

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

**IN THE MATTER** of the Resource  
Management Act 1991

**AND**

**IN THE MATTER** of Hearing Stream 14:  
Wakatipu Basin hearing  
and transferred Stage 1  
submissions related to  
Arrowtown and Lake  
Hayes

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**STATEMENT OF EVIDENCE OF VAUGHN MICHAEL CROWTHER  
ON BEHALF OF QUEENSTOWN LAKES DISTRICT COUNCIL**

**Infrastructure**

**28 May 2018**

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## 1. INTRODUCTION

- 1.1 My full name is Vaughn Michael Crowther. I hold the position of Director of Utility 2017 Ltd based in Arrowtown. I have been in this position since November 2017. Prior to this, I held the position of Senior Infrastructure Advisor at Rationale Ltd, also based in Arrowtown, since April 2007.
- 1.2 I hold a Bachelor of Engineering from Massey University. I have over 15 years' experience in Project Management, Infrastructure Asset Management & Planning. I am a member of the Institute of Public Works Engineers Australasia. I hold post graduate diploma's in both Infrastructure Asset Management (NZQA) and in Financial Management from the Association of Chartered Certified Accountants UK.
- 1.3 My expertise is in the long term planning, management and funding of 3-waters and roading infrastructure for local government and central government agencies. Over the past 10 years, I have directly assisted Queenstown Lakes District Council (**QLDC** or **Council**) on their infrastructure asset management plans and strategies for 3-Waters and for Roding. I have undertaken this work for councils throughout Otago also.
- 1.4 I am familiar with the Queenstown area of the Queenstown Lakes District (**District**) as a result of this experience.
- 1.5 I have been asked by QLDC to provide evidence in relation to infrastructure matters for some specific rezoning submissions to be heard in Hearing Stream 14.
- 1.6 Although this is a Council hearing, 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.

**1.7** The key documents I have used, or referred to, in forming my view while preparing this brief of evidence are:

- (a) Mr Ulrich Glasner's evidence for Stage 1 rezoning submissions, specifically Mr Glasner's:
  - (i) Statement of Evidence for Hearing Streams 1A and 1B dated 19 February 2016;
  - (ii) Statement of Evidence for Hearing Stream 12 Upper Clutha Queenstown dated 20 March 2017, in particular paragraphs 4.1 – 4.33, 4.12, 4.17 – 4.23, and 4.30 – 4.32;
  - (iii) Statement of Evidence for Hearing Stream 13 Queenstown dated 24 May 2017, in particular paragraphs 2.6, 3.6 – 3.8, 4.1 – 4.9;
- (b) Waterfall Park Special Housing Area Water Services Review, MWH (July 2016);
- (c) Hogan's Gully Farm Development wastewater modelling letter, Beca Limited (9 November 2017);
- (d) Hogan's Gully Farm Development – Water Impact Assessment letter, Mott Macdonald (20 November 2017);
- (e) Hogan's Gully Farm Infrastructure Assessment, Holmes Consulting (March 2018);
- (f) Bridesdale Subdivision Infrastructure Report, Holmes Consulting Group (19 June 2015);
- (g) QLDC Long Term Plan Capital Programme for Wastewater 2018-28 (6 Dec 2017);
- (h) QLDC Long Term Dwelling Capacity Growth Modelling of 3-Waters (Mark Baker of QLDC); and
- (i) QLDC Infrastructure Strategy 2015-45 (March 2015); and
- (j) Draft QLDC Infrastructure Asset Management Strategy 2018-48 (as contained within QLDC's Draft 10 Year Plan 2018–2028 Volume 2).

**1.8** As part of experience in long term planning, management and funding of 3-waters and transport infrastructure, I am also familiar with the Local Government Act 2002, in particular Section 10, the efficient and

effective provision of infrastructure and Subpart 3 – Financial Management.

## **2. SCOPE**

**2.1** My evidence relates to the infrastructure-related effects of the following rezoning submissions:

- (a) LCU 6 Wharehuanui Hills:
  - (i) J Andersson (#2167)
- (b) LCU 8 Speargrass Flats:
  - (i) Waterfall Park Developments (#2388)
  - (ii) R&N Hart (#2101)
  - (iii) J&R Hadley (#2559)
- (c) LCU 13 Lake Hayes Slopes:
  - (i) Waterfall Park Developments Limited (#2389).

**2.2** I have also been asked to consider the submission of Bridesdale Farm Development Limited (#655).

## **3. BACKGROUND AND ASSUMPTIONS**

**3.1** I refer to Mr Glasner's evidence for the Strategic Hearing in Stage 1, and also to paragraphs 4.17 - 4.23 of Mr Glasner's evidence for the Stage 1 Upper Clutha hearing, and wish to emphasise my agreement that a compact and integrated form maximises the efficiency of existing infrastructure and its operation, because the surplus in the network can be utilised and the operation of the network can be managed efficiently.

