

**BEFORE THE HEARINGS PANEL
FOR THE QUEENSTOWN LAKES PROPOSED DISTRICT PLAN**

IN THE MATTER of the Resource
Management Act 1991

AND

IN THE MATTER of Hearing Stream 13
– Queenstown
Mapping Annotations
and Rezoning
Requests

**REBUTTAL EVIDENCE OF ULRICH WILHELM GLASNER
ON BEHALF OF QUEENSTOWN LAKES DISTRICT COUNCIL**

INFRASTRUCTURE

7 July 2017

 **Simpson Grierson**
Barristers & Solicitors

S J Scott / H L Baillie
Telephone: +64-3-968 4018
Facsimile: +64-3-379 5023
Email: sarah.scott@simpsongrierson.com
PO Box 874
SOLICITORS
CHRISTCHURCH 8140

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1. INTRODUCTION

- 1.1 My full name is Ulrich Wilhelm Glasner. I hold the position of Chief Engineer at Queenstown Lakes District Council (**QLDC** or **Council**). I have been in this position since July 2013.
- 1.2 My qualifications and experience are set out in my statement of evidence in chief dated 24 May 2017.
- 1.3 I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 and that I agree to comply with it. I confirm that I have considered all the material facts that I am aware of that might alter or detract from the opinions that I express, and that this evidence is within my area of expertise except where I state that I am relying on the evidence of another person. QLDC as my employer has agreed to me giving this evidence.

2. SCOPE

- 2.1 My rebuttal evidence is provided in response to the following evidence filed on behalf of various submitters:
- (a) Mr Christopher Hansen for Jardine Family Trust, Remarkables Station Ltd and Homestead Bay Trustees Ltd (715);
 - (b) Mr Christopher Hansen for Middleton Family Trust (338);
 - (c) Mr John McCartney for Gertrude's Saddlery Ltd (494) & Larchmont Developments Ltd (527);
 - (d) for Mount Crystal Limited (150):
 - (i) Mr Sean Dent;
 - (ii) Mr John McCartney;
 - (e) Mr Sean McLeod for Body Corporate 22362 (391);
 - (f) Mr Carey Vivian for Karen & Murray Scott, Loch Linnhe Station (447);
 - (g) Ms Lucy Millton for W & M Grant (455); and
 - (h) Mr Anthony Steel for Lake Wakatipu Station Limited (478).

2.2 I have read the evidence of the following experts, and consider that no response is needed:

- (a) Mr Nicholas Geddes for Jardine Family Trust & Remarkables Station Ltd (715);
- (b) Mr Anthony Steel for Grant Hylton Hensman and others (361);
- (c) Mr Sean Dent for Mount Crystal Limited (150);
- (d) Mr Ken Gousmett for Gibbston Valley Station (827); and

3. QUEENSTOWN URBAN – JACKS POINT EXTENSION (GROUP 1D)

MR CHRISTOPHER HANSEN FOR JARDINE FAMILY TRUST, REMARKABLES STATION LTD AND HOMESTEAD BAY TRUSTEES LTD (715)

3.1 Mr Hansen has filed infrastructure evidence in relation to the submission by Jardine Family Trust, Remarkables Station Ltd and Homestead Bay Trustees Ltd. The submitter seeks the intensification of approximately 163 hectares of Homestead Bay. It has been estimated that these changes could yield 541 additional residential lots. As part of his evidence Mr Hansen has attached a Services Assessment Report at Appendix 1 and a Wastewater Treatment Options Report at Appendix 2.

Stormwater

3.2 Mr Hansen's evidence at paragraph 6.3 notes that runoff will be designed to replicate the pre-development runoff scenario for the undeveloped areas. The developed areas will be serviced using a hybrid LID/SUD/Big Pipe design. This will incorporate a combination of grass swales, kerbs, pipework and detention areas. I agree that this concept is an acceptable stormwater design solution for the proposal.

3.3 The evidence also details in paragraph 6.4 that secondary overflow paths will be provided for in the swales or road ways. Overflows will

discharge to the same locations as the pre-development scenario, which I agree with. The details will be confirmed in the proposed Stormwater Catchment Management Plan, discussed at paragraph 6.1 of the Services Assessment Report.

