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

In The Matter Plan Change 69 – Lincoln

SUMMARY STATEMENT OF MURRAY ENGLAND

Introduction

1. My name is **MURRAY RUSSELL ENGLAND** and I prepared a Statement of Evidence as an officer of Selwyn District Council with respect to Plan Change 69 to the Selwyn District Plan. My qualifications and experience are set out in that statement.

2. I now provide a summary of my evidence, which addresses the water supply, wastewater system and stormwater network operated by Council which might be impacted by this plan change.

Water Supply

3. The Lincoln Water Supply provides secure untreated groundwater to the Lincoln community.

4. Lincoln is expected to see significant growth over the next 30-years. Capacity upgrades are proposed to meet this growth including additional water sources (bores), storage and pipeline infrastructure.

5. I consider that capacity within the reticulated network to service this plan change is available and/or further capacity upgrades are proposed and therefore future water conveyance capacity can be provided to accommodate this request. Vesting of land, within the plan change area, to facilitate capacity upgrades will be required.

6. Priority of consented water allocation needs to be given to those areas already zoned for development within the Lincoln growth boundary. This plan change area is outside of the Lincoln growth boundary and therefore, should the plan change be approved in whole or in part, consented water must be vested in Council.

7. To ensure adequate quantity of consented water remains for areas within Lincoln Growth boundary, it is recommended that consents CRC042703 (subject to Ecan process), CRC001158 and CRC152245 are vested in Council and that this be a

requirement of the plan change.

8. The reticulated water supply for the proposed plan change will need to be designed to meet firefighting standards.

Wastewater

Pines WWTP

9. Wastewater is treated and disposed of at the Pines wastewater treatment plant (the Pines WWTP) in Rolleston. The Pines WWTP is designed to be progressively upgraded to accommodate up to 60,000 person equivalents (PE) of incoming flow, with plans to increase the treatment capacity up to 120,000 PE being prepared ("Pines 120"). The current connected catchment (2021) has a population equivalent of approximately 42,000 - 45,000.

10. The land surrounding the Pines WWTP has 7 centre pivot irrigators currently irrigating an area of 189 ha, with another 50 ha centre pivot irrigator to be installed this year (2021/22) bringing the total to 239 ha. This equates to servicing for more than 95,000 PE, or more than 75,000 PE if the largest irrigator is not in operation.

11. There are long term plans to expand the irrigation area to cover 302 ha. This equates to servicing for more than 120,000 PE, or more than 100,000 PE if the largest irrigator is not in operation. Ultimately, additional areas within the 486 ha of land consented could be developed for land based disposal, while remaining in compliance with the existing Resource Consent conditions.

12. The plan change area can be accommodated within the planned future growth upgrades.

Reverse sensitivity

13. The Lincoln wastewater management pond (Lincoln Pond) is a critical part of the Eastern Selwyn Sewage Scheme (ESSS) network which provides resilience within the system.

14. It is critical that this plan change application does not cause any reverse sensitivity issues which would obstruct the future consenting and operation or lead to an increase in odour or other complaints relating to the Lincoln Pond. If reverse sensitivity issues (including complaints) result in obstructing the future Lincoln Pond

consenting and operation, then there will be insufficient wastewater storage capacity to provide for the growth sought to be enabled by the proposed plan change and emergency storage in the event of infrastructure failure within the ESSS network.

15. Should the plan change be approved, I consider there should be measures put in place to avoid reverse sensitivity issues arising from sensitive activities (including residential activities) establishing. I consider that one way this could be achieved is though the imposition of a setback area, consistent with the existing rule in the Operative District Plan, within the plan change area preventing sensitive activities from establishing.

16. Reading the statement of evidence from Ms Nieuwenhuijsen there were a number of inaccuracies identified in the applicant's assumptions. I note that there wasn't an opportunity to discuss the operation of the Lincoln Pond during the evidence preparation period. The inaccuracies include:

    - Inaccuracies in the future flows predicted from the WSP wastewater model,
    - The assumption of infrequent use of the ponds

    Further information has been gathered to resolve these inaccurate assumptions and are attached to this statement.

17. I have read the summary of evidence from Mr Phillips. At paragraph 7.7 Mr Phillips states that '*with the new information received this week, the assumed use of the LSTP site (and therefore its potential odour effects) may have been underestimated*.' He goes on to say that *'in the event that doubt remains… I accept that a precautionary approach would warrant retention of the 150m setback.'*

18. The applicant has amended their proposal requiring dwellings to be setback 100m from the edge of the treatment pond and any residential allotments within 150m of the pond edge to be subject to a no complaints covenant in favour of the Council in relation to the operations of the Lincoln Sewage pond.

19. Mr Bender in his summary of evidence considers *a '100 metre setback will be sufficient to avoid nuisance levels of odour on future land uses and thereby avoid reverse sensitivity effects on the LWTP'*.

20. I am satisfied that this amendment to the proposal adequately addresses reverse sensitivity issues.

Wastewater Conveyance

21. The Lincoln Wastewater system is designed to convey flows to a terminal wastewater pump station in Allendale Lane (the Allendale Lane PS). From this location, wastewater is pumped to the Selwyn Road Pump Station in Rolleston and on to the Pines Wastewater Treatment plant.

22. The Allendale Lane PS has been designed to pump up to 165 l/s via the existing pressure main. The sequential batch reactor (SBR) tanks and the Lincoln Pond constructed prior to the establishment of the pump station have been modified to act as peak wet weather flow buffering in the ultimate design configuration.

23. The existing Lincoln Wastewater ponds also act as an integral part of the wider ESSS network allowing emergency storage in the event of outages and temporary diversion of flows.

