

4 February 2021

Selwyn District Council
Attention: Jocelyn Lewes

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By email: Jocelyn.Lewes@selwyn.govt.nz

Dear Jocelyn,

**PRIVATE PLAN CHANGE REQUEST TO THE OPERATIVE
SELWYN DISTRICT PLAN- RFI
PC200073: DUNNS CROSSING ROAD, ROLLESTON**

1. Further to your request for further information on 22 December 2020 relating to the application above, we set out a response to each of your specific requests below.
2. Our response below includes your request for information (RFI) under the headings and numbering used in your letter and then provides our response. Additional detail supporting the response is also provided from technical experts in the attachments to this letter.

National Policy Statement on Urban Development 2020 (NPS-UD)

1. This Plan Change is heavily reliant on the NPS-UD to address the conflict with the Regional Policy Statement, particularly CRPS Objectives 6.2.1 and 6.2.2.5, and their associated policies.

Response:

3. Noted.

2. The requests relies on Policy 8 as it asserts that it would add significantly to development capacity. Paragraphs 136-138 of the plan change request discuss the theoretical existing capacity within Rolleston. However this assessment does not consider the percentage increase that the request will add to both the existing township and the wider district over the short/medium/long term timeframes considered by the NPS-UD. Please consider this and amend the assessment accordingly. In this regard, please consider the targets set out in Objective B4.3.9 in the Operative District Plan, as well as Our Space. Please note that at its meeting on 9 December 2020, Council adopted an update its Housing and Business Development Capacity Assessment for the short, medium and long term¹. It is noted that there are a significant number of plan change requests currently lodged with Council. The capacity proposed within each of these should be considered in regards to the above request.

Response:

4. Mike Copeland of Copeland Brown has provided the following statement in response to this RFI point:

“Selwyn District has a current population of 69,700 implying around 24,890 households, assuming an average of 2.8 persons per household¹. Therefore the proposed development of up to 2,100 dwellings represents around 8% of the existing dwellings in the District.

The Housing and Business Development Capacity Assessment Update (2020) report in section 4.1 identifies additional housing demand of 7,127 during 2020-2030 and 8,690 between 2030 and 2050. Whilst the much slower assumed growth rate between 2030-2050 is questioned by the author, these figures imply total households (i.e. existing plus growth) of 32,017 in 2030 and 40,707 in 2050. Therefore the proposed development of up to 2,100 dwellings represents around 7% of dwellings in the District in 2030 and 5% in 2050.

The current estimated population of Rolleston is 21,910² or 7,825 households assuming an average of 2.8 persons per household. The up to 2,100 additional dwellings of the proposed Plan Change represents up to 27% of the existing dwellings in Rolleston. The Capacity Assessment Update report does not give additional housing demand estimates for Rolleston. However, implying the same percentage increases as for the District implies total households of 10,066 in 2030 and 12,798 in 2050. Therefore the proposed development of up to 2,100 dwellings represents around 21% of dwellings in Rolleston in 2030 and 16% in 2050.

The Housing and Business Development Capacity Assessment Update (2020) report in the Executive Summary of Appendix 1 identifies Selwyn District sufficiency of housing capacity of +2,543 in the short term (2020-2023), -2,737 in the medium term (2020-2030) and -18,337 in the long term (2020-2050). Plan Change requests currently lodged with the Selwyn District Council provide for a total of 10,567 additional dwellings.³ This includes the up to 2,100 additional dwellings to be developed under the proposed Rolleston West Plan Change. However in this regard:

- i. There is no certainty that all of the Plan Changes currently lodged with the Council will be approved – either at all, or to the extent of their maximum dwelling yield proposed due to environmental, infrastructure, transport or other factors;
- ii. Even where other plan changes are approved, they may not all result in full development of their dwelling yields due to market supply and demand factors. However the potential for such development will play an important role in providing greater competition or “contestability” in the Selwyn District and Greater Christchurch housing markets.
- iii. The thrust of the NPS-UD is not to enable only sufficient capacity, but for supply (or at least potential supply) to exceed expected demand. Only when this occurs can we expect reductions in upward pressure on residential land and house prices to occur”.

5. In summary, Mr Copeland’s response notes that the proposal for 2,100 households represents:

- a. approximately 8% of the existing dwellings in the District currently; around 7% of projected dwellings in the District in 2030; and, 5% of that projected in 2050.

¹This is the average size of household assumed by Statistics New Zealand in their medium growth forecasts over the next decade.

² Source: Statistics New Zealand NZStat. Subnational population estimates (RC, SA2) by age and sex at 30 June 1996-2020 (2020 boundaries). Equal to the sum of Rolleston Izone, Rolleston North-west, Rolleston Central, Rolleston North-east, Rolleston South-west and Rolleston South-east statistical areas.

³ Source: Email from Jocelyn Lewes, Selwyn District Council, to Jeremy Phillips, dated 27 January, 2021.



- b. approximately 27% of the existing dwellings in Rolleston currently; around 21% of projected dwellings in Rolleston in 2030; and, 16% of that projected in 2050.
- 6. Accounting for the above, the proposal is considered to clearly 'add significantly to development capacity'.

3. The assessment of the criteria in Policy 1 of the NPS-UD for 'well-functioning urban environments' provided with the request only considers this in relation to the plan change area. As noted in paragraph 132 of the request, the urban environment is considered to encompass all of Greater Christchurch. Therefore, please provide an assessment of how the request would contribute to the function of the wider urban environments of the Rolleston township, the surrounding district and the Greater Christchurch area.

Response:

- 7. Contrary to the view expressed in the RFI point, the assessment of Policy 1 of the NPS-UD in Table 6 of the request (page 39-40) considered the full urban environment, encompassing all of Greater Christchurch. With reference to that assessment (and emphasis added) it was concluded that *'The proposal will contribute to well-functioning urban environments at a **localised, township, and regional scale**'*. This conclusion noted that the proposal will:
 - a. Have and enable a variety of homes that meet the needs, in terms of type, price, and location, of different households, and would enable Māori to express their cultural traditions and norms, to the extent relevant to the site context. This is relevant in a localised and Greater Christchurch context.
 - b. Provide access to suitably located and sized business sectors, recognising local facilities within the Plan Change site, accessibility to business activities in Rolleston and the wider offerings in Greater Christchurch.
 - c. Provide good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport noting the preceding point and the findings in the transport assessment. Aside from localised transport connections, the proposal provides excellent accessibility to State Highway 1 and its connections to Greater Christchurch.
 - d. Support the competitive operation of land and development markets by adding greater competition to the Greater Christchurch residential land market, with the corresponding reduction in housing cost being a contributing factor to "well-functioning urban environments".

In this respect, Mr Copeland has advised that the Plan Change will provide additional competition within Greater Christchurch and not just the Rolleston residential land market and will therefore add to the level of competition from all current and future potential entrants within this Greater Christchurch market. This is especially true with respect to residential development alternatives within the Selwyn District (e.g. at Lincoln, Prebbleton, etc.) but also to varying degrees within Christchurch City and even the Waimakariri District. The residential land market contains a series of sub-markets defined by location and suitability for particular types of residential development – e.g. some buyers of new dwellings will weigh up the costs and benefits of a new smaller higher density inner city apartment or townhouse versus a single detached house on its own section more

distant from the City CBD. However at the very least, approving the Plan Change will mean land within the plan change area will face competition and exert competition particularly on other areas of greenfields residential development in Greater Christchurch.

- e. Support reductions in greenhouse gas emissions (at a local and Greater Christchurch scale), through provision for alternative transport modes, connectivity and accessibility (to local, township and regional services and amenities), and the potential for servicing by public transport.
 - f. Achieve resilience to the likely current and future effects of climate change through: the site's distance from coastal and low lying areas susceptible to sea-level rise and storm surges; the land's resilience to heavy rainfall events/frequency, and the potential for building and landscape design to address increased mean temperatures or amplification of heat extremes. In a Greater Christchurch context, the plan change site has considerable advantages over greenfield or intensification growth in flood prone coastal and low lying areas.
8. In summary, it is maintained that the proposal will contribute to well-functioning urban environments, at a localised, district-wide and Greater Christchurch scale.

4. At various points in the request, reference is made to providing for growth, both up and out. Please provide an assessment of the building heights and densities proposed in the request relative to Policies 3(d) and 1(a). This assessment should demonstrate, in terms of the proposed densities, what the differences are on the ground between 12 and 15 hh/ha and how the proposal provides for a variety of homes that meet the needs of different households, including all age groups.

Response:

9. Policy 1(a) seeks urban environments that 'have or enable a variety of homes that: (i) meet the needs, in terms of type, price, and location, of different households'⁴.
10. The proposal will 'enable' the outcome sought by Policy 1(a)(i) by providing for a variety of homes, needs, types, price-points and locations within the plan change area, within Rolleston and within the Greater Christchurch market generally.
11. Within the plan change area the proposed Living Z zoning provides for a variety in residential densities, including Low Density (average allotment size of 650m² and a minimum individual allotment size of 550m²), Medium Density Small-lot (maximum average of 500m², with minimum of 400m²), and Medium Density Comprehensive (maximum average of 350m², with no minimum site size) with the higher density (15hh/Ha) residential areas located adjacent to key open spaces and green corridors. On the ground, the low and medium density areas will provide for conventional standalone houses and sites, potentially for larger families. In contrast, the medium density comprehensive areas will provide for comprehensively designed and developed housing that offers smaller and more affordable housing, through terraced, multi-unit or smaller scale apartment styled developments or through other comprehensive housing forms (such as retirement housing, social housing, or sheltered/supportive housing). Of note, the proposal enables this variety

⁴ It is assumed that part (a)(ii) of Policy 1 is not relevant to this specific RFI point.



in housing, but other than by way of adopting existing density rules in the Plan, it does not specifically prescribe them.

12. Additional information has been added to the Urban Design Statement in **Attachment 3** showing some example visual differences between the proposed densities on the ground between 12 and 15 hh/ha.
13. Policy 3 seeks that district plans 'enable' *'building heights and density of urban form commensurate with the greater of: (i) the level of accessibility by existing or planned active or public transport to a range of commercial activities and community services; or (ii) relative demand for housing and business use in that location'*. In this respect, demand for housing (as is addressed in response to RFI item 2) is the principal driver of the proposed building height and density enabled by the proposed plan change.

The Pines Waste Water Treatment Plant and Resource Recovery Park

5. *The Pines Waste Water Treatment Plant (WWTP) (Designations D411 & D416) and The Pines Resource Recovery Park (RRP) (Designation D412) are designated strategic infrastructure for Council. It is considered that the operation of these facilities could potentially give rise to reverse sensitivity concerns including odour and dust emissions, traffic, noise and vibration from truck movements.*

Response:

14. It is acknowledged that potential reverse sensitivity effects with these facilities are a relevant consideration. The section 32 assessment and further information below addresses these effects and concludes that they can be adequately avoided.

6. *While the various assessment included in the plan change request acknowledge the current operations of these facilities, and propose measures to address reverse sensitivity effects, these measures appear to only take account of the existing operating conditions/environment. Given the potential growth in the district in light of the various plan change requests currently before Council, the expansion of these facilities is anticipated by Council. Therefore the various assessments, including odour and acoustic, are to be amended to acknowledge the future capacity of these facilities. In this regard, it is strongly advised that the applicant liaise with the relevant Council staff to fully understand the planned development of these designated strategic infrastructure sites.*

Response:

15. Noted.
16. The traffic and noise assessments have accounted for future growth in the transport network, noting this is generally unconstrained.
17. The odour assessment has accounted for the lawfully existing environment (accounting for designations, permitted activities, and any applicable air discharge consents) on the basis that it would be speculative to do otherwise and that any further growth of odour-generating activities would be subject to further assessment, management and potential mitigation through an application for an air discharge consent as a minimum by the consent holder.

7. *In relation to the WWTP, Council is moving towards increasing the ultimate capacity of Pines WWTP to 120,000 population equivalents (PE) and beyond, to provide for continuing growth including the potential for this plan change request. Section 2.1.1 of the Odour Assessment assumes 80,000 PE which is considered to understate the capacity of the WWTP going forward. The bio-solids spreading area will also need to increase, to include all of Council's irrigation area (covered by designation D416) to allow growth, beyond that shown in Fig 1. and Fig 2 in the Odour Assessment. While the current method of processing bio solids is solar drying in glasshouses, the blending of bio solids and green waste is still a potential option being considered by Council.*

Response:

18. Noted. This has been accounted for in the reponse to the odour-related RFI matters by Cathy Nieuwenhuijsen at Golder Associates in **Attachment 1**. Specifically, that response notes that *'the lawfully existing environment was considered for the assessment of odour effects. RWRL's counsel have advised that this is appropriate and they note it would be speculative to do otherwise and that any further expansion of the WWTP and RRP would be subject to further assessment, management and potential mitigation through an application for an air discharge consent as a minimum'*.

8. *In relation to the RRP, the Odour Assessment recommends a buffer distance of 600m from the composting operation, based on the volume of compost throughput at the site in 2018, while acknowledging that the scale of the operation is not constrained. Given that the scale of composting at the RRP is expected to increase given the population growth in Selwyn, how will this affect the recommended buffer distance in order to prevent reverse sensitivity effects? Additionally the reference to an existing dwelling located 600m from the composting operation is noted. This is a rural dwelling on 20ha zoned Rural (Outer Plains). Clarification is sought about the potential difference in sensitivity of a rural dwelling vs a suburban dwelling of a scale and character proposed by the plan change request.*

Response:

19. This RFI point is addressed in the Golder Associates response in **Attachment 1**.
20. In respect of the first part of the RFI, concerning the scale of composting operations, the Golder response states:

"the Golder Odour Assessment provided with the plan change application noted that the application documents, assessment of effects, and decision for the current consent (CRC190492) authorising activity at the RRP relate to an expected throughput of 4,200 tonnes per annum of compost. Based on this throughput, the buffer distance of 600m was developed as being appropriate to avoid reverse sensitivity effects.

Notwithstanding the conclusion above, it is noted that the throughput of compost at the RRP is currently the subject of a consent application (CRC211594). The draft Section 42A report associated with this application refers to discussion with the applicant and agreement regarding an advice note on Condition 1 which states:

"The volume of compost that can be processed at the site is not limited, but the location and layout of the composting area are to be consistent with the plans in the application documents and the Odour and Dust Management Plan required by this resource consent."

Therefore, while a limit on mass throughput is not proposed, the location and layout are expected to be defined. Based on review of aerial photographs it is considered unlikely that the throughput will be able to substantially increase beyond what is currently being undertaken within the footprint defined

in the current consent application, i.e., the area defined appears currently to be close to full utilisation. Accordingly, the conclusions reached by Golder in respect of reverse sensitivity effects associated with this activity and its location are considered to be robust.

Therefore, if the scale of the composting needed to increase in the future, we would expect that this would require a new consent to expand the existing operations. In Golder's view, alternative options would be available to facilitate increased operations, including westward expansion or the use of improved methods of composting such as forced aeration".

21. In respect of the second part of the RFI, concerning the potential difference in sensitivity of a rural dwelling vs a suburban dwelling of a scale and character proposed by the plan change request, the Golder response states:

"Golder considers that while rural dwellings may be generally less sensitive to rural odours, the potential odours effects from the composting operations and WWTP are not consistent with what would be considered rural odours. MfE (2016)³ also refers to rural residential having a high sensitivity to non-rural activities. The Rural Section of the Plan (under B3.4) identifies that rural "...residents should not expect an environment which is as conducive to residential activities as Living zones". Therefore, on balance, the amenity expectations for the rural property are considered to be slightly lower than properties in living zones.

The operative plan allows for four dwellings to be built within 600 m of the composting operation in a large block living zone (see attached Figure 2). We consider additional houses within 600m of the composting operation is likely, from a probability perspective, to increase the likelihood of reverse sensitivity odour effects. Therefore, our recommendation is that no additional dwellings are built within 600 m of the composting operation to avoid reverse sensitivity effects. We note that this outcome would avoid reverse sensitivity effects to a greater degree than the status quo, insofar that the proposed change would result in four fewer houses being located within the 600m buffer distance from the composting operation".

22. In summary, the 600m buffer distance proposed is considered appropriate in order to avoid reverse sensitivity effects associated with odour at the RRP. This is provided for in the amended ODPs.

9. The odour assessment also recommends a buffer distance of 300m from the waste transfer operation on the basis that nothing has changed since 2008. The quantity of waste handled has increased and will increase further as the District experiences population growth. How will this affect the recommended buffer distance in order to prevent reverse sensitivity effects?

Response:

23. This RFI point is addressed in the Golder Associates response in **Attachment 1**, as follows:

"The Golder assessment considered that as the consented operation has not changed since 2008 and the distances recommended in the various buffer distance guidelines has not changed, the previously recommended 300 m buffer was still appropriate.

When considering the quantity of waste, it is noted that the Australian EPA guidance documents do not define the separation distance based on throughput waste throughput.

We anticipate that these guidance documents were developed for transfer stations which service much larger urban populations than the current or future population that is served by this facility. Therefore, Golder considers the scale of the Rolleston waste transfer station is consistent with those anticipated by the guidance documents.

Further, our own experience with well managed waste transfer stations is that a 300 m buffer is likely to be adequate to reduce offsite odour and dust effects to an acceptable level.

Therefore, the buffer distance of 300 m recommended is considered appropriate to mitigate against reverse sensitive effects even when considering an increase in population and therefore throughput of the waste transfer station”.

10. Further, in relation to the RRP, the acoustic assessment is limited to an assessment of SH1 road noise and the impact on future residential amenity. Please consider the reverse sensitivity effects arising from heavy vehicle movements travelling to/from The Pines along Burnham School Road, particularly given the reduced road setbacks to residential activity proposed.

Response:

24. This matter is addressed in the Powell Fenwick response in **Attachment 2**, which draws the following conclusions:

“The Holmes site and the Skellerup site are subject to noise effects from the nearby RRP and poultry farming activities respectively. Otherwise the noise environment would be typical to rural areas adjoining urban residential environments.

Noise from RRP truck and trailer units and other vehicle movements on Burnham School Rd may cause night-time disturbance at residential sites located alongside Burnham School Rd within the Holmes block. However, subject to the landscaping on Burnham School Rd incorporating an acoustic barrier of at least 2m height, this would mitigate the noise exposure to levels in the order of 77 dB LA_{max} which is reasonable in our view, for the reasons stated above.

Noise from the poultry farming sheds at Dunns Crossing Rd immediately north of the Skellerup block, if the proposed 150 m setback from the poultry sheds to housing within the Skellerup site was implemented, would result in expected noise levels of 40 dB LA_{eq} which is reasonable in the context of New Zealand guidance criteria.

The expanded use/capacity of the WWTP and RRP is not expected to result in significant increase in noise effects.

The initial assessment of SH1 noise and conditions, and this addendum addressing other noise sources are considered to provide a full assessment”.

25. The amended ODP now includes a 5m wide landscaped setback along the length of the Burnham School Road frontage of the Holmes Block and incorporates a 2m high acoustic barrier comprised of bunding and/or fencing. On this basis reverse sensitivity effects associated with vehicle noise on Burnham School Road will be avoided.



Infrastructure- Water and Wastewater

11. The Infrastructure Assessment provided with the plan change request was reviewed by Council's Asset Manager – Water Services.

Response:

26. Noted.

12. Please confirm what assets and consents are available to be transferred to Council to supply water to this proposed development.

Response:

27. Existing wells on each block are summarised below ;

Holmes Block	M36/8063 – 300mm, 99m deep, used for irrigation (CRC181607)
Skellerup Block	M36/8581 – 300mm, 88m deep, used for irrigation (no reference)
	M36/8130 – 300mm, 87.1 deep, used for irrigation (CRC181608)

28. If it is advantageous for these assets and consents to be transferred to Council, then the applicant is willing to discuss the options further in the future, likely during subdivision design stage.

13. The Skellerup block may need to discharge to a new pump station to be constructed on Selwyn Rd between Goulds and East Maddisons Road. Will this be a viable discharge location for the plan change area?

Response:

29. Tim McLeod a Senior Civil Engineer at Inovo Projects advises that a new pump station constructed on Selwyn Road between Goulds and East Maddisons Road as a discharge location for the Skellerup is technically feasible and therefore viable. The key will be the location of this pump station along Selwyn Road.

30. Note that this is one option for the wastewater and this and other options will be thoroughly reviewed during the subdivision design phase prior to subdivision consent lodgement.



Infrastructure- Reserves

14. *The plan change request have been reviewed by Council's Manager – Open Space and Property.*

Response:

31. Noted

15. *The open space provision and location in the Holmes Block area is generally supported with a reserve and pocket park located adjacent to higher density residential development, and readily accessible to future residents. However, clarification is requested around the function of the 'green links' shown on the ODP. Some align with the roading network and shared footpaths – will these be widened road reserves like the Faringdon boulevards and, if so are they needed? Please provide further explanation to ensure they are warranted, and where not adjoining roading, do not create long narrow linkages. Further, please provide a rationale for the green link shown on the Holmes Block extending out to SH1, and whether this is intended to be open to pedestrian access to SH1.*

Response:

32. The reserve layout has been amended so there is no green linkage extending out to the State Highway and a new green link has been added to connect to Burham School Road.
33. The greenways are anticipated to be approximately 10m wide and are proposed to provide a high amenity green link between residential blocks, allowing for off-road pedestrian and cycle movement. Furthermore, they intercept and focus people's movements towards the West Rolleston Primary School and the commercial/business area. Pockets of native planting will be added along the corridor to assist with biodiversity and adding to the ecological value of the spaces.
34. These amendments are shown in the revised ODP included in **Attachment 3**.

16. *In terms of the Skellerup block, please provide clarification of the rationale for the number and location of the reserves. The spatial distribution maps in the Landscape and Urban Design Assessment with a 500m radius indicate that two reserves would be sufficient from a distribution perspective (the centre one is not strictly required but it is noted this is adjacent to medium density). As such, a pocket park in this location may be more appropriate.*

Response:

35. The middle reserve has been changed to a Pocket Park to serve the adjacent medium density lots.
36. This amendment is shown in the revised ODP included in **Attachment 3**.

17. Please advise if consideration has been given the position of reserves in adjacent locations, such as that covered by ODP Area 12 in Appendix E38 of the Operative District Plan² or by other private plan changes, such as PC703, particularly in relation to the Skellerup Block.

Response:

37. DCM Urban and Inovo advise that consideration was given to this matter when preparing the ODP and specifying the position of reserves (or potential reserves) in adjacent locations such as ODP Area 12 and PC70. Dunns Crossing Road physically separates these other potential reserves, and therefore the two reserves and one pocket park proposed for the Skellerup Block is considered appropriate.

18. Please advise how the proposed bunding/dense planting and bunding/acoustic fence will be handled in terms of underlying ownership. It is assume that these will be in private ownership or is there an expectation that they will be public land?

Response:

38. These features will be provided for over private land and an appropriate, enduring legal mechanism (such as a covenant) would be imposed at the time of subdivision, accounting for the ODP. The ODP text has been amended to note this, thereby providing scope for enforcement through the subdivision or land use consenting process.

Transport

19. The Integrated Transport Assessment provided with the plan change request was reviewed by Council's Asset Manager – Transportation.

Response:

39. Noted.

20. As addressed in the request, the key intersection that needs to be upgraded to address current safety issues and to accommodate any sustainable increase in traffic using Dunns Crossing Road and SH1 is the Dunns Crossing/SH1/Walkers Road intersection, and this intersection has been signalled for a major upgrade by the NZTA as part of the NZUP Programme and is represented in the Programme Business Case for SH1/Rolleston Access Upgrades. At this point the upgrade proposed is a roundabout however no design has been developed yet by the NZTA. To address the transport effects, it should be anticipated that Council will seek to include a rule in the Operative District Plan that no subdivision resulting from this PC occurs until this upgrade is completed. Please provide proposed wording for such a provision.

Response:

40. The plan change as submitted proposed amendments to rule C12.1.3.50 as follows:

12.1.3.50

(a) *In respect of the land identified at Appendix 39 (Holmes Block), no more than ~~97 rural~~ 1150 residential allotments may be created;*



(b) In respect of the land identified at Appendix 40 (Skellerup Block), no more than ~~51 rural 950~~ residential allotments may be created. ~~and no subdivision shall take place to densities less than what are provided for under the Rural (Outer Plains) Zone until:~~

(i) ~~a publicly owned sewerage reticulation system has been extended to the site.~~

41. Novo Group's traffic assessment of the RFI matters (**Attachment 4**), accounts for the traffic modelling undertaken by Ableys and on this matter states:

"As can be seen from the Abley traffic modelling results, the implementation of a roundabout at Dunns Crossing Road / SH1 / Walkers Road intersection provides a LOS of A (for both AM and PM peaks) with the Plan Change traffic added to the road network. However, given the proximity of the Holmes Block to that intersection, the Applicant is willing to limit the development of the Holmes Block to no more than 97 dwellings being occupied prior to the completion of the upgrade to the SH1 / Dunns Crossing Road intersection. This is to allow Waka Kotahi NZTA, SDC and other involved parties the flexibility on the final design development of the space required for such roundabout. This number of dwellings has been selected as it is the currently zoned number of dwellings for the Holmes Block. This is therefore considered to be a reasonable baseline and also to facilitate the subdivisions progressing, but avoiding traffic effects above that which may currently occur as of right".

42. On this basis (and otherwise noting the response to RFI point 23 below), it is now proposed to amend rule 12.1.3.50 as follows:

12.1.3.50

(a) In respect of the land identified at Appendix 39 (Holmes Block), no more than ~~97 rural 1150~~ residential allotments may be created and a consent notice or similar mechanism shall be registered on the title of those lots ensuring there is no more than 97 occupied dwellings within the Holmes Block prior to the completion of the upgrade to the SH1 / Dunns Crossing Road intersection and signals upgrade to the Burnham School Road / Dunns Crossing Road intersection.

(b) In respect of the land identified at Appendix 40 (Skellerup Block), no more than ~~51 rural 950~~ residential allotments may be created. ~~and no subdivision shall take place to densities less than what are provided for under the Rural (Outer Plains) Zone until:~~

(i) ~~a publicly owned sewerage reticulation system has been extended to the site.~~

21. Dunns Crossing Road is part of the Rolleston arterial perimeter road route. The Applicant has assessed in the ITA that some intersection movements for the Holmes Block will operate at a LoS of E at peak times. Councils LoS limit is usually D for peak periods. Further assessment as to the type and/or positioning of intersections is required to improve LoS to achieve this, with the emphasis on the ODP Primary road off Dunns Crossing Road.

Response:

43. Novo Group's traffic assessment in **Attachment 4** addresses the traffic modelling results provided by Abley insofar that they relate to the Plan Change accesses, the operation of Dunns Crossing Road, and key intersections on the wider road network. The reader is referred to the detail in that assessment, however in summary, that report concludes that these elements of the road network will operate with an acceptable level of service.

22. Burnham School Road will become over time part of a supplementary arterial local road route from SH1/Burnham to these residential areas of Rolleston as identified in the SH1/Rolleston Access Business Case. It is already used by heavy vehicles accessing the Pines Resource Recovery Park and Pines Waste Water Treatment Plant. Two upgrades are identified in Councils long term planning:

- **Installation of traffic signals Burnham School/Dunns Crossing Road in 2029/30**
- **Widening of Burnham School Road (Burnham Road to Dunns Crossing Road) in 2034/35**

Response:

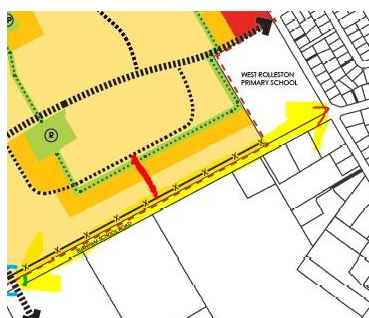
44. Noted.

23. Based on the anticipated rate of development of the Holmes Block and traffic volumes generated by this PC, are the timing of these works appropriate in that context and how would any requirements needed to be factored into the design of such? It is noted that the PC is proposing no direct lot access to Burnham School Road. While this is seen as perhaps mitigating some traffic issues relating to Burnham School Road, is this the appropriate urban form response?

Response:

45. As noted above (and in Novo Group's traffic engineering assessment) the construction of traffic signals at the Burnham School Road / Dunns Crossing Road would be required prior to the occupation of any more than 97 dwellings at the Holmes Block site. The Holmes Block would also provide widening on the northern side of Burnham School Road as the sub-division occurs, but only along the frontage of the Plan Change site.
46. The assessment also notes that Burnham School Road is a future arterial road and on that basis it is considered that this road would best be managed through not providing direct property access. From an urban form and urban design perspective, this frontage has also been managed with a landscaping solution that provides an attractive edge to the road and a buffer from road noise, as is recommended in the acoustic assessment in **Attachment 2**. Lastly, this arrangement will allow for the installation of an off-road shared cycle/pedestrian path which is largely free of any vehicle crossings, thereby reducing conflict points. These requirements are specified on the amended ODP in **Attachment 3**.

24. Please amend the Holmes Block ODP to show provision of an off road walkway/cycleway along Burnham School Road to Dunns Crossing Road, along with a walk cycle link as below to Burnham School Road (as shown below).



Response:

47. The amended ODP for the Holmes Block included in **Attachment 3** now provides both an off road walkway/cycleway (2.5m wide) along Burnham School Road and a green link with a walkway/cycleway from the development to Burnham School Road.

25. The ITA refers to a possible upgrade of the Lowes/Dunns Crossing Road intersection with traffic signals suggested by the Applicant. Council's current plans are for a roundabout in 2029/30 as identified in the SH1/Rolleston Business Case. Please review the ITA in light of this advice and consider how this may then influence the current assessment and comments on this intersection?

Response:

48. This is assumed to be a roundabout in the updated traffic modelling by Abley and has been identified as operating satisfactorily with the Plan Change traffic added to the network.

26. It is noted that there is no ODP roading connection shown to SH1 from the Holmes Block. This likely anticipates the NZTA views, however has this been discussed with them on the basis that even an entry only off SH1 could be beneficial to mitigate traffic issues at the SH1/Dunns Crossing/Walkers Road intersection to service the block?

Response:

49. No access to / from SH1 has been proposed as it is anticipated that Waka Kotahi NZTA would not be supportive of this. Furthermore, the proposed roundabout at SH1 / Dunns Crossing Road / Walkers Road is predicted to operate satisfactorily with the Plan Change traffic added to the network, so additional links to SH1 are not considered necessary.

27. In regards to the Skellerup Block the ITA needs to look more carefully at the possible alignment (or otherwise) of the roading and transport connections with the proposed PC70 area opposite and assess intersection type and alignments and LoS to provide confidence on this aspect. This should be coordinated with the PC70 Applicant.

Response:

50. The plan attached to Novo Group's traffic response in **Attachment 4** illustrates the alignment of the transport networks for this Plan Change 73 and proposed Plan Change 70. The road alignments are considered to be sufficiently well aligned to enable continuous links to be provided.
51. The traffic response otherwise predicts that these intersections (including the Primary Access intersection) will operate at Level of Service A, with low levels of delay.

28. There are concerns with the cumulative traffic effects on the Selwyn Road corridor from growth to the south and south west of Rolleston. The plan change request makes reference to the Selwyn/Goulds/Dunns Crossing intersection and a possible upgrade needed but this is not definitive. In conjunction with PC70 Applicant, please provide an assessment of this intersection and the necessary upgrades required to ensure that it operates efficiently and effectively.

Response:

52. As set out in Novo Group's traffic response in **Attachment 4**, a roundabout has been included in the Abley traffic model at this location. The layout of the intersection is consistent with the intersection arrangement illustrated in the RFI for Plan Change 70. This



traffic modelling includes 25% of the Future Growth Areas and indicates that this revised intersection arrangement is predicted to operate at Level of Service A for all approaches with minimal delay.

29. Council has just recently formed and sealed Dunns Crossing Road south of Lowes Road to Goulds Road. It is advised that Council will not look favourably on sewer mains and the like being installed on the new main carriageway alignment where this requires the road to be substantially dug up and other options need to be considered in conjunction with PC70 Applicant.

Response:

53. Noted. The optimal solution (and routes) for infrastructure would be determined in collaboration with Council staff at the time of any subdivision consent, accounting for existing and planned servicing infrastructure in the vicinity, nearby developments, and the methods of establishing new infrastructure and managing any disruption to public roads.

30. It is noted there has been direct discussions with the Applicant on the traffic modelling requirements to inform this PC that will be dealt with directly by Abley Consultants on behalf of the Applicant and Council.

Response:

54. Noted. This has been incorporated in the response to traffic-related RFIs and the associated assessment of effects.

Geotechnical Assessment

31. The Geotechnical Assessment provided with the plan change request was peer reviewed on behalf of Council by Ian McCahon of Geotech Consulting Limited and this is attached for your information.

Response:

55. Noted.



32. It is requested that:

Please provide evidence for the continuity of the shallow gravel to depth, as inferred in Tables 3 & 4. One source is the ECan groundwater well database.

Please either carry out additional testing on both blocks of land to provide greater assurance to SDC that untoward conditions are unlikely, or provide a sound argument as to why further testing is not needed at this stage, given the test density recommended by MBIE.

If the seismic shaking referenced in section 5.1 is relevant, please comment on whether or not any ground damage was reported or observed in the walkover.

Please provide comment on any aspects relevant to the practicality of infrastructure and building foundation construction on the plan change area.

Response:

56. A response to this matter by Chris Thompson at Coffey Services (NZ) Limited is included as **Attachment 5**.

57. In summary, Mr Thompson concludes:

“The current Plan Change Application from Living 3 to Living Z does not change the land use and further investigation testing is not deemed necessary until the subdivision consent phase. The sites are considered to be underlain by continuous deep gravels, to be low geotechnical risk and to be suitable for residential development”.

Preliminary Site Investigation (PSI) Report

33. The PSI report provided with the plan change request was peer reviewed on behalf of Council by Environment Canterbury.

Response:

58. Noted.

34. The reviewer found that some sections of the report confusing and contradictory. HAIL activity A10 was identified as a potential concern in the risks table, however the same table also deemed the risk to be low. However this was not based on any soil sampling and this is considered presumptive, given that risk cannot be assessed until sample soil samples can be analysed.

Response:

59. Coffey consider the risk to be Low. This is based on the historic activities undertaken which is backed up by the results of the investigations undertaken on the adjacent site. This does not change the original recommendations of Coffey, as even though they consider the risk low, this still needs to be confirmed by undertaking a DSI. As is typical, this would be undertaken at the subdivision consent stage.



60. An updated PSI report (including an updated Table 2, with additions to the 'Information Source' column and the addition of the 3rd bullet point in the column 'Considered Risk Potential for Contamination to Surrounding Environment') is appended as **Attachment 6**.

35. Despite labelling the A10 activity as low risk, Coffey has recommended that a DSI take place to ensure that contaminants in the soil complied with the relevant soil contaminant standards, and the reviewer agrees with this recommendation.

Response:

61. Noted, and as stated above this would occur at the time of any subdivision consent.

36. Should the plan change request be approved, a Detailed Site Investigation (DSI) will be required over all the identified HAIL areas of the site. If the DSI identifies contamination that exceeds the soil contaminant standards for residential use, then a Remedial Action Plan will be required, remedial works will be required to be undertaken as per the plan, and a Site Validation Report will be required to be submitted to council confirming that the site is suitable for residential use.

Response:

62. Noted and we agree. As stated above, this would occur at the time of any subdivision consent.

37. Section 2.3.1 of the PSI report provided with the plan change request states that two investigations (a PSI in 2013 and a DSI in 2014) are recorded within the Council records in relation to the Holmes Block, but that these were not made available during this PSI. Given the recommendations of the reviewer, please provide an amended PSI that considers these report.

Response:

63. Both the PSI in 2013 and DSI in 2014 for the adjacent site of the West Rolleston Primary School have been received and reviewed. See the updated PSI report in **Attachment 6** with the addition of section 2.3.2 – "Previous Environmental Investigations" which addresses each report.

Odour Assessment

38. The Odour Assessment report provided with the plan change request was peer reviewed on behalf of Council by Chris Bender, Pattie Delamore Partners Ltd and this is attached for your information. Mr Bender has advised that he is happy to be contacted directly in relation to the matters raised and his contact details can be found in the covering email.

Response:

64. Noted.

39. It is requested that the following further matters be addressed to provide a more robust assessment of potential reverse sensitivity effects which might result from the rezoning of the two blocks:

- *The recommended buffer distances are provided in Table 1 and illustrated in the maps in Figures 1 and 2 of the Golder report dated 11 November 2020. It is noted that the distances of the buffers zones from the boundaries of the individual odour sources as drawn on the maps appear to be less than the actual distances when measured in Google Earth (i.e. the buffers as drawn are smaller than what is measured in Google Earth). In addition the scale bars on the maps do not agree with the actual spatial scale of the maps. It is recommended that the buffer distances in the maps be re-examined and the assessment updated as required.*

Response:

65. It is agreed the maps were incorrect and an updated map is attached to Golder's assessment in **Attachment 1** (Figure 1). The tabulated values presented have been maintained.

-
- *The buffer distance for the chicken sheds recommended in the Golder report is 150 metres. However a review of the report upon which this recommendation is based has been undertaken by Beca in 2011 and is included in the Section 42A report for the original plan change application for the two blocks⁵. The Beca report has suggested that the dispersion modelling undertaken for the chicken sheds is not considered reliable, and recommends a more conservative buffer distance of 300 metres from the sheds. The reviewer in general agrees with Beca's review of the modelling of the chicken farms and recommends that the more conservative buffer distance of 300 metres be adopted unless an additional assessment which takes into account the recommendations outlined in the Beca report can demonstrate that 150 metres is an acceptable buffer distance. [It is noted that Rule C3.13.1.5 of the Rural Volume of the Operative District Plan requires that any sensitive activity is setback a minimum of 300m from any existing lawfully established intensive farming activity.]*

Response:

66. Golder's assessment (**Attachment 1**) states:

"We have reviewed the Beca report and critiques of the Golder (2008) modelling approach. The modelling approach and criteria were set based on a set modelling approach and the criteria was developed based on feedback from neighbours. The approach has been used for a number of assessments in Canterbury and accepted in Environment Court. The modelling approach was adapted to account for the birds being breeder birds compared to broiler birds, by adjusting the odour emission rate to be based on fully grown broiler birds. This is considered appropriate and we consider that it is a robust and conservative approach for determining reverse sensitivity effects. Regarding the concerns raised by Beca of the limitations of the Ausplume model versus the Calpuff model, for flat ground we consider the Ausplume model appropriate and as the odour criteria was developed using the Ausplume model it is considered appropriate".

67. With regard to Rule C3.13.1.5 of the Rural Volume of the Operative District Plan, we note that this does not apply in Living Zones and therefore does not apply to the Skellerup block.

-
- ***The separation distance for composting operations of 600 metres is stated as being based on the current throughput of 4,200 tonnes per year of compost. As discussed elsewhere in this letter the composting operations at the RRP have increased in scale since the granting of the last consent, and will continue to increase in scale over time. Furthermore the current throughput of 4,200 tonnes per year as stated in the Golder report refers to the end product, whereas the equivalent mass of raw compost accepted at the composting facility will be 6,500- 7,000 per year. It is recommended that future growth of the composting facility be taken into account when considering an appropriate separation distance from the composting activities.***

Response:

68. Golder's assessment (**Attachment 1**) states:

"As discussed in response to [RFI] Point 8, it is considered that the scale of the operation is effectively constrained via the current consent CRC190492. With regard to the increase in scale, as discussed, any increase in operation would require changes to the consent and additional mitigation may need to be considered. On this basis, the 600 metre separation distance adopted by the Plan Change is considered appropriate in order to avoid reverse sensitivity effects".

-
- ***The separation distance of 600 metres from the composting operations illustrated in the maps are drawn from the rows of active compost at the site. However it is understood that the location of the composting activity is not restricted to a particular area within the site, and so may change locations over time. It is therefore considered that the buffer zone should be drawn from the site boundary rather than the current locations of the rows of active compost. Likewise, it is recommended that the buffer distance of 300 metres from the waste transfer operations be applied to the entire site boundary to provide for potential operational changes at the site in future.***

69. Golder's assessment (**Attachment 1**) states:

"The guidance provided in the Victoria EPA publications on buffer criteria state that the separation distances should be measured from the bounds of the activity rather than the property boundary. Therefore, it is considered appropriate to use the activity location. For the composting operation, as outlined above, it is considered that the location of the active composting is defined by CRC190492 therefore it is appropriate to measure the distance from the source. Likewise, for the waste transfer operation, it is considered reasonable to use the plant buildings as the distance to take the measurement from. It is considered that the activity is authorised (and constrained) to this location and we are unaware of any public plans to change the site layout. If it were to change, it would again be subject to a new or altered consent."

-
- ***Golder (2008) originally recommended a buffer distance of 1000m surrounding the bio solids processing facilities based on the level of uncertainty regarding the potential treatment method to be used and the fact that the WWTP is located upwind of the Holmes Block during southwesterly winds. This distance was reduced to 400m in the 2020 report based on the method of drying being in an enclosed glasshouse as opposed to composting or other methods. It is recommended that the applicant provide justification for why they think solar drying is in fact less odorous (and in particular the solar drying operation at the Pines WWTP).***

70. Golder's assessment (**Attachment 1**) states:

"The Golder (2008) recommended buffer of 1,000m was based on a lack of information relating to any of the aspects of the biosolids treatment (i.e. treatment of biosolids following the aerobic digestion process). There was no set processing method, design parameters or monitoring of factors that affect odour generation. Therefore, a conservative separation distance was recommended at that time. Now it is known that there is consented solar drying operation at Pines WWTP (described in



CRC210644) and that it has high level of control of the various parameters that are likely to influence odour generation.

...Notwithstanding any current operational difficulties, for a well-managed operation with the control and monitoring measures a 400 m separation distance is considered to be appropriate. Due to the 900 m distance to the Holmes block, odour related reverse sensitivity effects will be adequately avoided at the Holmes block”.

-
- ***Notwithstanding the above, it is noted that separation distances do not have any clearly defined regulatory standing in New Zealand, and the reviewer considers a quantitative or semi-quantitative assessment specific to the area in question will provide a more robust assessment of potential reverse sensitivity effects on residences in the Holmes and Skellerup blocks. This should include at a minimum a FIDOL assessment of the activities and a review of any odour complaints for the area within the most recent 10-year period. This may be undertaken as a desktop review of the air discharge consents and associated applications with supporting documentation for the various odour-generating activities in the area.***

Response:

71. Golder’s assessment (**Attachment 1**) states:

“The use of separation distances is considered to be appropriate for reverse sensitivity assessments. They are explicitly referred to in MfE (2016) as useful tools for managing reverse sensitivity. Golder considers recommended separation distances to be a screening assessment and if these distances can be maintained then further assessment is not required in most circumstances. In this case we have recommended separation distances that are expected to be sufficient to avoid reverse sensitivity effects.

We have reviewed all consent applications and odour assessments available for the activities identified along with previous separation distance assessments. The information in these have been considered in this assessment and there is sufficient information to complete a separation distance-based assessment.

Regarding complaints, we understand based on CRC211594 application there has only been one complaint in the last 10 years. Given the current low population, it is difficult to make any sound conclusions regarding odour effects from complaint data”.

Ecological Assessment

-
40. ***The Ecological Assessment provided with the plan change request was peer reviewed on behalf of Council by Greg Burrell, Instream Consulting Limited and is attached for your information.***

Response:

72. Noted.

41. The reviewer considered that the ecology report provided sufficient ecological information to support the plan change request and meet the purposes of the Resource Management Act. The report clearly identifies that the key aquatic features present are water races and the reviewer agrees with the conclusions that any effects can be avoided, remedied, or mitigated. The reviewers assessment assumes that the water races will remain open (i.e. no piping), that fish and kākahi salvage will be conducted prior to any works within the water races, and that District Plan waterway setback rules will be adhered to.

Response:

73. Noted.

42. As such, there are no matters that need to be addressed further in relation to the ecological assessment however please advise of the adequacy of the provisions of the Operative District Plan, or any other appropriate mechanisms, to support the reviewers observation that, as recent fish salvage projects along the water race have also found longfin eel, torrentfish, and kākahi (freshwater mussels), which are all native species with an At Risk conservation status, that the water race should be surveyed for freshwater fish and kākahi prior to undertaking any works that may impact on the waterway, and that fish salvage be undertaken if the water race is realigned.

