



REPORT

STRUCTURAL AND CIVIL ENGINEERS

ONSLOW ROAD SHA

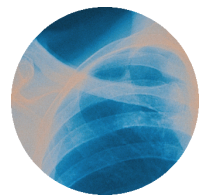
THREE WATERS ASSESSMENT

PREPARED FOR

QUEENSTOWN LAKES DISTRICT COUNCIL

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21 OCTOBER 2015





Onslow Road SHA Three Waters Assessment

Prepared For:

Queenstown Lakes District Council

Date: 21 October 2015

Project No: 114562.00

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Prepared By:

A handwritten signature in blue ink, appearing to read 'Sarah Duncan'.

Sarah Duncan
PROJECT ENGINEER

Reviewed By:

A handwritten signature in blue ink, appearing to read 'Andrea Jarvis'.

Andrea Jarvis
PROJECT DIRECTOR

Holmes Consulting Group LP
www.holmesgroup.com
Queenstown
T: +64 (03) 441 3055

OFFICES IN:

Auckland

Hamilton

Wellington

Christchurch

Queenstown

San Francisco

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INTRODUCTION

Holmes Consulting Group (HCG) has been engaged by the Queenstown Lakes District Council (QLDC) to provide an assessment of the Three Waters infrastructure for a proposed 1.58 hectare development at the south-west corner of Lake Hayes Estate located between Onslow Road and Widgeon Place. The site is located on Lot 403 DP 379403 and is intended to be developed as a Special Housing Area as set out in the Housing Accords and Special Housing Areas Act 2013.

It is proposed to subdivide the existing large, single lot into 22 residential lots. These new lots will be between 300 – 750 m² in size (average area of around 450 m²). No specific modelling has been undertaken with regards to the wastewater and water supply networks for this development. Instead, the recent reports provided by Tonkin & Taylor (T&T) and Rationale for the nearby Bridesdale development have been referred to for the infrastructure assessment. HCG has undertaken an evaluation of the required stormwater infrastructure.

SCOPE OF WORK

The scope of work for this project included the following:

1. Review existing water modelling reports to assess capacity and network constraints.
2. Review existing wastewater modelling reports to assess capacity and network constraints.
3. Complete a desk study to assess the existing stormwater infrastructure and determine network constraints.
4. Report on our findings and recommendations.

LIMITATIONS

Findings presented as a part of this project are for the sole use of QLDC in its evaluation of the subject properties. The findings are not intended for use by other parties, and may not contain sufficient information for the purposes of other parties or other uses.

Our assessments are based on a desk study only. Condition assessments of existing infrastructure have not been undertaken and it has been assumed that any deficiencies due to damaged or aged infrastructure will be addressed within existing renewals budgets.



Our professional services are performed using a degree of care and skill normally exercised, under similar circumstances, by reputable consultants practicing in this field at this time. No other warranty, expressed or implied, is made as to the professional advice presented in this report.

WATER SUPPLY

The existing water supply in the vicinity of the Onslow Road SHA is made up of three different water schemes. These are:

- Shotover Country Scheme, fed from a bore adjacent to the Shotover River and designed to support the Shotover Country Development.
- Lake Hayes Estate Scheme, designed to support 50 lots, fed from a bore immediately to the south east of the proposed SHA.
- Lake Hayes Water Scheme.

Council intends to combine Shotover Country and Lake Hayes Estate into a single pressure zone, as outlined in the modelling reports completed for the nearby Bridesdale Farm SHA. This will require work to the network, which is either planned or will be required prior to completion of Bridesdale Farm.

T&T's Bridesdale report states that under the worst-case scenario (Scenario 2A in the Summary Table) the existing Shotover Country bore recorded only 20 pump hours. As this is less than the ultimate available 24 hours it indicates that there is sufficient capacity within the supply to service additional demand, assuming the required upgrades to support Bridesdale and provide a single pressure zone are undertaken.

A 50 mm connection from Onslow Road is provided to the western end of the site. Table 6.2 in NZS4404:2010 indicates a 100 mm diameter main can provide an adequate water supply for up to 40 lots as a single ended (dead end) supply. This pipework will therefore need to be upgraded to a 100 mm main. It is also recommended that an additional hydrant be installed at the entrance to the development.

This pipe, approximately 70 m in length, is estimated to cost approximately \$25,000 to upgrade (based on difficult digging conditions, and allowing for reinstatement of the asphalt above the trench).

WASTEWATER

It is expected that wastewater from the Onslow SHA development would feed into Lake Hayes PS5. As stated in the Rationale modelling report for Bridesdale, additional flows entering Lake Hayes PS5 showed no network elements overflowing with only a single duty pump running. The additional wastewater loadings used by Rationale in this



modelling were more than twice what is likely to be generated by the Onslow SHA development. As such, Lake Hayes PS5 has sufficient capacity to accommodate the site's waste water flows.

It is noted that Council has previously identified Lake Hayes PS4, which is downstream of Lake Hayes PS5, and the rising main from PS4 through to State Highway 6 as requiring upgrade and that work is underway to mitigate the risk of this existing capacity issue. As such, no further comment is made on any required upgrades to that pump station.

The development's connection to the existing Council network would either be from the western end of the development (via an existing 150mm pipe) or to the east via a new wastewater connection that would be installed as part of the subdivision. The existing 150mm connection to the west (as well as the downstream pipework) is sufficiently sized to take the flows from the development. Should the developer decide to install a new connection to the east of the development there would be no cost to Council.

As such, no unscheduled upgrades to the Council network are required.

STORMWATER

The proposed development site is located adjacent to an existing, sufficiently sized, stormwater swale at the south eastern side of Widgeon Place. Runoff from the development will be directed towards this swale via new stormwater infrastructure that is expected to be part of the development's detailed design. Should overflow of the swale occur during heavy rains the runoff will travel via secondary flow paths across undeveloped pasture to the east of the site down to the Kowarau River.

It is expected that the stormwater infrastructure for this development will be undertaken by the developer as part of the detailed design. The downstream stormwater swale appears to have sufficient capacity and with no known flooding issues associated with the swale, it is expected that no upgrades to the Council network will be required.

REQUIRED UPGRADES

There are no unscheduled upgrades to the Council water supply or wastewater networks to support this SHA development other than those already required to support the nearby Bridesdale Farm SHA, and the upgrade of the main directly feeding the site (expected cost: approximately \$25,000). The required installation of a stormwater network for the site is expected to be undertaken by the developer.