

In The Matter of the Resource Management Act 1991 (“the Act”) And

In The Matter West Melton Plan Change 59 - Wilfield

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### OFFICER COMMENTS OF MURRAY ENGLAND

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#### Introduction

1. My name is **MURRAY RUSSELL ENGLAND**. My qualifications are BE (Environmental) and NZCE (Civil).
2. I am the Asset Manager – Water Services for the Selwyn District Council (“the Council”) and I am authorised to present this statement on its behalf. I have been employed by the Council since March 2009 initially holding the position of Stormwater Engineer and since May 2012 the position of Asset Manager Water Services.
3. I have the responsibility of managing Councils 5 waters which include Potable Water, Wastewater, Stormwater, Land Drainage and Water Races.
4. I have been involved in pre application discussions and providing advice on behalf of Council to the applicant. This has included assessment of the application and the Request for Further Information (RFI) processes.
5. I have read in particular the October 2018 Infrastructure Report by Davie Lovell Smith included in the PC Application and further information supplied through the RFI processes.
6. I have had considered the plan change application in relation to the water supply, wastewater system and stormwater network operated by Council which will be impacted by this plan change. Where appropriate, I have also addressed the relevant

submission points directed to me by the Processing Planner to consider.

### **Water Supply**

7. A number of submissions have raised concerns regarding the capacity of the existing network to accommodate additional demand. Mr Peter Stafford specifically raised concerns over the use of water from the Edendale water supply and had a number of other general questions on water quality.
8. The water supply generally provides on-demand' connections via water meters with the exception of Johnson road being a metered tank supply and a number of properties in West Melton are supplied through a restricted connection (**Refer Appendix 1**).
9. The Greater West Melton Water Supply provides UV treated groundwater to the communities of Edendale, Johnson Road and West Melton. Water is sourced from five bores being M35/17757, M35/17758, M35/10751, BX23/0829 and BX23/0590 (bores M35/3673, M35/5579 and M35/6201).
10. Water take consents (CRC169800, CRC172478, CRC192996 and CRC164009) limit the maximum rate of take to 907,071 cubic metres per year or 1,053,726 cubic metres when CRC192996 irrigation allowance is included. The consents also provide for a combined 7 consecutive day volume of 55,994.
11. Over the four years since 1 July 2016 the largest 12 month water demand was 494,424 cubic metres. Over the same four year period the greatest 7 consecutive day volume was 24,823 cubic metres. The water supply currently utilises around half of the consented allocation and therefore there is consent capacity available for growth.
12. Currently the physical water supply infrastructure (those assets which abstract, treat, store and pump water) are at capacity.

### **Future Growth Demand**

13. In response to the accelerated growth within the Selwyn District, hydraulic models have been used to plan future water infrastructure for a number of water supplies including West Melton.

14. The master planning provides an assessment of the sizing and timing of new infrastructure for new reservoirs, water sources (bores) and pipelines to service growth. Part of the master planning requires a water balance to be developed to forecast growth, using historical peak demand per household. The water balance forecasts the peak instantaneous flow per year versus the water resources available to determine the staging of new bores.
15. West Melton is expected to see growth over the next 30-years and to meet this growth, capacity upgrades are proposed. Currently Council is developing the 2021 – 31 Long Term Plan which includes budget for further upgrades on the West Melton water supply.
16. As identified by the applicant, the West Melton water supply is currently at capacity. The proposed development will provide water via metered and restricted connections. The additional demand was estimated at 7.07 litres per second.
17. The Infrastructure report provides a number of upgrade options to provide for this growth including connection to Edendale (partially complete), connection to the Johnson Road bore (no longer viable as the bore is de-commissioned), redevelopment of the Wilfield bore (complete), construction of a larger reservoir and pipeline upsizing.
18. Details of any upgrades is a matter for the Resource Consent and Engineering approval process. At this stage, the applicant has identified a number of measures which will provide the required additional capacity for this water supply.

### ***Edendale Water Supply***

19. The Edendale water supply upgrade was commissioned in 2017. Prior to the upgrade, water was sourced from a 60m deep bore which supplied water to the reticulated network via a concrete reservoir and pump station. No additional treatment was provided. During summer periods, depleted ground water levels meant that the bore was throttled back to around 6.5 litres per second. The consented average daily volume was 1088 cubic metres which could be reduced to 56 cubic metres during times of water restrictions (Refer CRC010888).

