

Submissions to the draft Queenstown Lakes Spatial Plan

ALBERS Rachel

Kawarau Jet Services Holdings Ltd

Central Queenstown

Q. I am aged:

19-29

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Support

Q. Please let us know your comments or feedback:

KJet supports the draft Spatial Plan's goal to create a transport network that prioritizes public transport within the Wakatipu Basin.

Q. Please describe the reasons for your position:

Outcome 2

KJet supports the Spatial Plan's aspirations for providing inter-modal public transport choices for both the residents and the tourists within the District and is particularly in support of Map 14 which indicates a ferry service as being a regular service within the public transport network.

KJet have already obtained resource consents from QLDC to establish and operate a scheduled public ferry service on Lake Wakatipu and the Kawarau River to enable people to travel between Queenstown and various locations adjacent to Lake Wakatipu and the Kawarau River. A jetty and pontoon adjacent to Bridesdale Farm was also consented for use by the ferry vessels for loading and unloading passengers.

KJet's plans to create and operate a public ferry service are consistent with the strategies listed in Outcome 2 of the draft Spatial Plan.

Outcome 3

KJet supports the draft Spatial Plan's aspirations for a sustainable tourism industry, however, should a Destination Management Strategy be developed we would expect the opportunity to be consulted and provide input into the content of such a strategy. KJet supports strategy 10's promotion of public transport as is shown in the discussion around Outcome 2 above.

Q. Please let us know if you have any further comments:

Outcome 2

We note that Map 14 only includes ferry stops between the Queenstown Town Centre to Frankton via the Frankton Arm of Lake Wakatipu. Map 14 should including further stops consented under RM181023, as follows:

? Remarkables Park

? The new jetty located on the bank and the bed of the Kawarau River, on the true left side, adjacent to Bridesdale Farm, Lake Hayes Estate.

Including these additional stops would support additional choice of transport to the residents within these areas.

ALLARD David

Wanaka

Q. I am aged:

60+

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Oppose

Q. Please let us know your comments or feedback:

Q. Please describe the reasons for your position:

The Spatial Plan assumes a return to pre-covid revenue streams by 2023. This means that the planners have assumed that tourist numbers will return to pre-covid levels. The Minister for Tourism has on repeated occasions stated that NZ will not be continuing to pursue a mass tourism model. The reasons were clearly stated. Communities such as ours cannot fund the level of infrastructure required to support those numbers and the vevry thing that tourists come to see would be jeopardised. On that basis the Spatial Plan has missed the mark and is worthless.

Q. Please let us know if you have any further comments:

ANDERSON terri

Frankton & Quail Rise

Q. I am aged:

46-59

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Neutral

Q. Please let us know your comments or feedback:

community feedback has resoundingly said no to airport expansion. reference to airport expansion should be removed.

the growth assumptions are disturbing.

our waterways and wild spaces need to be protected from further exploitation, and unbridled growth is not desirable for our tourism offering nor for our communities.

Q. Please describe the reasons for your position:

Q. Please let us know if you have any further comments:

ANDRADE Lilia

Frankton & Quail Rise

Q. I am aged:

30-45

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Oppose

Q. Please let us know your comments or feedback:

Q. Please describe the reasons for your position:

- The fundamental assumption of ZQN's continued growth should be removed from the plan. 92.5% opposition of around 1500 submissions to QAC's ANB expansion plans in 2018 and the 1500-strong petition clearly showed our community's opposition. This response has been reiterated in the MartinJenkins report, The Mood of the Nation and QLDC Quality of Life surveys.
- The ability to expand the ABN at Queenstown Airport should be specifically excluded in the Spatial Plan Spatial Plan writers expect growth to return to pre-Covid levels within five years. So if the airport were allowed to expand its ANB through the Spatial Plan, all the downstream ramifications - excessive noise, congestion, over-tourism, health effects, loss of private property rights for 4000 more property owners, loss of social licence for tourism business et cetera, et cetera – would still happen, just a bit later.
- The likely effects of climate change mitigation on long haul travel patterns and the use of already existing noise reduction technology and plane capacity improvements would mean QAC could achieve its purported PAX targets without any ANB expansion.
- Continuing to grow an excessively noisy international airport in the middle of an increasingly dense urban centre does not enhance any of the four well-beings the council is legally required to provide for, nor meet any reasonable definition of Growing Well/Whaiora (the Spatial Plan's cute name).
- The Spatial Plan ignores the huge impacts of the airport and its expansion plans on use of the ZQN land and the large tracts of land under the ANB. The map shows only the ZQN land as being impacted on and says it "restricts some development outcomes in parts of Frankton". There is no description of the impacts ZQN – much less its expansion plans - has on this space. E.g. limiting use of Queenstown Events Centre sports fields, forcing the West-East urban corridor into a narrow strip of the commercial canyon, banning all Activities Sensitive to Air Noise (ASAN) on much of the Frankton Flats and beyond, and so on. Details of these serious impacts must be included in the plan, so that the 2024 Spatial Plan review has more chance of wiser outcomes under different council leadership.
- The page 88 statement of political support for unquestioned continued airport growth, contrary to strong and consistent community feedback, should be removed. Claims that such growth is "vital to the economic and social well-being of Queenstown Lakes" and that it is "important is that the level of service continues to support" growth in demand from commercial air services is not an objective statement of fact, nor a reflection of community feedback.
- The 30-year draft Spatial Plan should have been an exercise in blue sky, long-term planning that looked at all opportunities for use of our invaluable land resource. But the threats and opportunities offered by the Tarras International Airport proposal have not been addressed at all. ZQN currently occupies Wakatipu Basin's largest, flattest, sunniest, most developable and geotechnically stable land resource. Its ANB, especially the extended version, severely constricts the use of even more. Even if QLDC and QAC do not like the idea, the Spatial Plan must look at what it would mean if Tarras International Airport goes ahead and its better safety profile and climate change mitigation performance make airlines pull out of ZQN. To not do so would be irresponsible and short-sighted. If this cannot be done prior to Council's desire to agree to the draft in June, then this deadline should be extended or such analysis should be required prior to the 2024 review and any action taken to cement QAC's expansion plans forbidden.

These are just some of the ways the draft Spatial Plan could be improved to ensure our community's well-being (economic, environmental, social and community) not the outdated "more bums on seats" tourism model, is the primary driver.

Q. Please let us know if you have any further comments:

ARCHIBALD Philippa

Arrowtown

Q. I am aged:

60+

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Oppose

Q. Please let us know your comments or feedback:

Please do NOT increase the capacity of visitors arriving and departing at the Frankton airport. Do NOT expand the run way to allow for more growth. This district is becoming ruined because of the increased traffic and other related issues so we most definitely do NOT need more visitors than we had in 2019. We do NOT need more traffic, more cars, more camper vans, more poor drivers, more drunkenness .

Please do NOT expand the airport. The result for the community and the tourists could end in local people and their business moving out of town.

The council needs to support what is existing and respect the voice of it's people. Tourists have come to visit in the past because of the natural beauty and the experiences offered by the local population and their businesses, please do NOT destroy what is already here.

Philippa Archibald, owner of Dorothy Browns Cinema, Arrowtown.

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Q. Please let us know if you have any further comments:

BADGER Kim

Wanaka Golf Club Incorporated

Wanaka

Q. I am aged:

30-45

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Oppose

Q. Please let us know your comments or feedback:

In regards to the Draft QLDC Spatial Plan of March 2021. I refer to page 61 map 10 'Upper Clutha Priority Development Areas'. The Wanaka Golf Club believes it is not appropriate to have such a broad brush map in the Spatial Plan with the terminology of "priority development area" which over lays reserve land such as the golf course, Pembroke park, Lismore park and Faulks Terrace reserve.

We feel it is dangerous planning having such a sweeping statement in the Spatial Plan or any future planning document for that matter. Any over view reference maps need to clearly identify reserves that are protected in our community.

We are opposed to having Recreation Reserve Land marked as 'Priority Development Area' in the Spatial Plan.

Q. Please describe the reasons for your position:

We are opposed to having Recreation Reserve Land marked as 'Priority Development Area' in the Spatial Plan.

Q. Please let us know if you have any further comments:

BAILEY Doug

Fernhill & Sunshine Bay

Q. I am aged:

60+

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Oppose

Q. Please let us know your comments or feedback:

See attachment

Q. Please describe the reasons for your position:

Support the well meaning expressions/objectives, but these are not supported by the actual priorities or the unaddressed significant issues. See attachment.

Q. Please let us know if you have any further comments:

See attachment

Q. If you have a pre-prepared submission, you can upload it below. Please note that we can only accept .docx files.

Additional documents or PDF files can be emailed to letstalk@qldc.govt.nz Please write "draft Queenstown Lakes Spatial Plan submission" in subject header.

Bailey & Hinson QLDC Spatial Plan submission 19 April 2021.docx

Summary

The Spatial Plan is a poorly conceived document. It is heedless of strongly expressed community concern about growth and the continued degradation of the social and environmental amenity of the region.

The assumptions underlying the Plan are also fundamentally flawed. Growth is considered both inevitable and beneficial, despite its incompatibility with the social and environmental wellbeing of the community. The Plan does not even attempt to reconcile the position.

Further, the economic good of the few is conflated with well-being of the many and the Plan is silent on the problem of the demand-led model of the Airport Corporation impacting adversely on any proactive plan.

Specific Comments

- The Plan states it, *“provides a longterm framework for managing growth. It directs growth in a way that will make positive changes to the environment, housing, access to jobs and opportunities, the wellbeing of the community and the experience of visitors. It recognises that solving these challenges will require central and local government working together with the community and private sector.”* Despite the COVID-19 pandemic, *“growth is expected to return, and the number of residents, jobs and visitors will approximately double over the next 30 years, requiring about 17,000 new homes in the area”* (my emphasis).
- This is the context in which government designated that the Queenstown Lakes should form part of the Urban Growth Agenda, requiring spatial planning. The Plan reviews the context, highlighting the constraints and challenges posed by growth. Its starting point is the status quo and the various developmental plans already prepared or in the pipeline. It usefully provides a conceptual framework to pull those disparate pieces of work together into a coherent plan.
- However, behind the feel-good spin and green washing, the Plan is essentially a continuation of what has gone before. Social and environmental amenity are, once again relegated behind a long-standing growth agenda and vested interest. It talks of the mandated ‘wellbeings’ but fails to specify them or how the plan meaningfully contributes to them. Current economic analysis of the true cost of growth is ignored, as are the lessons of the last year. All point to the need to do things differently. Various consultants’ reports and business and community feedback have long underscored the need for economic diversification and greater consideration of social and environmental amenity. The Plan takes no cognisance of any of this. Plous phrases like ‘managed growth’ are laughable in the face of the Council’s demonstrated failure to manage existing growth, let alone what it forecasts.
 - As just one example, the recent Town Centre and Frankton Masterplans are treated as key inputs (both plans were pre-2020, pre-COVID); the Strategies described and

the Priority initiatives to be advanced by the partnership's joint work programme take the detail of the Masterplans as a given. No alternative is offered: where is the 'reset'?

- Similarly, on Airport growth, the Spatial Plan assumes that both Wanaka and Queenstown Airports will remain in their existing locations. The possible development of a Tarras airport is treated as highlighting the commercial interest in the development and delivery of capacity to serve the wider region. No attempt is made to evaluate the implications of potential alternative land use of Frankton Flats which might have been expected of a Spatial Plan with a 2050 horizon.
- As for the growth in demand for commercial air services, the Plan simply says this *"will continue as Queenstown Lakes and the wider region continues to develop, and it is important that the level of service continues to support this."* So, the Queenstown Airport Corporation's demand-led model is left untouched. (In other words, the airlines will determine growth in passenger numbers.) Again, no 'reset' and no regard for the already unacceptable cumulative noise of light commercial aircraft pre-covid.
- As noted above, the Plan also fails to comply with the Local Government Act's re-instatement of the promotion of social, economic, environmental and cultural well-being of communities to the statutory purpose of local government – communities, not vested business interests and not tourists, but the people who actually live and work here now and in the future.
 - None of the 108 pages of the Plan quells the concern that allowing for a doubling in the "number of residents, jobs and visitors ... over the next 30 years, requiring about 17,000 new homes in the area" is compatible with the Queenstown Lakes remaining both an iconic destination (a central part of Aotearoa New Zealand's tourism offering) and a highly sought-after location as a place to live. Is such growth environmentally sustainable, both now and in the face of future imperatives of the climate emergency?
 - The assumed and accepted (encouraged?) growth in demand for commercial air services is despite all the feedback showing both Queenstown and Wanaka communities vehemently oppose QAC/QLDC's airport expansion plans and despite our clear pre-Covid exhaustion with over-tourism and unconstrained growth. The continued risk here is that the Airport's interests and priorities will continue to dominate, with Council playing catch up on infrastructure and impotent when it comes to addressing environmental and social amenity. Here, the tail is very much wagging the dog.
 - Economic diversification to address overreliance on tourism has been recognised as needed in the Queenstown region for many years but is still no further progressed than the Spatial Plan's priority initiative to "Develop an Economic Diversification Plan". Consultants, Martin Jenkins and Associates, have been engaged by the Council on two occasions and at no doubt significant public cost, to address that objective. So despite this and the existing Economic Development Strategy from February 2015 supposedly prioritising the need for diversification, progress has been negligible, if there has been any progress at all. Perhaps if the diversification objective had been prioritised, the economic impacts of the pandemic for

Queenstown could have been mitigated. Yet another plan is superfluous. The need is for actual action.

Concluding comment

Perhaps one of the most disappointing aspect of the plan is its failure to take on board the fact that the world has changed. Changed with it are the tourism priorities of the government, which have shifted away from mass tourism. The opportunity to focus on a future Queenstown as a model of a high-end destination and living environment has not been grasped. Instead, we're faced with the very real prospect of another tatty little agglomeration of urban sprawl and congestion in what used to be a beautiful environment. Also ignored is clearly expressed public opinion, the overwhelming weight of which is opposed to further expansion and a continued reliance on mass tourism.

BARTHOLOMEW Andrew

Wanaka

Q. I am aged:

60+

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Neutral

Q. Please let us know your comments or feedback:

Growth is inevitable. You talk about growing well but the increased population will eventually become sick and unwell and require ease of access to publicly funded medical services. This means much greater investment into local publicly funded hospital services. No further housing growth should be planned until funding is identified for a) a new hospital in Wanaka and b) extended hospital services in Queenstown. You should be lobbying Government for central funding for new buildings and DHBs for staffing and facilities. Expecting a dramatically increased population, both resident and visitor, to travel to Dunedin and Invercargill for both emergency and planned investigations and treatment. will become wholly inadequate, resulting in preventable morbidity and mortality. It is also far more environmentally friendly for Specialists and their services to be delivered locally, although most Specialists will come up with reasons and excuses as to why it can't be!

It is somewhat naive to think that residents of Wanaka will use walking and cycling as their first travel choice. Yes, residents want to exercise and walking and cycling is a very popular way of achieving this and should be promoted and walk ways and cycle paths be improved and extended. However, most residents use motor vehicles for a) work and carrying their necessary equipment with them b) shopping both at 3 Parks and Town and require a vehicle to take their purchases home with them c) leisure requiring vehicles to tow boats, carry bikes, travel up to ski fields etc. Also, as more vehicles become battery powered residents will justify their use more, not less. As the population ages, residents will want to retain their independence by use of self drive vehicles or electric buggies.

As far as tourists go, I agree on them being forced to use only public transport and for Wanaka to become a car free destination for them. That means car and RV hire is only available at the fringes of Wanaka and that no rental vehicles are allowed into the town itself. This can easily be achieved with modern technology. More and efficient park and ride will be required with adequate provision for luggage etc. to take people to their accomodation.

Q. Please describe the reasons for your position:

Growth is inevitable both in residents and visitors. The current infrastructures in Wanaka will struggle to cope. Housing is being crammed in to smaller and smaller spaces, yet there are hundreds of developable acres around the town. Instead of extending Wanaka/Albert Town so much further shouldn't you be concentrating on growing Hawea/Luggate/Cardrona in to well planned and self sufficient communities now. This will allow Wanaka and Albert Town to become comfortable with themselves and any necessary infrastructure to catch up with the development to date. They ca then move forward a decade or so down the line.

Q. Please let us know if you have any further comments:

Give up on Wanaka airport. Support a new truly international airport in Tarras. Close Queenstown airport other than for leisure. Make all overseas visitors use public transport to Queenstown and Wanaka. Sell land not required at Queenstown Airport. Use revenue to develop Health, Education, 3 Waters, Road and Public Transport, Leisure, Sport and Recreational across QLDC area.

BARTON David

Wanaka

Q. I am aged:

60+

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Neutral

Q. Please let us know your comments or feedback:

Submission attached

Q. Please describe the reasons for your position:

Submission attached

Q. Please let us know if you have any further comments:

Submission attached

Q. If you have a pre-prepared submission, you can upload it below. Please note that we can only accept .docx files.

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David Barton-Submissions to QLDC on SP-April 19, 2021.docx

QLDC Spatial Plan

Submission from David Barton 19 April 2021 at 1pm

Submitter's details

David Barton

Email: [REDACTED]

Postal: [REDACTED]

"Do you wish to be heard?": Yes, I do please.

Summary

- A. Listen to your communities. QLDC must start putting its people first: the views and wishes of the community you serve are paramount, and you must engage in active listening (including real consultation) and act on it in good faith.
- B. Revise your population growth projections to reflect realistic population growth rates. Council should commission realistic figures and sources produced separately for each of residential population growth and visitor population growth across the district, with figures separated out for the Upper Clutha community. These figures should be clear, easy to understand and well referenced.
- C. Plan for a reset for sustainable tourism. Recognise that Council has a part to play in managing tourism growth and that your planning documents need to genuinely address issues of over-tourism and how to achieve sustainable destinations both for visitors and residents.
- D. Show real commitment to your climate emergency declaration and the urgent need for climate action. Council's declaration of a Climate Emergency and the well documented and unequivocal concerns of the community around climate change should be built into the TYP as a core underlying principal and key consideration of all planning and budgeting.
- E. Specific recommendations relating to pages 88-89 of the SP.

A. Listen to your communities

One of the most important and overriding statements we need to make is this: It's time the Council started to put its people first.

We, the communities of ratepayers and residents who live, work and play here are the people you are here to serve. The views and wishes of our communities are paramount and as a local government organisation you have a duty to engage in active listening: this includes real and effective consultation and a willingness to take feedback from the community and act on it in good faith.

So our first message is this: when you do engage - make sure that you listen.

As you know, our communities have a range of concerns - and a key theme underlying each of these concerns is that they feel that are simply not being listened to. We, along with many other community organisations representing the Upper Clutha community, are deeply frustrated by this. The Council appears to be squandering the opportunity for any re-set, ignoring advice from both our Minister of Tourism and the Parliamentary Commissioner for the Environment, the single minded focus is to return to pre-Covid levels of tourism activity. Tomorrow's tourism cannot be business as usual. This is not what our communities want. We frequently hear it's "what's best for the overall district" or "Wanaka needs to share the load". The later statement made by a number of Queenstown Councillors is a staggering admission of failure. We certainly don't accept that we need to build another airport in Wanaka because Queenstowners don't like the current immediate impacts on ZQN. That sort of broad stroke planning is not the way to build first class communities or first class tourist destinations.

We are individual communities with individual goals and values. Council must listen to and respect that diversity. That is part charm of places like Wanaka or Glenorchy or Hawea or Makarora or Kingston.

Recommendations:

1. Council should review its consultation methods and how it treats community input and input from community organisations into planning, especially strategic planning vehicles such as the SP. This will be absolutely necessary for QLDC to move from 48% of respondents in 2020 who "are satisfied with the opportunities to have their say" to their target of 80% in all following years.

B. Establish and plan for realistic population growth rates

There is a fundamental disconnect between the QLDC's much lower projected residential growth figures and the growth rate we would expect on the basis of historical growth over the last 10-30 years. The SP significantly underestimates growth in resident numbers as the basis for future planning while assuming that tourism will grow massively throughout the 30 year period. In fact visitors are projected to outnumber residents by 2 to 1 by 2031. This has major ramifications for future planning for our district which must be addressed by QLDC.

Both the TYP and the Draft Spatial Plan mention a variety of growth rates as their basis for planning. The TYP offers 5.4% per annum as the combined growth in both visitor and resident numbers for the district, predicting an average day population of 85,372 by 2031. By 2031 the TYP predicts a peak day population of 144,782 visitors and residents, representing a combined growth rate of 3.5% per annum. The TYP Consultation Document (page 13) states "Over the past 30 years, the Queenstown Lakes has grown steadily from 15,000 residents to its current population of approximately 42,000". In fact it is not quite 30 years that StatsNZ has the figures for, from 14,800 residents in 1996 to 47,400 in 2020. But this represents an average growth rate of 5% per annum. Yet again QLDC don't accept the figure of 47,400 - choosing DataVentures 43,377 instead, which makes historical bench-marking difficult. The community needs clearly defined figures and sources, produced separately for resident and visitor populations, as well as separate and clearly defined population data for the Upper Clutha.

Any comparison we can see between StatsNZ published growth rates since 1996 and the future population and tourism numbers assumed in the both the draft plans suggests that the figures used for both the Draft TYP and the Draft Spatial Plan are unrealistically low, - unless there is a fundamental shift by council in how it facilitates growth. Serious underestimation and under-provisioning for growth have been a historic feature of QLDC long term plans for decades and are a key underlying reason for the wide range of well documented problems that the region now faces with infrastructure, housing, debt etc.

Our Council should be doing one of two things; either

1 - amend your plans to reflect realistic levels of growth and peak demand (and be forced to deal with the infrastructural costs that will be incurred), or

2 - outline how you intend to manage growth and limit visitor numbers to what we as a community can cope with and fund.

Instead - unrestrained growth remains the default setting for our Council.

The Draft Spatial Plan presents a completely false impression of the likely growth of the region, including Wanaka, over the next 30 years. It is vastly over conservative while giving no indication of any actions council will take to limit growth. In no way does it support our district to "Grow Well" as set out in its goals. On the contrary it is in fact a recipe for the district to "Grow Badly".

Council needs to start again on the numbers, provide its communities with realistic growth scenarios and tell us how those could be planned for; and what actions the council propose to take to limit and manage growth. A genuine debate on this "growth" topic across the QLDC is well overdue!

Recommendations:

2. Council should publish clearly defined population data and sources, produced separately for resident and visitor populations across the district, as well as separate and clearly defined population data for the Wanaka Ward.. These should include sources.

3. Projected future growth rates, both for residents and visitors, should include sources and reflect published historical figures and growth rates for the district, and should also be broken out to show Wanaka Ward numbers in all cases.

4. Growth projections for QLDC strategy, planning and budgeting are critical and therefore their basis should be fully transparent.

C. A re-set for sustainable tourism and air services

"Sustainable tourism needs to balance environmental protection, social equity, quality of life, emission reduction, cultural diversity and a viable economy. Focusing on sustainable tourism ensures that community wellbeing and environmental sustainability are integral to the success of the industry. Achieving a model for sustainable tourism in the Queenstown Lakes would have a significant impact on the national stage and demonstrate leadership within the industry." Draft Spatial Plan (page 84)

"The rapid increase in visitors has stretched infrastructure networks and is putting pressure on the environment and the community. Better coordination is needed to ensure visitors tread lightly and are a welcome contributor to the social, economic, cultural and environmental story of the Queenstown Lakes." Draft Spatial Plan (page 83)

The above statements purport to represent the guiding principles of the Draft Spatial Plan, Outcome 3: A sustainable tourism system. But they also represent a fundamental disconnect in both the Draft Spatial Plan and the Ten Year Plan between aspiration and actual policy. We fully support the sentiments contained above but this is a classic example of supposedly foundational principles not being reflected in projects or actions across either of the Draft Plans. Is the vision to develop a second much larger scale Wanaka Airport treading lightly?

There has yet to be any genuine consultation on the community's vision for the potential redevelopment of Wanaka Airport for regional, national and international flights. There have been a number of related surveys (such as the QAC consultation on expansion of noise boundaries at Queenstown Airport, the Quality of Life Surveys and the Martin Jenkins report). All of these have clearly shown resident discomfort with further expansion of airport activity and visitor numbers in the region.

A recent survey by the Wanaka Stakeholders Group generated 1200 responses from both members and Upper Clutha residents and businesses. It clearly highlighted that the majority of respondents were opposed to the development of jet capable airports at either Tarras or Wanaka.

- More than 87% of respondents expressed concerns at the impact on the environment and quality of life of our residents and ratepayers should such developments at either location proceed.
- 83% were concerned about the negative impacts of airport development on the unique character of the Upper Clutha.
- 68.7% were concerned about road safety issues as a consequence.

Surely our Upper Clutha Community has made itself clear? Priority must be given to the needs of local residents.

A destination which strongly reflects the interests of its local community and invests infrastructure for its residents is far more likely to be an attractive destination to visitors in the long term. This has been Wanaka's strength since Covid, its attractiveness to locals and New Zealanders alike. Council needs to listen and then act on the concerns of our community rather than pandering to the very limited interests of developers, big business and outside corporates who simply want to drive the growth agenda with no regard to our community or the environment.

We also need to listen to the strategic goals of our national policy makers. This includes our Minister of Tourism's three imperatives: protecting and restoring the natural environment, ensuring the industry delivers high-quality tourism experiences, and striving to enhance the social licence, the public goodwill for tourism to continue operating in our communities."

We challenge the SP's assumption that we are remote. While attracting businesses "that diversify the economy depends on reliable air and land transport, communications and power." (SP 103) surely that air transport does not need to be 10 minutes away, especially in the case of the predominantly IT or film industries that are currently being promoted, and the existence of a jet capable airport less than 60 kilometers away in Queenstown.

As far as tourism is concerned, we are not remote and access is simply not an issue. Tourists have already decided to fly half-way around the world to get here and to drive for 2-3-5 hours through diverse and scenic landscapes along well maintained roads from Christchurch or Invercargill or Dunedin to reach Queenstown and Wanaka is an integral part of their trip. This is exactly what Tourism NZ advocates, encouraging greater regional distribution.

Ski tourists, whether from Australia or the USA, are used to driving 2-3 hours to access their winter resorts. Our relative "remoteness" is in fact one of our attractions and clearly has not hindered the extraordinarily high rates of both residential and visitor growth in our towns over our recent past.

Since Covid and prior to borders re-opening, existing airport structure has proved more than adequate to cope with domestic demand.

The dual airport vision is for the dual benefit of business and international visitors - not local residents.

Recommendations:

5. The draft Spatial Plan and other planning documents including the Ten Year Plan must be updated to reflect the guiding statements from the Spatial Plan quoted at the beginning of this section of the document.

6. QLDC needs to develop a genuinely sustainable tourism strategy, one which manages growth for the benefit of residents as well as tourists. Airport strategy is a key method by which Council can manage tourism numbers into the district and influence levels of growth. A sustainable policy for air services is therefore vital to the economic and social wellbeing of the Queenstown Lakes.

7. The dual airport vision should be abandoned in favour of a new vision for Wanaka Airport which truly reflects the wishes of the community.

D. Climate change and investment strategy for the Upper Clutha

Long term strategic planning for both Queenstown and Wanaka must take climate costs and community desire to manage visitor numbers into consideration. Until the Emissions Road

Map and Climate Change Action are finalised, the Spatial Plan cannot inform and guide input to strategic decisions on future air services investment in the Queenstown Lakes District.

Specifically we see inadequate investment to reduce carbon emissions in the Upper Clutha and no commitment or planned mechanism to measure carbon emissions properly across projects and activities in the district. The work of the Climate Reference Group which has been in place since August 2020 should be feeding into the TYP and SP process. The TYP refers to an "emissions roadmap prepared to achieve net zero 2050," yet there are absolutely no references to any compliances with it and it remains unpublished.

The community needs to see a copy of the road map referenced, and for this to inform all planned activities. Similarly, we understand that the Climate Action plan will not be finished until well after the adoption of either the TYP or Draft Spatial Plan, when it should be driver of strategy for both of these.

We would like to see the QLDC setting a leading example in mitigation of climate emissions. Just make a start, set some deadlines and achieve some real gains. There is currently no holistic plan to develop active transport in the Upper Clutha, a network operating plan is clearly needed. There are also no proposals for food waste collection and no measures envisioned for building waste and landfill reduction.

