Evidence pursuant to s42A Resource Management Act 1991

In the matter of:	A Notice of Requirement to construct and operate a new intermodal rail and freight hub on land between Palmerston North and Bunnythorpe
And:	A hearing by Palmerston North City Council pursuant to s100A
Requiring Authority:	KiwiRail Holdings Ltd
Hearing date:	Commencing August 9, 2021

Section 42A technical evidence summary statement for hearing: Lighting

By: Glen Wright

1. I am the author of the Section 42A Lighting Report. In my report, I observed that the Preliminary Design Report showed that while the lighting design did not fully comply with AS/NZS 4282:2019, if compliance with the recommendations of AS/NZS 4282:2019 could be met through detailed design, then the lighting effects would be acceptable. I gave my opinion that the lighting effects would be less than minor.

2. I also made some recommendations regarding additional conditions beyond those originally proposed by KiwiRail, and these were incorporated in Ms Copplestone's recommendations for conditions.

3. In the time since I prepared my s 42A report, I have had the opportunity to review the evidence of John Mckensey who is engaged by KiwiRail in this process. Mr Mckensey's evidence includes an "*updated lighting plan*" which demonstrates that compliance with AS/NZS 4282:2019 can be achieved. Accordingly, I am satisfied that the lighting effects, provided the updated lighting plan is implemented and it addresses AS/NZS 4282:2019, will be minor.

4. I have also had an opportunity to discuss lighting issues with Mr Mckensey in technical conferencing, at which we agreed on the technical aspects of the proposed conditions.

5. We agree that the lighting should be designed to comply with the recommendations of AS/NZS4282:2019 for an environmental zone A2.

6. We agree that the updated lighting design provides evidence that the outdoor lighting can be designed to be fully compliant with AS/NZS4282:2019 for environmental zone A2.

7. We agree that the colour temperature for all light sources shall be 3000K Kelvin or less to assist with mitigating skyglow effects.

8. We agree that potential roof glare to the Palmerston North Airport control tower is not an obtrusive light effect considered by AS/NZS4282:2019 and therefore should not be included in the conditions for lighting. This matter is more appropriately addressed elsewhere in the condition set.

9. The only area of disagreement between Mr McKensey and myself is relatively minor. I consider that night-time amenity could be improved if dimming or switching off of lights was carried out as an operational matter, when the lights are not in use or not required to be on for operational safety. This could be done

by automatic control. Mr Mckensey agrees in principle, but considers that it would not be appropriate, for reasons he sets out in the Joint Witness Statement. Ultimately, I am satisfied that consideration of potential dimming or switching off is a matter that KiwiRail can consider at detailed design.

10. I have reviewed KiwiRail's proposed conditions set of 13 August and note in Condition 76, they have deleted the requirement to:

> *demonstrate compliance with:*
>
> *(a) AS/NZS 4282:2019 – Control of the obtrusive effects of outdoor lighting, Zone A2 limits.*

I do not support this deletion as without the requirement for compliance with AS/NZS 4282:2019 Zone A2 limits, the effects of the lighting cannot be guaranteed to be mitigated and acceptable. This should be corrected in the conditions.

11. I note Submitters 6, Glen & Karen Woodfield - 9a Maple Street, have concerns about the effects of the lighting on their son Joel, particularly with his heightened sensitivity to such effects. With reference to the revised KiwiRail lighting design, the predicted effects at the windows of 9a Maple Street are a light spill of 0 lux and a worst-case glare (luminaire brightness) of 56 candela. This means there will be no discernible effects to their windows/rooms and no bright luminaire will be visible to them. In the earlier KiwiRail design, the light spill was 0.4 lux with a glare of 62,000 candela. Under this design, glare would have been excessive and unacceptable (for example, similar to a level of effect you could experience from a stadium's floodlights). This change in effects demonstrates the importance and effectiveness of requiring the lighting to be compliant with AS/NZS 4282:2019 ZoneA2 limits.

Glen Wright

24 September 2021