

Before the Queenstown Lakes District Council Hearing Panel

Under the Resource Management Act 1991

In the matter of the renotification of two submissions on Stage 1 of the Queenstown Lakes Proposed District Plan concerning the zoning of land at Arthur's Point by Gertrude's Saddlery Limited and Larchmont Enterprises Limited

Statement of Evidence of John McCartney on behalf of Gertrude's Saddlery Limited and Larchmont Enterprises Limited

15 November 2022

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**anderson
lloyd.**

Introduction

- 1 My full name is John Francis McCartney. I am a consulting civil engineer, and I am the owner and director of the consulting engineering company Civilised Limited, based in Queenstown.
- 2 I hold the qualifications of Bachelor of Engineering (Civil) from the University of Canterbury. I have 30 years' experience in the design and construction of civil infrastructure with particular expertise in site investigation and assessment along with the design and construction of development infrastructure including roading, water supply, wastewater and stormwater disposal systems. I have experience in the design and implementation of infrastructure works for both private companies and for Local Authorities throughout New Zealand.

Scope of evidence

- 3 In preparing this evidence, I have reviewed the following reports and statements:
 - (a) Statement of Evidence of Ulrich Wilhelm Glasner on behalf of Queenstown Lakes District Council – Infrastructure – 24 May 2017.
 - (b) Statement of Evidence of Mr John Francis McCartney on behalf of Michael Swan #494 and Larchmont Properties Ltd #527 – 8 June 2017.
 - (c) Rebuttal Evidence of Ulrich Wilhelm Glasner on behalf of Queenstown Lakes District Council – Infrastructure – 7 July 2017.
 - (d) Summary Statement of Evidence of John McCartney for Gertrude's Saddlery Limited (494), Larchmont Developments Limited (527) and (1281) – 8 August 2017
 - (e) Boffa Miskell Figure 1, Atley Road Subdivision Concept Masterplan – 4 October 2022, Revision A.
 - (f) Statement of Evidence of Richard Robert Powell on behalf of Queenstown Lakes District Council – Infrastructure – Three Waters – 18 October 2022
- 4 Civilised Limited (CL) has been engaged by the Gertrude's Saddlery Ltd (GSL) to assess and report on engineering related matters involving potential rezoning of land.

- 5 The rezoning requests have been made as part of the review of the Queenstown Lakes District Council (QLDC) District Plan. The rezoning requests are to rezone the Site from Rural Zone to part Low Density Residential (LDR) and part Large Lot Residential B with a site-specific density. I note that the two rezoning requests covered slightly differing footprints. My evidence covers the area encompassed by the two rezoning requests in its entirety, as set out in the Arthurs Point LLRB draft structure plan attached to Mr Espie's evidence.
- 6 The land is contained in certificates of title 814337 and 393406 and is legally described as Lot 1 DP 518803 and Lot 2 DP 398656. The site is located at the end of Atley Road in Arthurs Point and the rezone request covers approximately 5.82 hectares in total.
- 7 My evidence is limited to infrastructure issues and in particular the feasibility of servicing the site with stormwater, wastewater and water supply services.
- 8 From information supplied to me on behalf of GSL, the likely lot yield from the area of rezoning will be an additional 27 lots (approximately 10 in proposed LDR zoning and 17 in LLRB zoning). I have considered the effects of the additional 27 lots.
- 9 I note that the part of the site is currently zoned for some development with approximately 14 lots able to be developed on land already zoned LDR. The total size of the development would be approximately 41 lots in total. My assessment has focussed on the additional 27 allotments, however I confirm that from an infrastructure perspective the cumulative total of 41 lots can be feasibility of serviced with stormwater, wastewater and water supply services.

Background

- 10 In 2017 CL prepared evidence related to rezoning of the land. At the time, this looked at a zoning of the land that may enable up to approximately 89 new dwellings. Through exchanges of evidence, QLDC agreed that the level of development proposed at that time could be serviced by connecting water supply and wastewater drainage to Council reticulation and stormwater drainage could be enabled by on site low impact design methods.

