

**Before an Independent Commissioner appointed by the Ashburton District Council**

In the matter of            the Resource Management Act 1991 (**the Act**)

And

In the matter of            an application for resource consent under section 88 of the Act

And

**In the matter of**            Land use consent and variation of resource consent for the relocation of air conditioning equipment at the Ashburton Museum Art Gallery and Museum at 329 West Street, Ashburton.

**Brief of evidence of Samuel Robert Seatter**

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Dated: 30 September 2025

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## **Evidence of [Samuel Robert Seatter]:**

### **Introduction**

1. My name is Samuel Robert Seatter.
2. I am a Mechanical Engineer and Director of Powell Fenwick Consultants Ltd with over 25 years of experience in mechanical services design.
3. My qualifications include B.E. (Hons) Mechanical Engineering, CPEng, CEngNZ.
4. I have been advising ADC on the upgrade of the chiller/heat pump plant for the Ashburton Art Gallery including the preliminary design for these changes. This includes relocation of existing plant and new plant to the proposed new plant enclosure.

### **Code of conduct**

5. In preparing my evidence I have reviewed and agree to comply with the Code of Conduct for Expert Witnesses contained in Part 9 of the Environment Court Practice Note 2023. This evidence has been prepared in compliance with the Practice note. I confirm that the issues addressed in this statement of evidence are within my area of expertise, except where relying on the opinion or evidence of other witnesses, which I will specify. I have not omitted to consider any material facts known to me that might alter or detract from the opinions expressed.

### **Scope of evidence**

6. My evidence relates to the proposed heat pump/chiller plant to be located in the proposed new plant enclosure.
7. The evidence relating to the proposed plant is within my area of expertise as a mechanical engineer.
8. I am leading the mechanical services design for the proposed heat pump/chiller plant upgrades/relocation and have overseen the preliminary design work completed to date. I have also co-ordinated directly with the Acoustic Engineer, Jon Farren of Marshall Day Acoustics.
9. Information relating to the proposed plant enclosure design prepared by Athfield Architects and Logic Group is also included in my evidence.

The architectural and landscaping aspects of the enclosure are outside my area of expertise.

10. Contents
  - 10.1. Summary of evidence
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  - 10.3. Existing state
  - 10.4. Proposed Solution
  - 10.5. Conclusions

#### **Summary of evidence**

11. The existing chiller/heat pump plant requires replacement and upgrades to enable the building HVAC systems to perform as intended and required for the Art Gallery usage.
12. Assessments have been completed to locate the main heating and cooling plant in a plant enclosure at ground level due to additional plant required and constraints with the existing roof plant deck areas.
13. In summary my conclusions are:
  - 13.1. The proposed plant enclosure is suitable for the proposed heat pump/chiller plant based on preliminary design assessments.
  - 13.2. The preliminary design plant selections are in line with or quieter than those used for the acoustic assessments by Marshall Day.

#### **Body of evidence:**

14. Reason for change
  - 14.1. The original heat pump/chiller plant installed for the building has not performed adequately. This included early failure of some of the existing 4 pipe heat pump/chiller plant as well as poor plant/system performance resulting in design temperature and humidity criteria for the building not being met.
  - 14.2. Temporary fixes were implemented previously to keep the building operational in the short-term following plant failures. This included replacement of two of the original 4

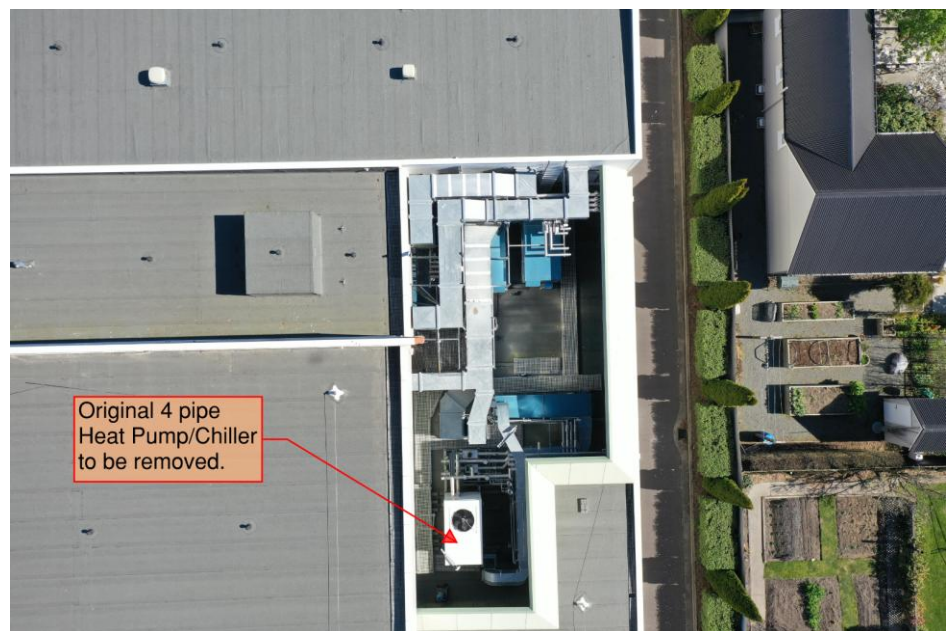
pipe heat pump/chiller units with a new unit and a temporary unit along with a temporary additional buffer tank within the constraints of the existing roof plant deck space.

