13 November 2024
New Zealand Transport Agency Waka Kotahi
P.O Box 1479
Christchurch 8140

Sent via email: Kate Graham Kate.Graham@beca.com

Our reference: D240002

Dear Kate

D240002: New Zealand Transport Agency Notice of Requirement SH 1 Rolleston Access Improvements

Request for further information

Your application for the above Notice of Requirement (NoR) has been assessed for completeness under s92 of the Resource Management Act 1991. A review has been undertaken of the NoR , with the following information request being issued to enable the Council to better evaluate the nature and effects of the NoR:

General

In accordance with section 92(1) of the Resource Management Act 1991, I request the following information:

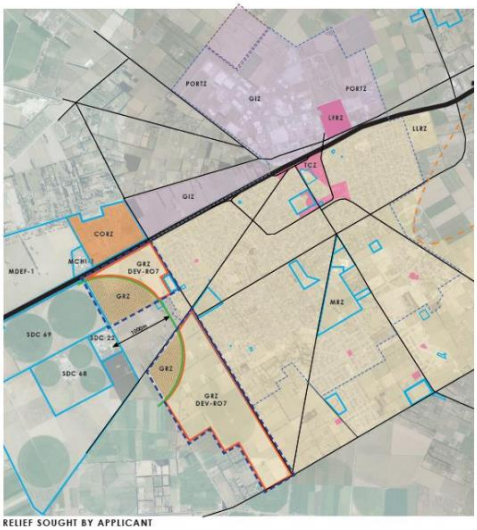
1. Section 1.4 of the Assessment of Environmental Effects (AEE) states that written agreement is being sought from:

   - The Minister of Corrections/ Rolleston Prison (28 Runners Road, Rolleston)
   - Kiwirail
   - 17 Fountain Place, Rolleston
   - Section 2 SO 480906

   If these have been obtained, please provide them as part of the response to this RFI.

2. Section 2.1 of the AEE discusses PPC73 and if approved, PPC73 would be rezoned to Medium Density zone (MDZ). Consent Order [2024] NZEnvC 269 issued 31 October 2024 contains the following direction (full consent order attached to this RFI). Please comment on the implications of this consent order on the NoR and any resulting changes to the existing environment.

1. **Amend** the Partially Operative Selwyn District Plan planning maps, by rezoning the subject land from Large Lot Residential Zone and General Rural Zone to General Residential Zone and apply a Pines Odour Control Overlay over the subject land as depicted on the **Zoning Plan** below.



RELIEF SOUGHT BY APPLICANT

Proposed GRZ
Proposed DEV-RO7
Designation
State Highway 1
COMZ
GIZ/ PORTZ
Commercial and Mixed Use Zones (NCZ, LCZ, LFRZ, TCZ)
Residential Zones (LLRZ, LRZ, SETZ)
Odour constraint boundary (1000m from the active composting area)
Odour control overlay (zoned GRZ)

Note: Land not otherwise shown is zoned GRUZ

3. Have Regional Consents (discussed in Section 5.3) been lodged with Canterbury Regional Council, and if so, what are the consent references?

Noise Effects

4. The noise level at sites 15 & 17 Fountain Place is predicted to slightly decrease. We assume this is due to vehicles slowing down when they approach the roundabout. Would Marshall Day Acoustics (MDA) be able to clarify what vehicle speed assumptions they have used in their modelling at this location?

5. Can MDA clarify why the increase in noise level at 380 Dunns Crossing Road is +1.5 dB, as this is notably higher than the increase experienced for other dwellings along Dunns Crossing Road, which average around +0.5 dB.

6. With regard to construction noise – as MDA note there are specific Rules in the PDP. Is it possible to be more definitive as to what specific PPF's (by address) non-compliances are anticipated, and the general magnitude of non-compliance expected?

7. Following the issue of Consent Order [2024] NZEnvC 269, have MDA considered whether future dwellings in the land to the south of Dunns Crossing Road make any difference to their construction or operational noise assessments?

Landscape and Visual Effects

8. Construction effects: The Landscape and Visual Assessment (LVA) methodology set out in Appendix 6 notes that effects fall into two categories – temporary (i.e. effects during construction) and permanent (i.e. operational effects). However, no consideration of construction effects has been presented in the LVA. Given the level of vegetation removal, site disturbance and other construction activity required to facilitate construction of the development, I consider that the appraisal of construction effects is pertinent in understanding the full effect of the proposed development on the landscape and visual resource.

9. Vegetation removal: Information on the extent of vegetation removal (i.e. length of existing shelterbelt along SH1 and at the edge of Rolleston Prison) is required to provide an informed understanding of the impact of this removal, particularly with regards to effects on views from residents at Dunns Crossing Road (see below).

10. Proposed Planting: It is noted in Section 4 of the LVA that planting does not form part of the proposals, and therefore the assessment has been prepared on this basis. The LVA recommends a Landscape Management Plan is prepared in accordance with various NZTA landscaping guidelines. There are a number of effects or reasons provided in the LVA which refer to proposed planting (some of which will result in a positive effect) however it is difficult to agree with these findings without certainty on any formal planting proposals. For instance, Section 8 of the LEA notes that:

    for the majority of viewing audiences the proposal will result in negligible and positive effects. For residents on Dunns Crossing Road this is primarily influenced by the scale of additional planting and offset of vehicular traffic. Visual effects on future LLRZ properties directly adjacent the roundabout have the potential to be Low-Moderate. While proposed planting will demarcate the western edge and help to soften and reduce the prominence of the roundabout the visual presence of traffic will appear pervasive for adjacent LLRZ properties.

    This conclusion relies on the presence of proposed planting, however aside from being included as a recommendation, no evidence of this proposed planting is provided. It is strongly recommended that a planting plan is prepared as part of this application to provide greater clarity on how effects will be mitigated.

11. Lighting effects: The effects arising from street lighting of the roundabout and its approach roads is addressed in the assessment, but no detail is provided on the lighting strategy. Further information on these structures is necessary (i.e. how many streetlights are proposed and where they will be situated) to fully establish their impact on the landscape, and on views.

12. Visual effects on residents at Dunns Crossing Road: The Lighting Effect Assessment (LFA) identifies that:

    the removal of the roadside vegetation and the creation of open grassed areas surrounding the new road would amplify the visibility of new roading, creating a stark environment that contrasts against the residential interface.

    The project description also notes that a section of the mature pine shelterbelt which extends along the southbound edge of the SH1 carriageway would also be removed to facilitate the development however this is not captured in the visual assessment. It is likely that removal of this vegetation would open up additional, longer distance views of SH1 from those properties located between SH1 and Newman Road (and just south of Newman Road), changing their outlook (and perception of the landscape) from one of largely rural character to one which is largely occupied by road infrastructure (i.e. carriageway, lighting, signage, stormwater infrastructure). Further consideration of effects on these residents taking account of this vegetation removal would be useful in understanding the full impact on this viewing audience.

13. Effects on views for Road Users: A description of the effect on road users is presented in Section 6.2.3 of the LEA, however no effect rating is given. Please provide effect ratings for this viewing audience.

Lighting Effects

14. Drawing 3338703-10-CU-3500 - Note 6 specifies a shorting cap to be fitted to each luminaire, however NZTA M30 (NZTA Specification and Guidelines for Road Lighting Design) requires that a Central Management System (CMS) system is considered. The use of a shorting cap will require the power supply to be controlled by the local electricity company where they will switch the luminaires on and off remotely by whatever system they employ. Whereas a CMS system will require a Light Point Controller (LPC) to be installed on each luminaire where the switching and dimming is controlled via the CMS system. *Please get the lighting designer to confirm that NZTA is happy with the use of shorting caps on each new luminaire*.

15. Drawing 3338703-10-CU-3521 - Table 3.1 column 5 presents a TI requirement of 9.81%, however this appears to be a typo as the standard requires a maximum TI of 15%. Table 3.1 column 9 presents an UWLR requirement of 3%, however this appears to be a typo as the standard requires a maximum TI of 1% for LED luminaires and 3% for HID luminaires, and as this job involves new luminaires 1% should be the applicable value. *The above comments have been noted as possible typos (to the lighting designer) as information only and are not non-compliances as the calculated TI is 5.53% and UWLR is 0% which are well within the permissible limits*.

16. The TI and UWLR comments in Note 2 (above) are also applicable to drawings 3522, 3523 and 3524.

17. Drawing 3338703-10-CU-3521 - Luminance Calculation Summary table presents one calculation result, but what lane configuration does this calculation apply to? SH1 on either side of the RAB changes from a 4-lane divided carriageway to a 2-lane divided carriageway. The luminaire arrangement also changes from an opposite arrangement to a single sided arrangement at the eastern end SH1. There needs to be multiple luminance calculations to account for the different lane configurations and luminaire arrangements. *Please get the lighting designer to confirm that the luminance calculations apply to all of the lane configurations (4-lane and 2-lane divided carriageways) and luminaire arrangements (SS and Opp) or supply additional calculation results to cover all arrangements*.

18. Drawing 3338703-10-CU-3522 - Calculation Table for Railway Crossings presents a point horizontal illuminance result of 10.89 Lux, however this is the wrong type of calculation for a rail level crossing. AS/NZS 1158.1.1 Section 4.6 requires an average vertical illuminance calculation (rather than a horizontal calculation) to be made for a single track and two-way traffic with the vertical plane and calculation points facing the oncoming traffic, so in this case there should be two sets of average vertical illuminance values. *This is a non-compliance with the standards so please get the lighting designer to complete average vertical illuminance calculations in accordance with AS/NZS 1158.1.1 Section 4.6*.

19. Drawing 3338703-10-CU-3522 - Locations of Poles 16 and 19 appear to within 10m of the Kiwirail crossing boundary. The drawing does not show the rail crossing or boundary lines. AS/NZS 1158.1.1 Figure 4.17 provides a no column zone extending from the Kiwirail crossing boundary 10m in each direction from the crossing. *This appears to be a non-compliance with the standards so please get the lighting designer to move Poles 16 and 17 to be outside this no column zone or add the rail crossing boundary lines and dimensions to the drawing to demonstrate compliance*.

20. Drawing 3338703-10-CU-3522 - Illuminance Calculation Summary table only appears to include the carriageway areas. AS/NZS 1158.1.1 requires illuminance calculations at roundabouts and tee intersections that include the carriageway, surrounds and raised island design areas. *Please get the lighting designer to provide calculations for the surrounds and raised islands at both intersections in accordance with AS/NZS 1158.1.1 Figures 4.10 and 4.11*.

21. Drawing 3338703-10-CU-3523 - Refer Note 4 (above).

22. Drawing 3338703-10-CU-3524 - Carriageway geometry shows 2 curves both having a radius of curvature of 120m (scaled off the drawing), but what design method was employed? AS/NZS 1158.1.1 Section 4.3.2 (b) provides a choice of illuminance design or application of the curve spacing chart (to alter the luminance design spans) for curves with a radius greater than or equal to 100m and less than 200m. *Please get the lighting designer to conform which design method was used and provide supporting calculations*.

23. Drawings 3338703-10-CU-3521 to 3224 - Thes drawings show V3 luminance calculations for SH1 (Main South Road), but there appear to be no V4 luminance calculations for Walkers Road or Dunns Crossing Road. *Please get the design to submit V4 luminance calculations for Walkers Road and Dunns Crossing Road*.

24. Drawings 3338703-10-CU-3532 to 3534 - These drawings show spill light calculation results for certain address (e.g. 15 Fountain Place), however none of these drawings show the property numbers so there is no way to correlate the calculation results with the properties without having to look up Google maps. *Please get the lighting designer to add the street addresses to the evaluated properties*.

Transport Effects (complete RFI from Abley attached)

25. Please provide a copy of the Paramics transport model peer review report and any associated formal model calibration and validation reports. In lieu of formal reporting please supply the model themselves.

26. Please provide evidence of any peer review of the Linsig and Sidra models and/or any associated formal reporting to evidence the calibration and validation of these models. In lieu of formal reporting please supply the model themselves.

27. Please undertake a sensitivity test at 2038 in the morning and evening peak periods to demonstrate the impacts of the addition of traffic from the full development of PC73, PC80, PC81 and PC82 areas.

28. Provide detail of the future growth assumptions out to 2038 with respect to the extent of growth in Izone and number of additional households in Rolleston urban area.

29. Please provide commentary as to the impact of any of these changes in local road projects on the modelling results and wider assessment of traffic effects.

30. Please comment on the impact of Christchurch Southern Motorway Stage 2 (CSM2) opening during the five year period over which Crash Analysis System (CAS) data has been assessed, on the crash analysis conclusions.

31. Confirmation is sought that these are hourly travel totals, correspond to the full Paramics study area and whether further changes in travel totals might be expected beyond the study area.

32. Additional assessment is requested at 2038 to calculate the capacity of local roads to demonstrate that they will operate well and future flows not exceed capacity.

33. Please add a footnote or other reference to confirm the source of the models used for this assessment.

34. For the avoidance of doubt it is recommended that the requirement for an Level Crossing Safety Impact Assessment (LCSIA) be added to the condition set.

35. Commentary is requested on the likelihood and impact of these projects not being in place prior to Package 1 being operational.

36. Please comment on the interrelationship between Package 1 and Package 2, and confirm whether any local road (Selwyn District Council) improvements are required to manage the effects of the Rolleston Access Improvements Project on local roads. Where interrelationship or dependencies exist, please confirm how this is proposed to be managed during the delivery of each Package.

37. It is recommended that the CTMP condition be expanded to include at a minimum the requirements and objectives from section 7.5.2 of the ITA. This provides an important framework for the later preparation of CTMPs.

38. It is recommended that consultation regarding property access be addressed through the proposed conditions.

39. Additional detail is sought with respect to transport engineering aspects of the design as follows Please provide:
    a) A copy of the preliminary Safe System Audit for the design which we understand has been prepared.
    b) Approach Sight Distance (ASD) and Safe Intersection Sight Distance (SISD) assessments for Walkers Road/Runners Road and Dunns Crossing Road/Newman Road intersections.
    c) Forward sight distance assessment for cyclists and pedestrians, between “Old Dunns Road North” and the KiwiRail crossing.
    d) Commentary on whether the width of the pedestrian and cycle underpass, which is shown to be 2.5m wide in the General Arrangement Plans, is sufficient to allow passing movements, considering that the functional/usable width will be less than 2.5m.
    e) Commentary on whether the pinch point, shown in Figure 2.1, forecloses the opportunity to provide the “Future Reserve Path” proposed by Selwyn District Council as part of its Walking and Cycling Strategy (and shown in Figure 5-10 of the ITA).
    f) Commentary on why the walking and cycling path along the realigned Two-Chain Road terminates at the Walkers Road/Runners Road intersection, despite the adjacent land to the east of the designation boundary being zoned for General Industrial.
    g) Heavy vehicle tracking for “Old Dunns Road South”, demonstrating whether a waste collection truck can turn around within the new stub road.
    h) 85th percentile car tracking for 388 Dunns Crossing Road, and confirmation of whether changes to the existing vehicle crossing are required due to the amended kerb line for “Old Dunns Road South”
    i) Commentary on the practicalities of Council having to maintain/replace the carriageway for the southern section of “Old Dunns Road South” in the vicinity of 388 Dunns Crossing Road, shown in Figure 2.2, as the tapering of the carriageway may lead to accumulation of debris and difficulty for laying new carriageway surfacing.

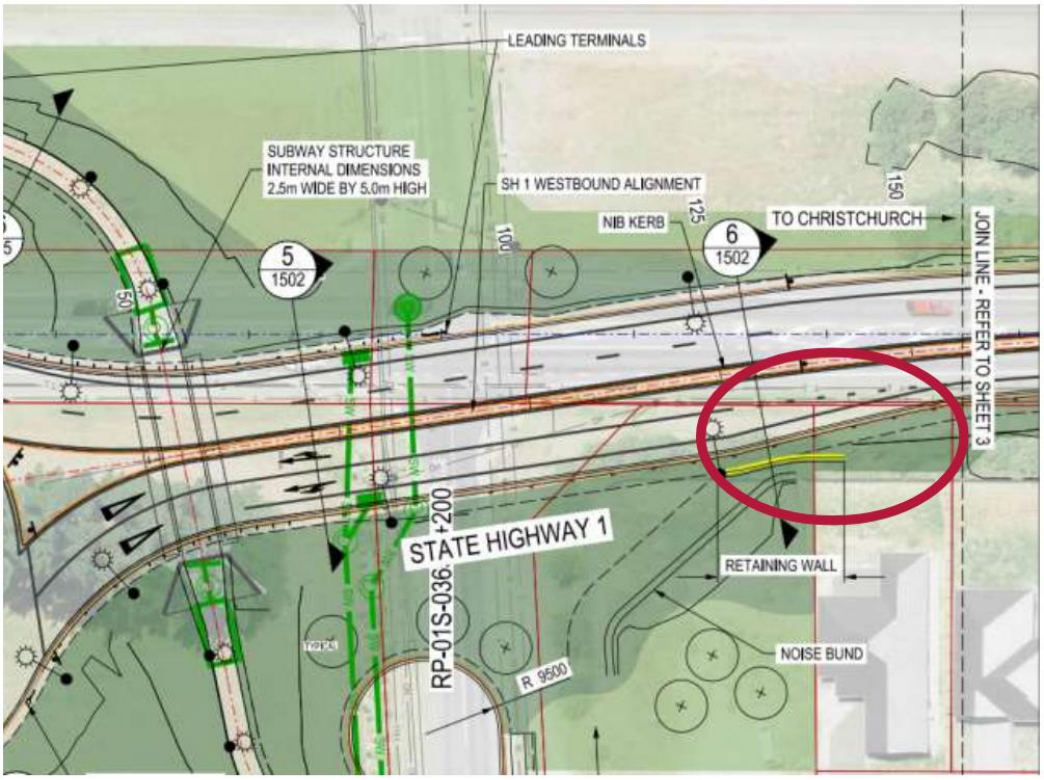


Figure 2.1 Potential pinch point that may prevent the "Future Reserve Path" proposed by Selwyn District Council as part of its Walking and Cycling Strategy

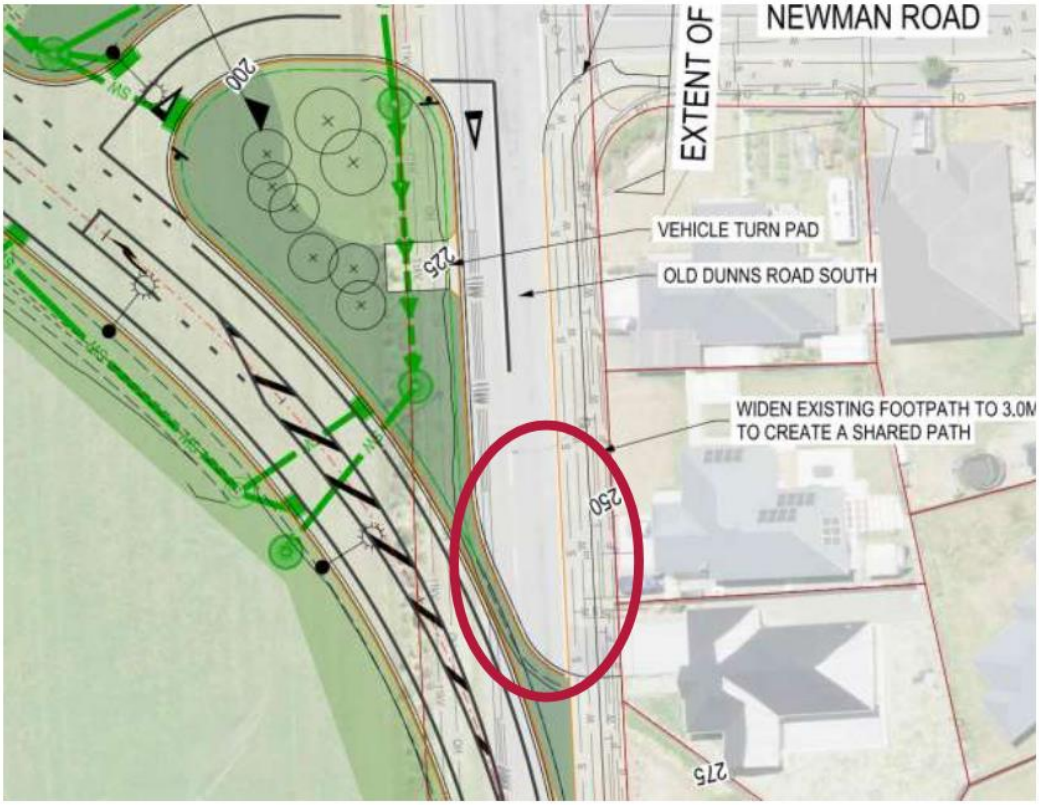


Figure 2.2 Narrowed carriageway of Old Dunns Road South

Air Discharge Effects

NZTA Guideline for assessing air quality impacts from road transport projects

The applicant references and uses the guidance from NZTA's Guideline for assessing air quality impacts from road transport projects 2019. An updated draft version of this guide was released for comment in June 2024. Please review the updated NZTA guide and amend as you see fit any aspect of the Rolleston assessment to meet the requirements of the 2024 version of NZTA's Guideline.

