURS	24/04/2022 10:00	Marine Parade	New Brighton	Christchurch	Odour	CCC WWTP
PE225041	1 AFTERHOURS	22/04/2022 8:00	Bridge Street	New Brighton	Christchurch	Odour	CCC
PE225091	4 AFTERHOURS	1/05/2022 1:00	Cranford Street	St Albans	Christchurch	Odour	CCC
PE225106	3 AFTERHOURS	3/05/2022 7:30	Ti Kouka Eco Lane	Redcliffe	Christchurch	Odour	CCC WWTP
PE225169	2 AFTERHOURS	9/05/2022 4:30	Ti Kouka Eco Lane	Redcliffs	Christchurch	Odour	CCC WWTP
PE225164	2 AFTERHOURS	8/05/2022 9:30	Breezes Road		Christchurch	Odour	Bromley WWTP
PE225212	1 AFTERHOURS	11/05/2022 18:00	Cracoft Terrace	Cashmere	Christchurch	Odour	CCC
PE225247	2 AFTERHOURS	16/05/2022 7:00	Wairakei Road	Bryndwr	Christchurch	Odour	CCC WWTP
PE225248	1 AFTERHOURS	16/05/2022 20:15	Tripp Place	Ilam	Christchurch	Odour	CCC WWTP
PE225250	2 AFTERHOURS	14/05/2022 13:00	Bentley Street	Russley	Christchurch	Odour	CCC WWTP
PE225258	2 AFTERHOURS	17/05/2022 6:30	Wairakei Road	Bryndwr	Christchurch	Odour	CCC WWTP
PE225307	2 AFTERHOURS	22/05/2022 19:00	Tripp Place	Ilam	Christchurch	Odour	CCC WWTP
PE225308	1 AFTERHOURS	20/05/2022 18:00	Woodgrove Avenue	North New Brighton	Christchurch	Odour	CCC WWTP
PE225310	1 AFTERHOURS	21/05/2022 9:00	Woodgrove Avenue	North New Brighton	Christchurch	Odour	CCC WWTP



PE225336	2 AFTERHOURS	25/05/2022 0:30	Guernsey Street	Aranui	Christchurch	Odour	CCC WWTP
PE225383	1 AFTERHOURS	28/05/2022 19:40	Rocking Horse Road.		New Brighton	Odour	CCC WWTP
PE225420	1 AFTERHOURS	2/06/2022 10:15	Pentonville Close	Westmorl and	Christchurch	Odour	CCC WWTP
PE225446	1 AFTERHOURS	3/06/2022 18:00	Woodgrove Avenue	North New Brighton	Christchurch	Odour	CCC WWTP
PE225447	2 AFTERHOURS	4/06/2022 11:00	Ti Rakau Drive	Woolston	Christchurch	Odour	CCC WWTP
PE225450	2 AFTERHOURS	6/06/2022 20:30	Eveleyn Couzins Avenue	Richmond	Christchurch	Odour	CCC WWTP
PE225451	1 AFTERHOURS	6/06/2022 20:00	Tripp Place	Ilam	Christchurch	Odour	CCC WWTP
PE225496	1 AFTERHOURS	10/06/2022 9:00	Ti Kouka Eco Lane	Redcliffs	Christchurch	Odour	CCC WWTP
PE225596	2 AFTERHOURS	27/06/2022 19:00	Tripp Place	Ilam	Christchurch	Odour	CCC WWTP
PE232505	2 AFTERHOURS	11/09/2022 8:00	Bayswater Crescent	Bromley	Christchurch	Odour	Lel/WWTP
PE242572	1 AFTERHOURS	19/09/2023 23:34	Sewell Street, Linwood	Linwood	Christchurch	Odour	CCC Wastewater treatment plant??
PE243503	2 AFTERHOURS	9/12/2023 10:23	Dyers Road	Bromley	Christchurch	Odour	CCC WWTP
PE243579	1 AFTERHOURS	15/12/2023 8:00	Pine Avenue	South New Brighton	Christchurch	Odour	Sewage Treatment Plant
PE243469	1 AFTERHOURS	7/12/2023 6:23	Guernsey Street	Aranui	Christchurch	Odour	CCC WWTP
PE244077	1 AFTERHOURS	11/02/2024 18:13	Guernsey Street	Aranui	Christchurch	Odour	CCC WWTP
PE244120	1 AFTERHOURS	15/02/2024 6:42	maces road	Bromley	Christchurch	Odour	CCC WWTP
PE244141	2 AFTERHOURS	19/02/2024 7:34	Korora Street	Bromley	Christchurch	Odour	WWTP
PE244238	1 AFTERHOURS	26/02/2024 8:17	Ruru road	Linwood	Christchurch	Odour	CCC WWTP
PE244400	1 AFTERHOURS	9/03/2024 20:10	Breezes Road	Aranui	Christchurch	Odour	CCC WWTP
PE244419	1 AFTERHOURS	12/03/2024 8:06	Bayswater Crescent	Bromley	Christchurch	Odour	CCC WWTP
PE244428	1 AFTERHOURS	12/03/2024 16:20	Eric Adam Way	Linwood	Christchurch	Odour	CCC WWTP