- 3.4** I note that there is an error in paragraph 6.4 of Mr Hansen's evidence, where it states that the stormwater may discharge to the Shotover River. The run-off from the development area will ultimately discharge to Lake Wakatipu, which is acceptable in my view.

Wastewater

- 3.5** The Wastewater Treatment Options Report (Appendix 2 of Mr Hansen's evidence), Part 4 states that several options are suitable and viable for wastewater within the Homestead Bay site. The report recommends either Sedimentation Tank Effluent Pumping (STEP) Unit or pressure reticulation systems are installed, connecting to a recirculating packed bed reactor treatment plant, and discharging to a 3.4 ha land treatment area, including buffer areas. I agree that these represent suitable wastewater solutions for the area assessed. However, Mr Hansen states at paragraph 5.2 of his evidence, that the Wastewater Treatment Options Report was written for just 130 of the proposed 715 dwelling equivalents. It has not been demonstrated that there is suitable land available for the proposed wastewater treatment land disposal on a larger scale to cater for 715 dwelling equivalents.
- 3.6** The report also states in paragraphs 2.3.2 and 2.3.3 that a connection to the Council scheme through Hanley Downs has not been discussed with Hanley Downs. In addition to this, the option of connecting to the Jacks Point treatment plant was not discussed with the owners of this facility. It is disappointing these options were not investigated further.
- 3.7** In addition, the report has not considered the effects the proposed land wastewater disposal may have on the proposed groundwater take.

Water supply

3.8 Mr Hansen at his paragraph 7.5 states that a 300 mm diameter water bore is under development currently, adjoining Lake Wakatipu, and preliminary bores and testing indicate excellent quantity of water at secure depths. The 300 mm bore is demonstrated to be of adequate size based on other development and an 'on demand system' comparable to Shotover Country is proposed. There is sufficient land space available for a reservoir.

3.9 I agree with the water supply comments made by Mr Hansen. However, as stated in paragraph 3.7 above, I consider further information is required to ensure the proposed land wastewater disposal will not affect the water quality at the bore supply.

Overall

3.10 In summary, I continue to oppose the rezoning. Mr Hansen's evidence goes some way to demonstrate this zone can be serviced. However, limited effort has gone into investigating the connection of an extended Jacks Point Zone to an existing scheme. In addition, no information has been provided to demonstrate that there is adequate suitable land area for wastewater treatment and disposal and ensuring this treatment will not affect the proposed water supply.

4. QUEENSTOWN URBAN – FRANKTON AND SOUTH (GROUP 1B)

MR CHRISTOPHER HANSEN FOR MIDDLETON FAMILY TRUST (338)

4.1 Mr Hansen has filed infrastructure evidence in relation to the submission by the Middleton Family Trust to rezone approximately 53 ha of land between Lake Johnson and the Shotover River to low density residential and 18 ha to rural residential. It has been estimated that these changes could yield 1,105 additional residential lots. This area is not serviced and is outside scheme boundaries as well as the Urban Growth Boundary (**UGB**). It is surrounded by notified Rural land. As part of his evidence Mr Hansen has attached

a Services Assessment Report by Clark Fortune McDonald & Associates at Attachment A to support this rezoning submission.

Stormwater

- 4.2** Section 6 of the Services Assessment Report recommends a stormwater management strategy that would provide an integrated treatment train approach to water management, premised on providing control at the catchment wide level, the allotment level, and the extent feasible in conveyance followed by end of pipe controls.
- 4.3** At paragraph 6.3 Mr Hansen notes that runoff will be designed to replicate the pre-development runoff scenario for the undeveloped areas. The developed areas will be serviced using a hybrid LID/SUD/Big Pipe design. This will incorporate a combination of grass swales, kerbs, pipework and detention areas. I agree that this concept is an acceptable stormwater design solution for the proposal.
- 4.4** Section 6.2 of the Services Assessment Report states the stormwater from the eastern defined catchment will not discharge to Lake Johnson but downstream to its outlet creek. I support this as an option to be investigated.
- 4.5** Mr Hansen states at paragraph 6.4 that secondary overflow paths will be provided for in the swales or road ways. Overflows will discharge to the same locations as they do currently, which I agree with. That is, the flow will stay within its original catchment, noting that the stormwater design must comply with the Land Development and Subdivision Code of Practice. The details will be confirmed in the proposed Stormwater Catchment Management Plan, discussed at section 6.1 of the Services Assessment Report.