- 14.3. The proposed and preferred solution for the upgrade of the existing heating and cooling systems relocates some existing heating/cooling plant along with new plant to the proposed plant enclosure at ground level. This space allows for the provision of the required plant and connection of this plant with the plant enclosure providing the required acoustic treatment for boundary noise. It was not practical to accommodate all of the required plant in the existing roof plant deck areas due to insufficient structural capacity to accommodate the required plant and associated buffer tanks.

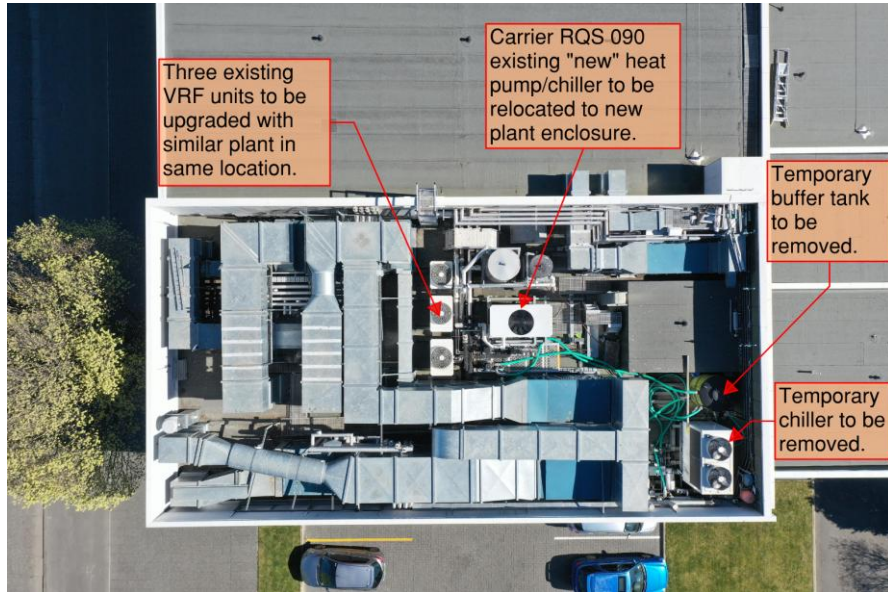
15. Existing State

- 15.1. The marked-up drone photos below indicate the existing state of the plant in the two rooftop plant areas and what plant is intended to be removed or relocated to the proposed new plant enclosure.