Recommendations:

8. Council's declaration of a Climate Emergency and the concerns of the community around climate change should be built into the TYP as a core underlying principal and key consideration in all planning and budgeting.

9. There should be far greater investment (both from a budget perspective and a planning perspective) in steps to dramatically reduce carbon emissions in our district.

10. There should be clear and objective evaluation and reporting on the carbon emissions profile of all planned infrastructure projects and activities flowing from those projects.

11. Assuming it has been finalised, as suggested, the emissions road map should be published and should be fully referenced in both the TYP and Draft Spatial Plan.

12. The Climate Action Plan needs to be brought forward and given priority.

E. Pg 88-89 Air Services Across Queenstown Lakes – Recommended wording

Page 88

Due to the relatively remote location of the Queenstown Lakes, our residents and visitors are dependent on air services for connections to wider New Zealand and beyond. Currently approximately 30-40% of people access the region by air and the remainder by road. Air connectivity is therefore a key component of the transport system, and vital to the economic and social wellbeing of the Queenstown Lakes.

Prior to the COVID-19 pandemic, the potential demand for air travel to the Southern Lakes Region was projected to reach 1.6 million residents/visitors by 2025 and 3.5 million residents / visitors by 20451. Growth in demand for commercial air services will continue as Queenstown Lakes and the wider region continues to develop, and it is important that the level of service continues to support this.

As in many parts of New Zealand, Queenstown Lakes residents and visitors rely on air services for fast connection to wider New Zealand and beyond. Currently approximately 30-40% of people access the region by air and the remainder by road. Air connectivity is a key component of the transport system.

However it needs to be recognised that airports also influence and facilitate growth. They can be accelerators. Airport strategy is a key method by which Council can manage tourism numbers into the district and influence levels of growth. A sustainable policy for air services is therefore vital to the economic and social wellbeing of the Queenstown Lakes.

Note: Previously QAC reported passenger activity in terms of passenger movements (PAX movements). In this document the activity refers simply to passengers thus halving the number of PAX movements. In the interests of consistency and to reflect the actual level of activity we suggest that this report, like others previously, should talk in terms of PAX movements. This is our opportunity to press re-set. Instead of rushing to facilitate further visitor growth, let's allow natural capacity limits to slow the growth for us and allow tourism value to be spread across the southern region, thus aligning more closely both with the aspirations of the local community and the national tourism conversation.

Strategic planning for both Queenstown and Wānaka airports must take climate costs and community desire to manage visitor numbers into consideration.

Until the Emissions Road Map and Climate Change Action are finalised, the Spatial Plan cannot inform and guide input to strategic decisions on future air services investment in the Queenstown Lakes District.

Page 89 - Partnership's joint work program

Add these further points :

15. Key studies such as the emissions roadmap and Climate Change Action report need to inform any Destination Management Strategy.

16. A Destination Management Strategy must include a commitment to protect the outstanding environment and vibrant local community that has brought tourists to this region over the last 50 years.

17. A Plan B for air services and QAC strategy that puts residents before tourism growth, recognising that airport strategy has a direct effect on visitor numbers, infrastructure demand, environmental conservation, community well being and carbon emissions, and aims to achieve sustainable returns within the current constraints of Queenstown and Wanaka airports.

BASSETT Bruce

Tourism Industry Aotearoa

Out of District

Q. I am aged:

46-59

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Support

Q. Please let us know your comments or feedback:

We welcome and support the Spatial Plan and we have some suggestions for strengthening it.

Q. Please describe the reasons for your position:

Q. Please let us know if you have any further comments:

Q. If you have a pre-prepared submission, you can upload it below. Please note that we can only accept .docx files.

Additional documents or PDF files can be emailed to letstalk@qldc.govt.nz Please write "draft Queenstown Lakes Spatial Plan submission" in subject header.

TIA - Queenstown Spatial Plan Submission - Final - 16 April 2021.docx

16 April 2021

Queenstown Lakes District Council
Level 1, 74 Shotover Street
Queenstown 9348

Submitted via Consultation Website

Kia ora

Queenstown Lakes District Draft Spatial Plan: TIA Submission

Tourism Industry Aotearoa (TIA) welcomes the opportunity to comment on the draft Queenstown Lakes Spatial Plan.

We consider it to be of utmost importance that Aotearoa New Zealand's key high value visitor destinations are purposefully and carefully developed so they add to, rather than detract from, the experiences of visitors and residents alike. This is key to creating value in tourism and meeting the long-term desires of the community.

As a national body, TIA's comments largely relate to how Queenstown Lakes fits into the wider tourism system and how it can play its vital role as a world-class destination.

Tourism Industry Aotearoa

TIA is the peak body for the tourism industry in New Zealand. With around 1,400 members, TIA represents a range of tourism-related activities including hospitality, accommodation, adventure and other activities, attractions, retail, airports and airlines, transport, as well as related-tourism services.

TIA established and supports the tourism industry's strategic document, *Tourism 2025 & Beyond – A Sustainable Growth Framework*. This has the Vision of 'Growing a sustainable tourism industry that benefits New Zealanders'.

TIA's Main Areas of Feedback

TIA supports the intent and the substance of the draft Spatial Plan. We note the expected growth rates of both resident and visitor populations. These forecasts seem reasonable and make the future growth challenges and opportunities real to the current resident, business and government communities. It sets out an approach where future issues or constraints can be identified early and acted on sooner rather than later.

The key aspects we support:

- Tourism features prominently in the Plan, which is appropriate given that tourism is and will most likely remain the major driver of the district's economy.
- The intent to incentivise concentration of resident and visitor places, thereby creating critical population density to support public transport systems and infrastructure development, and the like.
- The intent to better align the capacity/demand balance, that will require development of the currently stretched infrastructure networks.
- The intent that this will be a sustainable tourism system. TIA has expertise in this area through our Tourism Sustainability Commitment that has wide reach at the business level. Aligning district and business sustainability efforts will be beneficial for both.

On priority initiatives identified, we strongly support:

- **Destination Management Strategy approach.** This will enable planning for tourism that is much more detailed and targeted than the Council's Spatial and Long-Term plans. Nationally, there is a clear shift underway to destination management and clearly in this context Queenstown Lakes has a vital role to play by being an exemplar of good practice and in interconnecting and cross-referencing with the destination management plans of other districts. The tourism system does not stop at district boundaries, so the wider view is very important.
- **Tourism Travel Demand Strategy approach.** Visitors will act in line with the systems that are in place. If there are quality public transport systems and active modes to get around, these will be used. If they are not in place, then everyone will need a car to get around. Working on clever solutions must be part of the congestion and carbon reduction strategies of the district.

The aspects of the Spatial Plan to be improved:

- **Airports and Aviation Access.** The Spatial Plan is very light on this key aspect of the tourism/community system. At the projected growth rates of resident and visitor populations, a corresponding growth in air connectivity will be needed. While it may be correct that this matter will be considered by other processes, it seems to us that greater clarity about the demand levels and dual airport visions needs to be included in the Spatial Plan given the vital connectivity role played by air services. Also, airports do not stand alone and typically act as a catalyst for a wide range of other commercial activities which in turn need to be included in the Spatial Plan.
- **Ability to Implement.** Other than the intention to implement a future levy on visitor accommodation, subject to legislative approval, there are no strong indications on how the initiatives set out in the Plan would be funded and actioned. As previously signaled to the QLDC, TIA recognises the challenges of funding regional infrastructure and services, but for fairness and equity reasons is opposed to sector-specific levies like bed taxes. We are also interested in the alignment to the QLDC's Long Term Plan which should have already factored in many of these initiatives.
- **Carbon Emissions.** Given that many of the initiatives in the Spatial Plan relate to better transport systems, housing and infrastructure, it seems that the Plan could be clearer about the role of the District to set and act towards carbon emission reduction targets. The Spatial Plan should certainly be creating the clear expectation that the steps it is setting out will all contribute to district and national emission reduction targets.

Further Input

Please do not hesitate to contact me if you have any queries about our feedback. I can be contacted on [REDACTED] or [REDACTED]

Ngā mihi



Bruce Bassett
Strategy and Policy Manager
Tourism Industry Aotearoa

BEHAN Dennis

Arthurs Point

Q. I am aged:

30-45

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Neutral

Q. Please let us know your comments or feedback:

I feel Arthurs Point should hold on to its rural character. The community has an outstanding natural landscape line and an urban growth boundary around it and these should be retained. Development should be limited so it adheres to the rural character and I would discourage any future development from affecting the brilliant night sky we enjoy here. Part of what makes Arthurs Point so great is how dramatic it is when you enter and exit. This should be retained and the clear delineation between developed land and rural rustic land should be retained.

Q. Please describe the reasons for your position:

Q. Please let us know if you have any further comments:

BLACK Fiona

Real Journeys

Out of District

Q. I am aged:

46-59

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Support

Q. Please let us know your comments or feedback:

With respect to transport and sustainable tourism - private coach services that transport people to undertake tourism activities (including skiing and snow boarding) play an important role in the District and need to be provided for in this framework. Maybe due to the effects of COVID-19 this aspect of transport in the District has been overlooked as most of the private coaches are now sitting idle. For instance Real Journeys is currently operating only one coach per day ex Queenstown to and from Milford Sound where previously across Go Orange and Real Journeys we were operating up to 15 coaches (45 to 60 seater). If these services were not operated this would have put even more rental passenger vehicles on the Districts Roads contributing to traffic congestion.

That is private coach services are important to the management of the District as a sustainable tourism destination. They are a key component in transporting people to rural / visitor destinations including ski fields and should be identified in this spatial plan; along with sufficient secure car parking facilities to enable people undertaking such activities as skiing to travel to the ski field via coach. These private coach services enable visitors to travel to the Queenstown Lakes District for a ski holiday without the need to hire a car.

The Spatial Plan is also light on detail relating to park and ride facilities; ferry services and other water transport. For much of the current and proposed public transport services to work; park and ride facilities will need to be developed across the District and in dormitory towns such as Cromwell. Specifically a park and ride facility is required in Frankton to support Lake Wakatipu Ferry services and bus services on State Highway 6A.

The contribution the "TSS Earnslaw" makes to transporting visitors to and from Walter Peak (which takes visitors off the Districts roads) should also be acknowledged.

Q. Please describe the reasons for your position:

We support the Council's efforts to develop a spatial plan as will result in consideration of the District's issues as a whole rather than looking at issues in isolation.

Q. Please let us know if you have any further comments:

I think there should be further engagement with the tourism industry regarding developing a more sustainable tourism economy. Currently there are numerous conversations going on in the community about 'reimagining' tourism in NZ including as a result of the PCE reports on Tourism and the Tourism Futures Taskforce's interim report; however currently most Tourism businesses are in survival mode and do not have the bandwidth to reimagine tourism.

That is prior to the sustainable tourism provisions of the spatial plan being finalised the Tourism Industry should be given a further opportunity to engage.

BLATT babu

Wanaka

Q. I am aged:

46-59

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Oppose

Q. Please let us know your comments or feedback:

I have concerns regarding the QLDC Spatial Plan:

There is a failure to live up to Council's stated commitment to climate emergency and a carbon neutral economy. Specifically, no investment to reduce carbon emissions in the Upper Clutha.

There is not even a commitment to measure carbon emissions properly across projects and activities in the district. Further, Upper Clutha spending on carbon mitigation initiatives is severely limited, with investments heavily weighted towards Queenstown.

You propose a growth model of ever increasing visitor numbers with tourists outnumbering residents by 2 to 1 by 2031. Council's own annual Quality of Life surveys conducted over the past three years show that the majority of residents are frustrated by the ever expanding impact of tourists and visitors on their district. Yet this has been effectively ignored.

You propose no reset on tourism and instead continue with a view to develop a dual jet airport strategy. This is still the only direction offered - and is clearly in opposition to your long term vision of a zero carbon community.

There is an equally fundamental disconnect between the QLDC's much lower projected residential growth figures and the growth rate we would expect on the basis of historical growth over the last 10-30 years. The Draft Spatial Plan significantly underestimates growth in resident numbers as the basis for future planning while assuming that tourism will grow massively throughout the 30 year period. In fact visitors are projected to outnumber residents by 2 to 1 by 2031. This has major ramifications for future planning for our district which must be addressed by QLDC.

I see a substantial and inexplicable imbalance of investment between Upper Clutha and Wakatipu. This is the case in areas such as transport, public transport and active transport networks, reserves and community facilities. Although not new, this is not fair and needs to be corrected.

Overall, the council is using under-estimated growth projections leading to reactive rather than proactive planning. I would much rather out council switch to pro-active planning strategies.

As per recent surveys results, there is a loss of quality of life for residents, which the Council does not seem to be interested to take into account. Mass tourism and constant growth are not the answer.

I propose the Council do one of two things; either :

- 1 - rewrite their plans to reflect realistic levels of growth and peak demand (and be forced to deal with the infrastructural costs that will be incurred), or
- 2 - manage growth and limit visitor numbers to what we as a community can cope with and fund.

Thank you.

Q. Please describe the reasons for your position:

see comments above thank you.

Q. Please let us know if you have any further comments:

see comments above thank you.

BOHM Jim

Wanaka

Q. Please let us know your comments or feedback:

PDF attached

Q. Please describe the reasons for your position:

PDF attached

Q. Please let us know if you have any further comments:

PDF attached

Submission on the QLDC “Spatial Plan”

From: Jim Bohm



General Comments:

I agree with some of what appears to be the overall and general direction of the plan but find it very disappointing in a number of ways. I acknowledge there may be a genuine intention in it to create an effective basis for planning in the district. I feel it has failed to achieve this in significant ways however. I outline a few of these.

Use of language: The language and sentence structures the plan uses are complex and frequently opaque. This is likely to discourage many from contributing to the planning process, thus undermining from the outset one of the main ostensible purposes of the Spatial Plan: to consult with residents. The Key Terms section only scrapes the surface in clarifying jargon used in the document. There are a large number of other terms used in the document that are not explained in one easily found place in the document. These will probably not be clear to many readers, and are likely to put many off from reading further: A few examples - spatial, blue-green corridor, diverse economy, consolidated growth, well-connected, geo-technical hazard, constraint mapping, Partnership, Spatial Plan Scenario Analysis Report, transit-oriented, sub-regional network concept, resilient connections. Furthermore, terms that are not in frequent, daily use are often contained in complex and sometimes lengthy sentence structures, adding to the difficulties faced by the the general reader. This is often exacerbated by the use of complex planning concepts unfamiliar to the lay-person and also by words that have a commonly understood meaning but which are used with a different, often more technical or metaphorical meaning in the spatial plan.

Conclusions: I concerns me greatly that the writing style of the Spatial Plan appears to have been designed without careful thought about how to encourage ratepayers to participate in the democratic process of consultation. The Plan’s bright colors and the many pretty photos give the appearance of welcoming the reader. This seems to be in keeping with the language I already commented on: to appear to attract people to read the Plan while actually doing the opposite.

If you genuinely wanted to achieve widespread participation in your consultation process, you would have communicated in a way that encouraged people to read your plan and respond to it. You failed to do this. The people who wrote the plan clearly lack the appropriate writing skills required to achieve the standard of communication that is needed. What you did was just ticking the boxes. I feel that if QLDC takes no corrective steps to improve its written communication that will be evidence in future of intentionally anti-democratic behaviour.

Recommendations: QLDC should request advice and assistance from Central Government to raise the standard of its written communications. The standard of writing in Central Government policy and planning publications is generally much easier to understand even though the subject matter is often just as complex as those of QLDC.

Furthermore there should be a glossary of technical terms in the final report that contains many more of the terms used with a technical meaning in the document and also jargon should be avoided where possible.

Other points:

The Plan lacks meaningful detail: There are general, over-arching statements of future direction, many of which I can agree with in part at least. However they lack sufficient detail for their full meaning to be clear. The detail supplied is frequently in map form. I found the maps for the Upper Clutha provided me with little understanding of what's planned. They contain little of the specificity and detail I expected and are difficult to interpret because of their structure. The reader is referred for further information to the Wanaka Town Centre Plan. This seemed to me to be cynical: this document has been unobtainable on-line for at least a week.

Lack of detail on what will happen and by when: The spatial plan contains "Priority initiatives" that give some indication of actions planned, but no clear time-frame for when they will happen, nor an indication of when information about timeframes for these steps will be published.

Kai Tahu: I applaud the recognition of the place of Kai Tahu values, but regret the lack of indication of intent to take practical steps to support the Plan's fine-sounding words. Kai Tahu have a lot of potential I believe to help to guide QLDC gently away from the kind of planning mistakes that QLDC has made in the past. You talk of "partnership", but what is the practicality of that? Your "Plan" gives me little reassurance for the future.

Wanaka airport: I'm not surprised by what I would describe in the "Plan" as "weasel words" at best that hint that Wanaka is probably about to go back to a QAC business as usual scenario regarding the future of Wanaka airport. I am very discomforted by the irony in the use of Tarras as a covert signal and justification of an intent to press ahead with expanding passenger air services including jets at Wanaka. I find that perverted. I'm one of many Wanaka locals who definitely do not want an airport expansion forced on our town by QAC/QLDC and wish to avoid the many widely stated undesirable effects that would come with it.

Public transport in Upper Clutha: Lots of high-sounding words about great plans for the future and needing to think about climate change but little that is specific for Upper Clutha other than a few vague marks on a map. Whatever happened to QLDC's climate emergency? Was that all hot air too? A statement that around \$18 m is estimated to be spent during the life of the 10 year plan on "active transport" / cycle and walk-ways in the Upper Clutha. Neither the spatial plan nor the draft 10 year plan appear to contain any details on this and the Wanaka Town Centre plan will not download.

Wellbeing: Many people in Upper Clutha are over 65 years old, - about 16 % last time I researched this. While the plan acknowledges the size of the elderly demographic, though perhaps understating its size, there appears to be little planning response to the needs of this age-group. Funding some research on this would be a good start. Where are the facilities that could respond to the needs of the over 65s? Where are the working groups to establish necessary policy priorities? The rates contribution of the elderly is substantial - around 10% judging by QLDC's statistics. What does this group get in acknowledgement of that? QLDC contributes heavily to some groups in the community, sports in particular, also

arts and cultural activities. This is good but QLDC is also rather less even handed than it ought to be. I feel QLDC takes this demographic for granted.

Economic diversification plan: I agree we need it and with urgency. But I'm sceptical - I find Council's approach to bringing it about looks unconvincing. The proposal sounds like a council-driven one that risks missing real opportunities by adopting the wrong process, failing to engage the right people and this missing out on what it will take to establish the necessary momentum. It sounds to me like not much more than an exercise in window-dressing to cover for business-as-usual and ever more tourism. QLDC has talked for years about the need to diversify our region's economy away from tourism. Yet what it has actually done is establish Wanaka Tourism and its Queenstown equivalent and ensure their continuity.

Recommendation: Establish an equivalent agency to promote economic diversification throughout the region, and fund, resource and manage it suitably. Or pioneer an economic partnership for this purpose.

Future of tourism: It worries me that this Council is determined to press ahead with a business as usual approach, promoting the interests and profits of current, tourism focussed businesses, especially the large, well established ones. I feel Mayor Boulton has a major conflict of interest in this aspect that is especially troubling to me. The graph of growth projections on p 14 of part 2 of the draft plan is especially disturbing in particular in its assumption of growth of visitor numbers. QLDC appears to believe that its role is to respond by enabling this vast increase in tourist numbers to happen. In this respect QLDC will be acting contrary to the interests and needs of its ratepayers and residents, at least in Upper Clutha, and putting the profits of present and future tourism businesses first. It will also be contributing to the destruction of the "golden goose" of the environment that makes this region so attractive and to the degradation of the wider environment.

Recommendation: That QLDC recognise and accept that it has a pre-eminent, some might say sacred responsibility to act as a genuine custodian of our world and region and its environment. QLDC must not move us all into a future in which it pursues the same environmentally and socially destructive behaviour that I contend it has been responsible for up to the present. It can and must do what is in its power to act to limit over-tourism.

I could say much more.

Q. I am aged:

60+

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Neutral

Q. Please let us know your comments or feedback:

My particular concern relates to an assumption that the districts transport needs can be met by making walking, cycling and public transport a first choice.

While it is a nice and fashionable idea it will just not work and we need to enlarge the roading infrastructure, particularly along the Lake Hayes- Queenstown CBD corridor.

We need to survey current road users to ascertain the purpose of their journey before assuming that the alternative (outcome two) is a practical solution.

I notice that even without visitors our roads are busy, I don't see tradies, the elderly, shoppers etc as likely to take public transport, nor are people inclined to cycle during the winter. If the Frankton/Ladies mile area houses more people without additional roading capacity the result will be chaos.

Q. Please describe the reasons for your position:

While I generally agree with the options for growth I am unhappy about the lack of detail around the infrastructure required to support that growth.

I think that growth needs to be controlled to allow infrastructure, particularly transport, to catch up.

Q. Please let us know if you have any further comments:

BROWN Jamie

Wanaka

Q. I am aged:

46-59

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Oppose

Q. Please let us know your comments or feedback:

Page 6 of the spatial plan summary seems to show public transport for Wanaka and surrounds only as 'vision'. Considering the climate change emergency announced by council, public transport should have a much higher priority.

Q. Please describe the reasons for your position:

I'm also fully supportive of the Wanaka Stakeholders Group submission and want council to start listening to your constituents instead of just ramming what you/business wants over the top.

Q. Please let us know if you have any further comments:

BYRCH Christine

Outer Wakatipu (includes Millbrook & Wakatipu basin)

Q. I am aged:

60+

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Oppose

Q. Please let us know your comments or feedback:

On page 5, the summary document states that the Spatial Plan promotes a “consolidated approach to accommodating future growth” which means that most of the growth “will occur ... primarily by growing within and around the existing urban areas of Queenstown and Wanaka.”

With regard to growth around Queenstown, it is not clear what exactly the map on page 7 is portraying, for example, what is urban? does the dotted blue line to the south follow the state highway? Are all the urban areas already built? Is it only the green areas marked for future urban that are yet to be decided?

But what is strikingly clear from this map is that Queenstown is sprawling to the south, away from existing infrastructure and services, over what is beautiful and productive rural farmland. Both the map on page 7 and the graph on page 9 indicate substantial growth in what is termed ‘the southern corridor’. This growth is way beyond existing urban areas of Queenstown.

Looking at the map, it seems to me that if the plan is to achieve the objectives listed in the diagram on page 4, then the best way to achieve this would be growth within the Wakatipu basin. Has this been considered?

The Wakatipu Basin is central to all existing townships – Queenstown, Arthurs Point, Frankton, Arrowtown – and so central to all the services (including schools) that these townships provide. There are already many residential areas within the Wakatipu basin, for example Milbrook, the eastern shore of Lake Hayes – these seem to have been omitted from the map on page 7, why is this?

The Spatial Plan states that “The landscape and rural character of the Wakatipu Basin (4) are highly valued by the community and visitors, and further urbanisation in this area may compromise this.” The ‘southern corridor’ is also a highly valued rural landscape. Did you ask people about this?

There will be a cost to further growth of Queenstown and perhaps urbanisation within the Wakatipu Basin is the price to pay. This to me is preferable to sprawling onto farmland alongside the state highway to the south.

Q. Please describe the reasons for your position:

described above

Q. Please let us know if you have any further comments:

Q. I am aged:

60+

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Oppose

Q. Please let us know your comments or feedback:

Council should review its consultation methods and how it treats community input and input from community organisations into planning, especially strategic planning vehicles such as the SP. This will be absolutely necessary for QLDC to move from 48% of respondents in 2020 who “are satisfied with the opportunities to have their say” to their target of 80% in all following years. Actual expenditure and revise capital program

The short duration allowed for consultation of these substantial documents betrays a lack of true commitment to consult. The consultation documents themselves allow limited exposure of the underlying plans.

Q. Please describe the reasons for your position:

QLDC needs to develop a genuinely sustainable tourism strategy, one which manages growth for the benefit of residents as well as tourists. Airport strategy is a key method by which Council can manage tourism numbers into the district and influence levels of growth. A sustainable policy for air services is therefore vital to the economic and social wellbeing of the Queenstown Lakes. The dual airport vision should be abandoned in favour of a new vision for Wanaka Airport which truly reflects the wishes of the community

Q. Please let us know if you have any further comments:

Council's declaration of a Climate Emergency and the concerns of the community around

climate change should be built into the TYP as a core underlying principal and key consideration

in all planning and budgeting.

There should be far greater investment (both from a budget perspective and a planning

perspective) in steps to dramatically reduce carbon emissions in our district.

There should be clear and objective evaluation and reporting on the carbon emissions profile of

all planned infrastructure projects and activities flowing from those projects.

Assuming it has been finalised, as suggested, the emissions road map should be published and

should be fully referenced in both the TYP and Draft Spatial Plan.

The Climate Action Plan needs to be brought forward and given priority.

Q. I am aged:

60+

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Oppose

Q. Please let us know your comments or feedback:

Please see attached submission.

Please be aware that this submission has been prepared in relation to the Queenstown Lakes Ten Year Plan, however we feel it raises matters also relevant to the Spatial Plan and wish our same submission points to be considered by the panel in relation to the Spatial Plan.

Q. Please describe the reasons for your position:

Q. Please let us know if you have any further comments:

Q. If you have a pre-prepared submission, you can upload it below. Please note that we can only accept .docx files.

Additional documents or PDF files can be emailed to letstalk@qldc.govt.nz Please write "draft Queenstown Lakes Spatial Plan submission" in subject header.

FOWGR and Residents TYP submission FINAL.docx

To: Queenstown Lakes District Council

Submitters:

Friends of the Wakatipu Gardens and Reserves (FOWGR)
 Sebastian Morgan Lynch, Daniel Lynch and Brigid Roberts and family
 Cassells Family
 McLean Family
 Hall Family
 Bennett Family
 Bulling Family
 Sandford Family
 Senauer Family
 Oliver Bombard and Jade Becker
 Bettina Bradbury and The Prior family
 Helen and John Hayes
 Emily and Luis Cunha
 Jarvis Family
 Mana Kono
 Russ Tanners

1. This is a submission on the Queenstown Lakes Ten Year Plan 2021 – 2031 (**Ten Year Plan**)
2. The Submitters are interested residents and representative groups of the residential area bounded by Park Street/Frankton Road and Hobart Street, and intersected by Brisbane Street (**Gardens Area**).
3. The specific parts of the Ten Year Plan which the Submitters are interested in are: the funding options and delivery of the Town Centre Masterplan, rates revaluation and affordability, private, public and active transport network development, and other matters associated with the Queenstown master-planning process.

Introduction

4. The Gardens Area exhibits a distinctive character which is driven by the combination of small-scale, residential homes that have grown

page 1

Auckland • Christchurch • Dunedin • Queenstown



organically since the area was first settled in the 1870s. The Gardens Area holds a distinctive residential amenity that ultimately generates a strong sense of place for many of the residents who live there and call Queenstown their home.

5. The Submitters have been actively involved in Council planning processes such as the District Plan Review, the Ten Year Plan 2018-2028 and the Cultural Masterplan consultation process. In order to act as a voice for the important values of the Gardens Area to be better protected both at the strategic level, by acknowledgement generally of the worth of those values, and at the operational level, by providing provisions that give appropriate weight to protection of those values and character.
6. FOWGR is the pre-eminent community representative group which acts as a voice for the Wakatipu gardens and reserves areas. Protection of the character of the Gardens also requires consideration of protecting the amenity of the immediate surrounds of the Gardens.
7. Overall, the character of the Gardens Area is evocative of the various stages of residential development of the original central Queenstown settlement, being contiguous with the Queenstown Gardens and the Queenstown Bay, and in deriving much of its character as a location of special value for the CBD and the wider district.
8. The Submitters understand the direction of the National Policy Statement on Urban Development 2020 is towards greater intensification of density in "urban" areas, and that as a residential area bordering the Queenstown CBD the area will likely experience intensified development. The Submitters' position is that increased density should not mean a lack of focus on character and amenity and an allowance for poor design outcomes. The Submitters consider the Ten Year Plan should be live to the need to ensure likely future development is sympathetic to existing residential character and amenity.