**3.2** This results in cost savings for ratepayers and potentially for the developer. Reduced distances to destinations, and more efficient use of embedded infrastructure reduces the cost to the community as a whole. It is important to strongly consider the collective benefit or economies of scale of infrastructure supply to both the existing and new users, when releasing more land to be developed. Economies of scale may come in the form of reduced costs to over the long term to

all users, improved network resilience through better network design, greater risk management through fewer point source intakes, and discharges and/or improved quality of services to all users through economies of scale of treatment and storage infrastructure. I am aware of the intent and purpose of the National Policy Statement on Urban Development Capacity, in making this observation.

- 3.3** I also assume that any new infrastructure on the periphery of the current boundaries, proposed by submitters will eventually be vested into Council for on-going management therefore whole of life costs are considered (operation, maintenance, upgrade, replacement and disposal) regardless of whether the developer or Council pays for the initial construction and/or upgrade of infrastructure.

### **Stormwater**

- 3.4** As stormwater is addressed at the time of subdivision or actual development, and is required to comply with the Council's requirements under the Subdivision Code of Practice (which limits discharges to the pre-development flows), I have not assessed stormwater effects individually in relation to the rezoning requests (except where I respond to information that has been provided by a submitter).

### **Water and Wastewater – 'rural' rezonings**

- 3.5** I have been asked to consider some rezoning submissions that are rural in nature, and are not located close to the boundaries of Council's current Scheme Boundaries. For those located within the Wakatipu Basin Rural Amenity Zone (**Amenity Zone**), I have been referred to the following policies in the notified chapter and understand it forms part of the policy framework that proposed development in the area would be considered against:

***Policy 24.2.4.4 Ensure development does not generate servicing costs that fall on the wider community.***

***Policy 24.2.4.5 Ensure development infrastructure is self-sufficient and does not exceed capacities for infrastructure servicing.***

- 3.6** I understand that development within the Amenity Zone (and within the Wakatipu Basin Lifestyle Precinct (**Precinct**), under Council's proposed development densities) are expected to be serviced privately via onsite means. The effects on Council owned infrastructure are therefore limited, but can take into account the effects on the environment of providing infrastructure onsite. I note that this assumption does not apply to submissions seeking a more intensive precinct, or new zone (which I consider separately below).
- 3.7** Although I assess each of these submissions separately, I generally do not oppose these rezonings, but record the expectation that these sites will be serviced privately at the developer's cost, and due to this on-site servicing, there is no increase in the QLDC infrastructure requirements (physical and financially).
- 3.8** However, I do wish to generally observe, that even in these types of situations, and in the future as the rapid growth of the District continues, this may at some stage result in expectations to be connected to Council infrastructure. In particular for those areas of land located close to either the existing Scheme Boundaries or any newly expanded scheme boundaries resulting from these rezonings. I understand this concern was raised by the Council (through Mr Barr) in the Upper Clutha hearing.
- 3.9** There should be no expectation that the on-site infrastructure in the Amenity Zone will ultimately be joined to Council schemes, resulting in consequential on-going costs to the Council.

**Wastewater and Water Supply – other rezonings located at Arrowtown and Lake Hayes**

- 3.10** For the rezoning submissions of a more 'urban' nature (either through the nature of the density being pursued by the submitter, or the land's

location close to the Scheme Boundaries or the Urban Growth Boundary), I consider whether:

- (a) the site is located within the current Scheme Boundaries, and
- (b) whether there is evidence of capacity in terms of wastewater and water supply to service the proposed re-zonings to the required level of service, and
- (c) the potential cost per connection to supply the rezoning submission is favourable to the network as a whole.

**3.11** If there are capacity issues, I consider whether there are projects to resolve them within the Long Term Plan (**LTP**).

**3.12** I also consider:

- (a) the serviceability of the area, whether it is anticipated that the site would connect to the water supply and wastewater networks, and the ease and cost of servicing to the expected level of service, including ongoing operations, maintenance and replacement costs from the additional infrastructure; and
- (b) the location of the area in terms of elevation, whether the area will have adequate water pressure and can drain wastewater under gravity, and if it is adjacent to similarly zoned land to support the effective and efficient servicing of the area.

## **LCU 6 WHAREHUANUI HILLS**

### **4. J ANDERSSON (#2167)**

**4.1** Jan Andersson has sought that Ayrburn Farm is rezoned from a mixture of mainly Precinct (with some parts Amenity Zone) to Amenity Zone.

**4.2** The land in question is not connected to a Council water or wastewater supply and is not located within Council Scheme Boundaries, as shown on Attachment 1 of Ms Jarvis' evidence for QLDC.



