BEFORE AN INDEPENDENT HEARINGS COMMISSIONER
ON BEHALF OF SELWYN DISTRICT COUNCIL

UNDER	the Resource Management Act 1991
IN THE MATTER	a request by Hughes Development Limited for a private plan change to the Selwyn District Plan to rezone 163 Halkett Road and 1066 West Coast Road in West Melton for the development of approximately 124 lots
AND	**Hughes Development Limited** (Applicant)

EVIDENCE OF JAMIE MICHAEL VERSTAPPEN ON BEHALF OF HUGHES DEVELOPMENTS LIMITED

Infrastructure

13th March 2023

Counsel acting:
I M Gordon Barrister
Stout Street Chambers PO Box 117
Wellington
P: 04 4729026
Email: ian.gordon@stoutstreet.co.nz

Introduction

1. My name is Jamie Michael Verstappen. I am a Director and Civil Engineer at Davie Lovell-Smith Ltd.

2. I hold a Bachelor of Civil Engineering from Canterbury University (BE (Civil) Hons). I am a chartered member of Engineering New Zealand (CMEngNZ) and a Chartered Professional Engineer (CPEng).

3. I have 12 years' experience in the civil engineering field and 9 years' experience in land development in Canterbury.

4. I was engaged by Hughes Developments Limited (**HDL**) to assist with its private plan change request to the Operative Selwyn District Plan (**Operative Plan**) to enable residential development on the subject site, being 163 Halkett Road and 1066 West Coast Road,[1] West Melton (the **Site**) (**PC74**). My assessment of the servicing requirements for the proposal was provided with PC74.

Scope of evidence

5. My evidence is presented on behalf of HDL. It summarises the findings of my servicing assessment and addresses water supply, wastewater and stormwater servicing matters raised in the s42A Report and the Officer Comments of Mr Shane Bishop.

6. It is particularly noted that Mr Bishop has addressed the servicing of the Site for water supply, wastewater and stormwater and has included information on the provision of recent servicing upgrades in the vicinity of the Site along with recent investigations into the performance of these services. These upgrades and investigations have been undertaken since my initial infrastructure assessment however I note Mr Bishop supports the viability of the proposal in utilising these services.

7. In preparing my evidence, I have reviewed:

    a) PC74 and its supported technical documents;

    b) The relevant submissions on PC74;

[1] Legally described as Lots 1 and 2 DP 34902.

c) The Section 42a Report prepared by Mr Craig Friedel;

d) The Officer Comments of Mr Shane Bishop on behalf of Selwyn District Council (**SDC**).

Code of conduct

8. I have read the Environment Court's Code of Conduct for Expert Witnesses, contained in Part 9 of the Environment Court Te Kōti Taiao o Aotearoa Practice Note 2023, and agree to comply with it. My qualifications as an expert are set out above. Other than where I state that I am relying on the advice of another person, I confirm that the issues addressed in this statement of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Executive summary

9. The proposal for the servicing of the Site for water supply, wastewater and stormwater are all considered viable.

10. This is also the opinion held by Mr Bishop in his evidence which concludes, *'There are viable means to provide drinking water, to manage wastewater and to discharge stormwater'*[2]. On this basis I support PC74.

11. With specific regards to each aspect of servicing:

a) Water Supply

- The additional average water demand for this proposal is 5.8 l/s and peak water demand 23.6 l/s.
- There is currently enough consented water take capacity to cater for the subject site, however upgrades of the water supply network are required to ensure the Site and surrounding developed area remain adequately serviced.
- Such upgrades to the water supply network are already planned to cater for additional growth within the greater West Melton area. Land has been set aside within the Site to

[2] Page 8, Paragraph 46.

accommodate such upgrades, in particular a new water supply reservoir and treatment facility.

b) Wastewater

- The additional average wastewater demand for this proposal is 0.85 l/s and peak wastewater demand 3.41 l/s.
- There is sufficient additional capacity available within the current pumping and discharge arrangement to cater for growth within the West Melton network.
- Additional capacity can be provided to the downstream network and treatment facility.

c) Stormwater

- Due to the local soil conditions and depth to groundwater, the favoured method of stormwater disposal is discharged to ground.
- Details regarding this discharge will be subject to Environment Canterbury (**ECan**) consent requirements. This is consistent with all stormwater discharges within the surrounding developed areas.

d) Flood Hazard

- The flood hazard presented by the 1 in 200 and 1 in 500 year flood events can be mitigated through re-contouring of the Site and the provision of flood flow paths along roads and reserves.

