

**BEFORE THE QUEENSTOWN LAKES
DISTRICT COUNCIL**

IN THE MATTER of the Resource Management
Act 1991

AND

IN THE MATTER of Plan Change 44 of the
Queenstown Lakes District Plan

**STATEMENT OF EVIDENCE OF KEN GOUSMETT FOR PLAN CHANGE 44
QUEENSTOWN LAKES DISTRICT PLAN
29 JUNE 2015**

ANDERSON LLOYD
LAWYERS
QUEENSTOWN

Solicitor: M Baker-Galloway
(maree.baker-galloway@andersonlloyd.co.nz)

Level 2,
13 Camp Street,
PO Box 201,
QUEENSTOWN 9348
DX ZP95010
Tel 03 450 0700
Fax 03 450 0799

QUALIFICATIONS AND EXPERIENCE

- 1 My name is Kenneth Frank Gousmett
- 2 Director, Cavell Heights Ltd, trading as Construction Management Services of Queenstown.
- 3 Qualifications and Professional Memberships:
 - NZ Certificate of Engineering, Civil
 - Registered Engineering Associate – REA
 - Member of Water New Zealand (NZ Water and Waste)
- 4 Relevant Experience:
 - Three years as Hydrologist for the Otago Catchment Board. Established a hydrological water balance study of Lake Vanda and the Onyx River Antarctica as Hydrologist for DSIR.
 - I have been involved in wastewater, water supply and stormwater design and construction in Queenstown and Wanaka since the early 1970's.
 - Development and Construction manager for Millbrook Resort for 5 years from commencement, responsible for construction of all infrastructure and buildings, landscape features and the golf course.
 - Infrastructure Manager Jacks Point Development 2001 to 2009, I managed the consenting and construction of water supply, wastewater, stormwater, power supply, telecommunications and main road design for Jacks Point Ltd.
 - Construction Management Services 2000 to 2009, infrastructure for various development projects Queenstown and Wanaka, project management of Lake Wanaka Centre (2001), Wanaka Library (2003), Queenstown Lakeview Holiday Park (2003 \$6.1m) Queenstown Aquatic Centre (2008 \$18.1m).
 - Capital Works Manager (infrastructure) Queenstown Lakes District Council 2009 to 2013, including one year acting GM Infrastructure Services.

- Construction Management Services 2013 to Present, Jacks Point Development infrastructure, Parkins Bay Development infrastructure, Gibbston winery development new water supply and wastewater, new winery building.
- Attended Land Treatment Collective (LTC) conferences most years since 2000, a specialist group on on-site wastewater researchers, consultants, regulatory staff and suppliers.

5 In preparing this evidence I have reviewed:

- (a) The reports and statements of evidence of other experts giving evidence relevant to my area of expertise, including:
 - (i) Evidence of Gary Dent of Fluid Solutions Ltd
 - (ii) Evidence of Rob Potts LEI Ltd
 - (iii) Evidence of Tim Kelly of Transportation Planning Ltd
- (b) I am familiar with the Jacks Point and Henley Downs sites having worked throughout Jacks Point in the 2000's and I have undertaken walk over inspections of Henley Downs and stream channels in recent months.

6 I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note. This evidence has been prepared in accordance with it and I agree to comply with it. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

7 I have been asked by Henley Downs Land Holdings Ltd to prepare evidence in relation to wastewater, stormwater and water supply. These comments on those matters below and other service and infrastructure matters that are covered by RCL's witnesses, including:

- (a) Wastewater disposal
- (b) Stormwater management

- (c) Natural Hazards – flooding, alluvial fans
 - (d) Coneburn water supply
 - (e) Transportation
- 8 I also address matters raised by the following submitters with respect to natural hazards, wastewater, stormwater and water supply:
- a) Otago Regional Council.
 - b) Southern District Health Board.
 - c) NZ Transport Agency
- 9 I have considered and address matters raised in the Queenstown Lakes District Council Section 42A report:
- (a) Proposed Site Standard 15.2.7.2 Stormwater
 - (b) Proposed Site Standard 12.2.5.1 Transportation

EXECUTIVE SUMMARY

Wastewater Disposal

- 10 I endorse the evidence of Rob Potts on wastewater disposal, subject to minor qualifications set out in my evidence. I consider that his evidence confirms that there are viable and practical options for wastewater disposal for the development of the Henley Downs zone.