Response:

74. The amended ODP (text) now incorporates wording confirming that water races will remain open (i.e. no piping) and, that fish and kākahi salvage will be conducted in accordance with ECAN/CCC fish salvage guidelines prior to any works within the water races. In conjunction with District Plan waterway setback rules that otherwise apply, this will provide a regulatory framework for ensuring the matters outlined in the RFI point above are addressed at the time of subdivision and development.

Acoustic Assessment

43. The Acoustic Assessment provided with the plan change request was peer reviewed on behalf of Council by Dr Jeremy Trevathan, Acoustic Engineering Services and is attached for your information. Dr Trevathan has advised that he is happy to be contacted directly in relation to the matters raised and his contact details can be found in the attachment.

Response:

75. Noted.

44. PFC refer to their Design Advice Memo as “high level feedback”, and recommend a “full noise assessment” is conducted prior to residential subdivision consent. Please advise of the mechanism within the Operative District Plan, or any other appropriate mechanisms, which would ensure that a full noise assessment is submitted with any future residential subdivision consent. If there are other substantive acoustic issues associated with the rezoning of the site, it seems appropriate for them to be identified and considered now.

Response:

76. It is noted that the subject land is presently zoned Living 3 in the operative District Plan, where this permits rural-residential development of the site, subject to the building setback controls from State Highway 1 in rule C4.9.38 (which is the only road noise control specific to the site).

77. It is also noted that the existing urban residential areas of Rolleston to the east of the subject land that also adjoin State Highway 1 are subject to rules controlling building setbacks and internal noise levels and the proposed Plan Change adopts these standards for the site. Specifically, rules C4.9.3 and C4.9.4 would apply to any development on the Holmes Block. For ease of reference these rules are copied below:

Setbacks from State Highways and internal noise levels

- 4.9.3 Except for the Living 3 Zone at Rolleston identified on the Outline Development Plan in [Appendix 39](#) and [Appendix 40](#), and ODP Area 3 and ODP Area 8 in Rolleston, and the Living 2A Zone in Darfield, as identified in the Outline Development Plan in [Appendix 47](#), any [dwelling, family flat](#), and any rooms within accessory [buildings](#) used for sleeping or living purposes shall be located no closer than 40m from the edge of the sealed carriageway of State Highways with a [posted speed limit](#) of 70 Km/hr or greater.
- 4.9.4 Except for the Living 3 Zone at Rolleston identified on the Outline Development Plan in [Appendix 39](#) and [Appendix 40](#), and ODP Area 3 and ODP Area 8 in Rolleston, and the Living 2A Zone in Darfield, as identified in the Outline Development Plan in [Appendix 47](#), any [dwelling, family flat](#), and any rooms within accessory [buildings](#) used for sleeping or living purposes within 100m from the edge of the sealed carriageway of State Highways with a [posted speed limit](#) of 70 Km/hr or greater shall have internal noise levels from [road traffic](#) that do not exceed the limits set out below with all windows and doors closed.

	24 hours
Within Bedrooms	35 dBA (Leq 24 hour)
Within Living Area Rooms	40 dBA (Leq 24 hour)

Note: Living Area rooms means any room in a [dwelling](#) other than a room used principally as a bedroom, laundry, bathroom, or toilet.

78. The operative Plan provisions otherwise manage acoustic issues for the site by way of the general noise rules in the District Plan, insofar that these manage the noise generated by activities on and off of the plan change site.
79. On this basis a high level acoustic assessment determining the suitability of the land for a zoning that provides for more intensive residential development is considered appropriate, on the basis that:
- Vehicle noise impacts from State Highway 1 have been considered and assessed as reasonable accounting for the proposed rules (C4.9.3 and C4.9.4) that will apply to residential activities on the site.
 - Vehicle noise impacts from Burnham School Road has been considered and assessed as reasonable accounting for the proposed acoustic treatment along this road frontage and the corresponding rules to ensure this (addressed below).
 - No other significant noise generating activities have been observed in the vicinity of the proposed residential activity, nor are any identified in the operative District Plan.
 - Noise rules apply to activities on the site and those beyond the site.

45. PFC recommend a 3 metre high acoustic barrier adjoining the State Highway to mitigate outdoor noise effects – however no rules are proposed via the Plan Change to ensure this is constructed. If PFC consider this barrier is needed to ensure noise effects are appropriate, a process should be proposed to ensure that it is constructed. It is noted that the existing provisions (Rules C12.1.3.45, C12.1.3.46 and C12.1.3.56) in the Operative District Plan are specific to Prebbleton and West Melton respectively. Please consider and advise if it is considered necessary to amend these existing rules or to incorporate additional provisions into the plan to address the acoustic barrier as proposed in the PFC report.

Response:

80. The requirement under rule 12.1.4.76 for subdivisions to be assessed as to consistency with the ODP (and the corresponding notations on the ODP and within the associated ODP text) provides a mechanism (rule) to enforce the establishment of a 3m high acoustic barrier.

46. It appears that there may be other noise sources in the area which could be of concern from a noise reverse sensitivity perspective, such as the RRP (and associated heavy vehicle movements along Burnham School Road), traffic on Dunns Crossing Road, and the intensive farming operation to the north of the Skellerup block. An assessment of these sources should be provided.

Response:

81. The response provided by Powell Fenwick in **Attachment 2** concludes that noise from the intensive farming operation to the north the Skellerup block will be acceptable accounting for the setback requirements for dwellings from this shared boundary which are imposed by way of the ODP and the ODP text.
82. That response also considers other current or future noise sources in the area and concludes that they will be acceptable, accounting for the location of the zoning and dwellings relative to noise generating activity and treatment provided along the State Highway 1 and Burnham School Road boundaries of the Holmes Block, as specified in the ODP.
83. On this basis, and noting that any other current or future noise sources in the area will be subject to noise rules (limits) in the Plan, no further assessment beyond that provided by Powell Fenwick in **Attachment 2** is considered necessary.

Operative District Plan

47. The average (600m²) and minimum (500m²) allotment sizes for low density development mentioned in paragraph 29 of the request, and shown on the ODP6 are not consistent with those of the Living Z zone for Rolleston, which provides for an average allotment size of 650m² with a minimum individual allotment size of 550m². Please amend accordingly.

Response:

84. We acknowledge an error in paragraph 29 of the request and confirm that an average allotment size of 650m² and a minimum individual allotment size of 550m² is in fact proposed (consistent with that set out in Table C12.1 of the Plan).

48. The plan change request proposes to continue the existing provisions in terms of identifying an odour constrained area (OCA) on the proposed ODPs, as well as the existing rule package in relation to the location of dwellings in relation to the OCA (Rules C4.9.39 and C4.9.58). Figure 2 in the Odour Assessment indicates that the depth of the OCA on the Holmes Block is 75m, although this is not to scale. As discussed above, the extent of the OCA is required to be further considered. However, as currently reflected, please advise of the suitability of the proposed Living Z zone and accompanying densities, in relation to the need to manage reverse sensitivity effects arising from the adjacent designations. Please consider if it is more appropriate that the existing Living 3 zoning be continued along the western and southern boundaries of the Holmes Block and the northern boundary of the Skellerup Block. Alternatively, please annotate the ODP to show that larger sites should be developed in this area. An example of such within the Operative District Plan is in the ODP for Living 1A Zone in Prebbleton (see Table C12.1 and Appendix E19).

Response:

85. As set out in the response by Cathy Nieuwenhuijsen, of Golder Associates, the key method for managing odour related reverse sensitivity effects is the use of a buffer /setback from the odour source. Accordingly, subject to an appropriate buffer / setback distance, it is not considered necessary to alter the density of development. On this basis, no changes are



proposed to the density of development in this location, noting the clearly identified setbacks shown on the proposed ODP.

86. Notwithstanding this response, we note that for the Holmes Block, the 600m setback from the composting application will preclude any housing in this location, whereas the operative Living 3 zoning permits up to 4 houses in this location.

49. Similar to the matter raised in paragraph 44 above, the Holmes Block shows an area of bunding and dense planting along the western boundary with D416, yet this is not referenced in the ODP text and no rules are proposed to be included in the Operative District Plan. Please consider and advise if it is considered necessary to incorporate specific provisions into the plan to address bunding and planting as proposed.

Response:

87. The Golder assessment noted that dense planting along the western boundary may provide additional mitigation, that with further assessment may warrant reduced setbacks. However, their overall conclusions/assessment did not rely on such planting, and their conclusion in support of the proposal was based on the use of building setbacks (buffers). Accordingly, the ODP and ODP text is confined to this requirement.

50. The visual assessment acknowledges that the plan change “would result in an overall change of character from open and rural to one that is more dense and suburban in nature”. It goes on to state that “management of fencing and bulk and location of the development will create a sense of openness throughout the site” and that the change is “partially mitigated through fencing controls and landscape planting”. However, the ODPs show the Living Z zone immediately adjacent the boundary with the Rural (Outer Plains) boundary and, with the exception of the boundaries already discussed, no mention is made of any provisions relating to fencing, either existing within the Operative District Plan or proposed. How does the plan change request proposed to address interface between the proposed Living and existing Rural zones? Further, how does the plan change request propose to manage reverse sensitivity effects with rural zoned land to west, south and east?

Response:

88. For the Holmes Block, the interface with the Rural zoned boundary to the west will be managed by way of odour setbacks that are primarily proposed so as to avoid reverse sensitivity effects. To the south, these setbacks will also apply along part of the plan change site and the bunded and landscaped treatment of the Burnham School Road frontage (as depicted on the ODP) will otherwise manage this interface. Bunding and setbacks (for noise mitigation purposes) will also manage this block’s northern interface with the rural land beyond State Highway 1.
89. For the Skellerup block’s northern boundary interface with rural zoned land, building setbacks are proposed so as to avoid reverse sensitivity effects. To the west and south, there are no notable rural or other activities that warrant a specific response in order to avoid reverse sensitivity effects. Whilst interface treatments (such as fencing, landscaping and/or building setbacks) at the boundary could be provided along this rural boundary voluntarily at the time of subdivision and development, prescribing such treatment is not considered necessary given that a rural outlook may provide amenity to development within this part of the plan change site and an urban/rural interface of this nature is not uncommon throughout much of the District’s townships. Whilst consideration was given to the placement of lower density (large lot) residential sites or enlarged building setbacks along



these rural edges, this is not precluded by the zoning or ODP and can be suitably determined (without regulatory prescription) at the time any future subdivision is designed.

51. *Except for the ease of consequential renumbering, please advise of the need to retain, albeit modified, Rule C12.1.3.50.*

Response:

90. It is considered appropriate to retain, albeit modified, Rule C12.1.3.50, on the basis that the assessment of the Plan Change and its effects (e.g. transport effects, servicing demands, etc) has been predicated on the basis of a maximum of 1150 and 950 allotments for the Holmes and Skellerup blocks, respectively.
91. Furthermore, additional modifications to this rule are now proposed in response to RFI item 20, to ensure that the number of allotments on the Holmes Block does not exceed the status quo prior to the upgrade of the Duns Crossing Road / SH1 intersection and the Burnham School Road/Dunns Crossing intersection.

52. *In addition to the objectives and policies of the Operative District Plan currently considered, please provide an assessment of the request against Objective B3.4.3.*

Response:

92. Objective B3.4.3 seeks that “Reverse sensitivity” effects between activities are avoided.
93. The request is consistent with this objective, noting:
 - a. The subject land is presently zoned Living 3 (not Rural), therefore anticipated environmental results within the Plan in regards amenity for Living and Rural land are not altered, notwithstanding the increase in density.
 - b. The assessment of odour related reverse sensitivity effects by Golder Associates and the corresponding odour control setbacks proposed.
 - c. The assessment of noise related reverse sensitivity effects by Powell Fenwick Consultants, and the corresponding rules proposed to avoid traffic-noise effects.
 - d. The absence of any other lawfully established incompatible activities in the area (beyond those assessed by Golder Associates and Powell Fenwick Consultants) and the constraints imposed by the District and Regional planning framework on noise, odour, dust and other potential effects associated with future activities.
 - e. The attributes of this site and its rural-urban interface are comparable to a number of other existing residential zones in the District’s townships, where reverse sensitivity effects have been found to be adequately avoided in terms of objective B3.4.3 (e.g. the Living Z zone within ODP Area 11 at Rolleston, where this immediately adjoins the Inner Plains zone).



Outline Development Plan (ODP)

53. The potential future connections as shown on the ODPs is considered to create an expectation that there could be further dense residential development on the surrounding sites. While these would appear sensible if spatial planning for Rolleston suggests that the township could grow in this direction, at this time, please remove these from the ODPs, or terminate them at the boundary of the plan change area rather than extending them into adjacent sites.

Response:

94. Noted. The ODPs in **Attachment 3** have been amended to terminate these connections as suggested.

54. The text accompanying the proposed ODPs should incorporate the urban design principles set out at paragraph 37 of the plan change request. The text for the ODP for the Holmes Block should also make reference to how acoustic bunds will be developed and managed.

Response:

95. The text accompanying the amended ODPs (in **Attachment 3**) have been modified to address the provision and management of acoustic bunds. Having amended the ODPs to align with the format and content set out in the proposed District Plan (as requested in RFI items 59 and 63) it is not proposed to insert the urban design principles set out at paragraph 37 of the plan change request.

55. It is considered that the description and illustration of the proposed density associated with the Living Z zone shown on the ODP may create confusion with the Proposed District Plan. Please consider amending this.

Response:

96. Noted. The ODPs in **Attachment 3** have been amended as suggested.

56. Please annotate the ODP (or supporting text) to include any measures appropriate to address reverse sensitivity matters between the Living and Rural zone. In particular, as discussed elsewhere in this request, the odour constrained areas should be dimensioned on the ODPs.

Response:

97. Noted. The odour constrained areas on the ODP have been updated to reflect Golder's updated report. In addition, the text accompanying the ODP in **Attachment 3** has been amended as suggested to now specify the setbacks for the odour constrained areas.

57. The Holmes Block ODP indicates that access should be avoided to Burnham School Road from the site, yet this is not referred to in the ODP text. Please provide a rationale for this approach, and include this in the ODP text, including how this boundary interface is proposed to be managed (e.g. planting, fencing) and advise if there is there is a need to include specific measures within the Operative District Plan to deliver on this outcome.

Response:

98. The ODP text and ODP has been amended to address this matter. Given the requirement for subdivision and development to be in accordance with the ODP, this is considered to provide an appropriate method of imposing this requirement.
99. The rationale for excluding access to Burnham School Road is set out in response to RFI item 23, however to reiterate, the rationale for this is as follows:
- a. Given the current speed restrictions and arterial status of Burnham School Road, there are transport safety and efficiency benefits with not having private vehicle crossings serving residential properties along this road frontage.
 - b. Accounting for heavy vehicle movements to and from the Resource Recovery Plant, there are noise and general amenity benefits with landscaping and bunding this frontage.
 - c. The proposed treatment of this frontage will allow for the installation of an off-road shared cycle/pedestrian path which is largely free of any vehicle crossings, thereby reducing conflict points.

58. The ODP should also be amended to reflect any matters raised in the points in this letter, particularly regarding roading, reserves and reverse sensitivity matters.

Response:

100. Noted. The ODP and corresponding text in **Attachment 3** has been amended as suggested.

59. It is noted that through the Proposed District Plan process, Council is seeking to establish a consistent ODP design with an approach to minimise features on an ODP and utilise assessment considerations in supporting text. While this is a request to change the Operative District Plan, please be aware that alignment of the ODP design may be sought as this request progress.

Response:

101. Noted. The ODP in **Attachment 3** has been amended as suggested, with features on the ODP minimised and assessment considerations otherwise listed as far as practicable within this supporting text. As noted earlier, the rule requirement for subdivision and development to be in accordance with the ODP provides an appropriate regulatory method of ensuring that the outcomes sought are achieved.

Higher Order Documents

60. Please provide a thorough assessment of the plan change request against all the relevant provisions of the Canterbury Regional Policy Statement and the Canterbury Land and Water Regional Plan.

Response:

102. An updated assessment of the plan change request against the relevant provisions of the Canterbury Regional Policy Statement and the Canterbury Land and Water Regional Plan is included in **Attachment 8**.

61. Please also provide an assessment of the plan change request against the Our Space (201-2048): Greater Christchurch Settlement Pattern Update, and the planning directions for supporting urban growth in Greater Christchurch.

Response:

103. An updated assessment of the plan change request against the Our Space (201-2048): Greater Christchurch Settlement Pattern Update is included in **Attachment 9**.

Proposed District Plan

62. Council notified its Proposed District Plan on 5th October 2020. While the list of statutory documents to be considered when changing a district plan, as prescribed in s74 and s75 of the RMA, does not include a Proposed District Plan, case law⁷ suggests that s74 is not an exhaustive list and that scope exists to consider the provisions of the Proposed District Plan. As such, please provide an assessment of the request against the relevant provisions of the Proposed District Plan, and in particular those provisions that have immediate effect.

Response:

104. An assessment of the plan change request against the proposed District Plan, to the extent relevant, is included in **Attachment 10**. However, it is noted that a submission has been lodged on the Proposed Plan seeking that the Plan Change land be zoned for residential activity in a manner that is generally consistent with this plan change request. Accounting for this and the very early stage of the Plan review process, limited weight should be afforded to the proposed District Plan.

63. Where new provisions are proposed to the Operative District Plan to respond to any of the matters raised above, it is recommended that consideration be given to the provisions included in the PDP, given to the need to align this plan change request with the PDP at some point in the future. For example, the noise provisions in the PDP are considered to be more in line with current best practice than the operative rules.

Response:

105. Noted. Where possible, the new provisions proposed in the Plan Change request have been drafted to align with the proposed District Plan.



Consultation

64. It is noted that the plan change request has been provided to Mahaanui Kurataiao Limited for their comment. Please provide a copy of any feedback received.

Response:

106. A copy of the feedback received from Mahaanui Kurataiao Limited is included in **Attachment 7**. A number of their recommendations have been incorporated in the plan change proposal and/or would be imposed at the time of subdivision consent under the existing matters of control within the District Plan. This includes the management of waterways within the plan change area, appropriate stormwater management, landscaping provision that includes indigenous planting, and the adoption of an Accidental Discovery Protocol and sediment control measures at the time of site development.

65. Please advise what, if any, consultation has been undertaken with the following, all of which have designations in close proximity to the plan change area:

- **Waka Kotahi NZ Transport Agency**
- **Ministry of Corrections**
- **Ministry of Children**
- **Ministry of Defence**
- **Ministry of Education**

Response:

107. No consultation has been undertaken to date with these agencies.

108. We trust that this satisfies your further information request. Should further clarification or information be required, please don't hesitate to contact the undersigned.



Yours sincerely,

Novo Group Limited

Jeremy Phillips

Director and Senior Planner

D: 03 365 5588 | **M:** 029 2611 310

E: jeremy@novogroup.co.nz | **W:** www.novogroup.co.nz

021032



Attachment 1: Golder Associates Assessment of Odour-related RFI Matters

1 February 2021

Project No. 20438027_7403-003-L-Rev0

Jocelyn Lewes

Selwyn District Council
2 Norman Kirk Drive,
Rolleston 7614,
Selwyn

**RESPONSE TO REQUEST FOR FURTHER INFORMATION – PC200073 – PRIVATE PLAN CHANGE
REQUEST TO THE OPERATIVE SELWYN DISTRICT PLAN FROM ROLLESTON WEST RESIDENTIAL
LIMITED IN ROLLESTON**

Dear Jocelyn,

Thank you for your request for further information in respect of the above application.

This letter¹ provides responses to questions in paragraphs 5 - 9, and 39 on behalf of Rolleston West Residential Limited (RWRL). The responses are structured according to the order of the requests for further information as set out in the Selwyn District Council (SDC) letter dated 22 December 2020. The SDC requests are repeated in italic text followed by Golder's response.

SDC Paragraph 5. *The Pines Waste Water Treatment Plant (WWTP) (Designations D411 & D416) and The Pines Resource Recovery Park (RRP) (Designation D412) are designated strategic infrastructure for Council. It is considered that the operation of these facilities could potentially give rise to reverse sensitivity concerns including odour and dust emissions, traffic, noise and vibration from truck movements.*

SDC Paragraph 6. *While the various assessment included in the plan change request acknowledge the current operations of these facilities, and propose measures to address reverse sensitivity effects, these measures appear to only take account of the existing operating conditions/environment. Given the potential growth in the district in light of the various plan change requests currently before Council, the expansion of these facilities is anticipated by Council. Therefore the various assessments, including odour and acoustic, are to be amended to acknowledge the future capacity of these facilities. In this regard, it is strongly advised that the applicant liaise with the relevant Council staff to fully understand the planned development of these designated strategic infrastructure sites.*

SDC Paragraph 7. *In relation to the WWTP, Council is moving towards increasing the ultimate capacity of Pines WWTP to 120,000 population equivalents (PE) and beyond, to provide for continuing growth including the potential for this plan change request. Section 2.1.1 of the Odour Assessment assumes 80,000 PE which is considered to understate the capacity of the WWTP going forward. The bio-solids spreading area will also*

¹ This letter is subject to the limitations in Attachment A.

need to increase, to include all of Council's irrigation area (covered by designation D416) to allow growth, beyond that shown in Fig 1. and Fig 2 in the Odour Assessment. While the current method of processing bio solids is solar drying in glasshouses, the blending of bio solids and green waste is still a potential option being considered by Council.

SDC Paragraph 8. *In relation to the RRP, the Odour Assessment recommends a buffer distance of 600m from the composting operation, based on the volume of compost throughput at the site in 2018, while acknowledging that the scale of the operation is not constrained. Given that the scale of composting at the RRP is expected to increase given the population growth in Selwyn, how will this affect the recommended buffer distance in order to prevent reverse sensitivity effects? Additionally the reference to an existing dwelling located 600m from the composting operation is noted. This is a rural dwelling on 20ha zoned Rural (Outer Plains). Clarification is sought about the potential difference in sensitivity of a rural dwelling vs a suburban dwelling of a scale and character proposed by the plan change request.*

Golder Response

With regard to the scale of operation of the WWTP and RRP (including composting) (paragraph 5, 6, 7 and 8), the lawfully existing environment² was considered for the assessment of odour effects. RWRL's counsel have advised that this is appropriate and they note it would be speculative to do otherwise and that any further expansion of the WWTP and RRP would be subject to further assessment, management and potential mitigation through an application for an air discharge consent as a minimum.

With regard to the scale of the composting operation (Point 8), the Golder Odour Assessment provided with the plan change application noted that the application documents, assessment of effects, and decision for the current consent (CRC190492) authorising activity at the RRP relate to an expected throughput of 4,200 tonnes per annum of compost. Based on this throughput, the buffer distance of 600m was developed as being appropriate to avoid reverse sensitivity effects.

Notwithstanding the conclusion above, it is noted that the throughput of compost at the RRP is currently the subject of a consent application (CRC211594). The draft Section 42A report associated with this application refers to discussion with the applicant and agreement regarding an advice note on Condition 1 which states:

"The volume of compost that can be processed at the site is not limited, but the location and layout of the composting area are to be consistent with the plans in the application documents and the Odour and Dust Management Plan required by this resource consent."

Therefore, while a limit on mass throughput is not proposed, the location and layout are expected to be defined. Based on review of aerial photographs it is considered unlikely that the throughput will be able to substantially increase beyond what is currently being undertaken within the footprint defined in the current consent application, i.e., the area defined appears currently to be close to full utilisation. Accordingly, the conclusions reached by Golder in respect of reverse sensitivity effects associated with this activity and its location are considered to be robust.

Therefore, if the scale of the composting needed to increase in the future, we would expect that this would require a new consent to expand the existing operations. In Golder's view, alternative options would be available to facilitate increased operations, including westward expansion or the use of improved methods of composting such as forced aeration.

² Accounting for the designation applying to the land and any applicable resource consent approvals, and in particular air discharge consents.

Regarding the potential difference in sensitivity of a rural dwelling vs a suburban dwelling of a scale and character proposed by the plan change request. Golder considers that while rural dwellings may be generally less sensitive to rural odours, the potential odours effects from the composting operations and WWTP are not consistent with what would be considered rural odours. MfE (2016)³ also refers to rural residential having a high sensitivity to non-rural activities. The Rural Section of the Plan (under B3.4) identifies that rural “..residents should not expect an environment which is as conducive to residential activities as Living zones”. Therefore, on balance, the amenity expectations for the rural property are considered to be slightly lower than properties in living zones.

The operative plan allows for four dwellings to be built within 600 m of the composting operation in a large block living zone (see attached Figure 2). We consider additional houses within 600m of the composting operation is likely, from a probability perspective, to increase the likelihood of reverse sensitivity odour effects. Therefore, our recommendation is that no additional dwellings are built within 600 m of the composting operation to avoid reverse sensitivity effects. We note that this outcome would avoid reverse sensitivity effects to a greater degree than the status quo, insofar that the proposed change would result in four fewer houses being located within the 600m buffer distance from the composting operation.

SDC Paragraph 9. *The odour assessment also recommends a buffer distance of 300m from the waste transfer operation on the basis that nothing has changed since 2008. The quantity of waste handled has increased and will increase further as the District experiences population growth. How will this affect the recommended buffer distance in order to prevent reverse sensitivity effects?*

Golder Response

The Golder assessment considered that as the consented operation has not changed since 2008 and the distances recommended in the various buffer distance guidelines has not changed, the previously recommended 300 m buffer was still appropriate.

When considering the quantity of waste, it is noted that the Australian EPA guidance documents do not define the separation distance based on throughput waste throughput.

We anticipate that these guidance documents were developed for transfer stations which service much larger urban populations than the current or future population that is served by this facility. Therefore, Golder considers the scale of the Rolleston waste transfer station is consistent with those anticipated by the guidance documents.

Further, our own experience with well managed waste transfer stations is that a 300 m buffer is likely to be adequate to reduce offsite odour and dust effects to an acceptable level.

Therefore, the buffer distance of 300 m recommended is considered appropriate to mitigate against reverse sensitive effects even when considering an increase in population and therefore throughput of the waste transfer station.

³ Ministry for the Environment. 2016. Good Practice Guide for Assessing Discharges to Air from Industry. Wellington: Ministry for the Environment.

SDC - Odour Assessment

SDC Paragraph 39. *It is requested that the following further matters be addressed to provide a more robust assessment of potential reverse sensitivity effects which might result from the rezoning of the two blocks.*

SDC request 39, Bullet 1: *The recommended buffer distances are provided in Table 1 and illustrated in the maps in Figures 1 and 2 of the Golder report dated 11 November 2020. It is noted that the distances of the buffers zones from the boundaries of the individual odour sources as drawn on the maps appear to be less than the actual distances when measured in Google Earth (i.e. the buffers as drawn are smaller than what is measured in Google Earth). In addition, the scale bars on the maps do not agree with the actual spatial scale of the maps. It is recommended that the buffer distances in the maps be re-examined and the assessment updated as required.*

Golder Response

It is agreed the maps were incorrect and an updated map is attached to this letter (Figure 1). The tabulated values presented have been maintained.

SDC request 39, Bullet 2: *The buffer distance for the chicken sheds recommended in the Golder report is 150 metres. However a review of the report upon which this recommendation is based has been undertaken by Beca in 2011 and is included in the Section 42A report for the original plan change application for the two blocks⁴. The Beca report has suggested that the dispersion modelling undertaken for the chicken sheds is not considered reliable, and recommends a more conservative buffer distance of 300 metres from the sheds. The reviewer in general agrees with Beca's review of the modelling of the chicken farms and recommends that the more conservative buffer distance of 300 metres be adopted unless an additional assessment which takes into account the recommendations outlined in the Beca report can demonstrate that 150 metres is an acceptable buffer distance. [It is noted that Rule C3.13.1.5 of the Rural Volume of the Operative District Plan requires that any sensitive activity is setback a minimum of 300m from any existing lawfully established intensive farming activity.]*

Golder Response

We have reviewed the Beca report and critiques of the Golder (2008) modelling approach. The modelling approach and criteria were set based on a set modelling approach and the criteria was developed based on feedback from neighbours. The approach has been used for a number of assessments in Canterbury and accepted in Environment Court⁵. The modelling approach was adapted to account for the birds being breeder birds compared to broiler birds, by adjusting the odour emission rate to be based on fully grown broiler birds. This is considered appropriate and we consider that it is a robust and conservative approach for determining reverse sensitivity effects. Regarding the concerns raised by Beca of the limitations of the Ausplume model versus the Calpuff model, for flat ground we consider the Ausplume model appropriate and as the odour criteria was developed using the Ausplume model it is considered appropriate.

With regard to Rule C3.13.1.5 of the Rural Volume of the Operative District Plan, we understand from Novo Group, that this does not apply in Living Zones and therefore does not apply to the Skellerup block.

⁴ https://www.selwyn.govt.nz/_data/assets/pdf_file/0013/51430/S42a-Report.pdf

⁵ M & D Rickerby [RMA 368/02, 743/03 & 744/03].

SDC request 39, Bullet 3: *The separation distance for composting operations of 600 metres is stated as being based on the current throughput of 4,200 tonnes per year of compost. As discussed elsewhere in this letter the composting operations at the RRP have increased in scale since the granting of the last consent, and will continue to increase in scale over time. Furthermore, the current throughput of 4,200 tonnes per year as stated in the Golder report refers to the end product, whereas the equivalent mass of raw compost accepted at the composting facility will be 6,500-7,000 per year. It is recommended that future growth of the composting facility be taken into account when considering an appropriate separation distance from the composting activities.*

Golder Response

As discussed in response to Point 8, it is considered that the scale of the operation is effectively constrained via the current consent CRC190492. With regard to the increase in scale, as discussed, any increase in operation would require changes to the consent and additional mitigation may need to be considered. On this basis, the 600 metre separation distance adopted by the Plan Change is considered appropriate in order to avoid reverse sensitivity effects.

SDC request 39, Bullet 4: *The separation distance of 600 metres from the composting operations illustrated in the maps are drawn from the rows of active compost at the site. However it is understood that the location of the composting activity is not restricted to a particular area within the site, and so may change locations over time. It is therefore considered that the buffer zone should be drawn from the site boundary rather than the current locations of the rows of active compost. Likewise, it is recommended that the buffer distance of 300 metres from the waste transfer operations be applied to the entire site boundary to provide for potential operational changes at the site in future.*

Golder Response

The guidance provided in the Victoria EPA⁶ publications on buffer criteria state that the separation distances should be measured from the bounds of the activity rather than the property boundary. Therefore, it is considered appropriate to use the activity location. For the composting operation, as outlined above, it is considered that the location of the active composting is defined by CRC190492 therefore it is appropriate to measure the distance from the source. Likewise, for the waste transfer operation, it is considered reasonable to use the plant buildings as the distance to take the measurement from. It is considered that the activity is authorised (and constrained) to this location and we are unaware of any public plans to change the site layout. If it were to change, it would again be subject to a new or altered consent.

SDC request 39, Bullet 5: *Golder (2008) originally recommended a buffer distance of 1000m surrounding the bio solids processing facilities based on the level of uncertainty regarding the potential treatment method to be used and the fact that the WWTP is located upwind of the Holmes Block during southwesterly winds. This distance was reduced to 400m in the 2020 report based on the method of drying being in an enclosed glasshouse as opposed to composting or other methods. It is recommended that the applicant provide justification for why they think solar drying is in fact less odorous (and in particular the solar drying operation at the Pines WWTP).*

⁶EPA Victoria Recommended Separation Distances for Industrial Residual Emissions. March 2013.

Golder Response

The Golder (2008) recommended buffer of 1,000m was based on a lack of information relating to any of the aspects of the biosolids treatment (i.e. treatment of biosolids following the aerobic digestion process). There was no set processing method, design parameters or monitoring of factors that affect odour generation. Therefore, a conservative separation distance was recommended at that time. Now it is known that there is consented solar drying operation at Pines WWTP (described in CRC210644) and that it has high level of control of the various parameters that are likely to influence odour generation.

MWH and Scion (2011)⁷ set out the operational experience and design of the solar drying plant. The solar drying operation has PLC controlled ventilation fans, and feed-rate and automated solids and therefore it has a high degree of process control. We consider that this operation is likely to be less odorous than what could be assumed previously due to the high level of control and management of the solids as they are dried.

Following conversations with Chris Bender (26/1/21, SDC reviewer) Golder understands that there have been recent concerns regarding the odour from the solar drying operation. Following discussion with Murray England⁸ (Asset Manager Water Services, Selwyn District Council) we understand that the current solar drying operation is at and occasionally beyond the upper limits of its capacity and this is what is causing the odour concerns. The site is in the process of increasing capacity to be able to treat 60,000 PE of Wastewater compared to the current design capacity of 30,000 PE. Golder assumed a capacity of 80,000 PE for its assessment based on our understanding of the plant's future capacity. Therefore, the capacity will still be lower than what was evaluated in the separation distance assessment.

Notwithstanding any current operational difficulties, for a well-managed operation with the control and monitoring measures a 400 m separation distance is considered to be appropriate. Due to the 900 m distance to the Holmes block, odour related reverse sensitivity effects will be adequately avoided at the Holmes block.

SDC request 39, Bullet 6: *Notwithstanding the above, it is noted that separation distances do not have any clearly defined regulatory standing in New Zealand, and the reviewer considers a quantitative or semi-quantitative assessment specific to the area in question will provide a more robust assessment of potential reverse sensitivity effects on residences in the Holmes and Skellerup blocks. This should include at a minimum a FIDOL assessment of the activities and a review of any odour complaints for the area within the most recent 10-year period. This may be undertaken as a desktop review of the air discharge consents and associated applications with supporting documentation for the various odour-generating activities in the area.*

Golder Response

The use of separation distances is considered to be appropriate for reverse sensitivity assessments. They are explicitly referred to in MfE (2016) as useful tools for managing reverse sensitivity. Golder considers recommended separation distances to be a screening assessment and if these distances can be maintained then further assessment is not required in most circumstances. In this case we have recommended separation distances that are expected to be sufficient to avoid reverse sensitivity effects.

We have reviewed all consent applications and odour assessments available for the activities identified along with previous separation distance assessments. The information in these have been considered in this assessment and there is sufficient information to complete a separation distance-based assessment.

⁷ https://www.waternz.org.nz/Attachment?Action=Download&Attachment_id=546. Accessed 27/1/2020

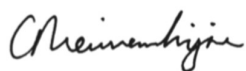
⁸ *Pers Comms* C Nieuwenhuijsen, M England (28/1/21)

Regarding complaints, we understand based on CRC211594 application there has only been one complaint in the last 10 years. Given the current low population, it is difficult to make any sound conclusions regarding odour effects from complaint data.

Closing

We trust the above information fulfils SDC's requirements. If you have any queries regarding this letter, please contact the undersigned by email at cnieuwenhuijsen@golder.co.nz or phone at (03) 377 5696.

Golder Associates (NZ) Limited



Cathy Nieuwenhuijsen
Senior Air Quality Consultant

CN/RSC/mt

Attachments: A: Report Limitations
B - Figures

[https://golderassociates.sharepoint.com/sites/137296/project files/6 deliverables/003-rfi response/20438027_7403-003-l-rev0_final.docx](https://golderassociates.sharepoint.com/sites/137296/project%20files/6%20deliverables/003-rfi%20response/20438027_7403-003-l-rev0_final.docx)

ATTACHMENT A

Report Limitations

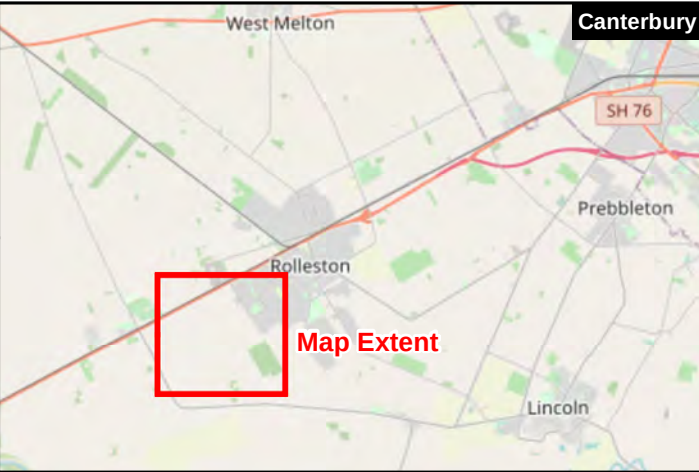
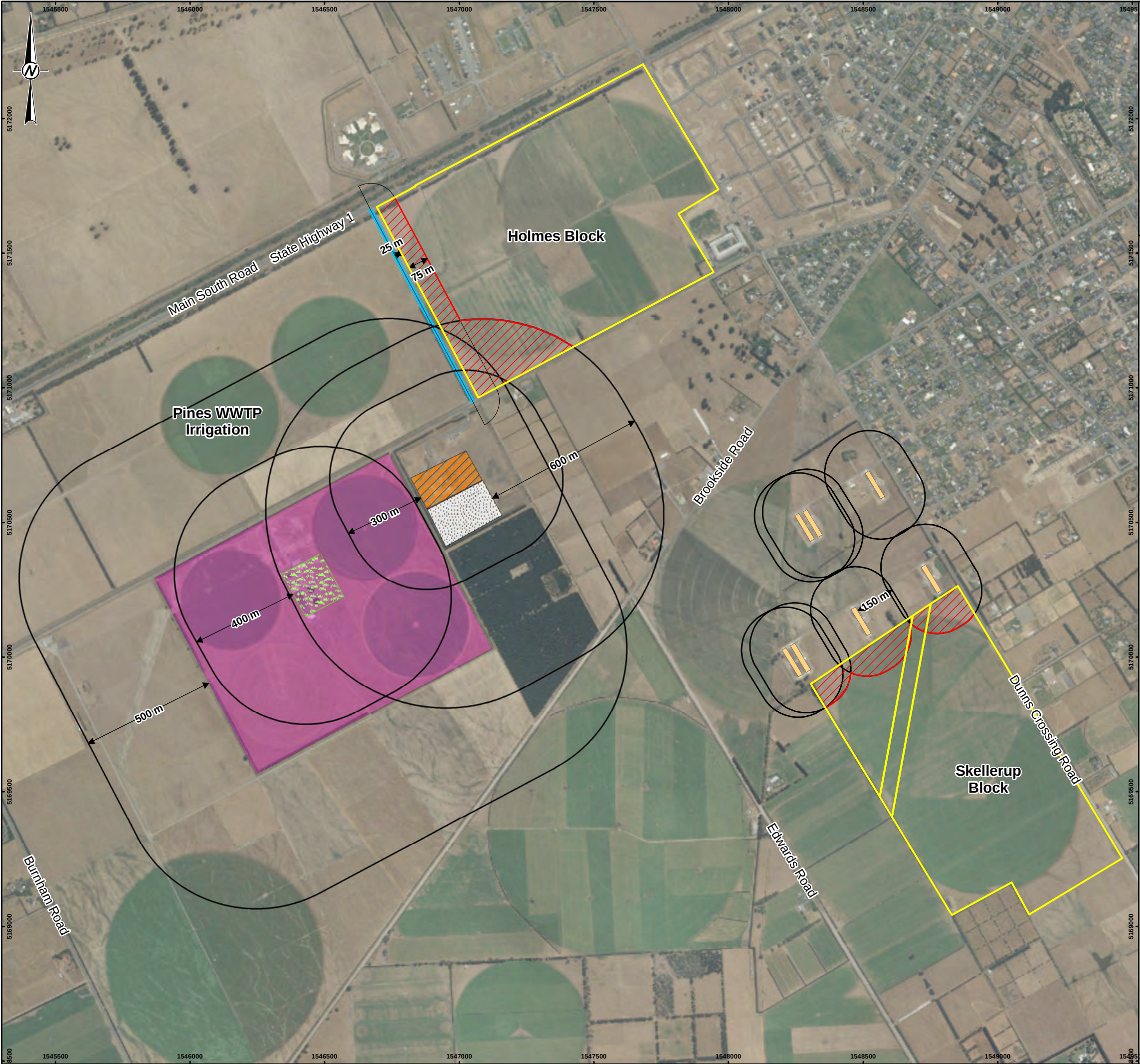
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ATTACHMENT B

Figures



LEGEND

- Blocks
- Recommended Odour Control Area
- Individual buffers
- Tegel Farms
- Pines Waste Transfer Area
- Pines Composting Area
- Pines Biosolids Drying Area
- Pines Biosolids Spreading Area
- Irrigation Boundary
- Buffer distances

NOTES

1. Aerial image: LINZ and Eagle Technology, CC-BY-3.0-NZ.
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0 500 1,000 METRES

REFERENCE SCALE: 1:14,000 (at A3)

PROJECTION: NZGD 2000 New Zealand Transverse Mercator

CLIENT
SELWYN DISTRICT COUNCIL

PROJECT
ROLLESTON CARTER GROUP PRIVATE PLAN CHANGE

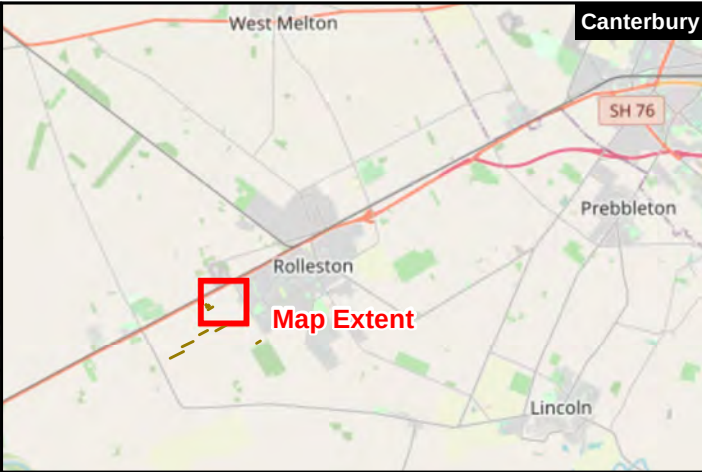
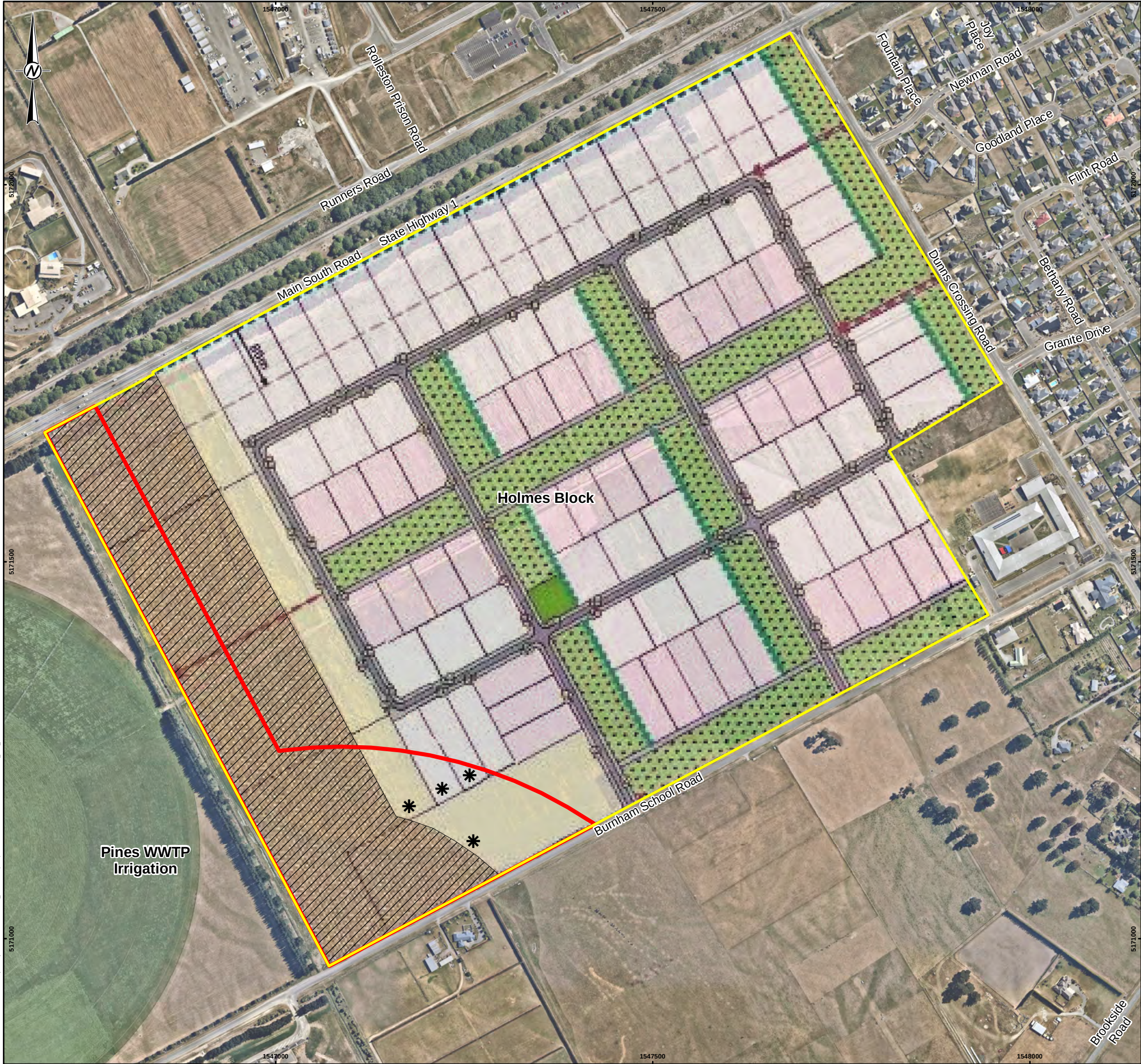
TITLE
SITE PLAN

CONSULTANT	YYYY-MM-DD	2021-01-29
	PREPARED	AE
	REVIEW	AK
	APPROVED	CN

PROJECT NO.	REPORT	REV.	FIGURE
20438027	003	0	01

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A3



LEGEND

- Holmes Block - Current Operative Plan
- Recommended Odour Control Area
- Operative Plan Odour Control Setback Area
- Operative Plan Potential House Locations

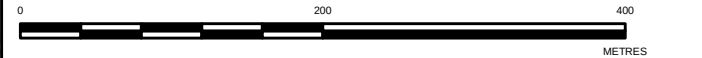
Selwyn District Council Operative Plan Legend:

- 4000m² to 5000m² Lots Permitted
- Lower Density Area (minimum 4ha lots)
- Countryside Area
- Community Focal Point / Reserve
- State Highway Buffer Planting Treatment Required
- Shelter Belt Treatment Required
- Street Tree Planting
- Public Walkway
- Local Road (refer to diagram overleaf)
- Odour Control Setback Area
- State Highway Building Setback

- NOTES**
- Aerial image: Nearmaps WMS.
 - Map image: © OpenStreetMap (and) contributors, CC-BY-SA
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 - Site layout courtesy of Selwyn District Council, Appendix 39.