PE244460	1 AFTERHOURS	18/03/2024 8:00	Bayswater Crescent	Bromley	Christchurch	Odour	CCC WWTP
PE244526	1 AFTERHOURS	24/03/2024 17:07	Bayswater Cresent	Bromley	Christchurch	Odour	CCC WWTP

IncidentNo	NoComplainants	CWMS Zone	TerritorialAuthority	ReceivedAfterHours	ComplaintReceivedDatetime	Street Address or Locality	Suburb	City/Town	Categories	Pollutant	AllegedOffenderName
PE193850		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	24/01/2019 15:40	Chappie Place	Hornby	Christchurch	Odour	Discharge to air (\$15)	Ravensdown
PE194379		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	12/03/2019 14:07	Mount View Place	Hornby	Christchurch	Odour	Discharge to air (\$15)	Prime Environmental
PE194482		2 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	21/03/2019 15:11	Chinook Place	Hornby South	Christchurch	Odour	Discharge to air (\$15)	Robson Property Holdings Limited
PE193706		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	16/01/2019 10:10	Brynley St	Hornby	Christchurch	Odour	Discharge to air (\$15)	Ravensdown
PE193903		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	31/01/2019 0:50	Carmen Road	Hornby	Christchurch	Odour	Discharge to air (\$15)	Tegel Foods Limited
PE194163		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	21/02/2019 8:48	Neil Street	Hornby	Christchurch	Odour	Discharge to air (\$15)	Ravensdown
PE194331		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	7/03/2019 10:06	Carmen Road	Hornby	Christchurch	Odour	Discharge to air (\$15)	Tegel Foods Limited
PE194367		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	11/03/2019 13:54	Carmen Road	Hei Hei	Christchurch	Odour	Discharge to air (\$15)	Tegel Foods Limited
PE194462		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	20/03/2019 9:06	Springs Road	Hornby	Christchurch	Odour	Discharge to air (\$15)	Unknown
PE194459		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	19/03/2019 16:28	Neil Street	Hornby	Christchurch	Odour	Discharge to air (\$15)	Ravensdown
PE194109		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	15/02/2019 16:05	Edmonton Road	Hornby	Christchurch	Odour	Discharge to air (\$15)	Prime Environmental
PE194559		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	29/03/2019 8:32	Waterloo Road	Hornby	Christchurch	Odour	Discharge to air (\$15)	Tegel Foods Limited
PE194457		2 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	19/03/2019 0:33	Carmen Road	Hornby	Christchurch	Odour	Discharge to air (\$15)	Tegel Foods Limited
PE194675		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	8/04/2019 11:57	Carmen Road	Hornby	Christchurch	Odour	Discharge to air (\$15)	Tegel Foods Limited
PE194683		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	9/04/2019 8:24	Lot DP - Margaret Eggers Drive	Hornby	Christchurch	Odour	Discharge to air (\$15)	GOLDPINE PROPERTIES LIMITED
PE194996		2 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	10/05/2019 16:04	Denise Crescent	Hornby	Christchurch	Odour	Discharge to air (\$15)	Unknown
PE194550		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	28/03/2019 11:20	Brynley St	Hornby	Christchurch	Odour	Discharge to air (\$15)	Ravensdown
PE194756		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	17/04/2019 14:55	Brynley street	Hornby	Christchurch	Odour	Discharge to air (\$15)	Ravensdown
PE194768		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	18/04/2019 14:23	Chappie Place	Hornby	Christchurch	Odour	Discharge to air (\$15)	Ravensdown
PE194871		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	1/05/2019 0:15	Main South Rpad	Hornby	Christchurch	Odour	Discharge to air (\$15)	Ravensdown
PE195093		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	21/05/2019 11:05	Brynley street	Hornby	Christchurch	Odour	Discharge to air (\$15)	Ravensdown
PE195101		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	22/05/2019 9:33	Main South Road	Hornby	Christchurch	Odour	Discharge to air (\$15)	Ravensdown
PE195130		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	23/05/2019 15:40	Chappie Place	Hornby	Christchurch	Odour	Discharge to air (\$15)	Ravensdown
PE194610		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	2/04/2019 10:41	Mountview Place	Hornby South	Christchurch	Odour	Discharge to air (\$15)	Prime Environmental
PE202017		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	12/07/2019 15:37	Main South Road	Hornby	Christchurch	Odour	Discharge to air (\$15)	Ravensdown
PE202297		2 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	9/08/2019 13:31	Main South Road		Christchurch	Odour	Discharge to air (\$15)	Ravensdown
PE202337		2 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	15/08/2019 0:45	Neill St	Hornby	Christchurch	Odour	Discharge to air (\$15)	Ravensdown
PE202218		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	2/08/2019 0:00	Mountview Place	Hornby	Christchurch	Odour	Discharge to air (\$15)	Prime Environmental
PE202383		1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	20/08/2019 0:28	Mountview Place	Hornby	Christchurch	Odour	Discharge to air (\$15)	Prime Environmental