Stormwater Management

- 11 I endorse the evidence of Gary Dent on stormwater management subject to minor qualifications set out in my evidence. I consider that his evidence confirms that there are viable and practical options for stormwater management for the development of the Henley Downs zone.

Natural Hazards – flooding alluvial fans

- 12 I endorse the evidence of Gary Dent on natural hazards. I consider that his evidence confirms that there are viable and practical options for natural hazards for the development of the Henley Downs zone.

Coneburn Water Supply

- 13 I have provided evidence on the existing Coneburn Water Supply. I consider that this water supply, with future upgrades will meet the future demands from all of the water supply catchment.

Transportation

- 14 I endorse the evidence of Tim Kelly on Transportation subject to minor qualifications set out in my evidence. I consider that his evidence confirms that there are viable and practical options for Transportation for the development of the Henley Downs zone.

Wastewater

- 15 I have reviewed the evidence of Rob Potts. I endorse the evidence on wastewater treatment and disposal for the Henley Downs zone presented by Rob Potts of LEI Ltd in terms of options available for treatment and disposal subject to two matters set out below. My understanding of the potential yield from the Plan Change is slightly higher than the yield prediction used by Mr Potts. This does not affect my endorsement of his conclusions that there are viable options. I have discussed this difference with Mr Potts and he confirmed to me it does not affect his assessment of the viability of the options.
- 16 My provisos are:
- (a) That any wastewater land discharge sites within Jacks Point do not interfere with existing wastewater infrastructure or compromise the existing ORC consent to discharge to land held by the Jacks Point Residents and Owners Association (JPROA) for Jacks Point.
 - (b) Any use of land not owned by RCL Ltd will require normal commercial agreement with the land owner.
- 17 The philosophy of “treading softly” adopted for Jacks Point design, - environmental sustainability, enhancing not replacing natural features is extended to infrastructure by taking care, as far as practical of water and waste on-site, of being self-sufficient. All drinking water, irrigation water supply, wastewater treatment and disposal, stormwater and roading infrastructure operation and maintenance are contained within the wider

Coneburn site. At Jacks Point finding an efficient, viable means of treating and dispersing wastewater on-site was pivotal to the design philosophy. The innovative result has been highly successful with wide industry recognition and it meets the strong environmental, community and cultural preference of discharge to land.

- 18 In his evidence Rob Potts has made reference to Potential Ownership Management and Maintenance on pages 15 to 17. He has listed eleven factors crucial to council regulatory control of the effects of privatised decentralised wastewater systems (paragraph 63). These cover standards, design, installation, operation and maintenance, ownership, financial accountability, asset management, monitoring and reporting, enforceability, transfer of responsibilities and ease of establishment.
- 19 From my close involvement and experience during design, establishment and operation the existing Recirculating Textile Packed Bed Reactor (rtPBR) decentralised wastewater systems at Jacks Point meets all of these criteria. It has been well set up legally and financially, is well designed and is professionally operated by JPROA, who are the ORC consent holder. The original design, build and operate contractor, Innoflow Technology, is still involved and they provide valuable oversight. Jacks Point wastewater is a good example of a large scale on-site wastewater treatment system.

Stormwater Management

- 20 I have reviewed the evidence of Gary Dent of Fluent Solutions. I endorse the evidence on stormwater management for the Henley Downs zone presented by Gary Dent, with two provisos:
 - (a) That the northern detention pond location is subject to further discussion and a commercial agreement between RCL and the land owner. Gary Dent has advised that this detention pond can be located on the natural flow path either upstream or downstream from the location shown.
 - (b) The ORC has requested an assessment matter be incorporated into the District Plan that “the rate of stormwater discharge remains equal to or less than that, of pre-development up to the 1 in 100 year average recurrence interval event” in their submission 2(a) and 3(b)(i) page 4. While this is a reasonable policy statement or objective for stormwater design, which Gary Dent in

his evidence has met, it is a different matter to make it a zone rule in the District Plan. As a rule this would be more appropriate to be included in the ORC Water Plan or a condition in an ORC consent for example to divert or dam a watercourse. If accepted Henley Downs may be the first District Plan area in Otago that has such a rule. This rule would exclude other legitimate and environmentally sustainable options for stormwater management for example where the effect of a flood flow on a channel is minimal or where the flood flow can be piped to a receiving body of water.