Water Supply

- 11 The existing Arthurs Point Water Supply services land adjacent and nearby to the site. This reticulated water scheme services much of Arthurs Point on both sides of the Shotover River.

- 12 The intake for the water supply is on the true right bank of the Shotover River upstream from the Edith Cavell Bridge. The water is pumped to the treatment plant and reservoir on Crows Nest Road before being distributed by the piped reticulation throughout Arthurs Point.
- 13 QLDC has previously confirmed that there will be sufficient water pressure to supply the site¹. I agree with this analysis.
- 14 QLDC has recently reconfirmed the ability of the site to connect to the Council water supply infrastructure². I agree with this analysis.
- 15 I have reviewed the QLDC Ten Year Plan and note that there is an amount of capital expenditure proposed for the Arthurs Point Water Supply. This amounts to \$2,220,000 and includes expenditure to provide further capacity in the water supply system. This additional capacity will further enable the existing water supply reticulation to provide water to the proposed rezoned area.
- 16 I have also reviewed the Queenstown Lakes Spatial Plan. This notes that there is likely to be an additional Arthurs Point Reservoir beyond the next ten years and subject to further investigation.
- 17 I note QLDC's previous concerns regarding the distance to the nearest suitable connection point for the water supply. I agree that the area to be rezoned is some distance from a suitable connection point, however, when the area to be rezoned is taken in conjunction with the adjacent vacant LDR land, the point of connection is much closer to the site of future development that would likely encompass the entire undeveloped area. Attached as Attachment A is a drawing showing the likely connection point to existing Council reticulation along with areas of currently zoned but undeveloped land and the subject site.
- 18 The proposed point of connection (as shown on Attachment A) is adjacent to a larger development of land. As the subject site is developed in conjunction with the adjacent vacant LDR land, the water supply connection point for the subject land will be brought considerably closer.
- 19 I further note that there may be benefits to QLDC by connecting the development to the existing Council Infrastructure in two locations. A

¹ "Statement Of Evidence Of Ulrich Wilhem Glasner On Behalf Of Queenstown Lakes District Council Infrastructure - 24 May 2017" - paragraphs 7.116 and 7.121.

² "Statement Of Evidence Of Richard Robert Powell On Behalf Of Queenstown Lakes District Council Infrastructure Three Waters – 18 October 2022" – paragraph 5.1.

second possible connection point within Larchmont Close is shown on the drawing included as Attachment A. A secondary connection for the development would result in a local ring main and may improve the flows and security of water supply in the neighbouring area. The creation of a ring main will improve the water supply network performance for properties on Mathias Terrace, Larkins Way, Larchmont Close and the southern end of Atley Road.

Wastewater Drainage

- 20 The site encompasses a hill and ridge as well as various low points on its perimeter as the land drops towards the river below the site.
- 21 Due to this topography, it is likely that a wastewater pump station will be required to discharge wastewater from the site. Wastewater pump stations are frequently a component of residential subdivisions.
- 22 Subject to detailed design, available pipe routes and Council preference, the wastewater flows would drain to the existing manhole near 80 Atley Road and marked as “Probable Wastewater Connection Point” on Attachment B.
- 23 If the option of a larger communal pump station is not acceptable to QLDC, it will be possible to implement a wastewater drainage option that involved the installation of individual pump stations on each allotment. This would consist of a grinder pump inside a relatively small pump chamber and a small bore rising main that connected to through a non-return valve to either a rising main in the street or the gravity reticulation. These small pump stations could also be controlled in such a way that the flows to the existing Council reticulation was minimised during peak flows. A similar small pump station arrangement was recently implemented elsewhere in Arthurs Point.
- 24 QLDC has previously stated that the existing wastewater main over the Edith Cavell bridge is nearing capacity and that this rezoning would further reduce capacity.
- 25 With the introduction of either a communal pump station, or individual allotment pump stations on the subject land that would be reticulating a reasonable proportion of the wastewater flows from the site, it will be possible to ensure that the pump stations are configured such that they will not pump into the reticulation at peak times. This will require some buffering storage at the communal pump station and large enough pump chambers for the individual allotment pump stations to ensure that the pump station did not operate during the busy morning period or during the peak evening period. Thus, the increase in flows through the restricted main over the

Edith Cavell bridge from this development would be limited and would not significantly contribute to the existing pipe capacity reaching capacity restraints.

