

**BEFORE THE SELWYN DISTRICT COUNCIL**

**UNDER**

the Resource Management Act 1991

**IN THE MATTER**

of Proposed Plan Change 68: West Prebbleton

**REQUESTOR**

Urban Holdings Ltd, Suburban Estates Ltd and  
Cairnbrae Developments Ltd

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**STATEMENT OF EVIDENCE OF ANDREW JAMES EMIL HALL**

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**Christchurch**

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A handwritten signature in dark ink that reads "Anthony Harper". The signature is written in a cursive, flowing style.

## **1 INTRODUCTION**

- 1.1 My full name is Andrew James Emil Hall. I am a Chartered Professional Engineer and a director of Davie Lovell-Smith Ltd, an engineering firm based in Christchurch.
- 1.2 I hold a Bachelor of Surveying from Otago University and a Bachelor of Engineering (Honours 1<sup>st</sup> Class) from Coventry University (UK). I am also a member of New Zealand Institute of Surveyors (NZIS) and the Institute of Professional Engineers (IPENZ). I am a Chartered Engineer.
- 1.3 My area of expertise is consulting in civil engineering related to the development of land. I have 30 years' experience in this field including 20 years' experience in the greater Christchurch area.
- 1.4 I am currently involved as a consultant in the development of over 6000 residential sites in Canterbury and over 200ha of industrial land.
- 1.5 I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court Practice Note 2014. I confirm that I have considered all material facts that I am aware of that might alter or detract from the opinions I express, and that this evidence is within my area of expertise, except where I state that I am relying on evidence of another person.
- 1.6 In preparing my evidence, I have consulted with Mr Murray England, representing the Selwyn District Council.

## **2 SCOPE OF EVIDENCE**

- 2.1 The purpose of this evidence is to provide an outline of how water supply, stormwater, and wastewater will be managed as part of the applicants land becoming a residential zone.
  - 2.2 My evidence addresses the following:
    - (a) Strategic planning of wastewater infrastructure in the area
    - (b) Strategic planning of water supply infrastructure in the area
    - (c) Proposed stormwater management strategy;
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### 3 SUMMARY

3.1 Consultation has been carried out with Council Officer Mr Murray England, and this evidence is in compliance with his advice. Mr England and myself are in agreement as to how the proposal can be successfully serviced.

3.2 The PC68 site is directly adjacent to the urban edge of Prebbleton.

3.3 **Stormwater.** The site is underlain with deep gravels suitable for direct soakage of stormwater to ground. Groundwater levels on this site fluctuate and are approximately 5-10m below ground level. This site is able to meet Regional Council discharge standards. This type of disposal is not always available in Prebbleton as the depth to groundwater reduces on land closer to the Halswell River. There will therefore be no need to construct Stormwater Basins within the PC68 area. Stormwater will not inhibit the potential for this land to be developed.

3.4 **Wastewater.** A new pump station is to be constructed at the lower eastern end of the Plan Change area. This pump station will receive wastewater from a catchment that includes the PC68 area. The wastewater will be pumped to the Prebbleton Wastewater Pumping Station and then on to the Pines Wastewater Treatment Plant. The Prebbleton Pump Station has a limited capacity that can be improved with some minor upgrades and changes to the existing rising sewer. The proposed pump station can be provided with additional emergency storage to buffer peak flows or add additional catchment areas adjacent to the Plan Change Area. The Plan Change site does not have a high groundwater level and as such, there will be minimal ingress of water into the system. Following implementation of some changes to the existing system, wastewater capacity should not inhibit the potential for this land to be developed.

3.5 **Water Supply.** The Selwyn District Council has a strategy for the supply of potable water to the area of this Plan Change Proposal. Should Selwyn District Council require a new well within the PC68 area, then that can be accommodated. Any well within the Plan Change area can be transferred to Council upon development. Water Supply will not inhibit the potential for this land to be developed.