Section 3.1 Construction Discharges to Air

40. This section is lacking detail on the dust generating activities: Provide the following details:
    - Type of material to be excavated – content of fines. Moisture content
    - Method of extraction and material handling
    - Volume of material to be excavated
    - Location of excavations
    - Volume of material to be stockpiled – likely locations of stockpiles
    - Volume of material to be exported off site
    - Volume and type of material to be imported on to site
    - Duration of the activity
    - Type and number of machines involved
    - Location of any unsealed haul Roads
    - Number of vehicle movements on unsealed haul roads

Section 3.1.5 Dust mitigation

41. Please detail the area and location of the site works which will require water dust suppression. Please quantity the water demand for dust suppression. Please qualify the volume of water available at the site for dust suppression. Please demonstrate there is sufficient water available for the purposes of dust suppression.

42. Please consider the benefits of meteorology monitoring and indicate whether any meteorological monitoring is proposed.

43. Please consider the benefits of visual and instrument dust monitoring and indicate whether any dust monitoring is proposed.

Section 3.1.6 vehicle emissions during construction

44. Please provide some (at least qualitative) information to support the statements:
    - "*based on the expected vehicle movements, vehicle emissions will be relatively low and well dispersed before reaching sensitive receptors*", and
    - "*discharges will be minimal and very unlikely to exceed air quality criteria concentration limits*"

Section 3.2.1 Primary pollutants

45. Please check NO_2 assessment method against recommendations made in the relevant good practice guides and provide justification for not considering the impact of secondary NO_2.

3.2.2 Vehicle emission rates

46. Please provide and reference the input data used to configure Vehicle emissions prediction model. (VEPM) including:
    - Fleet profile
    - Average speed
    - Gradient
    - Congestion
    - Cold start
    - And any VEPM other variables used.

3.2.3. Package 1 Vehicle emission rates

47. Please reference the source of the Annual Average Daily Traffic Volume (AADT) data provided in tables 3.2 and 3.3.

48. Please explain the key differences in AADT for each roadway link between do-minimum and with project-scenarios. Eg: There are decreases in AADT with both the 2028 and 2038 years between the with-project and do minimum scenarios.

49. Despite a decrease in AADT in the 2028 with project scenario, the emissions increase in the 2028 with project scenario. Please explain.

5.5 Background Air Quality

50. Please comment on the potential impact of the railway emissions on background air quality.

6 Dust Nuisance Effects

51. Given no instrumental dust monitoring is proposed, are the MfE trigger levels relevant to this assessment? If not, please provide an alternative set of assessment criteria for dust nuisance effects which are relevant.

7.1 Potential Dust effects.

52. It is stated: *"A small portion of the of the emitted dust will be in the form of PM10 and PM2.5. However, these emissions are unlikely to exceed any of the relevant health-based air criteria concentration*". Please provide an explanation and or references to support this statement.

7.2 FIDOL Factors.

53. Section 7.2 defines the FDIOL factors and notes that CRC require this assessment method to assess whether dust discharge has caused an objectional or offensive effect. While this is accurate, having read section 7.3, there are three issues that arise from this statement:
    a) The assessment method does not consider all the FIDOL factors
    b) The assessment method does not reference or seem to consider the good practice guidance provided in the relevant guideline documents.
    c) How does the Dust emission potential tie (DEP section 7.3.3) align with and/or support the FIDOL method?

54. Considering the three questions above, please explain how the dust impact assessment method used in 7.31. to 7.3.3. was arrived at.

7.3.3 Separation distances to sensitive receptors

55. Please compare the three separation distances listed in table 7.1 and 7.2 to those discussed in the MfE Dust GPG and other guides which provide recommended buffer distances. Explain why the separation distances listed in table 7.1 and 7.2 were used in the assessment.

Section 8.2 Assessment method (Operational Discharges).

56. The NZTA assessment guide outlines a three-tiered assessment scheme for roadway developments:
    - Environmental Screen
    - Preliminary technical assessment
    - Detailed technical assessment

57. The Rollleston assessment aligns with a tier 3 - Detailed technical assessment. Please describe how this assessment fits within the requirements of the NZTA three-tiered assessment scheme and explain why a tier 3 assessment was provided. The response should include a discussion on

whether a screening and a preliminary technical assessment undertaken to inform the decisions on undertaking a detailed technical assessment.

58. Provide information to support the choice of 2019 as a typical meteorological year. Discuss the potential impact of an extreme (cold and still) year on the results and conclusion.

Sections 8.3.1 to 8.3.3 Prediction of pollutant concentrations

59. Please provide a first cut (sanity check) validation of the results presented. E.g. Compare the predicted results with:
    d) Roadside monitoring data from roads with similar traffic number. And/or
    e) Results from the NZTA air quality screening tool.

Section 8.3.4. Summary of Package 1 model predictions.

60. Please detail which scenario and year is presented in table 8.7.

Effects of development on the emissions from wider road network

61. Please consider the recommendations made in the relevant guidance documents and explain whether or not an assessment of effects of development on emissions (including C02) from wider road network is required. Please explain why such an assessment is not needed - if that is your finding. Please provide the assessment if your review suggests that it is needed to assist the decision makers on this project.

Appendix B: Dispersion Modelling Methodology

62. Please justify your choice of AERMOD RLINE-EXT considering the recommendations given in the relevant guidance documents.

63. Please briefly discuss the validation process that RLINE-EXT has been through and confirm Beca are confident this model is fit for purpose?

64. Please provide a figure showing the receptor grid used for the modelling.

65. Please provide a copy of VEPM model used to quantify the vehicle emissions.

66. Please provide an example AERMOD output file which show model configuration and results.

Ecological Effects

67. Lizard habitat extent

    The extent of vegetation and habitats types on site is not clear from the report, as only two have been listed. Most of the site to the north of the State Highway 1 (SH1) contains a mosaic of exotic habitats including rank grass, scrub, treeland and forest. Rank grass and lizard habitat is potentially present throughout this area (even within denser stands of trees, due in part to the deciduous nature of the trees). Potential lizard habitat is also present along the southern side of SH1 throughout the pine shelterbelt, indigenous amenity plantings and associated scrub and rank grass. Additionally, during a walk over of the site on the 11th November 2024 a lizard was observed within the designation area, but outside of the mapped lizard habitat.

    Therefore, it is recommended the extent of the potential lizard habitat on the site is re-examined.

68. Lizard survey

    A survey is not an effects management measure – it is used to guide effects management (i.e. to determine population extent, abundance and habitats throughout the impact area).

    It is recommended that a lizard survey is undertaken by a suitably qualified and experienced herpetologist.

69. Lizard management
    It is unclear what 'staged vegetation management' is and how this would not disrupt the population. The report infers that the population at the site would not be fragmented by a salvage, which may not capture and translocate all lizards present within the impact site.

    It is recommended that the applicant provide further detail on how 'staged vegetation management' will be used to avoid disrupting lizard populations, that may already be limited by external factors, such as ongoing predation and habitat availability.

    The report identifies the need for a Lizard Management Plan (LMP), but does not mention the need for Wildlife Act Authority (WAA). It is likely that any vegetation management would still directly disturb or harm indigenous and therefore need a WAA. Given the long processing time for WAA, it is recommended that this process is commenced.

Stormwater Effects

70. Groundwater (incl Geotechnical Interpretive Report) - The highest groundwater depth was based on a short monitoring period between 12 July and 12 August 2024. Has the highest recorded groundwater in the area been considered based on any other monitoring data? And if so, what was the highest recorded?

71. 3.4.1 Rainfall - Applicant to confirm the location or station used to extract the data. It appears that the rainfall data is from the Burnham RAWS station.

72. 3.4.3 Catchments - Key assumption that the cross-catchments outside of the NOR footprint are generally assumed not to enter the Package 1 stormwater system. Does this apply to the catchments to the north of Two Chain Road? What confidence/proof is there to confirm this assumption?

73. 3.4.5 Ground Soakage Rates - The total contributing catchment is > 1,000 m2 and there is a residential area downstream of the proposed site. Based on Table 3-4, what was the justification for the lower factor of safety applied (i.e., 5 vs the table recommended 10)?

74. 3.4.5 Ground Soakage Rates Observation - The SDC engineering code of practice requires consideration to Waterways, Wetlands and Drainage Guide (WWDG) Chapter 6 when considering infiltration rates. The recorded infiltration rates are high (as expected for the type of soils) and the design soakage rate is higher that the 75 mm/hr recommended by WWDG. This is acceptable based on the result and agree with recommendation made that further soakage test is required during construction. Test should be done at location and depth proposed of proposed soakage basins.

75. 4.3 Overview of Stormwater Approach - Has a flood risk assessment been completed to determine the effect if the proposed stormwater infrastructure exceeds the level of service it is designed for? This is a requirement as per the SDC engineering code of practice.

76. 4.3.1 Road Corridor Catchment - Referencing Figure 4.1, there will be an expected change in slope in some areas in the catchment (e.g., on ramps, subway). Has consideration been given to the effect on stormwater runoff due to the change in slope and/or material (hardfill)?

77. 4.3.2 Cross-Drainage Catchments - Has a pre-development catchment(s) been delineated to determine the current cross-drainage catchment and flow paths? The post-development cross-drainage catchment should be compared and assessed against the pre-development catchments to determine if there is any change in catchment (e.g., flow) on the downstream (and upstream if applicable) environment. Current Figure 4-3 presents the proposed post-development catchment plan for package 1 only.

78. 4.4.2 Treatment - The removal efficiency of the infiltration treatment is listed very broad. To understand the potential effect of runoff, what are the contaminants expected from the road and will there be an increase or decrease in the concentrations due to the proposed activity? What is the expected removal efficiency of the infiltration basin and, based on the efficiency to remove the required pollutants, is the conclusion that the proposed treatment provided is sufficient (based on relevant water quality guidelines and/or consents)? https://niwa.co.nz/freshwater/urban-runoff-quality-information-system-urqis can be consulted for water quality data.

79. 4.4.3 Discharge to Ground Refer to RFI #70 - Consideration needs to be given to the highest recorded groundwater level (the recorded period of July to August 2024 is considered short) and that should be used to determine if the performance of the proposed infiltration basin will be affected by groundwater mounding or not. It is likely that the highest historical recorded groundwater level is well outside of the influence of groundwater mounding, however it is important to consider available historic information as part of the assessment.

80. 4.4.4 Attenuation - Can sizing calculations be provided for both the sizing of the attenuation and the treatment?

81. 4.4.5 Cross-Drainage - The cross-drainage has been designed to collect the eastern and western cross-catchments. In section 2.5 it is indicated that there is no existing cross-drainage through SH. Will the proposed cross-drainage infrastructure result in a change in flood risk downstream now that there is new flow paths via the proposed cross-drainage infrastructure? If so, what will the effect of this cross-drainage infrastructure be?

82. 5.1 Overview - In figure 5-1, what happens to the post-development runoff from the catchment between the Northern Catchment and the Subway Catchment?

83. 6 Construction Stormwater Management - Is there an increased risk of flooding during the construction phase and if so, how will it be managed?

84. DRG 2102: Civil - Drainage Inlets - Has the proposed inlets (sumps) been sized to capture the 1% AEP event and has consideration been given to reduced performance due to blockage? Will secondary flow paths direct the runoff towards the proposed attenuation and infiltration basins?

85. DRG 2102: Civil - Drainage Cross-drainage infrastructure (SWSD 9 and 11): The location o the cross-drainage inlets needs to be confirmed as currently they are shown to be located within the proposed abandoned road portions.

86. DRG 2102: Civil - Drainage Cross-drainage infrastructure (SWSD 9 and 11): Will this system operate as a bubble-up and if so, how will sediment and the potential loss of conveyance due to sediment build-up be managed?

87. DRG 2102: Civil - Drainage Cross-drainage infrastructure (SWSD 9 and 11): Refer to RFI #12. Would the proposed cross-drainage result in an increased flood risk downstream where previously no cross-drainage was present?

88. DRG 2102: Civil - Drainage Cross-drainage infrastructure (SWSD12): How will the captured upstream runoff discharging into the proposed conveyance swale be manage to not drain/spill into the proposed southern attenuation basin?

Process

You must respond in writing to this request before 3 December 2024 and do one of the following:

a) Provide the information.
b) Tell us that you agree to provide the information, but propose an alternative reasonable date.
c) Tell us that you refuse to provide the information.

Please note that if you decline to provide the information requested we will be obliged to publicly notify the NOR.

Once the Council is satisfied that it has adequate information, a report will be finalised to consider and make a recommendation on how to deal with your request.
Please contact me on (021) 721 623 or m.mcconnell@harrisongrierson.com if you have any questions.

I have put the processing of your application on hold until we receive your complete response.

Please contact me if you have any questions.

Yours faithfully

Mary McConnell
Consultant Planner

IN THE ENVIRONMENT COURT
AT CHRISTCHURCH

I TE KŌTI TAIAO O AOTEAROA
KI ŌTAUTAHI

Decision No. [2024] NZEnvC 269

IN THE MATTER	of the Resource Management Act 1991
AND	an appeal under cl 14 of Schedule 1 of the Act
BETWEEN	CSI PROPERTY LIMITED & ROLLESTON WEST RESIDENTIAL LIMITED
	(ENV-2023-CHC-113)
	Appellants
AND	SELWYN DISTRICT COUNCIL
	Respondent

Environment Judge K G Reid – sitting alone under s279 of the Act

In Chambers at Christchurch

Date of Consent Order: 31 October 2024

CONSENT ORDER

A: Under s279(1)(b) RMA,[1] the Environment Court, by consent, orders that:

(1) the appeal is allowed, and the Selwyn Partially Operative District Plan is amended as set out in Appendix 1; and

(2) the appeal is otherwise dismissed.

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[1] Resource Management Act 1991.

B: Under s285 RMA, there is no order as to costs.

REASONS

Introduction

[1] This appeal relates to Selwyn District Council's decision on the Proposed Selwyn District Plan ('PDP').

[2] CSI Property Ltd and Rolleston West Residential Ltd ('appellants') appealed part of a decision made by the Selwyn District Council in respect of their submission on the PDP. Through their appeal, the appellants seek to rezone land west of Dunns Crossing Road, Rolleston, between State Highway 1 and Burnham School Road, and between Brookside Road, Edwards Road, and Selwyn Road ('Land'). They sought a change from a combination of Large Lot Residential Zone and General Rural Zone (per the Council's decision on the PDP) to a combination of General Residential Zone ('GRZ') and Neighbourhood Centre Zone.

[3] Hill Street Ltd is a s274 party to the appellants' appeal.

[4] The appeal was originally set down for a hearing, and there was an exchange of evidence from the parties and joint witness conferencing. Following the exchange of evidence the appellants provided an updated zoning proposal and related suite of provisions.

[5] On 22 and 23 August 2024 the parties attended court assisted mediation in respect of the appellants' updated zoning proposal. At mediation the parties agreed in principle to resolving the appeal by consent, subject to further detail being worked through. The parties have since agreed on that further detail and agree to resolve the appeal by rezoning the Land to GRZ and amending the (now) Partially Operative District Plan ('PODP'), as set out in Appendix 1.

[6] In making this order the court has read and considered the appeal, the joint

memorandum of counsel in support of this consent order, and the affidavit of Elizabeth White dated 3 October 2024.

Outcome

[7] The court is making this order under s279(1) of the Act, such order being by consent, rather than representing a decision or determination on the merits pursuant to s297. The court understands for present purposes that:

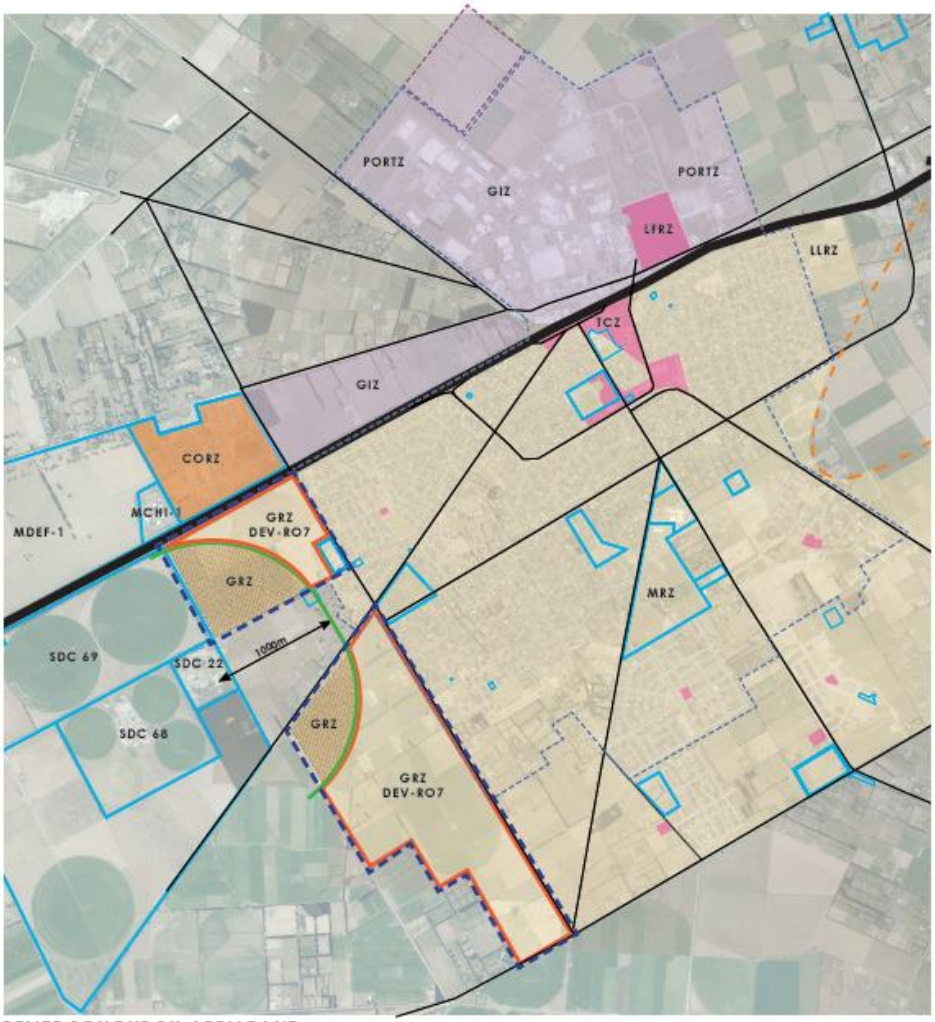
(a) all parties to the proceedings have executed the memorandum requesting this order;
(b) all parties agree with the proposed amendments to the PODP; and
(c) all parties are satisfied that all matters proposed for the court's endorsement fall within the court's jurisdiction and conform, insofar as there is scope to do so, to the relevant requirements and objectives of the RMA including, in particular Part 2.

K G Reid
Environment Judge

Appendix 1

The following amendments to the Partially Operative Selwyn District Plan are made.

1. **Amend** the Partially Operative Selwyn District Plan planning maps, by rezoning the subject land from Large Lot Residential Zone and General Rural Zone to General Residential Zone and apply a Pines Odour Control Overlay over the subject land as depicted on the **Zoning Plan** below.



RELIEF SOUGHT BY APPLICANT

Proposed GRZ
Proposed DEV-RO7
Designation
State Highway 1
CORZ
GIZ/ PORTZ
Commercial and Mixed Use Zones (NCZ, LCZ, LFRZ, TCZ)
Residential Zones (LLRZ, LRZ, SETZ)
Odour constraint boundary (1000m from the active composting area)
Odour control overlay (zoned GRZ)

Note: Land not otherwise shown is zoned GRUZ

2. **Insert** a new overlay in Part 1 - Introduction and General Provisions/ How the Plan works / Relationship between Spatial Layers:

HPW25 – Overlays	
Odour Control Overlay	A spatial boundary line within which the subdivision of land and/or the location of activities sensitive to odour near identified important infrastructure is managed so that the continued operation of identified important infrastructure is not compromised and reverse sensitivity issues are addressed.

ENERGY AND INFRASTRUCTURE

3. **Insert** a new policy in the Energy and Infrastructure section of the Plan as follows:

EI-P6A	Avoid activities and subdivision within the Pines Odour Control Overlay that may cause reverse sensitivity effects on the efficient operation, maintenance, repair, replacement, upgrading, renewal, or development of the Pines Resource Recovery Park or Pines Wastewater Treatment Plant.