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REFERENCE SCALE: 1:5,000 (at A3)
PROJECTION: NZGD 2000 New Zealand Transverse Mercator

CLIENT
SELWYN DISTRICT COUNCIL

PROJECT
ROLLESTON CARTER GROUP PRIVATE PLAN CHANGE

TITLE
SITE PLAN - CURRENT AND PROPOSED ACTIVITIES

	CONSULTANT	YYYY-MM-DD	2021-01-29
		PREPARED	AE
		REVIEW	CN
		APPROVED	CN

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Attachment 2: Powell Fenwick Assessment of Noise-related RFI matters

DESIGN ADVICE MEMO

ACOUSTIC



Memo No **A02 Issue B**
Job Name **Rolleston West Subdivision**
Job No **201552**
Date **2 February 2021**
To **Novo Group**
Email **jeremy@novogroup.co.nz**
Attention **Jeremy Phillips**
Copies to

P 03 366 1777

W www.pfc.co.nz

383 Colombo St, Sydenham,
Christchurch

PO Box 7110, Sydenham 8240
Christchurch


Signature **Mark Lewthwaite**

Rolleston West Plan Change (ODP Area 39 and 40) - Addendum 1 RFI Response

1. Introduction

Powell Fenwick has been engaged by Rolleston West Residential Ltd to undertake assessment of reverse sensitivity noise implications of a proposed rezoning of the Holmes block and the Skellerup block in West Rolleston. Rolleston West Residential Ltd propose plan changes that rezone the land from Living 3 Zone to Living Zone Z, resulting in intensification of residential activity relative to the status quo. The Holmes block is located at 385 Burnham Rd adjacent to State Highway 1 (SH1). The Skellerup block is located on Dunns Crossing Rd over 1.5 km south of SH1.

Our earlier Design Advice Memo A01 Issue B titled *Rolleston West Plan Change (ODP Area 39 and 40)* dated 17 Nov 2020 drew comparisons between the Holmes block proposal at 385 Burnham Rd and the conditions on nearby subdivisions ODP Area 1 (Stonebrook) and ODP Area 3/8 to gauge the suitability of the proposed rezoning.

This addendum 1 is in response to a Selwyn District Council request for further information (RFI). The relevant RFI documents are:

- Selwyn District Council, titled *PC200073: Private Plan Change Request to the Operative Selwyn District Plan from Rolleston West Residential Limited in Rolleston - Request for further information*, dated 22 Dec 2020.
- The accompanying noise review by Acoustic Engineering Services, File Ref: AC20356 - 01 - D1, project *Selwyn District Council - Private Plan Change Request 73*, dated 18 Dec 2020.

Most particularly this addendum responds to RFI item 46 which states:

“It appears that there may be other noise sources in the area which could be of concern from a noise reverse sensitivity perspective, such as the RRP (and associated heavy vehicle movements along Burnham School Road), traffic on Dunns Crossing Road, and the intensive farming operation to the north of the Skellerup block. An assessment of these sources should be provided.”

The assessment of the above also addresses RFI item 10 which states:

“Further, in relation to the RRP, the acoustic assessment is limited to an assessment of SH1 road noise and the impact on future residential amenity. Please consider the reverse sensitivity effects arising from heavy vehicle movements travelling to/from The Pines along Burnham School Road, particularly given the reduced road setbacks to residential activity proposed.”

And addresses RFI item 6 which states:

“While the various assessment included in the plan change request acknowledge the current operations of these facilities, and propose measures to address reverse sensitivity effects, these measures appear to only take account of the existing operating conditions/environment. Given the potential growth in the district in light of the various plan change requests currently before Council, the expansion of these facilities is anticipated by Council. Therefore the various assessments, including odour and acoustic, are to be amended to acknowledge the future capacity of these facilities...”

The Pines/RRP is the Pines Resource Recovery Park - Selwyn District’s waste handling facility. The intensive farming operation referred to would most clearly relate to poultry sheds at Dunns Crossing Rd immediately north of the Skellerup Block. The below plan shows key features relevant to the assessment of these matters.

Noise from SH1 is addressed in our earlier design memo and no further comment is provided in this addendum.



Figure 1. Location plan including relevant features.

We point out that the land subject to the proposed plan change is already zoned Living 3 which provides for rural residential activity and is therefore, at a planning level, suitable for residential activities. This further assessment will therefore give particular attention to where effects change as a result of intensification outcomes from the rezoning.

2. Site Survey

Observations of the existing noise environments at the Skellerup and Holmes block were conducted on Thursday 26 Jan 2021 and measurements taken between 0936 hours and 1017 hours. The survey was undertaken by James Glen of Powell Fenwick. The site measurements were intended to support an observational analysis of the likely noise generating activities rather providing a comprehensive account of noise exposure under all conditions.

During the survey, wind speeds were generally less than 5 m/s for the Skellerup Block, but were between 5 m/s and 10 m/s during the measurements conducted at the Holmes Block. Wind induced noise (rustling of trees etc.) is likely to have some contribution to the noise levels in both surveys.

Measurements at Skellerup Block (LT1) were conducted using an unattended sound level meter (NTi XL2-TA SN:A2A-15282-E0) for the duration of the survey. The Class 1 sound level meter was calibrated to 114 dB before and after the survey and no significant drift was observed. The sound level meter was laboratory calibrated on 04 Dec 2020. The calibrator (SV33a: ser.58057) was calibrated on 05 Mar 2020. Audio recordings were made throughout the survey such that peak noise events could be analysed to establish the source.

A second sound level meter (B&K 2250: ser.2625254) was used to measure the noise on the southern corner of the Holmes Block, nearest the RRP. The sound level meter was also calibrated to 114 dB before and after the survey and no significant drift was observed. The sound level meter was laboratory calibrated on 05 Mar 2020. The calibrator (SV33a: ser.58057) was calibrated on 05 Mar 2020.

All instrumentation used within this survey is therefore considered to be in calibration.

Observations made during the survey of the Holmes Block are as follows:

- The dominant source of noise along the south boundary was traffic on Burnham School Rd, the loudest event was attributed to a passenger vehicle approaching at approximately 100 km/h on the chip seal road.
- Some commercial vehicles (skip lorries, Waste Management rubbish trucks and a selection of light commercial vehicles) were measured during the survey. Noise from these vehicles was not observably louder than cars travelling at cruising speed along the road.
- There was no observable noise from the Pines Resource Recovery Park, and we noted that it was operating with approximately 15 arrivals/departures during the 15 minute measurement period.

Observations made during the survey of the Skellerup Block are as follows:

- The dominant source of noise was traffic on Dunns Crossing Rd, with heavy vehicle pass bys reaching up to 80 dB L_{Amax} at a distance of approximately 5m from the road edge (at the position of the fence line).
- We understand that a poultry farm is established on the block directly north of the site. Noise from the farm included what appeared to be a conveyor/feeding system type noise and was briefly audible between road traffic movements. Considering the continuous background level of other noise sources in the area (wind in trees etc.) we estimate the specific level of this source to be approximately 46 dB L_{Aeq} at a measurement distance of approximately 70 m from the sheds.
- Other sources of noise include the construction of a new retirement village in the lot opposite which became more significant towards the end of the measurement period.

A summary of the measurement results is present in Table 1 below:

Table 1: Summary of measurements undertaken on 26 Jan 2021

Measurement Location	Time	Duration(mins)	L_{Aeq}	L_{AFmax}
M1 - Holmes	09:49 - 10:04	15	62	85.2
M2 - Skellerup	09:36 - 10:17	41	60.1	82.6

3. Assessment

Holmes Block

The survey affirmed that the noise environment is typical of rural environments with moderate traffic volume rural roads, notwithstanding the potential for seasonal farming activities to be part of the sound environment.

The RRP public operations did not generate noise effects on the Holmes site observable within the day-time noise environment and the opening hours are 0900-1630 hours (7 days) therefore no night-time effects are anticipated from public operations. These comments are valid even with significant expansion of usage/activities.

Considering the removal of waste from the RRP, we made contact with Andrew Boyd who is the SDC Solid Waste Manager. Mr Boyd informed us that “H-marked” truck and trailer units remove the waste between 0400-1300 hours most days. He was uncertain of the exact number of truck and trailer units (although this information would be attainable with his scrutiny of records) but estimated seven movements in and out each day, with perhaps 2-3 prior to 0800 hours. The truck and trailer units drop off empty containers and take full containers - identifiable as the blue containers in the image below. Mr Boyd expected the departure route was typically north-east along Burnham School Rd then north-west along Dunns Crossing Rd to the State Highway.



Figure 2. Resource Recovery Park image from SDC Website.

The truck and trailer units are likely to cause noise effects similar to the louder vehicles measured during the sample measurement i.e. in the order of 85 dB L_{Amax} at 5 m from the road. While this is louder than ideal and would exceed some criteria for potential to cause night-awakenings at properties close to the road (as would be expected with intensification), other vehicles causing similar noise levels could reasonably be expected during night-time hours on Burnham School Rd (as per any through-road near a township) and in that context the effect would not be as apparent.

Further, the expected route of the units through the Selwyn District would presently include proximity to dwellings in Rural zones and likely proximity to more intensified housing in Living zones on Dunns Crossing Rd which may indicate community acceptance of the noise effects.

Sound reduction considerations are as follows:

- As the setback to the façade of any dwelling is likely to be greater than 5 m from the road, sound levels will be reduced, in the order of 3 dB lower should the façade be at 10 m from the road, with other areas of the dwelling subject to further reduced noise levels.
- We understand Rolleston West Residential Ltd is considering installation of a bund, fencing or combination of both along Burnham School Rd, of total height 2 m, which we endorse for reduction of road traffic noise. Such an acoustic barrier, where continuous, would provide in the order of 5 dB of reduction. Fencing would need to be of a continuous nature, free of gaps and in the order of 10 kg/m² surface mass, specifics to be approved by an acoustic engineer during landscape detailed design.

- A speed reduction to 60-80 km/h on Burnham School Rd would provide in the order of 2-4 dB reduction (should speed reduction be under consideration).

The Waste Water Treatment Plant, located approximately 800m from the boundary of the Holmes block would not be expected to have observable noise effects within the Holmes Block. Related irrigation would be intermittent and has a minimum setback of approximately 160 m from the block, with further margin to housing considering likely odour setbacks. Some irrigation activities can be expected near residential interfaces with rural land. Any vehicle traffic related to the Waste Water Treatment Plant would be occasional and be consistent with observations above on the nature of traffic on Burnham School Rd.

We expect that Dunns Crossing Rd will remain at 50-60 km/h and therefore will have noise effects similar to a number of township through-roads, and is consistent with similar roads in the District and other residential developments on Dunns Crossing Rd, which do not require specific noise mitigation.

Skellerup Block

The survey affirmed that the noise environment is typical of rural environments with moderate traffic volume rural roads, notwithstanding the potential for seasonal farming activities to be part of the sound environment.

The poultry farming equipment in the sheds created observable noise estimated to be 46 dB L_{Aeq} at the measurement position 70 m from the sheds, identifiable in between road traffic and natural environmental noise sources. We understand due to odour concerns, the closest housing proposed will be 150 m from the sheds and therefore noise levels would be expected to be in the order of 40 dB L_{Aeq} . This level is reasonable and common in a residential context and meets NZS 6802:2008 *Acoustics - Environmental noise* guidance of 55 dB L_{Aeq} and 45 dB L_{Aeq} during the day-time period and the more stringent night-time period respectively.

We expect that Dunns Crossing Rd will remain at 50-60 km/h and therefore will have noise effects similar to a number of township through-roads, and is consistent with similar roads in the District and other residential developments on Dunns Crossing Rd, which do not require specific noise mitigation.

Expansion of the WWTP and RRP

Expansion of infrastructure related to growth in the District (refer RFI item 6), is not expected to have significant impact on the proposed rezoning, for the following reasons.

- Whether is it the same on site activity occurring twice as frequently (such as drop offs at the RRP) or twice the output required (such as two pumps operating instead of one at the WWTP), acoustic scaling would predict noise increase in the order of 3 dB in average noise levels which is minimal increase in the context of the low operational noise exposure.
- If the infrastructure activity was to fundamentally change, it would still need to address noise exposure at the blocks, which are presently zoned for rural residential activities.
- Additional service vehicle movements on the road would not increase the maximum noise exposure, and as they are likely to be a small proportion of overall traffic flow, average noise levels are unlikely to measurably increase.
- The possibility of additional truck and trailer unit trips during early hours would presumably increase proportionally with other vehicle traffic so the effect would remain in context (refer comments above).
- Significant further growth in housing may also result long term in reduced speeds on Burnham School Rd, which would reduce average noise levels from road traffic.

4. Conclusion

The Holmes site and the Skellerup site are subject to noise effects from the nearby RRP and poultry farming activities respectively. Otherwise the noise environment would be typical to rural areas adjoining urban residential environments.

Noise from RRP truck and trailer units and other vehicle movements on Burnham School Rd may cause night-time disturbance at residential sites located alongside Burnham School Rd within the Holmes block. However, subject to the landscaping on Burnham School Rd incorporating an acoustic barrier of at least 2m height, this would mitigate the noise exposure to levels in the order of 77 dB L_{Amax} which is reasonable in our view, for the reasons stated above.

Noise from the poultry farming sheds at Dunns Crossing Rd immediately north of the Skellerup block, if the proposed 150 m setback from the poultry sheds to housing within the Skellerup site was implemented, would result in expected noise levels of 40 dB L_{Aeq} which is reasonable in the context of New Zealand guidance criteria.

The expanded use/capacity of the WWTP and RRP is not expected to result in significant increase in noise effects.

The initial assessment of SH1 noise and conditions, and this addendum addressing other noise sources are considered to provide a full assessment.



Attachment 3: DCM Urban Assessment of Urban Design related matters & Revised ODPs

The logo for INOVO, featuring the word in a stylized, lowercase, sans-serif font. A horizontal green bar is positioned below the letters.

ROLLESTON WEST PLAN CHANGE FOR ROLLESTON WEST RESIDENTIAL LIMITED

4 February 2021
PROJECT. 2020_129
REVISION D

ROLLESTON WEST PLAN CHANGE - URBAN DESIGN STATEMENT

Project no: 2020_129
Document title: 2020_129 Rolleston West Plan Change_Urban Design Statement_D
Revision: D
Date: 4 February 2021
Client name: Rolleston West Residential Limited

Author: David Compton-Moen / Peter McAuley

DOCUMENT HISTORY AND STATUS

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C	16/11/2020	MINOR AMENDMENTS	DCM / PM		
D	4/02/2021	Council RFI	DCM / PM		



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INTRODUCTION

DCM Urban and Inovo Projects Limited have been commissioned by Rolleston West Residential Limited to prepare an Urban Design Statement and Outline Development Plan (ODP) for approximately 160Ha area, in two blocks, on the western edge of the existing settlement. Input into this plan and statement has also been provided by:

- Novo Group Limited - Planning and Traffic



LOCATION MAP (nts)

LOCATION AND CONTEXT

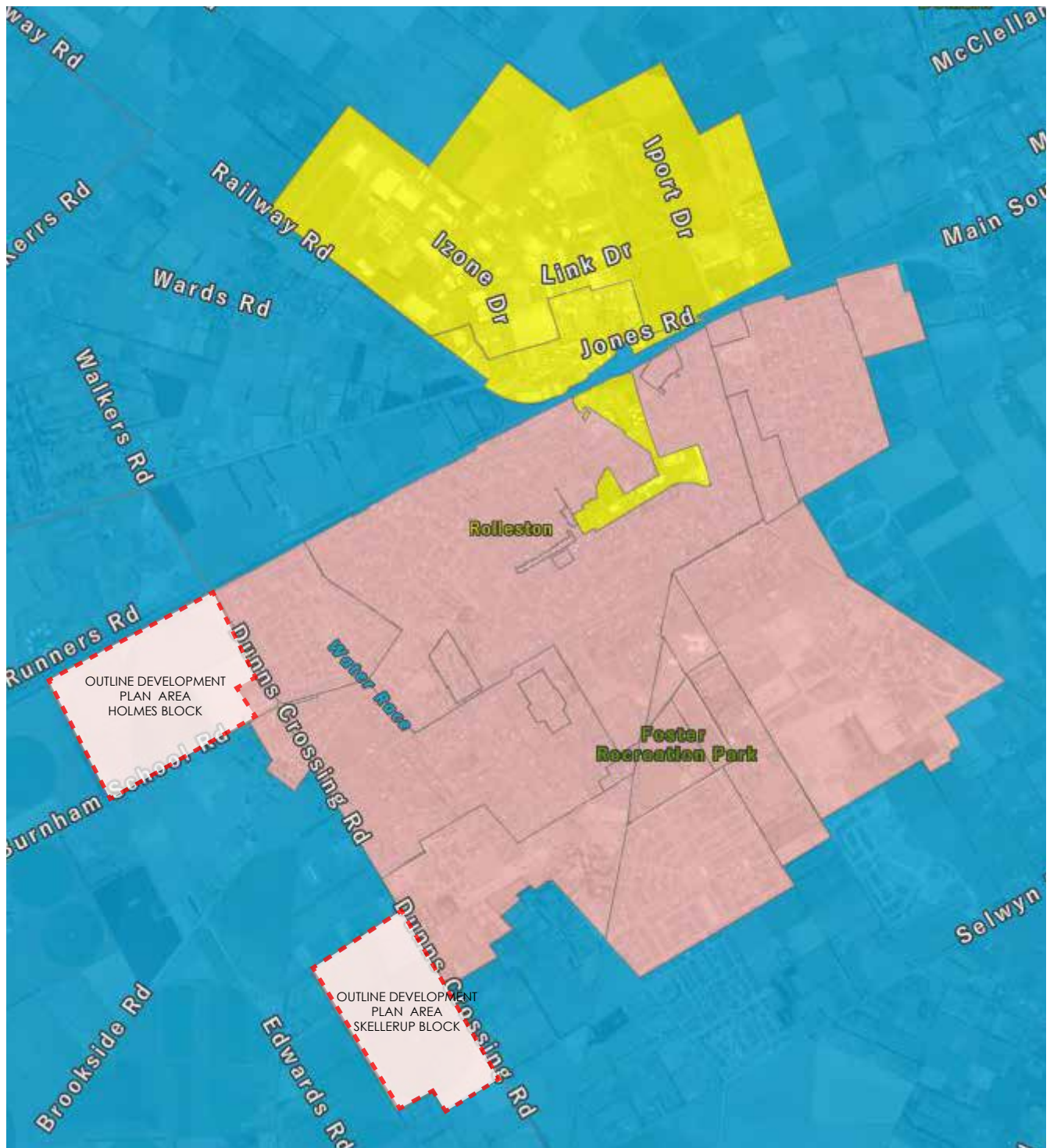
Located on the western edge of Rolleston, the two ODP blocks of Holmes and Skellerup are 2.2km and 2.9km respectively from the town centre. There are several residential developments on the eastern side of Dunns Crossing Road, including Stonebrook, Kajens Country, The Boulevard as well as a recent proposal to rezone the southwestern corner of Farringdon from Rural to Living Z. Adjacent to the Holmes Block, dwellings are of typical suburban bulk and location, while those adjacent to the Skellerup Block have typical rural residential character. These are separated by large fields and exotic vegetation, have an irregular bulk and location, and are often supported by additional infrastructure such as sheds and storage buildings.

Overall, the receiving environment has a rural, semi-open character on the outskirts of residential suburban development. The existing environment has various structures including dwellings, auxiliary structures, power lines and exotic vegetation clustered throughout the landscape typical of rural landscapes.

There are no natural features of site on either block, being relatively flat paddocks with limited vegetation of note. The existing Holmes Block is bound by Dunns Crossing Road to the east and Burnham School Road to the south, while existing Skellerup Block is bound by Dunns Crossing Road to the east and centrally located between Brookside Road to the north and Selwyn Road to the south. To the east of both sites lies the western edge of Rolleston Township where expansion with a typical suburban character increases the number of dwellings, hard surfaces, and infrastructure present in the landscape.

Vegetation types in the receiving environment are predominantly exotic species, with small amounts of native species located near some waterways and paddock boundaries. Vegetation is used predominantly for shelter belts running along the paddock boundaries and includes species such as *Pinus radiata*, *Cupressus macrocarpa*, and *Eucalyptus* varying in height between 7 – 15m. The shelter belts are orientated to block the prevailing winds and are primarily located to delineate property boundaries, around existing dwellings and along parts of the roads. The majority of the site is open grass fields, which is disrupted occasionally by clusters of vegetation, water races, and infrastructure such as sheds and residential dwellings.

The image on the following page was sourced from the Operative Selwyn District Plan, highlighting the current residential and commercial zones in Rolleston. The underlying zone of the two ODP areas is Living 3.

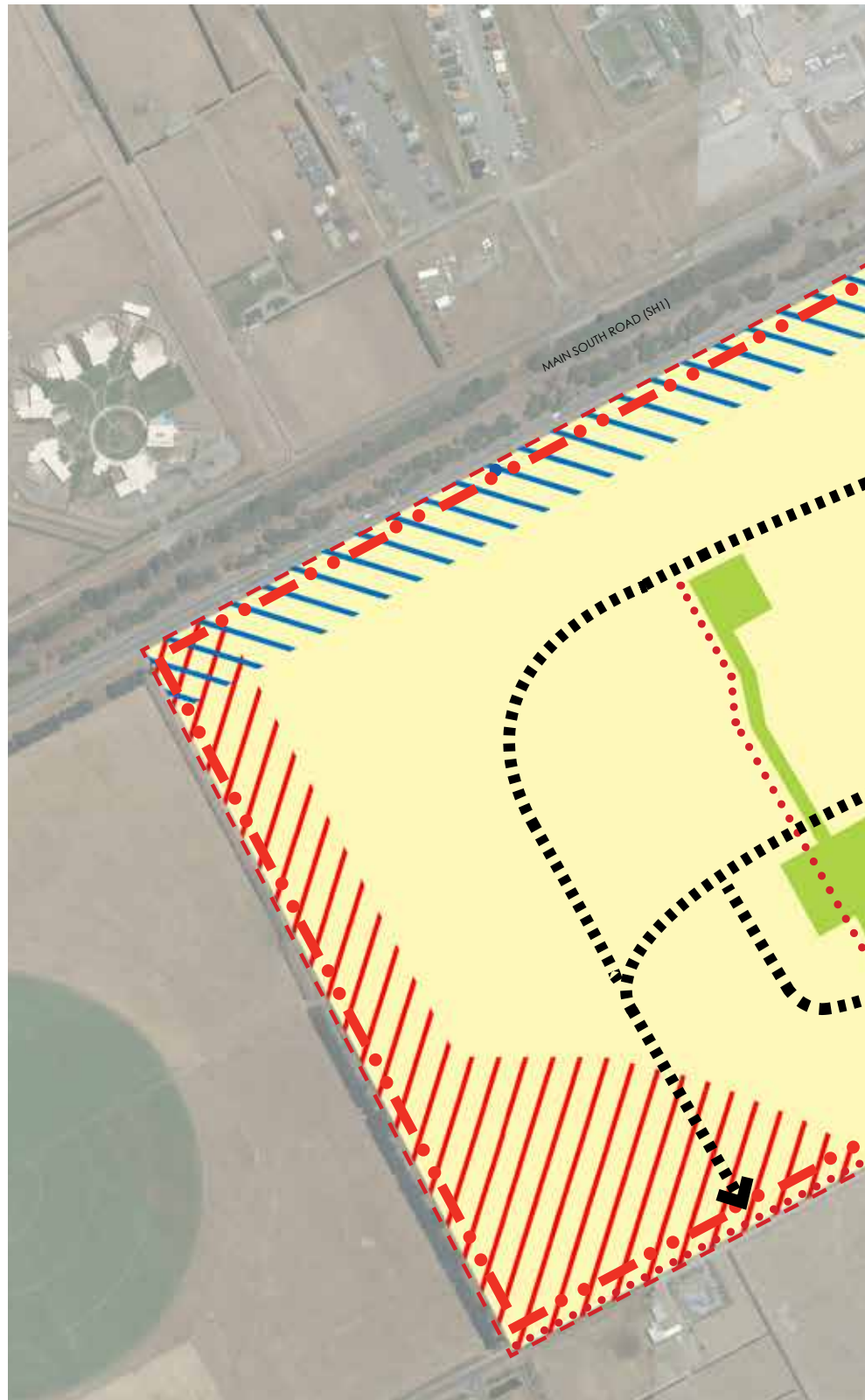


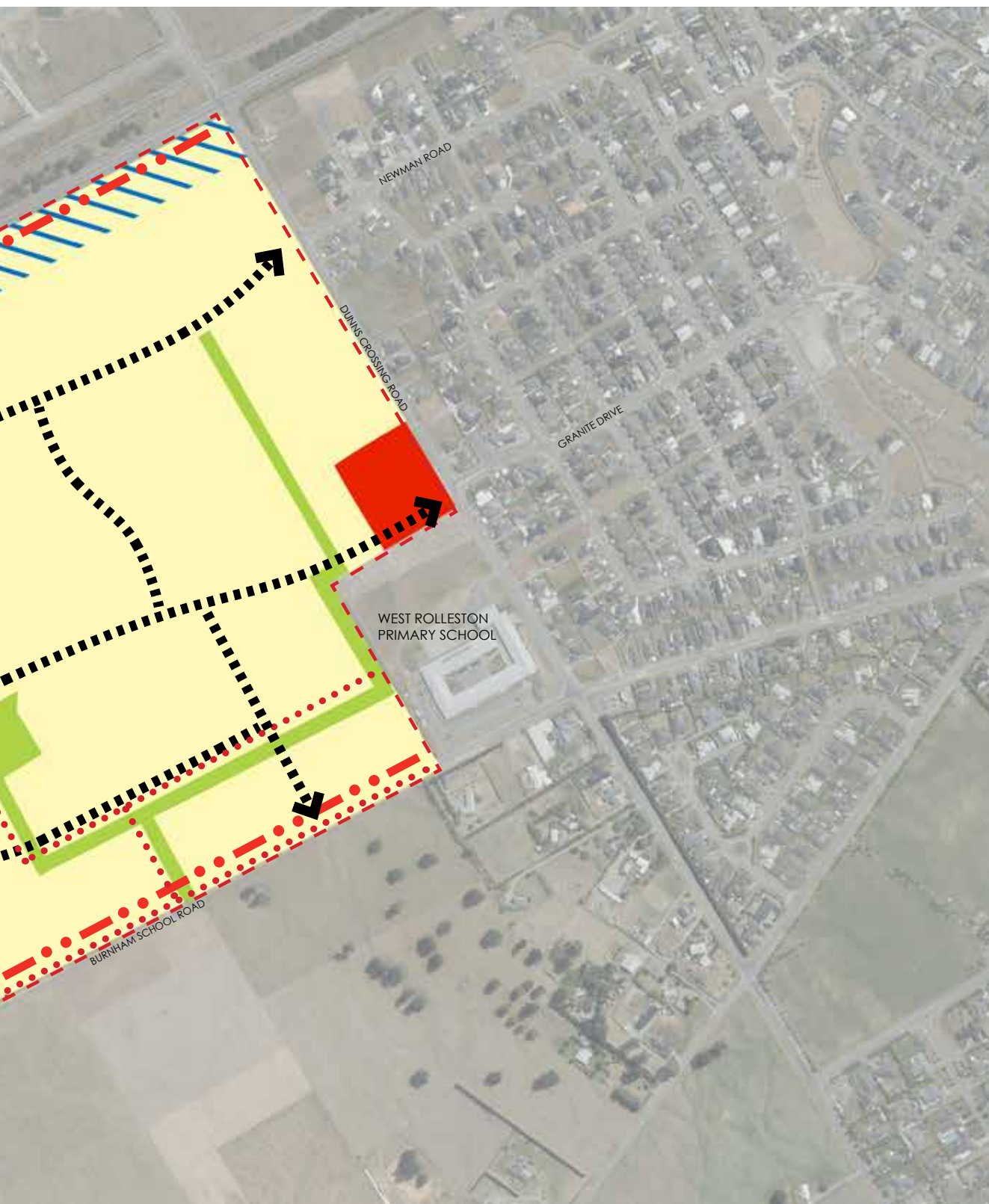
CURRENT RESIDENTIAL & COMMERCIAL ZONES MAP
(source: eplan.selwyn.govt.nz)

OUTLINE DEVELOPMENT PLAN 39 - HOLMES BLOCK

LEGEND

-  Outline Development Plan Area
-  Living Z Zone
-  Business 1 Zone
-  Indicative Road
-  Indicative Cycle/Pedestrian Route
-  Reserve Location (size to be determined at time of subdivision)
-  Setback
-  Boundary Treatment
-  Noise Control Boundary



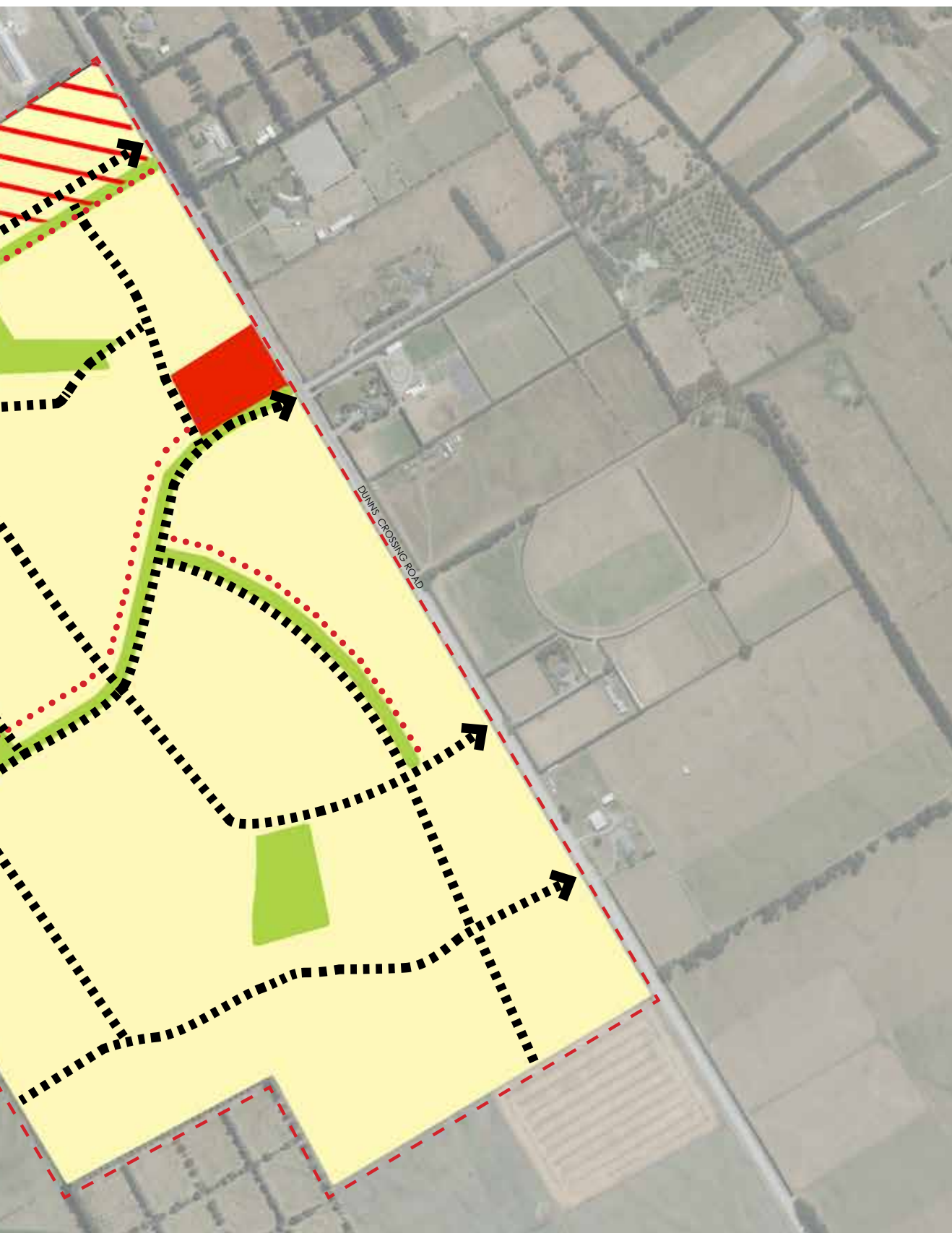


OUTLINE DEVELOPMENT PLAN 40 - SKELLERUP BLO

LEGEND

-  Outline Development Plan Area
-  Living Zone Z
-  Business 1 zone
-  Indicative Road
-  Indicative Cycle/Pedestrian Route
-  Reserve Location (size to be determined at time of subdivision)
-  Setback





LANDUSE AND DENSITY

(CONTEXT, CHARACTER, CHOICE)

The ODP area is designed to achieve a minimum net density of 12 households per hectare with higher density residential units located within Medium density (minimum 15hh/Ha) areas adjacent to key open spaces and green corridors. Two residential densities are proposed within the ODP being Living Z Low Density and Living Z Medium Density. The aim is to create diversity and variety of housing typology without compromising lifestyle. The provision of smaller residential lot sizes are recognised as an important method to reduce sale prices and meet the demands of a greater proportion of the community, particularly first home buyers seeking a warm, energy efficient home that meets modern lifestyle needs. The density provides for a mix of dwelling types and lot sizes to cater to a wide range of the residential market. It allows for people of different ages and incomes to mix and create a diverse community, as well as for people to move within the development as their needs change.

LANDUSE	MINIMUM INDIVIDUAL LOT SIZE	AVERAGE LOT SIZE
Living Z - Low Density	550m ²	650m ²
Living Z - Medium Density (small lot)	400m ²	500m ² (maximum)
Living Z - Medium Density (comprehensive)	None	350m ² (maximum)

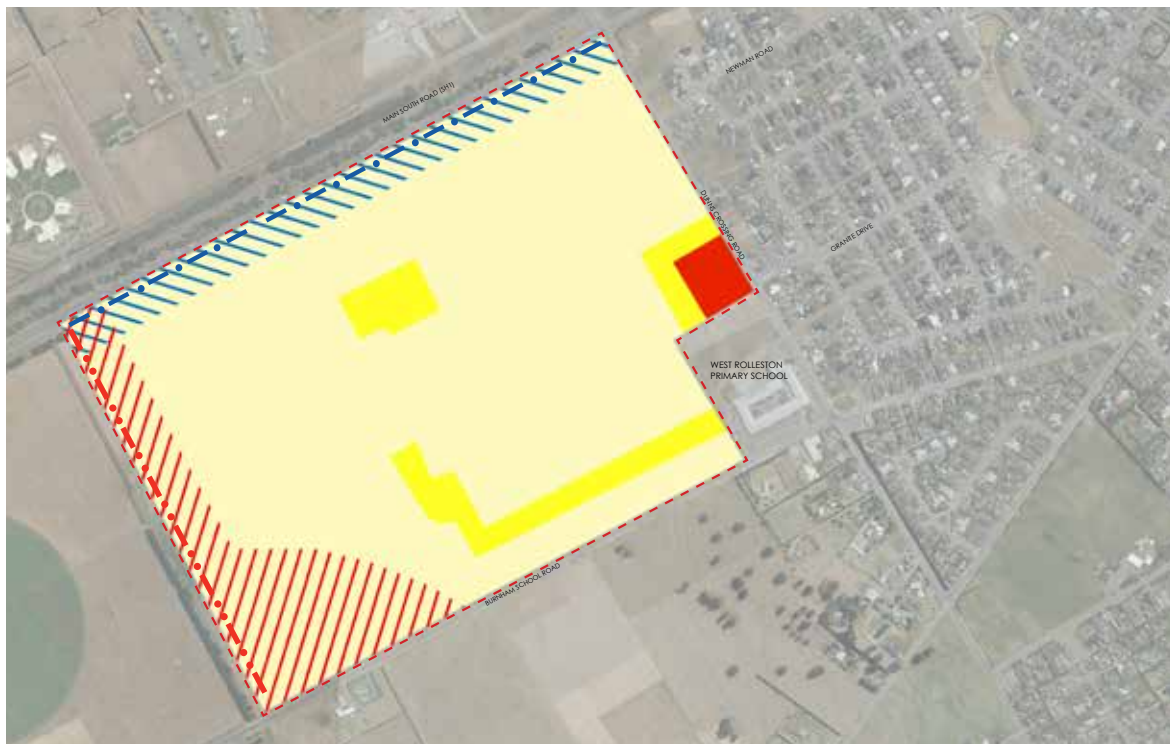
The ODP adopts two zone types from the District Plan, being: Living Z, and Business. The Living Z zone is a natural extension of the existing Stonebrook and Farringdon developments. Small commercial areas, or neighbourhood shops, are proposed in each block on key intersections with the proposed primary road. These developments will be designed to serve the new community with day to day products, with likely tenants being a dairy, takeaways and a café.

KEY ASPECTS

- Diversity of house size and lot size to provide choice
- Provision of higher density with higher amenity areas
- Small commercial areas providing day to day amenities

LEGEND

 Study Boundary	 <u>LIVING Z</u> Low Density (Minimum 12 Households/Ha)	 <u>BUSINESS</u> Commercial / Business	 Bunding and Dense Planting
	 Medium Density (Minimum 15 Households/Ha)	 Odour Constrained Area (Refer to ODP Text)	 40m Noise Abatement Setback
			 Acoustic Bund or Fencing



HOLMES BLOCK (nts)



SKELLERUP BLOCK (nts)

LANDUSE AND DENSITY MAPS (nts)

THE FOLLOWING DIAGRAMS ARE INDICATIVE ONLY BUT SHOW THE POTENTIAL DIFFERENCE IN DENSITIES, PROVIDING A VARIETY OF HOUSING TYPOLOGIES TO MEET THE NEEDS OF DIFFERENT HOUSEHOLDS, INCLUDING ALL AGE GROUPS

A. LOW DENSITY RESIDENTIAL (>550m² LOTS)



B. MEDIUM DENSITY RESIDENTIAL (>400m² LOTS)



C. COMPREHENSIVE MEDIUM DENSITY RESIDENTIAL (250m² TYPICAL LOTS)



	A. LOW DENSITY	B. MEDIUM DENSITY	C. MEDIUM DENSITY (COMPREHENSIVE)
BLOCK SIZE	60m X 175m; 10,500m ²	60m X 175m; 10,500m ²	60m X 175m; 10,500m ²
LOT SIZE (MINIMUM)	550m ²	400m ²	None
AVERAGE LOT SIZE	650m ²	500m ²	350m ² (maximum)
NUMBER OF HOUSEHOLDS	16	21	30
DENSITY (HH/Ha)*	11	14	21

NOTE

- * Based on 30% of developable land given over to open space (both green and blue networks) and movement networks (public roads)
1. Vehicle access to all Comprehensive Medium Density units is via a shared R.O.W. to consolidate vehicle crossings and provide a high-quality, highly accessible streetscape;
 2. Blocks typically run north-south to maximise the amount of sunlight entering into private outdoor living areas at the rear of dwellings.

MOVEMENT AND CONNECTIVITY

(CHOICE, CONNECTIONS, CUSTODIANSHIP AND COLLABORATION)

Walkability and connectivity are key principles of the ODP with a hierarchy of street types and connections provided throughout the area. The aim of the movement network is to provide a range of modal options for residents, to reduce car-dependancy for short local trips while recognising private vehicle use is necessary for longer trips. The ODP encourages connectivity using primary and secondary routes running through the area from west to east, with primary connections from Dunns Crossing Road to adjoining major roads . The routes will connect through to existing roads where possible in Stonebrook and any future subdivisions to the east of the Skellerup Block. The primary road route will include a 2.5m wide minimum shared path separate from the main carriageway, and is likely to function as a collector road. The development of housing in this location would be developed to minimise interruption to pedestrian/cycle/vehicle movements by encouraging the use of consolidated vehicle crossings or laneways depending on the adjoining typology. Both primary and secondary routes will provide pedestrian and cycle facilities on both sides of the road, street trees and parking.

Smaller tertiary streets (not shown) or local/neighbourhood streets will ideally run north-south to create a highly connected and permeable neighbourhood. These roads are not shown to allow future design flexibility at the final subdivision stage. The design of the local streets will encourage slow vehicle movements combined with pedestrian and cycle facilities, either separate or shared depending on the design of the street. The layout of the blocks will have a predominantly north-south orientation where possible to maximise solar gain into rear yards (outdoor living spaces) of all properties.

Supporting the road network, off road pedestrian and cycle paths connect through to existing networks.