The Proposal

12. The proposal is to create approximately 124 residential lots including associated roads, reserves and a utility lot. Lot sizes are likely to range from approximately 600m^2 to 2,000m^2.

Water supply

13. SDC has existing water supply reticulation in the West Melton Area, supplied by a number of groundwater extraction wells.

14. There is currently enough consented water take capacity to cater for the Proposal however some upgrades to infrastructure will be required.

15. This proposal provides for approximately 124 new lots which would be provided with connections to the local water supply network. This amounts to an additional peak water supply demand of 23.4 l/s using the methods prescribed in the SDC's Engineering Code of Practice and an average daily demand of 5.8 l/s based on 4,000 l/lot/day.

16. It is recognised that the current West Melton Water Supply network has recently been upgraded to provide additional capacity for growth. These upgrades included a connection to the Edendale water supply and redevelopment of the Wilfield bore.

17. In addition to the recently completed upgrades, SDC intend on acquiring land from within the Site to construct a larger reservoir facility and treatment plant. The reservoir is likely to be between 1200m^3 and 2000m^3. The upgraded reservoir will provide additional support to the local water supply network by maintaining supply pressure and providing security of supply during periods of peak usage.

18. The site for the new reservoir facility will be located adjacent to the current facility at the southwestern boundary of the Site. Consultation with Council regarding the eventual layout of the facility has been undertaken and site boundaries have been agreed. SDC and HDL are currently in the process of compiling information to support the purchase of the land.

19. One key driver for the construction of a new water reservoir facility is to reduce the risk of contaminants entering the local water supply from adjacent wastewater infrastructure by providing a larger separation distance between the reservoir and pump station. The proposed provision of land within the Site for these upgrades will help to ensure an ongoing safe supply for local water users.

20. SDC have indicated that no further bores are required to meet water demand which would be required by this rezoning. However, sufficient space will be provided within the new reservoir site to allow for the installation of a bore to meet future demand within the West

Melton Network.

21. Water within the Site will be supplied by a reticulated pipe system located within the road berms. This would be linked at all available locations into the existing system surrounding the proposed development area. Modelling will be undertaken during detailed design to ensure the pipe network has the capacity to meet firefighting demand as required by the SDC Engineering Code of Practice and SNZ PAS 4509:2008 New Zealand Fire Service Firefighting Water Supplies Code of Practice.

22. In summary, I am satisfied that the recently completed and ongoing upgrades to the West Melton water supply network will ensure that there is sufficient water capacity to meet the demands of the development enabled under PC74.

23. This opinion is shared by Mr Bishop on behalf of SDC who states in his report: '*I consider that although additional capacity within the network to fully service this and other plan changes currently submitted is not currently available, capacity upgrades are proposed and planned for and therefore future water demand from the proposed plan change can be met.*' [3]

Wastewater

24. It is intended that all new lots within the Site will discharge to the existing SDC pump station located at Rossington Drive, West Melton.

25. Approximately half of the Site will be able to discharge directly to the existing pipe network via gravity. The remainder of the Site will need to be pumped to the gravity network; either through the use of a low-pressure sewer system or a small pump station located within the Site.

26. The proposal provides for approximately 124 lots which would generate an average wastewater flow rate of 0.84 l/s and a peak wastewater flow rate of 3.38 l/s.

27. Based on recent operational data received from SDC on the 27th January 2023, the Rossington Drive Pump Station currently has the capacity to pump at a flow rate of 46 l/s. Using the calculation

[3] Page 5, Paragraph 26.

methods prescribed in the SDC's Engineering Code of Practice, this equates to capacity for 1338 connections at peak flow, after allowing for 20% pump degradation over time.

28. Currently, there are approximately 830 existing connections to this pump station. This allows for an additional 508 lots to be accommodated under the current pumping arrangement.

29. SDC have recently undertaken an investigation into how the actual flow rates compare with the design flow rates for the existing West Melton network.

30. In his report, Mr Bishop states that '*Due to low ground water levels and a modern wastewater network, actual flows observed are significantly less than predicted.*' He also states that '*The system is performing better than designed.*'[4] Further modelling will confirm the extent of additional capacity which may be available.