4. **Insert** a new rule in the Energy and Infrastructure section of the Plan applying within the Pines Odour Control Overlay as follows:

EI-R36	**Any activity within the Odour Control Overlay**	
Pines Odour Control Overlay	**Activity status:** NC 1. Any activity not otherwise listed in GRZ-R17 or GRZ-R18.	**Activity status when compliance not achieved:** N/A

SUBDIVISION

5. **Insert** a new policy in the Subdivision chapter:

SUB-Policies	
SUB-PC	Manage the scale and timing of residential development within DEV-RO7 to ensure that Rolleston Township, outside of DEV-RO7, achieves a consolidated and compact urban form and the efficient establishment, use and maintenance of infrastructure.

6. **Insert** a new Subdivision Rule applying to the Pines Odour Control Overlay:

SUB-R26A Subdivision and Odour		
Pines Odour Control Overlay	**Activity status:** NC 1. Subdivision not subject to any of SUB-R12 or SUB-R13.	**Activity status when compliance not achieved:** N/A

7. **Insert** new Subdivision Rule Requirements for DEV-RO7 under SUB-REQ3 and SUB-REQ13 and corresponding Matters of Control or Discretion for DEV-RO7 under SUB-MAT 13 as follows:

SUB-REQ3 Outline Development Plan		
DEV-RO7	E. No subdivision of land (other than a subdivision subject only to any of SUB-R12 or SUB-R13) shall provide for more than 3770 residential sites within DEV-RO7. F. No subdivision of land (other than a subdivision subject only to any of SUB-R12 or SUB-R13) prior to 1 January 2033 shall provide for more than 1500 residential sites within DEV-RO7. G. No subdivision of land within DEV-RO7 shall take place until a potable water supply is available which is capable of serving every site within the subdivision.	**Activity status when compliance not achieved:** H. When compliance with any of SUB-REQ3.E is not achieved: RDIS I. When compliance with any of SUB-REQ3.F is not achieved: RDIS J. When compliance with any of SUB-REQ3.G is not achieved: NC **Matters for discretion:**

		K. The exercise of discretion in relation to SUB-REQ3.H is restricted to the following matters: a. TRAN-MAT1 Effects on the wider network L. The exercise of discretion in relation to SUB-REQ3.I is restricted to the following matters: a. SUB-MAT13 Development Areas

SUB-REQ13 Conditions Precedent		
DEV-RO7	F No completion certificate shall be issued under section 224 of the Act (other than for a subdivision subject only to any of SUB-R12 or SUB-R13) within 1500m of the Pines Wastewater Treatment Plant buildings (as shown in the outline development plan for DEV-RO7 – Rolleston 7 Development Area) prior to certification by Council' s Asset Manager that the resource management approvals required to enable the Pines Wastewater Treatment Plant to provide treatment capacity for 120,000 person equivalents of incoming flow have been obtained; or 31 December 2028, whichever is the sooner. G. No development (including earthworks or construction related activities) shall occur prior to the commencement of	**Activity status where compliance not achieved:** I. When compliance with any of SUB-REQ13.F, SUB-REQ13.G or SUB-REQ13.H is not achieved: NC

	the upgrade of the SH1/Dunns Crossing Road/ Walkers Road intersection. H. No completion certificate shall be issued under section 224 of the Act (other than for a subdivision subject only to any of SUB-R12 or SUB-R13) until such time as the transport network upgrades in Table 1 of the outline development plan for DEV-RO7 – Rolleston 7 Development Area have been completed.	

SUB- Matters for Control or Discretion **SUB-MAT13 Development Areas**	
DEV-RO7	7. Whether the pattern and staging of development: a. takes into account the upgrade of the Dunns Crossing Road / Main South Road (SH1) / Walkers Road intersection by Council and NZTA, including any land requirements; and b. commences adjacent to Dunns Crossing Road to maximise connectivity and the efficient provision of infrastructure. 8. The appropriateness of any measures proposed to avoid or mitigate potential adverse effects at the interface with West Rolleston Primary School. 9. The appropriateness of any mechanism proposed to address specific setback or boundary treatment requirements. 10. Whether, following consultation with the Ministry for Education, any land is required to be provided for education purposes within DEV-RO7 – Rolleston 7 Development Area.

	11. The recommendations of a field-based ecological assessment regarding the retention or management of any existing water races, ponds or any wetland features affected by the subdivision. 12. Where the subdivision of land (other than a subdivision subject only to any of SUB-R12 or SUB-R13) prior to 1 January 2033 provides for more than 1500 residential sites within DEV-RO7: a. whether the proposal responds to high demands for, or low capacity of, housing in Rolleston that supports the provision of additional housing capacity, as demonstrated by a shortfall identified by the Council in the medium term for Rolleston through either the latest Housing Capacity Assessment or an equivalent assessment undertaken by an appropriately qualified modeller. This may include consideration of the extent to which zoned residential land in Rolleston has not been, and is not likely to be, developed to deliver development capacity prior to 1 January 2033. b. with reference to the extent of zoned residential land in Rolleston existing as at 1 September 2024, whether the cumulative effects of enabling more than 1500 residential sites will compromise: (i) a compact urban form, within Rolleston Township outside of DEV-R07; (ii) the efficient establishment, use and maintenance of infrastructure, within Rolleston Township outside of DEV-RO7.

EARTHWORKS

8. **Insert** a new Earthworks Rule Requirement for DEV-RO7 under EW-REQ1 as follows:

EW-REQ1	**Volume of Earthworks**	
DEV-RO7	D. No earthworks associated with the development of DEV-RO7 for urban purposes shall occur prior to the commencement of the upgrade of the SH1/ Dunns Crossing Road/ Walkers Road intersection.	**Activity status where compliance is not achieved:** E. When compliance with EW-REQ1.D is not achieved: NC

GRZ CHAPTER

9. **Amend** the GRZ-Overview as follows:

General Residential Zone

GRZ-Overview

The General Residential Zone is located within the townships areas of Rolleston, Darfield, Leeston, West Melton, and Castle Hill.

The purpose of the General Residential Zone ...

COMMERCIAL AND MIXED USE ZONES

10. **Amend** rule CMUZ-MAT1 as follows:

CMUZ-MAT1	Economic Impacts
	1. The extent to which the scale of the activity adversely affects the viability and function of the Town Centre Zone, including individual and cumulative adverse distributional and urban form effects. 2. The extent to which the scale of the activity adversely affects the intended function and role of the Local Centre Zone.
DEV-RO7	3. <u>The extent to which the scale and nature of the activity within DEV-RO7 – Rolleston 7 Development Area is consistent with the intended function and role of a Neighbourhood Centre Zone.</u>

11. **Amend** NCZ-R1 as follows:

NCZ-R1	**Any Buildings that are not otherwise listed in NCZ-R3**	
NCZ (excluding DEV-RO7)	**Activity Status:** PER 1. The establishment of one or more buildings, the conversion of all or part of an existing residential unit for non-residential use and/or any addition to an existing building, **Where:** a. The development has a total gross floor area of less than 450m^2. **And the activity complies with the following rule requirements:** NCZ-REQ1 Servicing NCZ-REQ2 Height NCZ-REQ3 Height in relation to boundary NCZ-REQ4 Fencing and outdoor storage NCZ-REQ5 Landscaping NCZ-REQ6 Active frontage NCZ-REQ7 Location of carparking	**Activity status when compliance not achieved:** 4. When compliance with any of NCZ-R1.1.a. is not achieved: RDIS 5. When compliance with any rule requirement listed in this rule is not achieved: Refer to NCZ-Rule Requirements **Matters for discretion:** 6. The exercise of discretion in relation to NCZ-R1.4. is restricted to the following matters: a. CMUZ-MAT3 Urban Design **Notification:** 7. Any application arising from NCZ-R1.4. shall not be subject to public notification. Notice shall not be served on any person.

DEV-RO7	**Activity Status:** PER 8. The establishment of one or more buildings, the conversion of all or part of an existing residential unit for non-residential use and/or any addition to an existing building. **Where:** a. The development has a gross floor area of less than 450m^2. **And the activity complies with the following rule requirements:** NCZ-REQ1 Servicing NCZ-REQ2 Height NCZ-REQ3 Height in relation to boundary NCZ-REQ4 Fencing and outdoor storage NCZ-REQ5 Landscaping NCZ-REQ6 Active frontage NCZ-REQ7 Location of carparking	**Activity status when compliance not achieved:** 9. When compliance with any of NCZ-R1.8.a is not achieved: RDIS 10. When compliance with any rule requirement listed in this rule is not achieved: Refer to relevant rule requirement **Matters for discretion:** 11. The exercise of discretion in relation to NCZ-R1.9 is restricted to the following matters: a. TRAN-MAT9 b. CMUZ-MAT1

12. **Delete** the Outline Development Plans proposed in:

Part 3 / Area Specific Matters / Development Areas / RO-Rolleston/ DEV-RO7 – Rolleston 7 Development Area

and

Part 3 / Area Specific Matters / Development Areas / RO-Rolleston/ DEV-RO8 – Rolleston 8 Development Area

And

Insert the proposed Outline Development Plans for the WDCR area (as below) in:

Part 3 / Area Specific Matters / Development Areas / RO-Rolleston as a new ***"DEV-RO7 – Rolleston 7 Development Area".***

DEV-RO7 – Rolleston 7 Development Area

Context

This area comprises approximately 298.6 hectares and is situated on the western side of Dunns Crossing Road.

Land Use

The ODP area provides for at least 3500 residential households in total and four commercial centres. However, an Integrated Transport Assessment shall be required in association with any resource consent application resulting in any more than 3770 households total within the ODP area, in order to re-evaluate and manage road network effects at that time.

The ODP area shall achieve a minimum net density of 15 households per hectare, averaged over the area.

Areas with the highest density are to be co-located with either open space, reserves, local centres, West Rolleston Primary School, along key road connections and in smaller pockets around high amenity, low traffic residential streets.

The four neighbourhood centres are proposed adjacent to the intersection of Dunns Crossing Road and proposed Primary Roads to provide good accessibility and to meet some of the convenience needs of residents in the immediate area. The area of land identified for these centres (being 8,000m^2, 10,000m^2, 2,200m^2 and 2,450m^2 respectively from north to south) is intended to provide sufficient space to accommodate a limited extent of commercial activity and community activities, along with space to provide for their functional requirements, within a high-quality environment. Development within each centre is subject to a permitted maximum total of 450m^2 gross floor area, beyond which an assessment of effects on the transport network and the role of the centre within the hierarchy of commercial centres is required.

Development Caps and Sequencing

Given the large scale of the ODP area and the potential quantum of housing it enables, a cap of 1500 sites applies until 1 January 2033. The purpose of the cap is to support consolidated urban form and the efficient establishment and use of three-waters infrastructure in

other residential zoned areas within Rolleston Township. Any development exceeding this cap shall be assessed to ensure these urban form and infrastructure outcomes across the township as a whole are not compromised, whilst recognising that higher demands for, or lower capacity of, residential development than currently anticipated may necessitate additional supply within the DEV-R07 Development Area before 1 January 2033. Beyond 1 January 2033, development caps do not apply.

The sequencing of development within the DEV-RO7 Development Area shall commence and progress westward from Dunns Crossing Road.

Odour Control Overlay

An 'Odour Control Overlay ' is located adjoining the ODP area to avoid reverse sensitivity effects on the Pines Resource Recovery Park and Pines Wastewater Treatment Plant.

The ODP identifies a 1500m setback line from the Pines Wastewater Treatment Plant buildings. Within this setback line, no residential sites may be created prior to: certification by Council' s Asset Manager that the resource management approvals required to enable the Pines Wastewater Treatment Plant to provide treatment capacity for 120,000 person equivalents of incoming flow have been obtained; or 31 December 2028, whichever occurs sooner.

Access and Transport

The ODP employs a roading hierarchy that delivers a range of integrated transport options, including active transport connections at the boundary of the development area to adjacent neighbourhoods that facilitate the use of existing and future public transport routes. Roading connections shall be designed to achieve permeability, whilst minimising the number of new intersections and maintaining appropriate intersection spacing. The ODP features primary routes that provide east-to-west routes connecting to Dunns Crossing Road and north-to-south routes through the ODP area. The roading hierarchy will deliver an accessible and coherent neighbourhood that provides safe and efficient access to the new development and can cater for extensions to existing public transport routes and/or new routes.

An integrated network of roads will facilitate the safe and efficient distribution of internal traffic, provide access to properties, assist in connecting the open space reserves network both within and beyond the site and provide links to adjoining neighbourhoods.

The transport network for the area shall integrate into the pedestrian and cycle network established in adjoining neighbourhoods and the wider township. Cycling and walking will be contained within the road reserve and incorporated into the roading design of the overall road network where applicable. Adequate space must be provided to accommodate cyclists and to facilitate safe and convenient pedestrian movements. Dedicated cycle and pedestrian routes are identified on the ODP, and include connections to Dunns Crossing Road and the wider network. These connections are also provided in the vicinity of West Rolleston Primary School and the proposed commercial centre, in addition to a potential public transport stop that can also support alternative transport modes for these activities.

The intersection of State Highway 1, Dunns Crossing Road and Walkers Road is planned to be upgraded with a roundabout by Waka Kotahi NZTA. To accommodate this upgrade, any development within the 'future intersection upgrade' area needs to take into account any additional land requirements for this upgrade, as well as ensuring the subdivision pattern appropriately integrates with the location of the intersection.

Rural/urban gateways in the locations shown on the ODP are to be provided with signage, road markings or other design treatments, in accordance with the requirements of Road Traffic Standard 15, to demarcate a change in speed environment and the urbanising of the area.

In addition, other transport network upgrades are also required in order to accommodate growth and traffic from the ODP area. The nature of these works, timing requirements and anticipated funding responsibility is set out in Table 1 below and a consent notice or similar mechanism shall be imposed at the time of any subdivision consent to ensure these outcomes.

DEV-RO7-TABLE1: Transport network upgrades

Upgrade Required	Timing	Anticipated Funding Mechanism
Commencement of SH1 / Dunns Crossing Road / Walkers Road Intersection upgrade in accordance with the Waka Kotahi NZ Upgrade Programme	Prior to any development (including earthworks or construction related activities) in the ODP area.	Works already funded by Waka Kotahi.
Dunns Crossing Road / Newmans Road Intersection	Prior to issue of a completion certificate under section 224 of the Act (other than a subdivision subject only to any of SUB-R12 or SUB-R13), in the ODP area.	Developer funded and / or as part of Waka Kotahi works to SH1 / Dunns Crossing Road.
Dunns Crossing Road / Granite Drive Intersection	Prior to issue of a completion certificate under section 224 of the Act (other than a subdivision subject only to any of SUB-R12 or SUB-R13), in that part of the ODP area north of Burnham School Road.	Developer funded.
Dunns Crossing Road / Burnham School Road Traffic Signals	Prior to issue of a completion certificate under section 224 of the Act (other than a subdivision subject only to any of SUB-R12 or SUB-R13), in the ODP area.	Developer agreement (as in the Long Term Plan for 2024/2025).
Dunns Crossing Road / Lowes Road roundabout	Prior to issue of a completion certificate under section 224 of the Act (other than a subdivision subject only to any of SUB-R12 or SUB-R13), in that part of the ODP area south of Brookside Road.	Developer funded and / or developer agreement (as in the Long Term Plan for 2029/2030).

Goulds Road / Dunns Crossing Road / Selwyn Road Upgrade (Realignment of Goulds Road to intersect with Dunns Crossing Road approximately 150m north-west of Selwyn Road. Selwyn Road / Goulds Road / Dunns Crossing Road to become a roundabout).	Prior to issue of a completion certificate under section 224 of the Act (other than a subdivision subject only to any of SUB-R12 or SUB-R13), in that part of the ODP area south of Brookside Road.	Developer agreement (as in the Long Term Plan for 2026/2027).
Dunns Crossing Road Frontage Upgrade	Prior to issue of a completion certificate under section 224 of the Act (other than a subdivision subject only to any of SUB-R12 or SUB-R13).	Developer funded or developer agreement where partly funded in the Long Term Plan.
Selwyn Road Frontage Upgrade	Prior to issue of a completion certificate under section 224 of the Act (other than a subdivision subject only to any of SUB-R12 or SUB-R13) for any subdivision in the ODP area adjacent to Selwyn Road.	Developer funded.
Realignment of Brookside Road at Dunns Crossing Road (in accordance with Figure 1 below) and gateway threshold (in accordance with the requirements of Road Traffic Standard 15) on Brookside Road	Prior to issue of a completion certificate under section 224 of the Act (other than a subdivision subject only to any of SUB-R12 or SUB-R13), in that part of the ODP area south of Brookside Road.	Developer funded.
Edwards Road frontage upgrades as shown on the ODP. The carriageway upgrade of Edwards Road between Brookside Road and	Prior to establishment of any vehicle crossing, access or road connection to Edwards Road or Brookside Road from the ODP area.	Developer funded.

Selwyn Road including a gateway threshold on Edwards Road.		
Safety improvements to the Edwards Road / Ellesmere Junction Road intersection.	Prior to establishment of any vehicle crossing, access or road connection to Edwards Road from the ODP area.	Developer funded.

DEV-RO7-FIGURE1: Realignment works required at Brookside Road / Dunns Crossing Road Intersection

Open Space, Recreation, and Community and Educational Facilities

Recreation reserves are provided throughout the ODP area in addition to green links and reserves that provide open space and facilitate attractive pedestrian connections. The location of these reserves has been determined based on the number of reserves established in the wider area and to ensure people living within the development block have access to open space reserve is within a 500m walking radius of their homes. These neighbourhood parks will provide passive recreation opportunities, with nearby Brookside Park providing access to active recreation opportunities.

There is an opportunity to integrate the collection, treatment, and disposal of stormwater with open space reserves where appropriate. Pedestrian and cycle paths are required to integrate into the green network to ensure a high level of connectivity is achieved, and to maximise the utility of the public space. Council's open space requirements cited in the Long Term Plan and Activity Management Plans should be adhered to during subdivision design.

An existing water race runs through the area. Whilst this may need to be realigned, it will remain open and fish and kākahi salvage works will be conducted in accordance with Environment Canterbury fish salvage guidelines prior to any works occurring within the water races. A field based ecological assessment of the water race and any other water bodies on the site shall occur prior to subdivision, in order to determine whether they will be decommissioned, retained, or otherwise managed as part of the subdivision works.

In addition, boundary treatments are to be provided along some other boundaries of the ODP area as depicted on the development plan. This will ensure reverse sensitivity effects arising from conflicting land uses are avoided. Unless otherwise specified by Council, buffers will remain in private ownership and methods to protect these treatments in the long term such as private covenants or consent notices shall be established. Treatments could include appropriate bunding, fencing, landscaping, and/or building setbacks. Similar interface treatment of the commercial centre shall also be provided where it faces West Rolleston Primary School to minimise potential conflict. Landscape treatment is also to be provided along boundaries with a rural interface.

West Rolleston Primary School is readily accessible within the area. However, roll growth requirements may necessitate its expansion to the north or west, with consequential amendments to the ODP in a way that retains transport connectivity for this part of the site. Other educational facilities may otherwise be required within the balance of the area, albeit subject to a needs assessment.

Servicing

The underlying soils are relatively free-draining and generally support the discharge of stormwater disposal via infiltration to ground. There are a range of options available for the collection, treatment, and disposal of stormwater. Detailed stormwater solutions are to be determined by the developer in collaboration with Council at subdivision stage and in accordance with Environment Canterbury requirements. Systems will be designed to integrate into both the transport and reserve networks where practicable.