KEY ASPECTS

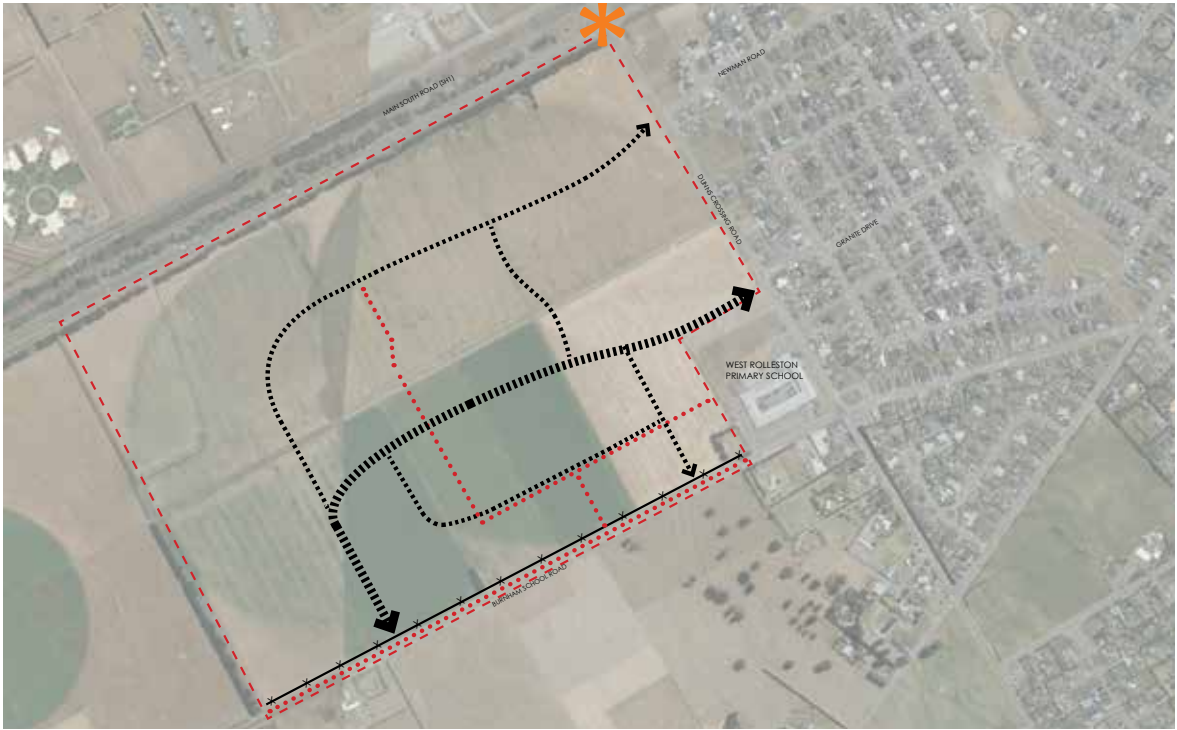
- Street heirarchy providing different modal allocation
- Possible future connections with adjoining properties
- A well-connected network which combines with the green network and existing facilities connecting to key destinations (school, parks, childcare, town centre)
- A high level of legibility created through street heirarchy
- Prioritising walking and cycling with a mix of on-road, separate, and off-road facilities to promote active transport modes
- Direct access onto Burham School Road for individual properties should be avoided
- Streets with a high level of amenity

Cross section showing landscape treatment along Burnham School Road. No direct access is proposed along the road given the existing character/function of the road and to allow for the installation of a shared cycle/ pedestrian path which is largely free from any vehicle crossings reducing potential conflicts

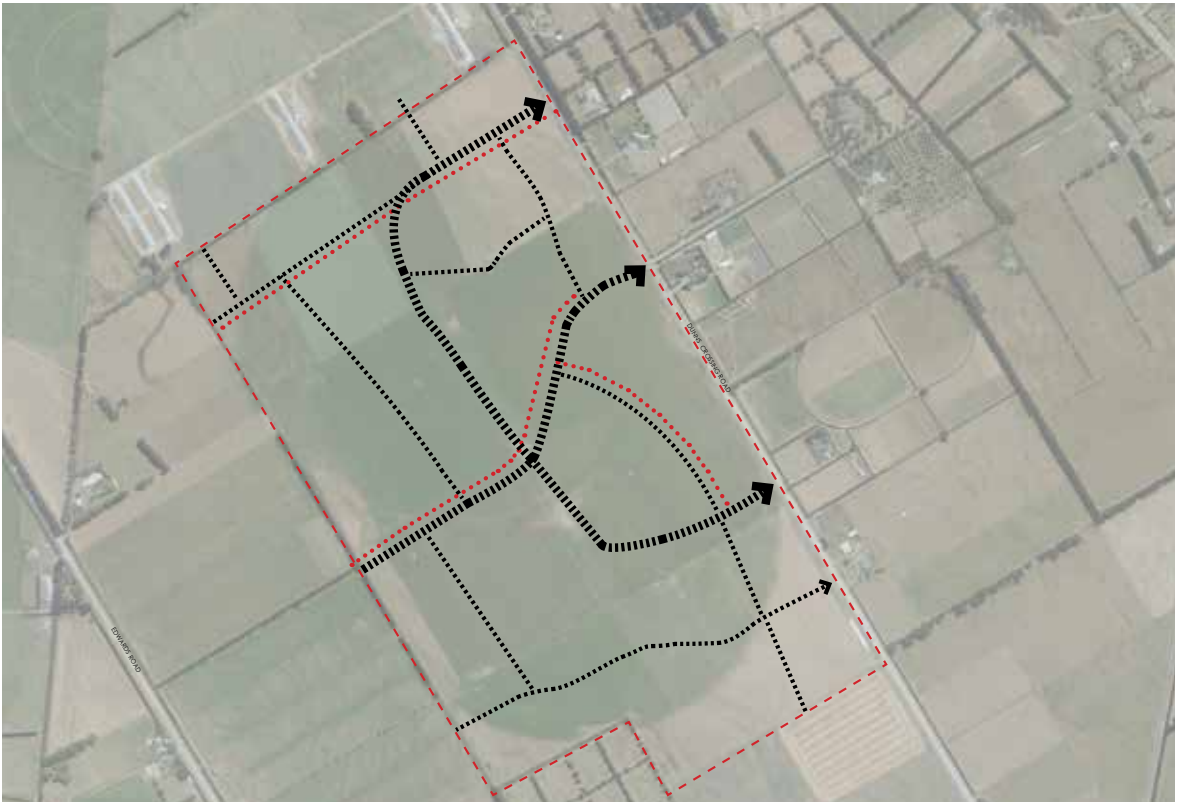


LEGEND

-  Study Boundary
-  Primary Road
-  Secondary Road
-  2.5m Shared Path (off road)
-  Avoid access onto Burnham School Road from site (5m landscape area proposed containing a 2m high bund/fence combination)
-  Potential Intersection Upgrade



HOLMES BLOCK (nts)



SKELLERUP BLOCK (nts)

MOVEMENT AND CONNECTIVITY MAPS (nts)

BLUE AND GREEN / OPEN SPACE NETWORK

(Choice, Connections, Custodianship and Collaboration)

The Green network proposes several local reserves and pocket parks to provide amenity to a large number of future residents, linked by a green network. The network also combines with the movement network to provide shared off-road facilities connecting through to West Rolleston Primary School and other amenities.

The ODP proposes five additional Neighbourhood reserves within the project boundaries to provide amenity for residents, the majority of residents being within a 5minute walk, or 500m radius of the spaces. It is likely the sizes of the reserves will range between 3,000m² and 6,000m² with the exact size and position of these reserves being determined at the time of subdivision. These reserves will be 'tied' to the location of higher density developments, providing amenity for residents on smaller sections.

Linking future residents of the Holmes Block to the existing West Rolleston Primary School, green links 5-10m wide are proposed. It is not anticipated that a Sport and Recreation Park (2.5Ha or more) is required within the study area, given the site's close proximity to Brookside Reserve and Foster Park.

The blue network, consisting of one water race, is proposed to be diverted and realigned to the western boundary of the Holmes Block site.

KEY ASPECTS

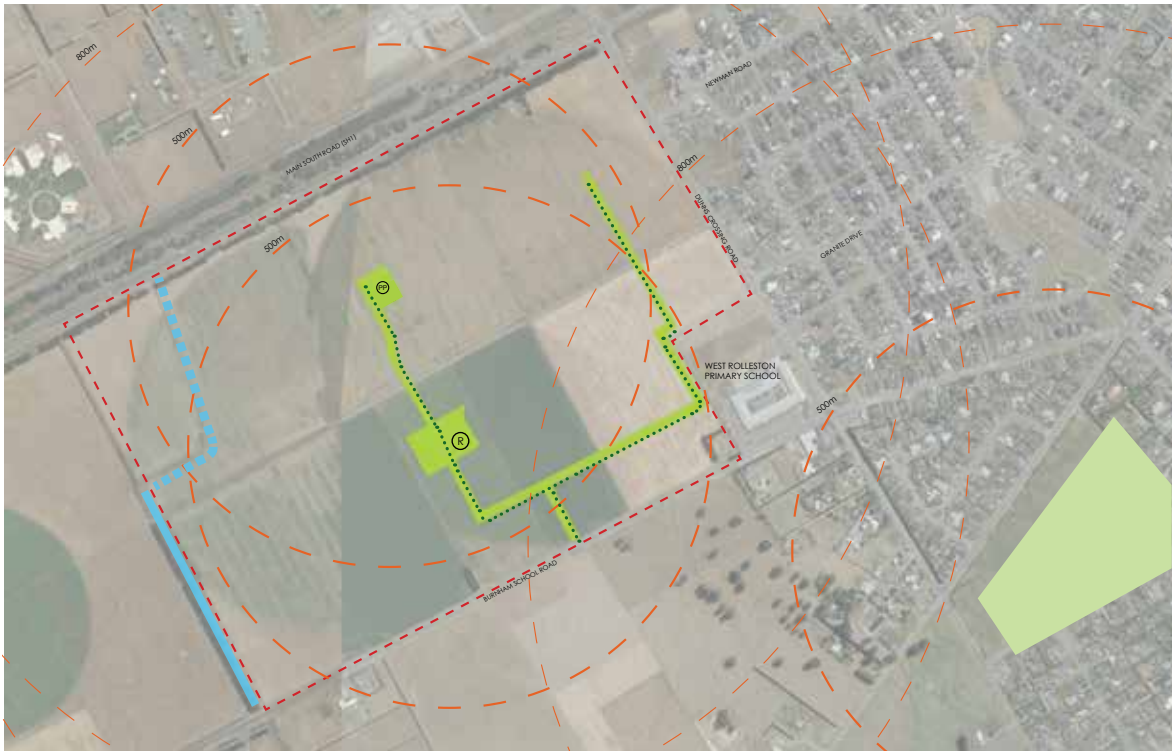
- Integrating green and movement networks to create a high level of connectivity, amenity and active travel options
- Provides sufficient open space for future residents at regular intervals
- Provides a significant link to West Rolleston Primary School



10M WIDE GREENWAYS ARE PROPOSED THROUGH THE ODP AREAS PROVIDING ADDITIONAL AMENITY TO RESIDENTIAL AREAS AS WELL AS OFF-ROAD SHARED PEDESTRIAN AND CYCLE FACILITIES. THE GREENWAYS LINK PROPOSED RESERVES AND IN THE CASE OF THE HOLMES BLOCK, TO WEST ROLLESTON SCHOOL.

LEGEND

- | | | | |
|--|---|--|--|
|  Study Boundary |  Green Link (10m wide) |  500m and 800m Walkable Catchment |  Water Race Realigned |
|  Recreation Reserve |  Existing Green Space |  Water Race |  Pocket Park |



HOLMES BLOCK (nts)



SKELLERUP BLOCK (nts)

BLUE AND GREEN / OPEN SPACE MAP (nts)

SUMMARY AND CONCLUSIONS

The proposed Rolleston West Plan Change blocks are a natural extension of existing residential development occurring to the west of Stonebrook and Farringdon in Rolleston. Covering an area of approximately 160Ha, the ODPs will provide a mix of house and lot sizes in a location which is well served by existing and future amenities. A strong green and movement network provides a base for the development, recognising the residential character of the receiving environment.

The ODP's will:

- Provide a diversity of house size and lot size to provide choice
- Locate higher density with higher amenity areas
- Create a street hierarchy providing different modal allocation
- Continue a well-connected network which combines with the green network and existing facilities connecting to key destinations (school, parks, childcare, town centre)
- Create a high level of legibility created through street hierarchy
- Prioritise walking and cycling with a mix of on-road, separate, and off-road facilities to promote active transport modes
- Avoid direct access onto Burham School Road for individual properties whilst providing a high amenity landscape edge to the road
- Create streets with a high level of amenity
- Provide a quantity of greenspace and facilities appropriate for the future population
- Integrate the green and movement networks to create a high level of connectivity, amenity and active travel options
- Encourage the use of low impact design techniques including grass swales and soakage pits

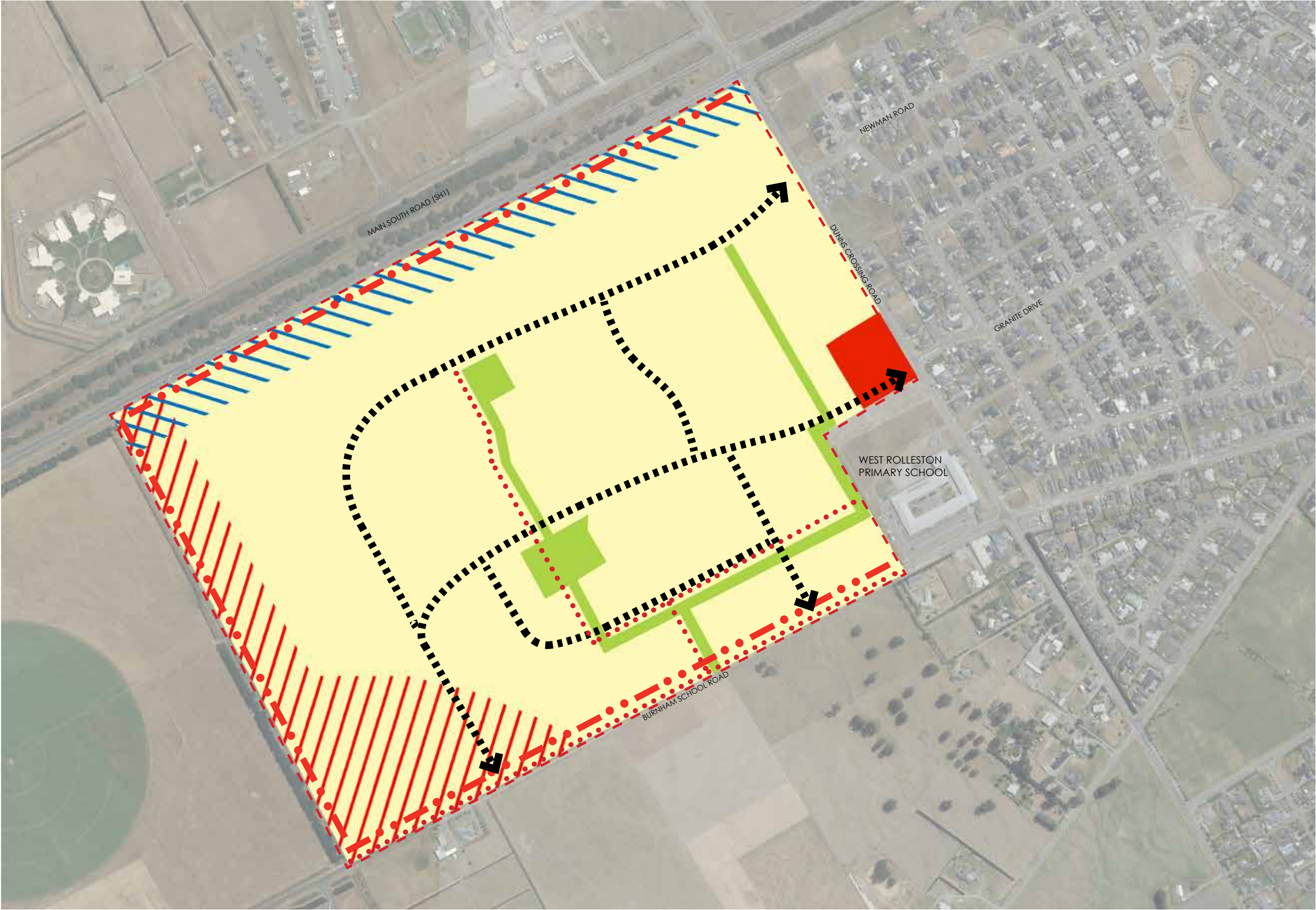
URBAN DESIGN PRINCIPLES

The design principles that underpin these ODP's are in line with the Ministry for the Environment's design guide for urban New Zealand "People Places Spaces" which is endorsed by the 'New Zealand Urban Design Protocol'.

PRINCIPLE	PURPOSE
Consolidation and dispersal	Density and Landuse - To promote higher-intensity development around existing or new nodes and lower density on the periphery. This allows local communities, businesses and public transport to be strengthened and resource efficiencies achieved, while reducing environmental impacts on peripheral areas.
Integration and connectivity	Movement Networks – To promote development that is integrated and connected with its surrounding environment and community. This facilitates ease of access, economy of movement and improved social interaction.
Diversity and adaptability	Variation in typology and lot size - To promote choice through the provision of a diverse mix of compatible activities and uses, so built environments can adapt over time. This facilitates the ability to respond efficiently to social, technical and economic changes.
Legibility and identity	Strong Green Network - To promote environments that are easily understood by their users, and that display a strong local identity and appropriate visual character. This facilitates an enhanced usage, enjoyment and pride in local places.
Environmental responsiveness	Strong Green Network - To promote urban environments that are responsive to natural features, ecosystems, reduced energy usage and waste production.

OUTLINE DEVELOPMENT PLAN 39 - HOLMES BLOCK

- LEGEND
- Outline Development Plan Area
 - Living Z Zone
 - Business 1 Zone
 - Indicative Road
 - Indicative Cycle/Pedestrian Route
 - Reserve Location (size to be determined at time of subdivision)
 - Setback
 - Boundary Treatment
 - Noise Control Boundary



OUTLINE DEVELOPMENT PLAN 39 (HOLMES BLOCK)

This area comprises approximately 87.5 hectares and is situated on the southwest corner of Main South Road (State Highway 1) and Dunns Crossing Road.

Land Use

The development area shall achieve a minimum net density of 12 household per hectare, averaged over the area. The zoning framework supports a variety of site sizes to achieve this minimum density requirement. Should this area be developed in stages, confirmation at the time of subdivision of each stage, and an assessment as to how the minimum net density of 12 household per hectare for the overall area can be achieved, will be required.

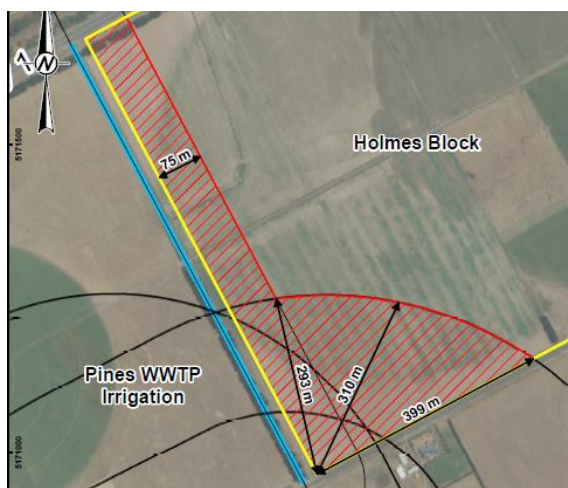
Medium density areas within the development area are able to be supported by adjacent amenities that include key open spaces and green corridors, a small commercial centre and the West Rolleston Primary School.

The small local commercial centre is proposed adjacent to the intersection of Dunns Crossing Road, the proposed Primary Road and West Rolleston Primary School to provide good accessibility and to meet some of the convenience needs of residents in the immediate area.

No more than 1150 sites shall be provided across the whole of the development area. However, no more than 97 occupied dwellings shall be established across the area prior to the completion of the upgrade to the SH1 / Dunns Crossing Road intersection and signals upgrade to the Burnham School Road / Dunns Crossing Road intersection. A consent notice or similar mechanism shall be imposed at the time of any subdivision consent to ensure this outcome.

Any sensitive activities in the development area adjoining the State Highway 1 boundary, western boundary (with the adjacent rural zoned land) and southwest corner of the area, or Burnham School Road boundary are subject to specific setback or boundary treatment requirements, supported by an appropriate, enduring legal mechanism (such as a covenant, consent notice, etc) imposed at the time of subdivision, as follows:

- For the full length of the State Highway 1 boundary a 3m high acoustic bund and/or fence and 40m building setback shall be provided;
- Except for gaps required for roads or cycle/pedestrian/green links, for the Burnham School Road boundary a 2m high acoustic bund and/or fence shall be provided within a 5m wide landscape strip.
- A building setback shall apply within that area defined the figure below:



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. Roothing connections shall be designed to achieve permeability, whilst minimising the number of new intersections and maintaining appropriate intersection spacing. The ODP features a primary route that provides an east-to-west route through that part of the ODP area to the west of Dunns Crossing Road and provides a connection to Burnham School Road to the south. The proposed roading hierarchy will deliver an accessible and coherent neighbourhood that provides safe and efficient access to the new development.

The intersection of State Highway 1, Dunns Crossing Road and Walkers Road is planned to be upgraded with a roundabout by Waka Kotahi NZTA. In addition, the Dunns Crossing Road / Burnham School Road intersection will require the installation of traffic signals to accommodate predicted traffic volumes. These works will require completion prior to the establishment of more than 97 homes on the ODP block.

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. Property access directly to Burnham School Road is precluded, noting the arterial status of this road and the cycle and pedestrian path extending along this length of the development area.

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.

Open Space, Recreation, and Community Facilities

A recreation reserve and pocket park are to be established within the area. 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 Foster 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 ECAN fish salvage guidelines prior to any works occurring within the water races.

As noted above in regards land use, buffer areas are to be provided along the north, west and southern boundaries of the area. 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, consent notices or LIM notes, shall be established. Treatments could include appropriate bunding, fencing, landscaping, and/or building setbacks.

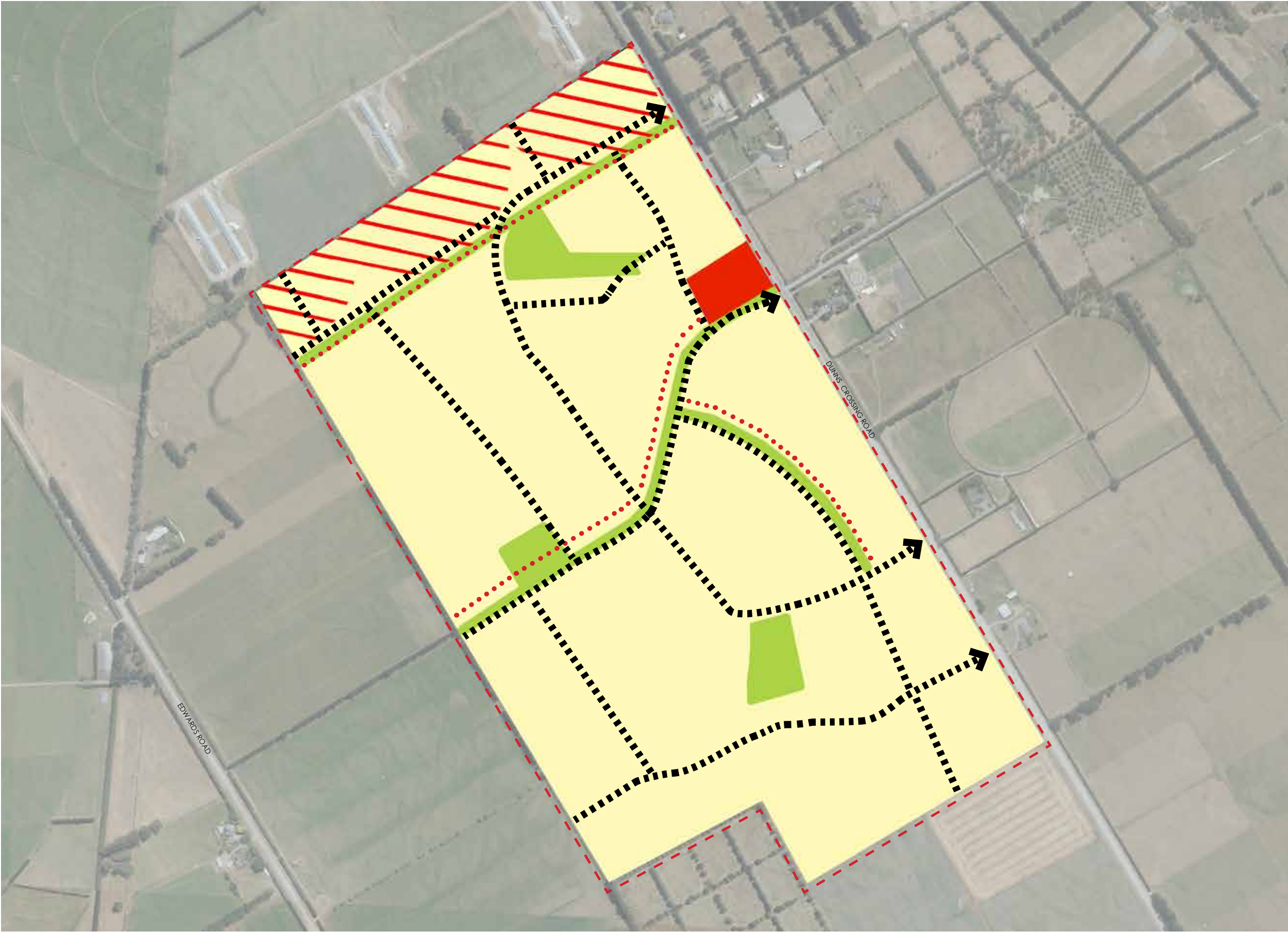
Servicing

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.

OUTLINE DEVELOPMENT PLAN 40 - SKELLERUP BLOCK

- LEGEND
- Outline Development Plan Area
 - Living Zone Z
 - Business 1 zone
 - Indicative Road
 - Indicative Cycle/Pedestrian Route
 - Reserve Location (size to be determined at time of subdivision)
 - Setback



OUTLINE DEVELOPMENT PLAN 40 (SKELLERUP BLOCK)

This area comprises approximately 72.7 hectares and is situated on the west side of Dunns Crossing Road, approximately midway between Selwyn Road and Brookside Road.

Land Use

The development area shall achieve a minimum net density of 12 household per hectare, averaged over the area. The zoning framework supports a variety of site sizes to achieve this minimum density requirement. Should this area be developed in stages, confirmation at the time of subdivision of each stage, and an assessment as to how the minimum net density of 12 household per hectare for the overall area can be achieved, will be required.

Medium density areas within the development area are able to be supported by adjacent amenities that include key open spaces and green corridors and a small commercial centre.

The small local commercial centre is proposed adjacent to the intersection of Dunns Crossing Road and the proposed central Primary Road to provide good accessibility and to meet some of the convenience needs of residents in the immediate area.

No more than 950 sites shall be provided across the whole of the development area.

Any sensitive activities in the development area adjoining the area's northern boundary (with the adjacent rural zoned land) are subject to a 150m setback from the poultry sheds existing as at 1 January 2021 located on the property at 243 Dunns Crossing Road (which is legally described as Lots 3-4 DP 20007 BLKS III VII LEESTON SD), supported by an appropriate, enduring legal mechanism (such as a covenant, consent notice, etc) imposed at the time of subdivision.

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 a primary route that provides three connection points to Dunns Crossing Road and land further to the east. The proposed roading hierarchy will deliver an accessible and coherent neighbourhood that provides safe and efficient access to the new development.

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.

Open Space, Recreation, and Community Facilities

Two recreation reserves and a pocket park are to be established within the area. 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 Foster 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.

As noted above in regards land use, buffer areas are to be provided along the north boundary of the area. 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, consent notices or LIM notes, shall be established.

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.



Attachment 4: Novo Group Assessment of Transport-related matters

02 February 2021

Selwyn District Council

Attention: Jocelyn Lewes

Novo Group Limited
Level 1, 279 Montreal Street
PO Box 365, Christchurch 8140
0 - 03 365 5570
info@novogroup.co.nz

By email: Jocelyn.Lewes@selwyn.govt.nz

Dear Jocelyn,

PC200073: ROLLESTON WEST TRANSPORT RESPONSE TO RFI

1. Further to your Request for Further Information (RFI), this letter provides a response to the transport related queries (points 20 to 28 of the RFI). However, prior to providing that response it is worth noting that the Applicant has commissioned additional traffic modelling of the road network by Abley Ltd. This modelling is discussed prior to the RFI responses, to provide context for the responses.

Traffic Modelling

2. The Applicant has commissioned Abley to undertake additional traffic modelling of the road network with the proposed Plan Change traffic. The summary note of the traffic modelling is included in **Attachment 1** and it is noted that this is based on the 2028 forecast volumes and includes the State Highway 1 improvements illustrated in **Figure 1**. We understand that funding has been set aside by Waka Kotahi NZTA for undertaking these works.
3. Furthermore, the following changes to the transport network are included in the with models:

Base Model

- Lincoln Rolleston Road / Selwyn Road 'seagull'-type priority intersection (2028/29);
- Dunns Crossing Road / Burnham School Road signals (2029/30);
- Dunns Crossing Road / Lowes Road roundabout (2029/30);
- Updated lane designations on the SH1 / Dunns Crossing Road / Walkers Road and SH1 / Rolleston Drive roundabouts to reflect increased trip generation in West Rolleston. The lane designations include two right-turn lanes out of Dunns Crossing Road and Rolleston Drive, respectively;
- Roundabout at the intersection of Selwyn Road and Dunns Crossing Road, with Goulds Road realigned to meet Dunns Crossing Road at a priority intersection. This is per the RFI issued by SDC on Plan Change 70 to their District Plan. The roundabout is assumed to be single-lane with an inscribed circle diameter (ICD) of 30 metres; and

- Rural roundabout at the intersection of Selwyn Road and Springston Rolleston Road, assumed to be single-lane with an ICD of 30 metres. This roundabout has been previously identified as a necessary temporary measure to enable development in southwest Rolleston until the CRETS collector road is complete.

With Plan Change Model

- Site access intersections, including dedicated right turn bays from Dunns Crossing Road at the Newman Road intersection;
- Internal ODP network for the Plan Change sites, including an additional access to Burnham School Road compared to the original proposal;
- Traffic signals at the intersection of Dunns Crossing Road and Granite Drive, including right turn bays from Dunns Crossing Road. The signal timings have been assumed to be offset from the Dunns Crossing Road / Burnham School Road signals in order to prioritise northbound traffic in the AM and southbound traffic in the PM; and
- Urban roundabout at the intersection of Lowes Road and East Maddisons Road, assumed to be single-lane with an ICD of 20 metres.

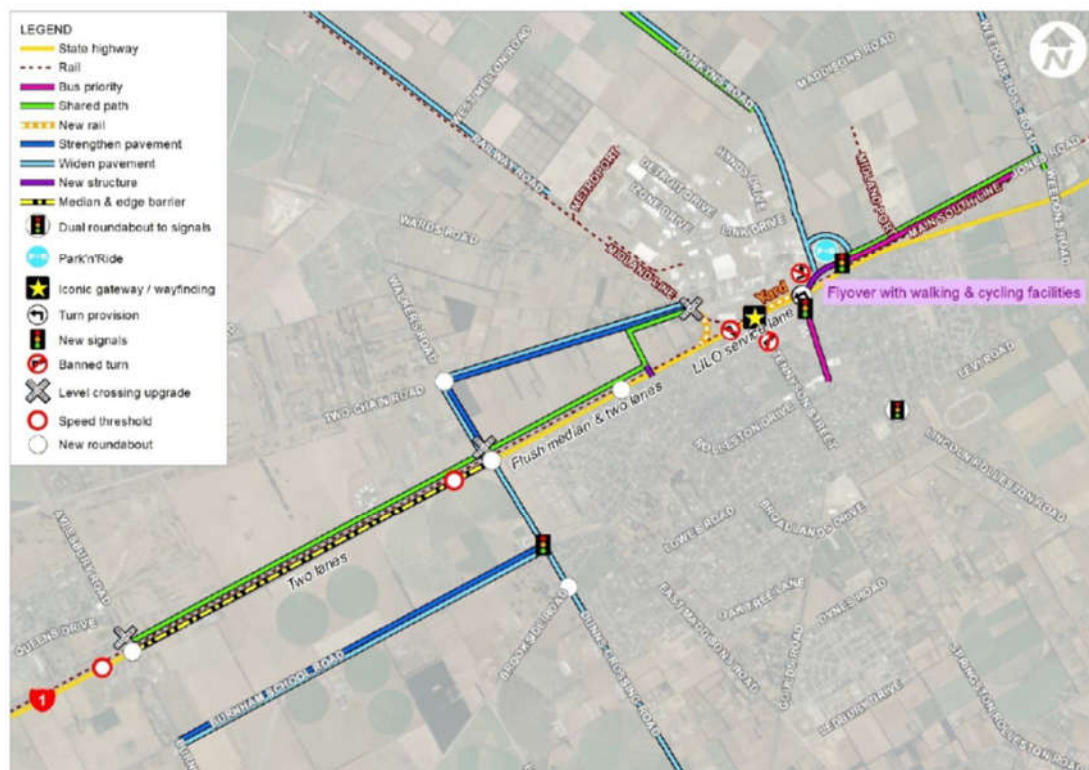


Figure 1: Rolleston Transport Improvements (Source: GETS Tender Documents)

4. The key changes in traffic flows on the model network (between the base model and the with Plan Change model) are illustrated in **Figure 2**. This indicates a focus on traffic associated with the Plan Change sites on Dunns Crossing Road, State Highway 1 and Selwyn Road (in the AM peak).

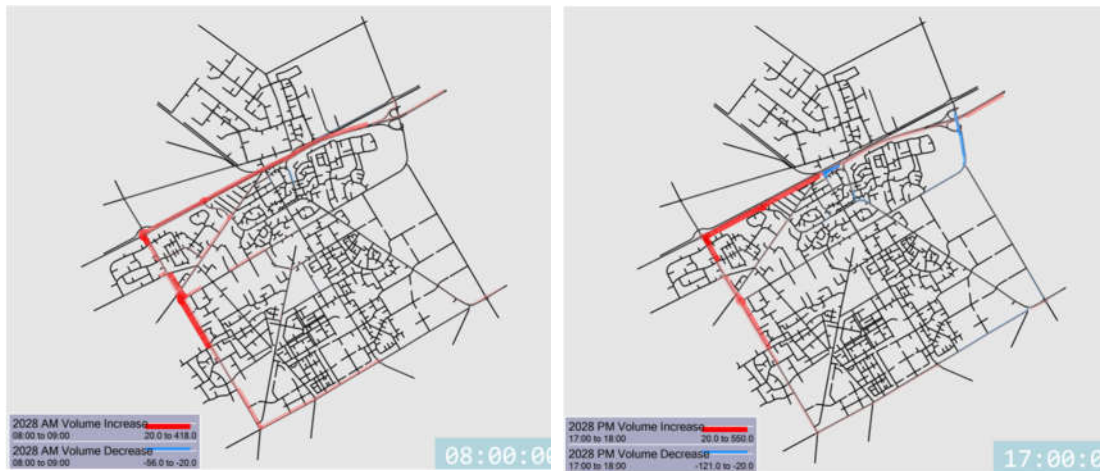


Figure 2: Model Flow Difference Plots

5. The high-level summary of the traffic modelling results indicates that the Plan Change traffic can be accommodated by the road network. The summary results provided in Table 3.3 of **Attachment 1** indicate that no intersection is predicted to operate worse than Level of Service C in the AM peak period.
6. The PM Peak results (Table 3.4 of **Attachment 1**) indicate the SH1 / Tennyson Street / Brookside Road intersection and SH1 / Weedons Ross Road / Weedons Road interchange are predicted to operate at Level of Service E in the base model and the with Plan Change model, so there is no change in high-level operation at those locations as a result of the Plan Change.
7. The modelling results will be discussed in greater detail (where required) in the following response to the RFI queries.

RFI Response

20. As addressed in the request, the key intersection that needs to be upgraded to address current safety issues and to accommodate any sustainable increase in traffic using Dunns Crossing Road and SH1 is the Dunns Crossing/SH1/Walkers Road intersection, and this intersection has been signalled for a major upgrade by the NZTA as part of the NZUP Programme and is represented in the Programme Business Case for SH1/Rolleston Access Upgrades. At this point the upgrade proposed is a roundabout however no design has been developed yet by the NZTA. To address the transport effects, it should be anticipated that Council will seek to include a rule in the Operative District Plan that no subdivision resulting from this PC occurs until this upgrade is completed. Please provide proposed wording for such a provision.

8. As can be seen from the Abley traffic modelling results, the implementation of a roundabout at Dunns Crossing Road / SH1 / Walkers Road intersection provides a LOS of A (for both AM and PM peaks) with the Plan Change traffic added to the road network. However, given the proximity of the Holmes Block to that intersection, the Applicant is willing to limit the development of the Holmes Block to no more than 97 dwellings being occupied prior to the completion of the upgrade to the SH1 / Dunns Crossing Road intersection. This is to allow Waka Kotahi NZTA, SDC and other involved parties the flexibility on the final design development of the space required for such roundabout. This number of dwellings has been selected as it is the currently zoned number of



dwellings for the Holmes Block. This is therefore considered to be a reasonable baseline and also to facilitate the subdivisions progressing, but avoiding traffic effects above that which may currently occur as of right.

9. The wording of this rule is proposed to be as follows.

12.1.3.50

(a) In respect of the land identified at Appendix 39 (Holmes Block), no more than 97 1150 residential allotments may be created and a consent notice or similar mechanism shall be registered on the title of those lots ensuring there is no more than 97 occupied dwellings within the Holmes Block prior to the completion of the upgrade to the SH1 / Dunns Crossing Road intersection and signals upgrade to the Burnham School Road / Dunns Crossing Road intersection.

(b) In respect of the land identified at Appendix 40 (Skellerup Block), no more than 950 residential allotments may be created.

21. Dunns Crossing Road is part of the Rolleston arterial perimeter road route. The Applicant has assessed in the ITA that some intersection movements for the Holmes Block will operate at a LoS of E at peak times. Councils LoS limit is usually D for peak periods. Further assessment as to the type and/or positioning of intersections is required to improve LoS to achieve this, with the emphasis on the ODP Primary road off Dunns Crossing Road.

10. The following provides a discussion on the traffic modelling results provided by Abley and contained in **Attachment 1**. This initially focuses on the Plan Change accesses, then the operation of Dunns Crossing Road. Finally, key intersections on the wider road network are discussed.

Plan Change Accesses

11. The modelling results indicate that the proposed access intersections are predicted to operate with individual movements being no worse than Level of Service D, with the exception of the right turn out of Newman Road, which is a Secondary Road connection.
12. The primary road connection is at the Dunns Crossing Road / Granite Drive intersection, which is now proposed to be traffic signal controlled. This intersection has no movement operating worse than Level of Service D. It is also understood that the traffic signal timings have been set to prioritise traffic on Dunns Crossing Road to discourage rat-running on Granite Drive. As such, the operation of this intersection is considered to be acceptable.
13. The Dunns Crossing Road / Newman Road intersection is predicted to operate at Level of Service C in the AM peak hour and Level of Service D in the PM peak hour. However, the breakdown of specific movements indicates that the right turn from Newman Road is predicted to operate at Level of Service E in the AM peak hour and the through movement from the Holmes Block (to Newman Road) is predicted to operate at Level of Service E in the PM peak hour.
14. The right turn from Newman Road in the AM peak hour is considered acceptable given that it occurs in one hour only and would not affect the through traffic on Dunns Crossing Road. It is also noted that the delay for this approach is 38 seconds, where the threshold of change between Levels of Service D and E is 35 seconds. This means that the movement is at the lower end of the delays encompassed by Level of Service E.



15. The through movement that is predicted to operate at Level of Service E in the PM peak hour is from the Holmes Block northern access through to Newman Road. This is predicted to have a flow of one vehicle per hour and occurs in only one hour. This is considered to be acceptable given the negligible traffic volume it affects.

Dunns Crossing Road

16. The majority of intersections elsewhere on Dunns Crossing Road are also predicted to operate satisfactorily with the Plan Change traffic added to the network and the infrastructure assumptions outlined in paragraphs 2 and 3 in place. The only intersection that has movements predicted to operate worse than Level of Service D is the Dunns Crossing Road / Brookside Road intersection. This is predicted to have the following movements at Level of Service E:
 - Brookside Road East Through Movement: This affects 11 vehicles in the 08:00 to 09:00 period only; and
 - Brookside Road West Right Turn: This affects 3 vehicles in the 17:00 to 18:00 period only.
17. The modelled results described above are considered acceptable given they do not affect movements on Dunns Crossing Road, they affect a low volume of traffic and are only occurring in one hour of the modelled periods.

Wider Road Network

State Highway 1 / Weedons Ross Road Interchange

18. Two areas of capacity constraint have been identified on the wider road network. The first of these is the SH1 / Weedons Ross Road interchange. We understand that traffic signals have been included in the base model to manage the queues on the westbound off-ramp, as the northbound traffic on Weedons Ross Road does not provide sufficient gaps to enable vehicles to satisfactorily exit the off-ramp. Although a roundabout arrangement is retained, the traffic signals create gaps in the northbound traffic to enable the queues on the westbound off-ramp to clear. The operation of this interchange in the base model includes movements that are at Level of Service E and F in the AM and PM peak hours.
19. The inclusion of traffic associated with the proposed Plan Change only slightly exacerbates these existing issues. This is despite the Plan Change sites being at least 5km from the interchange and there being a new roundabout at the SH1 / Dunns Crossing Road intersection. The poor performance of the Weedons Ross Road interchange in the base model indicates that improvements are required regardless of the proposed Plan Change, so the operation of this interchange should not preclude the Plan Change progressing.

Brookside Road / Rolleston Drive Intersection

20. The Brookside Road west approach to the proposed roundabout at the Rolleston Drive / Brookside Road intersection is predicted to operate at Level of Service E during the weekday PM peak with the Plan Change traffic added to the network. This approach was predicted to operate at Level of Service D in the base model.



21. **Table 1** sets out a comparison of the turning volumes at the Rolleston Drive / Brookside Road intersection with and without the Plan Change traffic. The following provides commentary on the changes in traffic volume and how these may affect the capacity of the Brookside Road west approach. In this regard, capacity effects on that approach as a result of increases in volume on the approach itself and increases in the volume of traffic that passes the approach:

- The Brookside Road west approach is predicted to experience a decrease in traffic volumes with the Plan Change added. This is because the increased delay on this approach re-routes traffic away from the intersection;
- The Rolleston Drive northern approach will experience an increase of up to 66 vehicles per hour, although these vehicles will not pass the Brookside Road western approach and should not affect the capacity of that arm;
- The Brookside Road east approach is predicted to experience an increase of up to 101 vehicles per hour. These increases are on the through movement from Brookside Road east to west and would again not pass the Brookside Road west approach, so there should be no effect on the capacity on that arm; and
- The Rolleston Drive southern approach will experience an increase of up to 136 vehicles per hour, which includes an increase of up to 97 vehicles per hour turning through and right and these would reduce the capacity of the Brookside Road west approach.

Table 1: Brookside Rd / Rolleston Dr Traffic Volume Comparison

		16:00 to 17:00			17:00 to 18:00		
		Base Model	With PC	Change	Base Model	With PC	Change
Rolleston Dr North	Left	29	38	9	41	36	-5
	Through	138	154	16	172	182	10
	Right	99	140	41	154	146	-8
Brookside Rd East	Left	105	84	-21	113	107	-6
	Through	344	403	59	302	403	101
	Right	70	70	0	64	65	1
Rolleston Dr South	Left	125	169	44	148	185	36
	Through	99	166	67	108	179	71
	Right	70	95	25	86	112	26
Brookside Rd West	Left	97	97	0	100	103	4
	Through	182	166	-16	190	173	-18
	Right	22	18	-4	20	14	-7

22. From the above, it is considered that the key reason for the reduction in performance on the Brookside Road west approach is the increase in through and right turning traffic from



Rolleston Drive south. These movements do not have an obvious association with the Plan Change sites, as they are neither heading to / from those Plan Changes. The effects are considered to have occurred because of additional Plan Change traffic elsewhere on the network causing this re-routing.

23. It is anticipated that the key location for this traffic re-routing is the SH1 / Weedons Ross Road interchange, given this is the location that has been identified as being capacity constrained. In particular, there is potential that the traffic signals installed on the Weedons Ross Road northbound approach are leading to delays that has the effect of promoting the SH1 / Rolleston Drive intersection for State highway access.
24. Overall, whilst the inclusion of the Plan Change traffic has led to the Brookside Road west approach to operate at Level of Service E, this is considered to be a function of wider road network capacity constraint rather than a direct effect of the Plan Change. This is because the primary reason the intersection is over-capacity is the increase in traffic on Rolleston Drive south that has no immediately apparent link to the Plan Change sites. Resolving that wider issue is anticipated to resolve the constraint at the Rolleston Drive / Brookside Road intersection.