- 26 The operation of the overall wastewater network often relies on slowing and manipulating wastewater flows in various parts of the network to ensure that the various network elements can appropriately manage flows. The inclusion of buffering storage within the proposed subdivision to assist with this network management is not uncommon.
- 27 Development contributions will be paid when allotments are created. These development contributions will allow QLDC to recover the cost of any future upgrades that are required to enable growth in Arthurs Point. Should the continued growth of Arthurs Point trigger an upgrade requirement for the wastewater main over the Shotover River then this will be able to be added to the list of future works in subsequent LTP or Annual Plan processes and appropriate Development Contributions levied against the future allotments.
- 28 There is an item on the current QLDC LTP that allows for the upgrading of the conveyance capacity over the Shotover River. This is budgeted for construction in 2029 to 2031 and is expected to cost approximately \$1,072,000. I note that, under the current Council development contributions policy, 27 new residential lots (including the indicative 10 LDR lots) would generate \$170,559 in wastewater development contributions for sewerage upgrade purposes.
- 29 Council has recently identified a further constraint within the wastewater network. This constraint is within the gravity pipeline that runs parallel to Robins Road in Queenstown³. This section of pipeline would receive flow from the subject land following development via the Arthurs Point Wastewater Pump Station which discharges into the Queenstown wastewater network above this point. I understand that Council is currently investigating solutions to this constraint and are currently planning to implement a solution by mid-2025⁴.
- 30 I have discussed this aspect of the QLDC network with Mr Powell. I am of the view that the addition of wastewater flows from the subject land will not increase the rate of flow through the identified constraint near Robins Road.

³ "Statement Of Evidence Of Richard Robert Powell On Behalf Of Queenstown Lakes District Council Infrastructure Three Waters – 18 October 2022" – paragraph 4.2.

⁴ "Statement Of Evidence Of Richard Robert Powell On Behalf Of Queenstown Lakes District Council Infrastructure Three Waters – 18 October 2022" – paragraph 4.3.

This is due to all of the wastewater flows from the Arthurs Point area being pumped to the Queenstown wastewater network. There is no increase in pump capacity being contemplated and so there will be no increase in the flow rate that reaches the constraint. The effect of the development of the subject land will be that the pumps will run for slightly longer but they will not increase the rate of flow through the constraint.

- 31 I also note that if there was buffering storage constructed as part of the wastewater reticulation for the subdivision, this could further alleviate the effects of the identified Robins Road constraint on receiving flows from the proposed rezoned land. The buffering would allow wastewater flows to the constrained pipe to occur outside of the peak flow times and utilise existing capacity at off-peak times.
- 32 I note that the development of the subject land will likely be undertaken in stages and the initial development will be on land that is already zoned and lying within the current area to be serviced by the wastewater scheme. This approach to development would allow time for any necessary wastewater upgrades to be completed. Development of the site that is subject to rezoning is unlikely to occur prior to mid-2025.

Stormwater Drainage

- 33 As previously outlined, the site lies at the top of a ridge and has fall to the Shotover River around much of its perimeter.
- 34 To prevent the concentration of runoff onto neighbouring land, and in the absence of any significant reticulation nearby the site, it is expected that the provision of stormwater drainage for the site will necessarily involve usage of Low Impact Design principles.
- 35 Low-impact Design (LID) is a term from the Code of Practice, used to describe a land planning and engineering design approach to manage stormwater runoff. LID emphasizes conservation and use of on-site natural features to protect water quality. This approach implements engineered small-scale hydrologic controls to replicate the pre-development hydrologic regime of watersheds through infiltrating, filtering, storing, attenuating and detaining runoff close to its source.
- 36 This approach has been used to some extent on recent subdivisions in Arthurs Point. I am aware that it is being implemented and used elsewhere in Arthurs Point and the District.
- 37 The use of the LID approach to stormwater management and drainage is used on all sizes of sections and types of development. This has included

the new Three Parks retail and commercial zoned areas and small high density unit developments.