20. Edendale water is now being sourced from a 198m deep bore with an abstraction capacity of 35 litres per second (consented up to 65 litres per second). At the time of the upgrade, UV treatment was also installed. The consented daily volume of the new consent is 1987 cubic metres with this total being expressed as 13,910 cubic metres in any period of 7 consecutive days (Refer CRC172478). The upgrades by Council and consent variations granted have greatly increased the capacity of the Edendale water supply.
21. Due to the extra capacity added and the investment made to the water supply, on the 8 November 2017 Council decided to extend the Edendale water supply area and amalgamate it with adjoining water supplies.
22. The flow of water from the Edendale scheme through to the West Melton water supply is managed by a control valve on Tricketts Road refer **Appendix 2**. The control valve ensures the pressure upstream of the valve remains above a pressure of 500 KPa to ensure LoS targets are met at Edendale, ensures pressure below the valve does not exceed 450 KPa so not to over pressure the West Melton supply and also currently limits the maximum flow rate to 7 l/s.
23. There is a facility to bypass the valve and send water from West Melton to Edendale. However, this would be at a low pressure in emergencies.
24. Council provides nitrate testing results on its webpage which can be located <https://www.selwyn.govt.nz/services/water/water-supplies/water-quality-in-selwyn-district/water-quality-tests-results> In terms of nitrate readings, water quality from the West Melton bores is of higher quality than the Edendale bore.

### ***Fire Fighting Capacity***

25. The West Melton scheme was designed as a domestic supply and complies with the NZ Fire Fighting Code of Practice.
26. The Infrastructure Report accompanying the plan change states that *“The water supply will be designed in accordance with SDC specifications and SNZ PAS 4509:2008 New Zealand Fire Service Firefighting Water Supplies Code of Practice. The fire fighting water supply classification will be FW2”*
27. Council confirms that all new subdivisions are required to be designed and

constructed in accordance with Selwyn District Councils 'Engineering Code of Practice'. Section 7.5.4 – Fire service requirements, provides the following requirement:

*"The water supply reticulation should comply with the Fire Service Code of Practice. In particular, the reticulation must meet the requirements for firefighting flows, residual fire pressure and the spacing of hydrants.*

*Location of hydrants shall comply with SNZ PAS 4509: 2008 with minimum hydrants spacing of 135 metres. Blue RRPM's (cat eyes) shall be installed to offset from the road centreline adjacent to all hydrants. Hydrant Marker posts are to be installed to comply with Section G3.4 of the NZ Fire Service Code of Practice. Hydrant posts are not required in urban areas. The type of hydrant marker required is shown on drawing WS10.0 (see Appendix V).'*

28. In summary, the reticulated water supply for this proposed plan change shall be designed to meet firefighting standards

### **Conclusion**

29. I consider that although additional capacity within the network to service this plan change is not currently available, capacity upgrades are proposed and planned for and therefore future water demand from the proposed plan change can be met
30. It is noted that development contributions are payable for any additional lot developed.

### **Wastewater**

31. The October 2018 Infrastructure Report by Davie Lovell Smith states that the proposed plan change area is to be serviced by Low Pressure Sewer discharging to the existing wastewater pump station on Silver Peaks Drive and then onto the main wastewater pump station at Rossington Drive. I accept the conclusion from the Infrastructure Report that the system has capacity to accept and convey flows from the existing catchment and proposed flows from this plan change to the main Rossington Drive pump station

32. Wastewater from the Rossington Drive pump station is then pumped to Councils gravity manhole located at the intersection of Walkers & Runners Roads and ultimately discharges to the Pines Wastewater Treatment Plant in Rolleston (**refer attachment 3**).
33. The system was designed by then Duffill Watts & King Ltd in 2006-2007. Construction works were undertaken by BG Contracting Ltd, with completion in late 2007. The Operation and Maintenance manual dated May 2008 states that the system was designed and constructed to serve approximately 700 residential properties. The manual describes the system comprising a pump station, Rising Main (approximately 8000m of DN225 PE100 PN10 pipe) and a gravity main (approximately 2000m of DN225 SN8 uPVC pipe).
34. The design of the pump station, pressure main and gravity network was in line with Councils Engineering Code of Practice. Due to low ground water levels and a modern wastewater network, actual flows observed are significantly less than predicted. Currently, approximately 835 wastewater connections exist (700 are actively used). The system is performing better than designed.
35. Initial hydraulic modelling has been completed by Councils consultant WSP (December 2020) and the results indicate that flows are being 'attenuated' within the falling pressure main resulting in the flow rate observed at the end of the pressure main being far less than that which is pumped into the main.
36. More work including pressure monitoring within the pressure main, flow monitoring at the discharge point of main, and further modelling is required before an absolute ultimate capacity of the system can be confirmed.
37. The applicant has provided a number of options to increase the capacity of the network including extending the pressure main directly to the Pines Wastewater Treatment Plant, pump upgrades, and the provision of additional wastewater storage at pump stations.
38. There have been a number of Plan Change applications received by Council for West Melton and Rolleston which have the potential to impact the solution required to meet growth.

39. Details of any upgrades is a matter for the Resource Consent and Engineering approval process. At this stage, the applicant has identified a number of measures which could provide the required additional capacity for the wastewater network.

***Conclusion***

40. There is a viable means to dispose of wastewater for this plan change area.

**Stormwater**

41. It is anticipated by the applicant that stormwater will discharge to ground via sump to soakhole. The discharge of stormwater to ground is appropriate.