Reasons for the Submission

9. Given the special character and distinctly residential nature of the Gardens Area, it is important that it be recognised as separate to the CBD and Town Centre areas of Queenstown. In particular, the Submitters are concerned about the following parts of the Ten Year Plan:
 - The proposed wider CBD Zone indicated on page 26 of the Consultation Document, from which 65% of the costs of the Queenstown Town Centre Masterplan will be funded;
 - The failure to recognise and provide for the unique character and amenity of historic residential areas, such as the Gardens Area, and the Gardens and reserves in the Masterplan proposal and revised transport connections;
 - The omission of the importance of an emerging cultural study which is relevant to the wider Queenstown master-planning process.

10. Rates Option 1 – wider CBD Zone

- The rates recovery focus on a wider CBD of ratepayers to fund the Masterplan process is opposed on the basis the defined CBD on page 26 of the Consultation Document includes the Gardens Area.
- As described in the introduction section above, the Gardens Area exhibits a truly unique and predominantly residential character. The nature of combined historic and well established housing in this area has cultivated a sense of community and permanent residency which is now the dominant characteristic. Even if the Gardens Area is subject to further development and intensification over the new ten years, the area will still retain a predominantly residential character that is completely separate

page 2



from the character of the Queenstown CBD.

- Expansion of the CBD ratepayer base over the Gardens Area is not justified or proportionate to the proposal which is to be implemented through the Town Centre Masterplan process. Those residents and visitors to the Town who enjoy the Gardens and truly residential character adjacent to the Gardens will not benefit from the Masterplan process.
- The inclusion of the Gardens Area within the wider CBD rating extension is inconsistent with the 'vision' described on page 6 of the Consultation Document and the Vision 2050 objectives, namely to promote the four pillars of wellbeing. To achieve cultural, social and environmental wellbeing the Ten Year Plan needs to recognise and provide for residential character and amenity, and acknowledge the need for a strong cultural landscape that inspires, preserves and celebrates our heritage, arts and culture.

11. Recognition of the Gardens Area, Gardens, and all Reserves

- The Ten Year Plan should ensure that appropriate provision be made, and continually reviewed, for the maintenance and enhancement of the Gardens and all reserves within the District. Specific recognition needs to be included in the Ten Year Plan which acknowledges the unique and different residential character of the Gardens Area.
- Protection of the character of the Gardens also requires consideration of protecting the amenity of the immediate surrounds of the Gardens. As the Queenstown CBD is subject to growth pressures and intensification of its surrounds starts to occur, there need to be mechanism to ensure existing character and amenity is not lost and poor design outcomes do not result. The Ten Year Plan, along with the Spatial Plan, should recognise the economic benefits of protecting the amenity of this node of historic residential amenity close to the Town Centre and Gardens which are frequented by international and domestic visitors. Economic benefits of recognising the Gardens and the Gardens Area will accrue from protecting and preserving special character, particularly when one considers the area as being the interface of critical tourism attractions being the Gardens and Town Centre. If visitors see a living community and protected amenity and character, they may wish to engage in that and this will contribute to their overall visitor experience.
- Any reading, public transport (including ferry), active transport (cycle way) and parking plans that service the CBD are likely to interface with or cut through the Gardens Area. Such development needs to be consistent with the amenity of the Gardens and the Gardens Area. Such consideration should involve consultation with the Residents and other interested community groups.

12. Cultural Master Plan

- The Submitters support the Cultural Master Plan process to provide analysis on the cultural fabric of Queenstown. They understand that it is intended that this study will ultimately become part of a foundation for further work on the Masterplanning process and other planning regimes, such as the District Plan.
- Appropriate provision should be made for the development and adoption of a Gardens based cultural district and/or any other recommendations which come out of the proposed Cultural Master Plan.

page 3



13. General Matters

- Generally, any decisions to be made should be consistent with amendments to the Local Government Act to restore the purpose of local government to be "to promote the social, economic, environmental, and cultural well-being of communities".

Summary of Relief sought

14. The Submitters seek the following decision:

- That the wider CBD Zone for Option 1 funding of the Masterplan process be refined to exclude the Gardens Area as defined in this Submission.
- Include specific recognition in the Ten Year Plan and Masterplan of the cultural, residential, and historical importance of the Gardens Area, the Gardens, and other reserves, or in the alternative, that the Ten Year Plan and Masterplan note the importance of recognising and providing for residential character and amenity and the good design outcomes if and when future development occurs in and around the Gardens Area.
- That any private, public and active transport development that interfaces with the Gardens Area is developed in consultation with the community and is consistent with, and responds positively to, the character of the Gardens Area and Gardens.

15. The Submitters wish to be heard in support of this submission.

16. The Submitters will consider presenting a joint case with others presenting similar submissions.

Address for service: [REDACTED]

page 4



Q. I am aged:

60+

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Support

Q. Please let us know your comments or feedback:

Q. Please describe the reasons for your position:

Glenorchy is experiencing developer-led growth and it is rapidly becoming apparent that the profit motive is very bad at internalizing the community desires as has long been articulated in the community plan.

While the spatial plan is not yet at sufficient detail, the intent for the district's growth to be in the areas more appropriate to high density development is to be commended.

The systems perspective I articulate in my 10yr plan submission will interface with the spatial elements in this plan, so I have some hope that things may change.

Q. Please let us know if you have any further comments:

CLARK Michael

Arthurs Point

Q. I am aged:

60+

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Support

Q. Please let us know your comments or feedback:

Housing; There are good design for large apartment blocks that can enable increased population density, the obvious place is from Skyline gondola towards Thompson st. Build up as high as the trees are. Use the central areas of the wakatipu valley flats for high rise apartments, again as high as the trees grow.

Diversity of economy; this I think is important, we need to protect the very good farming land that we have, look seriously into intensive horticulture, to feed the local population. Tunnel houses for winter production of vegetables. The area needs to become self sufficient to some extent so that we are not totally dependent on freight.

Transportation: this area will be in strife if the main access roads are cut off. I think its time the Kawarau gorge road was improved to the level of the Cromwell Gorge. The reason for this is that I feel the idea of a Tarras Airport for long haul jets is a very good idea for the long term future of the whole region. An improved road will with stand extreme weather events.

A transport system in the area that encourages the tourist to not pickup a car until they have seen the area would be great.

The connection between Arthurs point and Arrowtown needs to be improved. A bus service that services the volume of traffic that goes between Queenstown and Arrowtown, would take a certain amount of traffic away from the Frankton road. There is also the amount of traffic that goes to the coronet peak road. A bus to the bottom of that road would mean less cars going up to the ski field, co ordination with NZSKI.COM

Tourism: The valley has become a prostitute to this industry, and has devalued the experience the visitor gets. Ask any long time local, during lock down, what was experienced over that period is what brought people here. We have gone past the optimum number of visitors in the area per day. Do not increase the numbers of vehicles driving into the Skippers Canyon. Do not increase the numbers of boats on the rivers. Encourage the operators to operate more efficiently.

Take the Queenstown airport to Tarras and use that flat land for high density accommodation as has been suggested. Imagine what the Dunedin people would say if they had a airport based in South Dunedin. That is what is happening to us here. A 3/4 hour drive to a city's airport is pretty standard in this day and age.

Key challenge of the area; an alpine area. The northern hemisphere has experienced record snow falls every where, records never experienced before . This is the start of what is called a Grand Solar Minimum. This area will need to adapt to colder conditions, whether there is deeper snow levels we will have to wait and see. This has been the coldest summer I have experienced. Weather patterns have changed, take note this winter , is it getting warmer or cooler?

The only part of the plan I am opposed to is the use of the limited flat land we have for single level housing and the airport.

Q. Please describe the reasons for your position:

My Partner and I have traveled extensively, we have seen tourist destinations ruined by too much tourism. We have seen good examples of forward thinking by councils in holding back development until infrastructure is in place Whistler in BC Canada being an excellent example.

Our sister city of Aspen in the states, told QLDC people very early on in our relationship with Aspen, " DO NOT follow our example", sadly we did, and we have the problems we have.

This area is allowing development to go ahead of infrastructure, its time to turn that around.

Q. Please let us know if you have any further comments:

Prepare for a colder climate. A Grand Solar Minimum, will be no joke.

COERS John

Outer Wanaka (Includes Mt Barker & Dublin Bay)

Q. I am aged:

46-59

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Oppose

Q. Please let us know your comments or feedback:

The spatial plan is void of any commentary, concept or detail on potential development to provide dwellings in the rural environment. Due to this omission, the document assumes or strongly implies that housing choice will be constrained to urban or suburban environments. This lack of choice is contrary to the reality that the district has a long and strong history of people enjoying the areas spatial environment going back to its very beginnings. The document is headlined by the statement " AND MORE HOUSING CHOICE" , but this is not a reality in the spatial plan.

Q. Please describe the reasons for your position:

There is a general acceptance of the need to consolidate growth. However does this mean that despite the excess space in the district, and in the upper Clutha in particular, that growth is to be confined to the urban setting. Are people moving to Wanaka for an urban city lifestyle. The plan assumes there is no demand nor to be provision for farm lets, small scale agricultural activities or life style blocks. The reality is different. If so it is a unique scenario in New Zealand. The spatial growth plan expands out west of the Cardrona river and south of the Clutha River. This is very convenient for Council and very profitable for several dominant land developers. This is an artificial boundary which time has proven fails. Logic and urban growth theory suggests that growth follows transport and access routes. In this case developing east from Wanaka along SH 6 is logical particularly when considering existing transport and infrastructure routes. The spatial plan talks about more housing choice, i think there is a substantial omission in that "choice".

Q. Please let us know if you have any further comments:

Strategy 3: Improve housing diversity and choice; The spatial plan is a fail in the context of lack of commentary and potential provision of future farmlets, small scale farm / dwelling and life style land ownership choices.

Strategy 5: Ensure land use is concentrated , mixed and integrated with transport; the area to the the east of Wanaka along SH 6 is void of future planned development despite its obvious transport links and existing infrastructure resources with its link to the planned airports and Cromwell, the Provincial city, Dunedin and north.

A new Local Centre south up the Cardrona Valley appears very contrary to the stated strategy goal.

Q. I am aged:

60+

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Oppose

Q. Please let us know your comments or feedback:

In summary I feel that the Council has not listened adequately to community wishes and are embarking on their own agenda, believing they know best as elected representatives of the community. More community consultation is needed, particularly with the various community groups who are available and can represent the wishes of their respective communities. The Wanaka Stakeholders Group is a good example of a community organisation who represent a very high percentage (almost half of residents) of the Upper Clutha community, yet Council appear to ignore feedback from this organisation. Tourism operators and big business should not be the main drivers of long term strategy planning, but only a part of it. It is the overall community and the wishes of the majority which Council needs to take more attention to.

Q. Please describe the reasons for your position:

I have several areas of concern, which in summary are:

1. The tourism strategy needs to be re-set. The high volume model is being rejected by the majority of the community and irrespective of big business and tourist operator desires to return to this model, if the community reject it, the Council needs to take this into account in its planning.
2. Population projections appear flawed.
3. Climate strategy needs to be definitive. Currently it is inadequate in terms of planning and investment.

Q. Please let us know if you have any further comments:

I am extremely concerned at the manner in which Council is handling airport planning as part of their future transport strategy. A dual jet capable airport strategy for both Queenstown and Wanaka has been overwhelmingly rejected by the Upper Clutha Community, yet this is being retained as part of the Councils planning. Council must represent the wishes of the community irrespective of their own personal views, and this does not appear to be what is occurring.

DEVLIN Blair

Sipka Holdings Ltd

Frankton & Quail Rise

Q. I am aged:

30-45

Q. Please indicate your position on the draft Queenstown Lakes Spatial Plan:

Oppose

Q. Please let us know your comments or feedback:

PDF attachments

Q. Please describe the reasons for your position:

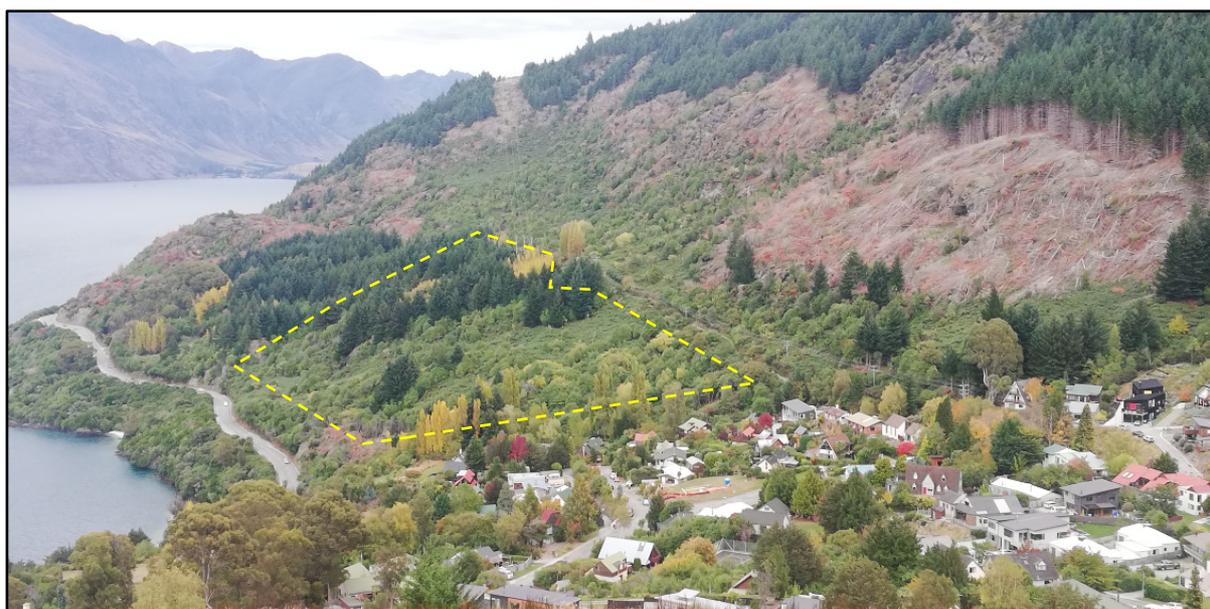
PDF attachments

Q. Please let us know if you have any further comments:

PDF attachments

Submission on the Draft Queenstown Lakes Spatial Plan

Sipka Holdings Limited



13 April 2021



Sipka Group

vivian+espie
resource management and landscape planning



1. Introduction

Sipka Holdings Ltd are the owners of a 6.47-hectare block of land directly adjacent to the urban area of Sunshine Bay, Queenstown. We are pleased to provide this submission and supporting material for consideration by the Spatial Plan Hearings Panel.

In addition to this Overview Report, we have completed and attach the following reports for the Panel consideration:

- Indicative master plan and development concept package – Boffa Miskell Ltd
- Geotechnical and hazard assessment – Geoconsulting Ltd (August 2019)
- Geotechnical and hazard assessment (specific rockfall focus) – Geoconsulting Ltd (May 2020)
- Infrastructure / Servicing report – Civilised Ltd including:
 - modelling of potable water by QLDC contractor Mott McDonald
 - modelling of wastewater by QLDC contractor Hydraulic Analysis Ltd and
 - road alignments achieving Council standards
- Transportation assessment – Stantec
- Landscape and visual effects assessment – Vivian+Espie Ltd
- Ecological assessment – Wildlands Consulting Ltd
- Ecological mitigation and offsetting options - Wildlands Consulting Ltd

In summary, these reports confirm the land is suitable for urban development, and provide a meaningful contribution to housing supply in the Queenstown Lakes district.

In particular, the Panel can include the land with confidence as a ‘Future Urban’ area for Queenstown on Map 7 of the Spatial Plan. The site is an ideal location to be identified as ‘Future Urban’ as it addresses the three principles and five spatial outcomes of the draft Spatial Plan.

2. Overview – The Site

For several years now Sipka Holdings Ltd and previous landowners have been undertaking work on a residential development concept for the block of land directly adjacent to the urban area of Sunshine Bay. The land is legally described as Lot 1 DP 397058 (the Record of Title is in Attachment **[A]**). The land measures 6.47 hectares.

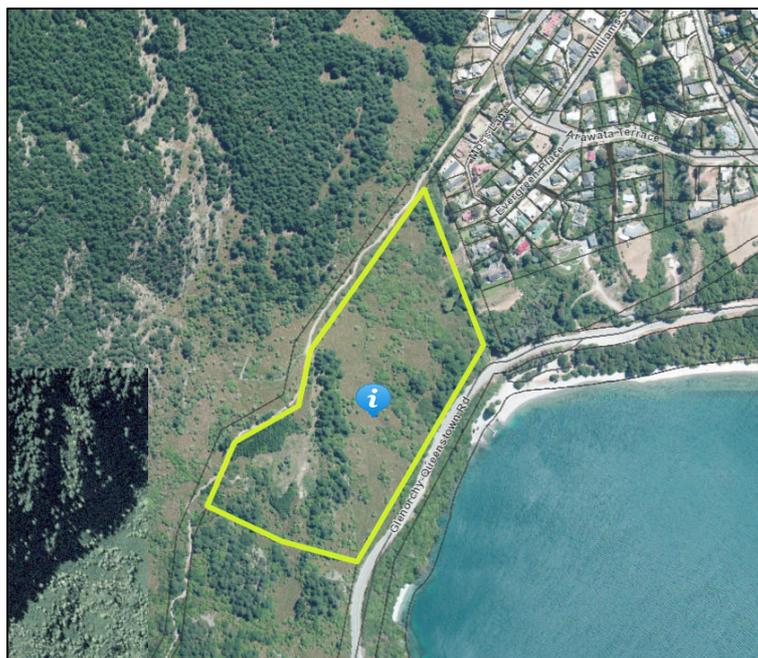


Figure 1: Site location

To the north-west of the site, an unformed legal road is present, which contains the Arawata Track. This is QLDC owned unformed legal road, and is not a Department of Conservation reserve. Power lines supplying Glenorchy are also present in this location. Ben Lomond station comprises the elevated slopes above the site.

To the north-east of the site, another unformed legal road separates the site from the existing low-density residential development of Sunshine Bay.

The Glenorchy-Queenstown Road runs topographically below the site, with a QLDC reserve located between the road and Lake Wakatipu.

Like the adjoining urban area of Sunshine Bay, the area slopes steeply towards Lake Wakatipu. The site features three flatter areas suitable for more intensive development, and provides amazing views towards Lake Wakatipu.

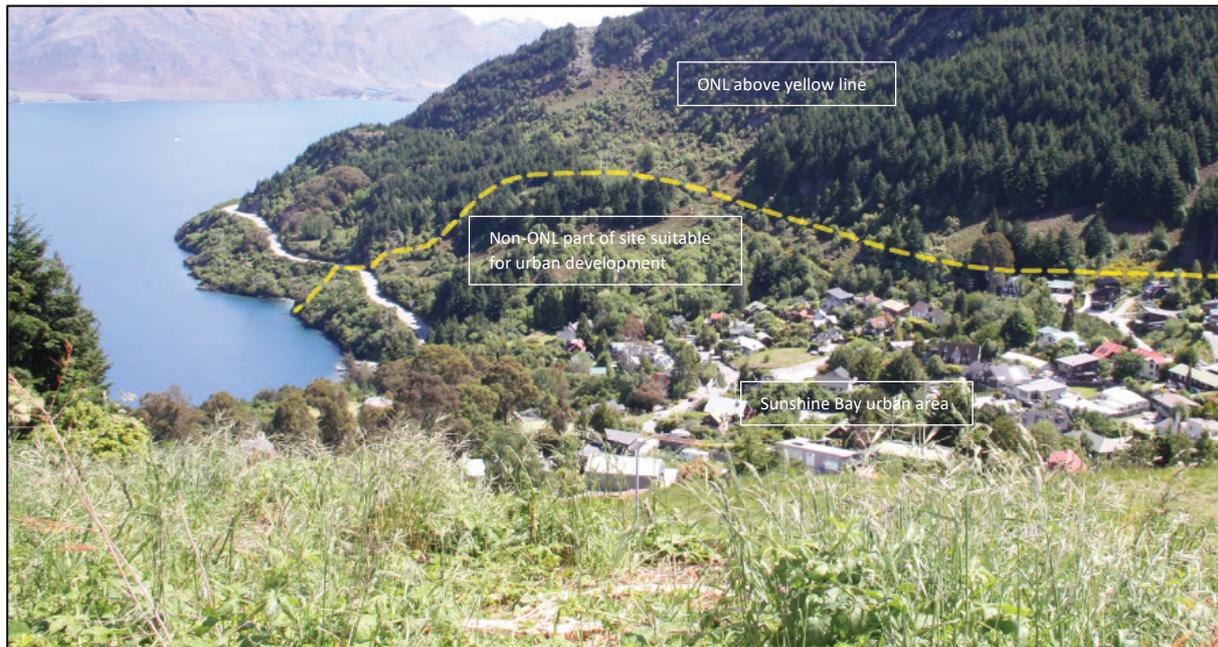


Figure 2: View of site (showing ONL line) from Broadview Rise

3. Background to Landscape Category

The maps in the Scenario Analysis Report (page 33) *incorrectly* show the Sunshine Bay site as ONL. This is an error that has resulted in the omission of the land from consideration as 'Future Urban'.

The majority of the site is not Outstanding Natural Landscape (ONL), and is classified as a Rural Character Landscape (RCL).

A Consent Order from the Environment Court was issued in September 2019 (ENV-2018-CHC-56 – Attachment **[B]**) redefining the ONL line as agreed by independent landscape experts on behalf of QLDC and the owner of the Sunshine bay site. The resulting ONL landscape line is shown in Figure 3 below:

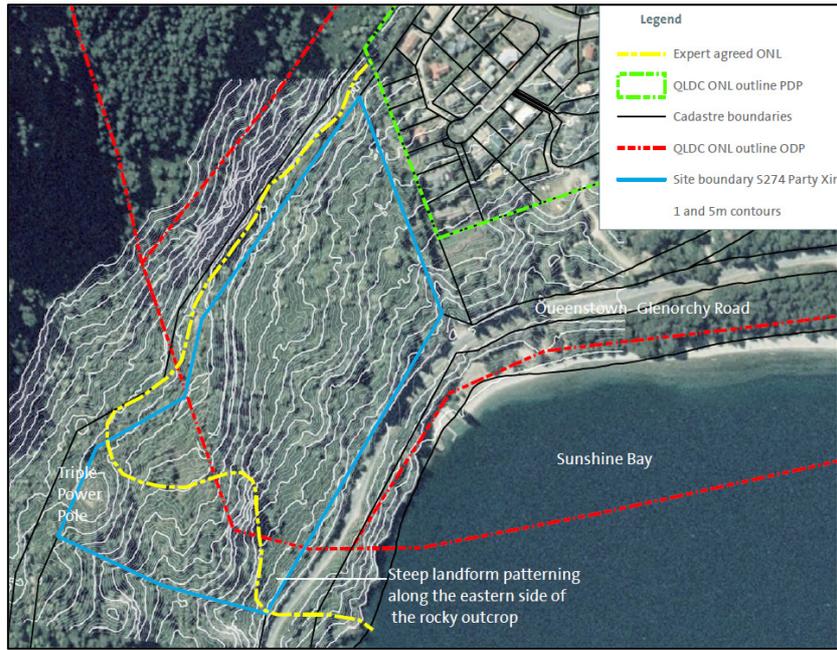


Figure 3: ONL line (yellow) from Environment Court Consent Order

4. Urban Development Concept

4.1 Overview

Urban designers, in collaboration with planning, transport and engineering experts, have led the preparation of an indicative master plan for the site for a low and medium density residential development. Queenstown has traditionally had some of the most unaffordable housing in the country, a product of its popularity, growth and topography which makes increasing the supply of land for housing challenging. The proposal is able to provide a meaningful contribution towards housing supply directly adjacent to the existing Queenstown urban area. The indicative master plan is Attachment [C], and is shown in Figure 4 below.



Figure 4: Indicative Master Plan

As Figure 4 illustrates, the indicative master plan preserves the ONL line and also accommodates substantial revegetation in the balance area.

The site is accessed from Arawata Terrace via the existing legal road corridor and a new T intersection with Arawata Terrace. Provision is made for pedestrian access to be maintained to access the Arawata Track. The development concept sleeves the existing Sunshine Bay urban area with a single row of detached dwelling typologies, before moving towards finer grained unit and terrace style development, and a few areas that could accommodate low rise apartment buildings. The proposed layout enables use of the site gradient for under-croft parking while maximising views across the lake toward The Remarkables.

The through route connection provides an opportunity to extend the public transport route to access the new development and ultimately serve more residential units with public transport.

The estimated yield is approximately 150 residential units. This is an indicative concept only, but recognises the need for density to make use of scarce land available for urban development, and the need for density to facilitate public transport.

4.2 Parks and Reserves

One key benefit of the design is the ability to connect the Sunshine Bay track to the Arawata Track through the site, as shown in Figure 5 below:



Figure 5: Proposed Trail Connection to Facilitate Walking and Cycling to Queenstown Town Centre

Currently the Arawata and Sunshine Bay tracks are not connected, and a track user wishing to continue from Queenstown towards Glenorchy currently needs to take a lengthy and steep detour via the public road network to travel from one to the other. The proposal provides the ability to create an attractive trail connecting the two tracks via an adjoining Council reserve at a more modest gradient. This trail connection would be vested into public ownership as a Local Purpose Reserve – Connectivity.

In accordance with the Draft Spatial Plan and the Parks and Open Space Strategy 2017, the owner intends incorporating further reserve spaces at the detailed design stage. The opportunity exists for a 3000m² Local Park.

At this stage of submitting on the Draft Spatial Plan, a detailed subdivision layout has not been developed, and this is a matter for further consideration. The site does also directly adjoin a large public reserve shown in the image below, and the proposed trail will connect this reserve to the development.



Figure 6: Proximity of existing reserves

4.3 Contribution to the Queenstown Lakes Community Housing Trust.

The land owner is committed to providing 5% of the developed land area to the Queenstown Lakes Community Housing Trust for zero consideration. This contribution is consistent with private plan changes made under the Operative District Plan. This commitment is normally secured through a Stakeholder Agreement.

5. Suitability of land for urban development

5.1 Geotechnical Review

Two geotechnical assessments have been undertaken by Geoconsulting Limited. An initial report (Attachment [D]) was followed by a more detailed assessment of the potential for rockfall hazards (Attachment [E]). Assessment has included test pits to assess ground conditions where access was available and extensive site searches for boulders.

The report acknowledges that natural hazards are present, with liquefaction, settlement of compressible soils and rockfall representing the most likely threats. With regard to rockfall it can be concluded that the likelihood of blocks reaching the site is either rare or unlikely, with one exception that can be removed. As with all of urban Queenstown, the risk is most likely to be realised during severe earthquake shaking or rainstorms. Mitigation measures are feasible and can be detailed once development proposals are more developed and access is better facilitated. Overall, the reports conclude that residential development of the site is feasible from a geotechnical perspective subject to some mitigation measures being in place.

5.2 Three Waters Servicing and Infrastructure Review

The infrastructure / servicing report has been prepared by Civilised Ltd and is appended as Attachment [F]. The report considers water supply, wastewater disposal, stormwater runoff, power supply and telecommunications. It includes the results of modelling of the water supply impact by Mott MacDonald, and the wastewater impact by Hydraulic Analysis Limited.

The report confirms it is feasible to provide the necessary development infrastructure to service the proposed future development of the land. Upgrades to the water and wastewaters systems are required. There are no issues with providing a power supply, telecommunications or disposing of stormwater. Engagement with Aurora has been undertaken to ensure any effect on the existing power lines can be managed.

5.3 Transport review

A high-level transport assessment of the site has been undertaken by Stantec and is appended as Attachment [G]. A concept design for the new intersection linking Arawata Track to Arawata Terrace has been developed and provides sufficient space to accommodate the tracking of a medium sized rigid truck. Although the new development will increase the volume of movements on Arawata Terrace and Fernhill Road, these roads currently carry low volumes of traffic and have sufficient capacity to accommodate the additional movements with no noticeable effects on intersection performance.

5.4 Public transport connections

The site is located within the crucial 5-minute walk of existing public transport routes, specifically the number 1 route from Fernhill to Remarkables Park.

Adding the site as Future Urban area to the Spatial Plan would facilitate its development, which includes a new through route linking Arawata Terrace with the Glenorchy-Queenstown Road. This provides an opportunity to extend the public transport route through the site, enabling a round trip and no cul de sacs.