PE202161	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	29/07/2019 7:19 Brynley street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE202272	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	7/08/2019 11:20 Neill Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE202476	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	30/08/2019 8:36 Waterloo Road	Hornby	Christchurch	Odour	Discharge to Tegel Foods Limited air (\$15)
PE202634	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	13/09/2019 9:38 MAIN SOUTH RD	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE202665	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	17/09/2019 10:38 Mountview Place	Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE203194	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	4/11/2019 0:43 Carmen Rd	Hei Hei	Christchurch	Odour	Discharge to Tegel Foods Limited air (\$15)
PE203908	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	10/01/2020 0:32 Garvins Road	Hornby	Christchurch	Odour	Discharge to Christchurch City Council air (\$15)
PE204111	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	27/01/2020 0:35 Main South Road	Islington	Christchurch	Odour	Discharge to Heinz Watties Farm air (\$15)
PE202680	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	18/09/2019 0:13 Main South Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE202784	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	27/09/2019 10:03 Neill Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE202902	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	8/10/2019 9:35 Main South Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE204381	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	18/02/2020 10:52 Main South Road	Hornby	Christchurch	Odour	Discharge to Heinz Watties Farm air (\$15)
PE204420	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	20/02/2020 10:19 Main South Road	Hornby	Christchurch	Odour	Discharge to Heinz Watties Farm air (\$15)
PE204423	2 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	20/02/2020 10:51 Mountview Place	Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE204847	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	24/03/2020 15:34 Cairnbrae Dr		Christchurch	Odour	Discharge to Meadow Mushrooms air (\$15)
PE204809	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	20/03/2020 13:46 Carmen Road	Hei Hei	Christchurch	Odour	Discharge to Tegel Foods Limited air (\$15)
PE205558	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	10/06/2020 11:12 Waterloo Road	Hornby	Christchurch	Odour	Discharge to Tegel Foods Limited air (\$15)
PE211887	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	1/07/2020 0:55 Carmen Road	Hei Hei	hornby	Odour	Discharge to Tegel Foods Limited air (\$15)
PE212149	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	23/07/2020 9:42 Edmonton Road	Hornby South	Christchurch	Odour	Discharge to Unknown air (\$15)
PE212432	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	13/08/2020 13:33 Main South Road	Islington	Christchurch	Odour	Discharge to Heinz Watties Farm air (\$15)
PE212528	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	20/08/2020 13:30 Main South Road	Islington	Christchurch	Odour	Discharge to Heinz Watties Farm air (\$15)
PE212739	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	7/09/2020 14:50 Main South Road		christchurh	Odour	Discharge to Heinz Watties Farm air (\$15)
PE212774	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	9/09/2020 14:33 Mountainview Place	Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE213941	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	10/12/2020 16:24 Main South Road	Islington	Christchurch	Odour	Discharge to Heinz Watties Farm air (\$15)
PE213983	2 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	14/12/2020 9:46 Main South Road		Christchurch	Odour	Discharge to Heinz Watties Farm air (\$15)
PE214099	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	22/12/2020 16:06 Main South Road	Islington	Christchurch	Odour	Discharge to Heinz Watties Farm air (\$15)
PE214252	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	12/01/2021 13:58 Zinnia Way	Hornby	Christchurch	Odour	Discharge to Schick Construction air (\$15)
PE214267	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	14/01/2021 8:08 Main South Road	Hornby	Christchurch	Odour	Discharge to Unknown air (\$15)
PE213597	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	16/11/2020 0:17 Mountview Place	Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)