Wastewater

- 4.6** Section 5.1 of the Services Assessment Report states the peak flow from the development, in accordance with development standards is 48 l/s. Section 5.2 refers to an existing 300 mm foul sewer main that extends from Hawthorne Drive and has approximately 57 l/s capacity.

It appears, based on the Services Assessment Report, that Mr Hansen intends the development to connect into the existing main, as no other option has been stated. The existing main has been designed to take flow from the Frankton Flats plan change area, plus any flow from the Proposed District Plan (**PDP**) areas and other planned development, including the Quail Rise South Housing Infrastructure Fund development, in the area that may drain into this pipe. It is not clear what the spare capacity is, but in my view it cannot be assumed that 84% of the existing 300 mm diameter main's capacity is available for this development. The submitter has not in my view provided sufficient information to demonstrate that unplanned upgrades of existing infrastructure will not be required.

- 4.7** Regarding section 5.4 of the Services Assessment Report, I agree that any contribution to future upgrades of the Shotover Waste Water Treatment Plant would be funded through headworks fees at the time of connection to Council's service.

Water supply

- 4.8** I agree with the statements in Mr Hansen's evidence at paragraphs 7.1-7.9 regarding water supply. A booster pump station and new reservoir is proposed to service this area with connection to the Council supply. The report states there is land and access available for a reservoir. It is also stated the water supply would be vested in Council.
- 4.9** Sections 7.2 and 7.3 of the Services Assessment Report calculate the peak water and firefighting demand that could be generated by the development and assesses this against the existing infrastructure capacity. Section 7.4 states QLDC are currently designing an upgrade to the water supply. This is correct and the current Master Plan which will inform the LTP is proposing this upgrade and upgrades of the water main along Frankton Ladies Mile Highway toward Frankton.
- 4.10** Paragraph 7.6 of Mr Hansen's evidence states that it may be possible to establish a new bore take from the Shotover aquifer beside the

Shotover River. This is another option and I agree with Mr Hansen's paragraph 7.8 that further design and modelling of the infrastructure would need to be undertaken closely with QLDC to confirm the availability of supply.

Conclusion

4.11 In summary, I continue to oppose this rezoning on wastewater grounds, because insufficient detail has been provided confirming there is sufficient capacity in the existing reticulation, without upgrades of existing infrastructure beyond what is already planned.

MS LUCY MILLTON FOR W & M GRANT (455)

4.12 Ms Millton has filed planning evidence in relation to the submission by W & M Grant to rezone 2.6ha of land from Rural to either Medium Density Residential with visitor accommodation overlay, or a zone to allow for commercial activities. Ms Millton discusses infrastructure in paragraphs 5.1 and 5.2 and states that the submitter will be flexible with Council's requirements to provide a solution to the water and wastewater servicing constraints, and accepts that further development of this site will require an engineering feasibility assessment, which may include upgrading the existing wastewater pipes back to the BP roundabout, and a tank farm for firefighting supply.

4.13 Regarding wastewater, Ms Millton states Council's GIS map shows an existing 50mm wastewater pipe along Hansen Road (servicing the Impact Church) and that infrastructure upgrades may include upgrading the existing line back to the BP roundabout to a 100 mm pipe. I disagree with this possible solution because the 50 mm pipeline is a pressurised pipe and only usable for liquid or slurry. This pipe, even upgraded to 100mm, is not suitable for gravity sewage. It is likely that the site will require pumping of wastewater to the Council network.

4.14 Whilst I disagree with the possible solution stated by the submitter, I do agree with the general intent that Council can work with the

developer and find a suitable solution for the site. I no longer oppose the rezoning sought by the submitter.

5. QUEENSTOWN URBAN – CENTRAL, WEST AND ARTHURS POINT (GROUP 1C)

MR JOHN MCCARTNEY FOR GERTRUDE'S SADDLERY LTD (494) & LARCHMONT DEVELOPMENTS LTD (527)

5.1 Mr McCartney has filed evidence in relation to the submission by Gertrude's Saddlery Ltd & Larchmont Developments Ltd to rezone approximately 5.82 ha of land to Low Density Residential at Arthurs Point. It has been estimated that these changes could yield an estimated 89 additional residential lots.