22. Burnham School Road will become over time part of a supplementary arterial local road route from SH1/Burnham to these residential areas of Rolleston as identified in the SH1/Rolleston Access Business Case. It is already used by heavy vehicles accessing the Pines Resource Recovery Park and Pines Waste Water Treatment Plant. Two upgrades are identified in Councils long term planning:

- *Installation of traffic signals Burnham School/Dunns Crossing Road in 2029/30*
- *Widening of Burnham School Road (Burnham Road to Dunns Crossing Road) in 2034/35*

23. Based on the anticipated rate of development of the Holmes Block and traffic volumes generated by this PC, are the timing of these works appropriate in that context and how would any requirements needed to be factored into the design of such? It is noted that the PC is proposing no direct lot access to Burnham School Road. While this is seen as perhaps mitigating some traffic issues relating to Burnham School Road, is this the appropriate urban form response?

25. It is anticipated that the construction of traffic signals at the Burnham School Road / Dunns Crossing Road would be timed to coincide with the occupation of no more than 97 dwellings at the Holmes Block site. The Holmes Block would also provide widening on the northern side of Burnham School Road as the sub-division occurs, but only along the frontage of the Plan Change site. No widening is considered to be required by the Plan Change site to the west of that site.
26. Burnham School Road is a future arterial road and it is considered that this road would best be managed through not providing direct property access. A further urban form response regarding no direct lot access to Burnham School Road will be answered elsewhere by the urban design consultant.

24. Please amend the Holmes Block ODP to show provision of an off road walkway/cycleway along Burnham School Road to Dunns Crossing Road, along with a walk cycle link as below to Burnham School Road.



27. This amendment has been included on the revised ODP, which is included as **Attachment 2**.

25. The ITA refers to a possible upgrade of the Lowes/Dunns Crossing Road intersection with traffic signals suggested by the Applicant. Council's current plans are for a roundabout in 2029/30 as identified in the SH1/Rolleston Business Case. Please review the ITA in light of this advice and consider how this may then influence the current assessment and comments on this intersection?

28. This is assumed to be a roundabout in the updated traffic modelling and has been identified as operating satisfactorily with the Plan Change traffic added to the network.

26. It is noted that there is no ODP roading connection shown to SH1 from the Holmes Block. This likely anticipates the NZTA views, however has this been discussed with them on the basis that even an entry only off SH1 could be beneficial to mitigate traffic issues at the SH1/Dunns Crossing/Walkers Road intersection to service the block?

29. No access to / from SH1 has been proposed as it is anticipated that Waka Kotahi NZTA would not be supportive of this. Furthermore, the proposed roundabout at SH1 / Dunns Crossing Road / Walkers Road is predicted to operate satisfactorily with the Plan Change traffic added to the network, so additional links to SH1 are not considered necessary.

27. In regards to the Skellerup Block the ITA needs to look more carefully at the possible alignment (or otherwise) of the roading and transport connections with the proposed PC70 area opposite and assess intersection type and alignments and LoS to provide confidence on this aspect. This should be coordinated with the PC70 Applicant.

30. The plan included in **Attachment 3** illustrates the alignment of the transport networks for this Plan Change 73 and Plan Change 70. The road alignments are considered to be sufficiently well aligned to enable continuous links to be provided.

31. The traffic modelling undertaken by Abley assumed 25% completion of future development areas and a priority-controlled crossroads on Dunns Crossing Road where the Plan Change 73 road layout meets the Plan Change 70 layout. This indicates that the intersections (including the Primary Access intersection) are predicted to operate at Level of Service A, with low levels of delay.

32. Given the good operation of the priority-controlled intersection and the desire-line for most vehicles heading to / from the east from PC 70 (toward Rolleston town or Christchurch and therefore not toward Dunns Crossing Road) the priority-controlled intersection is considered to be satisfactory in the future.

28. There are concerns with the cumulative traffic effects on the Selwyn Road corridor from growth to the south and south west of Rolleston. The plan change request makes reference to the Selwyn/Goulds/Dunns Crossing intersection and a possible upgrade needed but this is not definitive. In conjunction with PC70 Applicant, please provide an assessment of this intersection and the necessary upgrades required to ensure that it operates efficiently and effectively.

33. A roundabout has been included in the Abley traffic model at this location. The layout of the intersection is consistent with the intersection arrangement illustrated in the RFI for Plan Change 70. Whilst this traffic modelling includes 25% of the Future Growth Areas, it indicates that this revised intersection arrangement is predicted to operate at Level of Service A for all approaches with minimal delay.



34. Whilst we understand that consideration of Plan Change 70 traffic can only be considered when that Plan Change is notified, the initial modelling undertaken indicates that the proposed roundabout should have ample capacity to accommodate that increase in traffic.
35. We trust this letter satisfactorily addresses the transport matters raised in the Council's RFI.

Yours sincerely,

Novo Group Limited

Nick Fuller

Senior Transport Engineer

D: 03 972 5714 | **M:** 021 997 419 | **O:** 03 365 5570

E: nick@novogroup.co.nz | **W:** www.novogroup.co.nz

021-032-TL001D



Attachment 1: Abley Modelling Note

Holmes and Skellerup Blocks Private Plan Change Modelling

Prepared for: Rolleston Industrial Developments Limited
Job Number: RIDL-J002
Revision: Draft
Issue Date: 26 January 2021
Prepared by: Evan Stranks, Senior Transportation Engineer
Reviewed by: Chris Blackmore, Senior Transportation Engineer

1. Introduction

Abley Limited (Abley) has been commissioned by Rolleston Industrial Developments Ltd (RIDL) to model the inclusion of their Private Plan Change (PPC) in the 2028 Rolleston model which has previously been developed for Selwyn District Council (SDC) using Paramics Discovery. Permission has been granted by SDC to use the model for this work. The model has been used as the basis for developing 'with PPC' and 'without PPC' models to assess the PPC's effect on the Rolleston road network.

The PPC proposes to rezone two blocks of land from their current rural residential L3 zoning to urban residential LZ zoning. The two blocks of land are as follows:

- Holmes Block, located west of Dunns Crossing Road between SH1 and Burnham School Road; and,
- Skellerup Block, located west of Dunns Crossing Road, 1000m south of Brookside Road and 700m north of Selwyn Road.

The PPC proposes the inclusion of 1150 and 950 households in Holmes and Skellerup Blocks, respectively.

The model runs a two-hour morning period from 07:00 to 09:00 and a two-hour evening period from 16:00 to 18:00. From these results are reported for a peak hour in the morning from 08:00 to 09:00 and in the evening from 17:00 to 18:00.

Paramics Discovery microsimulation is a stochastic modelling package, which means there is some inherent variability between modelling runs. To account for this, the results presented are the averages of four model runs. Generally, outlier results are excluded from the analysis however this has not been required for any of the results reported here.

2. Assumptions

2.1 Development areas

The original 2028 model included future development based on SDC estimates of what would be completed by the model year. This includes varying levels of development in existing Outline Development Plan (ODP) areas and Special Housing Areas (SHA) as well as 25% development in identified 'future urban development' areas. These assumptions have been retained in the PPC modelling.

The Holmes and Skellerup blocks were included in the original modelling with their current rural residential zoning amounting to approximately 96 and 53 households, respectively, by 2028. This level of development has been included in the 'Without PPC' model with the same trip generation as in the original model. The 'With PPC' model replaces these with the proposed 1150 and 950 households, respectively, with a trip generation rate of 0.9 trips per household in peak hours as detailed in [Table 2.1](#). Each block includes a 450 square metre local retail centre, which has been assumed to generate 12.5 trips per 100 square metres in peak hours, of which 20% is pass-by and 80% is new trips from the immediate area.

Table 2.1 Trip generation per developed household, supplied by RIDL

Period	Arrivals	Departures	Total
Morning Peak Hour	0.225	0.675	0.9
Evening Peak Hour	0.567	0.333	0.9
Daily	4.1	4.1	8.2

2.2 Road network

The models used in the assessment have been built off the previously developed 2028 Rolleston model. As such, it includes all relevant infrastructure programmed for completion up until 2027/28 in SDC's draft 2021-31 Long Term Plan (LTP). Three infrastructure improvements programmed in the draft LTP for 2028/29 and 2029/30 have been included. These are:

- Lincoln Rolleston Road / Selwyn Road 'seagull'-type priority intersection (2028/29);
- Dunns Crossing Road / Burnham School Road signals (2029/30); and,
- Dunns Crossing Road / Lowes Road roundabout (2029/30).

Both the 'Without PPC' and 'With PPC' models further include the following additional differences from the previously developed 2028 Rolleston model:

- Updated lane designations on the SH1 / Dunns Crossing Road / Walkers Road and SH1 / Rolleston Drive roundabouts to reflect increased trip generation in West Rolleston. The lane designations include two right-turn lanes out of Dunns Crossing Road and Rolleston Drive, respectively.
- Rural roundabout at the intersection of Selwyn Road and Dunns Crossing Road, with Goulds Road realigned to meet Dunns Crossing Road at a priority intersection. This is per the RFI issued by SDC on Plan Change 70 to their District Plan. The roundabout is assumed to be single-lane with an inscribed circle diameter (ICD) of 30 metres.
- Rural roundabout at the intersection of Selwyn Road and Springston Rolleston Road, assumed to be single-lane with an ICD of 30 metres. This roundabout has been previously identified as a necessary temporary measure to enable development in southwest Rolleston until the CRETS collector road is complete.
- Internal ODP network for the PPC including improved accesses on Dunns Crossing Road and Burnham School Road.

The 'With PPC' model includes the following additional pieces of infrastructure as requested by RIDL:

- Urban roundabout at the intersection of Lowes Road and East Maddisons Road, assumed to be single-lane with an ICD of 20 metres.
- Traffic signals at the intersection of Dunns Crossing Road and Granite Drive. The signal timings have been assumed to be offset from the Dunns Crossing Road / Burnham School Road signals in order to prioritise northbound traffic in the AM and southbound traffic in the PM.

The layouts for the 'with PPC' and 'without PPC' models are illustrated in **Figure 2.1** and **Figure 2.2**, respectively.

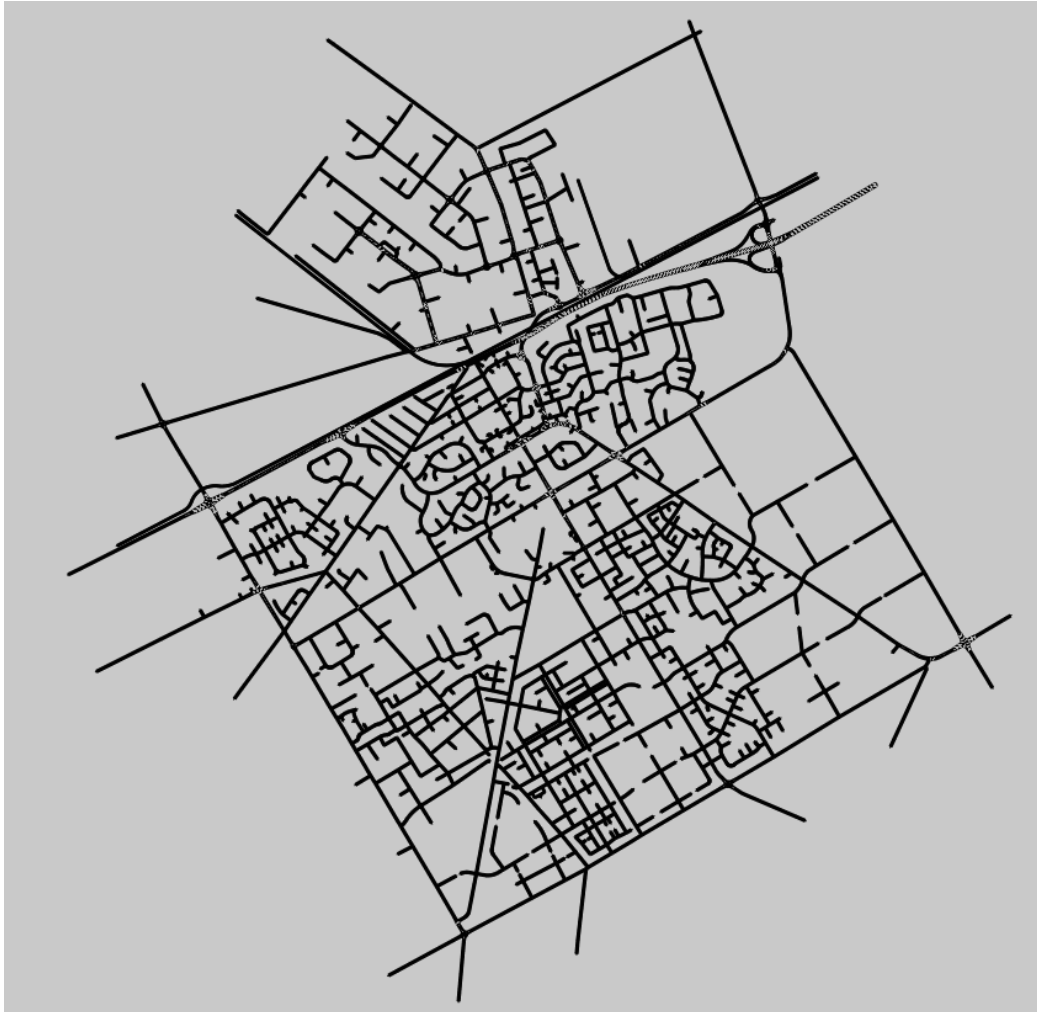


Figure 2.1 'Without PPC' model layout

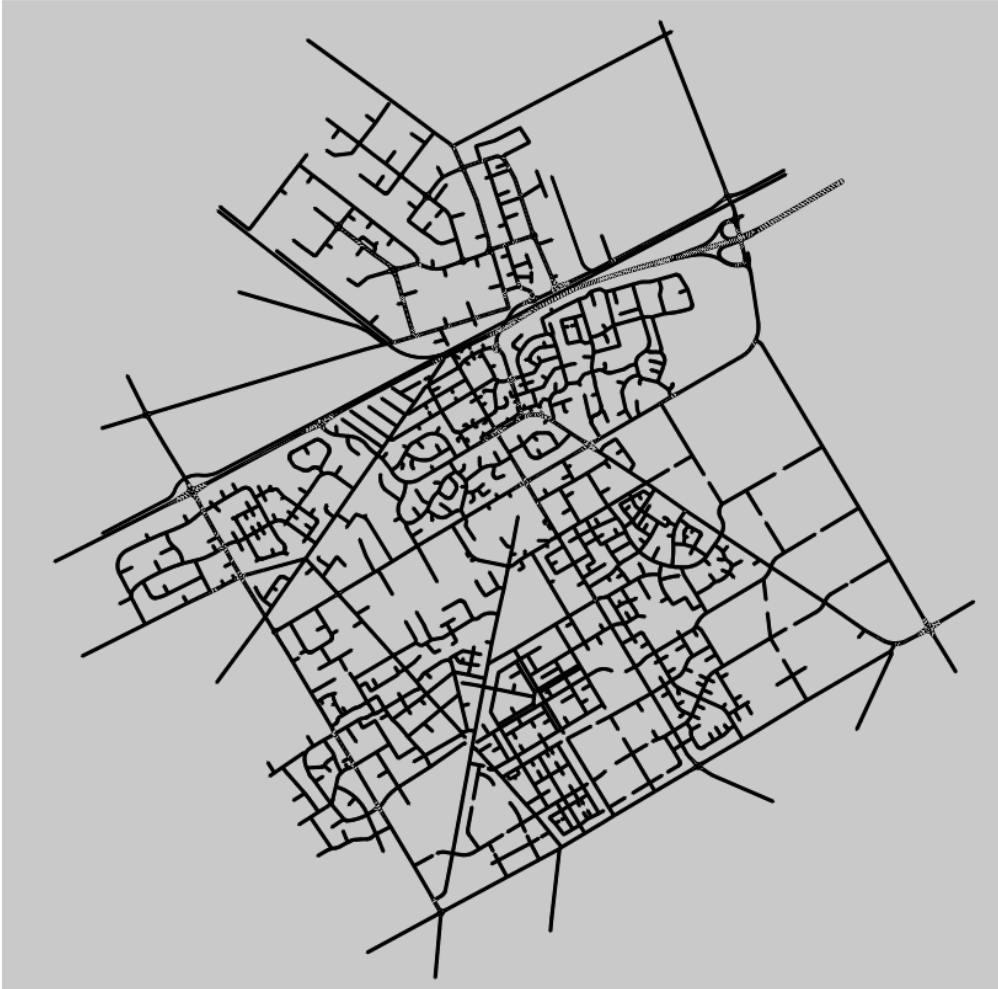


Figure 2.2 'With PPC' model layout

Weedons Road Interchange

In the course of developing the 2028 Rolleston model for SDC, it was found that the SH1 Weedons Road interchange has limited capacity for accommodating future growth in traffic volumes. The westbound exit from SH1 must give way to northbound movements along Weedons Road at the southernmost interchange roundabout. This results in extensive queuing on the SH1 westbound exit in the 2028 model, particularly in the PM where these queues can extend back to the mainline SH1. It was thus assumed that a temporary solution would be required to limit the impact on SH1 in advance of a more extensive future upgrade to the interchange that would be required to enable full development of the Rolleston urban growth area. The temporary solution assumed was metering signals on the Weedons Road approach to the roundabout in order to create additional gaps for traffic coming off SH1.

The roundabout metering signals have been updated and identical timings have been included in both the 'with PPC' and 'without PPC' models to enable direct comparison. As the metering has been assumed as a temporary solution, it must be noted that the timings are not necessarily optimised to get the maximum performance out of the interchange, but rather they have been set to keep the mainline SH1 flowing.

3. Modelling outputs

3.1 Volumes

The 'with PPC' model shows that increases in traffic volumes in both peaks are primarily along Dunns Crossing Road and SH1, with other important arterials and collectors also seeing some increase. Refer to [Table 3.1](#) and [Figure 3.1](#) for the AM peak results and [Table 3.2](#) and [Figure 3.2](#) for PM peak results.

Table 3.1 Two-way volumes on select links in AM peak (08:00-09:00)

Measurement point	Without PPC	With PPC	Change
Dunns Crossing Rd north of Newman Rd	478	940	462
Dunns Crossing Rd south of Burnham School Rd	396	937	541
Dunns Crossing Rd north of Skellerup	293	635	343
Dunns Crossing Rd south of Skellerup	268	586	318
SH1 west of Dunns Crossing Rd	1271	1339	69
SH1 east of Dunn Crossing Rd	1483	1817	334
SH1 east of Rolleston Dr (W)	1514	1838	324
SH1 west of Weedons Rd Interchange	1919	2255	335
SH1 east of Weedons Rd Interchange	3126	3338	212
Brookside Rd SW of Rolleston Dr	609	888	279
Lowes Rd east of East Maddisons Rd	315	531	217
Selwyn Rd east of Goulds Rd	363	631	269
Selwyn Rd east of Weedons Rd	957	1125	167



Figure 3.1 Modelled volume change in AM peak (08:00-09:00)

Table 3.2 Two-way volumes on select links in PM peak (17:00-18:00)

Measurement point	Without PPC	With PPC	Change
Dunns Crossing Rd north of Newman Rd	733	1437	704
Dunns Crossing Rd south of Burnham School Rd	464	1000	537
Dunns Crossing Rd north of Skellerup	356	743	387
Dunns Crossing Rd south of Skellerup	301	593	292
SH1 west of Dunns Crossing Rd	1465	1535	69
SH1 east of Dunn Crossing Rd	1760	2349	588
SH1 east of Rolleston Dr (W)	1999	2608	609
SH1 west of Weedons Rd Interchange	2718	3172	454
SH1 east of Weedons Rd Interchange	4382	4807	426
Brookside Rd SW of Rolleston Dr	902	1132	230
Lowes Rd east of East Maddisons Rd	355	513	159
Selwyn Rd east of Goulds Rd	392	615	223
Selwyn Rd east of Weedons Rd	1209	1362	153



Figure 3.2 Modelled volume change in PM peak (17:00-18:00)

3.2 Intersection performance

The delay and Level of Service (LOS) of key intersections have been evaluated and compared between the 'without PPC' and 'with PPC' models. LOS is calculated for roundabouts and signalised intersections on the basis of average weighted approach while for priority control intersections it is calculated as the worst approach averaged across movements. The performance of key intersections in the AM peak hour is demonstrated in **Table 3.3** and the PM peak hour in **Table 3.4**. Further breakdowns of the individual movements are attached as Appendix A.

Table 3.3 Key intersection performance in AM peak (08:00-09:00)

Intersection	Without PPC			With PPC			Change	
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay
SH1 / Dunns Crossing Road / Walkers Road roundabout	1793	6	A	2277	9	A	484	3
SH1 / Rolleston Drive roundabout	1877	7	A	2271	6	A	394	-1
SH1 / Tennyson Street / Brookside Road	430	5	A	437	3	A	7	-2
SH1 / Weedons Ross Road / Weedons Road interchange (both roundabouts)	1740	23	C	1916	23	C	176	0
Dunns Crossing Road / Newmans Road / Holmes North Secondary Access priority intersection	515	4	A	1048	21	C	533	17
Dunns Crossing Road / Granite Drive / Holmes Central Access priority intersection upgraded to signals	547	5	A	1160	15	B	613	10
Dunns Crossing Road / Burnham School Road signalised intersection	491	10	A	1052	16	B	560	6
Dunns Crossing Road / Brookside Road priority intersection	529	4	A	1246	24	C	717	19
Dunns Crossing Road / Lowes Road roundabout	515	2	A	1267	4	A	752	2
Dunns Crossing Road / Brenley Drive / Skellerup North Primary Access priority intersection	329	2	A	958	9	A	629	7
Dunns Crossing Road / Skellerup Central Primary Access priority intersection	299	2	A	655	4	A	356	2
Dunns Crossing Road / Skellerup South Primary Access priority intersection	305	2	A	714	5	A	409	3
Dunns Crossing Road / Skellerup South Secondary Access priority intersection	280	2	A	645	5	A	365	3
Dunns Crossing Road / Goulds Road priority intersection	434	3	A	758	4	A	324	1
Dunns Crossing Road / Selwyn Road roundabout	600	3	A	916	3	A	316	0
Burnham School Road / Brookside Road priority intersection	504	6	A	759	10	B	255	4
Rolleston Drive / Brookside Road roundabout	1214	7	A	1574	16	B	360	9
East Maddisons Road / Lowes Road priority intersection upgraded to roundabout	595	10	A	904	7	A	309	-3

Table 3.4 Key intersection performance in PM peak (17:00-18:00)

Intersection	Without PPC			With PPC			Change	
	Volume	Delay	LOS	Volume	Delay	LOS	Volume	Delay
SH1 / Dunns Crossing Road / Walkers Road roundabout	2153	6	A	2886	8	A	734	2
SH1 / Rolleston Drive roundabout	2279	5	A	2871	9	A	592	3
SH1 / Tennyson Street / Brookside Road	899	35	E	977	46	E	78	10
SH1 / Weedons Ross Road / Weedons Road interchange (both roundabouts)	1964	69	E	2081	77	E	118	8
Dunns Crossing Road / Newmans Road / Holmes North Secondary Access priority intersection	763	4	A	1526	26	D	763	22
Dunns Crossing Road / Granite Drive / Holmes Central Access priority intersection upgraded to signals	638	5	A	1441	13	B	804	8
Dunns Crossing Road / Burnham School Road signalised intersection	483	8	A	1040	9	A	557	1
Dunns Crossing Road / Brookside Road priority intersection	619	7	A	1300	22	C	681	15
Dunns Crossing Road / Lowes Road roundabout	621	2	A	1358	6	A	738	4
Dunns Crossing Road / Brenley Drive / Skellerup North Primary Access priority intersection	417	3	A	1076	9	A	659	6
Dunns Crossing Road / Skellerup Central Primary Access priority intersection	360	3	A	779	6	A	419	3
Dunns Crossing Road / Skellerup South Primary Access priority intersection	348	2	A	743	5	A	395	3
Dunns Crossing Road / Skellerup South Secondary Access priority intersection	306	3	A	660	6	A	354	3
Dunns Crossing Road / Goulds Road priority intersection	483	3	A	784	3	A	301	-1
Dunns Crossing Road / Selwyn Road roundabout	655	3	A	941	4	A	286	1
Burnham School Road / Brookside Road priority intersection	646	6	A	893	11	B	247	5
Rolleston Drive / Brookside Road roundabout	1497	18	B	1703	29	C	206	11
East Maddisons Road / Lowes Road priority intersection upgraded to roundabout	787	38	E	1064	9	A	277	-29

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Appendix A

Level of Service breakdowns



Without PPC Model

SH1 / Dums Crossing Road / Walkers Road roundabout																			
07:00 to 08:00				08:00 to 09:00				16:00 to 17:00				17:00 to 18:00							
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
Walkers Road North	Left	81	52	12	B			81	42	9	A			89	44	9	A		
Walkers Road North	Through	44	47	12	B	11	B	55	41	9	A	9	A	87	39	10	A	10	A
Walkers Road North	Right	24	35	10	B			21	38	11	B			29	47	13	B		
SH1 East	Left	49	8	3	A			55	8	3	A			216	13	4	A		
SH1 East	Through	673	16	4	A	4	A	658	16	4	A	4	A	599	20	5	A	5	A
SH1 East	Right	70	20	6	A			78	26	6	A			59	21	6	A		
Dums Crossing Road South	Left	70	44	10	B			66	31	8	A			70	30	7	A		
Dums Crossing Road South	Through	64	47	11	B	11	B	72	35	9	A	9	A	65	25	7	A	8	A
Dums Crossing Road South	Right	223	48	11	B			176	38	9	A			91	31	9	A		
SH1 West	Left	38	17	6	A			35	21	6	A			28	15	6	A		
SH1 West	Through	542	30	7	A	7	A	434	25	6	A	6	A	603	24	6	A	6	A
SH1 West	Right	70	28	6	A			60	18	4	A			79	17	4	A		
Intersection Total		1957		7	A	7	A	1793		6	A	6	A	2008		6	A	6	A

SH1 / Rolleston Drive roundabout

SH1 / Rolleston Drive roundabout																			
07:00 to 08:00				08:00 to 09:00				16:00 to 17:00				17:00 to 18:00							
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
SH1 East	Left	13	16	4	A			17	17	4	A	4	A	150	22	3	A		
SH1 East	Through	663	20	4	A	4	A	609	21	4	A	4	A	744	20	4	A	4	A
Rolleston Drive South	Left	140	34	17	B	32	C	177	77	7	A	15	B	142	32	5	A	11	B
Rolleston Drive South	Right	454	139	37	D			374	116	18	B			228	68	14	B		
SH1 West	Left	851	39	4	A	6	A	544	26	4	A	5	A	649	17	3	A	4	A
SH1 West	Right	187	34	8	A			187	38	8	A			125	19	4	A		
Intersection Total		2118		13	B	13	B	1877		7	A	7	A	2086		5	A	5	A

SH1 / Tempony Street / Brookside Road

SH1 / Tempony Street / Brookside Road																			
07:00 to 08:00				08:00 to 09:00				16:00 to 17:00				17:00 to 18:00							
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
SH1 East	Left	405	14	4	A	3	A	363	10	3	A	3	A	653	83	12	B	12	B
SH1 East	Through	13	7	3	A			12	7	2	A			84	78	13	B		
Tempony Street South	Left	86	17	4	A	4	A	55	25	5	A	5	A	82	33	5	A	5	A
Brookside Road South	Left	2	5	3	A	3	A	1	6	3	A	3	A	1	11	11	B	11	B
Intersection Total		506		4	A	4	A	436		5	A	5	A	819		13	B	12	B

SH1 / Woodsons Ross Road / Woodsons Road interchange

SH1 / Woodsons Ross Road / Woodsons Road interchange																			
07:00 to 08:00				08:00 to 09:00				16:00 to 17:00				17:00 to 18:00							
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
Woodsons Ross Road North	West	65	36	3	A	7	A	59	35	3	A	7	A	26	29	3	A	6	A
Woodsons Ross Road North	East	624	23	8	A			347	21	7	A			450	17	6	A		
SH1 East	South	179	235	67	E	49	D	190	204	47	D	37	D	834	181	74	E	73	F
SH1 East	North	192	128	32	C			189	106	27	C			145	149	52	D		
SH1 West	South	6	9	5	A	7	A	6	14	6	A	9	A	8	17	10	A	6	A
SH1 West	North	102	24	7	A			114	36	9	A			60	22	5	A		
Woodsons Road South	West	53	181	77	F	83	F	65	73	17	B	26	C	28	223	61	E	64	F
Woodsons Road South	East	843	193	83	F			770	124	27	C			347	259	64	E		
Intersection Total		1862		52	D	52	D	1746		23	C	23	C	1951		51	D	51	D

Dums Crossing Road / Newmans Road priority intersection

Dums Crossing Road / Newmans Road priority intersection																			
07:00 to 08:00				08:00 to 09:00				16:00 to 17:00				17:00 to 18:00							
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
Dums Crossing Road North	Left	23	4	1	A			26	4	1	A			33	7	2	A		
Dums Crossing Road North	Through	339	5	1	A	1	A	143	6	1	A	1	A	286	7	1	A	1	A
Dums Crossing Road North	Right																		
Newmans Road East	Left	16	8	2	A			22	8	2	A			15	12	3	A		
Newmans Road East	Through	0	0	0	A	4	A	0	0	0	A	4	A	0	0	0	A		
Newmans Road East	Right	99	24	5	A			74	24	4	A			45	18	4	A		
Dums Crossing Road South	Left																		
Dums Crossing Road South	Through	264	12	1	A	1	A	235	11	1	A	1	A	183	19	2	A	2	A
Dums Crossing Road South	Right	12	10	3	A			15	12	4	A			10	17	6	A		
Holmes North Secondary Access	Left																		
Holmes North Secondary Access	Through																		
Holmes North Secondary Access	Right																		
Intersection Total		552		5	A	4	A	515		4	A	4	A	632		6	A	4	A

Dums Crossing Road / Granite Drive priority intersection

Dums Crossing Road / Granite Drive priority intersection																			
07:00 to 08:00				08:00 to 09:00				16:00 to 17:00				17:00 to 18:00							
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
Dums Crossing Road North	Left	52	6	2	A			52	7	2	A			100	9	2	A		
Dums Crossing Road North	Through	108	7	1	A	1	A	126	7	2	A	2	A	184	8	2	A	2	A
Dums Crossing Road North	Right																		
Granite Road East	Left	23	11	3	A			67	18	3	A			20	18	4	A		
Granite Road East	Through	0	0	0	A	4	A	0	0	0	A	5	A	0	0	0	A	4	A
Granite Road East	Right	306	27	4	A			91	29	6	A			70	19	4	A		
Dums Crossing Road South	Left																		
Dums Crossing Road South	Through	167	11	1	A	1	A	163	13	2	A	2	A	132	14	1	A	2	A
Dums Crossing Road South	Right	19	11	3	A			48	14	4	A			17	20	6	A		
Homes Central Primary Access W	Left																		
Homes Central Primary Access W	Through																		
Homes Central Primary Access W	Right																		
Intersection Total		474		4	A	4	A	547		6	A	5	A	522		6	A	4	A

Dums Crossing Road / Burnham School Road signalised intersection

		07:00 to 08:00						08:00 to 09:00						16:00 to 17:00						17:00 to 18:00						
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	
Durns Crossing Road North	Left	1	7	6	A			1	6	5	A			4	13	5	A			4	8	7	A			
Durns Crossing Road North	Through	111	27	6	A	6	A	124	27	7	A	7	A	192	27	6	A	6	A	278	28	6	A	6	A	
Durns Crossing Road North	Right	13	24	9	A			47	30	9	A			3	11	6	A			5	9	3	A			
Burnham School Road East	Left	3	32	21	C			4	40	21	C			2	20	11	B			2	23	12	B			
Burnham School Road East	Through	1	8	8	A	24	C	1	8	8	A	20	C	0	0	0	A	18	B	0	27	27	C	19	B	
Burnham School Road East	Right	3	40	30	C			2	39	23	C			2	44	26	C			2	27	25	C			
Durns Crossing Road South	Left	25	22	7	A			64	24	7	A			10	21	6	A	7	A	14	22	8	A			
Durns Crossing Road South	Through	159	28	8	A	8	A	162	28	8	A	7	A	140	28	8	A	7	A	155	30	9	A	9	A	
Durns Crossing Road South	Right	2	7	4	A			2	2	2	A			2	14	10	A			2	3	3	A			
Burnham School Road West	Left	21	45	18	B			41	46	17	B			8	33	11	B	17	B	9	42	19	B			
Burnham School Road West	Through	1	18	16	B	18	B	2	18	16	B	20	C	1	30	10	C	17	B	1	18	16	B	18	B	
Burnham School Road West	Right	21	46	19	B			44	55	23	C			10	43	23	C			14	47	18	B			
Intersection Total		360	9	9	A	9	A	491	10	A	10	A	324	7	A	7	A	483	8	A	8	A	8	A		

Dunns Crossing Road / Lowes Road roundabout																									
		07:00 to 08:00						08:00 to 09:00						16:00 to 17:00						17:00 to 18:00					
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
Dunns Crossing Road North	Left	68	8	2	A	2	A	92	10	2	A	2	A	85	9	2	A	2	A	135	12	3	A	2	A
Dunns Crossing Road North	Through	97	10	2	A			106	12	2	A			177	10	2	A	2	A	228	13	2	A	2	A
Lowes Road East	Left	13	10	3	A			17	10	3	A	3	A	17	9	3	A	3	A	23	13	4	A	4	A
Lowes Road East	Right	62	13	3	A	3	A	79	16	3	A	3	A	43	11	3	A	55	14	4	A	4	A	4	A
Dunns Crossing Road South	Through	185	10	2	A	2	A	201	10	2	A	2	A	150	8	2	A	2	A	162	8	2	A	2	A
Dunns Crossing Road South	Right	21	7	2	A			21	7	2	A			18	4	2	A			18	8	2	A		
Intersection Total		440		2	A	2	A	515		2	A	2	A	499		2	A	2	A	521		2	A	2	A

Dunns Crossing Road / Brenley Drive / Skellerup North Primary Access priority intersection																									
		07:00 to 08:00						08:00 to 09:00						16:00 to 17:00						17:00 to 18:00					
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
Dunns Crossing Road North	Left	9	3	1	A			8	3	1	A			22	7	3	A			29	7	2	A		
Dunns Crossing Road North	Through	99	4	0	A	0	A	116	4	0	A	0	A	148	5	0	A	0	A	196	6	0	A	0	A
Dunns Crossing Road North	Right																								
Brenley Drive East	Left	7	5	4	A			8	5	3	A			6	4	2	A			5	5	2	A		
Brenley Drive East	Through					3	A					2	A					2	A					3	A
Brenley Drive East	Right	29	13	3	A			28	9	2	A			32	11	2	A			33	11	3	A		
Dunns Crossing Road South	Right																								
Dunns Crossing Road South	Right	158	4	1	A	1	A	165	6	1	A	1	A	139	8	1	A	1	A	150	9	1	A	1	A
Dunns Crossing Road South	Right	4	5	3	A			3	7	4	A			5	5	2	A			6	6	3	A		
Skellerup North Primary Access	Left																								
Skellerup North Primary Access	Through																								
Skellerup North Primary Access	Right																								
Intersection Total		305		4	A	3	A	329		4	A	2	A	352		3	A	2	A	417		3	A	3	A

Dunns Crossing Road / ODP 12 South Access / Skellerup Central Primary Access priority intersection																									
		07:00 to 08:00						08:00 to 09:00						16:00 to 17:00						17:00 to 18:00					
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
Dunns Crossing Road North	Left	0	0	0	A			0	0	0	A			1	1	1	A			1	1	1	A		
Dunns Crossing Road North	Through	96	5	0	A	0	A	112	6	0	A	0	A	139	5	0	A	0	A	176	9	1	A	1	A
Dunns Crossing Road North	Right	10	3	0	A			13	5	1	A			13	3	1	A			24	6	2	A		
ODP 12 South Access East	Left																								
ODP 12 South Access East	Through					2	A					2	A					2	A					3	A
ODP 12 South Access East	Right	9	5	2	A			6	3	2	A			6	4	2	A			7	6	3	A		
Dunns Crossing Road South	Right	0	0	0	A			0	0	0	A			0	0	0	A			0	0	0	A		
Dunns Crossing Road South	Right	142	3	0	A	0	A	150	2	0	A	0	A	131	2	0	A	0	A	139	3	0	A	0	A
Dunns Crossing Road South	Right																								
Skellerup Central Primary Access	Left	12	3	0	A			12	2	0	A			8	3	1	A			10	2	1	A		
Skellerup Central Primary Access	Through	0	0	0	A	0	A	0	0	0	A	0	A	0	0	0	A	1	A	1	1	0	A	1	A
Skellerup Central Primary Access	Right	2	3	2	A			6	5	2	A			4	4	2	A			3	3	1	A		
Intersection Total		270		2	A	2	A	299		2	A	2	A	301		2	A	2	A	360		4	A	3	A

Dunns Crossing Road / Future Urban Development Area Access / Skellerup South Primary Access priority intersection																									
		07:00 to 08:00						08:00 to 09:00						16:00 to 17:00						17:00 to 18:00					
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
Dunns Crossing Road North	Left	12	1	0	A			16	2	0	A			30	2	0	A			36	1	0	A		
Dunns Crossing Road North	Through	86	5	1	A	1	A	102	4	1	A	1	A	112	7	1	A	1	A	143	7	1	A	1	A
Dunns Crossing Road North	Right																								
Future Urban Development Area	Left	13	6	1	A			20	6	1	A			11	5	1	A			13	9	2	A		
Future Urban Development Area	Through					1	A					2	A					1	A					2	A
Future Urban Development Area	Right	21	7	1	A			21	15	2	A			17	11	2	A			17	15	2	A		
Dunns Crossing Road South	Right																								
Dunns Crossing Road South	Right	122	7	2	A	2	A	130	8	2	A	2	A	116	9	1	A	1	A	121	7	1	A	1	A
Dunns Crossing Road South	Right	10	4	2	A			17	6	2	A			19	8	2	A			16	10	3	A		
Skellerup South Primary Access	Left																								
Skellerup South Primary Access	Through																								
Skellerup South Primary Access	Right																								
Intersection Total		263		2	A	2	A	305		2	A	2	A	304		2	A	1	A	348		3	A	2	A

Dunns Crossing Road / Skellerup South Secondary Access priority intersection																									
		07:00 to 08:00						08:00 to 09:00						16:00 to 17:00						17:00 to 18:00					
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
Dunns Crossing Road North	Through	97	7	2	A	2	A	120	8	2	A	2	A	122	7	2	A	2	A	155	9	3	A	3	A
Dunns Crossing Road North	Right	1	0	0	A			3	1	1	A			0	0	0	A			2	0	0	A		
Dunns Crossing Road South	Through	122	9	3	A	2	A	136	8	2	A	2	A	129	8	3	A	2	A	134	8	2	A	2	A
Dunns Crossing Road South	Left	4	3	2	A			6	3	2	A			7	2	1	A			8	3	1	A		
Skellerup South Secondary Access	Left	10	3	1	A	1	A	11	6	2	A	2	A	5	4	1	A	1	A	6	2	0	A	1	A
Skellerup South Secondary Access	Right	6	4	2	A			6	5	3	A			2	1	1	A			3	5	3	A		
Intersection Total		240		3	A	2	A	280		3	A	2	A	285		3	A	2	A	306		3	A	3	A

Dunns Crossing Road / Goulds Road priority intersection																									
		07:00 to 08:00						08:00 to 09:00						16:00 to 17:00						17:00 to 18:00					
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
Goulds Road North	Through	15	7	3	A	2	A	23	8	4	A	2	A	14	6	3	A	2	A	18	7	4	A	2	A
Goulds Road North	Right	100	11	2	A			121	11	2	A			109	10	2	A			112	10	2	A		
Goulds Road South	Left	82	9	3	A	3	A	97	8	3	A	3	A	80	8	3	A	3	A	90	9	3	A	3	A
Goulds Road South	Through	18	8	5	A			15	8	4	A			21	8	3	A	3	A	23	8	3	A		
Dunns Crossing Road West	Left	102	3	0	A	0	A	122	3	0	A	0	A	122	3	0	A	0	A	129	4	0	A	0	A
Dunns Crossing Road West	Right	57	5	1	A			57	5	1	A			84	7	1	A			93	7	1	A		
Intersection Total		373		5	A	3	A	434		4	A	3	A	429		3	A	3	A	483		4	A	3	A

Dunns Crossing Road / Selwyn Road / Goulds Road roundabout																									
		07:00 to 08:00						08:00 to 09:00						16:00 to 17:00						17:00 to 18:00					
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
Goulds Road North	Left	72	8	2	A			92	9	2	A			55	8	2	A			72	9	2	A		
Goulds Road North	Through	34	6	1	A	3	A	42	9	2	A	3	A	70	9	2	A	2	A	78	9	2	A	2	A
Goulds Road North	Right	75	9	4	A			86	9	4	A			63	9	4	A			70	10	4	A		
Selwyn Road East	Left	11	11	4	A			11	7	3	A			8	7	3	A			10	8	4	A		
Selwyn Road East	Through	105	13	4	A	4	A	117	14	4	A	4	A	94	10	3	A	3	A	104	12	3	A	4	A
Selwyn Road East	Right	48	11	4	A			70	13	5	A			92	13	4	A			120	15	5	A		
Goulds Road South	Left	0	0	0	A			0	0	0	A			0	0	0	A			0	0	0	A		
Goulds Road South	Through	72	21	3	A	3	A	70	15	3	A	3	A	50	16	2	A	2	A	51	17	2	A	2	A
Goulds Road South	Right	8	11	3	A			8	12	3	A			6	9	3	A			6	5	2	A		
Selwyn Road West	Left	37	8	2	A			38	8	2	A			64	10	2	A			68	10	2	A		
Selwyn Road West	Through	62	9	3	A	3	A	66	10	3	A	2	A	80	10	3	A	3	A	94	11	3	A	3	A
Selwyn Road West	Right	0	0	0	A			0	0	0	A			0	0	0	A			0	0	0	A		
Intersection Total		523		3	A	3	A	600		3	A	3	A	590		3	A	3	A	655		3	A	3	A

Rolliston Drive / Brookside Road Roundabout																									
		07:00 to 08:00						08:00 to 09:00						16:00 to 17:00						17:00 to 18:00					
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
Rolliston Drive North	Left	63	21	4	A	4	A	54	22	5	A	5	A	29	24	5	A	7	A	41	94	29	C	30	C
Rolliston Drive North	Through	136	20	5	A			150	24	5	A			138	42	7	A			172	102	29	C		
Rolliston Drive North	Right	14	19	6	A			18	15	6	A			99	42	8	A			164	98	32	C		
Brookside Road East	Left	44	14	2	A	2	A	58	10	3	A	2	A	105	30	6	A	6	A	113	41	8	A	8	A
Brookside Road East	Through	87	12	2	A			96	13	2	A			344	39	6	A			302	46	7	A		
Brookside Road East	Right	65	16	3	A			55	14	4	A			70	37	8	A			64	43	11	B		
Rolliston Drive South	Left	252	70	15	B	14	B	195	32	7	A	6	A	125	15	3	A	3	A	148	15	3	A	3	A
Rolliston Drive South	Through	135	66	13	B			148	30	5	A			99	12	3	A			108	13	3	A		
Rolliston Drive South	Right	86	64	14	B			108	25	6	A			70	12	3	A			86	12	3	A		
Brookside Road West	Left	29	65	16	B	19	B	46	43	12	B	12	B	187	153	41	D	38	D	100	117	37	D	36	D
Brookside Road West	Through	265	89	19	B			261	48	12	B			182	149	38	D			190	143	35	D		
Brookside Road West	Right	18	61	17	B			27	38	12	B			22	111	31	C			20	109	31	C		
Intersection Total		1213		12	B	12	B	1214		7	A	7	A	1379		13	B	13	B	1497		18	B	18	B