PE213761	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	27/11/2020 8:51	Mountview Place	Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE214455	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	29/01/2021 14:34	Chalmers Street	Hornby	Christchurch	Odour	Discharge to Tegel Foods Limited air (\$15)
PE213289	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	20/10/2020 10:47	Branston Street	Hornby	Christchurch	Odour	Discharge to Higgins Contracting Ltd air (\$15)
PE215671	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	3/05/2021 10:31	Ranui Street	Hei Hei	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE215816	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	11/05/2021 13:59	Garvins Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE215982	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	25/05/2021 0:42	Neill Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE215983	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	25/05/2021 0:55	Mountview Place	Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE215495	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	16/04/2021 14:00	Mountview Place	Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE216265	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	25/06/2021 10:02	Edmonton Road	Hornby South	Christchurch	Odour	Discharge to Alfa Pet Hornby air (\$15)
PE221885	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	1/07/2021 15:30	Edmonton Road	Hornby	Christchurch	Odour	Discharge to Alfa Pet Hornby air (\$15)
PE216308	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	29/06/2021 8:45	Bella Rosa Dr	Hei Hei	Christchurch	Odour	Discharge to Tegel Foods Limited air (\$15)
PE216185	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	16/06/2021 13:40	Mountview Place	Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE221902	2 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	5/07/2021 11:00	Edmonton Road	Hornby	Christchurch	Odour	Discharge to Alfa Pet Hornby air (\$15)
PE221944	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	9/07/2021 9:30	Edmonton Road	Hornby	Christchurch	Odour	Discharge to Alfa Pet Hornby air (\$15)
PE222043	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	20/07/2021 9:20	Neil Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE222136	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	29/07/2021 10:57	Main South Road		Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE222078	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	23/07/2021 11:15	Edmonton Road	Hornby	Christchurch	Odour	Discharge to Alfa Pet Hornby air (\$15)
PE222488	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	3/09/2021 13:00	Main South Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE223119	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	28/10/2021 16:24	Main South Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE223188	2 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	5/11/2021 10:20	Main South Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE223443	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	25/11/2021 11:00	Waterloo Road	Hornby	Christchurch	Odour	Discharge to Unknown air (\$15)
PE223517	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	3/12/2021 10:00	Neill Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE223411	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	23/11/2021 13:00	Neil Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE223866	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	11/01/2022 11:20	Neill Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE224060	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	25/01/2022 18:00	Main South Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE223954	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	18/01/2022 11:30	Neil Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE224140	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	3/02/2022 10:15	Edmonton Road	Hornby	Christchurch	Odour	Discharge to Alfa Pet Hornby air (\$15)
PE224297	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	18/02/2022 10:30	Neill Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE224254	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	15/02/2022 10:00	Neill Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)