42. Resource consent for stormwater discharge from Environment Canterbury will be required before any subdivision consent can be approved.

***Conclusion***

43. There is a viable means to dispose of stormwater for this plan change area. I would recommend that a stormwater consent is obtained from Environment Canterbury prior to resource consent been applied for from Selwyn District Council.

***Overall Conclusion***

44. There are viable means to provide drinking water, to manage wastewater and to discharge stormwater. On this basis, I support proposed Plan Change 59.

**Murray England**

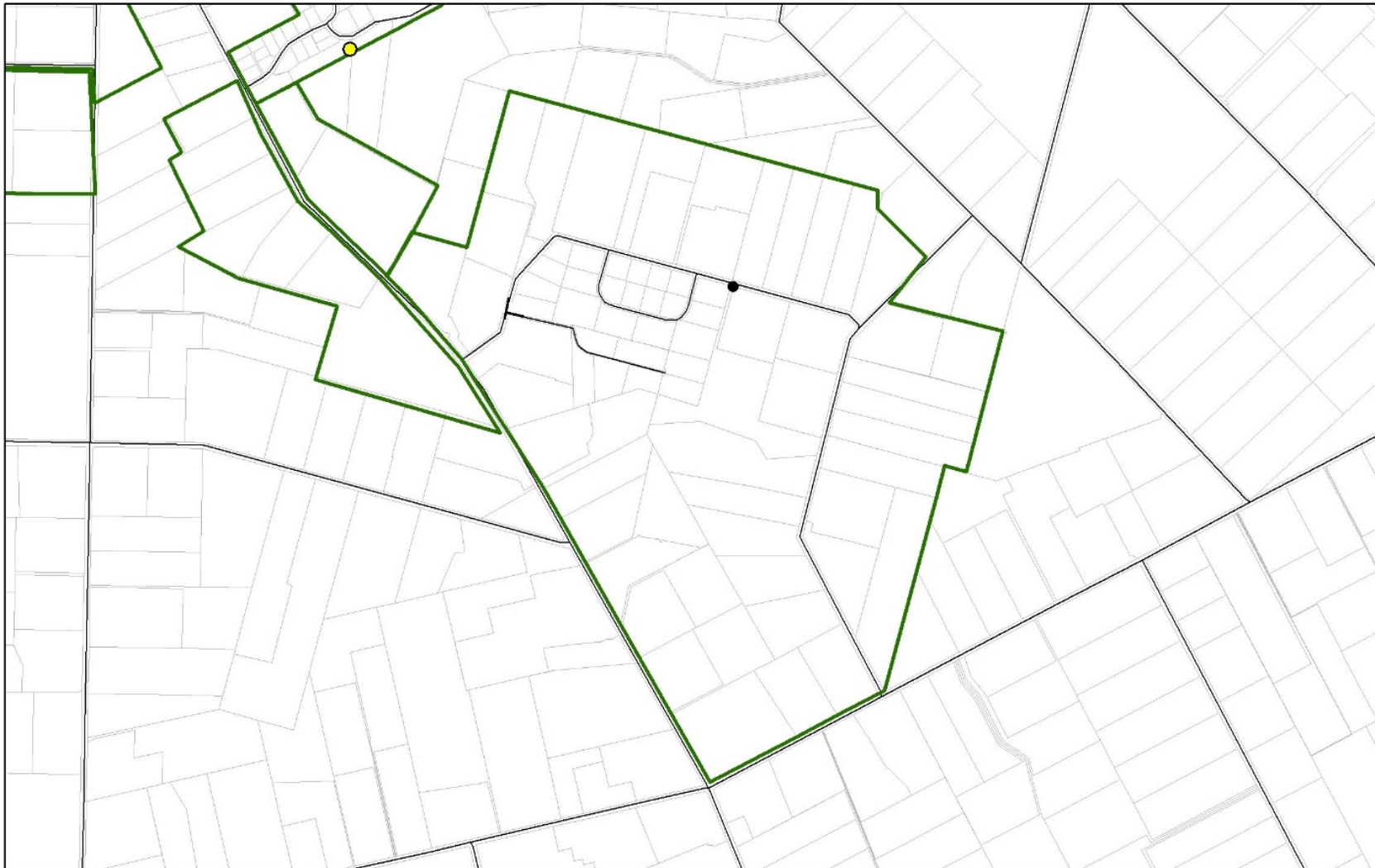
**18 December 2020**

## Appendix 1

### Scheme layout – Water













Date: 9/03/2020

## JOHNSON RD Water Supply

### Legend

- |  |   |
|--|---|
|  Monitoring           |  Water Reservoir       |
|  Water Intake-Gravity |  Water Treatment Plant |
|  Water Pump Station   |  Sample Tap            |

**Appendix 2**  
Tricketts Road Control Valve





**Appendix 3 –**  
**West Melton Wastewater Network**