### 3.6 SERVICING

3.7 This section of my evidence addresses the servicing of the Plan Change 68 site for water supply, wastewater, stormwater, power and telecommunications.

3.8 The land is directly adjacent to the Prebbleton Urban Edge and the land is suitable for development being geotechnically sound, well above groundwater, adjacent to main traffic routes, and able to be fully serviced.

3.9 Following consultation with Selwyn District Council, it appears that there is agreement as to how the site may be incorporated into the existing infrastructure.

### **Stormwater**

- 3.10 There is no formal District Council stormwater reticulation in the area to service this site.
- 3.11 Geotechnical testing and investigations have been carried out in the area and these show that the underlying soils are conducive to good soakage conditions. The PC68 area is underlain with deep gravels and the groundwater level is at a depth of approximately 5-10m. It is intended that stormwater will be infiltrated to ground as is normal in the western side of Prebbleton.
- 3.12 The discharge of stormwater from a reticulated system to ground requires a discharge consent from Environment Canterbury. It is expected that with the groundwater some 5-10m deep that this discharge will satisfy the requirement to protect groundwater quality. As part of this process discharge consent conditions from Ecan will be agreed in a coordinated fashion with the District Council. This to ensure that the District Councils maintenance regimes are upheld. Once the works are complete, the Consent will be transferred to Council.
- 3.13 Roof water on individual properties will be dealt with on site up to the 1 in 10-year storm event as per the New Zealand Building Code.
- 3.14 Flows from public roading will be collected in sumps with a trapped gross pollutant trap of greater than 60litres. Flows will then be piped directly to roadside soakholes.
- 3.15 The stormwater facilities will be designed in association with soakage structures, to contain up to a 1 in 50-year event. This will include the full flow from the roading plus the overflow from house sites where the soakholes are only designed to contain the 1 in 10-year, 1 hour event.
- 3.16 Should an event exceed the stormwater facilities capacity, then the flows will be directed to safe overland flowpaths agreed in consultation with the Local Authorities but generally along the street network.
- 3.17 The stormwater design will comply with the requirements of Selwyn District Council's Standards.
- 3.18 It should be noted that this method of disposal ensures that there is no need for stormwater basins or other large-scale facilities. This is a notable benefit to Council as the maintenance costs for this proposal as opposed to basins is significantly reduced.
- 3.19 There will also be a discharge consent required from Environment Canterbury for the stormwater runoff during construction. It is expected that the construction runoff will be dealt with on a small scale with each individual development stage or each building site dealing with their own stormwater. It is my expectation that consent will be obtained utilising a basic and accepted methodology based on the Environment Canterbury, Erosion and Sediment Control Guidelines. Following this, each stage of construction will need to compile a Sediment Control Management Plan and present it to the Local Authorities prior to works commencing.

## Wastewater

- 3.20 The Selwyn District Council are progressively working towards a single, integrated wastewater treatment plan that will service the majority of the population in Selwyn. This treatment plant is called the Pines and is located west of Rolleston. It currently receives wastewater from Lincoln, Prebbleton, Springston, West Melton and Rolleston. This is collectively called the Eastern Selwyn Sewage Scheme. This is soon to be expanded to include Kirwee, Darfield and perhaps Leeston and Southbridge. It is also proposed to expand the Pines Treatment Plant to accommodate general growth in the district. Quoting the Selwyn LTP 2021 -2031 Pines 120K

*The Rolleston Pines Wastewater Treatment Plant has been designed so that it can be upgraded in stages to match population growth. The current plant has the capacity to treat wastewater for up to 60,000 people. A masterplan has been developed for the treatment plant to expand the maximum treatment capacity to 120,000 people. The cost will be around \$100 million and will be funded largely by development contributions.*