PE224383	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	24/02/2022 13:45	Neil Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)	
PE224394	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	25/02/2022 9:15	Ravensdown Road	Main South	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE224539	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	11/03/2022 9:00	Neill Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE224611	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	17/03/2022 13:04	Neil Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE224652	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	22/03/2022 13:00	Neill Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE224662	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	23/03/2022 16:20	Neill Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE224807	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	4/04/2022 8:10	Neil Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE224838	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	5/04/2022 13:00	Neil Street		hornby	Odour	Discharge to Ravensdown air (\$15)	
PE224869	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	8/04/2022 0:30	Neil Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE213837	1 Christchurch - West Melton	Christchurch City Council	WORKINGHOURS	3/12/2020 10:37	Mountview Place		Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE231992	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	15/07/2022 14:30	Oakhampton Street		Hornby	Christchurch	Odour	Discharge to Unknown air (\$15)
PE232218	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	10/08/2022 13:20	Neil Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE232342	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	25/08/2022 13:30	Neill Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE232375	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	30/08/2022 9:30	Main South Road		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE232468	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	7/09/2022 0:30	Neill Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE232619	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	22/09/2022 0:30	Neill Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE232684	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	28/09/2022 10:15	Neill Street, Hornby		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE232746	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	4/10/2022 9:30	Neill Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE232924	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	26/10/2022 10:30	Neill Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE232966	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	28/10/2022 9:05	Neill Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE233085	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	8/11/2022 13:41	Neil Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE233236	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	23/11/2022 13:35	MOUNT VIEW PLACE		Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE233434	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	16/12/2022 9:52	Neill Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE233525	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	6/01/2023 0:15	Neil Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE233489	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	22/12/2022 9:30	Neill Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE233652	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	18/01/2023 11:10	Neil Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE233733	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	26/01/2023 8:30	Neill Street		Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE234260	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	17/03/2023 0:30	MOUNT VIEW PLACE		Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE234165	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	9/03/2023 15:30	Mountview Place		Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)



PE234237	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	16/03/2023 13:30	Bermuda Drive	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE234252	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	17/03/2023 9:00	Bermuda Drive	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE234542	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	14/04/2023 10:00	Neill Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE234462	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	6/04/2023 9:00	Mountview Place	Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE234698	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	27/04/2023 17:03	Springs Road	Hornby	Christchurch	Odour	Discharge to James Russell Kenneth , James Rondalyn , Boulevard Trustees Limited
PE234867	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	16/05/2023 14:50	mount view Place	Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE234808	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	9/05/2023 15:23	Mountview Place	Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE234876	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	17/05/2023 14:18	Neil Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE242068	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	25/07/2023 13:32	Neill Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE242337	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	24/08/2023 14:00	Neill Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE242878	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	10/10/2023 12:40	Main South Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE242906	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	12/10/2023 10:30	Goulding Ave	Hornby	Christchurch	Odour	Discharge to Unknown air (\$15)
PE242923	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	13/10/2023 14:32	Mountainview Place	Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE243253	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	16/11/2023 16:15	Neil Street	Christchurch	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE243233	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	15/11/2023 8:27	Carmen Road	HeiHei	Christchurch	Odour	Discharge to Tegel Foods Limited air (\$15)
PE243915	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	25/01/2024 9:11	Main South Road Hornby Christchurch	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE243986	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	1/02/2024 16:25	Main South Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE244057	2 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	9/02/2024 9:37	Steele street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE244398	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	8/03/2024 15:07	Main South Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE244445	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	14/03/2024 9:41	Main South Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE244323	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	1/03/2024 13:22	Shands Road	Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE244505	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	20/03/2024 11:00	Neill St	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE244504	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	20/03/2024 10:44	Neill Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE244488	1 Christchurch - West Melton	Christchurch City Council Council	WORKINGHOURS	19/03/2024 13:00	b Prairie Place	Hornby	Christchurch	Odour	Discharge to Heinz Watties Farm air (\$15)
PE194369	1 Christchurch - West Melton	Christchurch City Council	AFTERHOURS	9/03/2019 13:23	Carmen Road	Hornby	Christchurch	Odour	Discharge to Tegel Foods Limited air (\$15)
PE194540	1 Christchurch - West Melton	Christchurch City Council	AFTERHOURS	27/03/2019 16:45	Halswell Junction Road	Hornby	Christchurch	Odour	Discharge to Unknown air (\$15)
PE194976	1 Christchurch - West Melton	Christchurch City Council	AFTERHOURS	9/05/2019 5:01	Brynley St, Hornby, Christchurch , New Zealand		Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE194958	1 Christchurch - West Melton	Christchurch City Council	AFTERHOURS	10/05/2019 5:03	Brynley Str	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)