31. With any increase in loading to the Rossington Drive pump station, emergency storage of wastewater becomes a greater issue to consider. SDC have indicated emergency storage of 8 hours of average wastewater flow would be suitable for the West Melton network. Allowing for future expansion of the network to a potential 1,338 lots, this equates to a storage requirement of 265m^3. This storage can be provided by underground tanks located within the Site within a utility reserve. This utility site and storage volumes will be confirmed at the time of subdivision. It is expected the installation of this storage would be completed under a cost share agreement between HDL and SDC.

32. Wastewater from the Rossington Drive pump station is pumped through a rising main to Rolleston where it outfalls to a gravity sewer network at Walkers Road. Should the capacity of this gravity network be exceeded in future, the rising main could be extended to discharge directly to the Pine Wastewater Treatment Plant.

33. I understand through discussions with SDC that the Pines Wastewater Treatment Plant is being progressively upgraded to increase treatment capacity. These upgrades are undertaken as required to ensure capacity is available for further development within the

[4] Page 5, Paragraph 30.

district.

34. In summary, the West Melton wastewater system currently has capacity to accommodate the flow generated from proposed residential development of the Site. Options are available for increasing capacity at the outfall and continuing upgrades of the Pines Wastewater Treatment Plant will ensure treatment capacity is available. I agree with Mr Bishop's conclusion that '*There is a viable means to treat and dispose of wastewater for this plan change area.*'[5]

Stormwater

35. The favoured mechanism for stormwater disposal in the West Melton area is discharge to ground due to the permeability of underlying soils and the depth to groundwater of approximately 21 - 24m, as detailed in the Geotechnical Investigations for the Site dated June 2017 and July 2018 and attached to the Plan Change application. This is the approach adopted for the surrounding developed areas.

36. Stormwater generated from the proposal can be discharged to ground within the Site boundaries.

37. Consent for this discharge to ground will be sought by HDL from ECan. It is expected any consent granted for stormwater discharge to ground will be transferred to SDC following the nominated defects liability period.

38. Several options are available to treat stormwater prior to discharge should this be required. These are treatment swales, treatment basins, and proprietary treatment devices. The favoured mechanism is treatment swales due to their simple function and low ongoing maintenance cost. Details around stormwater treatment will be confirmed during the resource consenting process for the Site.

39. Given the potential for a water supply bore to be installed within the utility lot located at the southwestern corner of the Site, the discharge of stormwater to ground within 100m of the utility lot will be prohibited to mitigate the risk of water supply contamination due to stormwater discharge.

[5] Page 7, Paragraph 41.

40. In his Officer Comment, Mr Bishop concludes '*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.*'[6] I agree with this conclusion and consenting approach.

Flood Hazard

41. It is noted that the Site, in its current landform, could be affected by flooding of up to 1.5m depth in the 1 in 200-year and 1 in 500-year events as detailed in the application.[7]

42. This flood hazard within the Site can be fully mitigated through contouring of new lots and providing flow paths along roads and reserves to efficiently transfer flood water across the site towards the east.

43. The installation of formal stormwater disposal facilities, associated with the proposal, will reduce the flood hazard risk for properties downstream of the site.

44. The low density residential development that is proposed along with the implementation of rainwater harvesting tanks[8] within the sites will provide further assistance in reducing runoff flow rates and providing a means of attenuation for large storm events.

45. Detailed design of levels and gradients across the site will ensure the minimum clearance from flood water levels detailed in the SDC Engineering Code of Practice are achieved.

46. The installation of stormwater soakage facilities through development of the Site will reduce the flood hazard potential for properties located down contour to the east by providing a means of disposal for a large portion of the 1 in 200-year rainfall event.

Response to residual matters raised by submitters

47. I have reviewed the relevant submissions in respect of the Proposal,

---

[6] Page 8, Paragraph 45.
[7] Appendix C – Infrastructure Report, Appendix D
[8] As referred to in the ODP

and have grouped the matters raised into the following categories:

(a) There are 20 submissions regarding the ability of the local water supply network to provide adequate water supply to the Site without having a negative impact on the surrounding network users, in particular regarding water pressure.[9] Rather than exacerbate water supply issues, the installation of a future water reservoir facility (to be undertaken by SDC) will improve the quality and level of supply pressure during times of peak water usage. This is reiterated in the Officer report of Mr Bishop.