Coneburn Water Supply

- 21 As Infrastructure Manager for Jacks Point development I was responsible for the investigation design, consenting, construction and operation of the Coneburn Water Supply. The detailed design was undertaken by Duffill Watts and King who were experienced water supply engineers who had designed five lake water supply intakes in Queenstown and Wanaka. The design standard was the same as normal municipal standards with 100% mechanical redundancy, high quality electrical controls and electrical safeguards, provision for portable generator supply, automatic back flushing of the intake to remove algae, etc.
- 22 The first stage comprises a deep wet well is located on the lake shore with a horizontal steel intake extending out well below the lowest recorded lake level. The submersible pumps are located in the wet well and the controls are in a small building above lake flood level. There are two 80 litres/sec pumps with provision for the installation of a third pump of equal size. A 375mm diameter pumping main delivers water to the 1200 cubic metre capacity reinforced concrete reservoir located just below the top of Jacks Point. There is provision for two additional reservoirs with the building platforms already prepared and pipe connections installed. The treatment plant is adjacent to the reservoirs, this comprises a UV reactor and chlorine injectors. Turbidity is monitored continuously and if the limit of 1 NTU is exceeded the pumps stop until the turbidity clears. The water supply was commissioned in 2006 and during the following 3 years the turbidity limit was not exceeded. A Public Health Risk Management Plan (now known as a

Water Safety Plan) was established under the Drinking Water Standards 2005.

- 23 The Coneburn Water Supply is designed to serve all of Jacks Point, Henley Downs and Homestead Bay developments. Jacks Point Ltd funded the design and construction of the first stage. The three developers entered into a Tripartite Agreement for the establishment of a water supply to serve the Coneburn land in a coordinated and harmonious manner.
- 24 The Coneburn Water Supply is now owned and operated by Jacks Point Residents and Owners Association.
- 25 The Coneburn Water Supply is designed to be upgraded to meet future demand, with “trigger” points determined in the mid 2000’s.

	Pumps	Reservoir – Total Capacity	Treatment
Stage 1 2006	2 x 80 litres/sec	1400m3	1 x UV reactors
Stage 2 – 1000 Dwelling Equivalents	3 x 80 litres/sec	2600m3	2 x UV reactors
Stage 3 – 2000 Dwelling Equivalents		3800m3	

- 26 The water supply upgrades proposed in the mid 2000’s will need to be reviewed to take account of changes in standards, actual water use and final zone densities and design for all of the water supply area.
- 27 The Coneburn Water Supply was designed to the same standards used by Queenstown Lakes District Council and accepted nationally, with the same or equivalent components and in compliance with NZ Standards and the Drinking Water Standards 2005. The water supply is professionally managed using experienced water supply operators.
- 28 Henley Downs Farm Limited and Henley Downs Farm Land Holdings Limited support the extension of the Coneburn Water Supply to serve the PC44 zone. This was envisaged in the tripartite agreement and the

design for the water supply made provision for the development of Henley Downs. There will be a cost for the extension of the water supply to the PC44 zone, the details of which have yet to be discussed.

Flooding, Alluvial Fans

- 29 I have reviewed the evidence of Gary Dent of Fluent Solutions on this topic. I endorse the evidence on alluvial fans, flooding and proposed protections works for the Henley Downs zone presented by Gary Dent.

Transportation

- 30 I have reviewed the evidence of Tim Kelly of Tim Kelly Transportation Planning Ltd for the Henley Downs zone and I endorse his evidence, except with respect to paragraph 94 regarding when the Woolshed Road/SH6 intersection would be required. In my opinion the trigger for constructing this intersection should be based on a specific traffic volume that would use the Woolshed Road intersection if it existed, rather than when the first development of the EIC land takes place. I have discussed this with Mr Kelly and I understand he agrees with me.

RESPONSE TO SUBMISSIONS:

Otago Regional Council (ORC) Submission dated April 2013:

Natural Hazards

- 31 The ORC has raised a number of concerns regarding alluvial fans and liquefaction. These concerns have been addressed in the evidence of Gary Dent of Fluent Solutions.