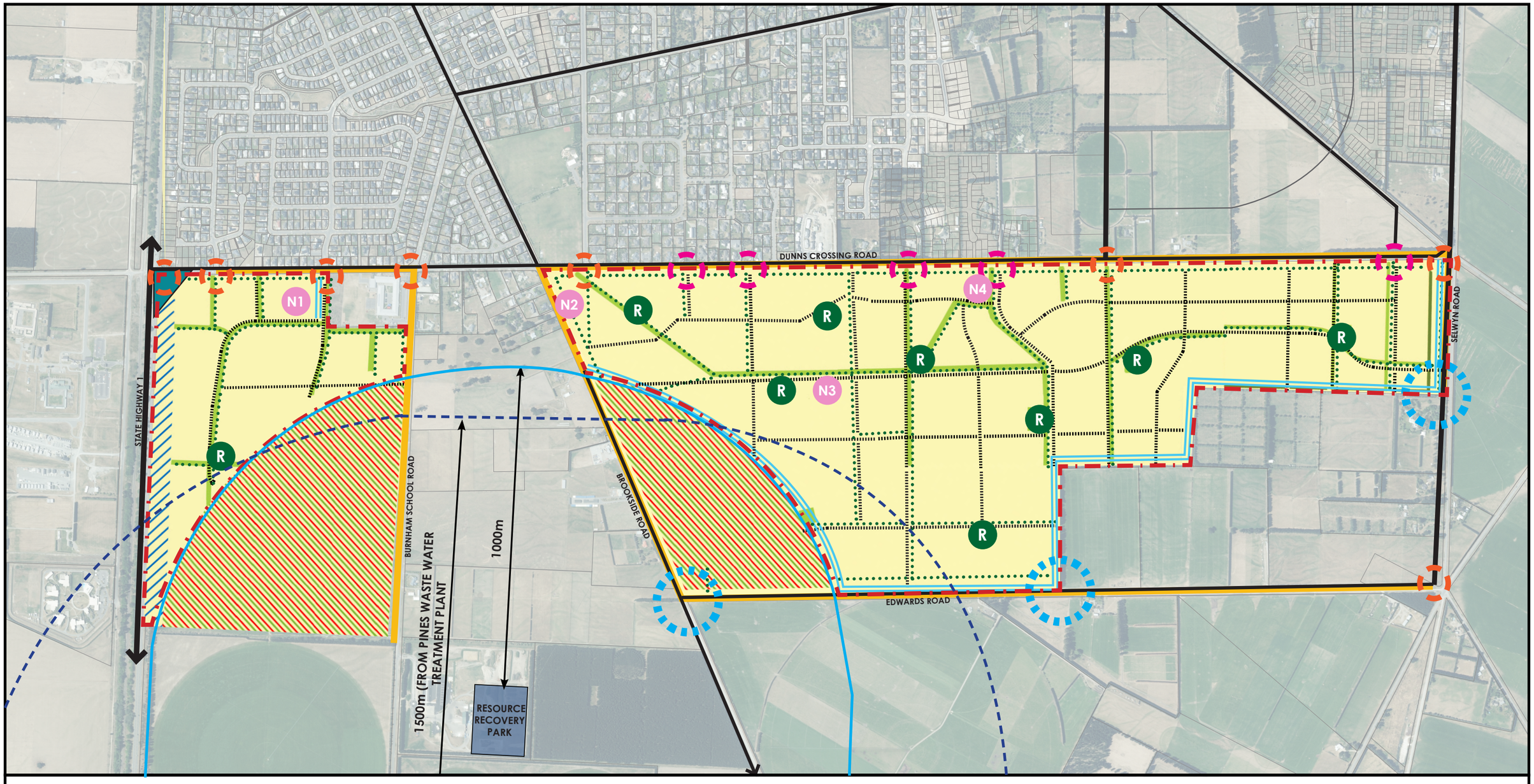
The provision of infrastructure to service the area shall align with the Council's indicative infrastructure staging plan, unless an alternative arrangement is made by the landowner/developer and approved by Council.

No subdivision of land shall take place until such time as a potable water supply which is capable of serving all sites within the subdivision is provided and Regional Council water consents to take and use groundwater within the ODP area are transferred and vested in Council.

OTHER MATTERS

13. Make any other **consequential amendments** required including but not limited to renumbering of clauses and/or amendments to achieve consistency with the drafting conventions of the Proposed Selwyn District Plan and National Planning Standards.

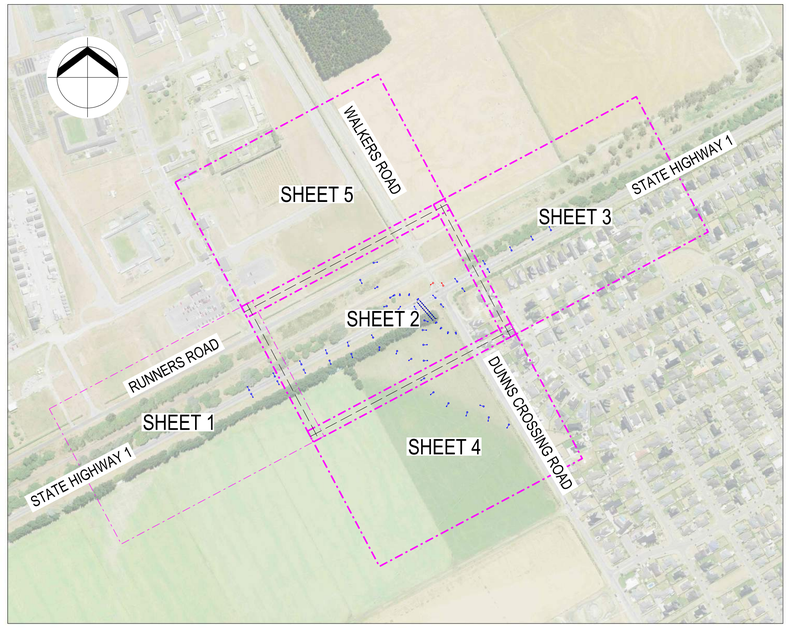
Rolleston 7 Development Area



- Outline development plan area
- Fixed road
- Indicative plan change road
- Indicative cycle/pedestrian route
- 1500m WWTP boundary
- Odour control overlay (zoned GRZ)
- Noise control overlay
- R — Reserve (location to be determined at time of subdivision)
- N — Neighbourhood centre (location to be determined at time of subdivision)
  - N1 – 0.8ha
  - N2 – 1.ha
  - N3 – 0.22ha
  - N4 – 0.245ha
- Boundary treatment
- Extent of road frontage upgrade
- Intersection upgrade (area indicative)
- Pedestrian crossing (area indicative)
- Rural/ urban gateway
- State highway/ Dunns Crossing road upgrade
- General residential zone (GRZ)

N

NTS



TYPICAL COLUMN DESIGNATION:

LUMINAIRE No. → 1 | A 0° | Z 1m

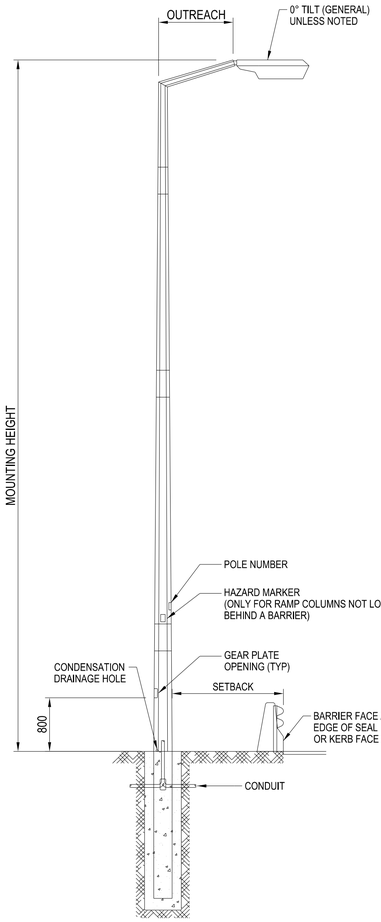
- LUMINAIRE TYPE
- LUMINAIRE TILT
- COLUMN SETBACK TO KERB
- COLUMN TYPE

LUMINAIRE TYPE LEGEND:

A	EXISTING, NO CHANGE.
B	ADD NEW UNDERPASS LIGHT PLACE SURVIVOR 100 CLASSIC CORNICE SVR100CLA-COR1200-DA2840060-WHT LED LUMINAIRE IN CONTINUOUS EXTRUSION
D	LUMINAIRE TO BE REMOVED.
E	ADD NEW STREET LIGHT PLACE TECEO GEN2 1 5308 350mA 4000K LED LUMINAIRE.
F	ADD NEW STREET LIGHT PLACE TECEO GEN2 1 5308 500mA 4000K LED LUMINAIRE.
G	ADD NEW STREET LIGHT PLACE TECEO GEN2 1 5308 850mA 4000K LED LUMINAIRE.
H	ADD NEW STREET LIGHT PLACE TECEO GEN2 1 5308 1000mA 4000K LED LUMINAIRE.
J	ADD NEW DITTO 700mA 4000K LED LUMINAIRE.
K	ADD NEW STREET LIGHT PLACE NEW ITALO-2 0F2H1 S05 4-100.5M 4000K LED LUMINAIRE.
L	ADD NEW STREET LIGHT PLACE NEW ITALO-2 0F2H1 S05 4-100.7M 4000K LED LUMINAIRE.
	LUMINAURE SHOWN FOR REFERENCE WHEN NOT ON ROAD OF FOCUS

COLUMN TYPE, MOUNTING HEIGHT:

M	PLACE NEW DOUBLE MITRED OUTREACH 180DEG FRANGIBLE SHEAR BASE OCTAGONAL STEEL COLUMN 12.5m MOUNTING HEIGHT 2m OUTREACH
N	PLACE NEW FLANGE BASED MITRED OUTREACH FRANGIBLE IMPACT ABSORBING OCTAGONAL STEEL COLUMN 12.5m MOUNTING HEIGHT 2m OUTREACH
O	PLACE NEW GROUND PLANTED MITRED OUTREACH FRANGIBLE IMPACT ABSORBING OCTAGONAL STEEL COLUMN 12.5m MOUNTING HEIGHT 4m OUTREACH
P	PLACE NEW GROUND PLANTED MITRED OUTREACH FRANGIBLE SHEAR BASE OCTAGONAL STEEL COLUMN 12.5m MOUNTING HEIGHT 4m OUTREACH
S	PLACE NEW GROUND PLANTED MITRED OUTREACH FRANGIBLE IMPACT ABSORBING OCTAGONAL STEEL COLUMN 10.5m MOUNTING HEIGHT 2m OUTREACH
T	REMOVE COLUMN
U	PLACE NEW GROUND PLANTED MITRED OUTREACH FRANGIBLE SHEAR BASE OCTAGONAL STEEL COLUMN 12.5m MOUNTING HEIGHT 2m OUTREACH
V	PLACE NEW GROUND PLANTED MITRED OUTREACH FRANGIBLE IMPACT ABSORBING OCTAGONAL STEEL COLUMN 10m MOUNTING HEIGHT 2m OUTREACH
W	PLACE NEW GROUND PLANTED MITRED OUTREACH FRANGIBLE IMPACT ABSORBING OCTAGONAL STEEL COLUMN 14m MOUNTING HEIGHT 4m OUTREACH
X	PLACE NEW MITRED OUTREACH FRANGIBLE SHEAR BASE OCTAGONAL STEEL COLUMN 14m MOUNTING HEIGHT 4m OUTREACH WITH ADDITIONAL SPIGOT AT 180DEG 8m MOUNTING HEIGHT 0m OUTREACH
Y	EXISTING COLUMN, MOUNTING HEIGHT AND SETBACK FROM KERB.
Z	EXISTING, NO CHANGE.



TYPICAL GROUND MOUNTED SECTIONAL GALVANISED POLE WITH MITRED OUTREACH FOR NZTA POLES

SCALE: NTS

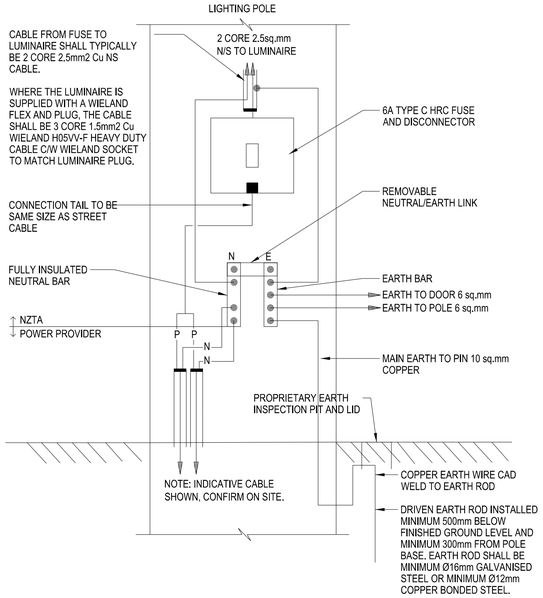
STREET LIGHTING NOTES:

Has this requirement been confirmed by NZTA? A shorting cap will require a controlled power supply where the electricity company controls the lumimaire switching. NZTA M30 requires a CMS system to be considered which would require the installation of a LPC in place of a shorting cap

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF POWER UTILITY (ORION) , LOCAL TERRITORIAL AUTHORITY (SELWYN DISTRICT COUNCIL) AND THE REQUIREMENTS OF ELECTRICAL (SAFETY) REGULATIONS 2010, AS/NZS 3000, AS/NZS 3008 AND AS/NZS 1158.
2. ONLY CONTRACTORS APPROVED BY LOCAL TERRITORIAL AUTHORITY CAN WORK ON THE LOCAL TERRITORIAL AUTHORITY STREET LIGHT NETWORK. PLEASE CONTACT THE TEAM LEADER STREET LIGHTS IF YOU REQUIRE FURTHER CLARIFICATION.
3. ENSURE THE RAMM AND SLIM DATABASE IS ACCURATELY UPDATED WITHIN 24 HOURS OF THE INSTALLATION FOR EVERY NEW OR MODIFIED STREETLIGHT LOCATION, AND LIAISE WITH LOCAL TERRITORIAL AUTHORITY TO ENSURE RECORDS ARE APPROPRIATELY COMPLETED.
4. THESE WORKS SHALL INCLUDE THE REMOVAL AND DISPOSAL OF OLD LUMINAIRES AND POLES, UNLESS SPECIFIED OTHERWISE.
5. ALL LUMINAIRES SHALL BE TILTED AT AN ANGLE OF 0° TO THE HORIZONTAL UNLESS STATED OTHERWISE.
6. EACH LUMINAIRE SHALL BE PROVIDED WITH A 7 - PIN NEMA SOCKET AND A BLANKING CAP.
7. A MINIMUM TEN (10) YEAR WARRANTY FROM DATE OF ON SITE INSTALLATION SHALL BE PROVIDED FOR THE LUMINAIRES.
8. SERVICES AS-BUILTS PROVIDED ON AN AS IS BASIS, CONTRACTOR TO CONFIRM LOCATIONS OF CONDUITS AND ORION CABLES ON SITE BEFORE CONSTRUCTION COMMENCES. CONTRACTOR RESPONSIBLE FOR COORDINATING FINAL DESIGN WITH ORION AND NOTIFYING ENGINEER OF ANY DEVIATIONS TO THE PROVIDED DESIGN.
9. MINIMUM STREET LIGHTING SUPPLY CABLE SIZE SHALL BE 1C 10mm² NEUTRAL SCREEN CABLE.
10. CABLE PROTECTION SHALL BE IMPLEMENTED AS PER POWER UTILITY REQUIREMENTS AND AS/NZS 3000.
11. ALL METAL COLUMNS, OUTREACH ARMS AND LUMINAIRES ARE TO BE EFFECTIVELY EARTHED. EARTHING IS TO BE DESIGNED TO CONFORM TO THE REQUIREMENTS OF THE NZ ELECTRICITY (SAFETY) REGULATIONS AND AS/NZS 3000:2007.
12. MOUNTING HEIGHTS ARE TO BE MEASURED WITH RESPECT TO THE LUMINAIRES ABOVE THE CARRIAGEWAY.
13. WHERE A POLE IS WITHIN 2m OF THE DRIPLINE OF THE TREE, ASSESS WHETHER THE TREE REQUIRES TRIMMING TO MINIMISE SHADOWING, AND NOTIFY THE ENGINEER FOR FURTHER ACTION IF REQUIRED.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINAL LOCATION OF LIGHTING POLES ON SITE BY TAKING INTO ACCOUNT THE FOLLOWING PRIOR TO INSTALLATION:
    a. LOCATION OF EXISTING SERVICES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND SERVICES AND LAND INFORMATION NEW ZEALAND MARKERS BEFORE WORK COMMENCES. ANY DAMAGE CAUSED TO EXISTING SERVICES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
    b. WORK ON OR NEAR EXISTING SERVICES.
    - THE CONTRACTOR SHALL LIAISE WITH THE APPROPRIATE SERVICE PROVIDER IN RELATION TO WORKING ON OR NEAR SERVICES, GIVING APPROPRIATE NOTICE PERIOD. IF NECESSARY, POSITIONS MAY BE ALTERED UP TO 1M WHILE RETAINING GENERAL POLE ARRANGEMENT TO AVOID CLASHES WITH UNDERGROUND SERVICES, CONFIRM WITH ENGINEER FIRST.
    - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FIXING OF OUTREACHES TAKING INTO ACCOUNT WORK ON OR NEAR EXISTING SERVICES.

    c. PERMITTED LOCATION TOLERANCE
    - 0.5m PARALLEL TO THE CARRIAGEWAY
    - 0.2m PERPENDICULAR TO THE CARRIAGEWAY
    - 0.2m VERTICALLY

    IF THE FINAL POLE LOCATION EXCEEDS THE PERMITTED TOLERANCE FURTHER LIGHTING DESIGN MAY BE REQUIRED.
15. POLE DETAILS SHALL BE AS PER LOCAL TERRITORIAL AUTHORITY ENGINEERING STANDARDS. DEPARTING FROM THE STANDARD INSTALLATION DUE TO GROUND CONDITIONS SHALL BE CONFIRMED BY A WRITTEN APPROVAL PRIOR TO INSTALLATION.
16. LIGHTING COLUMNS SHALL BE INSTALLED AS PER MANUFACTURER INSTRUCTION AND STANDARDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOUNDATION DESIGN OF THE LIGHTING COLUMN IF GROUND CONDITIONS DO NO SUIT THE COLUMN MANUFACTURER'S STANDARD FOUNDATION DESIGN.



GEARPLATE TWO CORE CABLE TERMINATION WITHIN POLE FOR SHEAR BASE POLES

SCALE: NTS

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No.	Revision	By	Chk	Appd	Date
A	PRELIMINARY DESIGN	---	---	---	

Original Scale (A1)	NTS	Design	K.CUTTLE 24.07.24
Reduced Scale (A3)	NTS	Drawn	R.ANDERSON 24.07.24
		Dsg Verifier	
		Drg Check	

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: NZ TRANSPORT AGENCY WAKA KOTAHI

Project: SH1 ROLLESTON ACCESS IMPROVEMENTS

Title: LIGHTING DRAWING KEY, NOTES & LUMINAIRE SCHEDULE

Discipline: CIVIL ENGINEERING

Drawing No.: 3338703-10-CU-3500

Rev.: A

Document No. ...\Plans\3338703-10-CU-3500

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Original Scale (A1) 1:500	Design	K.CUTTLE	24.07.24
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Reduced Scale (A3) 1:1000	Drg Check		Date
	* Refer to Revision 1 for Original Signature		

Approved For Construction*

Beca

Client: NZ TRANSPORT AGENCY WAKA KOTAHI

Project: SH1 ROLLESTON ACCESS IMPROVEMENTS

Title: LIGHTING LAYOUT PLANS SHEET 1 OF 5

Discipline: CIVIL ENGINEERING

Drawing No.: 3338703-10-CU-3511

Rev.: A

Document No. ...\Plans\3338703-10-CU-3511

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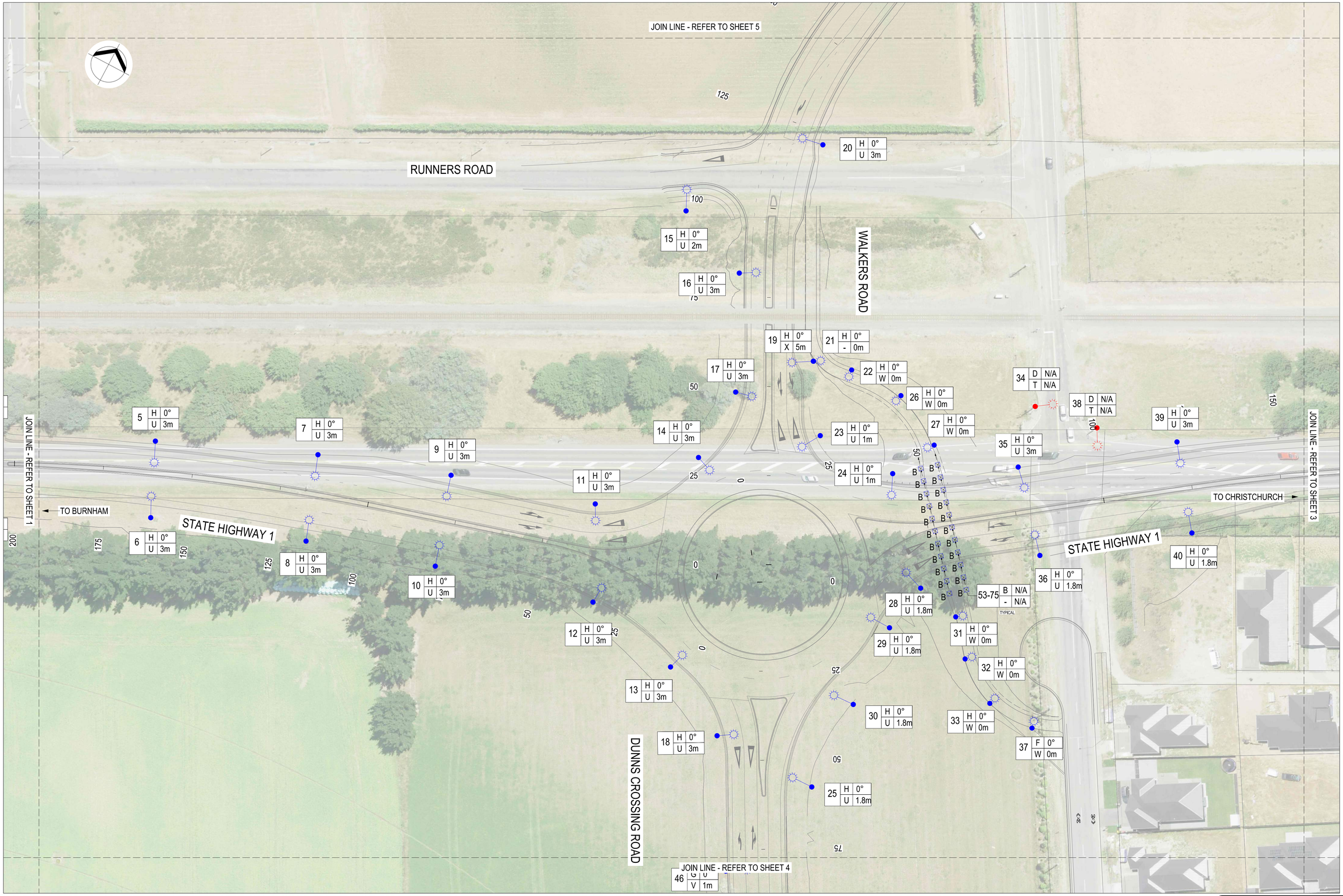