- 4.3** However, as the relief sought decreases the proposed density of development on this land, I do not oppose the relief sought, from an infrastructure perspective.

## **LCU 8 SPEARGRASS FLATS**

### **5. WATERFALL PARK DEVELOPMENTS (#2388)**

- 5.1** Waterfall Park Developments has sought that the land identified as Waterfall Park Resort Zone (Stage 1 PDP), and the land located to the north of Speargrass Flat Road, and west of Arrowtown Lake Hayes Road, is rezoned from mainly Precinct (with some parts Amenity Zone) to a revised Waterfall Park Zone.
- 5.2** I have been advised that the part of the submission that comments on the Stage 1 Waterfall Park Resort Zone is not within the scope of the hearing, so I do not consider that part of submission #2388 further.
- 5.3** In relation to the rest of the land subject to the submission, this is located outside the Scheme Boundaries for the Lake Hayes water supply and wastewater, as shown on Attachment 1 of Ms Andrea Jarvis' Infrastructure Evidence for QLDC.
- 5.4** The relief sought will increase the proposed density of development on this land to potentially 150 lots. A report on infrastructure, by Holmes Consultants dated June 2016, has been provided with the submission. This report collates and considers infrastructure impact assessments for undertaken by network modelers Rationale (Wastewater) and T&T (Water Supply) and Clarke Fortune MacDonald (Stormwater) based on 150 lots. The Holmes report considers the results of this modelling and undertakes a desktop assessment under a revised 140 lots. The desktop infrastructure impacts assessed by the Holmes report were found to be manageable if an extension to the Lake Hayes water scheme is made and if the Council wastewater scheme is upgraded.
- 5.5** Of note is that the T&T report assumes that the Lake Hayes Water Scheme is supplied by the Shotover Country Water scheme to provide

adequate headworks capacity. At the time of this evidence, I am unsure as to whether this has occurred or not.

- 5.6** The wastewater upgrade referred to in 5.4 is not included in the draft LTP.
- 5.7** The Holmes report also indicates that stormwater requirements are to be through on-site detention and release to Mill Creek.
- 5.8** Regarding the efficiency and effectiveness of servicing the proposed rezoning, with particular reference to my assumptions in section 3.1 through 3.12, insufficient evidence has been provided by the submitter or Council to assess this.
- 5.9** Consequently, I oppose this submission from an infrastructure perspective on the grounds that there is not capacity within Council's current scheme and there are no plans for upgrades. In addition, there is no evidence that the development, once connected to the Council schemes, will not generate additional servicing costs that fall on the wider community.

## **6. R&N HART (#2101)**

- 6.1** R & N Hart have sought that any rural areas in the catchment area of Mill Creek or adjacent to Mill Creek should remain with a rural zoning. This land has been notified as Precinct
- 6.2** The land in question is not connected to a Council water or wastewater supply and is not located within Scheme Boundaries.
- 6.3** However, as the relief sought decreases the proposed density of development on this land, I do not oppose the relief sought, from an infrastructure perspective.

**7. J&R HADLEY (#2559)**

- 7.1** J & R Hadley has sought that Ayrburn Farm land and land to the east of Lake Hayes Arrowtown Road, and north of Hogan Gully Road is rezoned from Precinct to Amenity Zone.
- 7.2** The land in question is not connected to a Council water or wastewater supply and is not within Scheme Boundaries.
- 7.3** As the relief sought decreases the proposed density of development on this land, I do not oppose the relief sought from an infrastructure perspective.

**LCU 15 HOGANS GULLY AND LCU 17 MORVEN FERRY**

**8. HOGANS GULLY FARM LIMITED (#2313)**

- 8.1** Hogans Gully Farm Limited has sought to rezone the 130ha block of land located between State Highway 6, McDonnell Road, Hogan Gully Road and the ODP Bendemeer Special zone, from Amenity Zone, to a bespoke Hogans Gully Special Zone that would facilitate development of a golf course and related resort activities and facilities.
- 8.2** In the alternative, the submitter seeks that the 130ha be included in the upper plateau land in the Precinct, or an equivalent zone, which would include the rural living zones from the PDP Stage 1.
- 8.3** In the second alternative, the submitter seeks that the Amenity Zone provisions be amended so that subdivision of the land, to create rural residential and residential lots associated with golf course activities, is a discretionary activity.
- 8.4** The land in question is not currently within the Council water or wastewater Schemes Boundaries.
- 8.5** Beca Limited have modelled multiple options to assess the wastewater impact from the proposed development and provided a report with the submission. The modelling found that the existing Lake Hayes network

could not accommodate the projected demand from the development and maintain suitable levels of service. The report also assesses the impact on the network under a scenario where the network has been upgraded. This shows that with suitable upgrades the development may be able to connect and maintain suitable levels of service. These upgrades are not included in the LTP.