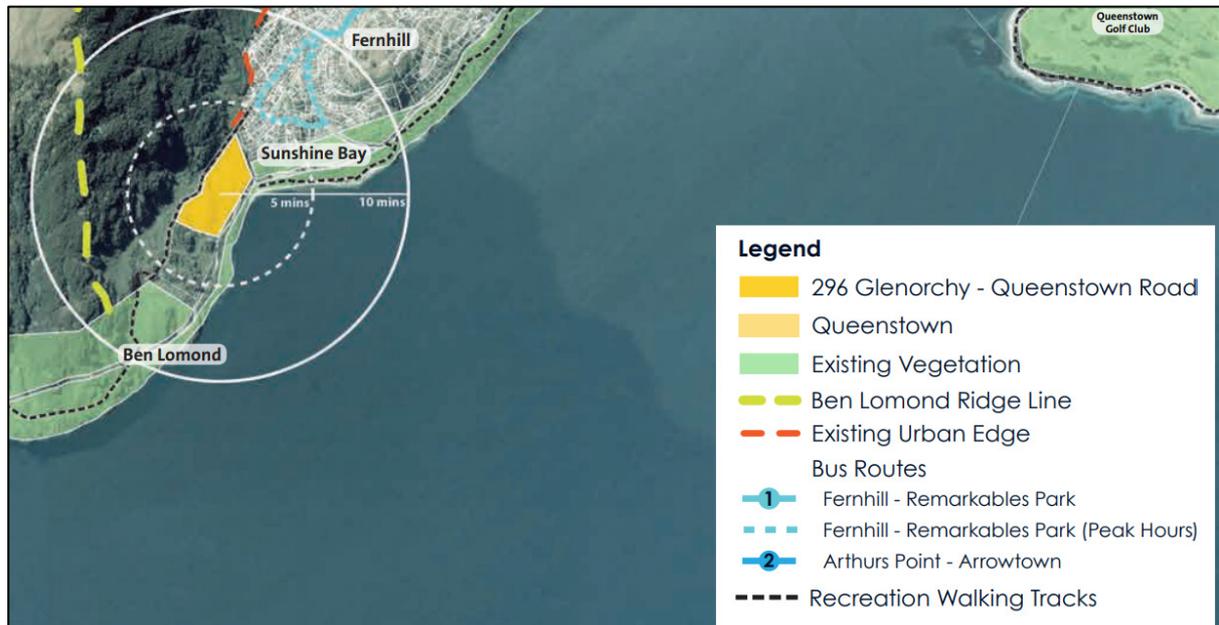


Figure 7: Walking time and proximity of existing bus routes and trails

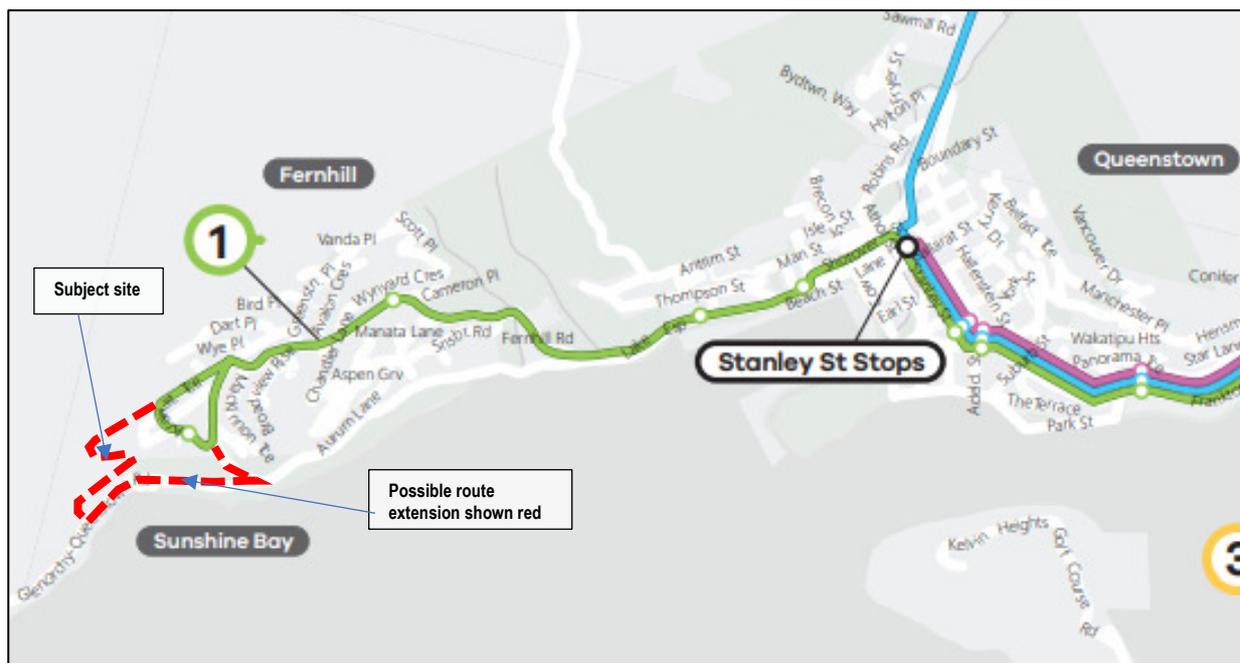


Figure 8: Existing bus routes (with possible route extension through site shown red)

5.5 Cultural values

The site is *incorrectly* shown on the Scenario Analysis Report as being within an area with cultural values of significance to Kai Tahu. The site is not shown as a Wāhi Tūpuna area in the recent Stage 3 decisions on the Proposed District Plan. There are no specific annotations identifying the site in the Ngai Tahu Cultural Atlas. <https://www.kahurumanu.co.nz/atlas>

5.6 *Ecological review*

The ecological survey of the site has been undertaken by Wildland Consultants and is appended as Attachment [H]. The report notes the site is currently occupied by a mixture of exotic weeds, bracken fern land vegetation and relatively young regenerating indigenous broadleaved vegetation. The indigenous vegetation was found to have relatively low diversity, and is typical of similar forest vegetation elsewhere on the lower slopes above Lake Wakatipu. Schist bluffs at the site are more diverse, and while modified have significant representative value and provide habitat for one locally uncommon plant species. Some areas are dominated by exotic conifers and exotic deciduous broadleaved trees, and the conifers in particular threaten the persistence of indigenous plant species on the schist bluffs.

The report concludes that there is scope to mitigate, offset, and compensate for adverse effects on indigenous vegetation and habitats through clearance of exotic trees and forest, particularly exotic conifers and willows, and planting of appropriate locally-sourced indigenous species in any areas of remaining bracken fern land to hasten its succession to broadleaved forest. As the indicative master plan shows, future development avoids the very high value bluff habitat.

Ecological mitigation and offsetting options were therefore specifically considered in a further report, appended as Attachment [I]. A combined approach of wilding conifer and weed control, extensive high-density planting of undeveloped areas, and predator controls is proposed. The report concludes that these actions would be sufficient to fully mitigate the adverse ecological effects generated by the proposed urban development.

5.7 *Landscape assessment*

As noted above, the draft Spatial Plan incorrectly shows the site as ONL. Independent landscape experts prepared a Joint Witness Statement for the Environment Court on the landscape values of the site. This ultimately determined where the ONL and Rural Character Landscapes were found. The Joint Witness Statement and associated images are included with Attachment [J]. The indicative master plan contains development to that part of the site that is not identified as an ONL, with the exception of the proposed trail that connects the Sunshine Bay and Arawata Tracks.

A landscape assessment has also been undertaken that considers the landscape and visual effects of the proposed change of zone and urbanisation of the non-ONL part of the site (Attachment [J]). The assessment concludes that the area to the south of Sunshine Bay is considerably less sensitive to landscape change than the vast majority of locations within the rural parts of the district, and is suitable for urban/suburban development. This is primarily because:

- It is immediately adjacent to an urban area, being the suburb of Sunshine Bay. Specifically, it adjoins the low residential streets of Arawata Terrace, Moss Lane and Evergreen Place.
- It is located in a relatively contained part of the landscape and is only observed from a relatively small and localised visual catchment.
- It is located on land that is of limited productive value.
- It is not part of, and can be visually separated from the ONL. It is an isolated piece of RCL land.

6. Assessment against Draft Spatial Plan – Principles

The Draft Spatial Plan contains three principles and five spatial outcomes that guide the direction of the Spatial Plan to 'Grow Well / Whaiora' and address the challenges and opportunities facing the Queenstown Lakes District.

The proposal is assessed against these Principles and Outcomes below:

6.1 Principle – Wellbeing Hauora

Decisions about growth recognise social, economic, environmental and cultural considerations

The proposal addresses this principle by providing the expert technical assessment required for the Panel to make an informed decision about the social, economic, environmental and cultural considerations. In summary:

- Social – the land allows people to provide for their social well-being through creating homes for families (no visitor accommodation) in a suitable location, and connecting two existing trails.
- Economic – the land enables additional housing in the extremely unaffordable Queenstown market.
- Environmental – the effects of urban development in this location can be sustainably managed as addressed in the reports in Attachments [C] to [J].
- Cultural – the site is not a Wāhi Tūpuna (Stage 3 PDP decisions) and is not identified in the Ngai Tahu cultural atlas.

6.2 Principle – Resilience Aumangea

Ensuring communities and visitors are resilient to shocks of the future, including adapting to climate change

Additional housing supply of a medium density nature will provide more affordable housing options that in turn reduce debt funding and ensure communities are more resilient to economic shocks such as pandemics.

6.3 Principle – Sustainability Whakauku

Programmes and activities are delivered according to sustainable development principles and work towards zero emissions

The extension of Sunshine Bay onto this land is more sustainable than other greenfield land proposed in the Spatial Plan located much further away from Queenstown Town Centre and on transport routes that are already heavily congested. The site is already within a 5-minute walk of a public transport route, or can readily be directly serviced by public transport through an extension of the Number 1 route Fernhill-Sunshine Bay (refer Figure 8 above).

The ecological assessment in Attachments [H] and [I] illustrate how urban development of the land can be undertaken with minimal ecological impact.

7. Assessment against Draft Spatial Plan – Outcomes

7.1 Outcome – Consolidated growth and more housing choice

The site represents a logical extension to the urban area of Sunshine Bay. It consolidates the existing urban area of Queenstown, rather than a distant greenfield location such as Ladies Mile or the southern corridor. The site slope suits a medium density residential housing typology with undercroft parking areas, providing more choice than the typical one large detached house per section housing available in most of Queenstown.

7.2 Outcome – Public transport, walking and cycling are everyone's first travel choice

The site enables a 3.6km bike ride to Queenstown town centre in 14 minutes, and a 5-minute walk to existing public transport routes. The site enables the expansion of the Number 1 bus route through the site, opening up the bus route to more persons.

7.3 Outcome – A sustainable tourism system

This outcome does not directly relate to the proposal, which is a residential development. Visitor accommodation in the form of Air B'n'B is not provided for.

7.4 Outcome – Well-designed neighbourhoods that provide for everyday needs

Urban design experts from Boffa Miskell have developed the indicative master plan concept shown in Attachment [C]. A through route connecting Arawata Terrace to the Glenorchy-Queenstown Road provides a strong spine from which the urban development is based. Medium density residential, with access from the top and bottom to address the site slope, utilising the three flatter parts of the site and the topography to provide site access. The proposal enables connection of the existing Arawata and Sunshine Bay tracks through the site.

7.5 Outcome – A diverse economy where everyone can thrive

The proposal will provide more affordable medium density homes, allowing people a home from which they can live, work and thrive.

Overall, the identification of the land at Sunshine Bay is consistent with the identified Outcomes for the Spatial plan.

8. Assessment against Draft Spatial Plan – Strategies

8.1 Strategies to achieve the Outcomes

Strategies	Assessment
1. Increase density in appropriate locations	Sunshine Bay is an appropriate location and suits medium density residential, a housing style not well catered for in Fernhill and Sunshine Bay. It is a few minutes' drive from the Queenstown CBD, or just a 3.6km (14 minute) bike ride (completely off road).
2. Deliver responsive and cost-effective infrastructure	The site can be fully serviced by extensions to the existing QLDC infrastructure which is located directly adjacent to the site. The proposal includes reports [F] and [G] that address the infrastructural servicing requirements.
3. Improve housing diversity and choice	The proposal is for primarily medium density residential, which is not well catered for in the Fernhill and Sunshine bay suburbs at present.
4. Provide more affordable housing options	Medium density residential is a more affordable housing option than single detached houses on each section.
5. Ensure land use is concentrated, mixed and integrated with transport	The site is a logical urban extension to Sunshine Bay, located within a 5-minute walk of existing bus routes, and the bus route can readily be extended through the site. A convenience retail / café area is identified centrally within the site.
6. Coordinate a programme of travel demand initiatives	Does not directly relate to the submission.
7. Prioritise investment in public transport and active mode networks	The identification of the site as Future Urban supports public transport by increasing density in proximity to the Number 1 bus route from Fernhill – Sunshine Bay.
8. Improve coordination across the tourism system	Does not directly relate to the submission.
9. Ensure infrastructure supports a great visitor experience	Does not directly relate to the submission.
10. Promote a car free destination	Does not directly relate to the submission.

11. <i>Create well-connected neighbourhoods for healthy communities</i>	The site is well connected to the existing Sunshine Bay urban area, however the construction of a through route will enable a new connection to the Glenorchy- Queenstown Road. The proposal also enables the connection of the Sunshine Bay and Arawata Trails through the site.
12. <i>Design to grow well</i>	The indicative master plan has been designed by urban design experts from Boffa Miskell to create a quality urban environment on a sloping site.
13. <i>Enhance and protect the Blue-Green Network</i>	The proposal links the Arawata Track (on legal road reserve) to the Sunshine Bay track (on Council reserve) and includes ecological mitigation.
14. <i>Diversify the economy</i>	Does not directly relate to the submission.
15. <i>Make spaces for business success</i>	Does not directly relate to the submission.
16. <i>Establish efficient and resilient connections</i>	The proposal will establish an enduring connection between the Arawata Track and Sunshine Bay

Overall, the proposal is consistent with many of the strategies that underlie the implementation of the Spatial Plan.

8.2 Engagement with the draft Spatial Plan consultation

Representatives of the landowner attend the 'My Place' session held at Remarkables Primary school and identified the Sunshine Bay site on maps at that meeting.

Direct engagement with QLDC officer Caroline Dumas was also undertaken, to introduce the site and background work that had been undertaken for urban development.

Unfortunately, this engagement has not been resulted in the site being included as a 'Future Urban' area within the draft Spatial Plan.

This is possibly due to the site being shown incorrectly as an ONL and subject to Kai Tahu cultural value son the Spatial Plan mapping.

8.3 Comment on the draft Spatial Plan Future Development areas for Queenstown

All land identified as 'Future Urban' is located at Ladies Mile, Homestead Bay, or across the Kawarau River from Remarkables Park. All of these areas are dependent on two roading corridors that meet at the SH6 / 6A intersection at the BP roundabout.

The Sunshine Bay land can make a meaningful contribution to housing supply in close proximity to the Queenstown CBD, without adding additional commuter traffic to these two routes at peak times.

The Sunshine Bay land can be identified as 'Future Urban' in addition to the land shown in Map 7 of the Draft Spatial Plan, noting that Map 7 – Spatial elements for Queenstown, incorrectly shows the Sunshine Bay land as 'Protected' rather than 'Rural'.

9. Summary

The identification of the land at Sunshine Bay as 'Future Urban' achieves the three principles and five spatial outcomes of the draft Spatial Plan. As a logical urban extension to the existing Sunshine Bay urban area, it reflects a consolidated approach to growth.

The reporting undertaken confirms the site is suitable for urban residential development. There are no impediments having considered the geotechnical, infrastructure, ecology, transport and landscape assessment reports summarised above. The site is currently zoned Rural (not ONL) and can provide a meaningful contribution to the

supply of residential housing to the Queenstown market, in a location able to absorb the effects of residential development. We respectfully request the site be identified as a 'Future Urban' area on Map 7 of the Spatial Plan.

Several errors in the draft Spatial Plan documents incorrectly show the land as being ONL, and subject to cultural values which has resulted in little consideration of the eastern corridor as a growth option. The site enables a 3.6km bike ride to Queenstown town centre in 14 minutes, and a 5-minute walk to existing public transport routes. The site enables the expansion of the Number 1 Fernhill – Remarkables Park bus route through the site, opening up the bus route to more persons. The site enables the connection of the Arawata and Sunshine Bay tracks, and proposes predominantly medium density housing, with a small number of apartments and detached residential units adjoining the existing Sunshine Bay urban area. A central café / convenience retail location has been identified to service local residents of Sunshine Bay.

Overall, the site is a logical urban extension to the Sunshine Bay urban area that can be readily serviced with infrastructure and provide a meaningful supply to housing to the severely unaffordable Queenstown housing market.

We look forward to speaking to our submission.

Yours faithfully



Blair Devlin
DIRECTOR / SENIOR PLANNER

Alex Sipka
DIRECTOR, SIPKA HOLDINGS LTD

Attachment **[A]**: Record of Title

Attachment **[B]**: Environment Court Consent Order ENV-2018-CHC-56, 23 September 2019

Attachment **[C]**: Indicative Masterplan – Boffa Miskell

Attachment **[D]**: Geotechnical Review – Geoconsulting Ltd

Attachment **[E]**: Geotechnical Review – Rockfall Hazard

Attachment **[F]**: Infrastructure / Servicing report – Civilised Ltd

Attachment **[G]**: Transportation assessment – Stantec

Attachment **[H]**: Ecological report – Wildland Consultants Ltd

Attachment **[I]**: Ecological mitigation and offsetting report – Wildland Consultants Ltd

Attachment **[J]**: Landscape and visual effects assessment – Vivian+Espie



Section 1
SO 431667

Lot 1
DP 397058
6.4760ha
387117

Lot 2
DP 397058

Note:
- Contours sourced from QLDC Lidar Records, and ground-proofed by GPS survey where ground could be accessed and is indicative only.
- Ground-proofing found Lidar to be accurate to +/- 100mm
- Topographical survey of the terrain with higher accuracy can only be conducted with extensive clearance of vegetation

LEGEND:

- POWER POLE
- SEWAGE INFRASTRUCTURE
- STORMWATER INFRASTRUCTURE
- WATER SUPPLY
- OVERHEAD PWR LINES

DATA QUALITY STATEMENTS

PROPERTY DATA
The property data has been sourced from land Information New Zealand (LINZ) and is current as at October 2017. The boundary data has been compiled from various existing surveys of different ages. Boundary lengths shown as calculated may vary from those shown on the Certificate of Title, and are subject to a legal redefinition survey. The accuracy of the boundary data is estimated to be within 30mm.

SURVEY DATA
Surveyed data has been captured using survey equipment, to a relative accuracy within approximately 50mm (horizontal and vertical).

SERVICES DATA
The locations of underground services have been compiled from records supplied by the local Council and Utility Authorities. Where those services have features visible on the surface, their positions have been verified by field survey. The accuracy of unverified services is unknown. Also there may be services for which no records were provided and which are not shown on this plan. In all cases, if the location of a service is considered important, the relevant service provider should be consulted.

SURVEY DATUMS
Horizontal coordinates are in terms of NZ Geodetic Datum 2000, Mount Nicholas 2000 Circuit.
The origin of coordinates is OIT XI SO 18441, 809722.92 mN 417728.25 mE.
Vertical elevations are in terms of Dunedin Vertical Datum (MSL).
The origin of levels is OIT XI SO 18441, RL 384.55.
Contour interval is 1.0m

TITLE: LIDAR CONTOUR PLAN

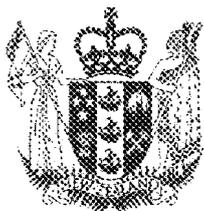
Project: LOT 1 DP 397058
SUNSHINE BAY
for SUNSHINE BAY LIMITED

ISSUE DATE: 26 July 2019	ISSUE: A - Original Issue	PREPARED BY: Craig Woodcock
		Scale 1:1000 @ A1 1:2000 @ A3
		DRAWING & ISSUE No. 5099.1T.1A

AURUM SURVEY

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Wakatipu 9349
Ph 03 442 3466
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COMPUTER FREEHOLD REGISTER UNDER LAND TRANSFER ACT 1952




R.W. Muir
Registrar-General
of Land

Search Copy

Identifier 814710
Land Registration District Otago
Date Issued 10 November 2017

Prior References

387117

Estate	Fee Simple
Area	6.4760 hectares more or less
Legal Description	Lot 1 Deposited Plan 397058

Proprietors

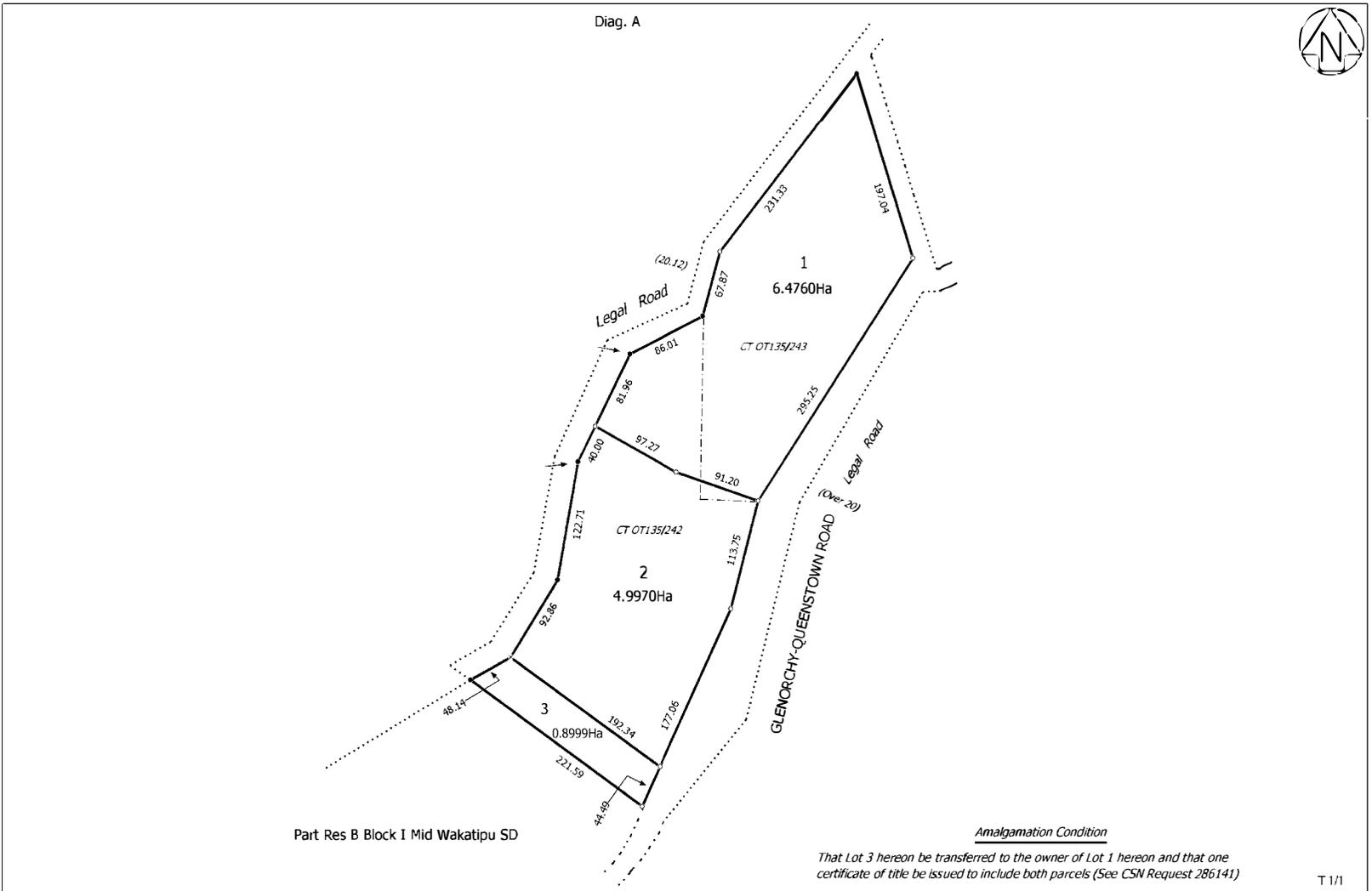
Zhaoyang Xin

Interests

Together with such parts of the mines of coal or other minerals (if any) under the surface of the other parts of Sections 11 & 12 Block I Mid Wakatipu Survey District coloured red on the plan attached to Proclamation 1791 as are not taken by the said Proclamation and are excepted thereout by Section 15 of The Public Works Act 1894

Subject to a right to drain water and sewage and a right to convey water, electricity, telecommunications and computer media over part marked A on DP 503861 created by Easement Instrument 10619254.1 - 11.11.2016 at 12:05 pm

11188456.2 Mortgage to Onelend Trustee Limited - 2.8.2018 at 3:19 pm



<p>Lane District Stage</p> <p>Digitally Generated Plan</p> <p>Generated on: 30/11/2007 4:06pm Page 3 of 3</p>	<p>Lots 1 to 3 being a subdivision of Lot 1 DP 18374</p>	<p>Surveyor: Noel John Bonisch</p> <p>Firm: Bonisch Surveyors (Invercargill)</p>	<p>Digital Title Plan DP 397058</p> <p>Deposited on: 10/11/2007</p>
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**BEFORE THE ENVIRONMENT COURT
I MUA I TE KOOTI TAIAO O AOTEAROA**

IN THE MATTER of the Resource Management Act 1991
AND of an appeal under Clause 14 of the First
Schedule of the Act
BETWEEN UPPER CLUTHA ENVIRONMENTAL
SOCIETY INCORPORATED
(ENV-2018-CHC-56)
Appellant
AND QUEENSTOWN LAKES DISTRICT
COUNCIL
Respondent

Environment Judge J J M Hassan – sitting alone pursuant to s279 of the Act

In Chambers at Christchurch

Date of Consent Order: 23 September 2019

CONSENT ORDER

- A: Under s279(1)(b) of the Resource Management Act 1991, the Environment Court, by consent, orders that:
- (1) the appeal is allowed to the extent that the Queenstown Lakes District Council is directed to amend the Outstanding Natural Landscape boundary line on Map 34 of the Proposed Queenstown Lakes District Plan, as set out in Appendix 1 (attached to and forming part of this Order);
 - (2) the appeal otherwise remains extant.
- B: Under s285 of the Resource Management Act 1991, there is no order as to costs.



REASONS

Introduction

[1] This proceeding concerns an appeal by the Upper Clutha Environmental Society Incorporated ('UCESI') against part of a decision of the Queenstown Lakes District Council. This consent order resolves the interests of a s274 Mr S Xin relating to the Outstanding Natural Landscape ('ONL') line on Map 34 of the proposed Queenstown Lakes District Plan – Stage 1.

[2] The court has now read and considered the consent memorandum of the parties dated 26 July 2019, which proposes to resolve Mr Xin's interests in this appeal.

Other relevant matters

[3] Twenty-five persons gave notice of their intention to become a party to the UCESI appeal under s274 of the Act. Only Mr Xin lodged a s274 notice in relation to the ONL boundary line along the western edge of the Sunshine Bay residential area. The consent memorandum was therefore only signed by UCESI, the Council and Mr Xin but the court gave opportunity¹ for any other s274 party to oppose the relief. No opposition was received.

[4] Other consent orders which have been filed in relation to the proposed district plan are being held in abeyance. The court is satisfied that these orders are able to be made at this time since the orders resolve a discrete issue which will not impact on other proposed plan appeals before the court. For completeness, I record that I am satisfied that the making of the order sought is duly consistent with a substantive decision, imminently to be issued, on other 'Sub-topic 1' matters.

Order

[5] The court makes this order under s279(1) RMA, such order being by consent, rather than representing a decision or determination on the merits pursuant to s297. The court understands for present purposes that:

¹ By way of Minute dated 30 July 2019.



- (a) all parties to the proceedings have executed the memorandum requesting this order; and
- (b) all parties are satisfied that all matters proposed for the court's endorsement fall within the court's jurisdiction and conform to the relevant requirements and objectives of the RMA including, in particular, pt 2.