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No.	Revision	By	Chk	Appd	Date
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Original Scale (A1)	1:500		
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Drawn	R.ANDERSON	24.07.24	
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Client: NZ TRANSPORT AGENCY WAKA KOTAHI

Project: SH1 ROLLESTON ACCESS IMPROVEMENTS

Title: LIGHTING LAYOUT PLAN SHEET 2 OF 5

Discipline: CIVIL ENGINEERING

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Client: NZ TRANSPORT AGENCY WAKA KOTAHI

Project: SH1 ROLLESTON ACCESS IMPROVEMENTS

Title: LIGHTING LAYOUT PLAN SHEET 3 OF 5

Discipline: CIVIL ENGINEERING

Drawing No.: 3338703-10-CU-3513

Rev.: A

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Client: NZ TRANSPORT AGENCY WAKA KOTAHI

Project: SH1 ROLLESTON ACCESS IMPROVEMENTS

Title: LIGHTING LAYOUT PLAN SHEET 4 OF 5

Discipline: CIVIL ENGINEERING

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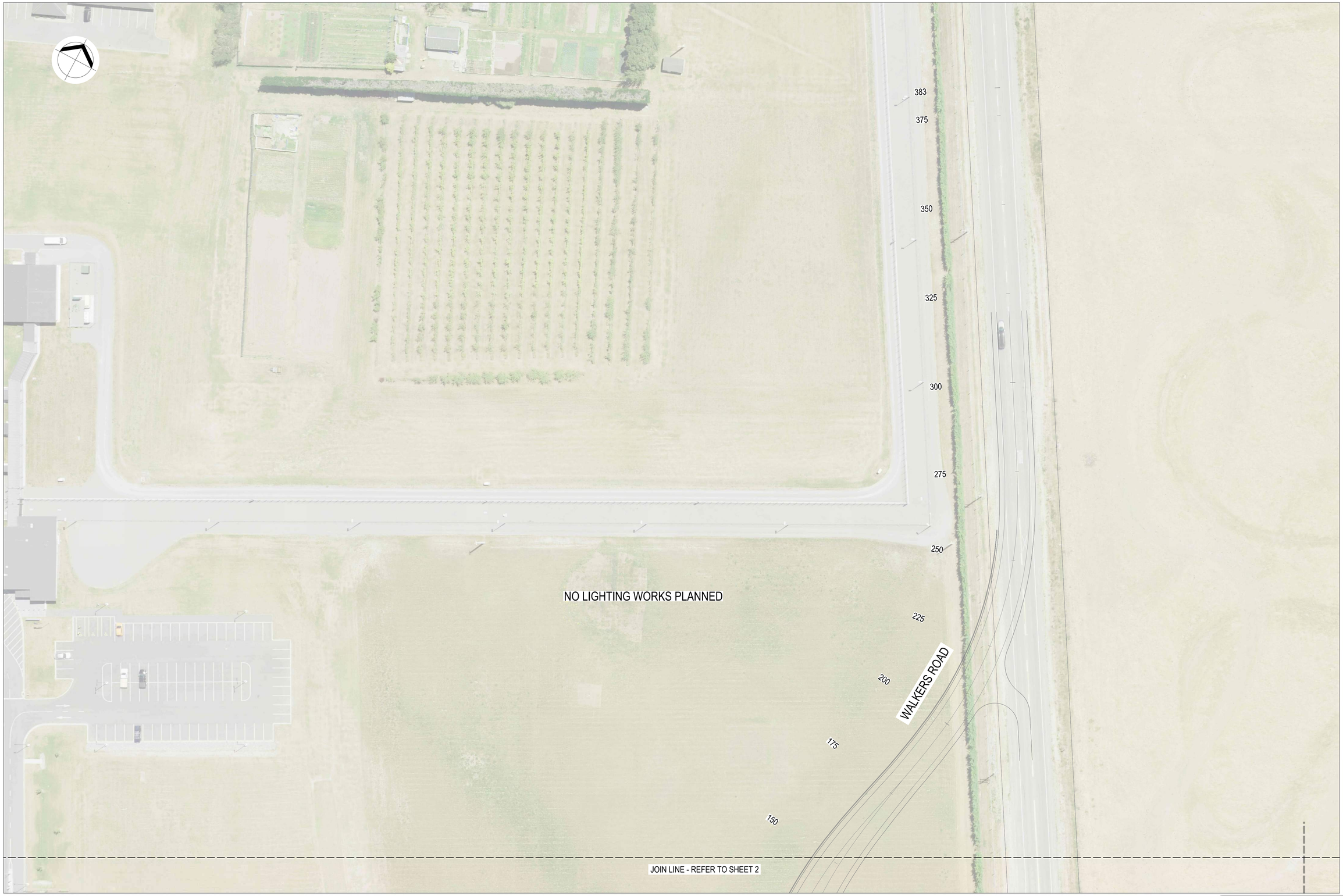

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Reduced Scale (A3) 1:1000

Design	K.CUTTLE	24.07.24	Approved For Construction*
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Drg Check			Date

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Client: NZ TRANSPORT AGENCY WAKA KOTAHI

Project: SH1 ROLLESTON ACCESS IMPROVEMENTS

Title: LIGHTING LAYOUT PLAN SHEET 5 OF 5

Discipline: CIVIL ENGINEERING

Drawing No.: 3338703-10-CU-3515

Rev.: A

Document No. ...\Plans\3338703-10-CU-3515

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The TI requirement under AS/NZS 1158.1.1 should be 15%, not 9.81%. This is not a non-compliance as the calculated TI came to 5.53%

Drawing Ploted: 30/07/2024 4:35:02 pm

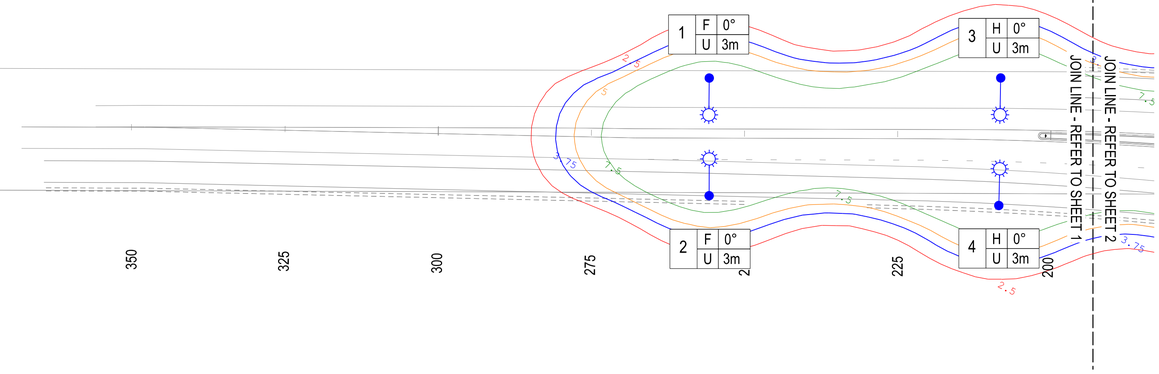
TABLE 3.1 VALUES OF LTP FOR NEW ZEALAND CATEGORY V LIGHTING - AS/NZS 1158.1.1:2022									AT TECH DESIGN MANUAL CH 12 CLAUSE 12.3.2
1	2	3	4	5	6	7	8	9	
LIGHTING SUBCATEGORY	LIGHT TECHNICAL PARAMETERS (LTP)								
	AVERAGE CARRIAGEWAY LUMINANCE [a,b] (L) cd/m²	OVERALL UNIFORMITY[c,d] (U_o)	LONGITUDINAL UNIFORMITY [b] (U_L)	THRESHOLD INCREMENT [d,e] (TI) %	SURROUND VERGE ILLUMINANCE [b] (E_{SL} and E_{SR}) %	POINT HORIZONTAL ILLUMINANCE [a,b] (E_{ph}) lx	ILLUMINANCE (HORIZONTAL) UNIFORMITY [d] (U_{E1})	UPWARD WASTE LIGHT RATIO [d] (UWLR)	POWER DENSITY LIMIT W/m²
V3	0.75	0.33	0.3	9.81	50	7.5	8	3	0.29
V4	0.50	0.33	0.3	9.81	50	5.0	8	3	0.26

a. THESE VALUES ARE MAINTAINED.
b. CONFORMANCE IS ACHIEVED BY BEING GREATER THAN OR EQUAL TO THE APPLICABLE TABLE VALUE.
c. THE VALUE OF U_o MAY BE 0.32 OR 0.31 PROVIDED THE VALUE FOR L IS 5% OR 10% RESPECTIVELY, ABOVE THE SPECIFIED VALUE IN COLUMN 2.
d. CONFORMANCE IS ACHIEVED BY BEING LESS THAN OR EQUAL TO THE APPLICABLE TABLE VALUE.
e. WHERE LEGACY INSTALLATIONS WITH HID LUMINAIRES ARE UPGRADES, THE THRESHOLD INCREMENT VALUE MAY BE NO GREATER THAN THE EXISTING HID INSTALLATION AND MAY NOT EXCEED 20%
f. V4 IS THE MINIMUM SUBCATEGORY RECOMMENDED FOR APPLICATION IN NEW ZEALAND.

The UWLR requirement under AS/NZS 1158.1.1 should be 1%, not 3% as 3% is only applicable to HID luminaires whereas 1% is applicable to LED luminaires

LIGHTING DESIGN CALCULATION SUMMARY											
AREA	2 AVERAGE CARRIAGEWAY LUMINANCE (L) cd/m²	3 OVERALL UNIFORMITY (U_o)	4 LONGITUDINAL UNIFORMITY (U_L)	5 THRESHOLD INCREMENT (TI) %	6 SURROUND VERGE ILLUMINANCE (E_{sr}) lx	7 POINT HORIZONTAL ILLUMINANCE (E_{ph}) lx	8 ILLUMINANCE (HORIZONTAL) UNIFORMITY (U_{E1})	9 UPWARD WASTE LIGHT RATIO (UWLR)	MAX SPACING (m)	POWER DENSITY W/m²	COMPLIANCE TO CATEGORY
SH1 MAIN SOUTH ROAD CARRIAGEWAY	0.76	0.35	0.47	5.53	75.61	N/A	N/A	0.00	52	0.20	V3

What lane configuration does this calculation apply to? SH1 on either side of the RAB changes from 2-lane (either side of a raised median) down to single lane on each side of the median. There needs to be 2 calculation for each lane configuration.



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No.	Revision	By	Chk	Appd	Date
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		Drg Check	Date

Approved For Construction*
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Client: NZ TRANSPORT AGENCY WAKA KOTAHI
Project: SH1 ROLLESTON ACCESS IMPROVEMENTS
Title: LIGHTING CALCULATION PLANS SHEET 1 OF 5
Discipline: CIVIL ENGINEERING
Drawing No.: 3338703-10-CU-3521
Rev.: A

Document No. ...\Plans\3338703-10-CU-3521

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TABLE 3.1 VALUES OF LTP FOR NEW ZEALAND CATEGORY V LIGHTING - AS/NZS 1158.1.1:2022

AT TECH DESIGN MANUAL CH 12 CLAUSE 12.3.2

1	2	3	4	5	6	7	8	9	
LIGHTING SUBCATEGORY	LIGHT TECHNICAL PARAMETERS (LTP)								
	AVERAGE CARRIAGEWAY LUMINANCE [a,b] (L) cd/m²	OVERALL UNIFORMITY [c,d] (U_o)	LONGITUDINAL UNIFORMITY [b] (U_L)	THRESHOLD INCREMENT [d,e] (TI) %	SURROUND VERGE ILLUMINANCE [b] (E_{SL} and E_{SR}) %	POINT HORIZONTAL ILLUMINANCE [a,b] (E_{ph}) lx	ILLUMINANCE (HORIZONTAL) UNIFORMITY [d] (U_{E1})	UPWARD WASTE LIGHT RATIO [d] (UWLR)	POWER DENSITY LIMIT W/m²
V3	0.75	0.33	0.3	9.81	50	7.5	8	3	0.29
V4	0.50	0.33	0.3	9.81	50	5.0	8	3	0.26

a. THESE VALUES ARE MAINTAINED.
b. CONFORMANCE IS ACHIEVED BY BEING GREATER THAN OR EQUAL TO THE APPLICABLE TABLE VALUE.
c. THE VALUE OF U_o MAY BE 0.32 OR 0.31 PROVIDED THE VALUE FOR L IS 5% OR 10% RESPECTIVELY, ABOVE THE SPECIFIED VALUE IN COLUMN 2.
d. CONFORMANCE IS ACHIEVED BY BEING LESS THAN OR EQUAL TO THE APPLICABLE TABLE VALUE.
e. WHERE LEGACY INSTALLATIONS WITH HID LUMINAIRES ARE UPGRADES, THE THRESHOLD INCREMENT VALUE MAY BE NO GREATER THAN THE EXISTING HID INSTALLATION AND MAY NOT EXCEED 20%
f. V4 IS THE MINIMUM SUBCATEGORY RECOMMENDED FOR APPLICATION IN NEW ZEALAND.

LIGHTING DESIGN CALCULATION SUMMARY

AREA	2 AVERAGE CARRIAGEWAY LUMINANCE (L) cd/m²	3 OVERALL UNIFORMITY (U_o)	4 LONGITUDINAL UNIFORMITY (U_L)	5 THRESHOLD INCREMENT (TI) %	6 SURROUND VERGE ILLUMINANCE (E^{-s}) lx	7 POINT HORIZONTAL ILLUMINANCE (E^{-ph}) lx	8 ILLUMINANCE (HORIZONTAL) UNIFORMITY (U^{-E1})	9 UPWARD WASTE LIGHT RATIO (UWLR)	MAX SPACING (m)	POWER DENSITY W/m²	COMPLIANCE TO CATEGORY
RAB INTERSECTION	N/A	N/A	N/A	N/A	N/A	7.7	2.45	N/A	N/A	N/A	V3
WALKERS RD/ RUNNERS RD INTERSECTION	N/A	N/A	N/A	N/A	N/A	7.7	2.45	N/A	N/A	N/A	V3

Where are the calculation results for surrounds and splitter islands at both intersections?

Where are the V4 luminance calculations for Walkers Road?

TABLE 3.6 VALUES OF LIGHT TECHNICAL PARAMETERS FOR CONNECTING ELEMENT

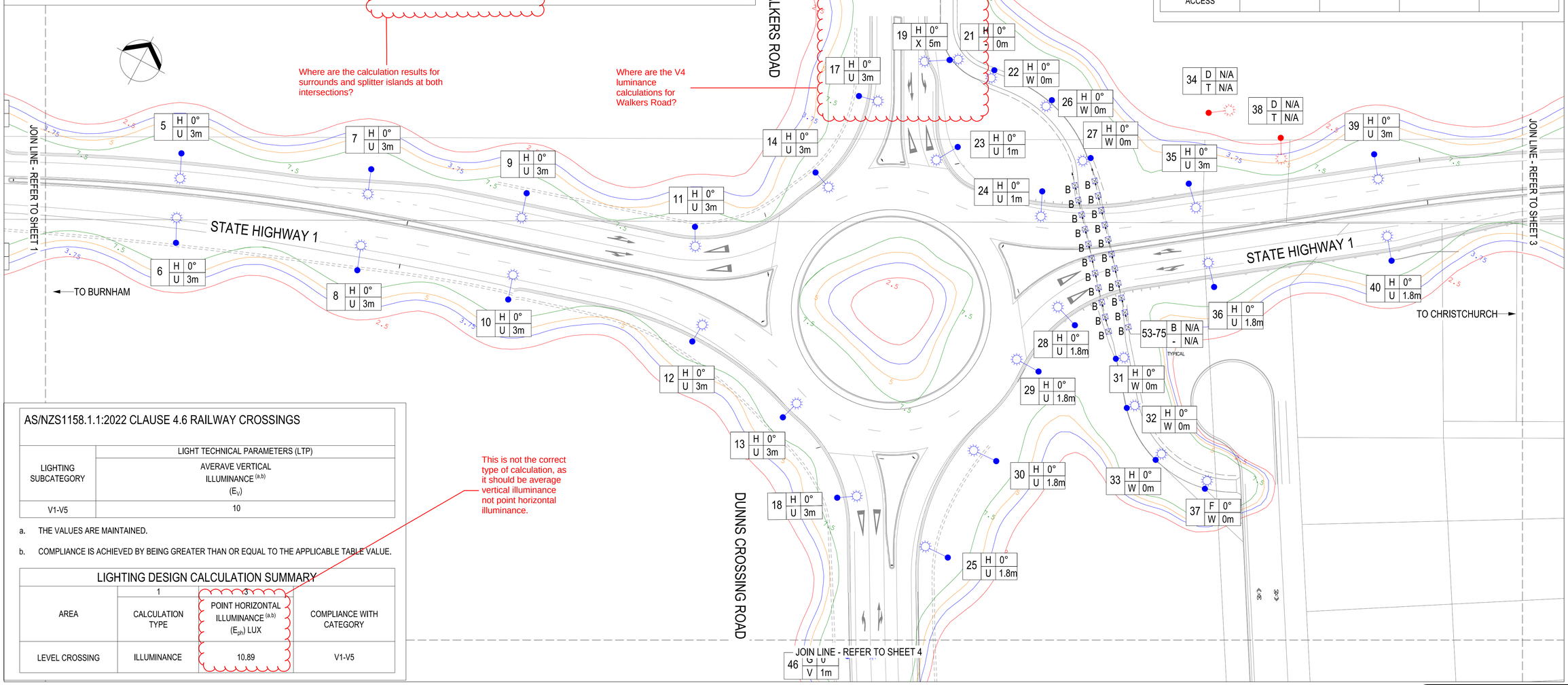
1	2	3	4	5
LIGHTING SUBCATEGORY	LIGHT TECHNICAL PARAMETERS (LTP)			
	AVERAGE HORIZONTAL ILLUMINANCE [a,b] (E_h) lx	POINT HORIZONTAL ILLUMINANCE [a,b] (E_{ph}) lx	ILLUMINANCE (HORIZONTAL) UNIFORMITY [c] Cat. P (U_{E2})	POINT VERTICAL ILLUMINANCE [a,b] (E_{Pv}) lx
PE1	35	17.5	8	17.5

a. THESE VALUES ARE MAINTAINED.
b. CONFORMANCE IS ACHIEVED BY BEING GREATER THAN OR EQUAL TO THE APPLICABLE TABLE VALUE.
c. CONFORMANCE IS ACHIEVED BY BEING LESS THAN OR EQUAL TO THE APPLICABLE VALUE.