PE202026	1 Christchurch - West Melton	Christchurch City Council	AFTERHOURS	13/07/2019 15:29	Main South Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE202401	1 Christchurch - West Melton	Christchurch City Council	AFTERHOURS	22/08/2019 9:03	Dufek Place	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE204199	1 Christchurch - West Melton	Christchurch City Council	AFTERHOURS	3/02/2020 4:50	Hornby	Hornby	Christchurch	Odour	Discharge to Tegel Foods Limited air (\$15)
PE205032	1 Christchurch - West Melton	Christchurch City Council	AFTERHOURS	25/04/2020 17:49	Carmen Road	Hornby	Christchurch	Odour	Discharge to Tegel Foods Limited air (\$15)
PE212606	1 Christchurch - West Melton	Christchurch City Council	AFTERHOURS	27/08/2020 19:19	Kinross Street	Hei Hei	Christchurch	Odour	Discharge to Tegel Foods Limited air (\$15)
PE213118	1 Christchurch - West Melton	Christchurch City Council	AFTERHOURS	6/10/2020 23:00	- Waterloo Road	Hornby	Christchurch	Odour	Discharge to Unknown air (\$15)
PE223638	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	14/12/2021 17:41	Neill St,	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE223871	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	29/12/2021 11:30	Neill Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE224001	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	22/01/2022 9:09	Neill Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE224039	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	25/01/2022 18:00	Neill Street		Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE224621	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	19/03/2022 0:00	Neill Street, Hornby		Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE224969	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	18/04/2022 10:30	Neill Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE225028	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	23/04/2022 11:34	Ravensdown, Main South Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE225158	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	7/05/2022 10:30	Neill Street		Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE232434	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	3/09/2022 9:23	Kinross Street	Hei Hei	Christchurch	Odour	Discharge to Tegel Foods Limited air (\$15)
PE232918	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	25/10/2022 17:36	Main South Road		Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE232916	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	25/10/2022 17:35	Main South Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE232980	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	30/10/2022 0:53	Neill Street		Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE233110	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	11/11/2022 9:40	Main South Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE233261	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	25/11/2022 7:30	Hornby High School, Waterloo Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE233517	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	4/01/2023 14:23	Neill Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE233662	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	19/01/2023 7:00	Shands Rd	Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE234156	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	9/03/2023 7:36	Shand's Road	Hornby	Christchurch	Odour	Discharge to Prime Environmental air (\$15)
PE234905	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	19/05/2023 16:52	Springs Road	Hornby	Christchurch	Odour	Discharge to James Russell Kenneth , James Rondalyn , Boulevard Trustees Limited air (\$15)
PE242825	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	4/10/2023 16:07	Neill Street	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE242901	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	11/10/2023 20:13	Branston Street	Hornby	Christchurch	Odour	Discharge to Unknown air (\$15)
PE242902	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	11/10/2023 20:15	Branston Street	Hornby	Christchurch	Odour	Discharge to Unknown air (\$15)
PE243536	3 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	12/12/2023 16:43	Roberts road	Hei Hei	Christchurch	Odour	Discharge to Millar David James air (\$15)
PE243807	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	16/01/2024 1:00	Main South Road	Hornby	Christchurch	Odour	Discharge to McDonalds Hornby air (\$15)

PE243998	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	2/02/2024 23:13	Miromiro street	Riccarton	Christchurch	Odour	Discharge to Tegel Foods Limited air (\$15)
PE244040	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	7/02/2024 19:46	Main South Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)
PE244513	1 Christchurch - West Melton	Christchurch City Council Council	AFTERHOURS	21/03/2024 7:44	Main South Road	Hornby	Christchurch	Odour	Discharge to Ravensdown air (\$15)

## APPENDIX 9 – Recommended provisions (Option 7)

### Key:

Any operative text is shown as normal text or in **bold**, any text proposed to be added by the plan change (following the hearing) is shown as **bold underlined**. Note – The master copy of PC14 provisions to be provided in Council's right of reply will show all changes including deletions since the s32 and s42a recommendations.