- 38 This approach could be successfully implemented on the site following detailed investigations, analysis and design. The approach to stormwater runoff would be a key driver in developing an overall development plan for the site as runoff interception prior to flows departing site would be required. I note 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. I do not envisage any difficulties achieving that.
- 39 This is a common approach across the district and in my experience this will achieve the desired outcome of appropriately managing the stormwater runoff from the site.
- 40 QLDC has recently confirmed their view that stormwater will be treated and disposed within the site, and that this is an acceptable approach that is allowed for in QLDC's Land Development and Subdivision Code of Practice⁵. I agree with this analysis.

Conclusions

- 41 This evidence has assessed the ability and options for servicing the site for eventual residential subdivision and development. Future development of the Site will involve comprehensive subdivision under the proposed structure plan, which will provide a further detailed assessment of servicing proposals and impose relevant conditions.
- 42 A suitable water supply for the site is available and feasible to undertake. This has been agreed in principle by QLDC.
- 43 Development of the subject land could be done in such a way as to not be a significant burden on existing ratepayers. Any new wastewater pump station required for the site would be funded by the developer and built to the high standards required by Council through its Code of Practice and engineering approval stage. The rates generated by the additional residential units would more than offset the cost of maintaining a future wastewater pump station.

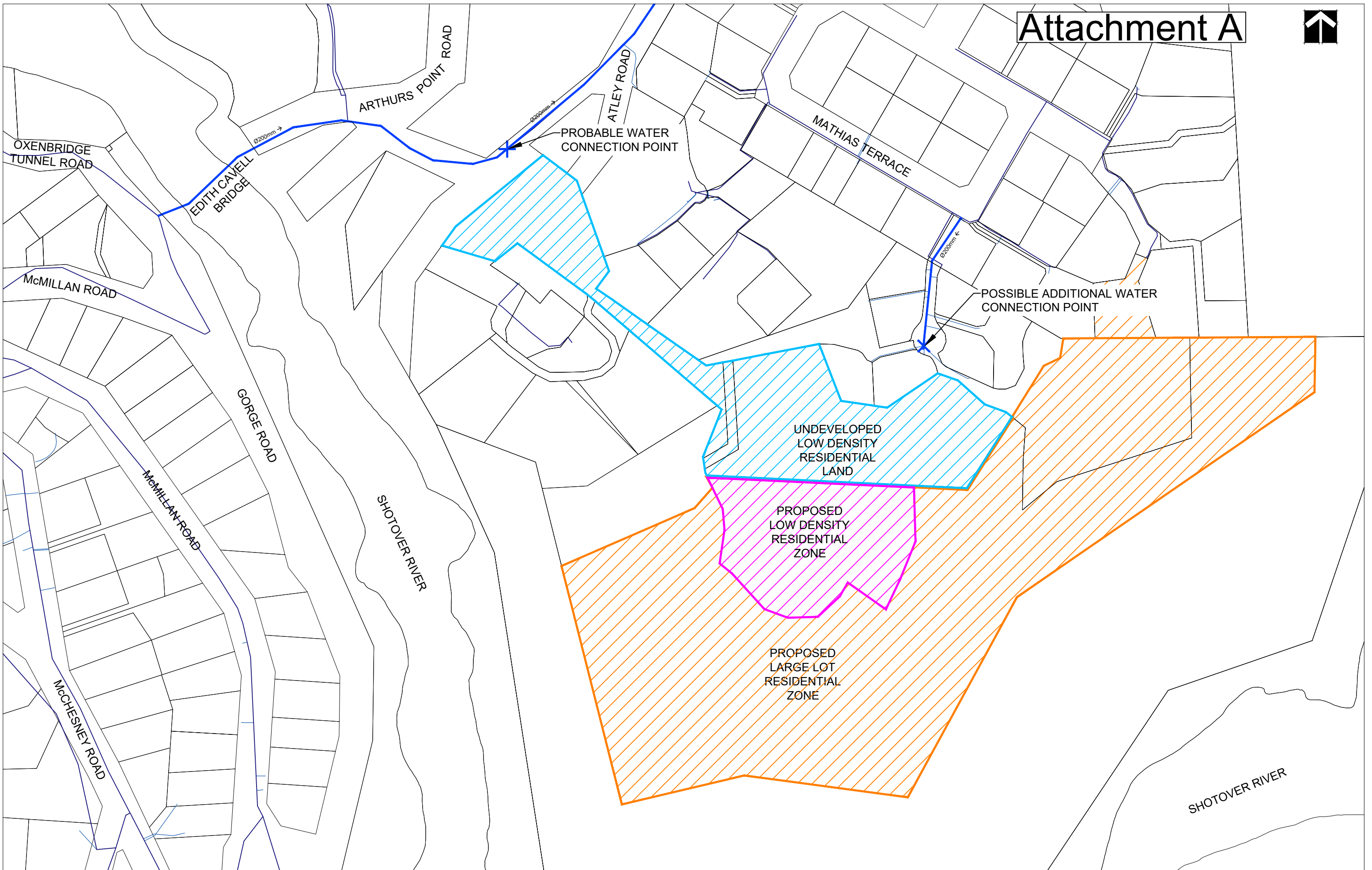
⁵ "Statement Of Evidence Of Richard Robert Powell On Behalf Of Queenstown Lakes District Council Infrastructure Three Waters – 18 October 2022" – paragraph 6.1.