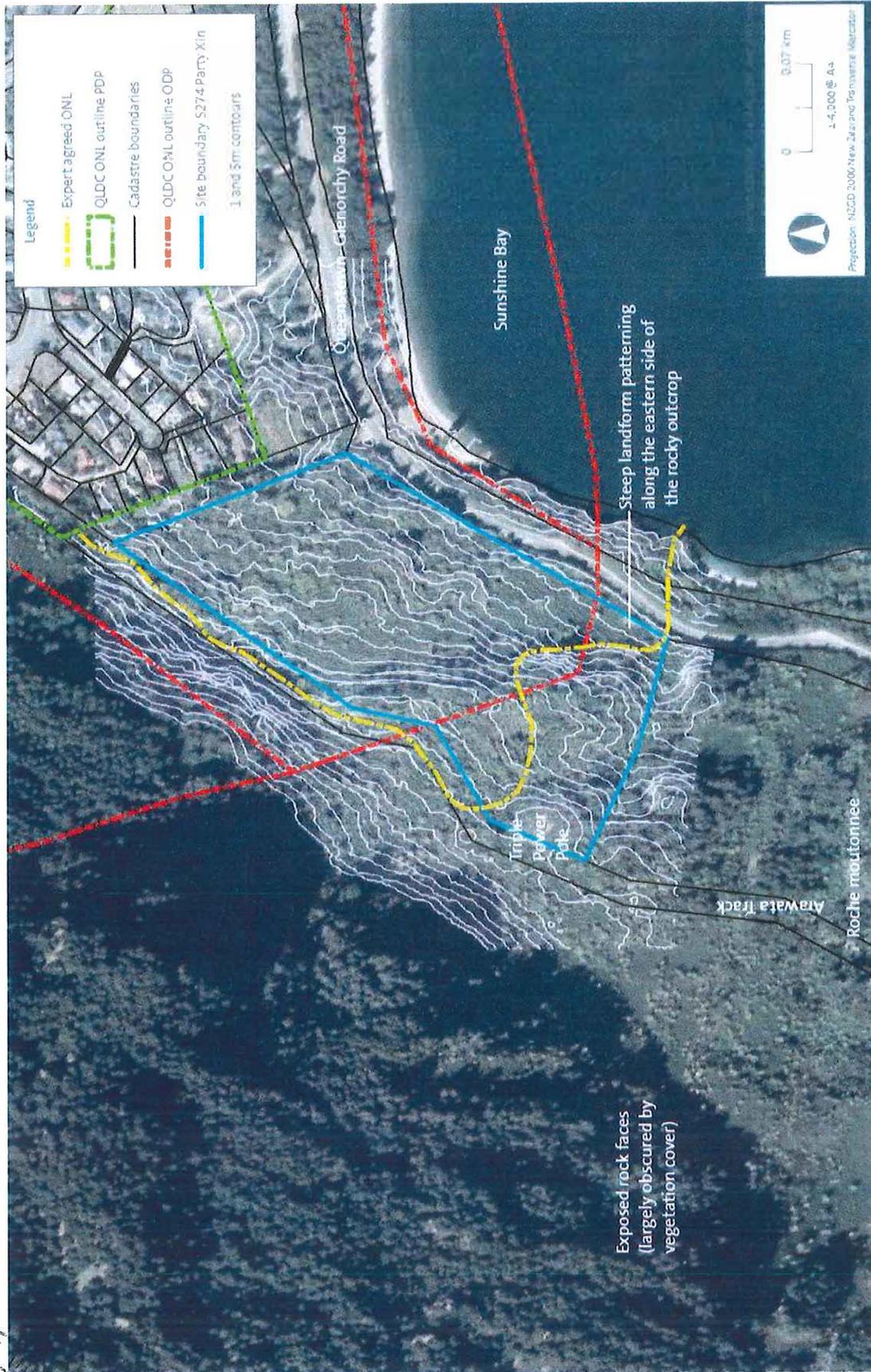


J J M Hassan
Environment Judge



APPENDIX 1

Figure 1: Amended Outstanding Natural Landscape Boundary line at Sunshine Bay



SUNSHINE BAY

Concept Masterplan

November 2019

Boffa Miskell

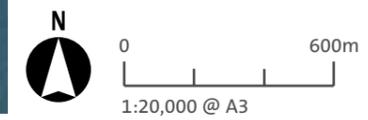


Site Context



Legend

 Site Boundary: 6.476ha



Density Studies

Site Boundary

Area: 6.476ha



Stonefields, Auckland

Area: 6.49ha

Approximate 165 Dwellings

Approximate 25 Dwellings per Hectare (Gross)



Long Bay, Auckland

Area: 6.67ha

Approximate 114 Dwellings

Approximate 17 Dwellings per Hectare (Gross)



Sunshine Bay, Queenstown

Area: 6.28ha

Approximate 56 Dwellings

Approximate 9 Dwellings per Hectare (Gross)



Frankton Road, Queenstown

Area: 6.44ha

Approximate 153 Dwellings

Approximate 24 Dwellings per Hectare (Gross)



Site Panoramas



Viewpoint location



Viewpoint location

Site Panoramas



Viewpoint location



Viewpoint location

Site Panoramas



Viewpoint location



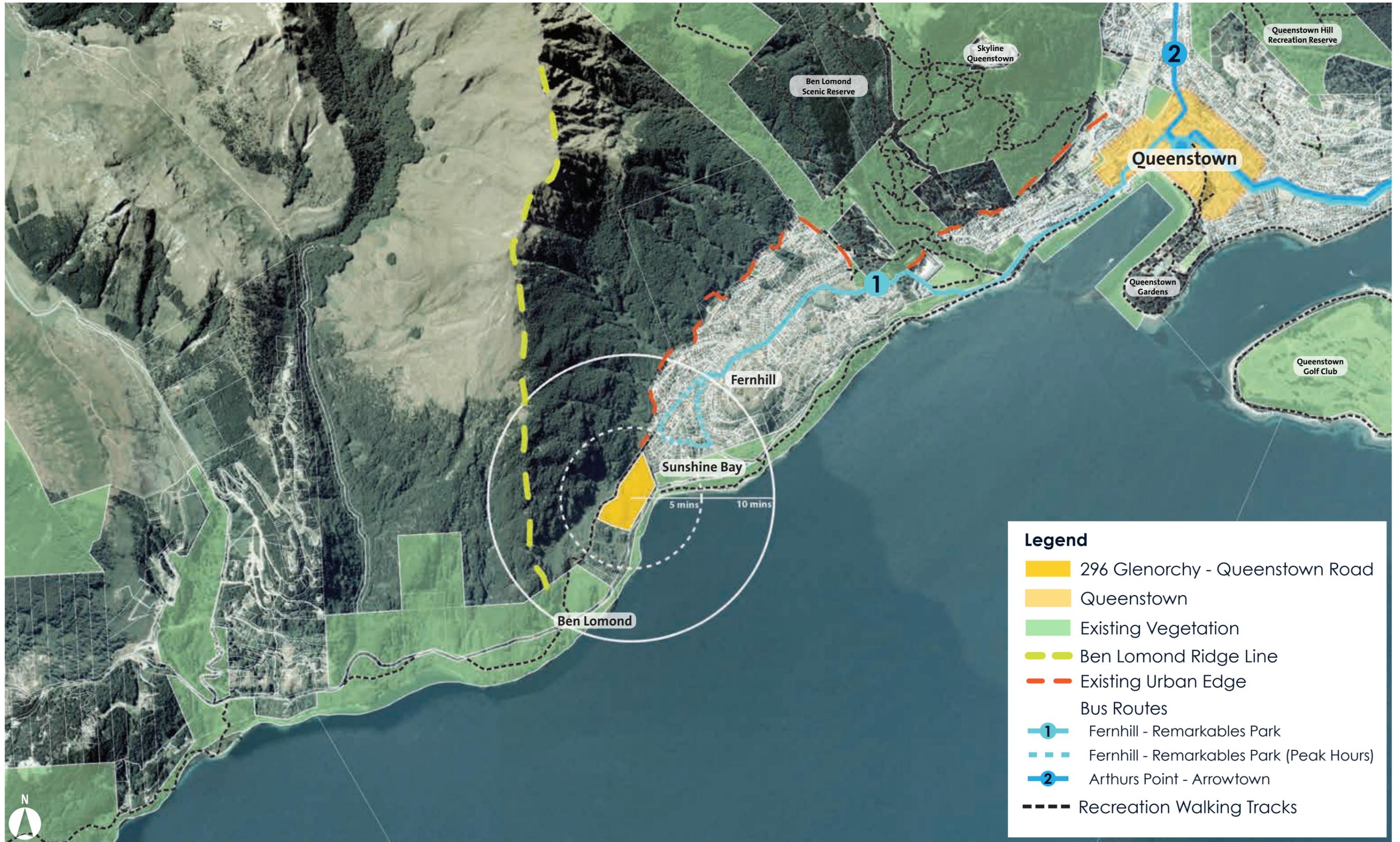
Viewpoint location

Site Panoramas



Viewpoint location

Site Context



Legend

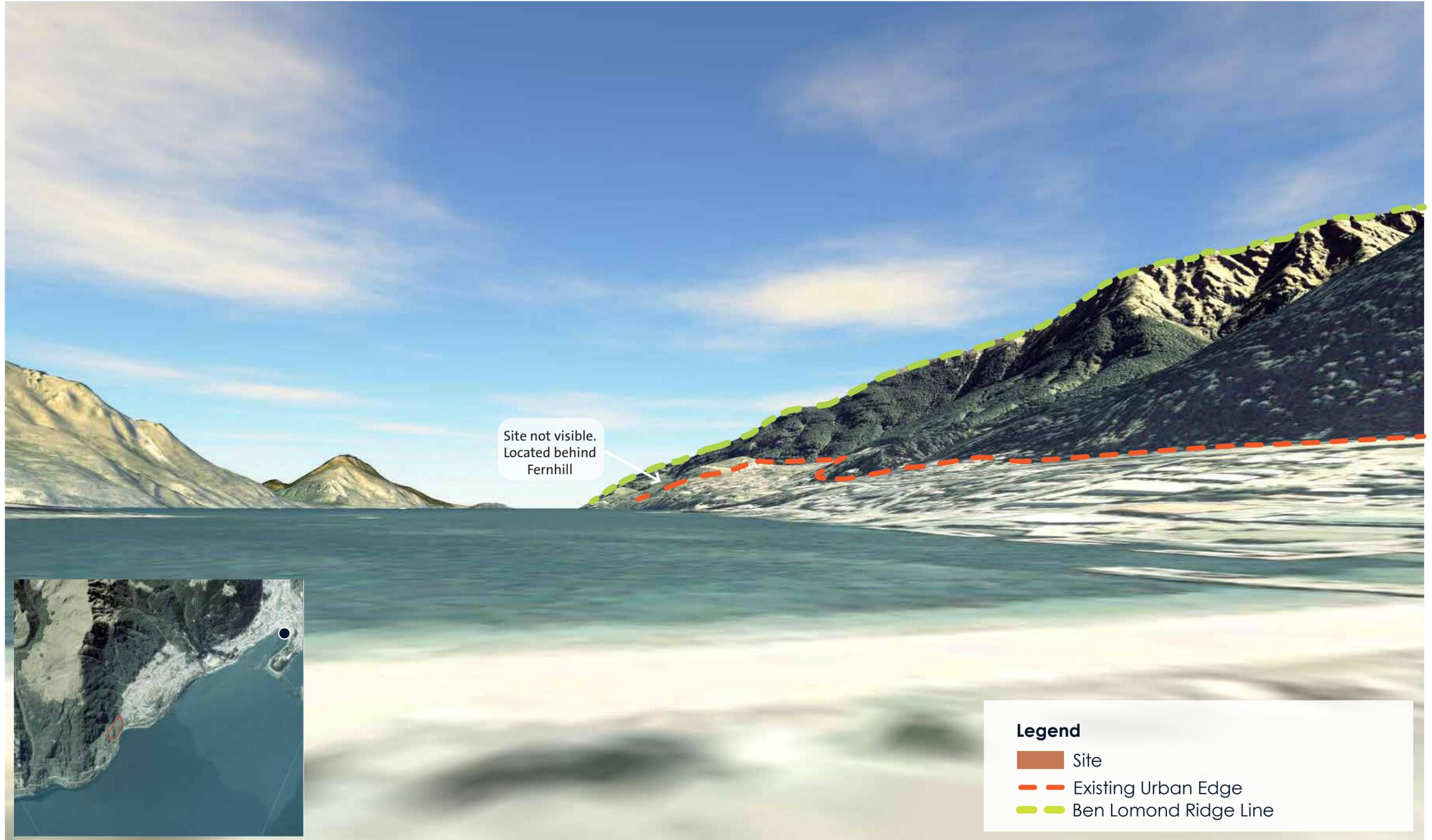
- 296 Glenorchy - Queenstown Road
- Queenstown
- Existing Vegetation
- Ben Lomond Ridge Line
- Existing Urban Edge

Bus Routes

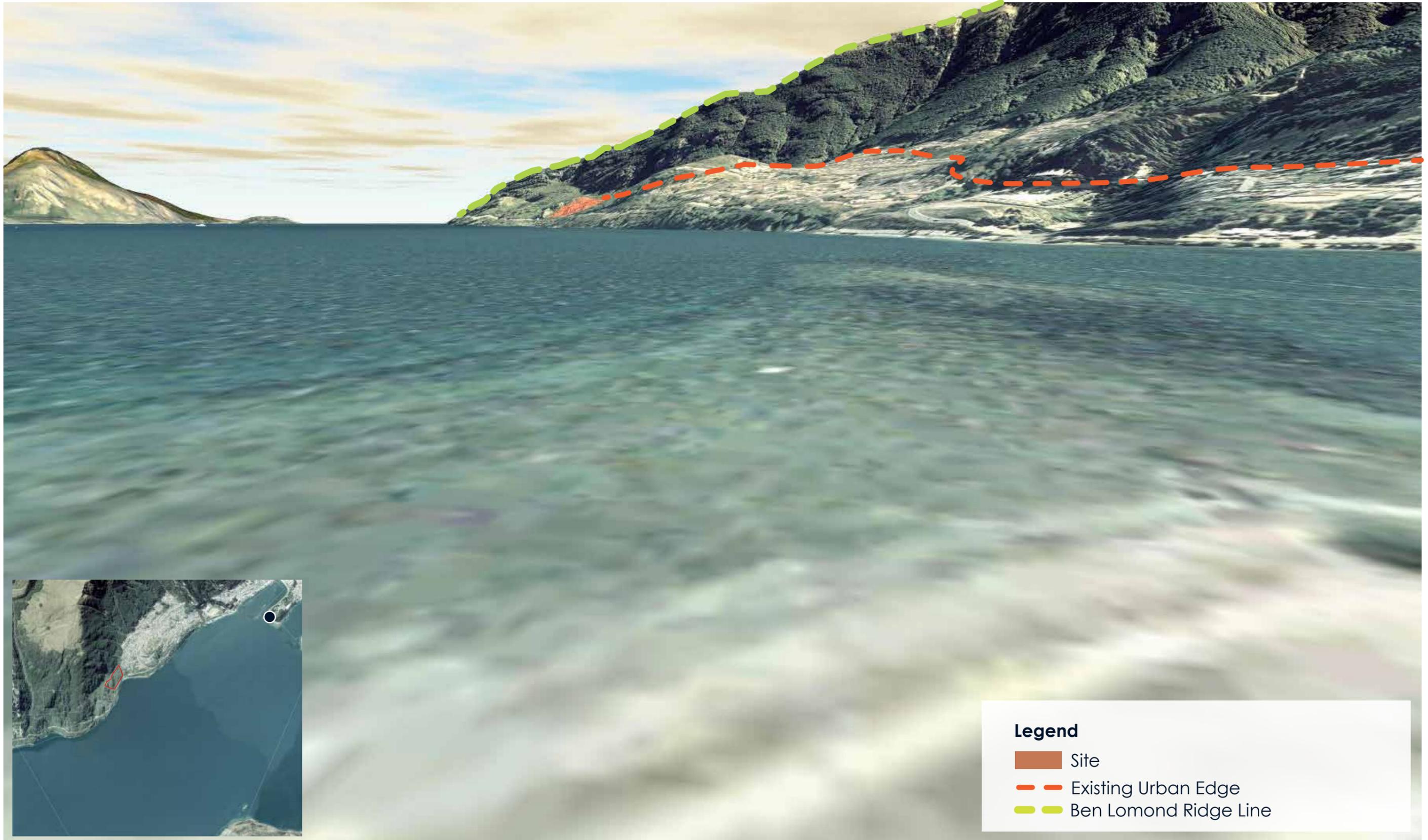
- 1** Fernhill - Remarkables Park
- Fernhill - Remarkables Park (Peak Hours)
- 2** Arthurs Point - Arrowtown

- Recreation Walking Tracks

Marine Parade Queenstown Centre



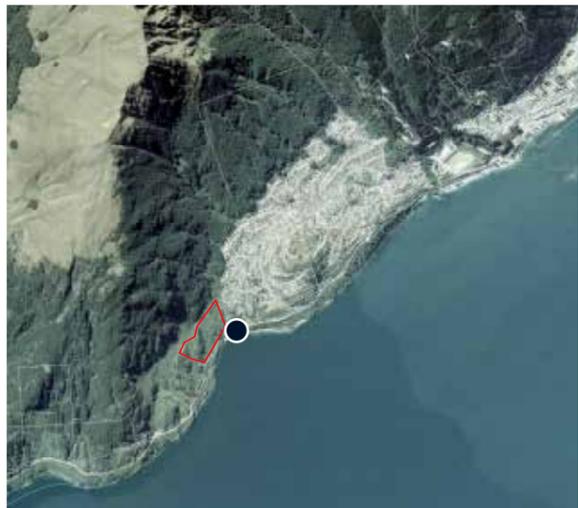
Queenstown Gardens



Legend

- Site
- - Existing Urban Edge
- - Ben Lomond Ridge Line

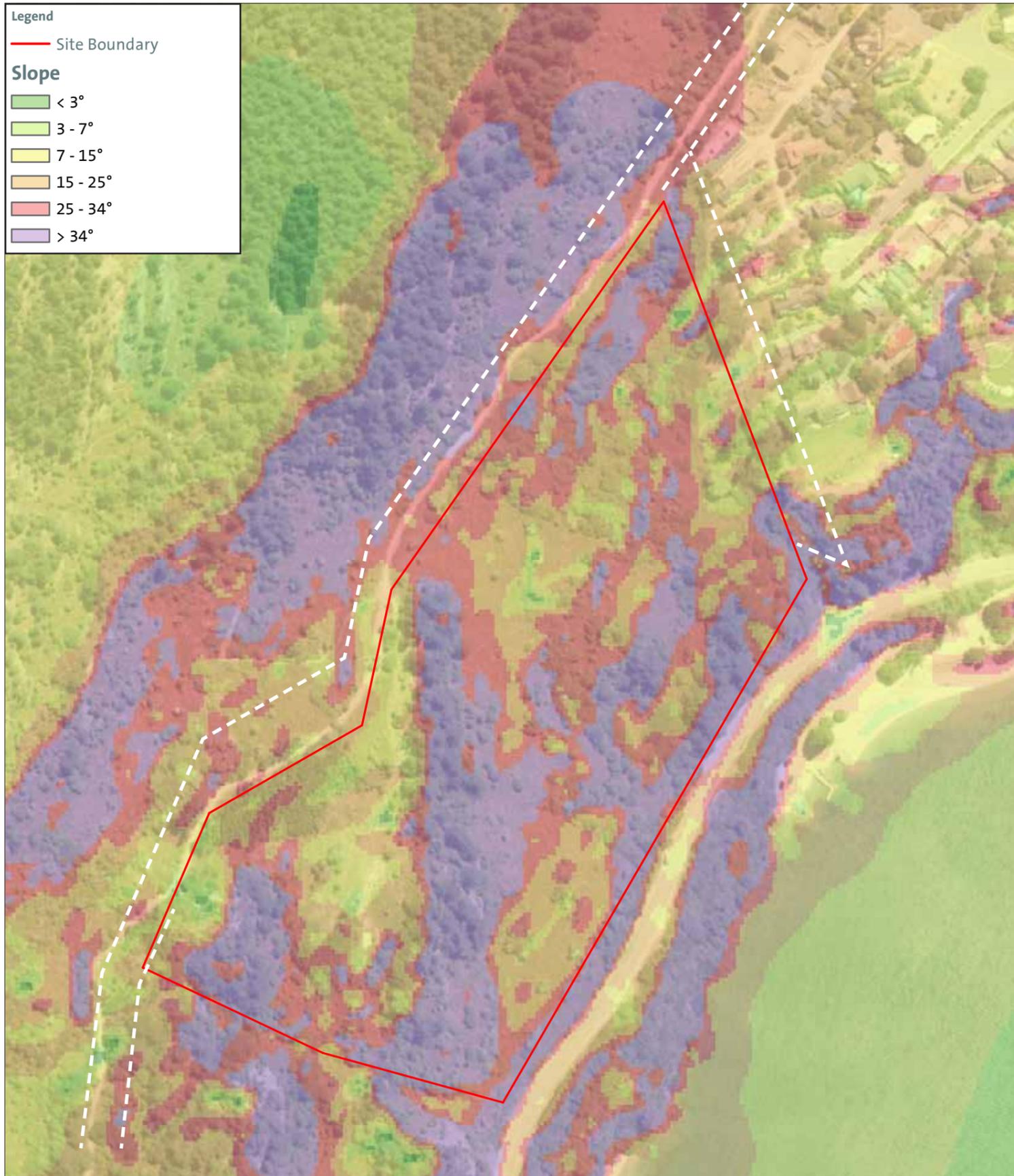
Sunshine Bay Beach View: Illustrates the limited visibility of the site from the immediate lake shore and Glenorchy Rd



Legend

— Ben Lomond Ridge Line

Slope Analysis



Slope + Landscape Features



Legend

-  Slope 25° - > 34°
-  Rock Face
-  Existing Vegetation
-  Paper Road
-  Screening Transformer
-  Glenorchy Road Backdrop



Slope + Landscape Features + Ecology



Notes

1. Steep escarpment (yellow dashed line) running north to south at the centre of the site cuts off feasible roading connections across the site, creating two developable areas.
2. Escarpment splits concentration of vegetation with higher ecological value in north-east with areas of lower ecological value to south-west.
3. Flattest area located at south western quarter of the site and correlates with lower value vegetation.
4. Less steep pockets of land (blue outlines) located at the northern half of the site.
5. Potential to compensate loss of vegetation in more developable areas by revegetating steeper parts of the site (red outlines) with large areas of lower value vegetation.
6. Disruption of bluff vegetation habitat (Pink) should be avoided.

Legend

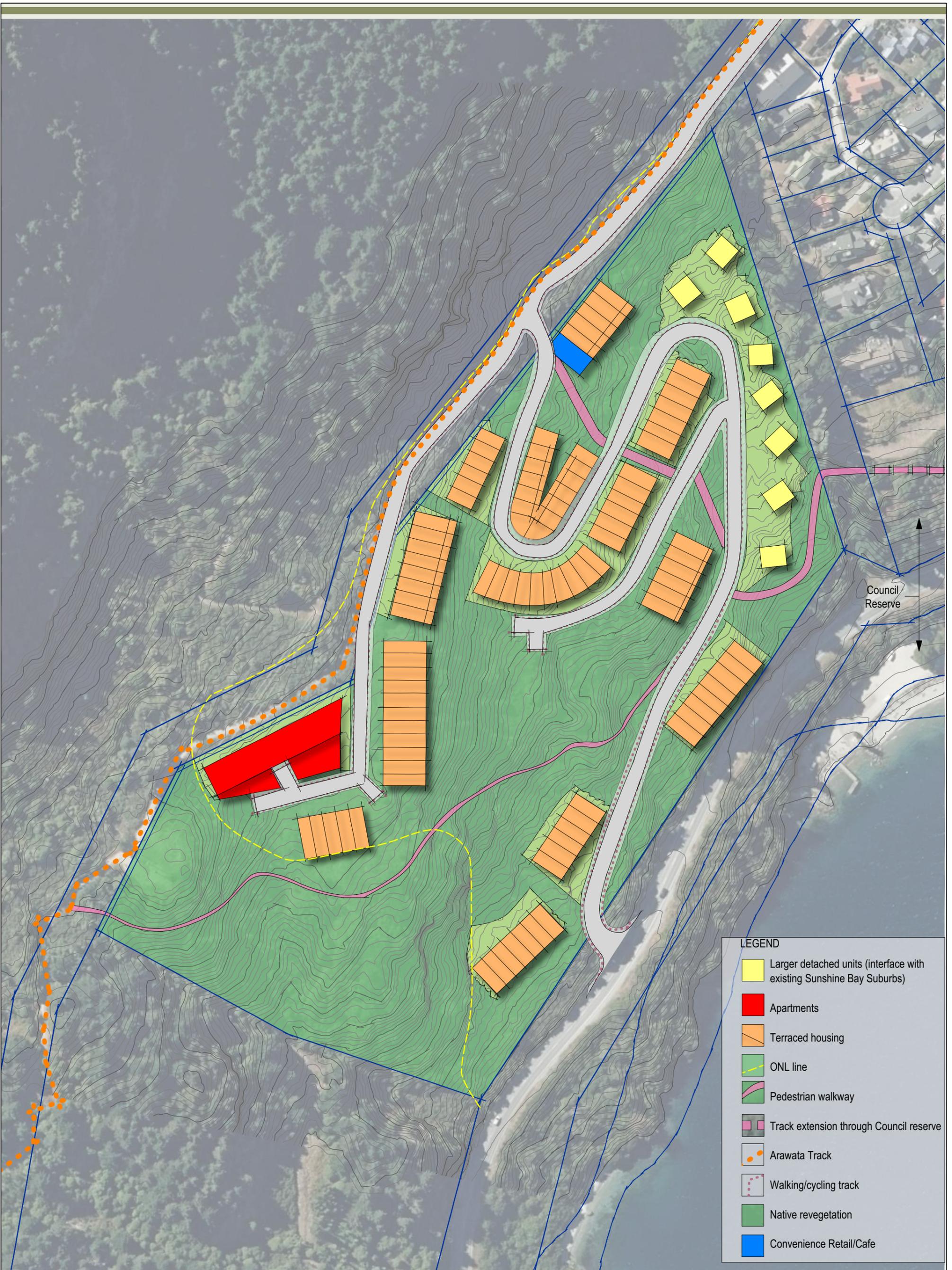
Ecological value of vegetation:

- Very high
- High
- Moderate
- Low
- Very low

Slope:

- < 25°
- > 25°

- Alignment of steep escarpment
- Agreed ONL boundary



LEGEND

	Larger detached units (interface with existing Sunshine Bay Suburbs)
	Apartments
	Terraced housing
	ONL line
	Pedestrian walkway
	Track extension through Council reserve
	Arawata Track
	Walking/cycling track
	Native revegetation
	Convenience Retail/Cafe

REF: 1747-01
 DATE: 12.04.2021
 SCALE: 1:1500 @ A3

Sunshine Bay Limited Indicative Master Plan

Sunshine Bay, Queenstown

vivian+espie
 resource management and landscape planning
 vivian+espie Limited Resource Management and Landscape Planning
 PO Box 2514
 Physical Address 1/211B Glenda Drive Frankton, Queenstown
 Tel +64 3 441 4189 Fax +64 3 441 4190 Web www.vivianespie.co.nz

Typical Housing Typology Precedents - Queenstown



Alpine Village, 643 Frankton Road



Pounamu Apartments, 110 Frankton Road



Kawarau Falls Apartments, 79 Peninsula Rd



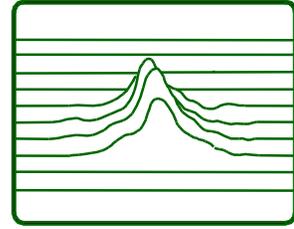
Duplex, 275 Fernhill Road



Alpine Village, 643 Frankton Road

GEOCONSULTING Ltd

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jeff@geoconsulting.co.nz



296 QUEENSTOWN-GLENORCHY RD

GEOTECHNICAL INVESTIGATIONS REPORT



Client: Sunshine Bay Ltd

26 August 2019

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SUMMARY

This report provides a geotechnical assessment of the block of land described as Lot 1 DP 397058. Exploratory investigations comprising field mapping and subsoil trenching have been undertaken to determine the character of the ground and what natural hazards affect the site.