Text in [blue](#) font indicates links to other provisions in the district Plan and/or external documents. These will have pop-ups and links, respectively, in the on-line Christchurch District Plan.

Text in [green](#) font identifies existing terms in Chapter 2 – Definitions.

Text in **bold red underlined** are either placeholders for new numbering or notes for clarity and do not form part of the provisions.

### **(Existing Strategic Objective) 3.3.15 Objective – Incompatible activities**

- a. The location of activities is controlled, primarily by zoning, to minimise conflicts between incompatible activities; and
- b. Conflicts between incompatible activities are avoided where there may be significant adverse effects on the health, safety and amenity of people and communities.

### **14.2.12 Objective – Residential interface with industrial zones**

**a. This Objective is [Objective 3.3.15](#) in Chapter 3 Strategic Directions.**

#### **14.2.12.1 Policy – Residential amenity and reverse sensitivity within the Industrial Interface overlay**

**a. Within medium and high density zoned areas within the Industrial Interface overlay, avoid residential units above 8m in [height](#) except where effects of noise from lawfully established industrial activities are mitigated by the [residential unit/s](#) to ensure that health, safety, and amenity effects on occupants are no more than minor, and reduce the likelihood of [reverse sensitivity](#) effects on activities in industrial zones.**

#### **14.5.2 Built form Standards ([Medium Density Residential Zone \(MRZ\)](#)) / 14.6.2 Built form standards ([High Density Residential Zone \(HRZ\)](#))**

##### **14.5.2.20([MRZ](#)) / 14.6.2.19 ([HRZ](#)) Residential units within the Industrial interface overlay**

**a. New [residential units](#) and/or extensions to existing [residential units](#) with habitable room window/s in any part of a [building](#) at or above 8m in [height](#) above ground level, where these windows have line of sight to a site or sites zoned Industrial General, Industrial Heavy, or Industrial Park:**

i. Habitable rooms that contain these windows shall have mechanical ventilation systems and air conditioning units installed that meet the following specifications when in operation:

A. Satisfy clause G4 Ventilation of the New Zealand Building Code, or any amendment to or replacement of that clause, as if the windows and external doors cannot be opened;

B. Emit noise not exceeding 35 dB LAeq (30s) between 2200-0700 hours when received in bedrooms when measured 1 metre away from any grille or diffuser; and

C. Emit noise not exceeding 40 dB LAeq (30s) in any other space at any time when measured 1 metre away from any grille or diffuser.

b. Residential units shall not have balconies located above 8m in height above ground level that have line of sight to any site or sites within an Industrial General, Industrial Heavy or Industrial Park Zone.

c. For the purposes of a. and b. above, line of sight means sites within industrial zones are visible (whether partially obstructed or not) from any position within the habitable space out the window or windows or from any part of the balcony.

#### 14.5.1.3 (MRZ) / 14.6.1.3 (HRZ) Restricted discretionary activities

<u>Activity</u>		<u>The Council's discretion shall be limited to the following matters:</u>
<u>RD33/RD26</u>	<u>a. Residential units that do not meet a. or b. under Rule 14.5.2.20/14.6.2.19 – Residential units within the Industrial interface</u>	<u>Industrial Interface – Rule 14.15.44</u>

#### 14.15 Rules – Matters of control and discretion

##### 14.15.44 Industrial Interface

a. The provision of a report from an acoustic specialist which demonstrates that the residential unit/s will achieve an internal sound level of 35 dB LAeq(1h) for bedrooms and 40 dB LAeq(1h) for other habitable spaces above 8m in height where there is line of sight to industrial zones. The above internal sound levels shall be based on the noise standards that industrial activities need to achieve in Table 1 clause 'e' of Rule 6.1.5.2.1.

b. The necessity of acoustic mitigation for habitable rooms and the effects of noise received at balconies, taking into account the adequacy of any screening from existing and anticipated industrial activities generating noise at levels permitted within the relevant industrial zone.

c. The impact of the residential activity on the ability of existing or future permitted industrial activities to operate or establish without undue constraint.

d. The degree to which the health, safety and amenity of residential occupants may be adversely affected by permitted industrial noise levels.