Stormwater

5.2 I agree with the statements at Mr McCartney's paragraph 37 regarding stormwater feasibility. Mr McCartney states a low-impact design (**LID**) approach can be successfully implemented on the subject land following detailed investigations, analysis, and design. The evidence notes that there are several points around the perimeter of the site where both large and small ephemeral water courses are expected to form during a prolonged and heavy rainfall event. These will need to be managed to ensure that there is no concentration of flows onto neighbouring land following development. Mr McCartney does not envisage any difficulties achieving that.

Wastewater

5.3 I agree with the statements in Mr McCartney's evidence regarding the provision of wastewater. At paragraph 24 Mr McCartney states that due to topography, a wastewater pump station is likely to be required to discharge wastewater from approximately 50% of the site. There is also the option of individual onsite pump stations.

5.4 Although adding an additional pump station to the network will be an ongoing maintenance burden, I agree with Mr McCartney at his

paragraph 27 that there will be additional residential lots that will generate more rates, or there is the option of individual onsite pump stations. These details reduce my initial concern and I no longer oppose the submission on this aspect.

- 5.5** In my evidence in chief at paragraph 7.117 I identified that the wastewater main over Edith Cavell Bridge is nearing capacity and that the rezoning sought by submitter 494 would further reduce capacity. Mr McCartney has identified at paragraph 32 of his evidence that there is an item on the current QLDC LTP that allows for the upgrading of the existing wastewater main over the Edith Cavell Bridge. I agree this LTP project will mitigate the identified constraints.

Water supply

- 5.6** At his paragraph 19 Mr McCartney agrees that there will be sufficient water pressure to supply the site. He considers the site is not inefficient to service because although it is some distance from the existing reticulation, it is not so far from land already zoned for development which is anticipated to be serviced. I agree with this opinion.

Conclusion

- 5.7** In summary, I no longer oppose the rezoning from an infrastructure perspective. Mr McCartney has adequately demonstrated that the increase in wastewater load from this site can be efficiently incorporated into the planned LTP upgrades and therefore additional infrastructure upgrades are not required. All connections would be at the developer's cost.

MR JOHN MCCARTNEY FOR MOUNT CRYSTAL LIMITED (150)

- 5.8** Mr McCartney has filed infrastructure evidence in relation to the submission by Mount Crystal Limited to rezone approximately 2.7 ha of land from Low Density Residential to High Density Residential at Queenstown Hill. It has been stated that although 2.7 ha is submitted

for rezoning, only 1.27 ha will be buildable based on Geotechnical constraints. It is estimated based on the 1.27 ha, that these changes could yield an estimated 60 additional residential lots.

Wastewater

- 5.9** I agree with the statements in Mr McCartney's evidence regarding the provision of wastewater. At paragraph 36 Mr McCartney considers that it is feasible to make a wastewater connection to the existing reticulation past the identified capacity constraint on the downhill side of Frankton Road. This resolves the identified wastewater capacity constraint outlined in my evidence in chief.
- 5.10** The wastewater model results show there is no spare capacity in parts of the downstream network along Frankton Road. Proposed network upgrades in the LTP will alleviate any problems in this area.

Water supply

- 5.11** Mr McCartney at paragraph 39 of his evidence concludes development of the subject land can be done in such a way as to not require an FW3 firefighting water supply. Whilst I agree this may be possible, this is dependent on building parameters that may not be achievable for all high-density development scenarios on this site. Council is developing a firefighting minimum level of service that will be applied across the District consistently. Council is seeking to achieve a minimum FW3 flow for all High Density Residential Zones in the District to cater for all high-density development scenarios. I do not consider that a lower level of service is acceptable for this proposed rezoning in isolation.
- 5.12** Mr McCartney states at his paragraph 40 that a FW3 firefighting water supply may be available close to the site. This does not provide adequate assurance that this supply can be extended to service the full extent of the proposed zone. The New Zealand Fire Service Firefighting Water Supplies Code of Practice (SNZ PAS 4509:2008) Appendix E2 states "*The distance/s to the first fire hydrant/s should not exceed 135 m*". The extent of the site is approximately 225 m

from the nearest fire hydrant on Frankton Road, beyond the 135 m. The code states that an additional hydrant must be within 270 m. The subject site is on a hill which would affect delivery pressure.