LIGHTING DESIGN CALCULATIONS SUMMARY

(CALCULATIONS BASED ON THE LIGHT OUTPUT FROM PEDESTRIAN CROSSING LUMINAIRES ONLY)

1 AREA	2 AVERAGE HORIZONTAL ILLUMINANCE [a,b] (E_h)	3 POINT HORIZONTAL ILLUMINANCE - SURROUNDS (E_{PH})	4 ILLUMINANCE (HORIZONTAL) UNIFORMITY [c] Cat. P (U_{E2})	5 POINT VERTICAL ILLUMINANCE [a,b] (E_{Pv})
UNDERPASS	148.65 lx	86.1 lx	1.27	30.4 lx
UNDERPASS SOUTH ACCESS	76.44 lx	50.5 lx	1.31	19.2 lx
UNDERPASS NORTH ACCESS	61.47 lx	44.0 lx	1.40	18.4 lx



AS/NZS1158.1.1:2022 CLAUSE 4.6 RAILWAY CROSSINGS

LIGHTING SUBCATEGORY	LIGHT TECHNICAL PARAMETERS (LTP) AVERAVE VERTICAL ILLUMINANCE [a,b] (E_V)
V1-V5	10

a. THE VALUES ARE MAINTAINED.

b. COMPLIANCE IS ACHIEVED BY BEING GREATER THAN OR EQUAL TO THE APPLICABLE TABLE VALUE.

This is not the correct type of calculation, as it should be average vertical illuminance not point horizontal illuminance.

LIGHTING DESIGN CALCULATION SUMMARY

AREA	1 CALCULATION TYPE	3 POINT HORIZONTAL ILLUMINANCE [a,b] (E_{ph}) LUX	COMPLIANCE WITH CATEGORY
LEVEL CROSSING	ILLUMINANCE	10.89	V1-V5

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No.	Revision	By	Chk	Appd	Date
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Client: NZ TRANSPORT AGENCY WAKA KOTAHI
Project: SH1 ROLLESTON ACCESS IMPROVEMENTS
Title: LIGHTING CALCULATION PLAN SHEET 2 OF 5
Discipline: CIVIL ENGINEERING
Drawing No.: 3338703-10-CU-3522
Rev.: A

Document No. ...\Plans\3338703-10-CU-3522

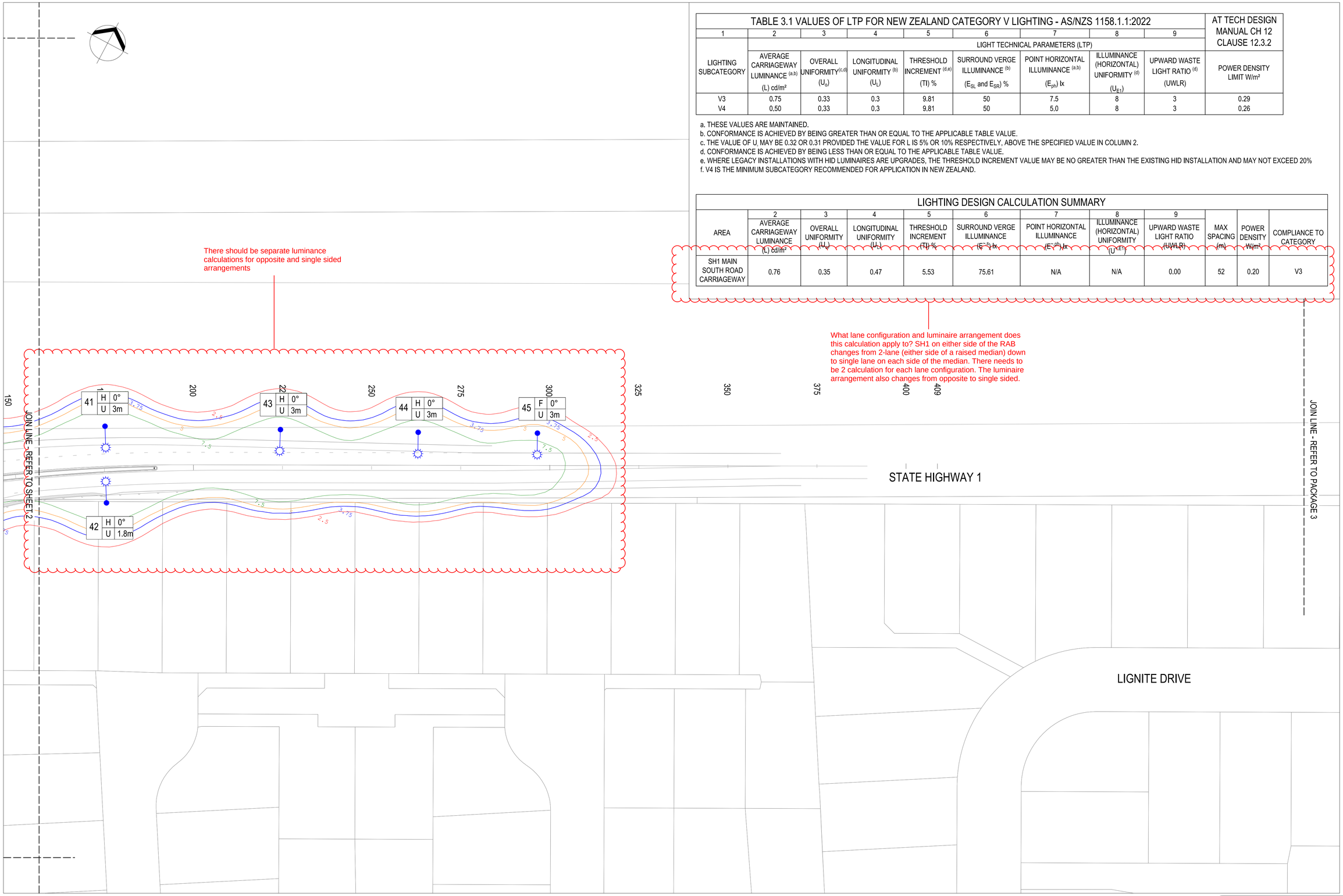
TABLE 3.1 VALUES OF LTP FOR NEW ZEALAND CATEGORY V LIGHTING - AS/NZS 1158.1.1:2022									AT TECH DESIGN MANUAL CH 12 CLAUSE 12.3.2
1	2	3	4	5	6	7	8	9	
LIGHTING SUBCATEGORY	LIGHT TECHNICAL PARAMETERS (LTP)								
	AVERAGE CARRIAGEWAY LUMINANCE [a,b] (L) cd/m²	OVERALL UNIFORMITY [c,d] (U_o)	LONGITUDINAL UNIFORMITY [b] (U_L)	THRESHOLD INCREMENT [d,e] (TI) %	SURROUND VERGE ILLUMINANCE [b] (E_{SL} and E_{SR}) %	POINT HORIZONTAL ILLUMINANCE [a,b] (E_{ph}) lx	ILLUMINANCE (HORIZONTAL) UNIFORMITY [d] (U_{E1})	UPWARD WASTE LIGHT RATIO [d] (UWLR)	POWER DENSITY LIMIT W/m²
V3	0.75	0.33	0.3	9.81	50	7.5	8	3	0.29
V4	0.50	0.33	0.3	9.81	50	5.0	8	3	0.26

a. THESE VALUES ARE MAINTAINED.
b. CONFORMANCE IS ACHIEVED BY BEING GREATER THAN OR EQUAL TO THE APPLICABLE TABLE VALUE.
c. THE VALUE OF U_o MAY BE 0.32 OR 0.31 PROVIDED THE VALUE FOR L IS 5% OR 10% RESPECTIVELY, ABOVE THE SPECIFIED VALUE IN COLUMN 2.
d. CONFORMANCE IS ACHIEVED BY BEING LESS THAN OR EQUAL TO THE APPLICABLE TABLE VALUE.
e. WHERE LEGACY INSTALLATIONS WITH HID LUMINAIRES ARE UPGRADES, THE THRESHOLD INCREMENT VALUE MAY BE NO GREATER THAN THE EXISTING HID INSTALLATION AND MAY NOT EXCEED 20%
f. V4 IS THE MINIMUM SUBCATEGORY RECOMMENDED FOR APPLICATION IN NEW ZEALAND.

LIGHTING DESIGN CALCULATION SUMMARY											
AREA	2 AVERAGE CARRIAGEWAY LUMINANCE (L) cd/m²	3 OVERALL UNIFORMITY (U_o)	4 LONGITUDINAL UNIFORMITY (U_L)	5 THRESHOLD INCREMENT (TI) %	6 SURROUND VERGE ILLUMINANCE (E_{SL}) lx	7 POINT HORIZONTAL ILLUMINANCE (E_{ph}) lx	8 ILLUMINANCE (HORIZONTAL) UNIFORMITY (U_{E1})	9 UPWARD WASTE LIGHT RATIO (UWLR)	MAX SPACING (m)	POWER DENSITY W/m²	COMPLIANCE TO CATEGORY
SH1 MAIN SOUTH ROAD CARRIAGEWAY	0.76	0.35	0.47	5.53	75.61	N/A	N/A	0.00	52	0.20	V3

There should be separate luminance calculations for opposite and single sided arrangements

What lane configuration and luminaire arrangement does this calculation apply to? SH1 on either side of the RAB changes from 2-lane (either side of a raised median) down to single lane on each side of the median. There needs to be 2 calculation for each lane configuration. The luminaire arrangement also changes from opposite to single sided.



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Drawn	R.ANDERSON	24.07.24	
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Drg Check			Date

* Refer to Revision 1 for Original Signature

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Client: NZ TRANSPORT AGENCY WAKA KOTAHI

Project: SH1 ROLLESTON ACCESS IMPROVEMENTS

Title: LIGHTING CALCULATION PLAN SHEET 3 OF 5

Discipline: CIVIL ENGINEERING

Drawing No.: 3338703-10-CU-3523

Rev.: A

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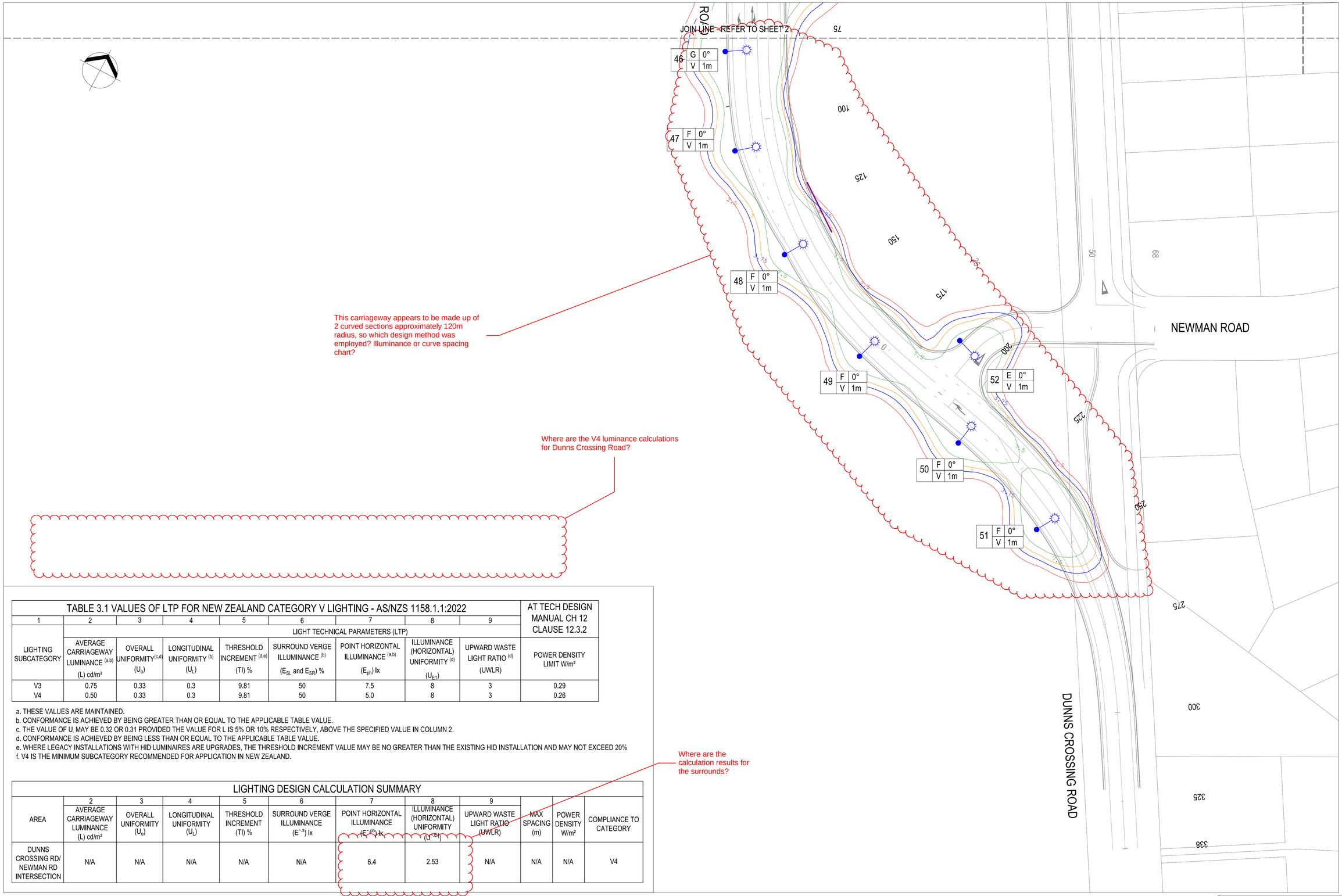

TABLE 3.1 VALUES OF LTP FOR NEW ZEALAND CATEGORY V LIGHTING - AS/NZS 1158.1.1:2022									AT TECH DESIGN MANUAL CH 12 CLAUSE 12.3.2
1	2	3	4	5	6	7	8	9	
	LIGHT TECHNICAL PARAMETERS (LTP)								
LIGHTING SUBCATEGORY	AVERAGE CARRIAGEWAY LUMINANCE [a,b] (L) cd/m²	OVERALL UNIFORMITY [c,d] (U_o)	LONGITUDINAL UNIFORMITY [b] (U_L)	THRESHOLD INCREMENT [d,e] (TI) %	SURROUND VERGE ILLUMINANCE [b] (E_{SL} and E_{SR}) %	POINT HORIZONTAL ILLUMINANCE [a,b] (E_{ph}) lx	ILLUMINANCE (HORIZONTAL) UNIFORMITY [d] (U_{E1})	UPWARD WASTE LIGHT RATIO [d] (UWLR)	POWER DENSITY LIMIT W/m²
V3	0.75	0.33	0.3	9.81	50	7.5	8	3	0.29
V4	0.50	0.33	0.3	9.81	50	5.0	8	3	0.26

a. THESE VALUES ARE MAINTAINED.
b. CONFORMANCE IS ACHIEVED BY BEING GREATER THAN OR EQUAL TO THE APPLICABLE TABLE VALUE.
c. THE VALUE OF U_o MAY BE 0.32 OR 0.31 PROVIDED THE VALUE FOR U_L IS 5% OR 10% RESPECTIVELY, ABOVE THE SPECIFIED VALUE IN COLUMN 2.
d. CONFORMANCE IS ACHIEVED BY BEING LESS THAN OR EQUAL TO THE APPLICABLE TABLE VALUE.
e. WHERE LEGACY INSTALLATIONS WITH HID LUMINAIRES ARE UPGRADES, THE THRESHOLD INCREMENT VALUE MAY BE NO GREATER THAN THE EXISTING HID INSTALLATION AND MAY NOT EXCEED 20%
f. V4 IS THE MINIMUM SUBCATEGORY RECOMMENDED FOR APPLICATION IN NEW ZEALAND.

LIGHTING DESIGN CALCULATION SUMMARY											
AREA	2 AVERAGE CARRIAGEWAY LUMINANCE (L) cd/m²	3 OVERALL UNIFORMITY (U_o)	4 LONGITUDINAL UNIFORMITY (U_L)	5 THRESHOLD INCREMENT (TI) %	6 SURROUND VERGE ILLUMINANCE (E^{-s}) lx	7 POINT HORIZONTAL ILLUMINANCE (E^{-ph}) lx	8 ILLUMINANCE (HORIZONTAL) UNIFORMITY (U^{-E1})	9 UPWARD WASTE LIGHT RATIO (UWLR)	MAX SPACING (m)	POWER DENSITY W/m²	COMPLIANCE TO CATEGORY
DUNNS CROSSING RD/ NEWMAN RD INTERSECTION	N/A	N/A	N/A	N/A	N/A	6.4	2.53	N/A	N/A	N/A	V4

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NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
A	PRELIMINARY DESIGN	---	---	---	---

Original Scale (A1) 1:500
Reduced Scale (A3) 1:1000

Design	K.CUTTLE	24.07.24	Approved For Construction*
Drawn	R.ANDERSON	24.07.24	
Dsg Verifier			
Drg Check			Date

* Refer to Revision 1 for Original Signature

Client: NZ TRANSPORT AGENCY WAKA KOTAHI
Project: SH1 ROLLESTON ACCESS IMPROVEMENTS
Title: LIGHTING CALCULATION PLAN SHEET 4 OF 5
Discipline: CIVIL ENGINEERING
Drawing No.: 3338703-10-CU-3524
Rev.: A

Document No. ...\Plans\3338703-10-CU-3524

Drawing Ploted: 30/07/2024 4:42:41 pm

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A	PRELIMINARY DESIGN	---	---	---	

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	Drawn	R.ANDERSON	24.07.24
Reduced Scale (A3) 1:1000	Dsg Verifier		
	Drg Check		

Approved For Construction* Date

* Refer to Revision 1 for Original Signature

Client: NZ TRANSPORT AGENCY WAKA KOTAHI

Project: SH1 ROLLESTON ACCESS IMPROVEMENTS

Title: LIGHTING CALCULATION PLAN SHEET 5 OF 5

Discipline: CIVIL ENGINEERING

Drawing No.: 3338703-10-CU-3525

Rev.: A

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LEGEND

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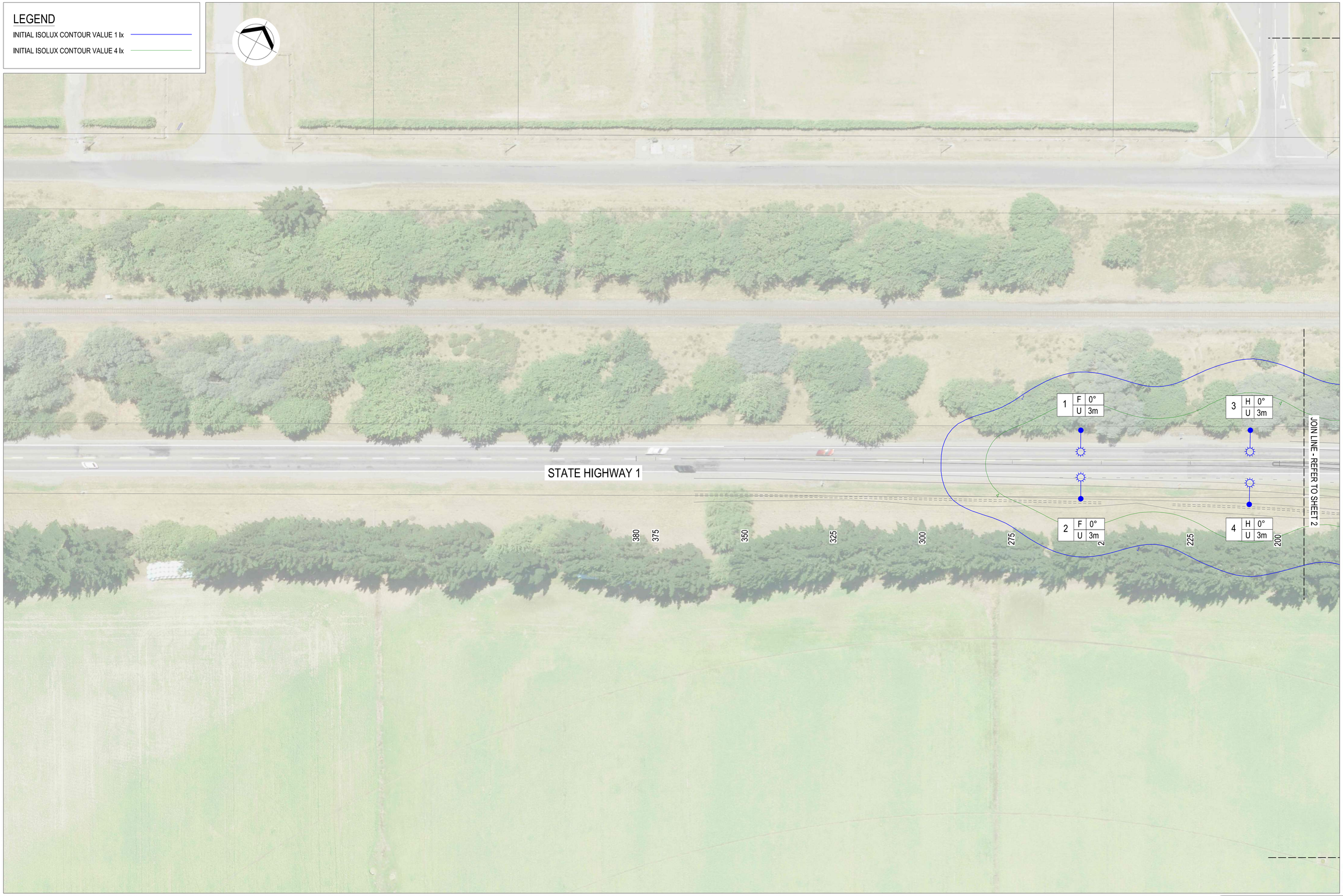
INITIAL ISOLUX CONTOUR VALUE 4 lx



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Original Scale (A1) 1:500	Design	K.CUTTLE	24.07.24
	Drawn	R.ANDERSON	24.07.24
	Dsg Verifier		
Reduced Scale (A3) 1:1000	Drg Check		Date

Approved For Construction*

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Client: NZ TRANSPORT AGENCY WAKA KOTAHI

Project: SH1 ROLLESTON ACCESS IMPROVEMENTS

Title: SPILL LIGHTING LAYOUT SHEET 1 OF 5

Discipline: CIVIL ENGINEERING

Drawing No.: 3338703-10-CU-3531

Rev.: A

Document No. ...\Plans\3338703-10-CU-3531

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LIGHTING DESIGN VERTICAL SPILL CALCULATION SUMMARY

AREA	1 CALCULATION TYPE	2 POINT VERTICAL ILUMINANCE [a] (E_{PV}) LUX
15 FOUNTAIN PLACE	ILLUMINANCE	1.2
16 FOUNTAIN PLACE	ILLUMINANCE	0.8
17 FOUNTAIN PLACE	ILLUMINANCE	1.6

LEGEND

INITIAL ISOLUX CONTOUR VALUE 1 lx

INITIAL ISOLUX CONTOUR VALUE 4 lx

Where are these properties located?