**e. The effects of not providing the required mechanical ventilation on the health of occupants.**

**f. The effects of noise from mechanical ventilation or air conditioning units on the health, comfort and wellbeing of occupants.**

## 6.1.5.2 Noise Standards

### 6.1.5.2.1 Zone noise limits outside the Central City

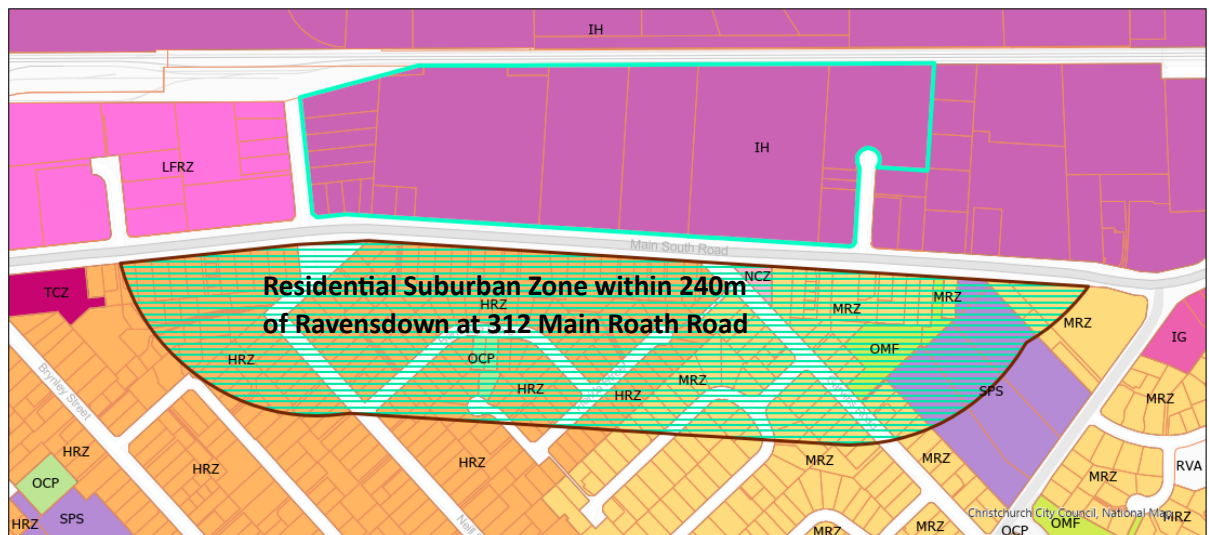
**Table 1: Zone noise limits outside the Central City**

Zone of site receiving noise from the activity	Time (hrs)	Noise Limit (dB)	
		LAEq	LAmix
a. All residential zones (other than in the Accommodation and Community Facilities Overlay <b><u>and in e. below</u></b> )	07:00-22:00	50	n/a
b. All rural zones, except Rural Quarry Zone, assessed at any point within a notional boundary			
c. Specific Purpose (Flat Land Recovery) and Specific Purpose (Ōtākaro Avon River Corridor) Zones	22:00-07:00	40	65
d. Papakāinga/Kāinga Nohoanga Zone			
e. <b><u>Within medium and high density zoned areas within the Industrial Interface overlay, any parts of new residential unit/s exceeding 8m in height above ground level (except residential unit/s exceeding 8m in height above ground level existing at ...<i>(insert PC14 operative date)</i> a. above applies instead)</u></b>	<b><u>07:00-22:00</u></b>	<b><u>60</u></b>	<b><u>n/a</u></b>



	<u>22:00-07:00</u>	<u>50</u>	<u>75</u>

**Planning map 37 (zoomed in on 312 Main South Road and 240m residential buffer)**



**(Placeholder image – final recommended map to have existing Residential Suburban Zoning within 240m buffer)**