Lowes Road / East Maddisons Road priority intersection																									
		07:00 to 08:00						08:00 to 09:00						16:00 to 17:00						17:00 to 18:00					
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
East Maddisons Road North	Left	41	17	4	A	6	A	59	19	5	A	7	A	31	48	11	B	21	C	27	79	20	C	38	A
East Maddisons Road North	Through	64	29	8	A			73	34	9	A			167	88	23	C			170	150	41	E		
East Maddisons Road North	Right	6	16	8	A			6	21	9	A			17	73	25	D			14	119	36	E		
Lowes Road East	Left	22	8	2	A	4	A	23	6	3	A	4	A	38	11	4	A	4	A	34	13	4	A	4	A
Lowes Road East	Through	39	9	4	A			62	11	4	A			49	14	5	A			65	15	4	A		
Lowes Road East	Right	37	15	5	A			52	17	5	A			60	16	4	A			76	15	4	A		
East Maddisons Road South	Left	29	26	5	A	11	B	30	23	6	A	10	A	27	28	6	A	13	B	29	59	12	B	17	C
East Maddisons Road South	Through	128	53	12	B			114	51	11	B			137	69	15	B			158	104	19	C		
East Maddisons Road South	Right	21	43	11	B			22	39	11	B			19	44	11	B			13	64	16	C		
Lowes Road West	Left	28	9	4	A	4	A	22	6	3	A	4	A	16	8	3	A	5	A	14	12	4	A	6	A
Lowes Road West	Through	68	11	4	A			82	14	4	A			42	16	5	A			70	28	5	A		
Lowes Road West	Right	40	12	3	A			51	13	3	A			70	21	6	A			79	31	7	A		
Intersection Total		521		12	B	11	B	595		11	B	10	A	672		25	D	21	C	787		41	E	38	E

Rolliston Drive / Brookside Road Roundabout																									
		07:00 to 08:00						08:00 to 09:00						16:00 to 17:00						17:00 to 18:00					
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
Rolliston Drive North	Left	79	30	7	A	7	A	77	32	8	A	9	A	38	77	16	B	21	C	36	113	50	D	52	D
Rolliston Drive North	Through	167	31	7	A			170	38	9	A			154	92	21	C			146	118	51	D		
Rolliston Drive North	Right	27	21	7	A			21	31	12	B			140	91	23	C			146	118	51	D		
Brookside Road East	Left	46	16	3	A	3	A	54	14	3	A	3	A	84	51	12	B	11	B	403	56	14	B	13	B
Brookside Road East	Through	121	18	3	A			140	15	3	A			403	57	11	B			603	56	14	B		
Brookside Road East	Right	82	17	4	A			63	14	4	A			70	51	12	B			65	54	14	B		
Rolliston Drive South	Left	285	105	40	D	39	D	254	92	25	C	23	C	169	20	4	A	4	A	185	21	4	A	3	A
Rolliston Drive South	Through	215	99	39	D			286	90	22	C			166	15	3	A			179	20	3	A		
Rolliston Drive South	Right	96	98	39	D			131	85	24	C			95	18	4	A			112	22	4	A		
Brookside Road West	Left	38	101	30	C	32	C	58	55	15	B	18	B	187	184	56	E	56	E	103	229	76	F	75	E
Brookside Road West	Through	323	112	31	C			294	67	18	B			166	183	57	E			173	229	76	F		
Brookside Road West	Right	16	79	27	C			28	54	15	B			18	161	58	E			14	203	72	F		
Intersection Total		1483		26	C	26	C	1574		16	B	16	B	1599		19	B	19	B	1763		29	C	29	C

Lowes Road / East Maddisons Road roundabout																									
		07:00 to 08:00						08:00 to 09:00						16:00 to 17:00						17:00 to 18:00					
Approach	Movement	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS	Flow	Max Delay	Avg Delay	LOS	Approach delay	Approach LOS
East Maddisons Road North	Left	74	23	6	A	6	A	102	35	7	A	7	A	39	26	6	A	7	A	51	43	9	A	9	A
East Maddisons Road North	Through	77	24	6	A			84	34	7	A			175	27	7	A			206	43	9	A		
East Maddisons Road North	Right	6	14	6	A			5	14	6	A			14	16	7	A			5	21	7	A		
Lowes Road East	Left	18	10	4	A	4	A	29	15	5	A	5	A	40	23	6	A	7	A	38	28	8	A	8	A
Lowes Road East	Through	64	14	5	A			90	18	5	A			139	26	7	A			171	34	9	A		
Lowes Road East	Right	38	13	5	A			42	14	5	A			69	25	8	A			82	27	8	A		
East Maddisons Road South	Left	38	19	6	A	6	A	52	17	5	A	5	A	47	29	6	A	7	A	53	29	7	A	7	A
East Maddisons Road South	Through	103	21	6	A			112	18	5	A			151	32	7	A			181	29	8	A		
East Maddisons Road South	Right	25	18	8	A			21	15	7	A			11	16	7	A			17	24	8	A		
Lowes Road West	Left	37	16	5	A	6	A	40	23	7	A	7	A	18	13	5	A	6	A	22	18	6	A	6	A
Lowes Road West	Through	198	26	7	A			237	27	8	A			110	26	6	A			116	23	6	A		
Lowes Road West	Right	66	22	6	A			91	25	6	A			81	27	6	A			94	23	6	A		
Intersection Total		733		8	A	6	A	904		8	A	7	A	884		8	A	7	A	1064		9	A	9	A



Attachment 2: Updated Holmes Block ODP

OUTLINE DEVELOPMENT PLAN 39 - HOLMES BLOCK

LEGEND

Outline Development Plan Area

Living Z Zone

Business 1 Zone

Indicative Road

Indicative Cycle/Pedestrian Route

Reserve Location (size to be determined at time of subdivision)

Setback

Boundary Treatment

Noise Control Boundary

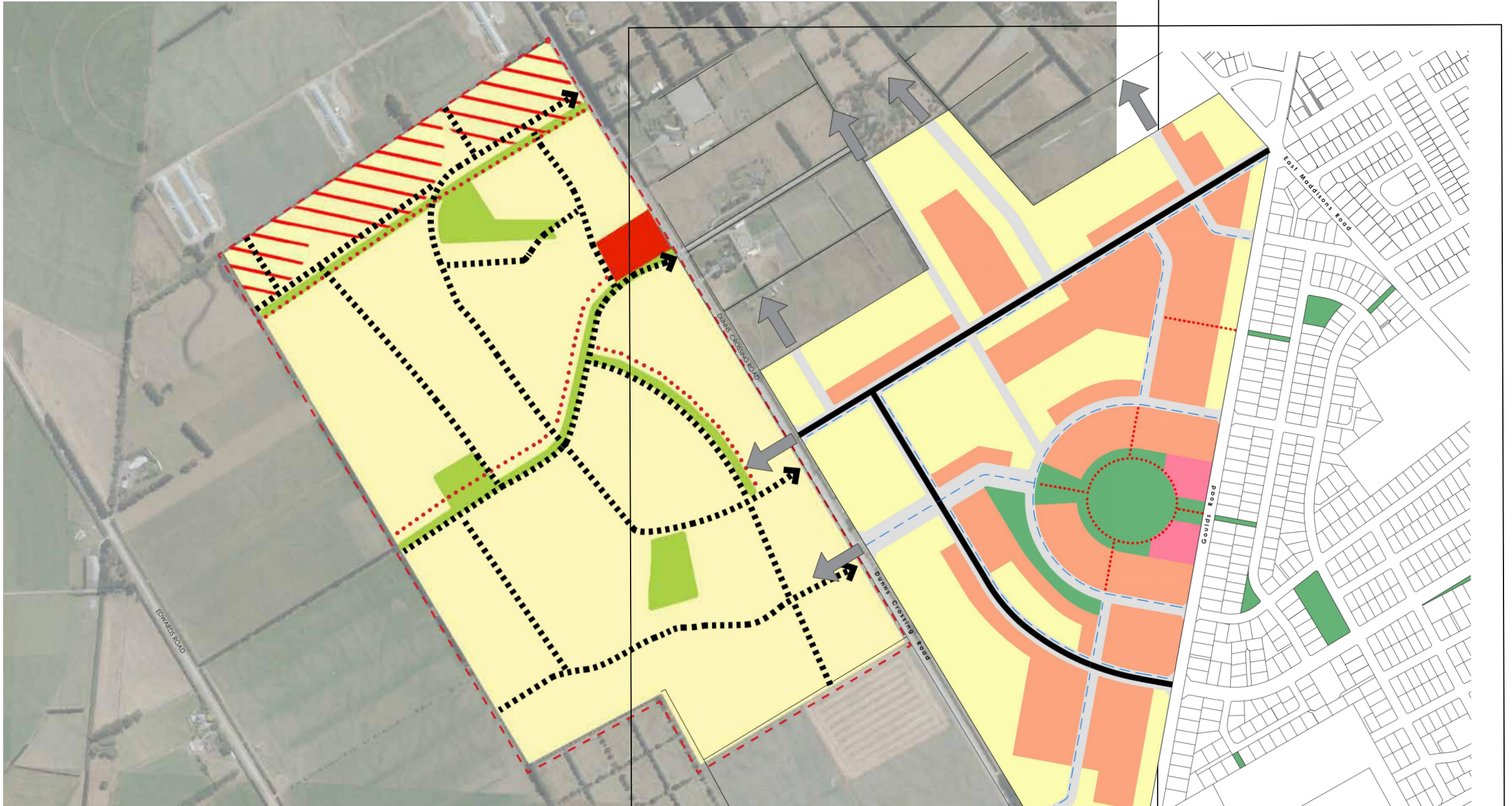
An aerial photograph of the Holmes Block, a large triangular-shaped land parcel. The block is outlined with a red dashed line. The interior is divided into several zones: a large yellow 'Living Z Zone' covering most of the block, and a smaller red 'Business 1 Zone' located near the intersection of Burnham School Road and Newman Road. A network of black dashed lines indicates proposed roads, including a main road running from the top left towards the bottom right, and several connecting roads. Red dotted lines indicate indicative cycle/pedestrian routes. Blue diagonal hatching along the western and northern boundaries represents noise control boundaries. Red diagonal hatching along the southern and eastern boundaries represents setbacks. Green rectangular areas indicate reserve locations. The map is surrounded by existing urban infrastructure, including Main South Road (SH1) to the north, Newman Road to the northeast, Granite Drive to the east, and Burnham School Road to the south. West Rolleston Primary School is visible to the southeast of the block. A north arrow is located in the bottom left corner of the page.



Attachment 3: ODP Alignment

LEGEND

- Outline Development Plan Area
- Living Zone Z
- Business 1 zone
- Indicative Road
- Indicative Cycle/Pedestrian Route
- Reserve Location (size to be determined at time of subdivision)
- Setback



LEGEND

- | | |
|----------------------|---|
| Medium Density | Primary Road |
| Low Density | Secondary Road |
| Neighbourhood Centre | Possible Future Road Connection |
| Reserves | Shared Pedestrian / Cycle Lane (off road) |
| | Shared Pedestrian / Cycle Lane (on road) |

ODP - Faringdon Far West

Not to Scale



Attachment 5: Coffey Assessment of Geotechnical Matters

25 January 2021

Our ref: 773-CHCGE281253

Rolleston West Residential Ltd
ASB House, 166 Cashel Street
Christchurch Central

Attention: Tim Carter / Bruce Van Duyn

Geotechnical Peer Review/RFI Response - Rolleston West Plan Change application

1. Peer review response

Rolleston West Residential Ltd has engaged Coffey Services (NZ) Limited to provide a response to the geotechnical peer review carried out as part of the current Plan Change submission. The peer review (carried out by Ian McCahon from Geotech Consulting) requests that Coffey provide comment on the continuity of the gravel layers across the separate Holmes and Skellerup blocks (the subdivision sites), the test density, and other items in relation to the Plan Change. Our comments are below.

1.1. Gravel continuity

Coffey has reviewed the Environment Canterbury (ECan) well logs in the vicinity of the sites. All logs reviewed indicate a minimum of 50m of gravel deposits beneath both sites. Two examples of the well logs are attached for reference; M36/8063 is located adjacent to Burnham School Road (on the southern boundary of the Holmes Block) and M36/8581 is located in the northern corner of the Skellerup Block. We conclude from the ECan borehole logs and from the investigation test pits that the dense gravels are continuous under the subdivision sites.

1.2. Test density

The subdivision sites are currently zoned rural residential (Living 3) and are proposed to be changed to a more intensive residential land use (Living Z). Test pit investigations on the sites (Coffey 2020 report) consistently show ~200mm of soil overlying dense, cobbly gravels. This is in agreement with the geological map (GNS Science), local knowledge and the ECan boreholes.

The previous Plan Change application for the subdivision of the sites in 2011 (PC8 and PC9), was for changing the sites from rural land to residential. This plan change assessed the sites as being geotechnically suitable for residential development. Therefore, in our professional judgement the MBIE testing density guide is not applicable to this plan change (PC73), as the land has already been assessed as geotechnically suitable for residential development.

The peer review (prepared by Geotech Consulting) for the previous 2011 Plan Change concluded the following:

- The near surface soils have suitable bearing capacity for houses
- Seismic liquefaction is extremely unlikely
- There are no known faults passing through the site
- The site is geotechnically suitable for residential development

We agree with these assessments. Geotechnical risk on the subdivision site is considered very low.

1.3. Site seismic performance

Section 5.1 in our 9 November 2020 geotechnical report indicated that the site was “sufficiently tested” by the 4 September 2010 earthquake.

In addition, we are not aware of any reports of ground damage within the plan change area of the Holmes and Skellerup Blocks.

Section 3 of the geotechnical assessment from 11 April 2011 by Geotech Consulting (Ian McCahon) addresses the site performance from both the 4 September 2010 and 22 February 2011 earthquakes. We agree with the Geotech Consulting report addressing the site performance.

There were no further earthquakes after the 11 April 2011 report that were considered significant enough to warrant reassessment of the sites’ seismic performance.

1.4. Practicality of construction

There are no known geotechnical issues for the sites that would impact on the practicality of constructing infrastructure or building foundations for the residential development of the sites.

2. Closure

The current Plan Change Application from Living 3 to Living Z does not change the land use and further investigation testing is not deemed necessary until the subdivision consent phase. The sites are considered to be underlain by continuous deep gravels, to be low geotechnical risk and to be suitable for residential development.

If you have any queries, please contact the undersigned.

For and on behalf of Coffey

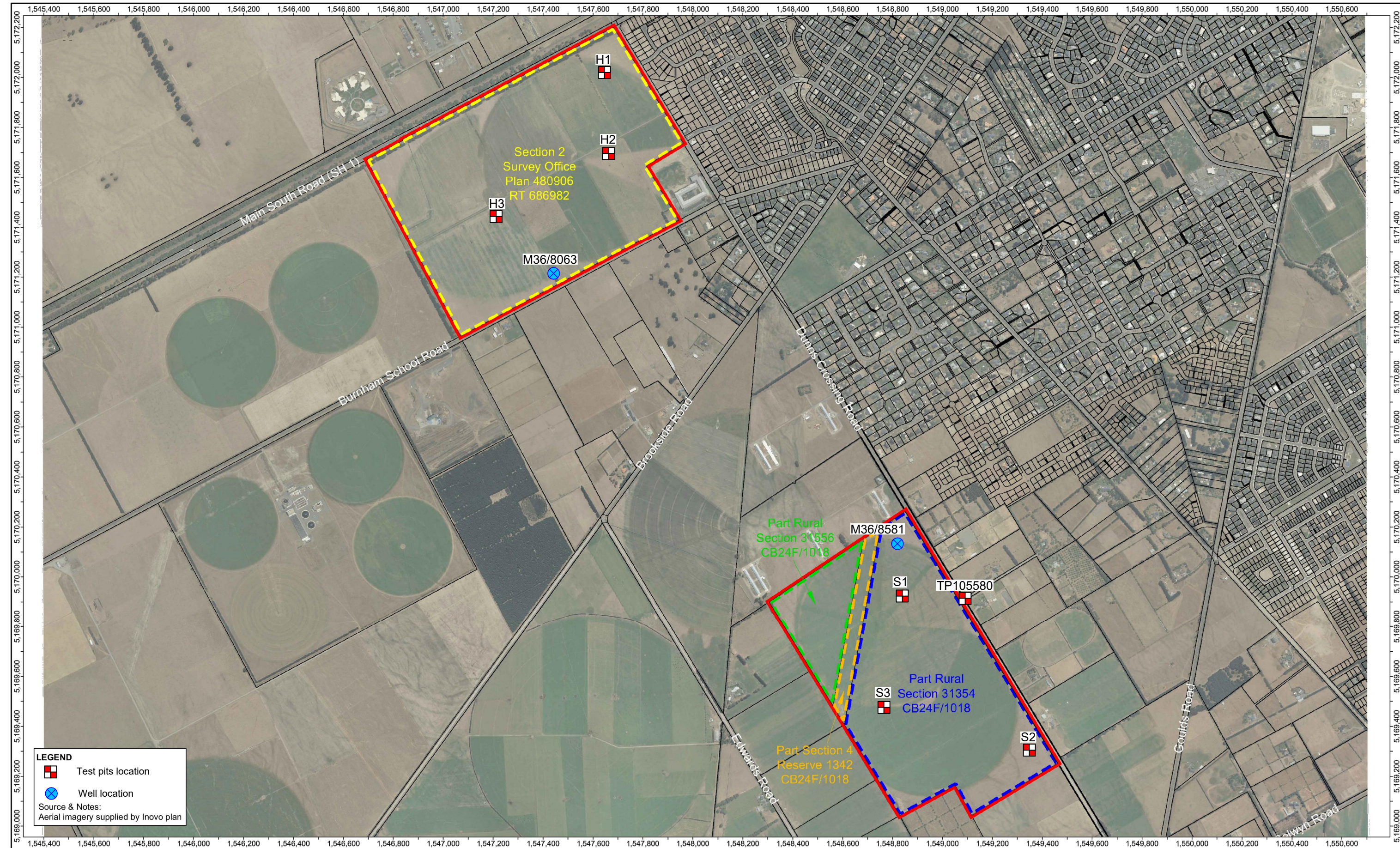


Chris Thompson

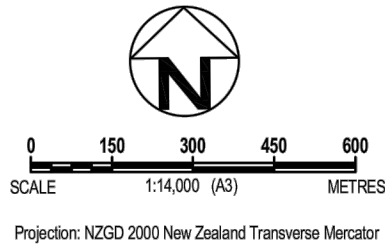
BSc (Tech)

Associate Engineering Geologist

Attachments: Site plan
M36/8063 log
M36/8581 log
11 April, 2011 – Geotech Consulting – PC8 (Holmes Block), PC9 (Skellerup Block)
Geotechnical assessment by Ian McCahon



revision	no.	description			drawn	approved	date
	A	ORIGINAL ISSUE			RZ	CT	04.11.20

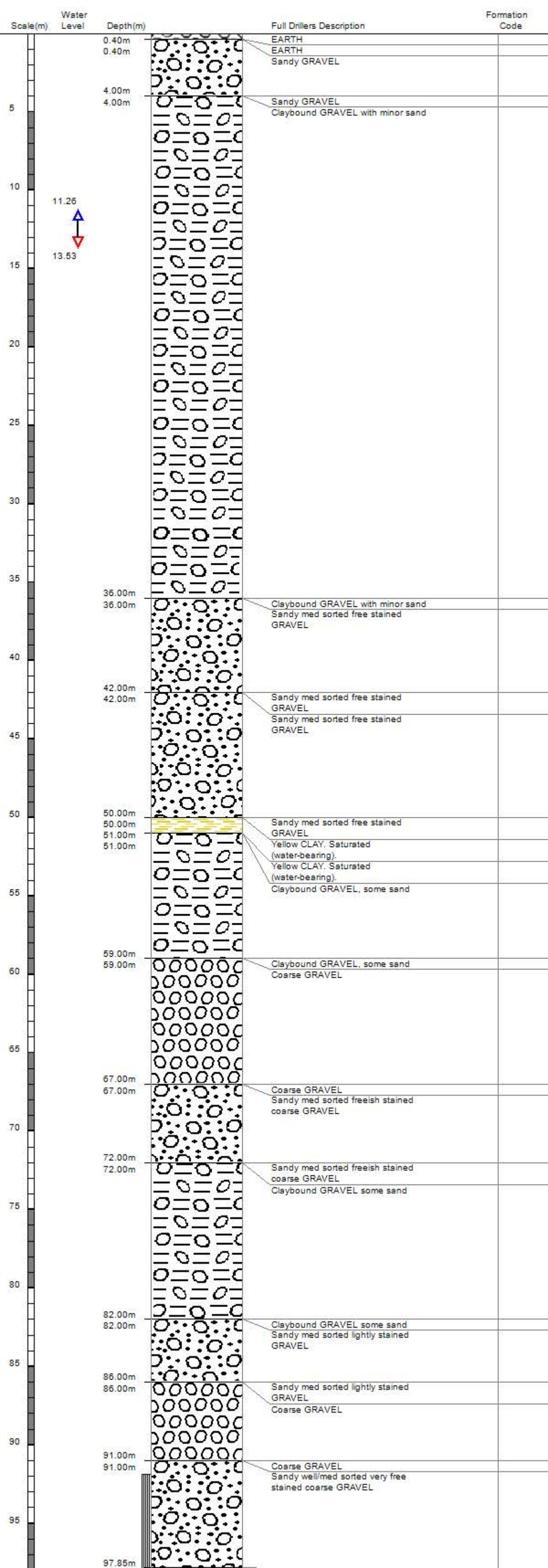


drawn	RZ
approved	CT
date	04.11.2020
scale	AS SHOWN
original size	A3



client:		ROLLESTON WEST RESIDENTIAL LIMITED	
project:		ROLLESTON WEST PLAN CHANGE	
title:		SITE INVESTIGATION PLAN	
project no:	773-CHCGE281253	figure no:	01
		rev:	A

Grid Reference (NZTM): 1547469 mE, 5171189 mN
Location Accuracy: 10 - 50m
Ground Level Altitude: 48.9 m +MSD Accuracy: < 0.5 m
Driller: McMillan Drilling Ltd
Drill Method: Rotary/Percussion
Borelog Depth: 97.8 m Drill Date: 11-Jan-2013



Borelog for well M36/8581

Grid Reference (NZTM): 1548830 mE, 5170152 mN

Location Accuracy: 2 - 15m

Ground Level Altitude: 44.4 m +MSD Accuracy: < 0.5 m

Driller: McMillan Drilling Ltd

Drill Method: Unknown

Borelog Depth: 60.0 m Drill Date: 01-Apr-2008



**Environment
Canterbury
Regional Council**
Kaunihera Taiao ki Waitaha

[illegible]

3680
11 April 2011

Selwyn District Council
PO Box 90
Rolleston 7614



Attention: Craig Friedel

Dear Sir,

**PC8 – Holmes Block
PC9 – Skellerup Block
Geotechnical assessment**

1 Introduction

My name is Ian Ferrier McCahon. I hold a degree of Bachelor of engineering (Hons) from the University of Canterbury and am a Chartered professional Engineer. I have more than 35 years of experience in civil engineering with 20 years specialising in geotechnical and hazard identification and mitigation work. I have investigated many sites in Christchurch and elsewhere for liquefaction potential and mapped the liquefaction zones for the Christchurch Engineering Lifelines Study and for the Canterbury Region. Since the 2010 Canterbury earthquake I have been advising Selwyn district Council on the liquefaction hazard in the district and how best to approach the issue in both planning and building consent processes.

The Selwyn District Council has asked for a brief statement on the geotechnical aspects of these two private plan change requests seeking rezoning of rural land to rural residential densities. Both sites are on Dunns Crossing Road, on the western periphery of Rolleston.

A geotechnical investigation has been carried out on the sites by Connell Wagner – Geotechnical Investigation report, proposed plan change at Rolleston, Selwyn Plantation Board Ltd, 25 September 2008.

This assessment is based on the contents of the CW report, information on the fault rupture and liquefaction from the 2010 Canterbury earthquake, and the application of personal experience and knowledge of the area. No specific site inspection has been made

2 Sites

PC8 Holmes block is an area of 92 ha, adjoining SH1 on the north side. PC9 Skellerup Block is 73 ha, 1.5 km to the south of Holmes block. Both sites are flat.

The shallow test pits reported by Connell Wagner confirm that the sites are underlain with predominantly gravel alluvium of the Canterbury plains, virtually to the surface with only 0.1 – 0.2m of topsoil over the gravel. The water table is likely to be 10 – 15m depth.

Dr. Mark Yetton E-mail myetton@geotech.co.nz
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120 Peterborough Street
Christchurch 8141 New Zealand

GEOLOGICAL & ENGINEERING SERVICES

3 Recent Earthquakes

The sites were strongly shaken by the M7.1 Canterbury earthquake of 4 September 2010. The Holmes Block is about 15km south east of the earthquake epicenter, and the Skellerup Block 17km. Distances from the surface trace of the Greendale fault are about 3 and 5km respectively. Peak ground accelerations recorded at Rolleston were 0.39g; an acceleration with return period of about 1,500 years.

I am not aware of any reports of ground damage in this area, beyond the ground rupture and deformation along and immediately adjacent to the Greendale fault. The closest confirmed liquefaction is over 11km away beyond Lincoln. With the low water table in the area, any lenses of liquefiable sand that may exist are at considerable depth and effects at the ground surface would be minimal. There is a very low risk of liquefaction.

There was little reported structural damage to buildings in Rolleston, despite the strong shaking. Provided that new houses on the sites are built to current codes, there is no reason why they would not also perform satisfactorily in future earthquakes.

The large aftershock of 22 February 2011 (Christchurch earthquake) caused extensive ground and building damage in east and central Christchurch, because of the proximity of these areas to the epicenter and the particular geology underlying the city. The distance of these sites from the earthquake and the much firmer gravel soils under the sites meant that the shaking was much lower at Rolleston than in Christchurch, and for the September 2010 event. Peak ground accelerations recorded at Templeton and Lincoln in February 2011 were 0.16g compared with 0.9g in September 2010. There are no reports of any ground damage in the Rolleston area from the February earthquake.

Seismologists are suggesting that the Canterbury area is probably entering a period of enhanced seismic risk because of the recent earthquakes and the resulting strain redistribution in the bedrock. Geologists are also conducting research on other fault lines buried under the Canterbury Plains and have already identified two possible fault lines in the Christchurch – Lincoln area. This research does not materially affect the overall likelihood of earthquakes in the region, as a background seismicity was built into the previous seismic hazard model; it is just identifying in more detail where the earthquakes could occur. Because of the denser soils under Rolleston, the locality remains less susceptible to ground damage than much of the urban area of Christchurch.

4 Conclusion

The sites are underlain with shallow gravel soils which provide good foundation conditions for residential buildings. The Greendale is far enough away not to be any direct hazard. There is a very low risk of any liquefaction.

- The near surface soils have suitable bearing capacity for houses
- Seismic liquefaction is extremely unlikely
- There are no known faults passing through the site
- The site is geotechnically suitable for residential development

Yours faithfully

Geotech Consulting Limited



Ian McCahon

Disclaimer. This report has been prepared solely for the benefit of the Selwyn District Council. No liability is accepted by this Company or any employee or sub-consultant of this company with respect to its use by any other person. This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval or to fulfill a legal requirement

References

These papers are all recently published in the Bulletin of the NZ Society for Earthquake Engineering, Vol 43, No. 4, December 2010:

Gledhill et al:	<i>The Darfield Earthquake of September 2010: Preliminary Seismological Report</i>
Cousins & McVerry	<i>Overview of Strong Motion Data from the Darfield Earthquake</i>
Beavan et al	<i>The Darfield Earthquake: Geodetic Observations and Preliminary Source Model</i>
Quigley et al:	<i>Surface Rupture of the Greendale Fault during the Darfield earthquake: initial findings</i>
Allen et al	<i>Geotechnical Reconnaissance of the 2010 Darfield earthquake</i>



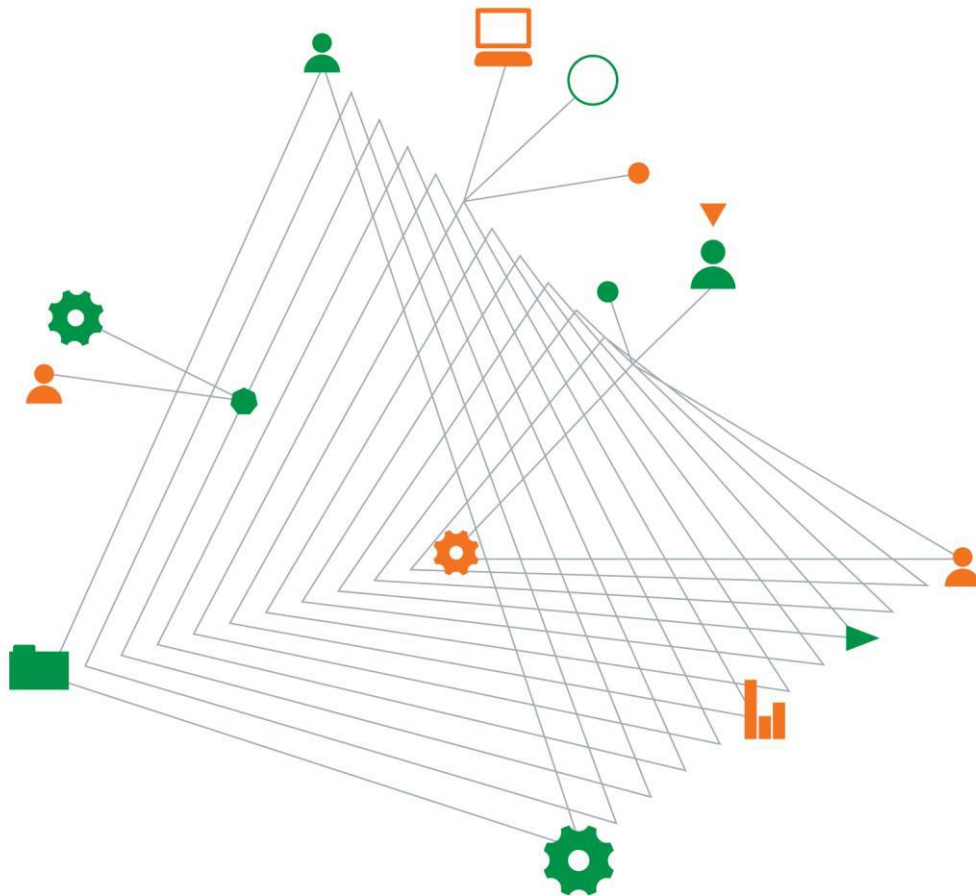
Attachment 6: Coffey Assessment of PSI Matters

Rolleston West Residential Ltd

Rolleston West Plan Change

Preliminary Site Investigation

20 January 2021



Experience
comes to life
when it is
powered by
expertise

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Preliminary Site Investigation - Rolleston West Plan Change

Prepared for
Rolleston West Residential Ltd

Prepared by
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NZBN: 9429033691923

20 January 2021

773-CHCGE281253

Quality information

Revision history

Revision	Description	Date	Originator	Reviewer	Approver
V1	Final	09/11/2020	Alistair Brown	Ray Mayor	David Tully
v0 draft	Original Draft	04/11/2020	Alistair Brown	Ray Mayor	David Tully

Distribution

Report Status	No. of copies	Format	Distributed to	Date
Final	1	PDF	Rolleston West Residential Ltd	09/11/2020
Revised Final	1	PDF	Rolleston West Residential Ltd	20/01/2020

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Important information about your Coffey Report

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Table 1: Site information

Table 2: Identified actual or potential HAIL activities

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Figure 1: Site investigation plan

Appendices

Appendix A – Selected historical aerial photographs

1. Introduction

Coffey Services (NZ) Limited (Coffey) has been commissioned by Rolleston West Residential Ltd ('the client') to conduct a Preliminary Site Investigation (PSI) to support the proposed Rolleston West Plan Change and future subdivision for the properties located off Dunns Crossing Road, Rolleston, Canterbury.

The proposed Plan Change area comprises two land parcels (the "site", Figure 1) herein referred to as Holmes Block and Skellerup Block located on the western side of the Rolleston Township.

The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) (NESC) Regulations apply to selected activities on sites where an activity or industry on the Ministry for the Environment (MfE) Hazardous Activities and Industries List (HAIL) is, has, or is more likely than not to have occurred. The purpose of this PSI was to assess the potential for contaminants to have been deposited at the site as a result of current and/or historical activities undertaken within or in the immediate vicinity of the site and accordingly determine if any further investigation work is required under the NES.

This PSI report has been reviewed by a Suitably Qualified and Experienced Practitioner (SQEP), as required by the NES.

1.1. Objectives

The objectives of this PSI were to:

- Identify potentially contaminating (HAIL) activities or potential sources of contamination that might have occurred or exist at the site.
- Confirm the suitability of the land for subdivision and provide recommendations regarding additional works required prior to any future development.

1.2. Scope of works

The scope of work was undertaken in general accordance with the staged process defined by the Ministry for Environment (MfE) Contaminated Land Management Guidelines No. 5: Site Investigation and Analysis of Soils (revised 2011) and the findings are presented in accordance with the MfE Contaminated Land Management Guideline No.1: Reporting on Contaminated Sites in New Zealand (revised 2011). Both the above documents are incorporated by reference into the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES).

In summary, the following scope of works was undertaken:

- Review of Environment Canterbury's Listed Land-Use Register (LLUR) for the site.
- Review of published geological maps and the Coffey database to appraise likely soil and groundwater conditions at the site.
- Review of selected publicly available aerial photographs or other accessible historical photographs.
- Site walkover, focussed on areas with structures or visible land disturbance to consider land contamination indicators (e.g. visual evidence of waste dumping/material spills, chemical storage and/or usage areas, anomalous die-back in vegetation, ground staining).

- Preparation of this PSI report. As required by the NESCS, this report was reviewed and approved by a suitably qualified and experienced practitioner (SQEP).

2. Site information

2.1. Site description

The Holmes and Skellerup Blocks are both rectangular in shape with predominately flat topography, situated approximately 2 km south-west of the central Rolleston township and approximately 24 km south-west of Christchurch's central business district. Details of the two blocks are listed in Table 1 and their locations are shown on Figure 1.

Holmes Block is bordered by agricultural land-use south-west, Main South Road north-west, Dunns Crossing Road and West Rolleston School north-east and Burnham School Road to the south-east.

Skellerup Block is bordered by agricultural land-use north-west, south-west and south-east and Dunns Crossing Road to the north-east.

Table 1: Site information

Address	Legal Description	Property Area (Hectares)
Holmes Block - Dunns Crossing Road, Burnham	Section 2 SO 480906	87.53
Skellerup Block - Dunns Crossing Road, Rolleston	Part RS 31356, Part Section 4 RES 1342, Part RS 31354	72.69

2.2. Geology and hydrogeology

The geology of the site is shown on the Institute of Geological and Nuclear Sciences (GNS) geological map sheet 21: Christchurch, scale 1:250,000. The map indicates the site is underlain by the Burnham Formation for the Otiran Stage of the Hawera Series. The underlying geology comprises 1-3m thick stratal sets of gravel, intercalated with sand and loess-silt layers.

The nearest surface water body to the site is the Selwyn River located approximately 6 km to the south-west of the site/s. This river flows in a south-east direction eventually feeding into Lake Ellesmere approximately 13 km south-east of the site.

For further information, refer to Coffey's Geotechnical Assessment Report produced in November 2020.

2.3. Site history

The following sections summarise the historical activities undertaken within or in the immediate vicinity of the site, as determined from the information sources reviewed during this PSI.

2.3.1. Listed land-use register

Environment Canterbury's LLUR was accessed on 4 November 2020, however, it was noted that the LLUR currently has no information about HAIL sites on these land parcels (Holmes and Skellerup Block).

Two investigations were recorded within the Council records for the Holmes Block (Section 2 SO 480906), one preliminary site investigation (PSI) in 2013 and a detailed site investigation (DSI) in 2014, however, these investigations related to the West Rolleston Primary School site (corner of Dunns Crossing and Burnham School Roads), which is outside of the proposed site/s area.

2.3.2. Previous environmental investigations

Due the proximity of the investigations (PSI and DSI undertaken on the West Rolleston Primary School site) undertaken to the site, the investigation reports (for the West Rolleston Primary School site) were reviewed to assist with determining the potential risk / impacts to soil associated with agricultural activities undertaken which are similar to what has occurred on the subject site. A summary of these investigations is provided below.

PSI - Proposed Rolleston School Site

A review of the PSI (Soil and Groundwater Quality report by Separate Phase Ltd, dated 3 July 2013) was undertaken on 20 January 2021. The report noted that *"as the site was a farm and forestry block there is potential for agricultural chemical residues and polycyclic aromatic hydrocarbons (PAH) from clearance burning, to be present in soils. These concentrations are unlikely to pose a risk to human health or the environment"*.

DSI - West Rolleston School

A review of the DSI (West Rolleston School Detailed Site Investigation report by GHD, dated November 2014) was undertaken on 20 January 2021. The report indicated the following:

- Inorganic heavy metal soil concentrations were below naturally occurring background levels for all samples tested.
- OCPs and PAH concentrations were below the laboratory detection limits.
- Based upon the measured contaminant concentrations observed in soil samples, it was considered that contaminants in soils were unlikely to pose a risk to human health during or after the proposed development works at the site.

In summary, based on the review of the PSI and DSI reports, the potential risk / impacts to soils associated with the activities undertaken on the site would be considered low (unlikely to pose a risk to human health).

2.3.3. Historical aerial photographs

Historical aerial photographs of the site and the surrounding area taken between 1942 and 2019 were sourced from the Local Government Geospatial Alliance's (LGGA) Retrolens and the Canterbury Maps Viewer. A summary of observations made from the review of these photographs is provided below. Copies of selected aerial photographs reviewed are included in Appendix A.

Both sites were in use as agricultural land from the initial 1942 historical aerial images with a single residential structure on the central north-western boundary of the Holmes Block, however, this is no

longer present in the 1994 historical aerial image. No structures appear on the Skellerup Block in any of the historical aerial images reviewed. Both the Holmes and Skellerup Blocks appear to have remained in use as agricultural land through all of the historical aerial images reviewed to present day.

The aerial imagery indicated that the site appears to have been used for agricultural purposes since before 1943 and may be impacted by HAIL category A10 (persistent pesticide bulk storage or use).

2.3.4. Site walkover

Coffey staff conducted a site walkover of the site on 4 November 2020. A conversation held with the current site owner and on-site observations made during the site walkover of the two properties indicated the following:

Holmes Block

- Ex forestry, converted to crops mid 2000's.
- Crops included lucerne, barley and maize.
- Some young stock grazed.
- No known offal pits or borrow areas.

Skellerup Block

- Ex forestry, converted to crops mid 2000's.
- Crops include kale.
- Some grazing and silage.
- No known offal pits or borrow areas.

No staining or significant plant die off visual evidence of chemical storage was observed on any of the properties during the site walkover.

3. Summary

Coffey was contracted by the client to conduct a PSI for the properties (Holmes and Skellerup Block) located off Dunns Crossing Road, Rolleston (the 'site', Figure 1). This investigation has been undertaken to confirm the suitability of the site for plan change and associated subdivision.

Coffey completed a review of Environment Canterbury's LLUR, published geological maps, publicly available historical aerial photographs, Investigation reports undertaken on the West Rolleston Primary School site (reviewed 20 January 2021) and completed a site walkover of the site on the 4 November 2020.

On the basis of the information reviewed and collected, Coffey has identified actual or potential HAIL activities to likely have occurred on-site as summarised in Table 2 below:

Table 2: Identified actual or potential HAIL activities

Actual/Potential HAIL Activities	Land Use	Information Source	Considered Risk Potential for Contamination to Surrounding Environment
Persistent pesticide bulk storage or use (HAIL Category A10)	Use of pesticide and other agrochemicals in agricultural activities	Site walkover observations, historical aerial photographs, and West Rolleston Primary School site investigation reports (PSI and DSI)	The risk potential to the underlying soil and groundwater is considered low due to: • Relatively long period of use (since prior to 1943). • Likely use of non-environmentally persistent chemicals in the paddocks. • Results of the sample analysis undertaken on the adjacent site.

The site walkover and review of site history information indicates the following key potential receptors that may be relevant to the site:

- Earthworks contractors who may come into contact with potentially contaminated soil during any proposed future development works.
- Future occupiers of the properties within the site.

4. Recommendations

Due to the likely presence of HAIL activities on the site, the NESCS regulations are considered to apply to the site. Subdividing or changing land use is a permitted activity under section 8(4)(b) of the NESCS if the report on the site states that it is highly unlikely that there will be a risk to human health if the activity is done to the piece of land.

The potential of contamination to soil associated with the identified potential sources of contamination are considered low (refer to Table 2 above), depending on the activity identified. However, it is considered unlikely that there will be a risk to human health with the proposed plan change and subdivision providing that the potential contaminant source areas listed in Table 2 are assessed.

The site is considered to be suitable for plan change and subdivision, with any consent granted for the site, conditional on a detailed site investigation (DSI) being carried out prior to any earthworks and or building consents being granted.

Coffey recommends soil characterisation samples are taken from across the site to create a detailed site investigation (DSI) prior to earthworks consent being granted to ensure elevated contaminants and excessive use of pesticides are not present.

5. Limitations

The findings of this report should be read together with “Important Information ‘About Your Coffey Environmental Report’ (attached).

6. References

Environment Canterbury's listed land-use register. <https://lur.ecan.govt.nz/> (accessed 4 November 2020)

Institute of Geological and Nuclear Sciences (1992). Geological Map 1, scale 1:25,000: Geology of the Christchurch Urban Area.

MfE (2003). Contaminated Land Management Guideline No. 1: Reporting on Contaminated Sites in New Zealand. Ministry for the Environment, Wellington, New Zealand. (Revised 2011).

MfE (2004). Ministry for the Environments Contaminated Land Management Guidelines No. 5: Site Investigation and Analysis of Soils. Ministry for the Environment, Wellington, New Zealand. (Revised 2011).

MfE (2011). Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.

Important information about your Coffey Environmental Report

Introduction

This report has been prepared by Coffey for you, as Coffey's client, in accordance with our agreed purpose, scope, schedule and budget.

The report has been prepared using accepted procedures and practices of the consulting profession at the time it was prepared, and the opinions, recommendations and conclusions set out in the report are made in accordance with generally accepted principles and practices of that profession.

The report is based on information gained from environmental conditions (including assessment of some or all of soil, groundwater, vapour and surface water) and supplemented by reported data of the local area and professional experience. Assessment has been scoped with consideration to industry standards, regulations, guidelines and your specific requirements, including budget and timing. The characterisation of site conditions is an interpretation of information collected during assessment, in accordance with industry practice.

This interpretation is not a complete description of all material on or in the vicinity of the site, due to the inherent variation in spatial and temporal patterns of contaminant presence and impact in the natural environment. Coffey may have also relied on data and other information provided by you and other qualified individuals in preparing this report. Coffey has not verified the accuracy or completeness of such data or information except as otherwise stated in the report. For these reasons the report must be regarded as interpretative, in accordance with industry standards and practice, rather than being a definitive record.

Your report has been written for a specific purpose

Your report has been developed for a specific purpose as agreed by us and applies only to the site or area investigated. Unless otherwise stated in the report, this report cannot be applied to an adjacent site or area, nor can it be used when the nature of the specific purpose changes from that which we agreed.

For each purpose, a tailored approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible quantify, risks that both recognised and potential contamination pose in the context of the agreed purpose. Such risks may be financial (for example, clean up costs or constraints on site use) and/or physical (for example, potential health risks to users of the site or the general public).

Limitations of the Report

The work was conducted, and the report has been prepared, in response to an agreed purpose and scope, within time and budgetary constraints, and in reliance on certain data and information made available to Coffey.

The analyses, evaluations, opinions and conclusions presented in this report are based on that purpose and scope, requirements, data or information, and they could change if such requirements or data are inaccurate or incomplete.

This report is valid as of the date of preparation. The condition of the site (including subsurface conditions) and extent or nature of contamination or other environmental hazards can change over time, as a result of either natural processes or human influence. Coffey should be kept apprised of any such events and should be consulted for further investigations if any changes are noted, particularly during construction activities where excavations often reveal subsurface conditions.