- 3.21 I have consulted with Council Officer Mr Murray England as to the existing capacity at the Pines to accommodate PC68. He has confirmed that capacity currently exists and that part of that spare capacity could be allocated to PC68. Full capacity would certainly be available following the planned upgrades at the Pines.
- 3.22 It is proposed that a new pump station will be installed on the lower end of the Plan Change area. A new rising main from the pump station will be laid to the existing Prebbleton Pump station as there is not currently capacity for the additional flows in the existing gravity network on Trents Road.
- 3.23 The existing Prebbleton Pump Station has a limitation to its capacity. The limitation is derived from surge, pipe degradation and hydraulic capacity. Part of this limitation can be improved quite simply by removing one of the smaller existing pumps and replacing it with a larger one. An additional limitation exists in the rising sewer. Generally, the rising sewer to Rolleston has a diameter of DN400mm, however, the initial section of pipe between the Pump Station and the corner of Springs Road and Hamptons Road is only DN355mm. Upgrading this pipe to 400mm would create additional flow capacity of around 4l/s for the same headloss.
- 3.24 It is also planned to shorten the existing rising main by approximately 1.1km and have it connect to the new pump station on the eastern side of Rolleston for on-pumping to the Pines. This reduction in length will improve capacity by a further 6l/s for the same headloss.
- 3.25 In addition to these infrastructure upgrades, the applicant would also be able to provide some storage with the proposed pump station to attenuate flows running into the Prebbleton Pump Station. This will allow flows from the Plan Change site to be pumped to the Pines during off-peak times if required.

- 3.26 It should also be recognised that this proposed Plan Change area is on the dryer western side of Prebbleton. The pipework will not be laid in groundwater. This reduces the amount of ingress of water into the piped system and associated safety factors can be reduced, allowing for a lesser design flow per house. This is a cost saving to Council as pumping and treatment costs are proportionally reduced. The design flows may be able to be reduced by over 25%.
- 3.27 Potentially, if the lack of ingress and the buffer storage are both considered, then there is a case for additional land on the periphery of the application area to be included.
- 3.28 It is expected that the Prebbleton Pump Station can operate at a flow of 142l/s once upgrades are attended to. I believe that the flows from the proposed Plan Change 68 area can be accommodated safely within this limit and can be further augmented with onsite storage.
- 3.29 All future homes and businesses within the PC68 area will be serviced with a gravity sewer connection to the boundary in accordance with Selwyn District Council Standards.
- 3.30 The applicant is willing to work with the District Council to facilitate the construction of the key wastewater infrastructure upgrades by way of a Private Developer Agreement or some other similar instrument. This type of arrangement allows the developer to progress works, but in a joint arrangement with the Council so that all of the Councils strategic requirements are met and the wastewater catchment is fully serviced. The extra/over costs of the key wastewater infrastructure, above that required by the developer, is paid back to the developer by the Council at the time of 224c certification. Alternatively, the Council may wish to construct the infrastructure upgrades, or portions of it, and recover the cost through Development Contributions. This will require the particular works being included in the Council's Long-Term Plan.
- 3.31 Both Council and the applicant are in full agreement as to the provision of wastewater services to the PC68 area.

### **Water Supply**

- 3.32 The water supply in Prebbleton is provided by a network of bores and a pumped pipe network. Prebbleton is underlain with several deep gravel aquifers providing high quality potable water. Generally, should more water be required for an expanding population, then additional bores are installed in locations and depths so as not to detrimentally affect existing bores in any significant way.
- 3.33 Currently the Council is limited to a maximum take of 300l/s and a yearly take of 1,576,800m<sup>3</sup>/year. The highest yearly demand over the last five years was 703,919m<sup>3</sup>. We can assume from this that there is significant capacity available for growth.
- 3.34 Council has a water supply strategy for the provision of water to the PC68 area. This basically involves the installation of new pipework in the existing roads around the periphery. A large portion of PC68 is recognised as a growth area on the Water Supply Strategy.