15.2. Existing Western Roof Plant Area



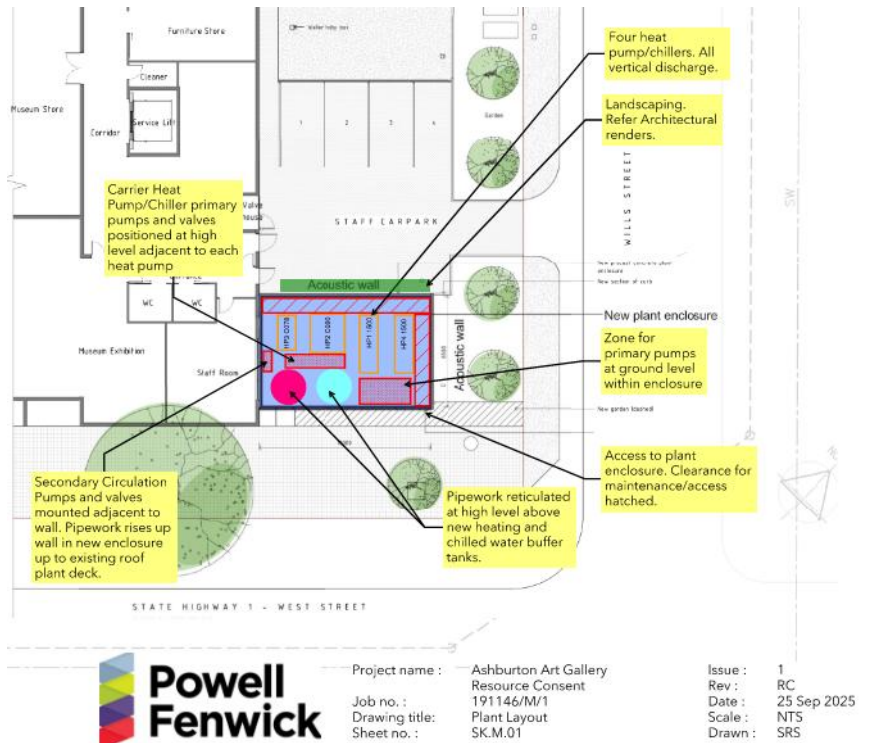
15.3. Existing Northern Roof Plant Area



16. Proposed Solution - Mechanical

16.1. The proposed solution for the heating and cooling plant is as per the marked-up plant enclosure plan below. This includes four separate heat pump chillers, heating and chilled water buffer tanks and associated pumps. This preliminary layout has been completed to confirm plant space is sufficient and is subject to further detailed design development.

16.2. Plant Enclosure Mark-up



16.3. The noise levels of the proposed plant are summarised below. The Carrier plant is already owned by ADC and is being relocated from the roof (HP2) and storage (HP1) for use in the new enclosure. The Mitsubishi Plant indicated is an initial selection for the new plant subject to detailed design and tender plant selections. Final plant selections will be considered in conjunction with the acoustic engineer to ensure boundary noise levels are met.

16.4. Plant Enclosure Plant Summary

<b>Heat Pump/ Chiller Reference</b>	<b>Model</b>	<b>Manufacturer Noise Data (SWL) dB L<sub>WA</sub></b>
HP1	Carrier RQS 090	82
HP2	Carrier RQS 078	80
HP3	Mitsubishi Electric EAHV-M1500YC	83
HP4	Mitsubishi Electric EAHV-M1500YC	83
Circulation Pumps	Various – selections to be confirmed	Significantly quieter than Heat Pump/Chillers
Buffer Tanks	Water tanks – selection to be confirmed (no noise).	No noise

16.5. Plant Commentary

16.5.1. The Marshall Day acoustic assessments were completed prior to the latest preliminary plant selections above. At that stage the intent was to relocate the existing 4 pipe heat pump/chiller HP3. This unit is now also end of life, so an alternative new heat pump/chiller is proposed. The noise level of the proposed alternative HP3 (and HP4) unit is quieter than the existing Quattro Prozone 4 unit.

16.5.2. The additional heat pump/chiller HP4 has been provided to allow for plant redundancy if one heat pump/chiller requires maintenance. Under nighttime operation, when the building is unoccupied, it is expected that up to a maximum

of only two or three of the heat pump/chiller units would be required to operate. The Marshall Day assessment was based on all units operating continuously, which I consider the 'worst case' scenario for night-time operation

16.6. Separate dehumidifiers are also intended to be provided where required to provide the required dehumidification for the spaces in the building. The preliminary design included three proposed units that include an outdoor condenser unit. These condenser units will be located in the existing roof top plant areas. The noise level of the preliminary design condenser unit selections will be significantly lower than existing plant noise levels on the rooftop plant deck.

## 17. Proposed Solution – Enclosure

17.1. The plant enclosure will be constructed with a reinforced concrete slab on ground and 200mm thick precast concrete acoustic walls on the north and east boundaries. The south-east-facing elevation (towards SH1) will be formed with hardwood timber slats. The acoustic walls will extend to a height of 4m above existing ground level.

17.2. The enclosure will occupy a footprint of approximately 10m x 6.5m and will be positioned adjoining the existing east wall of the art gallery.

17.3. The top of the enclosure will remain open to provide sufficient air circulation and ventilation for the mechanical plant.

17.4. The design incorporates permanent, durable materials in a coordinated colour palette that reflects the existing art gallery and museum buildings. Structured planting has been included to soften the visual appearance and is consistent with the established landscape species already present on site. Vertical services connecting to the rooftop plant are discreetly concealed within a Colorsteel shroud.

17.5. The overall massing and proportions of the enclosure are carefully aligned with the scale of the existing art gallery and museum buildings. Artist's impressions/Photo simulations, included below, illustrate how the proposed enclosure will be viewed from common vantage points, demonstrating visual integration with the surrounding context.



Plant enclosure looking east viewed from 4.5m above ground level directly in front of (i.e. at the same height as) the bedroom window at 130 Wills Street



Plant enclosure looking south-west from Ashburton Domain



Plant enclosure looking south from Wills Street



Plant enclosure looking west from SH1



Plant enclosure looking north-west from SH1.

## **Conclusions**

18. The proposed plant enclosure is suitable for the proposed plant based on the preliminary layouts assessed.
19. The preliminary design plant selections are in line with or quieter than those used for the acoustic assessments.
20. The overall massing and proportions of the enclosure are carefully aligned with the scale of the existing art gallery and museum buildings. Structured planting has been included to soften the visual appearance and is consistent with the established landscape species already present on site.

Date: 30 September 2025

Samuel Robert Seatter