- 44 Any growth in Arthurs Point east of the Edith Cavell bridge will increase the likelihood of an upgrade being required for the wastewater main over the bridge. The future development of the site is a response to growth and not a driver of growth and as such is not solely responsible for the triggering of upgrades to the constrained wastewater main. The future development of the site will provide Council with a significant amount of development contributions that could be used to fund any required upgrades.
- 45 The inclusion of either a communal wastewater pump station or individual on-site wastewater pump stations would provide the ability to control the timing of wastewater flows into the Council network and further reduce the effect that the development of the site would have on the existing reticulation.
- 46 Stormwater is currently being managed using Low Impact Design principles nearby to the subject land and at other developments around the district. Subject to recommendations and appropriate evolution of lot layout concepts, I expect that this approach will be able to implemented on the subject land in order to adequately manage stormwater runoff.

John McCartney

15 November 2022

Attachment A - Water Supply Infrastructure



REV	DATE	DESCRIPTION	APPROVED
B	21/10/2022	Proposed zones amended	JFM
A	13/10/2022	Initial Issue	JFM

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JFM	13/10/2022
DESIGN	DATE
JFM	13/10/2022
DRAWN	DATE
JFM	13/10/2022
CHECKED	DATE

CLIENT

**GERTRUDE'S
SADDLERY
LIMITED**

PROJECT/LOCATION

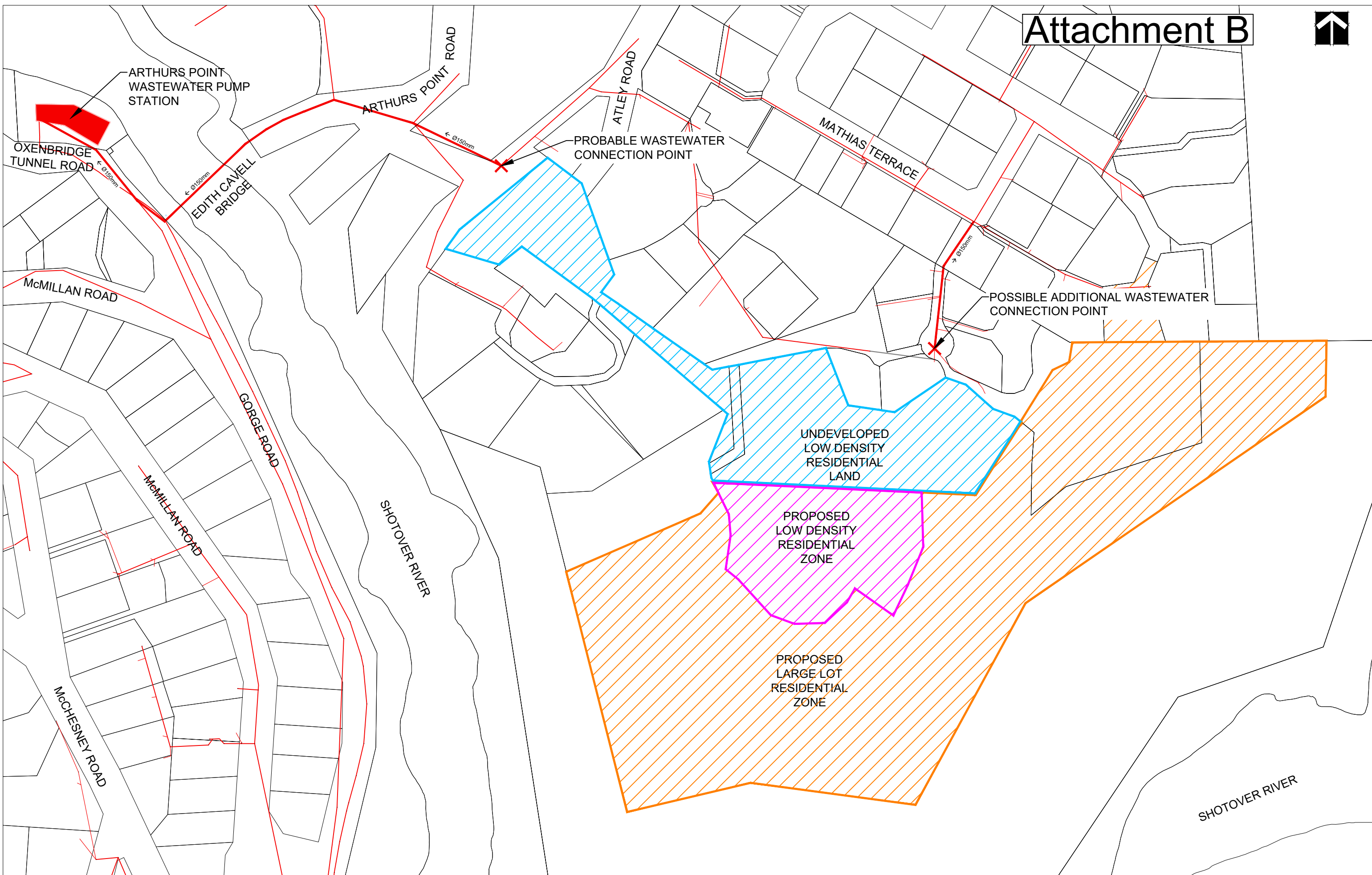
**PROPOSED REZONING
ATLEY ROAD, ARTHURS POINT**

TITLE

WATER SUPPLY INFRASTRUCTURE

CONTRACT NUMBER	-
SCALE (AT A3)	1:2,000
DRAWING NUMBER	QM052-F-410
REVISION	B

Attachment B - Wastewater Drainage Infrastructure



REV	DATE	DESCRIPTION	APPROVED
B	21/10/2022	Proposed zones amended	JFM
A	13/10/2022	Initial Issue	JFM

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JFM	13/10/2022
DESIGN	DATE
JFM	13/10/2022
DRAWN	DATE
JFM	13/10/2022
CHECKED	DATE

CLIENT

**GERTRUDE'S
SADDLERY
LIMITED**

PROJECT/LOCATION

**PROPOSED REZONING
ATLEY ROAD, ARTHURS POINT**

TITLE

WASTEWATER DRAINAGE INFRASTRUCTURE

CONTRACT NUMBER	-
SCALE (AT A3)	1:2,000
DRAWING NUMBER	QM052-F-510
REVISION	B