In addition, advancements in professional practice regarding contaminated land and changes in applicable statutes and/or guidelines may affect the validity of this report. Consequently, the currency of conclusions and recommendations in this report should be verified if you propose to use this report more than 6 months after its date of issue.

The report does not include the evaluation or assessment of potential geotechnical engineering constraints of the site.

Interpretation of factual data

Environmental site assessments identify actual conditions only at those points where samples are taken and on the date collected. Data derived from indirect field measurements, and sometimes other reports on the site, are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions.

Variations in soil and groundwater conditions may occur between test or sample locations and actual conditions may differ from those inferred to exist. No environmental assessment program, no matter how comprehensive, can reveal all subsurface details and anomalies. Similarly, no professional, no matter how well qualified, can reveal what is hidden by earth, rock or changed through time.

The actual interface between different materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions.

For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of a suitably qualified and experienced environmental consultant through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other unrecognised features encountered on site. Coffey would be pleased to assist with any investigation or advice in such circumstances.

Recommendations in this report

This report assumes, in accordance with industry practice, that the site conditions recognised through discrete sampling are representative of actual conditions throughout the investigation area. Recommendations are based on the resulting interpretation.

Should further data be obtained that differs from the data on which the report recommendations are based (such as through excavation or other additional assessment), then the recommendations would need to be reviewed and may need to be revised.

Report for benefit of client

Unless otherwise agreed between us, the report has been prepared for your benefit and no other party. Other parties should not rely upon the report or the accuracy or completeness of any recommendation and should make their own enquiries and obtain independent advice in relation to such matters.

Coffey assumes no responsibility and will not be liable to any other person or organisation for, or in relation to, any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report.

To avoid misuse of the information presented in your report, we recommend that Coffey be consulted before the report is provided to another party who may not be familiar with the background and the purpose of the report. In particular, an environmental disclosure report for a property vendor may not be suitable for satisfying the needs of that property's purchaser. This report should not be applied for any purpose other than that stated in the report.

Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, a suitably qualified and experienced environmental consultant should be retained to explain the implications of the report to other professionals referring to the report and then review plans and specifications produced to see

how other professionals have incorporated the report findings.

Given Coffey prepared the report and has familiarity with the site, Coffey is well placed to provide such assistance. If another party is engaged to interpret the recommendations of the report, there is a risk that the contents of the report may be misinterpreted and Coffey disowns any responsibility for such misinterpretation.

Data should not be separated from the report

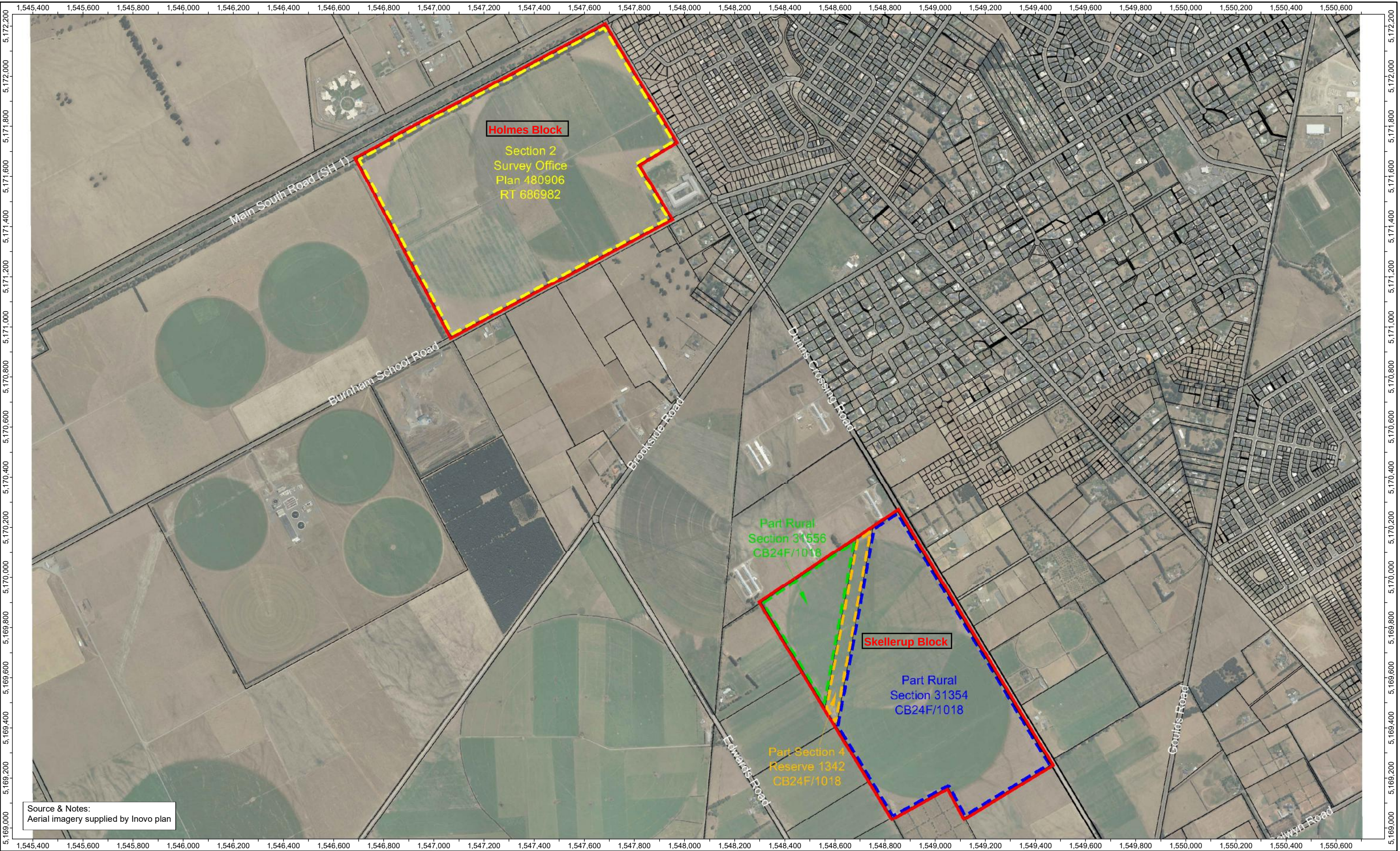
The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists or engineers based on their interpretation of field logs, field testing and laboratory evaluation of samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

This report should be reproduced in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

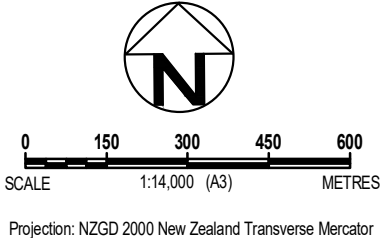
Responsibility

Environmental reporting relies on interpretation of factual information using professional judgement and opinion and has a level of uncertainty attached to it, which is much less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. As noted earlier, the recommendations and findings set out in this report should only be regarded as interpretive and should not be taken as accurate and complete information about all environmental media at all depths and locations across the site.

Figures



revision	no.	description		drawn	approved	date
	A	ORIGINAL ISSUE		RZ	CT	04.11.20



drawn	RZ
approved	CT
date	04.11.2020
scale	AS SHOWN
original size	A3



client:		ROLLESTON WEST RESIDENTIAL LTD.		
project:		ROLLESTON WEST PLAN CHANGE		
title:		SITE INVESTIGATION PLAN		
project no:		773-CHCGE281253	figure no:	01
			rev:	A

Appendix A – Selected historical aerial photographs

1942 Aerial Image

Holmes Block

Skellerup Block

1974 Aerial Image

Skellerup Block

Holmes Block

SN 2713 C/5



1994 Aerial Image

Holmes Block

Skellerup Block

26/11/94

SN 9381 B/7



WLD 1574 UAGA-F
Nº 1517 152.34

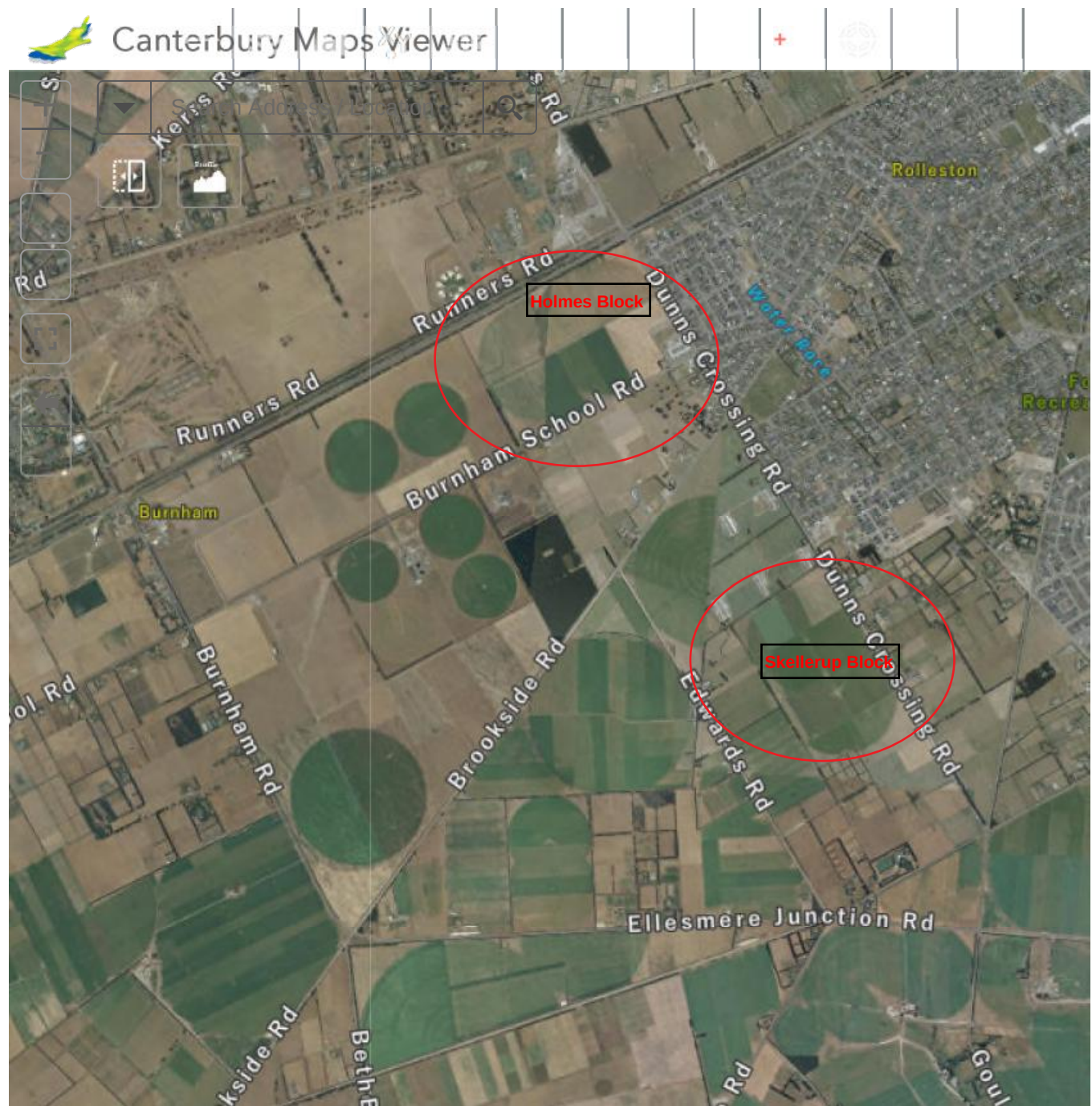
000090

2000 Aerial Image

Holmes Block

Skellerup Block





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Attachment 7: Mahaanui Kurataiao Limited Feedback

18th December 2020

To Rolleston West residential Limited
ATTN: Jeremy Phillips - Jeremy@novogroup.co.nz

Rolleston West Plan Change

Manawhenua Statement

Ngāi Tahu are tangata whenua of the Canterbury region and hold ancestral and contemporary relationships with Canterbury. The contemporary structure of Ngāi Tahu is set down through the Te Rūnanga o Ngāi Tahu Act 1996 (TRoNT Act) and, through this structure and this Act, sets the requirements for recognition of tangata whenua in Canterbury.

The following Rūnanga hold mana whenua over the project's location, as it is within their takiwā:

- Te Ngāi Tūāhuriri Rūnanga and Taumutu Rūnanga.

The natural resources – water (waterways, waipuna (springs), groundwater, wetlands); mahinga kai; indigenous flora and fauna; cultural landscapes and land - are taonga to mana whenua and they have concerns for activities potentially adversely affecting these taonga. These taonga are integral to the cultural identity of ngā rūnanga mana whenua and they have a kaitiaki responsibility to protect them. The policies for protection of taonga that are of high cultural significance to ngā rūnanga mana whenua are articulated in the Mahaanui Iwi Management Plan (MIMP).

Assessment of Proposal

- An Outline Development Plan has been developed to facilitate a proposed plan change.
- The land is currently zoned living 3.
- The total area of the proposed plan change is 160ha and will allow for an average density of 13.1 households/ha in a variety of lot sizes.
- There are no NZAA Māori sites or sites of cultural significance identified in the planning maps for this area.
 - District Planning maps are not precise indicators of Māori historical associations.

- The plan change area is comprised of two blocks. The Holmes Block will contain up to 1,150 properties and the Skellerup Block will contain up to 950 properties.
- These blocks currently have areas where housing density is restricted due to potential reverse sensitivity effects on existing nearby waste management activities which discharge odour.
- These activities are the Rolleston Wastewater Treatment Plant, Rolleston Resource Recovery Park, and Tegel Foods intensive poultry farming sheds.
- The plan change would require either the extension of existing infrastructure from neighbouring subdivisions or the provision of a new water supply and wastewater infrastructure to service the development areas.

Evaluation in relation to Mahaanui Iwi Management Plan (MIMP)

The matters that are relevant to this particular proposal have been identified

P4.3 To base tāngata whenua assessments and advice for subdivision and residential land development proposals on a series of principles and guidelines associated with key issues of importance concerning such activities, as per Ngāi Tahu subdivision and development guidelines.

Refer to guidelines attached as Appendix 1.

P6.1 To require on-site solutions to stormwater management in all new urban, commercial, industrial and rural developments (zero stormwater discharge off site) based on a multi-tiered approach to stormwater management:

- (a) Education - engaging greater general public awareness of stormwater and its interaction with the natural environment, encouraging them to take steps to protect their local environment and perhaps re-use stormwater where appropriate;
- (b) Reducing volume entering system - implementing measures that reduce the volume of stormwater requiring treatment (e.g. rainwater collection tanks);
- (c) Reduce contaminants and sediments entering system - maximising opportunities to reduce contaminants entering stormwater e.g. oil collection pits in carparks, education of residents, treat the water, methods to improve quality; and
- (d) Discharge to land-based methods, including swales, stormwater basins, retention basins, and constructed wetpools and wetlands (environmental infrastructure), using appropriate native plant species, recognising the ability of particular species to absorb water and filter waste.

P6.5 To encourage the design of stormwater management systems in urban and semi urban environments to provide for multiple uses: for example, stormwater management infrastructure as part of an open space network that provides for recreation, habitat and customary use values.

P6.2 To oppose the use of existing natural waterways and wetlands, and drains, for the treatment and discharge of stormwater in both urban and rural environments.

Roof stormwater will be discharged to ground via soak pits. Treatment swales will be provided along road edges.

A detailed stormwater and wastewater design would be determined at the subdivision stage.

Stormwater discharge from hardstand areas such as roads and carparks should not be directed into waterways.

P11.1 To assess proposals for earthworks with particular regard to:

- (a) Potential effects on wāhi tapu and wāhi taonga, known and unknown;
- (b) Potential effects on waterways, wetlands and waipuna;
- (c) Potential effects on indigenous biodiversity;
- (d) Potential effects on natural landforms and features, including ridge lines;
- (e) Proposed erosion and sediment control measures; and
- (f) Rehabilitation and remediation plans following earthworks.

P11.8 To require the planting of indigenous vegetation as an appropriate mitigation measure for adverse impacts that may be associated with earthworks activity.

Planting and reserves would be confirmed at the subdivision stage. Appropriate indigenous species should be used across the site.

WM13.1 To recognise and protect all wetlands, waipuna and riparian areas as wāhi taonga that provide important cultural and environment benefits, including but not limited to:

- (a) Mahinga kai habitat;
- (b) The provision of resources for cultural use;
- (c) Cultural well-being;
- (d) The maintenance and improvement of water quality; and
- (e) Natural flood protection.

A water race crosses the site in the NW corner. This application states this would be realigned with the boundary.

A desktop ecological assessment of aquatic values has been carried out for both sites. It is considered likely the Holmes lot waterway contains Upland bully, Common bully, Brown trout and Shortfin eel. There are also potentially Kēkēwai present.

WM3.1 To advocate for the following order of priority for freshwater resource use, consistent with the Te Rūnanga o Ngāi Tahu Freshwater Policy Statement (1999):

(1) That the mauri of freshwater resources (ground and surface) is protected and sustained in order to:

- (a) Protect instream values and uses (including indigenous flora and fauna);
- (b) Meet the basic health and safety needs of humans, specifically the provision of an untreated and reliable supply of drinking water to marae and other communities; and
- (c) Ensure the continuation of customary instream values and uses.

WM6.3 To require that clear and effective targets are established for restoring water quality in the takiwā, with immediate attention to:

- (a) Lowland and coastal streams; and
- (b) Groundwater.

WM6.17 To require the development of stringent and enforceable controls on the following activities given the risk to water quality:

- (b) Subdivision and development adjacent to waterways;

A minimum 10m buffer from all waterways is recommended.

WM13.7 To recognise the protection, establishment, and enhancement of riparian areas along waterways and lakes as a matter of regional importance, and a priority for Ngāi Tahu.

All riparian areas should be planted with locally sourced indigenous species.

CL3.3 To ensure that local and central government recognise that:

- (a) Existing schedules and maps of cultural sites are not comprehensive nor exhaustive;
- (b) Many sites and information about sites are held by whānau; and
- (c) Protecting wāhi tapu and wāhi taonga requires effective working relationships with Papatipu Rūnanga.

CL3.8 To require, where a proposal is assessed by tāngata whenua as having the potential to affect wāhi tapu or wāhi taonga, one or more of the following:

- (a) Low risk to sites:
 - (i) Accidental discovery protocol (ADP) - See Appendix 3 of the Mahaanui Iwi Management Plan.
- (b) High risk to sites:
 - (i) Cultural Impact Assessment (CIA).

The lack of identified wāhi tapu and wāhi taonga does not diminish the importance of the area to mana whenua. NZAA sites are indicators only and not a complete record of all significant landscapes. An Accidental Discovery Protocol should be in place during all excavations.

Conclusion

The kaitiaki of both Taumutu and Te Ngāi Tūāhuriri Rūnanga are concerned about the proposed realignment of the water race running through Holmes block and the potential impacts on biodiversity and habitat. The kaitiaki oppose the realignment and infilling of waterways that could potentially hold at risk indigenous species.

Taumutu Rūnanga questioned the efficacy of a desktop ecological survey for determining species present in the waterway. The kaitiaki queried whether invertebrate species have been appropriately accounted for.

The kaitiaki also questioned the suitability of siting dwellings in a potential odour constrained area and recommended future development plans be informed by the Ngāi Tahu Subdivision and Development Guidelines (attached in Appendix One). These guidelines provide a framework by which the adverse effects of development on cultural values may be minimized or avoided.

The applicant could require improved water efficiency throughout the site at the subdivision stage. Efficiency measures including greywater systems and rainwater collection could be appropriately incentivised or required under the Outline Development Plan to lessen pressure on resources and wastewater infrastructure.

Recommendations

- The applicant avoids the infilling of the Holmes block waterway and provide a minimum 10m setback between all waterways and development.
- A landscape plan be prepared utilising indigenous planting that is locally sourced.
- All riparian areas should be planted with appropriate species to reduce contaminants reaching water.
- An on-site assessment of the fauna present in the waterways be carried out to determine species present.
- To avoid effects on wāhi tapu and wāhi taonga, an Accidental Discovery Protocol should be in place during all earthworks that is consistent with Appendix 3 of the Mahaanui Iwi Management Plan.
 - All contractors should be made familiar with this.
- Any future works on site should have appropriate sediment controls to prevent runoff reaching waterways that are consistent with Environment Canterbury's Erosion and Sediment Controls.

- Future subdivision should incorporate best practice onsite stormwater management controls to mitigate the effects of development and allow for stormwater infiltration.
 - Hardstand areas should be directed to detention ponds and swales to reduce runoff from site and allow for infiltration.
 - Stormwater discharge from roads and carparks should not be directed to waterways.
- The applicant should incorporate the recommendations from the Ngai Tahu Subdivision Development Guidelines in the development, particularly with regards to stormwater controls and indigenous plantings.
- Development should not occur within a recognised odour constrained area.

Mahaanui Kurataiao and its staff are available to discuss this report further or assist in direct engagement with rūnanga if desired.

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Appendix 1: Ngāi Tahu subdivision and development guidelines

Note: These guidelines are to be read in conjunction with Policies P4.1, P4.2 and P4.3

Cultural landscapes

1.1 A cultural landscape approach is the most appropriate means to identify, assess and manage the potential effects of subdivision and development on cultural values and significant sites [refer Section 5.8 Issue CL1].

1.2 Subdivision and development that may impact on sites of significance is subject Ngāi Tahu policy on Wāhi tapu me wāhi taonga and Silent Files (Section 5.8, Issues CL3 and CL4).

1.3 Subdivision and development can provide opportunities to recognise Ngāi Tahu culture, history and identity associated with specific places, and affirm connections between tāngata whenua and place, including but not limited to:

- (i) Protecting and enhancing sites of cultural value, including waterways;
- (ii) Using traditional Ngāi Tahu names for street and neighborhood names, or name for developments;
- (iii) Use of indigenous species as street trees, in open space and reserves;
- (iv) Landscaping design that reflects cultural perspectives, ideas and materials;
- (v) Inclusion of interpretation materials, communicating the history and significance of places, resources and names to tāngata whenua; and
- (vi) Use of tāngata whenua inspired and designed artwork and structures.

Stormwater

2.1 All new developments must have on-site solutions to stormwater management (i.e. zero stormwater discharge off site), based on a multi-tiered approach to stormwater management that utilises the natural ability of Papatūānuku to filter and cleanse stormwater and avoids the discharge of contaminated stormwater to water [refer to Section 5.4, Policy P6.1].

2.2 Stormwater swales, wetlands and retention basins are appropriate land-based stormwater management options. These must be planted with native species (not left as grass) that are appropriate to the specific use, recognising the ability of particular species to absorb water and filter waste.

2.3 Stormwater management systems can be designed to provide for multiple uses. For example, stormwater management infrastructure as part of an open space network can provide amenity values, recreation, habitat for species that were once present on the site, and customary use.

2.4 Appropriate and effective measures must be identified and implemented to manage stormwater runoff during the construction phase, given the high sediment loads that stormwater may carry as a result of vegetation clearance and bare land.

2.5 Councils should require the upgrade and integration of existing stormwater discharges as part of stormwater management on land rezoned for development.

2.6 Developers should strive to enhance existing water quality standards in the catchment downstream of developments, through improved stormwater management.

Earthworks

3.1 Earthworks associated with subdivision and development are subject to the general policy on Earthworks (Section 5.4 Issue P11) and Wāhi tapu me wāhi taonga (Section 5.8, Issue CL3), including the specific methods used in high and low risk scenarios for accidental finds and damage to sites of significance.

3.2 The area of land cleared and left bare at any time during development should be kept to a minimum to reduce erosion, minimise stormwater run-off and protect waterways from sedimentation.

3.3 Earthworks should not modify or damage beds and margins of waterways, except where such activity is for the purpose of naturalisation or enhancement.

3.4 Excess soil from sites should be used as much as possible on site, as opposed to moving it off site. Excess soil can be used to create relief in reserves or buffer zones.

Water supply and use

4.1 New developments should incorporate measures to minimise pressure on existing water resources, community water supplies and infrastructure, including incentives or requirements for:

- (i) low water use appliances and low flush toilets;
- (ii) grey water recycling; and
- (iii) rainwater collection.

4.2 Where residential land development is proposed for an area with existing community water supply or infrastructure, the existing supply or infrastructure must be proven to be able to accommodate the increased population prior to the granting of subdivision consent.

4.3 Developments must recognise, and work to, existing limits on water supply. For example, where water supply is an issue, all new dwellings should be required to install rainwater collection systems.

Waste treatment and disposal

5.1 Developments should implement measures to reduce the volume of waste created within the development, including but not limited incentives or requirements for:

- (i) Low water use appliances and low flush toilets;
- (i) Grey water recycling; and
- (ii) Recycling and composting opportunities (e.g. supporting zero waste principles).

5.2 Where a development is proposed for an area with existing wastewater infrastructure, the infrastructure must be proven to be able to accommodate the increased population prior to the granting of the subdivision consent.

5.3 New rural residential or lifestyle block developments should connect to a reticulated sewage network if available.

5.4 Where new wastewater infrastructure is required for a development:

- (i) The preference is for community reticulated systems with local treatment and land based discharge rather than individual septic tanks; and
- (ii) Where individual septic tanks are used, the preference is a wastewater treatment system rather than septic tanks.



Attachment 8: Updated CRPS & CLWRP Assessment



Canterbury Regional Policy Statement

1. The Selwyn District Plan is required under Section 73(4) of the Resource Management Act to give effect to the Canterbury Regional Policy Statement 2013 (RPS). Section 74(2) of the Act also requires territorial authorities to have regard to any proposed regional policy statement when preparing or changing a district plan.
2. The most relevant objectives and policies of the RPS are those contained in Chapters 5 (to the extent relevant to the entire region), 6, 7, 11, 15 and 16. Relevant objectives and policies are considered in Table 1 below.

Table 1: Assessment of the plan change provisions against the objectives of the Regional Policy Statement

Regional Policy Statement provisions	Comment / Assessment
Chapter 5 – Land Use and Infrastructure	
Objective 5.2.1 – Location, design and function of development (Entire Region) <i>Development is located and designed so that it functions in a way that:</i> <i>1) achieves consolidated, well designed and sustainable growth in and around existing urban areas as the primary focus for accommodating the region's growth; and</i> <i>2) enables people and communities, including future generations, to provide for their social, economic and cultural well-being and health and safety; and which:</i> <i>a) maintains, and where appropriate, enhances the overall quality of the natural environment of the Canterbury region, including its coastal environment, outstanding natural features and landscapes, and natural values;</i> <i>b) provides sufficient housing choice to meet the region's housing needs;</i> <i>c) encourages sustainable economic development by enabling business activities in appropriate locations;</i> <i>d) minimises energy use and/or improves energy efficiency;</i> <i>e) enables rural activities that support the rural environment including primary production;</i> <i>f) is compatible with, and will result in the continued safe, efficient and effective use of regionally significant infrastructure;</i> <i>g) avoids adverse effects on significant natural and physical resources including regionally significant infrastructure, and where avoidance is impracticable, remedies or mitigates those effects on those resources and infrastructure;</i> <i>h) facilitates the establishment of papakāinga and marae; and</i> <i>i) avoids conflicts between incompatible activities.</i>	The proposal will facilitate development that is 'located and designed' to function in a way that achieves the outcomes sought by objective 5.2.1. The plan change site is located on the fringe of urban Rolleston and is presently zoned Living 3 which provides for rural-residential development. Accounting for this, the proposal will achieve 'consolidated, well designed and sustainable growth... around existing urban areas'. The proposal otherwise delivers housing supply, consistent with the NPS-UD, that 'enables people and communities, including future generations, to provide for their social, economic and cultural well-being and health and safety'. More specifically, it will: a. Not diminish the quality of the natural environment (accounting for the site's location and existing zoning); b. Improve housing choice; c. Make provision for (enable) business activities at an appropriate scale within the Plan Change site; d. Be compatible with, and will result in the continued safe, efficient and effective use of regionally significant infrastructure; e. Avoid adverse effects on significant natural and physical resources (including nearby infrastructure); and f. Avoid conflict with incompatible activities. Accounting for the existing Living 3 zoning of the land, the proposal will not result in any displacement of rural activity. The proposal is therefore assessed as being consistent with objective 5.2.1.
Policy 5.3.7 Strategic land transport network and arterial roads (Entire Region) <i>In relation to strategic land transport network and arterial roads, the avoidance of development which:</i> 1. <i>adversely affects the safe efficient and effective functioning of this network and these roads, including the ability of this infrastructure to support freight and passenger transport services; and</i>	In respect of Policy 5.3.7 Strategic land transport network and roads and as addressed in the ITA, the proposed development will not impact upon the ability of any State Highway to fulfil its current or future strategic transport requirements.



2. *in relation to the strategic land transport network and arterial roads, to avoid development which forecloses the opportunity for the development of this network and these roads to meet future strategic transport requirements.*

5.4 ANTICIPATED ENVIRONMENTAL RESULTS

1. *New urban and rural residential development is consolidated in, around and integrated with existing urban areas.*
2. *All rural-residential development is located in areas zoned for rural residential development.*
3. *New urban and rural residential development maintains and improves the functioning and qualities of the existing urban areas.*
4. *New development is appropriately serviced by sewerage, stormwater, potable water and multi-modal transport infrastructure.*
5. *New urban development provides for community facilities where appropriate.*
6. *Canterbury's important natural and physical resources affected by development are maintained.*
7. *Regionally significant infrastructure provides safe, effective and efficient services to people and the community.*
8. *The rural primary productive potential of Canterbury is maintained.*
9. *Ngāi Tahu can develop appropriate papakāinga housing and marae on ancestral land.*
10. *Potential land use, subdivision and/or development conflicts are avoided.*

With the exception of result (1) which is resolved by the NPS-UD, for the aforementioned reasons the proposal is assessed as being consistent with the relevant anticipated environmental results set out in Chapter 5.

Chapter 6 – Recovery and Rebuilding of Greater Christchurch

Objective 6.2.1 Recovery framework

Recovery, rebuilding and development are enabled within Greater Christchurch through a land use and infrastructure framework that:

1. *identifies priority areas for urban development within Greater Christchurch;*
2. *identifies Key Activity Centres which provide a focus for high quality, and, where appropriate, mixed-use development that incorporates the principles of good urban design;*
3. *avoids urban development outside of existing urban areas or greenfield priority areas for development, unless expressly provided for in the CRPS;*
4. *protects outstanding natural features and landscapes including those within the Port Hills from inappropriate subdivision, use and development;*
5. *protects and enhances indigenous biodiversity and public space;*
6. *maintains or improves the quantity and quality of water in groundwater aquifers and surface waterbodies, and quality of ambient air;*
7. *maintains the character and amenity of rural areas and settlements;*

Chapter 6 applies to Greater Christchurch, an area which is defined as including that part of Selwyn District which includes the subject land.

In the first instance, it is noted that NPS-UD Policy 8 resolves the tension with those provisions in Chapter 6 seeking to identify, and constrain, areas of urban development within Greater Christchurch.

It is also stressed that the site is presently zoned for rural-residential development, where such zoning has found to be consistent with the requirements of CRPS policy 6.3.9. This includes requirements for suitable sewer, water and stormwater servicing; avoidance of significant reverse sensitivity effects, natural hazard effects, and ecological effects; supporting relevant cultural values; and, integrating into or consolidating with existing settlements.

Accounting for the above and the assessments provided, in regard Objective 6.2.1, the proposal will protect the environmental qualities set out in that objective and provide for a consolidated and integrated urban form that is able to be fully serviced and has the potential to utilise existing reticulated water and wastewater capacity and integrate with strategic infrastructure / transport networks.



8. protects people from unacceptable risk from natural hazards and the effects of sea-level rise;

9. integrates strategic and other infrastructure and services with land use development;

10. achieves development that does not adversely affect the efficient operation, use, development, appropriate upgrade, and future planning of strategic infrastructure and freight hubs;

11. optimises use of existing infrastructure; and

12. provides for development opportunities on Māori Reserves in Greater Christchurch.

Objective 6.2.2 Urban form and settlement pattern

The urban form and settlement pattern in Greater Christchurch is managed to provide sufficient land for rebuilding and recovery needs and set a foundation for future growth, with an urban form that achieves consolidation and intensification of urban areas, and avoids unplanned expansion of urban areas, by:

1. aiming to achieve the following targets for intensification as a proportion of overall growth through the period of recovery:
 - (a) 35% averaged over the period between 2013 and 2016
 - (b) 45% averaged over the period between 2016 to 2021
 - (c) 55% averaged over the period between 2022 and 2028;
2. providing higher density living environments including mixed use developments and a greater range of housing types, particularly in and around the Central City, in and around Key Activity Centres, and larger neighbourhood centres, and in greenfield priority areas and brownfield sites;
3. reinforcing the role of the Christchurch central business district within the Greater Christchurch area as identified in the Christchurch Central Recovery Plan;
4. providing for the development of greenfield priority areas on the periphery of Christchurch's urban area, and surrounding towns at a rate and in locations that meet anticipated demand and enables the efficient provision and use of network infrastructure;
5. encouraging sustainable and self-sufficient growth of the towns of Rangiora, Kaiapoi, Woodend, Lincoln, Rolleston and Prebbleton and consolidation of the existing settlement of West Melton;
6. Managing rural residential development outside of existing urban and priority areas; and
7. Providing for development opportunities on Māori Reserves.

Policy 6.3.1 Development within the Greater Christchurch area

In relation to recovery and rebuilding for Greater Christchurch:

1. give effect to the urban form identified in Map A, which identifies the location and extent of urban development that will support recovery, rebuilding and planning for future growth and infrastructure delivery;
2. give effect to the urban form identified in Map A (page 6-27) by identifying the location and extent of the indicated Key Activity Centres;
3. enable development of existing urban areas and greenfield priority areas, including intensification in appropriate locations, where it supports the recovery of Greater Christchurch;
4. ensure new urban activities only occur within existing urban areas or identified greenfield priority areas as shown on Map A, unless they are otherwise expressly provided for in the CRPS;
5. provide for educational facilities in rural areas in limited circumstances where no other practicable options exist within an urban area;
6. provide for a metropolitan recreation facility at 466-482 Yaldhurst Road; and

The site is not located in a sensitive landscape, nor will any sensitive indigenous vegetation be affected. Water quality can be maintained at the time of detailed design through engineering solutions and regional plan/discharge consent requirements.

The proposal may have some (minor and localised) effect on rural character and amenity as a result of more intensive residential development than the current Living 3 zone permits, though the landscape and visual assessment confirms that such effects will be appropriately minimised.

Accordingly, whilst the proposal is not consistent with the prescriptive provisions in Chapter 6 directing urban growth to specific areas (a tension resolved by the NPS-UD), it is otherwise consistent with the outcomes sought in these provisions.



7. avoid development that adversely affects the function and viability of, or public investment in, the Central City and Key Activity Centres.

Objective 6.2.4 Integration of transport infrastructure and land use

Prioritise the planning of transport infrastructure so that it maximises integration with the priority areas and new settlement patterns and facilitates the movement of people and goods and provision of services in Greater Christchurch, while:

1. managing network congestion;
2. reducing dependency on private motor vehicles;
3. reducing emission of contaminants to air and energy use;
4. promoting the use of active and public transport modes;
5. optimising use of existing capacity within the network; and
6. enhancing transport safety.

Policy 6.3.4 Transport effectiveness

Ensure that an efficient and effective transport network that supports business and residential recovery is restored, protected and enhanced so that it maintains and improves movement of people and goods around Greater Christchurch by:

1. avoiding development that will overload strategic freight routes;
2. providing patterns of development that optimise use of existing network capacity and ensuring that, where possible,
3. new building projects support increased uptake of active and public transport, and provide opportunities for modal choice;
4. providing opportunities for travel demand management; requiring integrated transport assessment for substantial developments; and
5. improving road user safety.

Policy 6.3.5 Integration of land use and infrastructure

Recovery of Greater Christchurch is to be assisted by the integration of land use development with infrastructure by:

1. Identifying priority areas for development to enable reliable forward planning for infrastructure development and delivery;
2. Ensuring that the nature, timing and sequencing of new development are co-ordinated with the development, funding, implementation and operation of transport and other infrastructure in order to:
 - a. optimise the efficient and affordable provision of both the development and the infrastructure;
 - b. maintain or enhance the operational effectiveness, viability and safety of existing and planned infrastructure;
 - c. protect investment in existing and planned infrastructure; and
 - d. ensure new development does not occur until provision for appropriate infrastructure is in place;
3. Providing that the efficient and effective functioning of infrastructure, including transport corridors, is maintained, and the ability to maintain and upgrade that infrastructure is retained;
4. Only providing for new development that does not affect the efficient operation, use, development, appropriate upgrading and safety of existing strategic infrastructure, including by avoiding noise sensitive activities within the 50dBA Ldn airport noise contour for Christchurch International Airport, unless the activity is within an existing residentially zoned urban area, residential greenfield area identified for Kaiapoi, or residential greenfield priority area identified in Map A (page 6-28); and

The Plan Change site is well located relative to the State Highway network. The site's proximity to urban Rolleston and associated public transport links and commercial/community services will assist in minimising travel distances and reducing dependency on motor vehicles.

The Transport Assessment has confirmed the suitability of the adjoining road network for the vehicle movements anticipated and an integrated transport assessment has been undertaken in support of the proposal.

Accordingly, the proposal is assessed as being consistent with these provisions.



5. Managing the effects of land use activities on infrastructure, including avoiding activities that have the potential to limit the efficient and effective, provision, operation, maintenance or upgrade of strategic infrastructure and freight hubs.

6.2.3 Sustainability

Recovery and rebuilding is undertaken in Greater Christchurch that:

1. provides for quality living environments incorporating good urban design;
2. retains identified areas of special amenity and historic heritage value;
3. retains values of importance to Tangata Whenua;
4. provides a range of densities and uses; and
5. is healthy, environmentally sustainable, functionally efficient, and prosperous.

6.3.2 Development form and urban design

Business development, residential development (including rural residential development) and the establishment of public space is to give effect to the principles of good urban design below, and those of the NZ Urban Design Protocol 2005, to the extent appropriate to the context:

1. *Tūrangawaewae* – the sense of place and belonging – recognition and incorporation of the identity of the place, the context and the core elements that comprise the place. Through context and site analysis, the following elements should be used to reflect the appropriateness of the development to its location: landmarks and features, historic heritage, the character and quality of the existing built and natural environment, historic and cultural markers and local stories.
2. *Integration* – recognition of the need for well-integrated places, infrastructure, movement routes and networks, spaces, land uses and the natural and built environment. These elements should be overlaid to provide an appropriate form and pattern of use and development.
3. *Connectivity* – the provision of efficient and safe high quality, barrier free, multimodal connections within a development, to surrounding areas, and to local facilities and services, with emphasis at a local level placed on walking, cycling and public transport as more sustainable forms of transport.
4. *Safety* – recognition and incorporation of Crime Prevention Through Environmental Design (CPTED) principles in the layout and design of developments, networks and spaces to ensure safe, comfortable and attractive places.
5. *Choice and diversity* – ensuring developments provide choice and diversity in their layout, built form, land use housing type and density, to adapt to the changing needs and circumstances of the population.
6. *Environmentally sustainable design* – ensuring that the process of design and development minimises water and resource use, restores ecosystems, safeguards mauri and maximises passive solar gain.
7. *Creativity and innovation* – supporting opportunities for exemplar approaches to infrastructure and urban form to lift the benchmark in the development of new urban areas in the Christchurch region.

6.3.3 Development in accordance with outline development plans

Development in greenfield priority areas and rural residential development is to occur in accordance with the provisions set out in an outline development plan or other rules for the area. Subdivision must not proceed ahead of the incorporation of an outline development plan in a district plan. Outline development plans and associated rules will:

1. Be prepared as:
(a) a single plan for the whole of the priority area; or

These provisions have been addressed in the urban design assessment in support of the proposal and are implemented primarily through the proposed ODP, which is in accordance with policy 6.3.3 and will guide the detail of any future subdivision design and development and ensure that the proposal provides for a range of densities and quality living environments.

In addition, the proposal has been assessed as delivering a 'well functioning urban environment' in a manner consistent with that sought by the NPS-UD.

The proposal does not impact on any identified areas of special amenity and historic heritage value, or values of importance to Tangata Whenua.

On this basis, the proposal is consistent with these provisions.



- (b) where an integrated plan adopted by the territorial authority exists for the whole of the priority area and the outline development plan is consistent with the integrated plan, part of that integrated plan; or
- (c) a single plan for the whole of a rural residential area; and
2. Be prepared in accordance with the matters set out in Policy 6.3.2;
3. To the extent relevant show proposed land uses including:
- (a) Principal through roads, connections with surrounding road networks, relevant infrastructure services and areas for possible future development;
- (b) Land required for community facilities or schools;
- (c) Parks and other land for recreation;
- (d) Land to be used for business activities;
- (e) The distribution of different residential densities, in accordance with Policy 6.3.7;
- (f) Land required for stormwater treatment, retention and drainage paths;
- (g) Land reserved or otherwise set aside from development for environmental, historic heritage, or landscape protection or enhancement;
- (h) Land reserved or otherwise set aside from development for any other reason, and the reasons for its protection from development;
- (i) Pedestrian walkways, cycleways and public transport routes both within and adjoining the area to be developed;
4. Demonstrate how Policy 6.3.7 will be achieved for residential areas within the area that is the subject of the outline development plan, including any staging;
5. Identify significant cultural, natural or historic heritage features and values, and show how they are to be protected and/or enhanced;
6. Document the infrastructure required, when it will be required and how it will be funded;
7. Set out the staging and co-ordination of subdivision and development between landowners;
8. Demonstrate how effective provision is made for a range of transport options including public transport options and integration between transport modes, including pedestrian, cycling, public transport, freight, and private motor vehicles;
9. Show how other potential adverse effects on and/or from nearby existing or designated strategic infrastructure (including requirements for designations, or planned infrastructure) will be avoided, remedied or appropriately mitigated;
10. Show how other potential adverse effects on the environment, including the protection and enhancement of surface and groundwater quality, are to be avoided, remedied or mitigated;
11. Show how the adverse effects associated with natural hazards are to be avoided, remedied or mitigated as appropriate and in accordance with Chapter 11 and any relevant guidelines; and
12. Include any other information that is relevant to an understanding of the development and its proposed zoning.

6.3.7 Residential location, yield and intensification

In relation to residential development opportunities in Greater Christchurch:

1. Subject to Policy 5.3.4, residential greenfield priority area development shall occur in accordance with Map A. These areas are sufficient for both growth and residential relocation through to 2028.
2. Intensification in urban areas of Greater Christchurch is to be focused around the Central City, Key Activity Centres and neighbourhood centres commensurate with their scale and function, core public transport routes, mixed-use areas, and on suitable brownfield land.
3. Intensification developments and development in greenfield priority areas shall achieve at least the following residential net densities averaged over the whole of an ODP area (except



where subject to an existing operative ODP with specific density provisions):

(a) 10 household units per hectare in greenfield areas in Selwyn and Waimakariri District;

(b) 15 household units per hectare in greenfield areas in Christchurch City;

4. Intensification development within Christchurch City to achieve an average of:

(a) 50 household units per hectare for intensification development within the Central City;

(b) 30 household units per hectare for intensification development elsewhere.

5. Provision will be made in district plans for comprehensive development across multiple or amalgamated sites.

6. Housing affordability is to be addressed by providing sufficient intensification and greenfield priority area land to meet housing demand during the recovery period, enabling brownfield development and providing for a range of lot sizes, densities and appropriate development controls that support more intensive developments such as mixed use developments, apartments, townhouses and terraced housing.