JOIN LINE - REFER TO SHEET 5

RUNNERS ROAD

WALKERS ROAD

STATE HIGHWAY 1

TO BURNHAM

TO CHRISTCHURCH

DUNNS CROSSING ROAD

JOIN LINE - REFER TO SHEET 1

JOIN LINE - REFER TO SHEET 3

JOIN LINE - REFER TO SHEET 4

5	H 0° / U 3m	6	H 0° / U 3m
7	H 0° / U 3m	8	H 0° / U 3m
9	H 0° / U 3m	10	H 0° / U 3m
11	H 0° / U 3m	12	H 0° / U 3m
13	H 0° / U 3m	14	H 0° / U 3m
15	H 0° / U 2m	16	H 0° / U 3m
17	H 0° / U 3m	18	H 0° / U 3m
19	H 0° / X 5m	20	H 0° / U 3m
21	H 0° / - 0m	22	H 0° / W 0m
23	H 0° / U 1m	24	H 0° / U 1m
25	H 0° / U 1.8m	26	H 0° / W 0m
27	H 0° / W 0m	28	H 0° / U 1.8m
29	H 0° / U 1.8m	30	H 0° / U 1.8m
31	H 0° / W 0m	32	H 0° / W 0m
33	H 0° / W 0m	34	D N/A / T N/A
35	H 0° / U 3m	36	H 0° / U 1.8m
37	F 0° / W 0m	38	D N/A / T N/A
39	H 0° / U 3m	40	H 0° / U 1.8m
46	S 0° / V 1m	53-75	B N/A / - N/A TYPICAL

PRELIMINARY
NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
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Original Scale (A1) 1:500
Reduced Scale (A3) 1:1000

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Drawn	R.ANDERSON	24.07.24	
Dsg Verifier			
Drg Check			Date

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Client: NZ TRANSPORT AGENCY WAKA KOTAHI

Project: SH1 ROLLESTON ACCESS IMPROVEMENTS

Title: SPILL LIGHTING LAYOUT SHEET 2 OF 5

Discipline: CIVIL ENGINEERING

Drawing No.: 3338703-10-CU-3532

Rev.: A

Document No. ...\Plans\3338703-10-CU-3532

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LIGHTING DESIGN VERTICAL SPILL CALCULATION SUMMARY

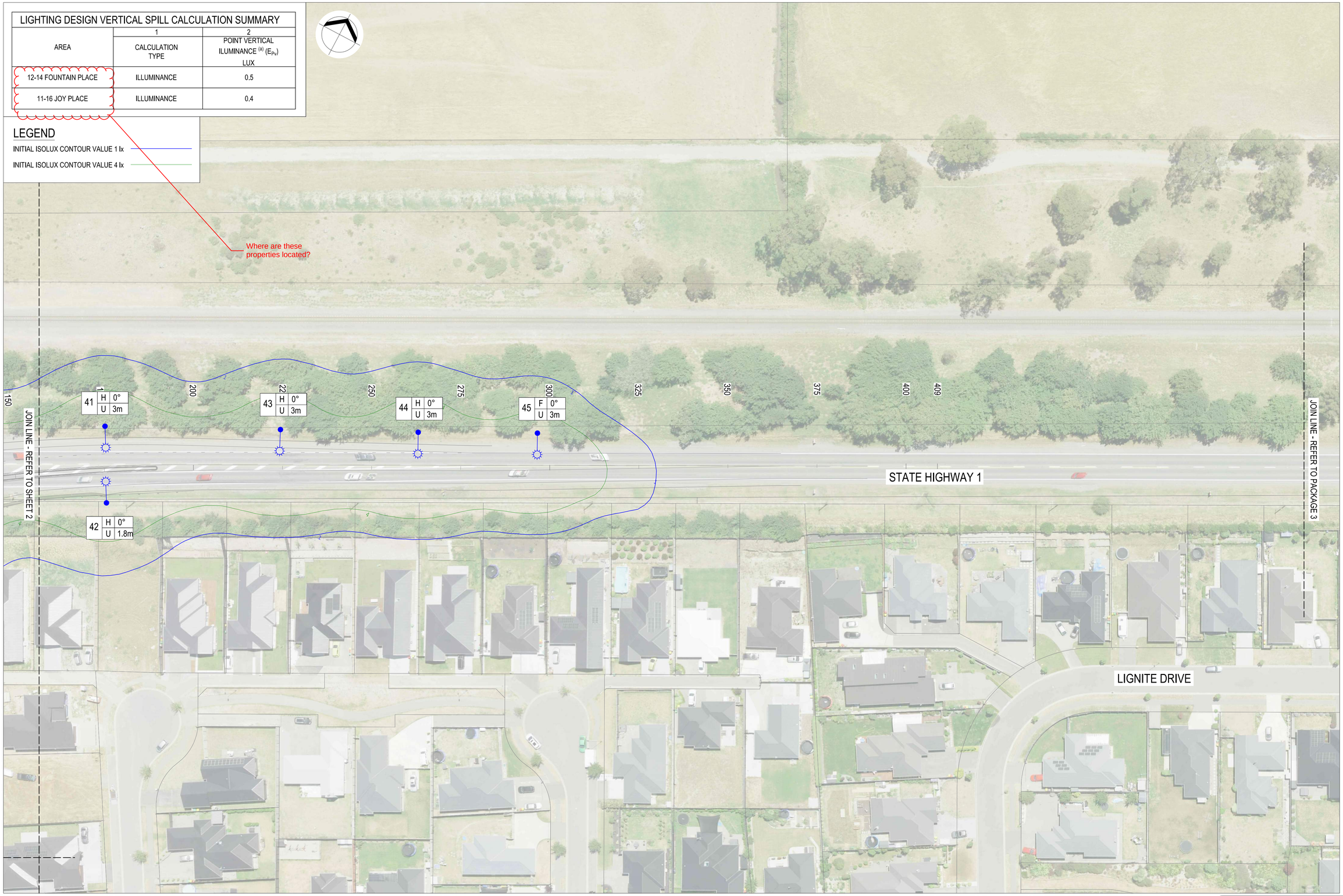
AREA	1 CALCULATION TYPE	2 POINT VERTICAL ILUMINANCE [a] (E_{PV}) LUX
12-14 FOUNTAIN PLACE	ILLUMINANCE	0.5
11-16 JOY PLACE	ILLUMINANCE	0.4

Where are these properties located?

LEGEND

INITIAL ISOLUX CONTOUR VALUE 1 lx

INITIAL ISOLUX CONTOUR VALUE 4 lx



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Client: NZ TRANSPORT AGENCY WAKA KOTAHI

Project: SH1 ROLLESTON ACCESS IMPROVEMENTS

Title: SPILL LIGHTING LAYOUT SHEET 3 OF 5

Discipline: CIVIL ENGINEERING

Drawing No.: 3338703-10-CU-3533

Rev.: A

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LIGHTING DESIGN VERTICAL SPILL CALCULATION SUMMARY

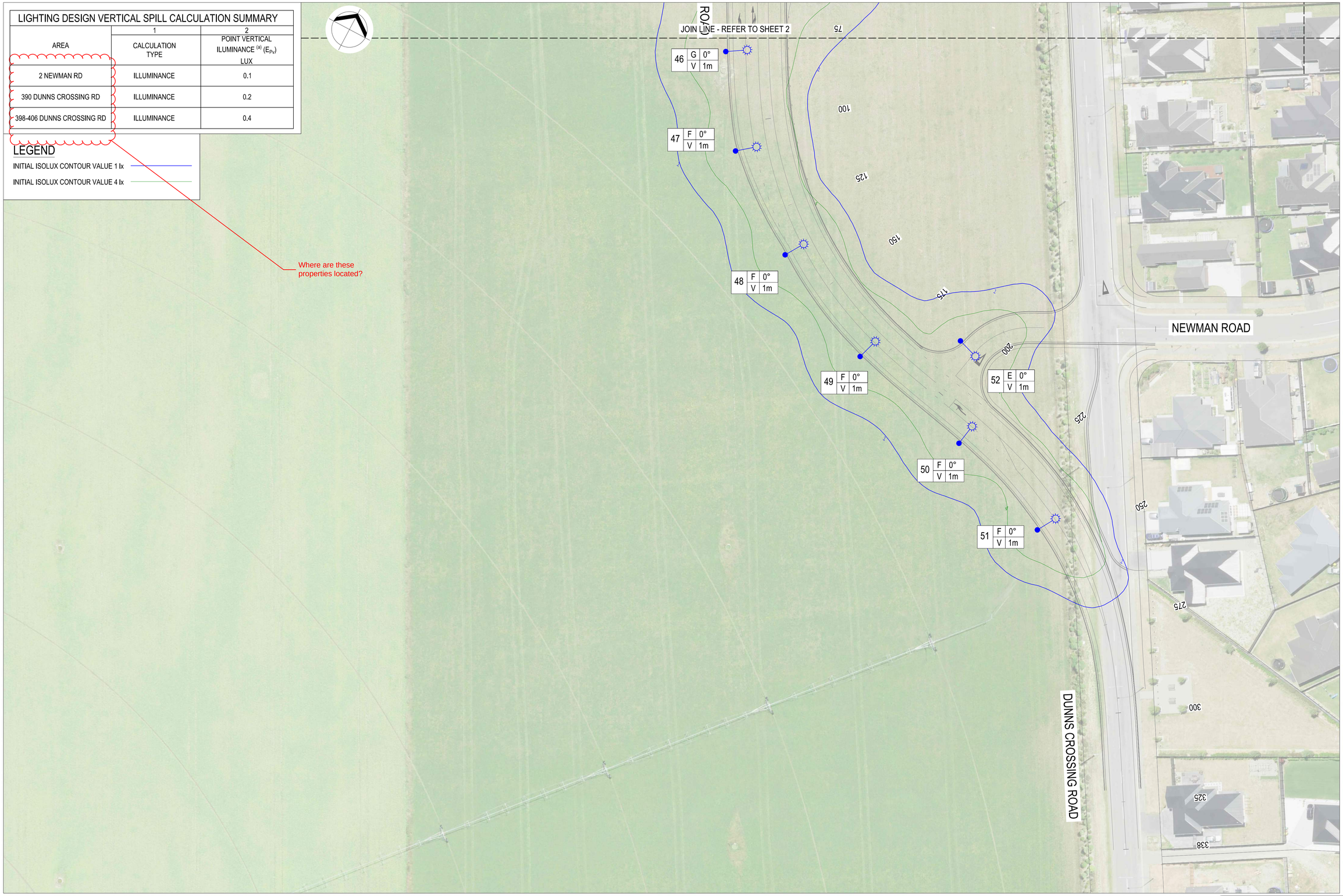
AREA	1 CALCULATION TYPE	2 POINT VERTICAL ILUMINANCE [a] (E_{PV}) LUX
2 NEWMAN RD	ILLUMINANCE	0.1
390 DUNNS CROSSING RD	ILLUMINANCE	0.2
398-406 DUNNS CROSSING RD	ILLUMINANCE	0.4

LEGEND

INITIAL ISOLUX CONTOUR VALUE 1 lx

INITIAL ISOLUX CONTOUR VALUE 4 lx

Where are these properties located?



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Client: NZ TRANSPORT AGENCY WAKA KOTAHI

Project: SH1 ROLLESTON ACCESS IMPROVEMENTS

Title: SPILL LIGHTING LAYOUT SHEET 4 OF 5

Discipline: CIVIL ENGINEERING

Drawing No.: 3338703-10-CU-3534

Rev.: A

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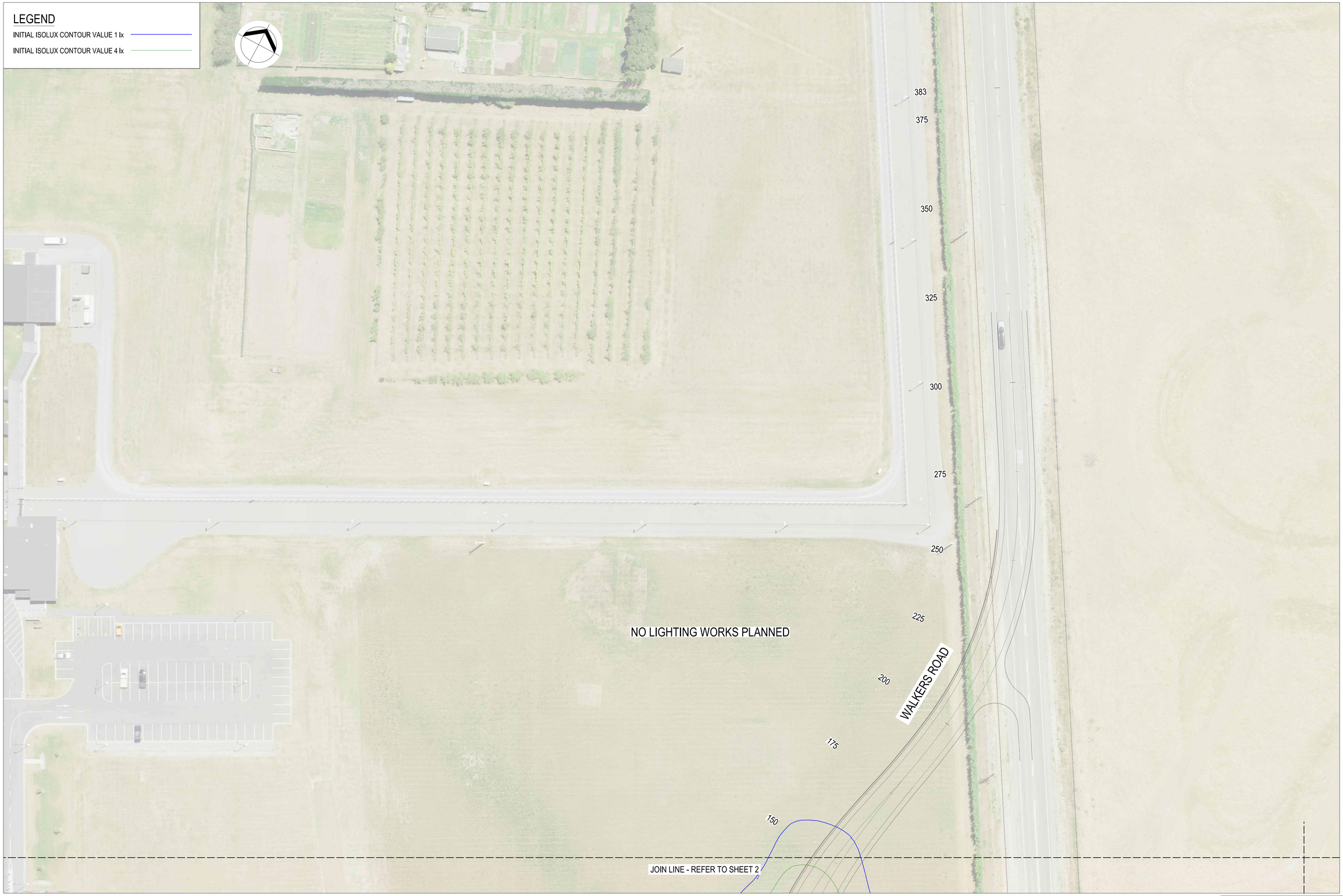

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Client: NZ TRANSPORT AGENCY WAKA KOTAHI

Project: SH1 ROLLESTON ACCESS IMPROVEMENTS

Title: SPILL LIGHTING LAYOUT SHEET 5 OF 5

Discipline: CIVIL ENGINEERING

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Rev.: A

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NZ Transport Agency Waka Kotahi SH1 Rolleston Access Improvements | Package 1

Transport Planning and Engineering s92 RFIs

Prepared for	Selwyn District Council
Project Number	SDC-J084
Revision	A
Issue Date	12 November 2024
Prepared by	Mat Collins, Associate Transportation Planner; Dave Smith, Technical Director - Transportation Planning
Reviewed by	Dave Smith, Technical Director - Transportation Planning

1. Introduction

Abley Limited (Abley) has been engaged by Selwyn District Council (Council) to provide independent transport planning advice in respect of several Notices of Requirements (NoR) in Rolleston prepared by NZ Transport Agency Waka Kotahi NZ Transport Agency (NZTA).

The first NoR relates to the a boundary change to an existing designation. The designation to be altered is referred to as NZTA-1 in the Partially Operative Selwyn District Plan (POSDP). The purpose of the existing designation is '*State Highway - to undertake construction, maintenance, operation, use, and improvement of the state highway network and associated infrastructure.*'.

The proposed boundary change is shown in Figure **1.1** The requirement applies to land located around the State Highway 1 (SH1) / Dunns Crossing Road intersection, including the Walkers Road/Runners Road and Dunns Crossing Road/Newman Road intersections.

This technical note has been requested to confirm whether the submitted information is sufficient, or whether further information is required to understand the effects of the NoRs under section 92 of the Resource Management Act 1991 (RMA) in relation to transport matters. We have reviewed the following documents

- Notice of Requirement for Alteration of a Designation – Designation NZTA-1 – State Highway 1 prepared by Mr Pearson for NZ Transport Agency dated 25th October 2024.
- Package 1 Assessment of Effects on the Environment (AEE), prepared by NZTA, dated 30 September 2024 – introduction and transport sections only.
- AEE Appendix H Integrated Transport Assessment, prepared by Beca, dated 29 September 2024.
- AEE Appendix C General Arrangement revision C, prepared by Beca, dated 11 October 2024.
- AEE Appendix D Resident Access Plan, prepared by Beca, dated 9 August 2024.
- Consent Order issued by the Environment Court in relation to ENV-2023-CHC-113, dated 31 October 2024.

This technical note does not contain any recommendation on whether or not the proposal should be approved or declined by the decision-maker.