Stormwater Management

- 32 The ORC has requested an assessment matter be incorporated into the District Plan that “the rate of stormwater discharge remains equal to or less than that, of pre-development up to the 1 in 100 year average recurrence interval event” in their submission 2(a) and 3(b)(i) page 4. While this is a reasonable policy statement or objective for stormwater design, which Gary Dent in his evidence has met, it is a different matter to make it a zone rule in the District Plan. As a rule this would be more appropriate to be included in the ORC Water Plan or a condition in an ORC consent for example to divert or dam a watercourse. If accepted the Henley Downs zone may be the first District Plan zone in Otago that has such a rule. This rule would exclude other legitimate and

environmentally sustainable options for stormwater management for example where the effect of a flood flow on a channel is minimal or where the flood flow can be piped to a receiving body of water.

Southern District Health Board Submission:

Sewage Treatment and Disposal

- 33 In their submission the Health Board estimates that the servicing requirements for up to 1750 dwellings will necessitate at least two septic tank desludging operations in the subdivision on a daily basis (they assume that a septic tank would require desludging once every three years). This is not correct. The wastewater treatment system at Jacks Point, is the same that as proposed by Rob Potts of LEI Ltd for on-site treatment in his evidence. The primary treatment tank at each dwelling in Jacks Point is 4600 litres of which 1000 litres approximately is emergency storage volume. The desludging frequency of these tanks with 3 people permanently in the home is every 12 years. This drops to 8 years with 5 people. No tanks at JP are ready to be desludged. The oldest tank that was installed and began receiving wastewater was in 2007. (Source Innoflow Technology the design/build/operate wastewater contractor for Jacks Point.

Land Irrigation of Treated Wastewater

- 34 The submission from the Health Board raises concerns regarding the spray irrigation of treated wastewater. No spray irrigation of treated wastewater is proposed, any dispersal of treated wastewater will be by subsurface emitters (drip irrigation) as it is at Jacks Point. This is confirmed in the evidence of Rob Potts of LEI Ltd, refer paragraph 50.

Water Supply

- 35 The Health Board recommends connecting to the Queenstown Lakes District Council reticulated water supply. This is expensive and unnecessary. I have shown in my evidence that the Coneburn Water Supply has been designed to the same standards as the Queenstown Water Supply and that the water supply, when fully developed has the requisite capacity to service the land uses and development provided under PC44. Furthermore the water supply is professionally managed and operated.

NZ Transport Agency Submission:

- 36 I have reviewed the submission from NZTA dated April 2013 and I have no comment. The majority of the points they have raised are covered in the evidence of Tim Kelly and I defer to his evidence on those points.

QLDC Section 42A Report

- 37 Site Standard 15.2.7.2 - The ORC has requested an assessment matter be incorporated into the District Plan that “the rate of stormwater discharge remains equal to or less than that, of pre-development up to the 1 in 100 year average recurrence interval event” in their submission 2(a) and 3(b)(i) page 4. While this is a reasonable policy statement or objective for stormwater design, which Gary Dent in his evidence has met, it is a different matter to make it a zone rule in the District Plan. As a rule this would be more appropriate to be included in the ORC Water Plan or a condition in an ORC consent for example to divert or dam a watercourse. If Site Standard 15.2.7.2 is accepted the Henley Downs zone may be the first District Plan zone in Otago that has such a rule. This rule would exclude other legitimate and environmentally sustainable options for stormwater management for example where the effect of a flood flow on a channel is minimal or where the flood flow can be piped to a receiving body of water. The Site Standard and Assessment Matter relating to “the rate of stormwater discharge remains equal to or less than that, of pre-development up to the 1 in 100 year average recurrence interval event” should be deleted.

CONCLUSION

- 38 For the matters covered by my evidence and the evidence of others, being wastewater disposal, stormwater management, natural hazards, water supply and transportation there are viable and practical options for the development of the Henley Downs zone.
- 39 I consider the effects of the PC 44 are appropriate and in keeping with adjacent existing development. The structural changes to the plan have not resulted in effects on infrastructure that cannot be readily provided for.

DATED this 29th day of June 2015

Ken Gousmett