6.3.9 Rural residential development

In Greater Christchurch, rural residential development further to areas already zoned in district plans as at 1st January 2013 can only be provided for by territorial authorities in accordance with an adopted rural residential development strategy prepared in accordance with the Local Government Act 2002, subject to the following:

1. In the case of Christchurch City, no further rural residential development is to be provided for within the Christchurch City Plan area;

2. The location must be outside the greenfield priority areas for development and existing urban areas;

3. All subdivision and development must be located so that it can be economically provided with a reticulated sewer and water supply integrated with a publicly owned system, and appropriate stormwater treatment and disposal;

4. Legal and physical access is provided to a sealed road, but not directly to a road defined in the relevant district plan as a Strategic or Arterial Road, or as a State highway under the Government Roading Powers Act 1989;

5. The location and design of any proposed rural residential development shall:

(a) avoid noise sensitive activities occurring within the 50 dBA Ldn air noise contour surrounding Christchurch International Airport so as not to compromise the future efficient operation of Christchurch International Airport or the health, well-being and amenity of people;

(b) avoid the groundwater protection zone for Christchurch City's drinking water;

(c) avoid land between the primary and secondary stop banks south of the Waimakariri River;

(d) avoid land required to protect the landscape character of the Port Hills;

(e) not compromise the operational capacity of the Burnham Military Camp, West Melton Military Training Area or Rangiora Airfield;

(f) support existing or upgraded community infrastructure and provide for good access to emergency services;

(g) avoid significant reverse sensitivity effects with adjacent rural activities, including quarrying and agricultural research farms, or strategic infrastructure;

(h) avoid significant natural hazard areas including steep or unstable land;

(i) avoid significant adverse ecological effects, and support the protection and enhancement of ecological values;

(j) support the protection and enhancement of ancestral land, water sites, wāhi tapu and wāhi taonga of Ngāi Tahu;

(k) where adjacent to or in close proximity to an existing urban or rural residential area, be able to be integrated into or consolidated with the existing settlement; and

As noted earlier, the site is presently zoned for rural-residential development, where such zoning has been found to be consistent with the requirements of CRPS policy 6.3.9.

Whilst the proposal seeks a more intensive zoning for the subject land, it is relevant to note that the subject land has previously been assessed as delivering suitable sewer, water and stormwater servicing; significant reverse sensitivity effects, natural hazard effects, and ecological effects were able to be avoided; relevant cultural values could be addressed; and, the site could be effectively integrated into or consolidated with the existing Rolleston township.

Whilst the policy is not strictly relevant to the current proposal, it reinforces a number of the findings in regards to those policies which are relevant.



- (l) avoid adverse effects on existing surface water quality.
6. An outline development plan is prepared which sets out an integrated design for subdivision and land use, and provides for the long-term maintenance of rural residential character.
7. A rural residential development area shall not be regarded as in transition to full urban development.

6.4 ANTICIPATED ENVIRONMENTAL RESULTS

1. Recovery and rebuilding is enabled within Greater Christchurch.
2. Priority areas and existing urban areas identified provide the location for all new urban development.
3. Significant natural resources are protected from inappropriate development.
4. People are protected from unacceptable risk from natural hazards.
5. Infrastructure, and urban and rural development, are developed in an integrated manner.
6. The use of existing infrastructure is optimised.
7. Development opportunities are provided for on Māori Reserves.
8. Growth is provided for through both greenfield and brownfield development opportunities.
9. Higher density living environments are provided.
10. Greenfield development is provided for at a rate that meets demand and enables the efficient provision and use of infrastructure.
11. Growth of rural towns within Greater Christchurch is sustainable and encourages self-sufficiency.
12. Rural residential development is appropriately managed.
13. Development incorporates good urban design.
14. Areas of special amenity, heritage value, or importance to Ngāi Tahu are retained.
15. Residential development contains a range of densities.
16. Transport infrastructure appropriately manages network congestion, dependency of private vehicles is reduced, emissions and energy use from vehicles is reduced, and transport safety is enhanced.
17. The function and role of the Central City, the Key Activity and neighbourhood centres is maintained.
18. Sufficient business land is provided for, and different types of business activity take place in appropriate locations, adopting appropriate urban design qualities.

With the exception of result (2) which is resolved by the NPS-UD, for the aforementioned reasons the proposal is assessed as being consistent with the relevant anticipated environmental results set out in Chapter 6.

Chapter 7 Freshwater

Objective 7.2.1 Sustainable management of fresh water

The region's fresh water resources are sustainably managed to enable people and communities to provide for their economic and social well-being through abstracting and/or using water for irrigation, hydro-electricity generation and other economic activities, and for recreational and amenity values, and any economic and social activities associated with those values, providing:

1. the life-supporting capacity ecosystem processes, and indigenous species and their associated freshwater ecosystems and mauri of the fresh water is safe-guarded;
2. the natural character values of wetlands, lakes and rivers and their margins are preserved and these areas are protected from inappropriate subdivision, use and development and

Water quality and the effects of any water use necessary for development of the proposed Living Z Zone can be managed at the time of detailed design and subdivision through engineering solutions and regional plan/discharge consent requirements. This conclusion is supported by the technical assessment accompanying the Plan Change.



where appropriate restored or enhanced; and
3. any actual or reasonably foreseeable requirements for community and stockwater supplies and customary uses, are provided for.

Objective 7.2.4 – Integrated management of fresh water resources

Fresh water is sustainably managed in an integrated way within and across catchments, between activities, and between agencies and people with interest in water management in the community, considering:

1. the Ngai Tahu ethic of Ki Uta Ki Tai (from the mountains to the sea);
2. the interconnectivity of surface water and groundwater;
2. the effects of land uses and intensification of land uses on demand for water and water quality; and
4. kaitiakitanga and the ethic of stewardship; and
5. any net benefits of using water, and water infrastructure, and the significance of those benefits to the Canterbury region.

Chapter 11 Natural Hazards

Objective 11.2.1 Avoid new subdivision, use and development of land that increases risks associated with natural hazards.

New subdivision, use and development of land which increases the risk of natural hazards to people, property and infrastructure is avoided or, where avoidance is not possible, mitigation measures minimise such risks.

Objective 11.2.3 Climate change and natural hazards

The effects of climate change, and its influence on sea levels and the frequency and severity of natural hazards, are recognised and provided for.

The subject land is not exposed to any significant natural hazard risks, is presently zoned for rural-residential purposes, and the proposal has otherwise been assessed by Coffeys and Inovo as suitable for the intended density of development, accounting for natural hazard risks.

Accordingly, the proposal is consistent with these provisions and their associated policies.

Chapter 15 Soils

Objective 15.2.1 Maintenance of soil quality

Maintenance and improvement of the quality of Canterbury's soil to safeguard their mauri, their life supporting capacity, their health and their productive capacity

Accounting for the current Living 3 zoning of the site, the land use intensification proposed by this plan change (and any associated impacts on soil productive capacity) will not detract from soil quality in any significant way. Accordingly, the proposal is consistent with this objective and its associated policies.

Chapter 16 Energy

Objective 16.2.1 – Efficient use of energy

Development is located and designed to enable the efficient use of energy, including:

1. maintaining an urban form that shortens trip distances
2. planning for efficient transport, including freight
3. encouraging energy-efficient urban design principles
4. reduction of energy waste
5. avoiding impacts on the ability to operate energy infrastructure efficiently.

The Plan Change site is located in close proximity to State Highway 1 and the existing transport links within and servicing the Rolleston township and the proposed ODP effectively provides transport links and connections for all modes of transport.

These measures are consistent with objective 16.2.1.

3. Overall, whilst the proposal is not consistent with the prescriptive provisions in Chapter 6 directing new residential zones to be located within identified greenfield priority areas, (a tension resolved by the NPS-UD), it is otherwise consistent with the outcomes sought in these provisions and the overarching direction set out in the Regional Policy Statement.



Land and Water Regional Plan, Canterbury Air Regional Plan

4. The operative Land and Water Regional Plan broadly seeks to manage land and water within the Canterbury Region, by setting water allocation limits and limits on the type and amount of discharges permitted.
5. Notably, objective 3.5 that '*Land uses continue to develop and change in response to socio-economic and community demand*' recognises (generally) the potential for development and change, as is proposed by the plan change. As a caveat to this, objective 3.24 seeks that '*All activities operate at good environmental practice or better to optimise efficient resource use and protect the region's fresh water resources from quality and quantity degradation*' and a number of more specific objectives and policies permeate the Plan in respect of particular water-related issues.
6. It is anticipated that any future discharges associated with the development of the proposed Plan Change site will either fall to be permitted under the Rules of the Land and Water Regional Plan, or will be assessed in an integrated manner through the resource consent process, with Environment Canterbury as the administering body. At such time as detailed development plans for development are advanced, various options for the design and management of discharges will be available (if required) to ensure any adverse effects are minimised.
7. Accounting for this and the technical assessment by Inovo Projects confirming that the proposed increase in density can be readily serviced by water, wastewater and stormwater infrastructure, the proposal is concluded to be generally consistent with the operative Land and Water Regional Plan.
8. The objectives and policies of the Canterbury Air Regional Plan broadly seek (in relation to those activities emitting discharges to air) best practicable options to minimise the effects of discharges, manage and in some situations avoid discharges of PM₁₀, manage discharges of odour and dust from solid or liquid waste, and addressing localised effects of discharges including relative to sensitive receptors. The proposed Plan Change will not generally result in any discharges to air and will therefore not conflict with objectives 5.1-5.10 (or the related policies). To the extent that air discharges from other nearby activities are concerned, the odour assessment by Golder Associates has confirmed that the Plan Change will be sufficient remote (by way of setbacks and associated rules) to avoid incompatibility between activities or diminished amenity values.
9. In summary, the proposed Plan Change is not considered to be inconsistent with the relevant Regional Plans.



Attachment 9: Our Space Assessment



Our Space

1. Our Space 2018-2048: Greater Christchurch Settlement Pattern Update Whakahāngai O Te Hōrapa Nohoanga ('Our Space') was prepared to satisfy the requirements of the National Policy Statement on Urban Development Capacity (NPS-UDC) for high growth councils to produce a 'future development strategy' that shows there will be sufficient, feasible development capacity to support housing and business growth needs over the medium (next 10 years) and long term (10 to 30 years).
2. Those parts of Our Space of particular relevance to the proposal are assessed in Table 1 below.

Table 1: Assessment of the proposal against the provisions of Our Space

Our Space Provision	Comment / Assessment
Chapter 5. Our Plan	
What will urban growth look like in different areas of Greater Christchurch? <i>Rolleston continues to grow as the principal centre in Selwyn, with a range of new developments supporting a vibrant town centre and the choice of housing broadening to reflect the changing demand profile of the growing town. Industrial and large format retail expand around the I-Zone Southern Business Hub, benefitting from improved connections across State Highway 1. Lincoln develops while retaining its village and university character, with opportunities emerging from new academic and business partnerships through the Lincoln Hub initiative.</i>	The proposal is consistent with this broad overview as to how urban growth is envisaged in Selwyn.
5.3 Selwyn and Waimakariri towns <i>The current district plans for Selwyn and Waimakariri provide for greenfield housing areas in alignment with the settlement pattern outlined for Greater Christchurch in Map A of the Canterbury Regional Policy Statement (CRPS). This map was inserted into the CRPS22 following the adoption of the Land Use Recovery Plan and covers the post-earthquake recovery period through to 2028.</i> <i>The Partnership has previously considered the longer term growth needs of Greater Christchurch through to 2041, with the extent of planned greenfield areas around Christchurch City and the main towns in Selwyn and Waimakariri to support future housing growth delineated by the Projected Infrastructure Boundary on Map A.</i> <i>Given the projected shortfalls in housing development capacity in Selwyn and Waimakariri to meet their future needs, a change to the CRPS is proposed to allow Chapter 6 and Map A the flexibility to respond to identified medium term capacity needs. Additional capacity will be directed in the first instance to the key towns of Rolleston, Rangiora and Kaiapoi in support of the public transport enhancement opportunities mentioned elsewhere in this Update. This is likely to identify future development areas in the two districts that are within the Projected Infrastructure Boundary. Such a change would be prepared subsequent to this Update and would likely be notified in 2019.²³ These new areas will provide much of the capacity required over both the medium and long term. A 2019 change to the CRPS would ensure that land can be rezoned to meet medium term capacity needs, and the longer term will be further considered as part of a comprehensive review of the CRPS scheduled for 2022.</i>	As noted earlier in respect of the CRPS provisions, the NPS-UD provides a more enabling approach towards the enablement of greenfield housing areas and as such, the containment of such areas to the areas delineated by the Projected Infrastructure Boundary on Map A is no longer considered appropriate. Notably, this section of Our Space acknowledges: • 'Projected shortfalls in housing development capacity in Selwyn and Waimakariri to meet their future needs'; • A need for 'the flexibility to respond to identified medium term capacity needs' • 'Additional capacity will be directed in the first instance to the key towns of Rolleston, Rangiora and Kaiapoi in support of the public transport enhancement opportunities...' • 'Longer term [housing needs] will be further considered as part of a comprehensive review of the CRPS scheduled for 2022' • 'While it is intended Our Space provides direction to inform future Resource Management Act processes, Figure 16 is indicative only' • 'it is expected that new urban housing in Waimakariri and Selwyn will achieve a minimum net density of 12 households per hectare'.



While it is intended *Our Space* provides direction to inform future Resource Management Act processes, Figure 16 is indicative only.

To most efficiently utilise land within identified future development areas, consideration will also be given to appropriate residential densities. An evaluation of the appropriateness of existing minimum densities specified in the CRPS for each territorial authority including a review of what has been achieved to date, constraints and issues associated with achieving these minimum densities, and whether any changes to minimum densities is likely to be desirable and achievable across future development areas will commence in 2019.

In the meantime, it is expected that new urban housing in Waimakariri and Selwyn will achieve a minimum net density of 12 households per hectare where any Future Development Area is subsequently zoned. For this purpose, net density has the same meaning as set out in the Canterbury Regional Policy Statement. This will also provide strong guidance for the development of District Plans for both Waimakariri and Selwyn districts.

Whilst the proposed Plan Change proposes to enable housing supply in advance of the CRPS review in 2022 and in an area that is not 'indicatively' earmarked for growth in *Our Space*, the enablement of housing supply as proposed is clearly enabled by the NPS-UD. And notably, the proposed change is otherwise consistent with the outcomes envisaged in the bullet points listed above.

Selwyn District and Waimakariri District are undertaking reviews of their respective District Plans. Both reviews will also assess additional provisions to encourage and enable redevelopment within existing urban areas and close to town centres. This is in response to the projected changes in housing demand over the next thirty years, and the role that redevelopment plays to deliver smaller, more affordable housing types that will increasingly be needed to meet future demand. Until these reviews are complete, an understanding of whether any remaining development capacity shortfalls remain is uncertain and can be better understood as part of future capacity assessments in 2020 and every three years thereafter.

For Selwyn, this Update supports the purpose and direction of Selwyn 2031 by promoting a sustainable, consolidated centres-based urban growth pattern that supports the changing population and their housing needs. This, in turn, allows for greater public transport usage. The District Plan Review is supporting this by not actively seeking to rezone additional land for living or business outside of the Projected Infrastructure Boundary.

This Update will help provide a further evidence base for updates to Selwyn 2031 and other strategic documents to accommodate long-term growth through high quality urban environments. Any potential additional provision of business and housing land within the Greater Christchurch area in Selwyn will be strongly guided by this evidence and the current structure plans and town centre studies, ongoing market indicator monitoring and the evolution of the policy framework through the district plan review process.

This proposed Plan Change provides an opportunity to understand 'whether any remaining development capacity shortfalls remain'. This has been assessed by Copeland Brown and in the supporting information in the section 32 assessment, with reference to the policy directives in the NPS-UD.

For the reasons stated elsewhere in the section 32 assessment and technical reports (in particular the urban design assessment by DCM Urban), the proposal otherwise promotes 'a sustainable, consolidated centres-based urban growth pattern that supports the changing population and their housing needs. This, in turn, allows for greater public transport usage'.

5.4 Sequencing and staging of growth

At a local level the Capacity Assessment outlined which areas signalled for growth are already supported by trunk infrastructure. This primarily relates to wastewater networks. Infrastructure strategies associated with the recent completed 2018-2028 Long Term Plans have documented the planned infrastructure works scheduled to be completed over the medium and long term to unlock remaining growth areas. These integrate and align with structure plans for main towns covering the development phasing associated with the efficient roll-out of infrastructure.

At a Greater Christchurch level sequencing is important to align with cross-boundary investments, especially those relating to the transport network. Collaborative planning

Per the assessment by Inovo, capacity in the wastewater (and other infrastructure/servicing) network exists to support the proposal.

The CRPS provisions, particularly Policies 6.3.2 to 6.3.7 have been assessed, with the requirements for good urban design, alignment with infrastructure needs and integration with existing urban areas satisfied by the proposal.

Sufficiency of development capacity has also been assessed, in accordance with the requirements of the NPS-UD.



undertaken when developing infrastructure strategies and regional land transport plans will be the mechanism to address and resolve any potential misalignment.

Future growth areas identified in Figure 15 and 16 will require more detailed planning, technical assessments and consultation with landowners to determine more specific staging of development. Existing policies in Chapter 6 of the CRPS already provide clear direction which these detailed planning processes must give effect to, particularly Policies 6.3.2 to 6.3.7. They ensure the staging of development considers how to support good urban design, align with infrastructure needs and integrate with existing urban areas. Associated policy wording is proposed to complement a change to the CRPS Map A. This will enable District Plan reviews for Selwyn and Waimakariri Districts to, over the medium term, zone and otherwise enable development capacity in accordance with meeting the medium term housing targets incorporated in the CRPS. Reviews of targets and the sufficiency of development capacity are part of periodic capacity assessments and enable the CRPS and district plans to remain responsive to demonstrated need.

6.1 Responsive planning

With many of the primary drivers and influencers of urban development in Greater Christchurch being in a state of change, a responsive approach to planning is necessary to ensure that future opportunities to shape our urban areas and achieve our desired outcomes are realised. This will require monitoring and evaluation, continued relationship building and commitment to this partnership. Key drivers of change at the local, national and global level include:

- Shifting post-earthquake trends in the residential, commercial and industrial markets, as well as the development sector, as the rebuild and recovery of Greater Christchurch continues to mature;
- Emerging Government policy in relation to urban growth and development, transport, regional economic growth, and local government funding and financing, which will provide new opportunities for our approach to planning;
- Changing population and household profiles, and composition of the local economy, which will influence the type of housing and employment that is required in the future to meet the needs and preferences of residents;
- Growing need to manage and adapt to the natural hazard risk facing our coastal communities given the anticipated sea level rise, and related coastal inundation and groundwater level effects, over the next 30 years and beyond.

Given these drivers of change, this Update has been prepared to provide greater certainty over the medium term in regard to how development capacity issues will be addressed (Section 4, Our Challenges) and more flexibility over the long term to enable the Partnership to further consider the most appropriate planning directions and responses.

In response to this Update, the Regional Council and District Councils will insert the relevant housing targets directly into their respective plans, in accordance with NPSUDC Policies PC5 to PC11.

This section of Our Space is particularly relevant to this proposal and the context in which the Plan change is made. Specifically:

- Shifting trends in the residential property market (significant demand, limited supply and cost escalation) since the release of the CRPS and Our Space underpin this application.
- The NPS-UD is a significant Government policy that fundamentally affects planning and enablement in relation to urban growth and development, transport, regional economic growth, and local government funding and financing.
- Maturation of the Selwyn local economy (with associated work, education and recreational opportunities) and improved transport accessibility (in terms of CSM, public transport, and local connections to services) has influenced the uptake of available residential land in Rolleston and the demands for additional housing supply.
- The proposal is on land with very low natural hazard risk, including allowances for sea level rise or climate change.

In addition to the factors above, the information provided elsewhere in the section 32 assessment regarding housing supply and demand and the extent to which this proposal adds significantly to development capacity in accordance with the NPS-UD supports a responsive approach.

3. Overall, it is acknowledged that the proposal is not expressly contemplated by Our Space which identifies (through Figure 16 and its text) indicative locations of future development areas in Greater Christchurch within the Projected Infrastructure Boundary. However, consistent with the findings regarding the directive policies in Chapter 6 of the CRPS, the recently released NPS-UD provides a more enabling and responsive approach to growth.



4. Accounting for the NPS-UD, the recognition in Our Space that responsive planning is required in response to drivers of change, and that the proposal is otherwise consistent with the key outcomes sought in Our Space in respect of the location and form of growth, the proposal is assessed as being not inconsistent with Our Space.



Attachment 10: Proposed Selwyn District Plan Assessment



Proposed Selwyn District Plan

1. The proposed Selwyn District Plan ('proposed plan') was notified on 5 October 2020 and submissions closed in December 2020. Submissions are yet to be notified, meaning that procedurally, the proposed plan is still subject to further submissions, hearings, decisions, and appeals.
2. It is further noted that the applicant for this plan change has filed submissions on the proposed plan seeking rezoning of the land to General Residential, in a manner consistent with the outcomes sought by this proposed change to the operative plan.
3. Accounting for the above, limited weight should be afforded to the provisions of the proposed plan at this time. Notwithstanding, an assessment of those provisions in the proposed plan of particular relevance is provided below in Table 1.

Table 1: Assessment of the proposal against the provisions of the pSDP

PSDP Provision	Comment / Assessment
<i>Sensational Selwyn</i> <i>SD-DI-O1</i> <i>Selwyn is an attractive and pleasant place to live, work, and visit, where development:</i> 1. <i>takes into account the character of individual communities;</i> 2. <i>is well-connected, safe, accessible, and resilient; and</i> 3. <i>enhances environmental, economic, cultural and social outcomes for the benefit of the entire District.</i>	Through its layout, edge treatment and connectivity the proposal provides for development that accounts for the characteristics of the local community and its position at the urban/rural interface. Similarly the ODP provides for well-connected, safe and accessible development, and the technical assessments have demonstrated that the development will be resilient to natural hazards. Finally, the assessments have demonstrated the positive environmental, economic, cultural and social outcomes of the proposal, and the avoidance of adverse effects.
<i>SD-DI-O2</i> <i>Selwyn's prosperous economy is supported through the efficient use of land, resources, and infrastructure, while ensuring existing activities are protected from incompatible activities.</i>	The proposal provides for an efficient use of land and infrastructure (particularly accounting for the existing rural-residential zoning of the land) and avoids conflict with any existing incompatible activities.
<i>Integration and Land Use, Ecosystems, and Water - Ki Uta Ki Tai</i> <i>SD-DI-O3</i> <i>Land and water resources are managed through an integrated approach, which recognises both the importance of ki uta ki tai to Ngāi Tahu and the inter-relationship between ecosystems and natural processes.</i>	The technical assessments have demonstrated that development can occur in a manner consistent with this objective.
<i>Our Environment</i> <i>SD-DI-O4</i> <i>Places, landscapes, and features which are significant to Selwyn's character, cultural heritage, or are of spiritual importance to Ngāi Tahu, are identified, recognised for their values, and protected for future generations.</i>	The subject land is not subject to any significant values and noting its existing zoning and the visual/urban design assessment, the proposal is consistent with this objective.
<i>Vibrant and Viable Centres</i> <i>SD-DI-O5</i>	The proposal will further support the Rolleston town centre, and the small commercial centres proposed will operate in accordance with their anticipated role within the Activity Centre Network.



Selwyn's hierarchy of activity centres are the preferred location for shopping, leisure, cultural, entertainment, and social interaction experiences in accordance with their anticipated role within the Activity Centre Network.

Community Needs

SD-IR-O1

The important infrastructure needs of the community are fulfilled, and their operation is protected.

Per the Inovo assessment, the proposal is able to be supported by existing or planned community infrastructure and accounting for the noise and odour assessments will not otherwise compromise the continued operation of community infrastructure.

Effects of Important Infrastructure

SD-IR-O2

The development, upgrade, maintenance, and operation of all important infrastructure is enabled in a way that minimises adverse effects, while having regard to the practical constraints and the logistical and technical practicalities associated with important infrastructure.

As noted above, the noise and odour assessments confirm that the proposal will not adversely affect important infrastructure.

Natural Hazards

SD-IR-O3

The risk from natural hazards, including the effects of climate change, to people, property, and important infrastructure is not increased, other than where necessary to provide for important infrastructure that has no reasonable alternative.

The hazards assessment confirms that the proposal will not be subject to unacceptable hazard risks.

Partnership with Ngāi Tahu

SD-MWV-O1

Strengthen the partnership between the Council and Ngāi Tahu by recognising the cultural significance of Selwyn to Ngāi Tahu and Te Taumutu and Ngāi Tūāhuriri Rūnanga by:

- 1. Promoting active and meaningful participation by those who hold mana whenua in the resource management decision-making process;*
- 2. Recognising that only those who hold mana whenua can identify their relationship with their culture, traditions, ancestral lands, waterbodies, wāhi tapu and other taonga;*
- 3. Enabling the exercise of kaitiakitanga by those who hold mana whenua over Selwyn;*
- 4. Providing for the contemporary connections, cultural and spiritual values held by tāngata whenua; and*
- 5. Continuing to enable tāngata whenua to protect, develop and use Māori Land in a way which is consistent with their culture, traditions and aspirations.*

Consultation with mana whenua has commenced and the majority of recommendations received have been incorporated into the Plan Change and proposed ODPs.

Compact and Sustainable Township Network

SD-UFD-O1

Urban growth is located only in or around existing townships and in a compact and sustainable form that aligns with its anticipated role in the Township Network, while responding to the community's needs, natural landforms, cultural values, and physical features.

The proposal is located 'around existing townships' and is in a 'compact and sustainable form'.

Urban Growth and Development

SD-UFD-O2

There is sufficient feasible development capacity to meet anticipated demands for housing and business activities.

As addressed by Copeland Brown and consistent with the directions in policy 2 of the NPS-UD to provide 'at least sufficient development capacity to meet expected demand', the proposal supports the provision of 'sufficient feasible development capacity to meet anticipated demands for housing'.



Integration of Land Use and Infrastructure

SD-UFD-O3

Urban growth and development:

- 1. is well-integrated with the efficient provision, including the timing and funding, of infrastructure; and*
- 2. has the ability to manage or respond to the effects of climate change.*

The Inovo assessment demonstrates consistency with this objective insofar as it relates to infrastructure; and the hazards assessment has otherwise confirmed that the effects of climate change can be readily managed by the proposal.

TRAN-O1

People and places are connected through safe, efficient, and convenient land transport corridors and land transport infrastructure which is well integrated with land use activities and subdivision development.

The transport assessment and further information has demonstrated consistency with these provisions.

TRAN-O2

Land transport corridors and land transport infrastructure are protected from incompatible land use activities and subdivision development.

TRAN-O3

Land transport corridors and land transport infrastructure support the needs of people and freight, while ensuring adverse effects on the surrounding environment from their establishment and operation are managed.

HH - Historic Heritage

TREE - Notable Trees

SASM - Sites and Areas of Significance to Māori

For completeness, it is noted that contaminated land and natural hazards matters have been assessed and there are no associated implications or effects for the proposed Plan Change.

The plan change site is not subject to any risks associated with hazardous substances.

HH - Historic Heritage

TREE - Notable Trees

SASM - Sites and Areas of Significance to Māori

For completeness, it is noted that none of these attributes are applicable to the Plan Change site.

EIB - Ecosystems and Indigenous Biodiversity

NATC - Natural Character

NFL - Natural Features and Landscapes

PA - Public Access

For completeness, it is noted that none of these attributes are applicable to the Plan Change site. To the extent that a watercourse is located on the Holmes Block, this does not have any significant natural values, but in any case the ODP provides for the management of any fauna within it, in the event that it is disturbed/relocated.

SUB-O1

Subdivision design and layout maintains or enhances the amenity values of the zone.

These provisions and associated policies and rules would readily apply to the land following rezoning, and the proposed Plan Change does not present any inconsistency.

SUB-O2

Every site created by subdivision has the characteristics, infrastructure, and facilities appropriate for the intended use of the land.

SUB-O3

Site sizes reflect the anticipated development outcomes of the zone.



ASW - Activities on the Surface of Water

CE - Coastal Environment

EW - Earthworks

LIGHT - Light

NOISE - Noise

SIGN - Signs

TEMP - Temporary Activities

For completeness, it is noted that none of these attributes are applicable to the Plan Change (albeit they may apply to future activities on the land).

UG-Overview

The Selwyn District is a desirable place to live, work, and play, which is generating a demand for housing and business opportunities to support the needs of the growing community now and into the future. The Urban Growth chapter assists in meeting these demands by encouraging a consolidated and compact settlement pattern that optimises the use and development of resources. This chapter also assists in ensuring there is enough urban development capacity available to meet the District's housing and business needs while assuring that high quality living and business environments continue to be developed to implement the adopted Development Plans.

Ongoing urban development capacity is provided through the identification of new urban areas that are subject to the Urban Growth Overlay and by enabling existing sites to be intensified or redeveloped. The need for zoning processes to demonstrate consistency with all of the urban growth policies and to consider relevant Development Plans will ensure that new urban growth areas do not conflict with legitimately established land use activities, compromise the quality of the environments that people value, and result in adverse environmental effects.

The intensification of activities and redevelopment of existing land within urban zones is encouraged to support the District's urban growth needs. This includes through increased housing densities and the development and implementation of Urban Intensification Plans and Development Plans to achieve integrated settlement patterns and to complement the ongoing provision of new urban areas.

The Urban Growth Overlay maps the spatial locations identified in Development Plans that have been adopted by SDC. These assist in determining where new urban areas can locate around townships and delivering the outcomes that are anticipated to be achieved within these environments. Any urban development or subdivision of land outside of the existing township boundaries is precluded unless the urban growth policies have been fulfilled through the zoning process under Schedule 1 of the RMA.

The General Rural Zone activity-based rules apply to the land that is subject to the Urban Growth Overlay to enable the majority of rural land uses to continue. Additional rules apply to ensure that land use and subdivision development does not undermine the future zoning or development of the land that will assist in meeting the growth needs of the district. All other site-specific rules to achieve the urban growth outcomes will be determined through the zoning process.

The Urban Growth overview recognises the 'demand for housing and business opportunities to support the needs of the growing community now and into the future' and the need to ensure 'there is enough urban development capacity available to meet the District's housing and business needs'. The Plan Change proposal responds to these demands and supports the provision of sufficient development capacity for housing.

The plan change proposal otherwise 'demonstrates consistency with all of the urban growth policies' and 'does not conflict with legitimately established land use activities, compromise the quality of the environments that people value, and result in adverse environmental effects'.

UG-O1

Urban growth is provided for in a strategic manner that:

1. Achieves attractive, pleasant, high quality, and resilient urban environments;

The proposed plan change and supporting assessments have demonstrated that the proposal will:

1. Deliver an attractive, pleasant, high quality, and resilient urban environment;



2. <i>Maintains and enhances the amenity values and character anticipated within each residential, kainga nohoanga, or business area;</i> 3. <i>Recognises and protect identified Heritage Sites, Heritage Settings, and Notable Trees;</i> 4. <i>Protects the health and well-being of water bodies, freshwater ecosystems, and receiving environments;</i> 5. <i>Provides for the intensification and redevelopment of existing urban sites;</i> 6. <i>Integrates with existing residential neighbourhoods, commercial centres, industrial hubs, inland ports, or knowledge areas;</i> 7. <i>Is coordinated with available infrastructure and utilities, including land transport infrastructure; and</i> 8. <i>Enables people and communities, now and future, to provide for their wellbeing, and their health and safety.</i>	2. Maintain and enhance the amenity values and character anticipated within the residential area; 3. Integrate with existing residential neighbourhoods and commercial centres; 4. Be well coordinated with available infrastructure and utilities, including land transport infrastructure; and 5. Enable people and communities, now and future, to provide for their wellbeing, and their health and safety.
UG-O2 <i>Townships maintain a consolidated and compact urban form to support:</i> 1. <i>Accessible, sustainable and resilient residential neighbourhoods, commercial centres, industrial hubs, inland ports, or knowledge areas;</i> 2. <i>The role and function of each urban area within the District's Township Network and the economic and social prosperity of the District's commercial centres; and</i> 3. <i>The efficient servicing of townships and integration with existing and planned infrastructure.</i>	As demonstrated in the urban design, servicing and transport assessments, the urban form (and ODP) proposed for the Plan Change supports: 1. Accessible, sustainable and resilient residential neighbourhoods; 2. The role and function of the Rolleston urban area and the District's commercial centres; and 3. Efficient servicing of townships and integration with existing and planned infrastructure.
UG-O3 <i>There is sufficient feasible housing and sufficient business development capacity within Greater Christchurch to ensure:</i> 1. <i>The housing bottom lines are met;</i> 2. <i>A wide range of housing types, sizes, and densities are available to satisfy social and affordability needs and respond to demographic change; and</i> 3. <i>Commercial and industrial growth is supported by a range of working environments and places to locate and operate businesses consistent with the District's Activity Centre Network.</i>	As noted above, this provision (and the NPS-UD) seeks sufficiency (i.e. a minimum rather than maximum) supply of housing development capacity which the proposal will support. The plan change otherwise provides for 'A wide range of housing types, sizes, and densities are available to satisfy social and affordability needs and respond to demographic change'.
Urban Growth <i>UG-P1 Spatially identify new urban growth areas supported by a Development Plan.</i> <i>UG-P2 Provide for the rezoning of land to establish new urban areas within the Urban Growth Overlay.</i> <i>UG-P3 Avoid the zoning of land to establish any new urban areas or extensions to any township boundary in the Greater Christchurch area of the District outside the Urban Growth Overlay.</i> <i>UG-P6 Enable rural production to continue on land that is subject to an Urban Growth Overlay, while avoiding the establishment of those activities that may unreasonably hinder any future urban zoning required to assist in meeting the District's urban growth needs.</i>	The proposal is not within an identified new urban growth area, but is supported by a Development Plan (ODP). The proposal seeks 'the zoning of land to establish [a] new urban area or extensions to any township boundary in the Greater Christchurch area of the District outside the Urban Growth Overlay' and is therefore clearly inconsistent with policy UG-P3. However, the NPS-UD provides for such rezoning and resolves this tension. In terms of UG-P6, development of the land in accordance with the operative rural residential zoning of the land would not support rural production and 'may unreasonably hinder any future urban zoning required to assist in meeting the District's urban growth needs'. Accordingly, this policy indirectly supports the proposed rezoning of the land.
Urban Form <i>UG-P7 Any new urban areas shall deliver the following urban form and scale outcomes:</i>	In terms of UG-P7, the proposal has been assessed as:



1. Township boundaries maintain a consolidated and compact urban form; 2. The form and scale of new urban areas support the settlements role and function within the District's Township Network; 3. The natural features, physical forms, opportunities, and constraints that characterise the context of individual locations are identified and addressed to achieve appropriate land use and subdivision outcomes, including where these considerations are identified in any relevant Development Plans; and 4. The extension of township boundaries along any strategic transport network is discouraged where there are more appropriate alternative locations available.	1. Maintaining a consolidated and compact urban form, as described in the assessment by DCM Urban; 2. Providing a form and scale of urban activity that support Rolleston's role and function within the District's Township Network, noting its proximity, and connectivity to Rolleston especially; 3. Having no particular natural features, physical forms, or constraints that suggest urbanisation of the land is inappropriate; and 4. Providing for an appropriate form of expansion along the SH1 strategic transport network, accounting for edge treatment / acoustic attenuation and the ability to provide safe and efficient access to the transport network.
UG-P8 Avoid the following locations and areas when zoning land to extend township boundaries to establish new urban areas: 1. Sites and Areas of Significance to Māori; 2. Significant Natural Areas; 3. Outstanding Natural Landscapes and Visual Amenity Landscapes; and 4. High Hazard Areas.	In terms of UG-P8, the proposal does not relate to: 1. Sites and Areas of Significance to Māori; 2. Significant Natural Areas; 3. Outstanding Natural Landscapes and Visual Amenity Landscapes; and 4. High Hazard Areas.
UG-P9 Recognise and provide for the finite nature of the versatile soil resource when zoning land to extend township boundaries to establish new urban areas.	Effects on versatile soils have been assessed as acceptable, noting in particular that the existing rural residential zoning does not provide for their ongoing efficient use for rural production purposes.
UG-P10 Ensure the establishment of high-quality urban environments by requiring that new urban areas: 1. Maintain the amenity values and character anticipated within each township and the outcomes identified in any relevant Development Plan; 2. Recognise and protect identified Heritage Sites, Heritage Settings, and Notable Trees; and 3. Preserving the rural outlook that characterises the General Rural Zone through appropriate landscape mitigation, densities, or development controls at the interface between rural and urban environments.	The proposed ODP provides for a high-quality urban environment by: 1. Adopting controls on built development consistent with those in the adjacent residential areas and otherwise ensuring a high quality and well-connected development through the use of an ODP; 2. Not affecting any identified Heritage Sites, Heritage Settings, or Notable Trees; and 3. Providing an appropriate interface at the rural and urban edge through the use of setbacks where required accounting for adjacent land uses.
UG-P11 When zoning land to establish any new urban area or to extend any township boundary, avoid reverse sensitivity effects on: 1. any adjoining rural, industrial, inland port, or knowledge zone; and 2. on the safe, efficient and cost-effective operation of important infrastructure, land transport infrastructure, and the strategic transport network.	The transport, noise and odour assessments have demonstrated consistency with this policy.
UG-P12 Ensure the zoning of land to extend township boundaries to establish new urban areas demonstrates how it will integrate with existing urban environments, optimise the efficient and cost-effective provision of infrastructure, and protect natural and physical resources, by: 1. Aligning the zoning, subdivision and development with network capacity and availability of existing or new infrastructure, including through the staging of development; 2. Avoiding adverse effects on the ground and surface water resource by requiring connections to reticulated water, wastewater, and stormwater networks where they are	The transport, servicing and urban design assessments have addressed these matters, confirming that the plan change area can be effectively integrated with the existing Rolleston urban environment and community infrastructure.



available, or by demonstrating that the necessary discharge approvals can be obtained for all on-site wastewater and stormwater treatment and disposal facilities;

3. Ensuring the land is located where solid waste collection and disposal services are available;
4. Prioritising accessibility and connectivity between the land and adjoining neighbourhoods, commercial centres, open space reserves, and community facilities, including education providers, public reserves, and health services; and
5. Requiring safe, attractive and convenient land transport infrastructure that promotes walking, cycling, and access to public transport and public transport facilities to encourage energy efficiency and improve peoples' health and wellbeing.

Development Capacity

UG-P13 Residential growth – Greater Christchurch area

Any new residential growth area within the Greater Christchurch area shall only occur where:

1. Extensions assist in meeting the housing bottom lines (minimum housing targets) of 8,600 households over the medium-term period through to 2028.
2. A HDCA and FDS identify a need for additional feasible development capacity for the township and the additional residential land supports the rebuild and recovery of Greater Christchurch;
3. The land is subject to an Urban Growth Overlay and the area is either:
 - a. a 'greenfield priority area', or any subsequent urban growth areas or urban containment boundaries, in the CRPS where it is a residential activity; or
 - b. identified in an adopted Rural Residential Strategy and in accordance with CRPS Policy 6.3.9 where it is a rural residential activity.
4. The minimum net densities of 12hh/ha for residential activities or 1 to 2hh/ha for rural residential activities are met;
5. A diversity in housing types, sizes and densities is demonstrated to respond to the demographic changes and social and affordability needs identified in a HDCA, FDS or outcomes identified in any relevant Development Plan; and
6. An ODP is prepared that addresses the matters listed in UG-ODP Criteria and incorporated into this Plan before any subdivision proceeds.

The proposal is consistent with this policy insofar that:

1. It will assist in meeting the housing bottom lines (minimum housing targets) of 8,600 households over the medium-term period through to 2028.
2. The minimum net densities of 12hh/ha for residential activities are met;
3. A diversity in housing types, sizes and densities is demonstrated to respond to the demographic changes and social and affordability needs (albeit not as identified in a HDCA, FDS or outcomes identified in any relevant Development Plan); and
6. An ODP is prepared that addresses the matters listed in UG-ODP Criteria (that would be incorporated into the Plan before any subdivision proceeds).

The proposal is not consistent with the balance of the policy, albeit such tension is resolved by the policy direction in the NPS-UD.

UG-SCHED1 - Residential Growth Area ODP Criteria

1. A single ODP shall be prepared for each new residential growth area and incorporated into the Planning Maps and the relevant Development Area chapter of this Plan;
2. Each ODP shall illustrate how the site characteristics and topography have been addressed through the identification of:
 - a. Principal through roads and connections both within and adjoining the ODP area, including principal walking and cycling networks and public transport and freight routes;
 - b. Methods for the integrated management of water, stormwater, and wastewater and associated infrastructure consistent with {Link,11991,UG-P15};
 - c. How each ODP area will:
 - i. Achieve the minimum net density requirements and outcomes listed in UG-P5 or UG-P6 are to be achieved;

The proposed ODPs have been prepared in accordance with the requirements of UG-SCHED1 and their format (appearance) and content (text) is based on the ODPs set out in Part 3 of the proposed Plan.



- ii. *Be staged to allow the subdivision development to align with the timing, funding, and availability of network infrastructure capacity; and*
- iii. *Integrate into any adjoining land that is subject to the Urban Growth Overlay;*

3. *The following features and outcomes are to be illustrated on an indicative subdivision concept plan containing lot configurations and sizes that is to accompany the ODP;*

- a. *Any land to be set aside to protect or enhance environmental, conservation, landscape, heritage or cultural (including to provide for the interests of nga rūnanga) values;*
- b. *Any land to be set aside for community facilities, schools, open space reserve or commercial activities and how accessibility and connectivity between these locations is supported in the land transport network;*
- c. *Any land to be set aside to effectively manage hazard risk or contaminated land;*
- d. *Any methods or boundary treatments required to mitigate reverse sensitivity effects and promote compatible land use activities, including protecting important infrastructure, or a designated site; and*
- e. *Any other information which is relevant to the understanding of the development and its proposed zoning.*

RESZ-Objectives

RESZ-O1 Safe, convenient, pleasant, and healthy living environments that meet the needs and preferences of the community.

RESZ-O2 Residential activities are the principal use in residential zones.

RESZ-O3 A wide range of housing typologies and densities are provided for to ensure choice for the community and to cater for population growth and changing demographics.

RESZ-O4 Increased residential densities occur in close proximity to activity centres, public transport routes, and public open spaces.

RESZ-O5 Built form is of a high design standard and appearance that responds to and reinforces positive aspects of the local environment.

RESZ-O6 The role, function, and predominant character of the residential zones is not compromised by non-residential activities.

RESZ-O7 Residents have access to a range of community, recreation, education, health, and corrections activities and facilities that support, maintain, and enhance the surrounding residential amenity.

These provisions will guide eventual development of the subject land, however it is noted that the proposed Plan Change provides for residential development in a manner consistent with these objectives.

LLRZ-Overview

The Large Lot Residential Zone is located within township areas in Coalgate, Darfield, Dunsandel, Kirwee, Leeston, Lincoln, Prebbleton, Rolleston, Southbridge, Springfield, Tai Tapu, and West Melton.

The Large Lot Residential Zone provides an opportunity for people to enjoy a spacious living environment while being close to an urban centre. The Large Lot Residential Zone is typically located on the fringe of townships and provides a transition to the surrounding rural area.

These provisions relate to the proposed zoning of the subject land for rural residential purposes, in the proposed plan as notified.

Notably, these provisions:

1. Identify the land as providing for a 'living environment while being close to an urban centre' rather than as a rural environment.



Development, including fencing, will maintain an open and spacious character that contrasts with the built-up areas and rural land. Where portions of the zone are adjacent to or from part of the entrance to a township, development will be managed to ensure that it visually enhances the approach to the township.

LLRZ-O1 The Large Lot Residential Zone provides for residential activity on large sites, in a manner compatible with the retention of an open and spacious peri-urban character at the rural interface.

LLRZ-P1 Provide for a very low density and spacious residential character by:

managing the density of development; and

managing the height, bulk and form of development.

2. Recognises that the land is '*located on the fringe of townships and provides a transition to the surrounding rural area*'.

3. Provide for residential activity (LLRZ-01) and residential character (LLRZ-P1), rather than rural character.

Whilst these provisions clearly anticipate a lower density of development than that proposed by the Plan Change, it is notable that these provisions ultimately recognise the land as residential (rather than rural) which can appropriately integrate with neighbouring urban residential and rural land.

4. Overall, it is acknowledged that the proposal is not consistent with those urban-growth related provisions which seek to limit growth to locations where a HDCA and FDS identify a need for additional feasible development capacity for Rolleston and the land is a 'greenfield priority area', or any subsequent urban growth areas or urban containment boundaries, in the CRPS where it is a residential activity. However, such tension is resolved by the more enabling provisions in the NPS-UD.
5. In all other respects, the proposal achieves consistency (or avoids inconsistency) with the relevant provisions of the proposed plan.