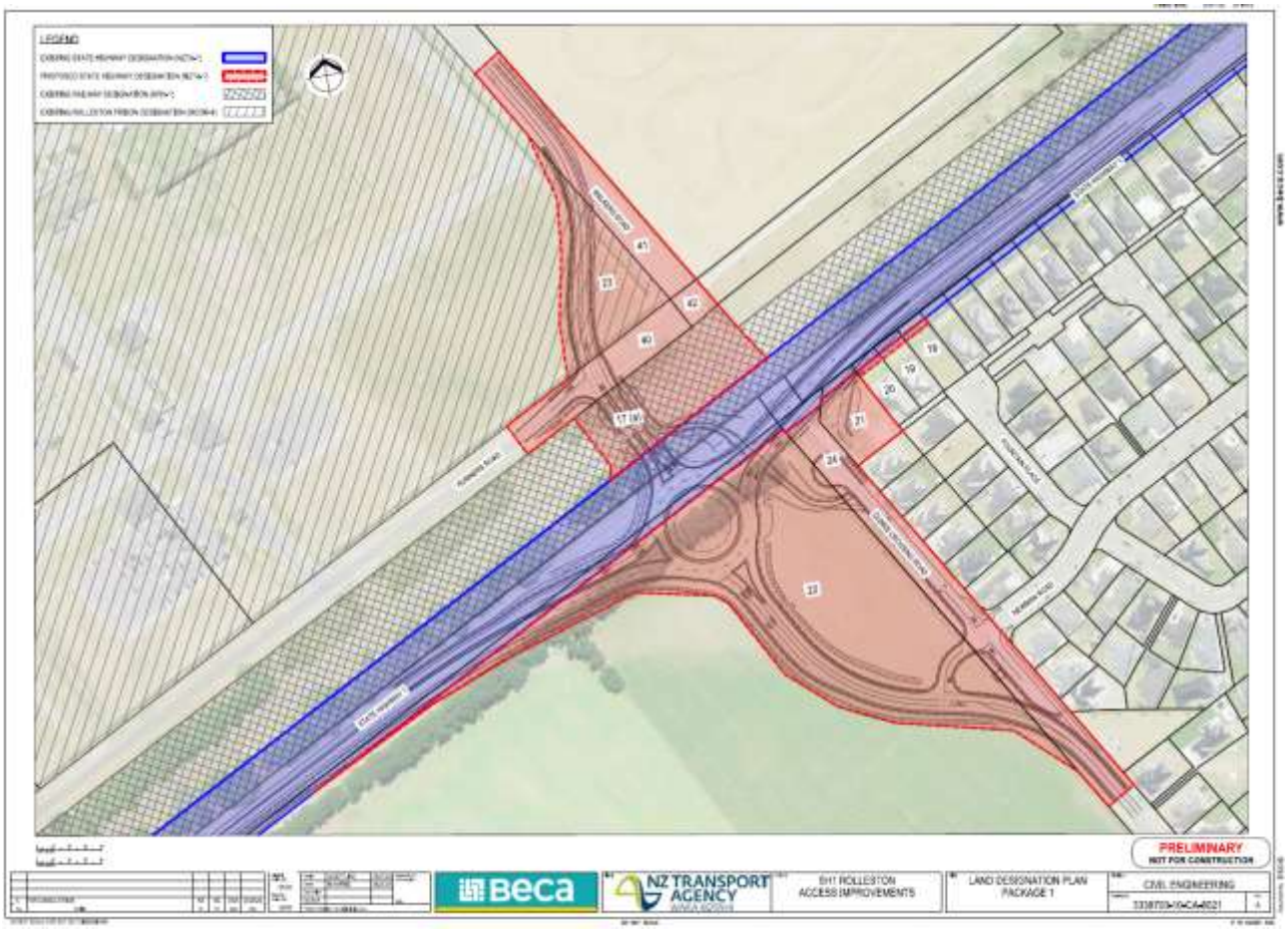

Figure 1.1 Designation plan (reproduced from the s181(1) notice of requirement).

2. Section 92 information requests

The following subsections include our discussion of where we consider that the lodged documents have gaps in the description and extent of the activity, and the nature of its effects.

2.1 Transport model assumptions and peer review

Section 4.2 of the ITA states that the DBC Paramics transport model has been independently peer reviewed. It is important to understand the scope of the peer review, and any limitations or caveats that may have been cited by the peer reviewer.

It is essential that the calibration and validation of the model is well understood to confirm that it is fit-for-purpose.

RFI 1 - Please provide a copy of the Paramics transport model peer review report and any associated formal model calibration and validation reports. In lieu of formal reporting please supply the model themselves.

It is further understood that Linsig and Sidra models have been developed to supplement the transportation modelling assessment, although it is not clear whether these have also been peer reviewed.

RFI 2 - Please provide evidence of any peer review of the Linsig and Sidra models and/or any associated formal reporting to evidence the calibration and validation of these models. In lieu of formal reporting please supply the model themselves.

2.2 Future transport modelling assumptions

Section 4.3 of the ITA identifies that PC80, 73, 81 and 82 traffic has not been included in the modelling assessment, and does note that PC80 has recently become operative. Subsequent to the lodgement of the ITA, a consent order has been issued by the Environment Court which approves the rezoning of up to 3,770 households on the PC 73, 81 and 82 land. These are anticipated to have the potential to generate in the order of 3,200-3,400 vehicle movements in peak hour (based on 0.85-0.9 trips per household) to the east of the Dunns Crossing Road corridor. The impact of this traffic including in combination with PC80 traffic is unknown.

The ITA notes that this has been assessed through these Plan Changes, however it is noted that (in the instance of PC73) the modelling assumed two right turn lanes out of Dunns Crossing Road and a roundabout at Rolleston Drive south with two right turn lanes[1]. The PC80, 81 and 82 modelling assumes dual circulating lanes on all approaches of the roundabout[2]. As only a single circulating lane is proposed as part of the NOR it is unclear whether there will be sufficient capacity to accommodate future traffic volumes. Given some of these studies also assumed a roundabout may be installed at the SH1 / Rolleston Drive south roundabout, they are also likely to assume lower levels of traffic demand through the Dunns Crossing roundabout compared to the NOR proposal.

Note: For transparency, Abley staff undertook transportation modelling using Selwyn District Council's Rolleston transport model under the instruction of Nick Fuller from Novogroup for each of these Plan Changes.

RFI 3 – Please undertake a sensitivity test at 2038 in the morning and evening peak periods to demonstrate the impacts of the addition of traffic from the full development of PC73, PC80, PC81 and PC82 areas.

Section 5.2.2 of the ITA shows the level of future growth in traffic out to 2038. It is noted that the growth rates are substantially less than those in the Selwyn District Council model.

RFI 4 – Provide detail of the future growth assumptions out to 2038 with respect to the extent of growth in Izone and number of additional households in Rolleston urban area.

Section 5.2.3 details infrastructure assumptions out to 2038. It is noted that some of these differ from our understanding of likely future local roading projects including:

a) Moore street extension – it is understood that funding for this is uncertain and this has been removed from Council's transport model.

b) Lowes/Levi/Lincoln Rolleston Road intersection – To be upgraded to signals but is stated in results as a roundabout.

c) Selwyn/Lincoln-Rolleston Road intersection – To be upgraded to a roundabout but stated to be a priority seagull.

RFI 5 – Please provide commentary as to the impact of any of these changes in local road projects on the modelling results and wider assessment of traffic effects.

[1] Refer section 2.2 of https://www.selwyn.govt.nz/__data/assets/pdf_file/0009/396216/Appendix-D-Integrated-Transport-Assessment.pdf
[2] Refer Figure 12 of https://www.selwyn.govt.nz/__data/assets/pdf_file/0016/530206/Two-Chain-Road-Appendix-B-Transport.pdf; figure 14 of https://www.selwyn.govt.nz/__data/assets/pdf_file/0006/571245/Appendix-D-Integrated-Transport-Assessment-Including-Appendix-1,2-and-3.pdf; Refer paragraph 18 of https://www.selwyn.govt.nz/__data/assets/pdf_file/0003/1084539/PC81-and-PC82-evidence-Chris-Blackmore.pdf

2.3 Assessment of transport effects

Section 5.5 Safety presents CAS analysis 2019-2023. It is noted that CSM2 was under construction in 2019 and 2020 with staged opening from mid-2020.

RFI 6 – Please comment on the impact of CSM2 opening during the five year period over which CAS data has been assessed, on the crash analysis conclusions.

Section 6.2.1 summarises the 2028 and 2038 network travel totals. The specific time periods and extent of the network is not clear.

RFI 7 – Confirmation is sought that these are hourly travel totals, correspond to the full Paramics study area and whether further changes in travel totals might be expected beyond the study area.

Table 6-4 presents daily two-way traffic volumes at key locations on the State Highway and local road networks. Noting that there are substantial increases on some local road corridors including Sites 6 and 9 there is no additional commentary to compare these volumes to the capacity of these corridors.

RFI 8 – Additional assessment is requested at 2038 to calculate the capacity of local roads to demonstrate that they will operate well and future flows not exceed capacity.

Sections 6.6.2 and 6.6.3 present an assessment of anticipated reductions in DSIs.

RFI 9 – Please add a footnote or other reference to confirm the source of the models used for this assessment.

Section 6.6.4 discusses rail level crossing safety and proposes safety improvements are to be identified by and agreed with Kiwirail through an LCSIA process.

RFI 10 – For the avoidance of doubt it is recommended that the requirement for an LCSIA be added to the condition set.

Section 6.6.7 identifies two local road improvements to address safety in the vicinity of West Rolleston School, specifically introducing a 30 km/h school speed zone and Dunns Crossing Road / Burnham School Road safety improvements. It is noted that these are expected to be in place by April 2025.

RFI 11 – Commentary is requested on the likelihood and impact of these projects not being in place prior to Package 1 being operational.

2.4 Project interdependencies

ITA assesses the transport effects of the Rolleston Access Improvements Project Package 1 and Package 2, and Section 8.3.3 of the AEE acknowledges that staged delivery is required to manage effects. Section 3.4 of the ITA identifies interdependencies between the Rolleston Access Improvements Project and local road (Selwyn District Council) improvements, and that many of these projects are not funded. However, Section 5.2.3 of the ITA identifies that it has assumed that multiple local road improvements have been implemented.

Section 6.1 of the ITA indicates that changes to access on SH1 will require rerouting via the local road network, and Table 6-4 of the ITA indicates that some local roads are expected to experience significant increases in traffic due to the Rolleston Access Improvements Project.

It is unclear how the interdependencies between Package 1 and Package 2, and between the Rolleston Access Improvements Project and local road improvements, will be appropriately managed during future delivery. There is a concern that there may be safety and efficiency effects, particularly for local roads, should delivery of the Rolleston Access Improvements Project not be staged within the project and with supporting local road improvements.

RFI 12 - Please comment on the interrelationship between Package 1 and Package 2, and confirm whether any local road (Selwyn District Council) improvements are required to manage the effects of the Rolleston Access Improvements Project on local roads. Where

interrelationship or dependencies exist, please confirm how this is proposed to be managed during the delivery of each Package.

2.5 Construction traffic management plans

Section 8.3.2 of the AEE discusses temporary construction traffic effects, including objectives and potential effects, and Section 7 of the ITA makes multiple recommendations to address construction traffic effects. In section 7.5.1 under the traffic effects heading, traffic modelling is proposed to inform traffic management activities. It is supported that this be undertaken to identify local road impacts and subsequent mitigations during the construction period.

However, in contrast, the proposed Construction Traffic Management Plan (CTMP) condition provides very little direction on what the CTMP is required to address, or the mitigations recommended in the AEE and ITA.

RFI 13 - It is recommended that the CTMP condition be expanded to include at a minimum the requirements and objectives from section 7.5.2 of the ITA. This provides an important framework for the later preparation of CTMPs.

Section 8.3.3 of the AEE recommends consultation regarding property access as a mitigation however this is not reflected in the proposed conditions.

RFI 14 - It is recommended that consultation regarding property access be addressed through the proposed conditions.

2.6 Design review

Additional detail is sought with respect to transport engineering aspects of the design as follows.

RFI 15 - Please provide:

a) **A copy of the preliminary Safe System Audit for the design which we understand has been prepared.**
b) **Approach Sight Distance (ASD) and Safe Intersection Sight Distance (SISD) assessments for Walkers Road/Runners Road and Dunns Crossing Road/Newman Road intersections.**
c) **Forward sight distance assessment for cyclists and pedestrians, between "Old Dunns Road North" and the KiwiRail crossing.**
d) **Commentary on whether the width of the pedestrian and cycle underpass, which is shown to be 2.5m wide in the General Arrangement Plans, is sufficient to allow passing movements, considering that the functional/usable width will be less than 2.5m.**
e) **Commentary on whether the pinch point, shown in Figure 2.1, forecloses the opportunity to provide the "Future Reserve Path" proposed by Selwyn District Council as part of its Walking and Cycling Strategy (and shown in Figure 5-10 of the ITA).**
f) **Commentary on why the walking and cycling path along the realigned Two-Chain Road terminates at the Walkers Road/Runners Road intersection, despite the adjacent land to the east of the designation boundary being zoned for General Industrial.**
g) **Heavy vehicle tracking for "Old Dunns Road South", demonstrating whether a waste collection truck can turn around within the new stub road.**
h) **85th percentile car tracking for 388 Dunns Crossing Road, and confirmation of whether changes to the existing vehicle crossing are required due to the amended kerb line for "Old Dunns Road South"**
i) **Commentary on the practicalities of Council having to maintain/replace the carriageway for the southern section of "Old Dunns Road South" in the vicinity of 388 Dunns Crossing Road, shown in Figure 2.2, as the tapering of the carriageway may lead to accumulation of debris and difficulty for laying new carriageway surfacing.**

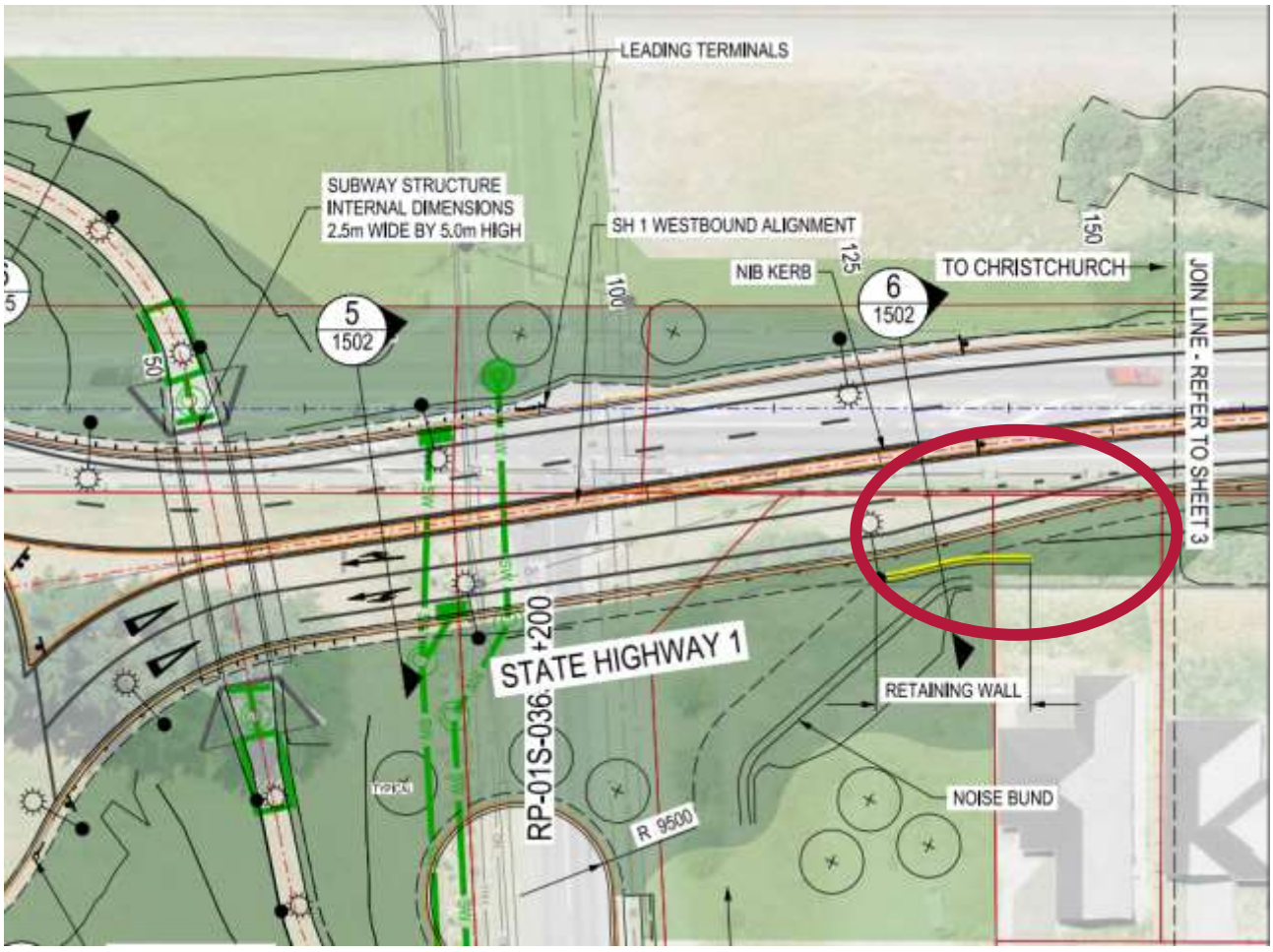

Figure 2.1 Potential pinch point that may prevent the "Future Reserve Path" proposed by Selwyn District Council as part of its Walking and Cycling Strategy

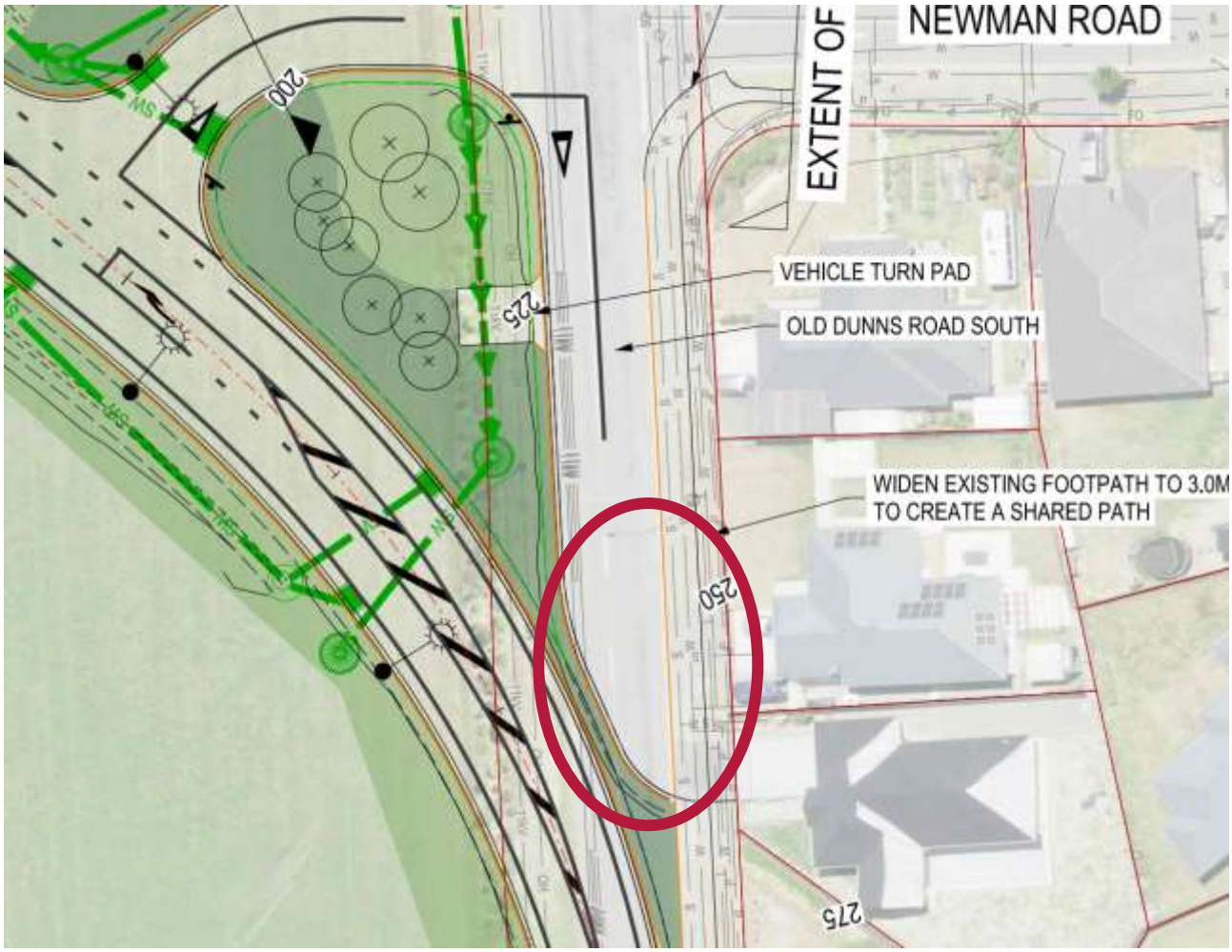

Figure 2.2 Narrowed carriageway of Old Dunns Road South

Auckland
Level 1/70 Shortland Street
Auckland 1010
Aotearoa New Zealand

Wellington
Level 1/119-123 Featherston Street
Wellington 6011
Aotearoa New Zealand

Christchurch
Level 1/137 Victoria Street
PO Box 36446, Merivale
Christchurch 8146
Aotearoa New Zealand

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