The general geology can be described as thin to moderately thick sandy or gravelly till overlying schist bedrock. Occasional rock outcrops are present on the steeper slopes within the property and are common on the hillside above. Although no well defined catchments exist on the hillside, there are a number of water courses, carrying what appears to be a permanent flow, passing through the site. Elevated groundwater levels are often associated with poorly drained areas and also where sandy till is present.

A number of natural hazards are present with liquefaction, settlement of compressible soils and rockfall representing the most likely threats. The risk is most likely to be realised during severe earthquake shaking or severe rainstorm. The most likely intervention is to avoid areas considered to be at risk following more detailed investigations. Mitigation measures are also feasible and can be detailed once development proposals are more developed and the site has been cleared to facilitate access.

1. INTRODUCTION

Geoconsulting have been engaged by Vivian & Espie on behalf of Sunshine Bay Ltd to carry out a geotechnical assessment in support of a resource consent (subdivision) application.

The brief for the work was provided by way of emails and discussions with Mr Blair Devlin of Vivian & Espie. Our interpretation of the brief was to undertake site investigations to characterise ground conditions and assess the likelihood of geo-hazards. The main emphasis is on identification of natural hazards that could originate either on the site or on the hillside above and any constraints they may impose in relation to building platform location, vehicle access and services provision.

The following investigations have been completed to fulfil the requirements of the brief.

- A review of geotechnical information held on our database for adjacent sites;
- A walk-over inspection of the property and the land upslope of the road leading up to the bluffs overlooking the site;
- Coordination, supervision and documentation of eighteen, 5 t excavator-dug test pits;
- Preparation and issue of this report.

1.1. DEVELOPMENT PROPOSAL

The proposal at the time of briefing is to subdivide the land into at least 100 lots. Two options for subdivision have been suggested with lot sizes ranging from 125-150 m².

The subdivision will be accessed from a new road to be formed approximately along what is currently known as Arawata Track running along the upslope boundary of the site. An alternative access from Glenorchy-Queenstown Road along the downslope boundary is also being considered. Internal access roads will also be formed to service individual lots.

2. SITE DESCRIPTION

The property (legal description Lot 1 DP 397058) is located between Glenorchy-Queenstown Road (RL326-344) and Arawata Track (RL 390-415) and comprises 6.476 hectares. The subject site lies immediately southwest of the developed portion of Sunshine Bay residential area and is overlooked by

undeveloped rural land upslope. An undeveloped lot (Lot 2 DP 397058) borders the land to the southwest. The developed area of Sunshine Bay-Fernhill lies immediately to the northeast.



Photo 1: View of Lot 1 looking southwest. Glenorchy-Queenstown Road at bottom left and Arawata Track traversing upper boundary of property.

Within the subject site, the ground slopes moderately towards the lake but locally can be highly variable with broad ridges and benches interspersed by bluffs and steep sided gullies. Thick vegetation covers the slopes which ranges from scrub (bracken fern, broom and blackberry), regenerating native species and wilding conifers and poplars. More information on vegetation can be found in a companion ecology report.

Two main gullies traverse the site together with a number of minor water courses all carrying water. Some of these may be only ephemeral streams and cease flowing during prolonged dry periods. The gully near the southwest boundary of the property appears to have the greatest flow despite having a small but reasonably well-defined catchment. The minor gullies have higher slopes arising above but no distinct catchment feeding into them. The channels of all gullies are narrow and overgrown suggesting flood flows are infrequent and not of sufficient magnitude to scour or carry significant quantities of sediment.

General views of the site can be seen in the cover photo and Photos 1 & 2. Figures 1 & 2 show plan views of the site.



Photo 2: View of lower part of site looking north. Southwest boundary in foreground gully, northeast boundary near line of conifers in distance.

3. GEOMORPHOLOGY AND GEOLOGY

3.1. GEOMORPHOLOGY

The geomorphology in the area of interest is dominated by undulating terrain with slopes typically between 15-25° and an elevation difference of 60-80 m between the top and bottom boundaries. A number of ice-sculpted rocky knobs punctuate the overall slope.

The upper part of the land can be represented by a gently inclined terrace remnant extending between RL 395-420, similar to other locations around the Wakatipu Basin where a former lake level incised a bench at this level. Much of this terrace remnant and lower slopes have been dissected by gullies and subject to erosion by later advances of the Wakatipu Glacier.

The hillside above the Arawata track increases gradually in slope for a distance ranging from about 10 m opposite the northern corner of the property to about 60 m opposite the southwestern corner. A marked break-in-slope occurs about this NW-SE oriented line upslope of which the ground rises as a discontinuous series of bluffs to the ridgeline above (see Photos 1,2 & 3). The bluff faces range from 50°-90° and are separated by steep gullies and benches.

3.2. GEOLOGY

The local geology is characterised by thin to moderate thicknesses of glacial or glacial margin sediments and post glacial sediments overlying bedrock. Rock outcrops are visible within the site and immediately adjacent but thick vegetation often obscures the ground surface or restricts access such that the true extent can only be estimated. Figure 1 shows a geological map of the site with areas of rock outcrops or subcrops (areas of rock with a very thin cover of soil) shown.

Grey and green schist forms the underlying bedrock throughout the area. The schist is quartz-rich, thickly laminated and does not cleave readily. Consequently, the rock is very strong and competent. Foliation has a typical orientation of 33°/232° and does not appear to differ throughout the site or with height upslope. Joints form persistent subvertical faces on rock faces and prominent lineations noted on aerial photographs are probably related to master joint sets.

Glacial till forms mostly thin (< 2 m) deposits infilling the gullies and hollows between rock outcrops. Till deposits have been observed in test pits within the property and in outcrops adjacent to Arawata Track and Glenorchy-Queenstown Road. Two subtypes have been observed: coarse gravelly till and fine sandy till. Gravelly till, the more common of the two, comprises tightly packed, gravelly sands or sandy gravels with some cobbles. The upper layer is usually weathered to a distinctive orange brown colour. Sandy till is present as irregular deposits that are characterised by silty fine sand with rare gravels. The finer soil is often soft and plastic and associated with high water content. At lower levels, till has been reworked by erosion and sorting as beach gravels which contain less sand and form a looser deposit than the till. Beach gravels were mostly derived from coarser tills when the lake was formerly at a higher level. A closely bedded layering dipping towards the lake is characteristic of this material.

Above Arawata Track, till deposits mostly taper out but in places have been buried by rockfall deposits accumulating as a scree apron at the foot of the bluffs. Streams flowing through the upper slopes transport some of this material and redeposit it as colluvium with some tongues extending into the site.

Topsoil completes the soil overburden and appears well developed throughout the site except where rock lies at or close to the surface. Repeated burnings during historical times followed by rapid regeneration of bracken has led to a high organic content in the top 300 mm or so.

3.3. GROUNDWATER

Groundwater was noted in many of the test pits, either perched as a thin watertable on rock or saturating the sandy till. Swamps are present in poorly drained hollows and local peaty deposits may require further investigation.

4. NATURAL HAZARDS

4.1. SEISMIC HAZARDS

The Alpine Fault, which lies about 83 km to the northwest at its closest, is the nearest active fault with an historical record of seismicity. A magnitude 6.2 earthquake was recorded on this fault in 2001 with epicentre just south of Jackson Bay. The most confident estimates for a large Alpine Fault rupture between Haast and Milford Sound is 24-35% in 50 years (Rhoades and Van Dissen in ORC 2007). The extent of seismic shaking is likely to be the same throughout the Queenstown-Arrowtown Basin, however, the felt effects are likely to be far greater for any structures located on soft or deep sediments.

Expected hazards related to seismic shaking include liquefaction of loose sediments and slope movements on the surrounding hillside.

Liquefaction hazard can occur when earthquake shaking exceeds certain intensity and duration thresholds in recently deposited (younger than 10,000 years old) loose, sands or sandy silts that lie a certain depth below the water table. It also helps if the liquefiable layers are relatively thick (> 1 m) and bound by low permeability materials. Site investigations reveal some of these conditions are met in some areas which may experience localised liquefaction during strong ground shaking.

4.2. Rockfall

Several rock bluffs are visible (and more suspected but obscured by trees) on the hillside above the property. A few smaller bluffs are present within the site as well. Views of some of these bluffs are shown on Photos 3 & 4.



Photo 3: View of bluffs above Arawata Track. More bluffs are suspected but obscured by vegetation.

A number of boulders were noted within the site suggesting rockfall is an ongoing hazard (see Figure 1).

The potential for rockfall from numerous rock faces is immediately apparent but the likelihood of a moving rock reaching the area of interest is less certain to establish. This study has considered three aspects to this question in an attempt to qualitatively establish the risk to the site.

1. Likelihood of failure from the rock bluffs: Examination of some of the more accessible bluffs revealed strong, competent rock similar to that found outcropping within the property. Foliation and other defects do not differ from that found further downslope. The foliation dip direction is at right angles to the majority of bluffs and thus has no outward component of dip on the faces. Persistent joint surfaces make up the various facets of the faces; the most prominent of which is the southeast face fronting the lake.

Very few failures were noted from field mapping and examination of aerial photographs. One boulder was found in the gully near the southwest boundary and a collection of rocks was found

not far below the track (Figure 1 and Photo 4). The volume for the few rock falls found was estimated to be less than 4-6 m³. A typical mode of failure was for thin slabs forming parallel to the face with foliation forming an overhanging release surface. The maximum dimension of blocks was about 1.5 m with the minimum being less than 0.3 m. Note. that there are likely to be many more boulders obscured by bush that remain to be discovered.



Photo 4: Transported block trapped by scrub and trees a short distance downslope of Arawata Track.

2. Precedent for rock falls: A narrow band of scree forms a concave transitional zone at the foot of the bluffs (see Figure 1). The scree represents the accumulation of past rockfalls since the retreat of the ice some 12,000 years ago. The downhill extent of the scree indicates the likely travel range for the majority of rockfalls. The complete coverage by vegetation including regeneration of woody species indicates a relative lack of disturbance in recent times.

The few small rockfalls noted above moved only a short distance from their source; most of the debris accumulating at the foot of the bluff or a few metres downslope. It would seem that the small, slabby nature of the blocks is not conducive to rolling and the slope is not steep enough (i.e. less than 45°) for bouncing to occur. In addition, the dense scrub acts to slow down and trap any moving debris.

3. Potential run-out zones: The large area of bluffs and their elevation could still give rise to a significant rockfall with the necessary size, shape and momentum to travel onto the property. This potential could still exist despite the very low propensity for failure and downslope movement noted from the current findings.

A hypothetical boulder would probably follow a direct, downslope path below the foot of the bluffs due to the lack of relief on these slopes. Well-defined gullies are present near the east boundary and the west corner of the property but only one boulder was found near where the gully exits the property. Development of an access road along Arawata track would halt some boulders but any that make it across and into the steepening terrain could potentially have a much greater run-out path particularly if the existing vegetation was cleared.

In summary, there appears to be only a very low potential for rockfalls due to the competent nature of the rock. Field observations indicate that the debris is of small volume and somewhat slabby that is readily impeded by the vegetation. However, the worst case scenario would be for a large boulder travelling rapidly downslope with sufficient momentum and without disintegrating to make it into the area of interest, although it would take exceptional circumstances (e.g. strong earthquake shaking) for this scenario to occur. Exact travel paths and run-out distances are difficult to predict.

Further inspection following site clearance would allow identification of areas vulnerable to rockfall. Once identified, it would be prudent to set aside these zones as 'no-building areas'.

Alternatively, it would be possible to construct a trap or diversion structure at the entrance to the gullies to remove the risk. However, earthworks or barrier structures along parts of the northwest boundary may not be acceptable in such a sensitive area.

4.3 Other slope instability

Only one instance of shallow landsliding (Figure 1) was noted on 1999 aerial photographs which probably developed following the severe rainstorm of November that year. No other evidence for landsliding has been noted from field mapping.

4.4 Compressible soils

Soft, compressible, peaty soils are present in marshy areas and in low-lying areas adjacent to drainage lines. The soils are characterised by a high organic content in varying stages of decomposition and include ash and charcoal from repeated burnings. Estimates of depth gauged from track cuttings

indicate weak soil thicknesses of up to 0.4 m are present but thicknesses may be locally greater in marshy areas.

Soft ground was also noted associated with the fine sandy till, particularly in the vicinity of TP 5. This area was also saturated and unable to support the weight of the digger. Further investigations will be necessary to determine the extent of compressible soils as development clears ground and opens up access to lower levels.

4.5 Debris flows, degradation and aggradation

Debris flows can arise in steep catchments where there is an abundance of loose, erodible material that can mobilise when saturated. The resultant flows can scour vegetation and sediment and transport them downslope until the terrain flattens and deposition occurs as an alluvial fan.

No evidence could be found on 1999 aerial photographs for debris flow development despite the very severe rainstorm that occurred immediately prior to the date of photography. Field mapping found no evidence for fans or gully deposits that could be attributed to debris flows. Some steep gulying is found alongside the east boundary, however, its origin is uncertain as it is unclear whether this is due to natural erosion or whether earthworks associated with stormwater drain construction is responsible for the steep faces flanking the gully.

4.6 Impact of subdivision works in terms of RMA:1991 S106

Of the identified hazards, liquefaction, settlement of compressible soils and rockfall may be an issue.

A number of interventions are available in regards to management of natural hazards. As planning of subdivision layout is still in its infancy, avoidance of susceptible locations is likely to be the best option. Remediation and mitigation are also viable options, however, these tend to be expensive and may not be acceptable adjacent to or within an area of outstanding natural landscape. A clearer understanding of the areal extent of natural hazards can be gained once the site is cleared and further investigations can be targeted in areas of greater concern.

5. GEOTECHNICAL IMPLICATIONS OF DEVELOPMENT

The typical stratigraphical sequence across the site is of both sandy and gravelly till draped over schist bedrock. Till thickness is expected to be up to 2 – 3 m thick but thins out on steeper slopes and can even be absent where rock outcrops are present.

Both sandy and gravelly till tend to perform well in excavated slopes and as foundations for roading or building. However, elevated groundwater levels can soften and weaken the exposed soil, particularly within the finer grained soils. Specific design will be required for cut slopes and foundations with drainage and diversion of both surface and groundwater to avoid stability issues.

6. CLOSURE

The site comprises moderately steep ground interspersed with broad, gently sloping ridges and benches. Steep rocky bluffs form localised outcrops both within the property and on the hillside above.

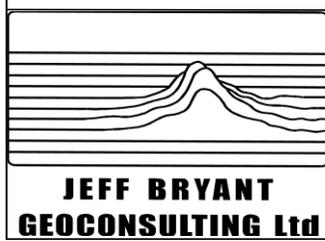
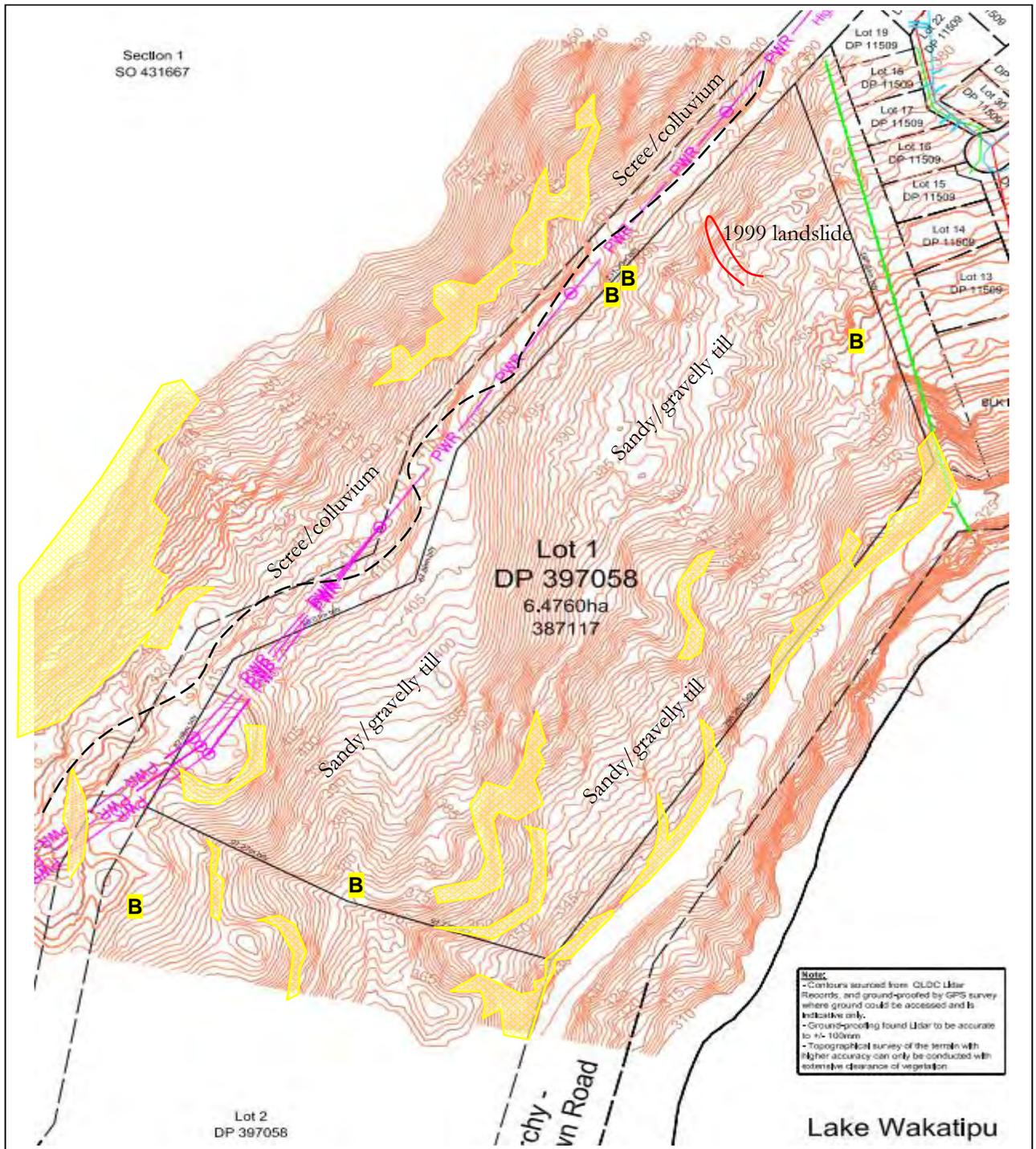
Some exploratory investigations have been undertaken in the most accessible areas adjacent to Arawata Track. Although large areas on lower slopes have yet to be explored, the current work is considered to be indicative of the range of materials and the types of geo-hazards that may affect the property.

Development of the property is feasible and will be governed by the ease by which roading access can be provided to open up the area. A number of natural hazards affect the property, most of which develop following severe rainstorm or earthquake. Hazard zoning will only be possible once the dense vegetation has been mostly cleared to allow a closer inspection of the ground.

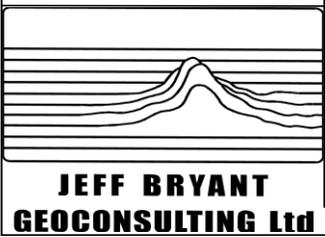
7. APPLICABILITY

This report has been prepared for the benefit of Sunshine Bay Ltd (per Steve Xin) with the respect to the particular brief prepared for us by Vivian & Espie). Any data, opinions or interpretations contained within may not be used for any other purpose without our prior review and agreement.

The assessment of risk is based on a representative range of site investigation data and a desk study review. Hazards, by their very nature, are subject to a wide range of environmental conditions and the available data may not necessarily account for unanticipated, time-dependent factors.



PROJECT: Sunshine Bay Ltd	FIGURE: 1
DESCRIPTION: Local geology	Scale: NTS
 Schist bedrock  Rockfall boulder	Report:
	Date: 25/08/2019

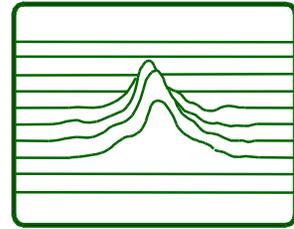


PROJECT: Sunshine Bay Ltd	FIGURE: 2
DESCRIPTION: Surface water.	Scale: NTS
 Flow at culvert entrance/exit  Swamp	Report:
	Date: 25/08/2019

GEOCONSULTING Ltd

PO Box 374

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296 QUEENSTOWN-GLENORCHY RD

HAZARD ASSESSMENT REPORT



Client: Sunshine Bay Ltd

16 April 2019

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SUMMARY

The focus of this report is on the threat rock fall hazard poses on the property and the proposed development. Investigations based around mapping of rock fall blocks both within the site and on the hillside above have led to an understanding of their location and their physical characteristics. From this can be inferred information on the causes and timing of rock falls and factors limiting their travel distance.

Only a relatively small number of rock fall blocks have made it into the property and most of these are near the upslope boundary. It is thought that these were deposited at a time when little or no substantive forest cover was present and that the present day cover protects the site from most sources with the exception of the nearest bluffs. This assessment may change with more detailed mapping once the land is cleared, however, the current inventory is believed to be close to the actual number and representative of the run-out distances from the bluffs upslope.

A qualitative risk assessment has been undertaken to help determine the likelihood of rock fall affecting the property.

From the current spread of boulders within the site, and taking into account factors such as slope angles, soil cover and planned development works, it can be concluded that the likelihood of blocks reaching the site is either rare or unlikely. In the unlikely event of boulders entering the proposed residential area, the consequence of damage to property is considered minor based on the reduction in velocity and diminution of size with distance of transported blocks.

An exception to the above applies to a detached block near power pole 4. This block has an assessed volume of around 20 m³ and is believed to have the potential to have more than minor consequences to property should it move into the property. Accordingly, remedial measures to fragment the block by blasting are recommended.

1 INTRODUCTION

Geoconsulting have been engaged by Vivian & Espie on behalf of Sunshine Bay Ltd to carry out a rock fall hazard assessment on the property at 296 Queenstown-Glenorchy Road (legally described as Lot 1 DP 397058) in support of a proposed rezoning request to QLDC.

This report supplements our earlier report of August last year which covered broader geotechnical aspects of the proposed development. The initial report considered a range of natural hazards that could potentially affect the site and considered rock fall to be a potential threat despite very few blocks being found on site. Further investigation in conjunction with improved access was recommended.

The additional brief for the work was provided by way of emails dated 04/12/19, 16/04/20 and discussions with Mr Blair Devlin of Vivian & Espie. The additional brief was to undertake the following:

Please provide a further geotechnical assessment report that builds on the work undertaken in your 26 August 2019 report to further explore the hazards that could affect residential development, with a particular focus on rock fall hazard. The objective of the report is to better understand the risks to urban development and identify areas unsuitable for urban development..... Please also identify and include hazard mitigation strategies as part of the report.

The main emphasis is on identification of natural hazards that could originate either on the site or on the hillside above and any constraints they may impose in relation to building platform location, vehicle access and services provision.

The following tasks have been completed to fulfil the requirements of the additional brief.

- A review of geotechnical information held on our database for this and adjacent sites, namely Geoconsulting reports: SunshineBayLtd190816 and BecaSunshine030812;

- Aerial photograph interpretation of survey runs dated 1959, 1976, 1997 & 1999, review of oblique aerial photographs dated 2003 and satellite imagery;
- Limited scrub clearance (excluding native vegetation) in the upper part of the site (above RL 370 in the northeast and above RL 400 in the southwest);
- A walk-over inspection of the cleared part of the property and accessible parts of the land upslope of Arawata Track leading up to the bluffs overlooking the site;
- Mapping of boulders in cleared areas and forested areas that facilitated access;
- Determination of a qualitative risk assessment;
- Preparation and issue of this report.

2 GEOMORPHOLOGY AND GEOLOGY

2.1 GENERAL

Previous reports have adequately described the geomorphology and geology, but it is worth recapping here to highlight some key aspects of relevance to the rock fall hazard.

2.2 GEOMORPHOLOGY

In the area of interest, the geomorphology is dominated by undulating terrain with slopes typically between 15-25°. The upper part of the land, around Arawata Track, can be represented by a gently inclined terrace remnant extending between RL 395-420, similar to other locations around the Wakatipu Basin. A number of ice-sculpted rocky knobs punctuate the overall slope and these often have steepened faces on the lake side. Smaller rock steps of less than 2 m height are scattered throughout the sloping terrain. Photo 1 shows a view of the site from the northeast.

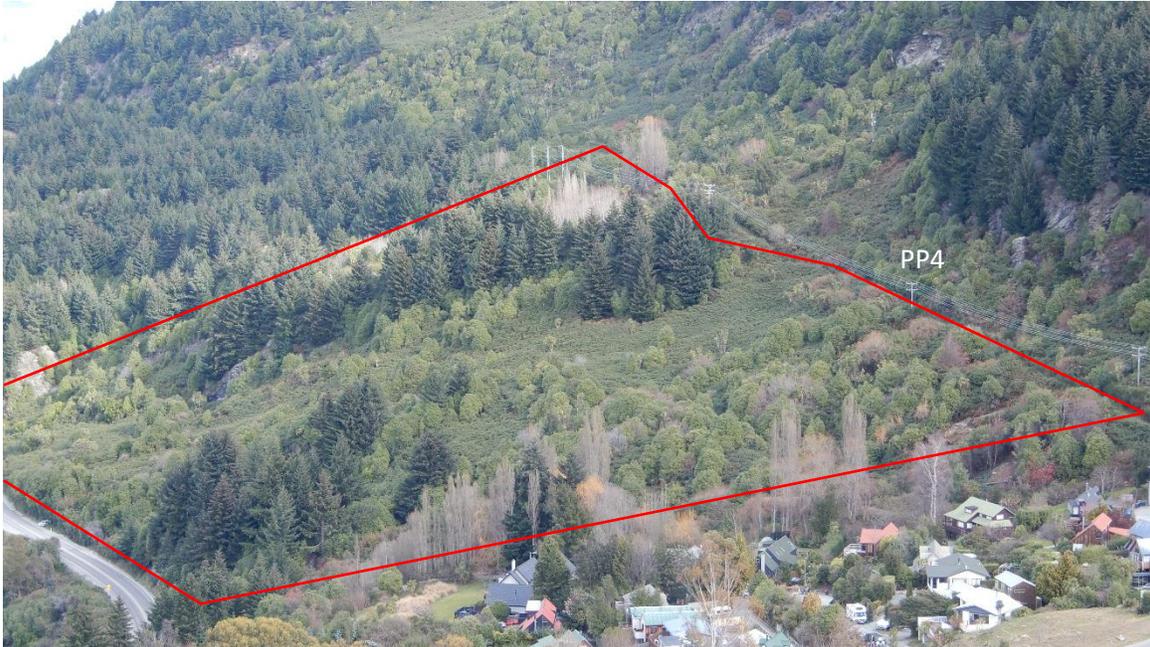


Photo 1: Overall view of site from the northeast with boundaries in red. PP4 = power pole 4.

A knob near the southwest corner (on which three pylons are located) and a north-south trending spur are two areas of high relief within the site which act to deflect any debris into the intervening gully or to the slopes to the northeast and southwest. Another major gully runs along the east boundary separating the site from the built-up area of Sunshine Bay.

The slopes above Arawata Track gradually increase then steepen markedly about a NE-SW trending break-in-slope. The terrain upslope is dominated by a series of discontinuous bluffs separated laterally by gullies and vertically by sloping benches and vegetated scree. A prominent N-S trending ridge rises from the lake up to Ben Lomond with the crest height ranging from 700-1100 m overlooks the property. Photo 2 shows the hillside above Arawata Track.





Photo 2: Panorama of hillside and lowermost bluffs above Arawata Track. Note the break-in-slope separating bluffs from flatter terrain in foreground.

The bluffs are characterised by ice-polished rock witnessing the glacial action during the last advance which lasted between 15,000-12,000 years before present. Some scars due to ice plucking are evident on the faces as well as rock fall scars with the distinction between the two often difficult to establish. Rock fall clusters are sparsely present as a discontinuous apron below the foot of the bluffs. The overall impression is that bluff degradation and scree growth have not been active processes in the current post-glacial period.