- 5.13** Mr McCartney also states at paragraph 41 that the construction of the Middleton Reservoir will enable improved water flows and pressures in the vicinity of the subject land. I have considered the Queenstown water model and confirm it does include Middleton Reservoir in the future scenarios, and the water firefighting results remain as stated in my evidence in chief.
- 5.14** If this area was zoned MDR there would be no change to the FW2 firefighting requirements compared to what is required for the notified LDR zoning. I would not oppose the rezoning to MDR, from an infrastructure perspective, because it is expected this area is able to be serviced with minimal upgrades. All connections would be at the developer's cost.

Conclusion

- 5.15** In summary, I continue to oppose this rezoning on firefighting grounds because it has not been demonstrated there is adequate infrastructure planned in the LTP to service FW3 firefighting supply for the High Density Residential zone sought by the submitter.

MR SEAN MCLEOD FOR BODY CORPORATE 22362 (391)

- 5.16** Mr McLeod has filed evidence in relation to the submission by Body Corporate 22362 to rezone approximately 10.8 ha of land from Low Density Residential to Medium Density Residential, at Queenstown Hill. It is estimated that these changes could yield an additional 130 residential lots.
- 5.17** In paragraph 8 Mr McLeod states that my infrastructure recommendations do not appear to agree (ie are not consistent) with other sites close to the proposed MDR rezoning within Goldfields. Mr McLeod then lists other rezoning for MDR on Queenstown Hill that I have not opposed. Mr McLeod states there appears to be a large

disparity between undeveloped land where the developer may pay for infrastructure, Council's own undeveloped land, and the area that is sought to be rezoned. Queenstown Hill may appear to have disparities in my response when looking at the submission in this way. However, the water servicing in this area is complex because of elevation changes, different pressure zones and areas pressurised from different reservoirs. Different areas have also been planned for water and wastewater upgrades in the LTP which affected my evidence on various submissions. Goldfield Heights is also an existing development area with services currently nearing capacity, that is more difficult and costly to upgrade than a Greenfields site. Again this factor influenced my evidence in chief.

5.18 Mr McLeod states at paragraph 12 that *"It should not be up to submitters to provide details of Councils assets to Council. Council holds the records for the infrastructure and they should have detailed modelling available to them to indicate what possible areas may need upgrading, not the other way around"*. The submitter is pursuing a rezoning of their land, rather than the council. The reticulated assets within the Goldfield Heights area are in the Council's water and wastewater models, which show this area is currently nearing reticulation capacity. Mr McLeod has provided no infrastructure evidence that has demonstrated how the infrastructure in this area could be serviced to accommodate additional development anticipated under MDR zoning. Therefore I continue to oppose this submission.

6. RURAL (GROUP 2)

MR CAREY VIVIAN FOR KAREN & MURRAY SCOTT, LOCH LINNHE STATION (447)

6.1 Mr Vivian has filed planning evidence in relation to the submission by Karen & Murray Scott to identify two areas of land on their property as Farm Base Areas (**FBAs**) and to identify FBAs on large rural properties in excess of 1000 ha. Alternatively, the submitter seeks Rural Visitor zoning over the two areas of land that are sought to be identified as FBAs. Mr Vivian states at his paragraph 5.18 that he

has placed further restrictions on the requested FBAs and the same restrictions on the alternative Rural Visitor Zone (RVZ). The extent of the two areas sought to be rezoned has also been amended.

- 6.2 Based on this evidence which provides restrictions on the development potential of the site, I no longer oppose the rezoning request from an infrastructure point of view. I consider it is possible to develop the site with an onsite wastewater system that has no negative effect on the surrounding environment.

MR ANTHONY STEEL FOR LAKE WAKATIPU STATION LIMITED (478)

- 6.3 Mr Steel has filed planning evidence in relation to the submission by Lake Wakatipu Station Limited to rezone a piece of land from Rural to Rural Visitor.

- 6.4 In paragraph 7 Mr Steel states that he believes that onsite water supply, stormwater and wastewater infrastructure servicing is feasible for rural visitor development. He states that potable drinking water could be constructed to acceptable standards and there is adequate suitable land for wastewater treatment and disposal.

- 6.5 Based on this evidence, I no longer oppose the rezoning request from an infrastructure point of view. I consider it is possible to develop the site with an onsite water and wastewater system that has no negative effect on the surrounding environment.



Ulrich Wilhelm Glasner

7 July 2017