- 3.35 Council may require a bore to be installed on the site and the applicant is prepared to assist with this by way of providing land for a bore site and facilitating the expansion of the pipe network strategy by way of a Private Developer Agreement or some other similar instrument.
- 3.36 The PC68 site contains several existing wells. The water permits from these well will be transferred to the Council to assist with their consenting for water takes.
- 3.37 All future homes within the PC68 area will be serviced with a water supply connection to the boundary and in accordance with Selwyn District Council Standards.
- 3.38 All proposed water supplies will be installed in accordance with Fire & Emergency New Zealand requirements.
- 3.39 Both Council and the applicant are in full agreement as to the provision of water supply services to the PC68 area.

#### **Power and Telecom**

- 3.40 All future homes will be connected to the Orion and Enable networks in accordance with the Standards of those Utility Companies. This will include fibre broadband.

#### **4 SECTION 42A REPORT – APPENDIX A: *SERVICING REPORT*.**

- 4.1 I have reviewed Mr. England's report contained in Appendix A to the S42A Officer's Report. Mr. England refers at his paragraph 12 to the expectation that Prebbleton will see growth over the next 30 years and that capacity upgrades are proposed to meet this growth including additional water sources, storage and pipeline infrastructure.
- 4.2 Mr. England considers all of the infrastructure matters discussed above, and reaches the same conclusions as to myself as to the feasibility of servicing the PC68 area.
- 4.3 One additional matter Mr. England discusses [paras 42– 43] is the water race flowing past the proposed PC68 area on the Hamptons Road frontage. Mr. England advises that the race will need to be piped under road crossings and potentially along the frontage of residential properties. In my view, it is clear that the function of the water race will need to be maintained post development of the PC68, and that design solutions for achieving this outcome are more appropriately left to the time of subdivision.

#### **5 OTHER MATTERS – INCLUSION OF ADDITIONAL PROPERTIES**

- 5.1 In his s 42 Report, Mr. Cleese recommends the inclusion of 5 additional properties, including the Trents Road properties (386 – 414) and the property of Mr. Shamy at 701 Shands Road. In respect of the latter, he recommends [145] that the ODP treatment of the Shands Road edge would extend onto Mr. Shamy's site in the form of larger lots and no direct access to Shands Road.
- 5.2 From a servicing perspective, my views is that all of these additional properties can be appropriately serviced for water and stormwater and whilst there may potentially be

minor implications in terms of overall wastewater capacity, there are solutions available for their inclusion. From an engineering perspective, I would therefore support inclusion of these properties in the Plan Change area.

## **6 CONCLUSION**

- 6.1 Stormwater will be discharged to ground within the Plan Change area. A consent for this discharge will be required from Environment Canterbury and this will be coordinated with the District Council for transferral once works are complete. There are no particular difficulties expected in obtaining this Discharge Consent or other Ecan Consents as the site is not affected by high groundwater levels. Overland flow paths will be provided generally along Roads. There will not be a need for a large stormwater basin facility in this proposal, saving Council significant ongoing maintenance costs.
- 6.2 Wastewater capacity at the Pines Treatment Plant is available. Flows from the PC68 area will be collected and pumped directly to the Prebbleton Wastewater Pump Station. This Pump Station and the associated rising main has a limited capacity. The capacity can be increased by upgrading a portion of the rising main, shortening the rising main and upgrading the pumps. In addition to this the proposed PC68 Pump Station can be fitted with additional storage capacity to buffer times of peak flow. It should also be noted that the PC68 area will not be affected by groundwater and, as such, design flows can be reduced.
- 6.3 Water supply will be provided in accordance with the Councils strategy and land will be provided to Council for a new bore if required. Any underlying Water Permits will be transferred to Council
- 6.4 I am of the opinion based on the agreed approach to servicing that the requirements of Policy 6.3.5 relating to the Integration of land use and infrastructure Chapter 6 of the Regional Policy Statement can be achieved.

**Andrew J E Hall**

**8 March 2022**