(b) There are 6 submissions regarding the impact the proposal may have on groundwater levels and the continued function of surrounding water supply bores.[10] There is currently enough consented water take and groundwater extraction capacity to service the Site without additional water takes. This is reiterated in the Officer report of Mr Bishop. As part of this development HDL will not be installing additional water supply bores.

(c) There are 9 submissions regarding the capacity of the local wastewater network and its ability to cater for the proposal.[11] Recent investigation undertaken by Council has shown the existing West Melton wastewater network has capacity to accommodate wastewater flow generated by this proposal. This is reiterated in the Officer report of Mr Bishop.

(d) There is 1 submission regarding the potential for odour nuisance from both low pressure wastewater pumps and

---

9 S Ellis (PC74-0002.001), B & H Wightwick (PC74-0007.002), M French (PC74-0011.001), P Archbold (PC74-0014.002), W & A Owens (PC74-0018.006), E Yeatman (PC74-0021.003), L Rastrick (PC74-0023.001), F Bayly (PC74-0024.006), T Standfield (PC74-0025.012), WMDRA (PC74-0026.011), M & F Hamilton-Manns (PC74-0028.003), C Fraser (PC74-0033.009), P Wyber (PC74-0045.001), K & K Land (PC74-0046.001), K & J Dawson (PC74-0049.002), F Gallagher (PC74-0050.004), D & F Amberger (PC74-0054.003), N Williams (PC74-0057.012), J Gallagher (PC74-0062.005), K & P Bowman (PC74-0063.013).

10 C McLaughlan (PC74-0015.015), M & F Hamilton-Manns (PC74-0028.003), I Sin (PC74-0034.008), Ariki Seed Ltd (PC74-0038.006), P Wyber (PC74-0045.001), T Cochrane & Ors (PC74-0047.009).

11 B & H Wightwick (PC74-0007.002), P Archbold (PC74-0014.003), W & A Owens (PC74-0018.006), E Yeatman (PC74-0021.003), L Rastrick (PC74-0023.001), F Bayly(PC74-0024.006), K & K Land (PC74-0046.003), D & F Amberger (PC74-0054.004), K & P Bowman (PC74-0063.015).

vested wastewater pump stations.[12] Low pressure wastewater pumping units are manufactured to ensure adequate aeration of wastewater prior to discharge into the vested pipe network, this will ensure odour nuisance is minimised. Any vested wastewater pump station will be fitted with appropriate odour control measures.

(e) There are 4 submissions regarding the proposed storage of wastewater, with concerns raised regarding odour control, noise and groundwater contamination.[13] The emergency wastewater storage proposed will be through the use of sealed underground tanks. Implementation of correct construction methods and quality assurance testing will ensure any risk of leakage and subsequent contamination of groundwater is very low. The storage tanks will be fitted with appropriate odour control. There is no noise nuisance associated with underground wastewater storage.

(f) There are 2 submissions regarding the function of existing stormwater swales and basins within the Gainsborough development.[14] The Site will not discharge any stormwater into the Gainsborough development.

(g) There is 1 submission regarding the area of stormwater swales within the proposal and the potential for flooding.[15] It is proposed to locate all stormwater swales within the road corridor. The primary function of stormwater swales is to provide treatment prior to discharge into ground via soakpits. The design of soakpits and flood flow paths through the development will ensure lots are not subject to flooding.

Conclusion

48. In my opinion, all matters regarding servicing the Site for water supply, wastewater, stormwater and flood management have been appropriately investigated and there are viable means for these services to be provided to support the rezoning of the Site.

12 C & J Hey (PC74-0035.006).

13 S Haughin (PC74-0008.004), M & F Hamilton-Manns (PC74-0028.007), S Laing (PC74-0040.007), N Clement (PC74-0067.014).

14 M & F Hamilton-Manns (PC74-0028.007), S Laing (PC74-0040.002).

15 N Williams (PC74-0057.017).

49. Following discussions with both HDL and SDC, I consider that the local water supply and wastewater infrastructure can support the proposed rezoning through the provision of a number of upgrades to the existing SDC infrastructure. SDC agree that this is the case and planning for these upgrades is in process.

Jamie Michael Verstappen
13 March 2023