2.3 GEOLOGY

Schist forms the underlying bedrock which is exposed as steps, knobs and bluffs across the hillside. The rock is inherently strong, massive and not adversely weakened by closely spaced defects. Foliation, the most prominent defect, dips to the southsouthwest at moderately steep angles and is often seen as roof-release surfaces for rock falls. Joints are mostly subvertical and loosely organised into sets. Glacial action has removed much of the loose rock, however, the intervening time since retreat of the ice has seen some weathering, relaxation and deterioration of the exposed rock mass.

The soil overburden is typically thin and comprises glacial or glacial margin sediments and post glacial sediments. Coarse gravelly till and fine sandy till dominate the glacial sediments with minor deposits of beach gravels around Arawata Track. Post glacial sediments include colluvium and scree derived from erosion of the steeper slopes above the track.

Glacial till, colluvium and scree are most likely to underlie the travel path of any rock falls. Bare rock may be encountered in areas of high relief but is not expected to form a significant part of any path.

3 NATURAL HAZARDS OVERVIEW

Our earlier reports¹ considered the range of natural hazards affecting the land southwest of Sunshine Bay (Lots 1 & 2 DP397058). We are unaware of any other site specific studies in which natural hazards are discussed.

In summary, the main hazard types identified in this area are:

- Liquefaction (also identified on ORC and QLDC hazards webmap)
- Compressible soils
- Shallow landslide
- Debris flow
- Rock fall

Seismic activity was also noted as an initiating factor, particularly for liquefaction and rockfall.

Of the hazards above, rock fall was seen as the predominant threat affecting the property due to the widespread presence of steep (>60°) rock outcrops or bluffs on the hillside above Arawata Track. Smaller bluffs are also present within the site but most are difficult to view or access.

¹ August 2019: 296 Queenstown-Glenorchy Road; Geotechnical Investigation Report. Ref SunshineBayLtd190816

August 2003: Geotechnical Assessment: Sunshine Bay Joint Venture development. Ref BecaSunshine030812

Photo 1 and the cover photo show oblique images of the hillside with Figure 1 showing an oblique satellite image. Figure 2 shows the topography of the site and features of interest. Figure 3 shows a LIDAR derived plan of potential rock fall source areas within and above the site.

4 ROCK FALL FEATURES

4.1 ROCK FALL SOURCES

4.1.1 WITHIN THE PROPERTY

Discreet areas of bluffs are inferred from LIDAR contours and some are visible from the road below. The main areas of bluffs lie between RL 350-380 but thick vegetation has hampered access and close inspection. It is proposed to provide a more comprehensive assessment of the rock fall threat associated with these bluffs once development plans have progressed and land clearance improves access to the lower slopes.

Smaller outcrops and rock steps were encountered during the site walkover, however, these are generally less than 2.0 m high and have only limited or nil potential for releasing rock blocks.

4.1.2 UPSLOPE OF PROPERTY

LIDAR topographical mapping has been used as the basis for mapping of rock fall source areas (see Figure 3). At least 12 areas of large bluffs are indicated on the slopes directly above the site but field mapping adjacent to the lowermost bluffs indicate there are many more bluffs of height less than 5 m.

Access to all but some of the lowermost bluffs is also hampered by thick vegetation and it is difficult to assess the condition of these slopes and whether they pose a potential rock fall hazard. Photos 6 & 7 show some of the bluffs.



Photos 6 & 7: Bluffs above communications tower track. Rock is generally massive with few defects.

4.2 ROCK FALL DEPOSITS

All cleared areas and areas with tall, native or introduced (pine and conifer species) trees were mapped to establish a rock fall boulder inventory. The list is not all-inclusive and it is acknowledged that more could exist in difficult to access parts within the site and also above the lower level bluffs upslope of the property.

Above Arawata Track, a short spur track leading to a communications tower and a couple of walking tracks providing access to rock climbing areas were investigated. Some lateral areas could be explored where mature trees allowed access but, in many areas, the vegetation was too dense to pass through or see over.

Key findings from this exercise are presented below:

- Two clusters of fallen rocks and a few isolated blocks were found within the subject site (Figure 2).
- The blocks in this area were more or less equant (having three, roughly equal dimensions) with the largest measuring 2x2x1.2 m (Photos 3 & 4).

- All these blocks appear to have been in their current position for many decades if not centuries or millenia as evidenced by ongoing soil development providing some embedment and trees overgrowing the blocks.
- No fresh blocks linked by tracks to fresh scars on rock bluffs were noted.
- Rock fall blocks were noted with increasing frequency with height above Arawata Track



Photos 3 & 4: Blocks forming part of a cluster just below Arawata Track. Blue notebook is 210 mm high.

leading up to the lowermost line of bluffs. It was not always possible to determine whether they were sourced from the adjacent bluffs or from higher up the slope.

- The blocks closer to the bluffs were generally larger (up to 10 m³) and slabbier than those below Arawata Track with an apparent range in ages of emplacement. The first observation is consistent with the fact that impact disintegration diminishes block size with distance travelled and the second observation is consistent with the foliated texture of the rock exerting a strong influence on block shape and consequently their mobility. Photos 4 & 5 show boulder clusters within a few tens of metres below bluffs upslope of Arawata Track.
- No boulders were found in the gully bordering the east boundary.



Photos 4 & 5: Boulder clusters near track above communications tower. Largest boulders are up to 4 m length.

4.3 CHARACTERISTICS

4.3.1 CAUSES OF ROCK FALLS

Rock falls are often related to concurrent triggering events such as severe rainstorm or earthquake shaking of long recurrence interval. More frequent mechanisms such as seasonal ice wedging are also likely to trigger failure.

However, the most common cause is believed to be gradual deterioration of the exposed rock face through the following factors:

- Stress relief and rock relaxation;
- Toppling of columnar stacks;
- Physical weathering and weakening of the rock mass particularly along defect surfaces;
- Root growth, particularly of tree species, leading to defect widening.

4.3.2 TIMING OF ROCK FALLS

It is thought that the best time frame for rock fall was during the post glacial warming period (say 10,000-12,000 years before present). During this phase, the bluffs would have been freshly exposed after the supporting ice retreated and most likely subject to a much higher rainfall than

at present. Such conditions were optimal for rock falls and it is thought that the development of the coalesced debris fans (screes) at the foot of the bluffs was greatest during this time. These fans are now mostly covered by soil and vegetation with only occasional rock falls visible on the surface.

Earthquakes are a known trigger for rock falls with the seismic hazard being dominated by an Alpine Fault rupture some 85 km to the northwest. GNS² have found evidence for 24 surface ruptures of the southern section of the Alpine Fault dating back over the last 8,000 years. The mean interval between large earthquakes (> M8.0) is about 330 years with some considerable spread about that mean. The research indicates that there is a 30% probability of a large Alpine Fault earthquake in the next 50 years. Other, nearby faults (e.g. Moonlight Fault Zone) are likely to cause greater, local accelerations during a fault rupture event but have a much lower likelihood of occurrence.

5 QUALITATIVE RISK ASSESSMENT

5.1 METHODOLOGY

A widely accepted approach to qualitative assessment of risk is that given by the Australian Geomechanics Society (AGS, 2007)³. Qualitative Risk Analysis can be defined as an analysis which uses word form, descriptive or numeric rating scales to describe the magnitude of potential consequences and the likelihood that those consequences will occur. Appendix 1 outlines qualitative terminology for use in assessing property.

² <https://www.gns.cri.nz/Home/News-and-Events/Media-Releases/improved-understanding-of-alpine-fault>

³ Australian Geomechanics Society 2007 *Practice Note Guidelines for Landslide Risk Management*, J1 and News of the Australian Geomechanics Society, Vol 42 No 1 March 2007. AGS (2007c).

5.2 ROCK FALL CRITERIA

5.2.1 SLOPE STEEPNESS

Wyllie (2006)⁴ considered that the slope angle must be steeper than the angle of repose (typically 37° for soils derived from rock slope erosion) to be able to generate rock fall. For the hillside above Arawata Track, the overall slope above the break-in-slope varies between 30-60° with individual bluffs in excess of 60°. Therefore, *in situ* bluffs are a viable rock fall source for the site.

Figures 4, 5 & 6 show slope profiles with Figure 7 showing a slope angle map.

5.2.2 CONE OF INFLUENCE

The proposed development areas within the site needs to fall within the cone of influence of any given source in order to pose a risk. This cone is taken as 30° from either side of the source in accordance with work carried out by the Port Hills Geotechnical Group and Geological and Nuclear Sciences (GNS) following the Canterbury Earthquake Sequence. This cone can be constrained by contours focussing travel paths into gullies. A review of the slope model suggests that most of the site's upslope boundary, barring the higher standing knobs and the north-south spur, could fall within the combined cones of influence from the potential source areas.

5.2.3 SHADOW ANGLE

The shadow angle is defined as the angle between the horizontal and a line joining the base of bluff/top of scree slope and the furthest reach of fallen debris. Jaboyedoff and Labiouse (2011)⁵ reviewed a number of studies and found shadow angles ranged from 22-28° depending on the type of source rock, the shape of the boulders formed and their susceptibility to disintegration

⁴ Wyllie, D.C. 2006 Risk Management and Rockfall Hazards. *Proc.59th Annual Canadian Geotechnical Conference*, Canadian Geotech Society, Vancouver, Canada.

⁵ Jaboyedoff, M. and Labiouse V. 2011 *Technical Note: Preliminary estimation of rockfall runout zones*, Nat Hazards Earth Sys Sci. 11, 2011

during travel. GNS (2012)⁶ determined a shadow angle of 21° from extensive mapping of fallen rock around the Port Hills following the Canterbury Earthquake Sequence. Less than 1% of rock debris fell outside this area.

Calculation of shadow angles for the known rock falls shown on Figure 2 is hindered by uncertainty over which bluff is the true source area and whether the mapped boulders are the greatest travelled in the cluster. Assuming the lowermost bluffs are the source of the rock fall then shadow angles ranging from 21 to 29° are derived for the main rock fall blocks which is consistent with the studies mentioned above. Two outlying blocks: one near the east boundary (RL 360) and one near the south boundary (RL 375), were not included in this assessment as their origins could not be reliably attributed to rock falls. It is possible these and other low lying instances could have resulted from other processes such as debris flow or glacier deposition.

Figures 4, 5 & 6 show shadow angles below prominent bluffs along with known boulder clusters.

5.3 TRAVEL DISTANCES

5.3.1 MODES OF TRAVEL

Rolling and bouncing are the two main modes of travel with a 45° slope angle distinguishing between the two modes. Some sliding may also occur for slabby blocks on smooth slopes. Soil covered slopes absorb more energy than rock slopes for falling rocks. Field mapping reveals bare rock is found only on outcrops steeper than 45° and, in particular, bluffs which are predominantly in excess of 60°. It is expected that rocks will become airborne where their trajectories pass over bluffs with only occasional contact with the rock face.

Figure 7 shows a slope analysis map which indicates that rock fall travel modes will mostly be by rolling with only rare bouncing or airborne interludes. Note that the slope range brackets are

⁶ Massey, C.I. McSaveney, M.J. Heron, D. Lukovic, B.J. Ries, W. Moore, A. and Caey, J. 2012 *Port Hills Slope Stability: Life Safety Risk from Rockfalls (boulder rolls) in the Port Hills* GNS Consultancy Report 2012/123 + Appendices A to C

limited by scale and small sections of flatter or steeper slopes will not appear yet may have a significant effect on travel distance.

5.3.2 SHAPE FACTOR

Field mapping has revealed a good correlation between shape and travel distance. As previously noted (Section 4.1), blocks that have reached the site are predominantly those with an equant shape. By contrast, rock falls closest to the source are slabby or flaky with angular corners. Photos 7 & 8 show rock falls which have not travelled beyond the base of the bluffs.



Photos 7 & 8: Slabby/flaky blocks which have not travelled beyond base of bluff due to unfavourable shape.

5.3.3 OBSTRUCTIONS

Three types of barrier or obstacle have been identified that may play a role in limiting the distances that rock falls may travel:

- Existing rock falls. Blocks near the base of bluffs are often large, angular and jut out of the slope (Photos 4 & 5). Such blocks effectively increase the surface roughness and would be expected to either trap or absorb energy of any further rock falls. However, their size and coverage are not uniform across the slope and smoother paths still exist in between for blocks to travel greater distances.
- Forest cover. Native forest (beech and podocarp species) once covered the local hillsides with only a few remnants now left in nearby gullies (e.g. One, Two and Five Mile Creeks). The forest developed during the post-glacial warming period and lasted through to the

onset of European settlement. Pine forest now covers a large part of the hillside from ridge crest down to track level at the northeast end and down to about RL 440 m to the southwest. Some pines and other conifers have also established within the property along with poplars and other introduced tree species. Above Arawata Track, the pine forest has flourished in the last few decades and now mostly excludes all other species. The largest trees have trunk diameters up to 0.5 m. Downslope of the pine forest, native shrubs and small trees (cordyline, pittosporum, coprosma, fuchsia, pseudopanax, hebe etc species) are slowly regenerating and choking out widespread bracken and blackberry. Native tree trunk diameters are generally less than 0.2 m.

Whilst the larger pine trees and other exotic species are capable of trapping large blocks (and there is some evidence this has occurred) the smaller trees, both introduced and native, seem only capable of absorbing energy or trapping smaller blocks. Introduced species are often subject to control or eradication by conservation groups (DOC or Wakatipu Wilding Group), however, such measures are considered unlikely to materially alter the forest's ability to mitigate rock fall travel in the area of interest.

Fire, on the other hand, is considered an ongoing threat over the next century in which the warming effects of climate change are expected to have a major impact. A significant conflagration could destroy the pine forest's rock fall mitigating function. Two major burning episodes are known to have occurred in 1860 and 1941 with the present day vegetation thought to have established mostly since the last event. Any rock falls occurring within a few decades of a major burn would be expected to travel a greater distance than under today's conditions.

In summary, the original native and recent exotic forests would have acted or currently act to limit rock fall runout. However, pines and other introduced tree species cannot be relied on to provide long term protection and native species are too slow growing and, at present, lack true forest species (beech and podocarps) to count as a barrier to rock falls. Any assessment of rock fall travel should thus ignore the obstructive effect of forest cover even though it plays a significant role at present.

- Arawata Track. Originally a bridle track linking Queenstown and Glenorchy, Arawata Track has been upgraded to a 4WD track adjacent to the property to provide access to the power lines. The existing boulders below the track are believed to have been deposited prior to the creation of either the bridle or 4WD track.

The bench (typically 4-5 m) on which the 4WD track sits provides some control on rock fall runout distance by absorbing some if not all of the rolling energy. It is likely this bench will be upgraded to a formed road to provide access to the development. The indicative sketch layout plan shows the access road extending along the existing track as far as the north-south trending spur before heading down that spur. The new formation will be about twice as wide and will limit travel distance through intercepting and slowing down moving blocks.

5.4 RISK ASSESSMENT

The following comments are of a general nature. The zones of likelihood associated with bluffs within the site are tentative only as close inspection of these bluffs has yet to be made. A special case will be made for a detached block near power pole 4 (Figure 2) which will be discussed in Section 5.5.

5.4.1 LIKELIHOOD

The likelihood of rock fall interacting with a property within the site has been assessed in accordance with AGS guidelines and the factors considered above. The likelihood zones are extended upslope for comparison purposes. The outcomes are shown in Table 1 and depicted visually in Figure 8.

Table 1: Likelihood of rockfall interacting with property at 296 Queenstown-Glenorchy Road and environs

LIKELIHOOD DESCRIPTION	LOCATION	AVERAGE RECURRENCE INTERVAL	LIKELIHOOD DESCRIPTOR (AGS, 2007)
Likely	20 m band below foot of bluffs	10 – 100 years	Will probably occur under adverse conditions over the design life
Possible	100 m band below foot of bluffs or to new road along Arawata Track	100 – 1,000 years	Could occur under adverse conditions over the design life
Unlikely	150 m band below foot of bluffs or 50 m below new road along Arawata Track	1,000 – 10,000 years	Might occur under very adverse circumstances over the design life
Rare	Lowermost reaches of site below 25° shadow angle and higher standing knolls including the north-south trending ridge	10,000 – 100,000 years	The event is conceivable but only under exceptional circumstances over the design life

5.4.2 CONSEQUENCE

Based on previous rock falls that have reached the site, a level of minor consequence is considered appropriate for most of the site (see Appendix One). This assessment is informed by the fact that the existing blocks would have lost much of their velocity and thus kinetic energy towards the end of their travel path and that Arawata Track may well have intercepted and trapped these blocks if it had been in place at the time of rock fall.

5.4.3 RISK

The risk level has been assessed following the guidance of the AGS, 2007 Qualitative Risk Analysis matrix (Appendix One) based on the likelihood and consequence described above. The level of risk for each zone is shown in Table 2.

Table 2: Assessed rock fall risk to property and environs

LIKELIHOOD DESCRIPTION	LOCATION	CONSEQUENCE / RISK LEVEL	RISK EXAMPLE IMPLICATIONS (AGS, 2007)
Likely	20 m band below foot of bluffs	Minor / Moderate	May be tolerated in certain circumstances by regulators. Requires investigation, planning and implementation of treatment options to reduce the risk to low
Possible	100 m band below foot of bluffs or to new road along Arawata Track	Minor / Moderate	Usually acceptable to regulators. Ongoing maintenance is required
Unlikely	150 m band below foot of bluffs or 50 m below new road along Arawata Track	Minor / Low	Acceptable. Manage by normal slope maintenance procedures
Rare	Lowermost reaches of site below 25° shadow angle and higher standing knolls including the north-south trending ridge	Minor / Very low	

5.5 INTERVENTION MEASURES

An exception to the consequence and risk zoning has been identified. This area will need further investigation and some intervention to mitigate risk.

5.5.1 DETACHED BLOCKS ADJACENT TO POWER POLE 4

A cluster of blocks lies about 20 m upslope of Arawata Track with the bluffs from which they have detached a further 5 m behind. The largest block is approximately 20-25 m³, of approximately equant shape and sits on a rock pedestal of unknown size (see Photos 9 & 10).



Photos 9 & 10: Detached block above power pole 4; view on left is from Sunshine Bay and view on right from top of block looking down to Arawata Track and property.

Although the block's base sits at a relatively shallow angle, the pedestal on which it rests is probably embedded in scree and is of uncertain stability. Strong earthquake shaking could topple the largest block and release some of the adjacent blocks with the potential to gain the property.

The tower-like shape of the detached block would make it more susceptible to dislodgement than say from an *in situ* bluff. In addition, the large block size and short travel distance suggests that block diminution to a non-threatening size (< 0.5 m³) is unlikely to occur upslope of the property boundary. It is therefore considered appropriate to raise the qualitative measure of likelihood to somewhere between likely and almost certain and the consequence to property to major (range medium to catastrophic).

Some intervention is deemed necessary to reduce risk to more tolerable levels. Fragmentation is considered the most appropriate as it is a cost efficient, one-off action that requires no ongoing inspection or maintenance. Drilling and blasting is the best way to fragment with the blast design optimised to minimise fragment size and fly rock distribution. The least disruptive time for remedial measures is prior to development getting underway.

6 RECOMMENDATIONS

This study has identified several areas where further investigation and assessment would shed light on the rock fall hazard:

1. Investigate bluffs within the property which have been unable to be accessed through thick vegetation. Potential bluff areas are located mostly in the south corner of the property below RL 390, however, other, smaller areas may also be revealed following clearance.
2. Undertake 2D or 3D trajectory modelling from higher level bluffs to determine potential for boulders to enter property and the efficacy of a new access road in intercepting rock falls.

3. Undertake Quantitative Risk Assessment with regards to life and property should likelihood of boulders affecting property appear higher than that assumed.
4. Undertake remedial measures on detached block above power pole 4.
5. Include condition to undertake ongoing monitoring of nearest rock bluffs and requirement to record rock fall incidents that make it into Arawata Track road reserve. Such incidents should trigger a review and reassessment of rock fall risk.

7 CONCLUSIONS

This study has concluded that rock falls are a well defined hazard with the source being the numerous bluffs on the hillside above the site. A secondary source may well come from isolated bluffs within the site which have not been able to be visited.

The number of rock blocks within the site are relatively few and most lie close to the upper boundary. This assessment may change with more detailed mapping once the land is cleared, however, the current inventory is believed to be close to the actual number and representative of the run-out distances from the bluffs upslope.

From the current spread of boulders within the site, and taking into account factors such as slope angles, soil cover and planned development works, it can be concluded that the likelihood of blocks reaching the site is either rare or unlikely. This assessment doesn't assume that a mature forest cover can be relied upon to provide additional protection. In this regard, the assessment is believed to take climate change into consideration and its attendant threat of wild fires.

In the unlikely event of boulders entering the proposed residential area, the consequence of damage to property is considered minor based on the reduction in velocity and diminution of size with distance that is an inherent characteristic of rock fall ballistics.

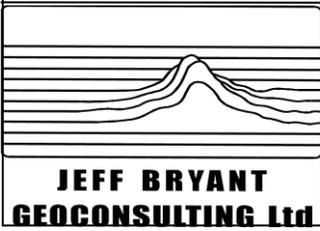
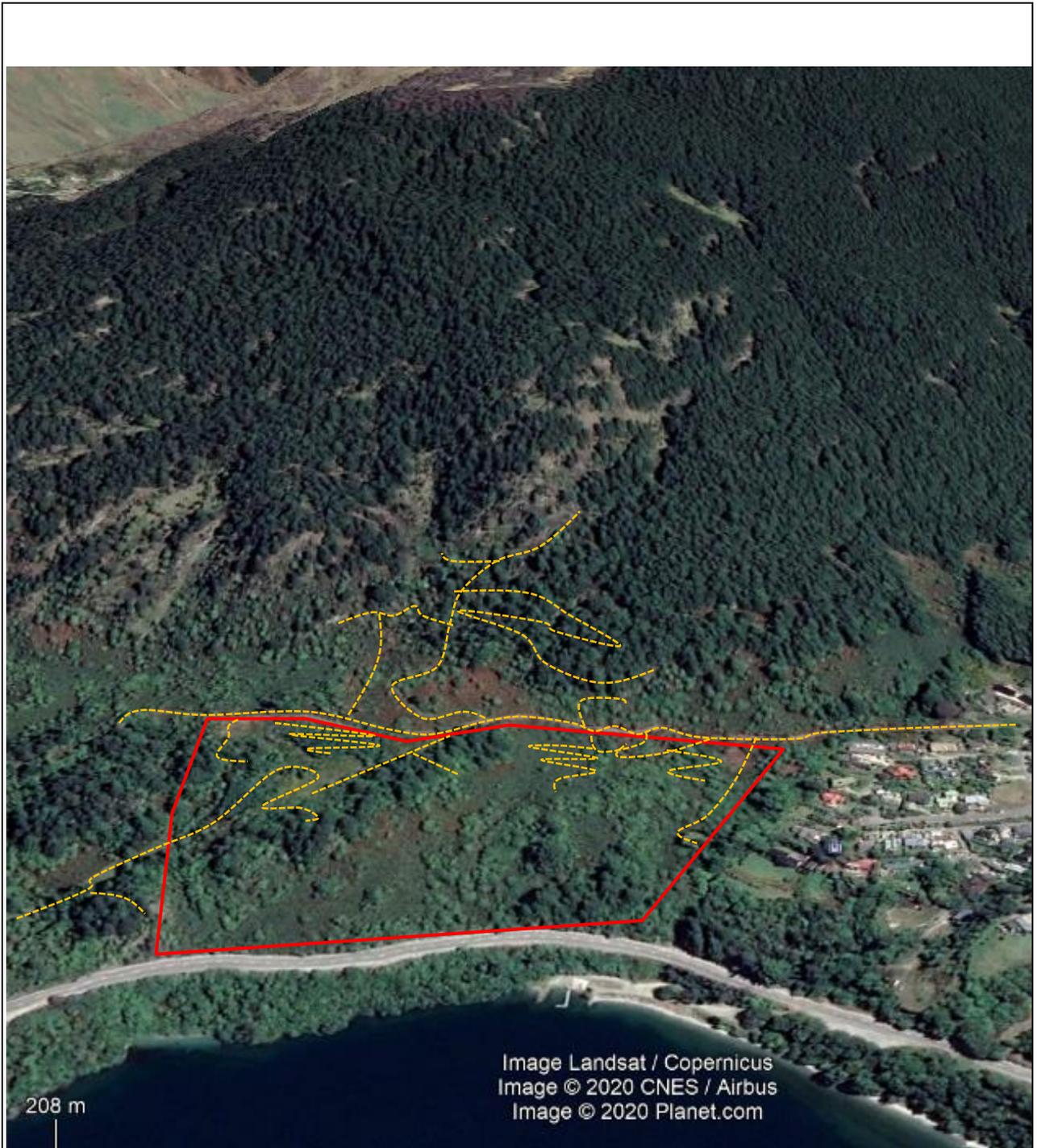
This conclusion is informed by the available evidence but a more rounded assessment may be gained by undertaking rock fall simulation modelling and a quantitative risk assessment.

An exception to the above applies to a detached block near power pole 4. This block has an assessed volume of around 20 m³ and is believed to have the potential to have more than minor consequences to property should it move into the property. Accordingly, remedial measures to fragment the block by blasting are recommended.

8 APPLICABILITY

This report has been prepared for the benefit of Sunshine Bay Ltd with the respect to the particular brief prepared for us by Vivian & Espie (Queenstown). Any data, opinions or interpretations contained within in may not be used for any other purpose without our prior review and agreement.

The assessment of risk is based on a representative range of site investigation data and a desk study review. Hazards, by their very nature, are subject to a wide range of environmental conditions and the available data may not necessarily account for unanticipated, time-dependent factors.



PROJECT: 296 Queenstown-Glenorchy Road

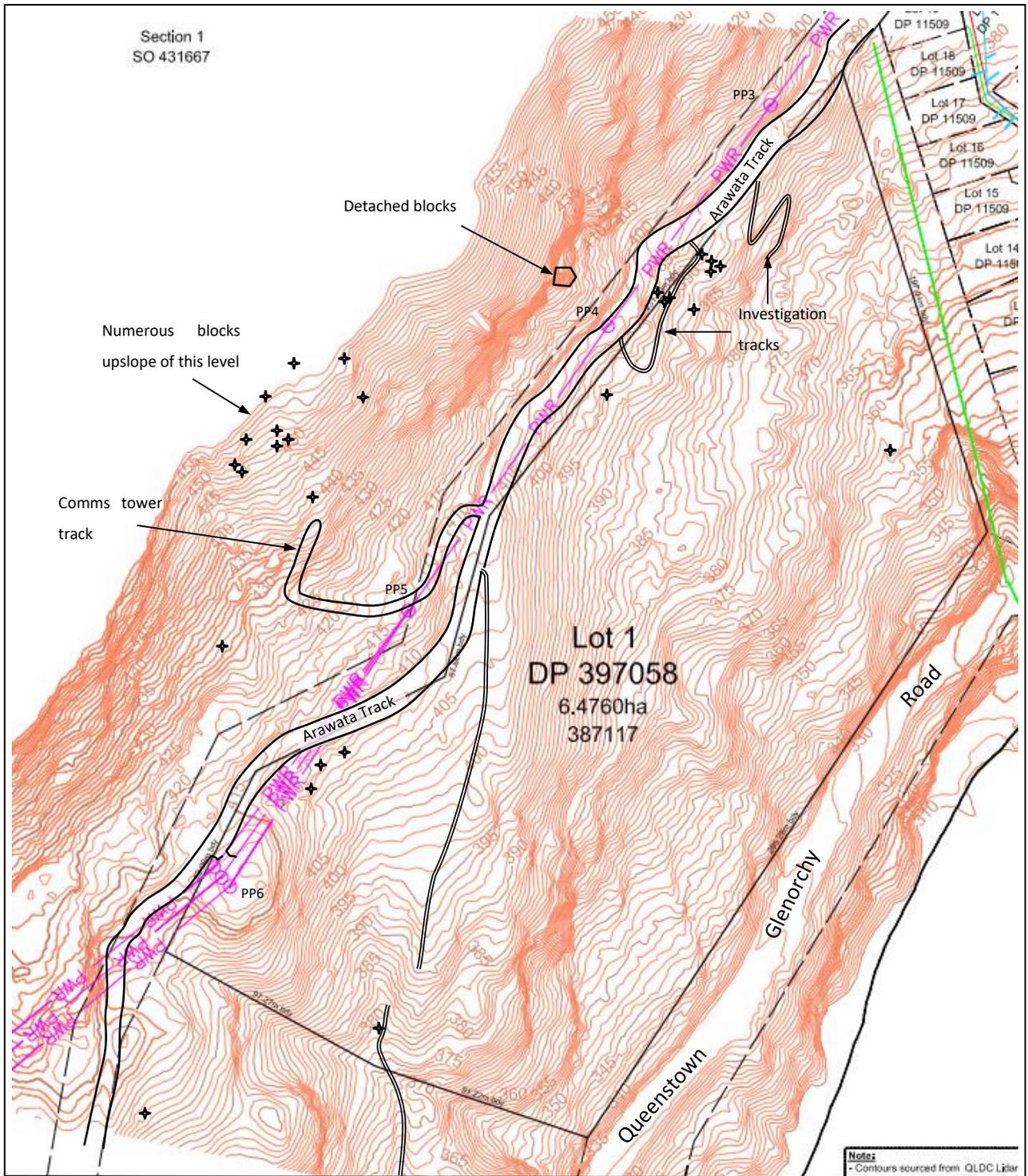
DESCRIPTION: Oblique image derived from Google Earth satellite imagery. Boundary of Lot 1DP 397058 shown in red. Mapped areas shown by walkover routes in orange.