**8.6** A Holmes Consulting infrastructure report (2018) also provided two further options where:

- (a) wastewater is disposed on site; or
- (b) a low pressure system is used to convey flows during off-peak times to remove the necessity of the upgrades referred to above.

**8.7** A water impact assessment for the proposed development has been assessed by Mott Macdonald (2016). The assessment indicates that minimum pressures could not be met in some areas of the development. The proposed development is also predicted to have a noticeable impact on the existing Arrowtown network, both now and in the future.

**8.8** Subsequently, the Holmes Consulting (2018) infrastructure assessment (this is included with the submission) reviewed the water supply options, connecting to both Arrowtown or Lake Hayes. This report recommends connection to the Arrowtown scheme and states that upgrades to the Council infrastructure headworks and mains will be required to ensure the network can provide for the demand and maintain the existing networks level of service.

**8.9** In addition to likely water main upgrades, the development would require an additional booster pump into a reticulated network; or a trickle fed water supply into an ancillary reservoir. These projects are not included in the LTP. The report does not consider if these additional assets would be vested in council or retained in private ownership.

**8.10** The Holmes report included stormwater impacts from the proposed development. There will be a small increase in impervious area for the

development, resulting in a slight increase in stormwater runoff. The development is not predicted to have an impact on the existing drainage infrastructure and no upgrades are planned at this time.

**8.11** Regarding the efficiency and effectiveness of servicing the proposed rezoning, with particular reference to my assumptions in section 3.1 through 3.12, insufficient evidence has been provided by the submitter or Council to assess this.

**8.12** Consequently, I oppose this submission from an infrastructure perspective on the grounds that there is not sufficient capacity within Council's scheme and there are no plans for it to be upgraded. There is also no evidence that the development, once connected to the Council schemes, will not generate additional servicing costs that fall on the wider community.

#### **LCU 23 MILLBROOK**

#### **9. G WILLS & T BURDON (#2320)**

**9.1** The Submitters seek that their land be rezoned from Amenity Zone to Precinct, subject to various modifications to the Precinct provisions.

**9.2** The land in question is south of Millbrook, west of the Arrowtown-Lake Hayes Road, west of the Waterfall Park Zone and north of Waterfall Park Road.

**9.3** The area in question is not connected to a Council water or wastewater supply and is not within Scheme Boundaries.

**9.4** Although there would be an increase in density from the change from Amenity Zone to Precinct, I do not oppose the rezoning because the policy support for both the Amenity Zone and Precinct, is that any development will be serviced privately by onsite means, meaning there will be no increase in QLDC infrastructure requirements. I refer to Policies 24.2.4.4 and 24.2.4.5 in the Wakatipu Basin chapter, which are set out above.

## **OTHER – LAKE HAYES**

### **10. BRIDESDALE FARM DEVELOPMENT LIMITED (#655)**

- 10.1** Bridesdale Farm Development Limited has sought rezoning of approximately 30 hectares of land adjoining the eastern side of Lake Hayes Estate from a mixture of Low Density Residential (**LDR**), Rural Lifestyle and Rural to Medium Density Residential (**MDR**) in 'that part of the Site land above the floodplain'. The actual extent of MDR zoning sought is not defined in the submission.
- 10.2** Much of this land has now been developed, or is in the process of being developed. I have been advised by Council officers that there is only capacity for another 54 lots to be developed, if rezoned to MDRZ.
- 10.3** The relief sought will increase the proposed density of development on this land, which is already connected to Council water and wastewater schemes.
- 10.4** The wastewater infrastructure impacts have been assessed by Holmes Consulting Group in 2015 and found to be manageable with Council planned upgrades. Previous reporting has confirmed that there is sufficient capacity, given planned upgrades, in the surrounding water and wastewater networks to service this site.
- 10.5** The wastewater upgrade referred to in 10.4 is not included in the draft LTP nor can I establish if this has been completed already.
- 10.6** The proposed stormwater solution does not rely on any existing infrastructure.
- 10.7** Regarding the efficiency and effectiveness of servicing the proposed rezoning, with particular reference to my assumptions in section 3.1 through 3.12, because this re-zoning is within an existing scheme boundary and serviced area, I consider this rezoning to be an efficient use of existing infrastructure.

- 10.8** Consequently, I do not oppose the rezoning to Medium Density Residential from an infrastructure perspective conditional to the planned upgrades taking place.

A handwritten signature in blue ink, appearing to read 'V. Crowther', with a stylized, cursive script.

**Vaughn Crowther**

**28 May 2018**