24. There is limited capacity within the existing Lincoln wastewater pipe network to accommodate the proposed flows from the PC 69 catchment. As such, direct connection to the Allendale Land PS would be required for the ultimate development.

Stormwater

Treatment and Management

25. It is anticipated by the applicant that stormwater will be managed within Stormwater Management Areas (SMA) with the design of these areas following the process laid out in the Waterways Wetlands and Drainage Guide WWDG.

26. The amended ODP provides for a 'Stormwater Management Area' and a 'Stormwater Wetland / Reserve' and removes the proposed Living X Zone. I am comfortable that the stormwater management process proposed by the applicant is now appropriate for the site.

27. 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 being applied for from Selwyn District Council.

Potential road access way through Councils utility reserve

28. The applicate has amended their proposal to include a road link through LOT 1000 DP 535301 Local Purpose (Utilities) Reserve to Kaitorete Drive.

29. On the provision that an equivalent offset storage volume is provide, and linked to the stormwater system the storage was borrowed, I am satisfied that no adverse effects on stormwater management will occur from this update.

Murray England

25 November 2021

From: Mills, Charlotte [mailto:charlotte.mills@wsp.com]
Sent: Friday, 19 November 2021 4:30 PM
To: Murray England <Murray.England@selwyn.govt.nz>
Cc: Harrison, Sue <sue.harrison@wsp.com>
Subject: RE: Lincoln Growth

Hi Murray,

As directed we have completed the following:

- In the base model high user wastewater discharges in Lincoln were updated to match the new population equivalent numbers provided by SDC
- We created a growth scenario and the ultimate planned population was added to the Lincoln system. The impact of this on the Allendale PS operation was assessed.
- Then in another scenario the potential development at Lincoln South was then added to the new growth model and the impact assessed.

Assumptions used

- To conservatively represent flow conditions the highest observed rate of groundwater ingress to the wastewater collection system was assumed. This high groundwater was observed in June 2014, affecting the communities of Prebbleton, Lincoln and Springston and was applied in the model as a constant baseflow.
- The model has been run with 1 in 5-year ARI 12-hour design event to replicate wet weather flow (WWF), as this was previously determined to be the critical storm duration for the ESSS system. To truly understand the impact of rainfall, a variety of rainfall events would need to be considered. However, there are many variables to consider, including but not limited to, the annual exceedance probability (AEP), intensity, duration and timing of the event (in relation to flows in the wastewater system). Comprehensive modelling of a variety of design rainfall events has not been conducted as part of this query.
- Consumption of 220 L/h/day (SDC's Engineering Code of Practice);
- The peak to average flow rate for dry weather is 2.5 (SDC's Engineering Code of Practice);
- The peaking factor for wet weather is 2 (SDC's Engineering Code of Practice
- 2.7 PE/house (SDC's Engineering Code of Practice)
- For the high users we updated their dry weather flow (DWF) to match design values but left the wet weather flow (WWF) response as per the original calibration. This results in the peak WWF from these areas being higher than the design values.
- The growth population that was added to the model was calculated by multiplying the ultimate property number (4,496) by 2.7 and then subtracted the existing model population, which resulted in the growth population of 3610. The calculated design flows are ADWF= 9.2 L/s and PWWF = 45.9 L/s This subcatchment was loaded directly to the Allendale pump station.
- Flows for the Lincoln South development were taken from our previous memo (ADWF= 13.75 L/s and PWWF = 68.75 L/s). This subcatchment was also loaded directly to the Allendale pump station. The PWWF has been added as a constant flow to the model and therefore conservatively represents the volume of wastewater loaded to the network from this development.

Results
The predicted overflow volume from the Allendale pump station to storage is presented in the table below

Scenario	Overflow volume to storage (m^3)
Growth DWF	0
Growth WWF	117
Growth plus Lincoln South DWF	0
Growth plus Lincoln South WWF	1230

Give me a call if you have any questions.

Regards

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Principal Engineer

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Allendale PS Site Records
(record of pond being used)

Date	Sign in	Sign out	Comment	m^3 Discharged	Reason for discharge
4/03/2020	11:55	12:15	Turn off flumes - flow into pond	**29**	Allendale pump failure
7/05/2020	7:30	7:45	Open Valve to pond & turn off flumes		
7/05/2020		16:00	Divert stopped	**316**	Odour prevention
10/06/2020	8:30	8:35	Divert flow into pond		
10/06/2020	2:00	2:30	Put flow back to P/S	272.5	Odour prevention
29/06/2020	8:45	9:00	Divert flow into Pond		
29/06/2020		16:30	Divert stopped	**858**	Rainfall event, high flows
8/11/2020	11:30	11:40	Close valve - Open pond		
9/11/2020	9:30	10:15	Close Pond	1566	Rainfall event, high flows
8/03/2021	15:00	15:30	Divert flow into pond	2	Valve Testing
15/04/2021	5:00	5:15	Put flow into pond		
16/04/2021	10:00	10:30	Put flow back to normal	**472**	Odour prevention
31/05/2021	17:50	18:10	Open Valves to pond		
1/06/2021	16:10	16:30	Closed valves into pond	**2448**	Flood event
2/06/2021	11:30	11:40	Put flow into pond		
8/06/2021	2:00	2:15	Put flow back to P/S	5120	WWTP - Process recovery
9/09/2021	10:40	10:55	Divert LLD into pond		
10/09/2021	9:25	9:40	Open valve to p/s & closed to pond	968.4	Emergency repair breakdown
19/10/2021	11:00	11:45	Open valve to pond + collect sample P/S		
21/10/2021	7:07	7:15	Close valve to pond	1954.5	High trade waste loading