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By email: [David.Campbell@codc.govt.nz](mailto:David.Campbell@codc.govt.nz)

Dear David,

## Introduction

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Styles Group have reviewed the proposed noise conditions for the Wooing Tree residential subdivision. This advice sets out our recommended conditions to manage horticultural noise and road traffic noise effects on future occupants, reverse sensitivity effects on horticultural land use, and vibration effects from construction activities.

## Horticultural noise

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The proposal will involve the establishment of noise sensitive activities (residential dwellings) on land exposed to noise effects from frost fans and bird scaring devices on adjacent sites.

### Use of no complaints covenant

The application proposes the registration of a no complaints covenant on future titles to manage horticultural noise effects. In our experience, no-complaints covenants to help manage reverse sensitivity effects on a noise generator are relatively common. They can be used effectively to set the expectations of incoming residents and create awareness of potential noise effects from horticultural activities. In this instance, they could be used effectively to describe the noise effects associated with bird scaring devices and frost fans in the surrounding environment, noting that acoustic insulation measures cannot effectively mitigate this noise source.

It is our view, that covenants are only effective for setting expectations, and do not mitigate the noise effect that is likely to be the source of a future complaint.

We understand that covenants cannot<sup>1</sup> be used to take away the capacity of those suffering noise issues to object and does not take away the adverse effect that is the source of that conflict. In situations where noise levels of an existing land use activity are likely to be incompatible with activities that are sensitive to noise, then additional mitigation measures should be applied to ensure the noise sensitive activities are compatible with the noise levels. In turn, these measures will avoid adverse noise effects arising on the future occupants, and avoid the potential for reverse sensitive effects arising on the horticultural activities.

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<sup>1</sup> 2 ENV-2018-CHC-8, Decision No [2019] NZEnvC 23, para 154.

We consider that the future dwellings will need to be acoustically insulated to mitigate the worst of the frost fan noise during the night, and bird scaring noise during the day.

We note that residents will still be exposed to the noise of frost fans outdoors on a small number of early mornings per year (including after 7am on some days). Residents will also be exposed to the noise of bird scarers operating during the daytime. These effects cannot be mitigated by insulating dwellings.

#### Compliance with 4.7.6.E(c)

Rule 4.7.6.E(c) requires that wind machines for frost control are situated at least 300m from any dwelling in a Residential or Rural Settlement area. The application does not confirm whether the introduction of dwellings near to the existing horticultural sites will bring any existing wind machines into non-compliance with this Rule (and the associated noise emission controls).

We recommend that this is assessed to determine whether any existing frost fans are affected. If there are frost fans within 300m of any proposed dwellings, the recommended condition of consent below may require amendment as the noise levels may be higher than the limit specified in the District Plan (that applies at 300m from the wind machine).

The potential reverse sensitivity effects on the operator of any wind machine within 300m of any new house would also need to be assessed.

#### Recommended acoustic insulation controls

It is our view that acoustic treatment is required to ensure the future dwellings provide occupants with an adequate internal noise environment. These measures are required to provide occupants adequate protection from sleep disturbance effects. If acoustic treatment is not applied to the dwellings, it is likely that the frost fan noise will give rise to annoyance and sleep disturbance effects on occupants, which may result in complaints against the horticultural operators.

We recommend a condition of consent is applied to require all future dwellings to be acoustically insulated from the cumulative noise levels of all existing and any known proposed frost fans. The condition should require that all dwellings are insulated to the standard set out in Rule 4.7.6.E(d) of the District Plan. If there is scope to amend this requirement, we suggest that the design adopts an internal noise level of 35dB  $L_{Aeq}$ , rather than 45dB  $L_{AFmax}$  as set out in the Rule. An internal design limit of 35dB  $L_{Aeq}$  provides a higher level of amenity and uses a metric that is consistent with best practice.

The requirement to meet these controls should be set out in associated documents such as the Wooing Tree Estate Design Guidelines. The requirement should also be added as a consent notice to each title if applied through the subdivision process. The consent notice should also specify that the acoustic mitigation measures specified in Rule 4.7.6.E(d) must be maintained for the duration that the dwelling is occupied.

### State Highway noise

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We consider that the same general situation applies to the management of road traffic noise as we set out above for horticultural noise.

## Indoor noise effects

The AEE states that a condition of consent has been proposed to ensure that all future dwellings are acoustically insulated to the standard set out at Rule 7.3.6(xii)(b) of the District Plan. We agree with the proposed condition. As above, we recommend that it is made clear that the acoustic mitigation measures must be maintained for as long as the dwelling is occupied.

However, insulating the buildings only mitigates the effects for people when they are indoors.

## Outdoor noise effects

The occupants of the dwellings located within approximately 100-150m of State Highway 6 and approximately 100m from State Highway 8B are likely to experience road traffic noise levels above normally desirable levels in their outdoor areas. Such noise levels will be significantly greater than the normally acceptable levels of 55dB  $L_{Aeq}$  during the day and 45dB  $L_{Aeq}$  at night. The average road traffic noise level over 24 hours is likely to exceed 62-64dB  $L_{Aeq(24hr)}$  on some of the closest lots. This is a significant level of traffic noise. The amenity of these sites will be compromised and adverse effects on the residents will arise, including the potential for adverse health effects.

We note that the applicant has proposed a buffer zone between the State Highways and the closest sites. However we understand that this buffer zone is essentially flat, and will not mitigate road traffic noise by any means other than a small amount of additional separation distance from the road.

We consider that in conjunction with insulating dwellings, physically screening the dwellings from road noise by a bund, barrier or combination of both would present the best practicable option to mitigate the effects of road traffic noise in this case. An example of such a barrier can be found between State Highway 6 and the dwellings in the vicinity of Willow Close, Kanuka Drive and Agate Close to the southwest of the Wooing Tree site. Such a barrier would have a significant effect on traffic noise levels and would significantly improve the outdoor noise environment for the closest dwellings.

We recommend that the applicant be required to construct and maintain an acoustically effective bund and/or barrier to a height of approximately 2.5m to 3m between the state highways and the closest residential lots. The screen could be constructed by a combination of an earth bund and acoustically effective fence if necessary. Such a barrier will significantly reduce outdoor road traffic noise levels to the degree that normally acceptable noise levels are reached on most lots. This will significantly improve the amenity of those lots and will lessen the burden of acoustic insulation for all lots near to the road.

## Construction vibration conditions

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We have provided advice to the Council on construction vibration conditions by separate email. The objective of these conditions is to ensure that the vibration effects on people are reasonable for receiving buildings that are occupied during the works. Where buildings are unoccupied, the conditions allow for vibration levels to be higher, but compliant with a 'no-damage' limit based on

the requirements of the German Standard DIN4150-3:1999 *Structural Vibration - Effects Of Vibration On Structures*.

Please contact me if you require any further information.

Yours sincerely,



Jon Styles, MASNZ  
Director and Principal