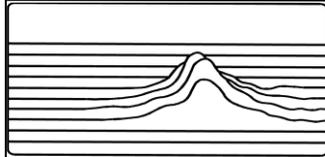
FIGURE: 1

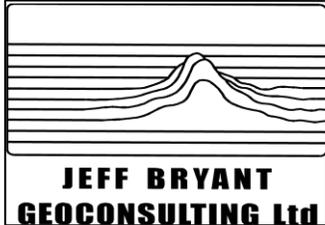
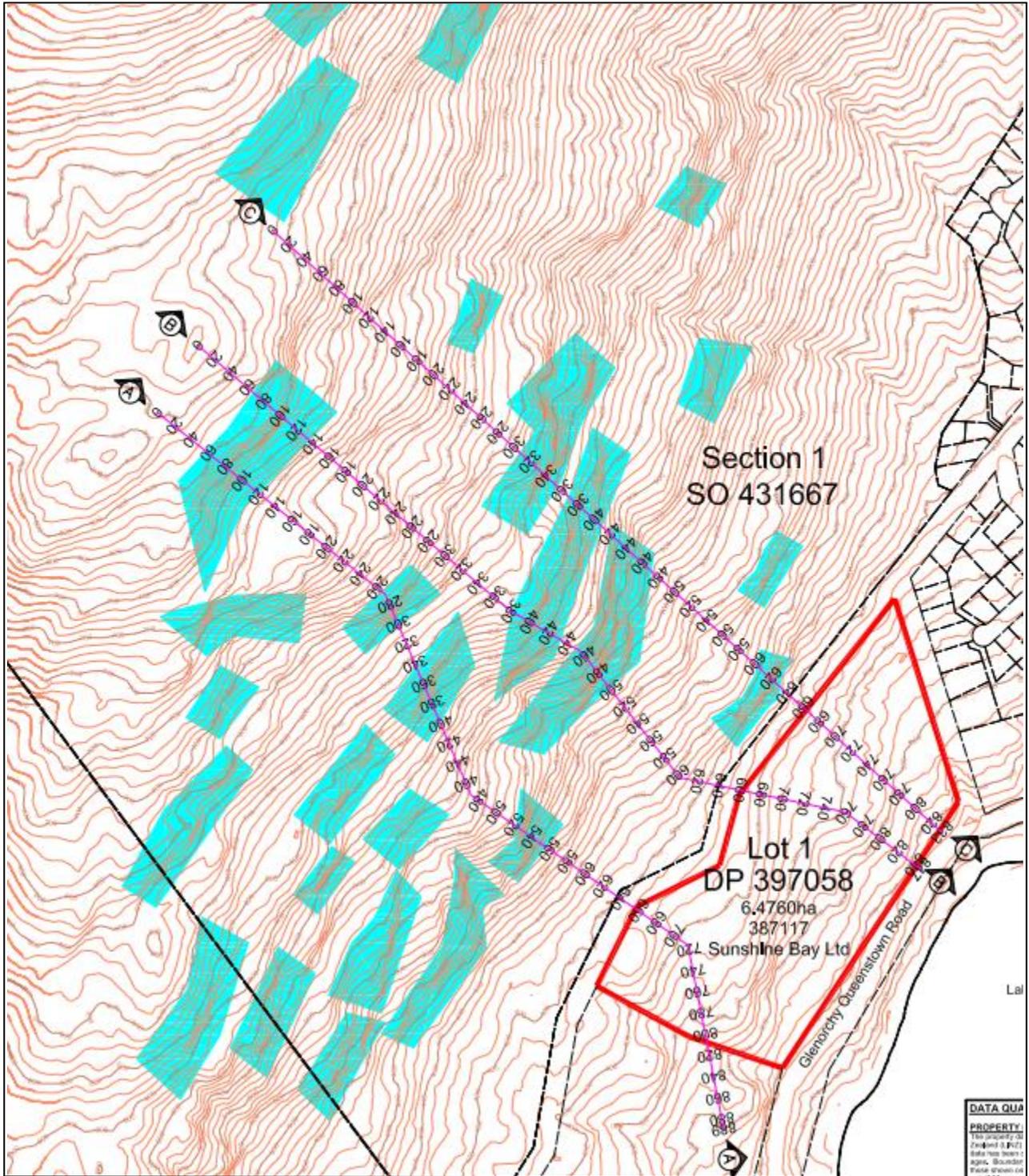
Scale: NTS

Report:

Date: 21/05/2020



 JEFF BRYANT GEOCONSULTING Ltd	PROJECT: 296 Queenstown-Glenorchy Road	FIGURE: 2
	DESCRIPTION: Site plan showing features of interest	Scale: NTS
	+ Known boulder (position approximate) ⦿ PP3 Power pole 3	Report:
		Date: 21/05/2020



PROJECT: 296 Queenstown-Glenorchy Road

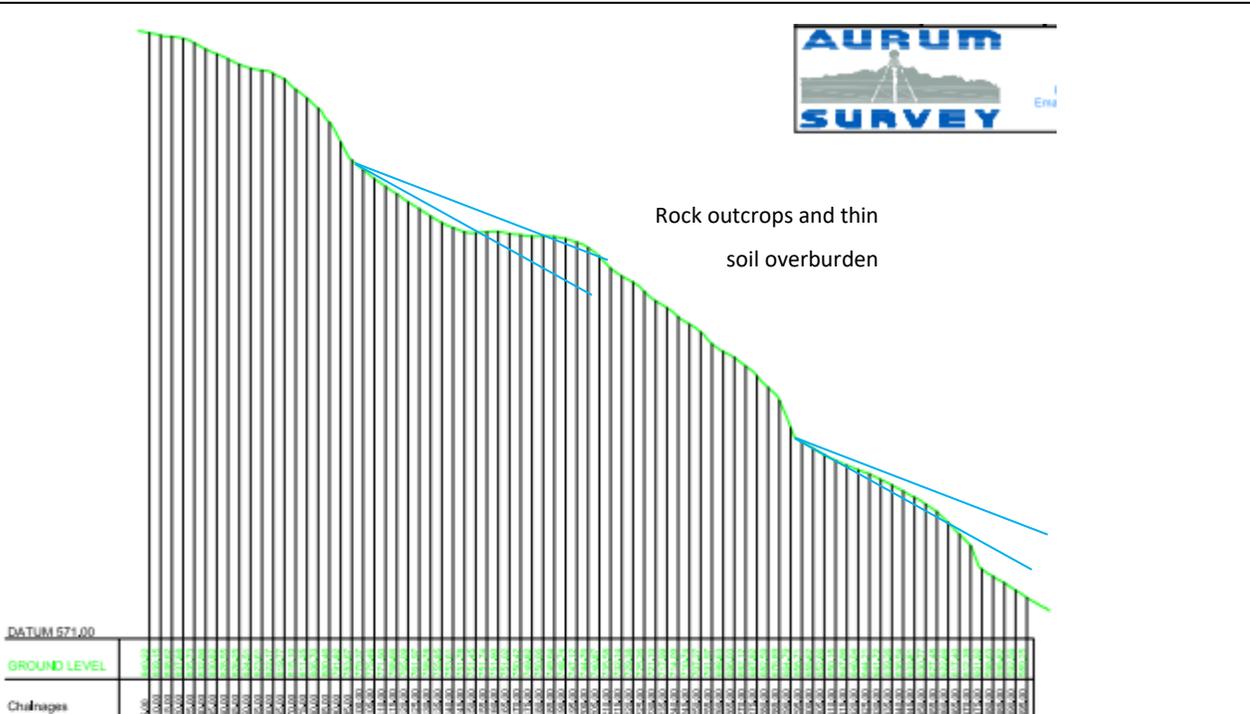
DESCRIPTION: Topography of hillside above site showing highlighted bluffs and cross sections A, B & C.

FIGURE: 3

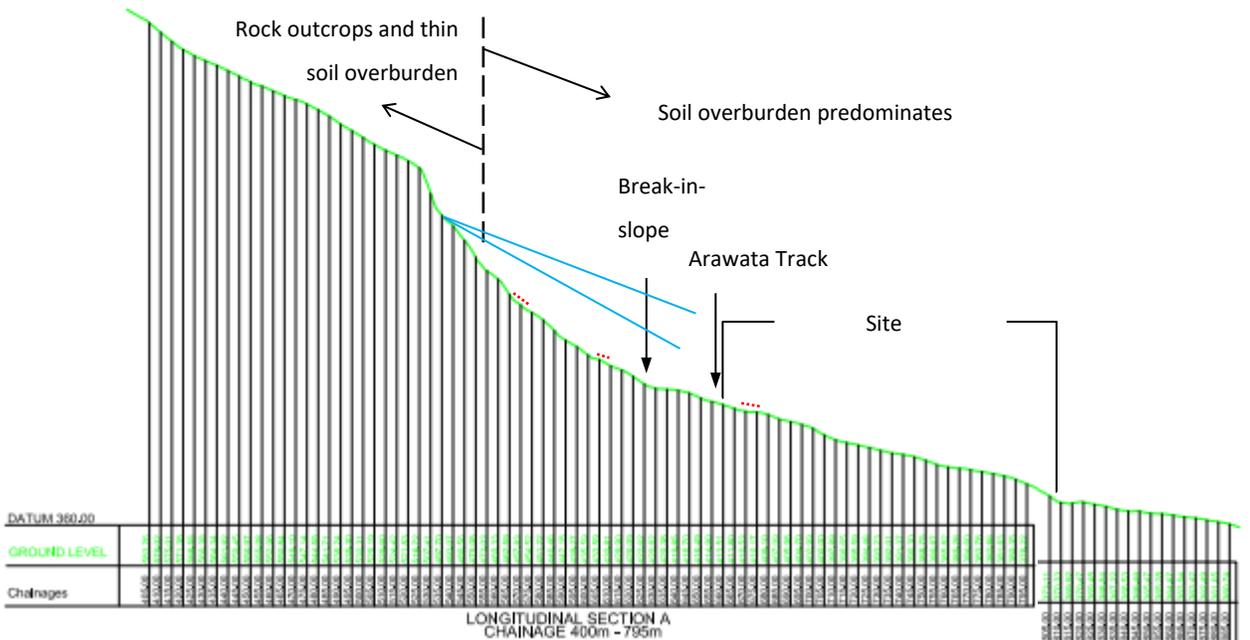
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Report:

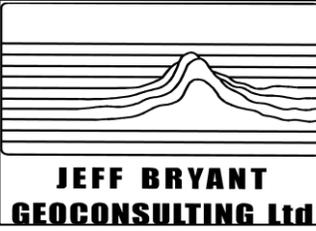
Date: 21/05/2020



LONGITUDINAL SECTION A
CHAINAGE 0m - 395m



LONGITUDINAL SECTION A
CHAINAGE 400m - 795m



PROJECT: 296 Queenstown-Glenorchy Road

DESCRIPTION: Cross section A

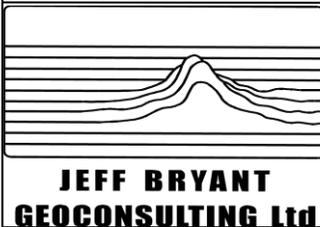
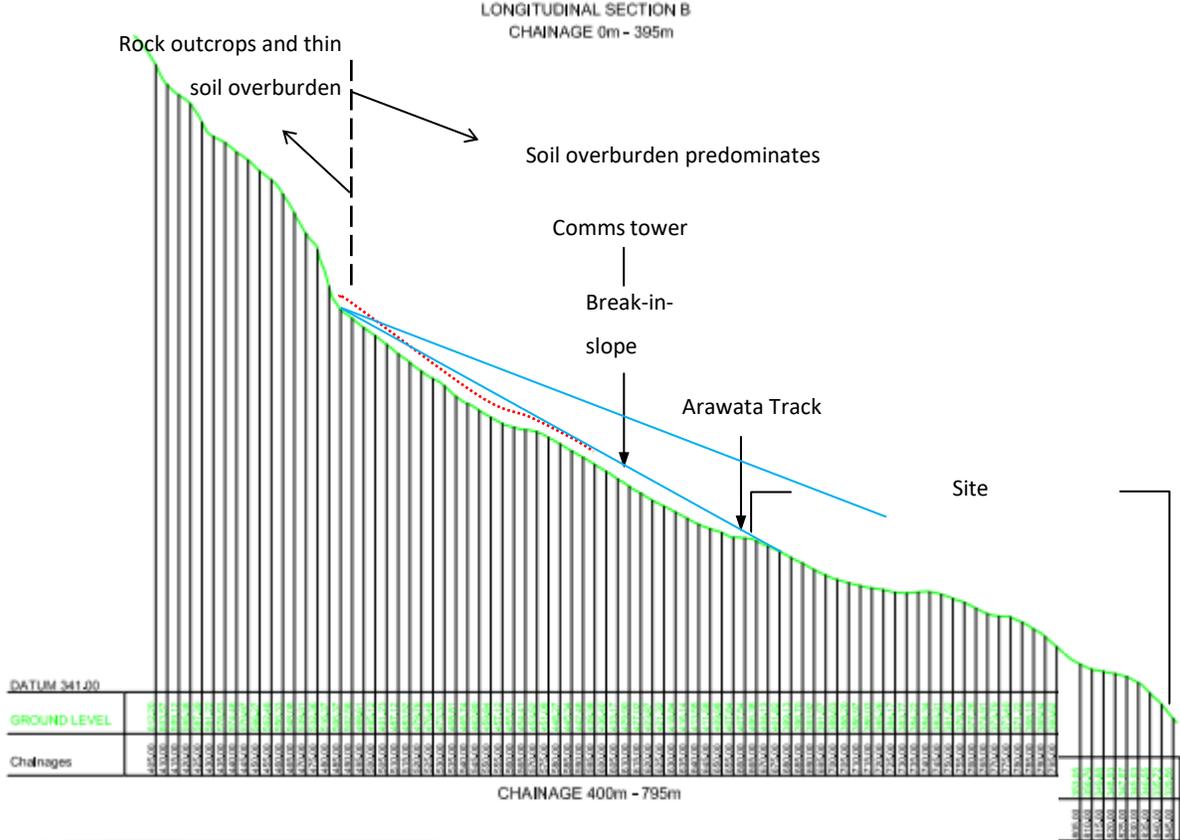
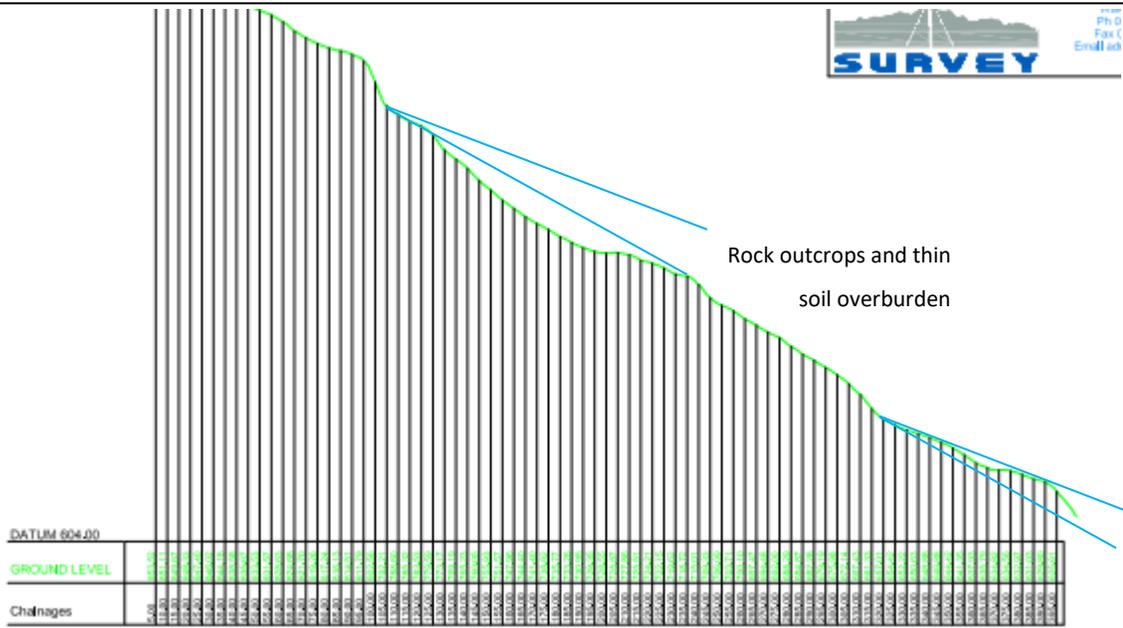
..... Boulder cluster Shadow angles 21-29°

FIGURE: 4

Scale: NTS

Report:

Date: 21/05/2020



PROJECT: 296 Queenstown-Glenorchy Road

DESCRIPTION: Cross section B

..... Boulder cluster

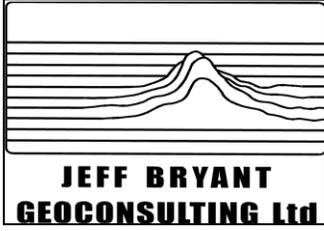
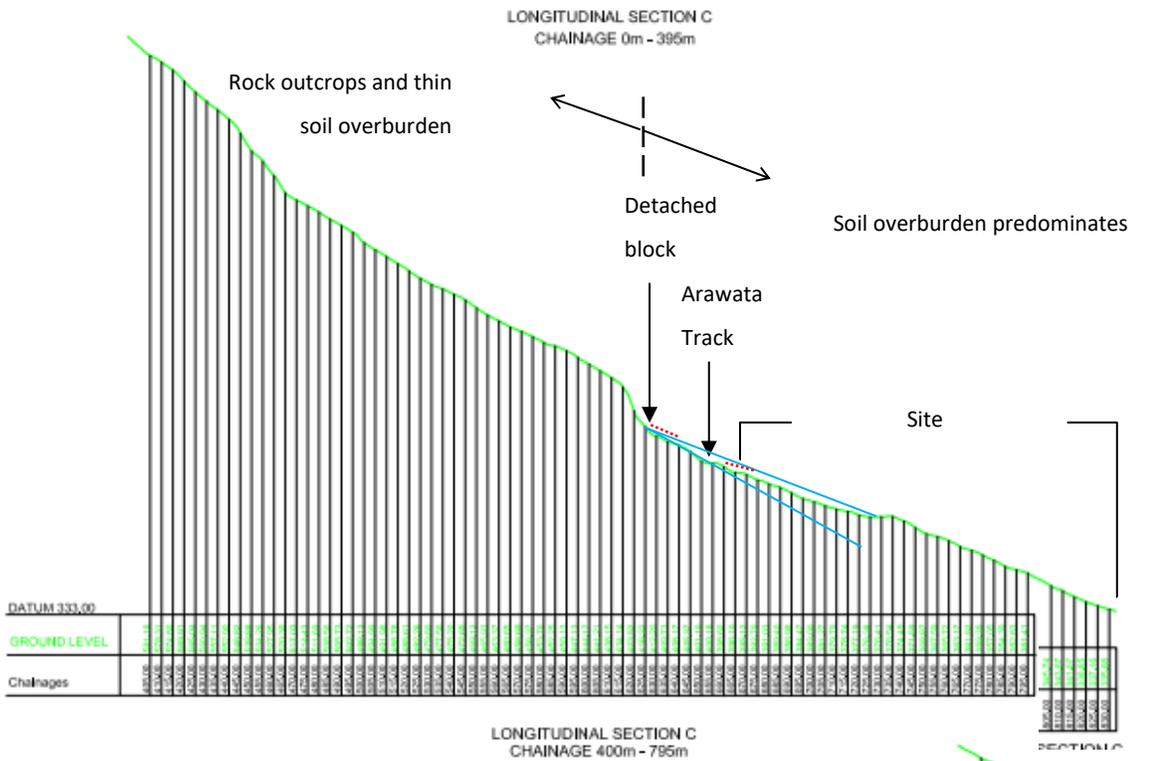
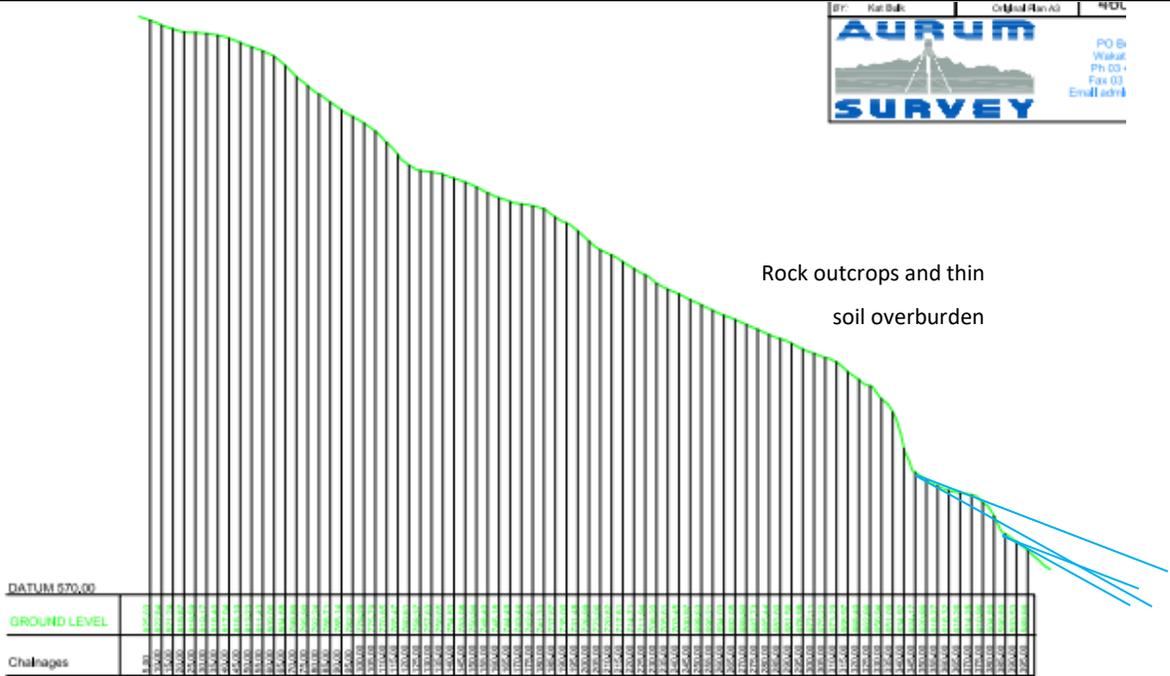
Shadow angles 21-29°

FIGURE: 5

Scale: NTS

Report:

Date: 21/05/2020



PROJECT: 296 Queenstown-Glenorchy Road

FIGURE: 6

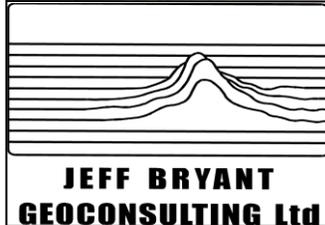
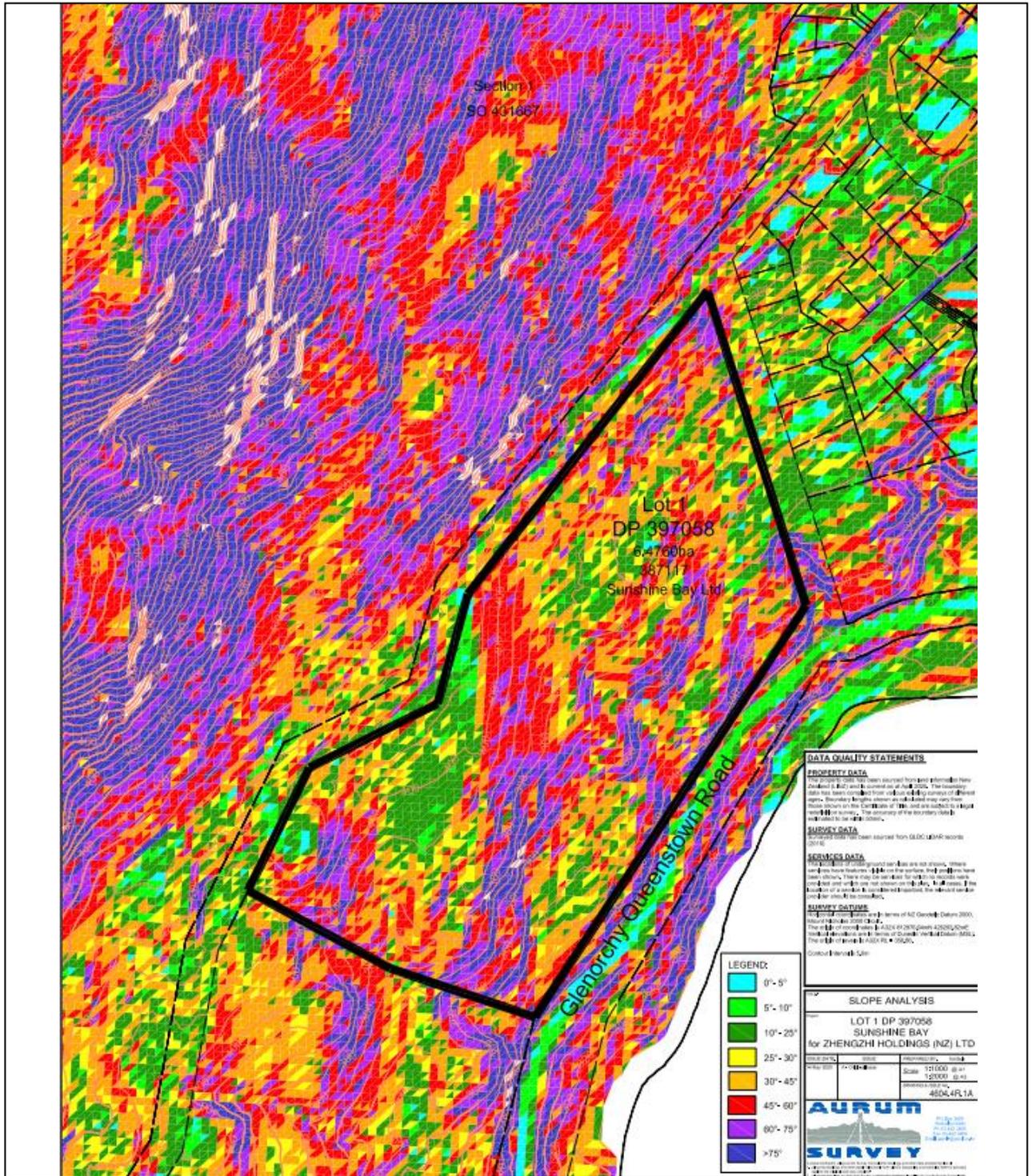
DESCRIPTION: Cross section C

Scale: NTS

..... Boulder cluster Shadow angles 21-29°

Report:

Date: 21/05/2020



PROJECT: 296 Queenstown-Glenorchy Road

DESCRIPTION: Slope angle zones

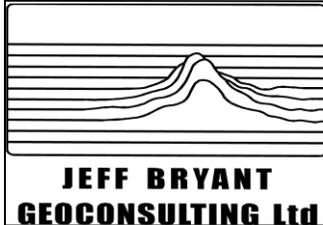
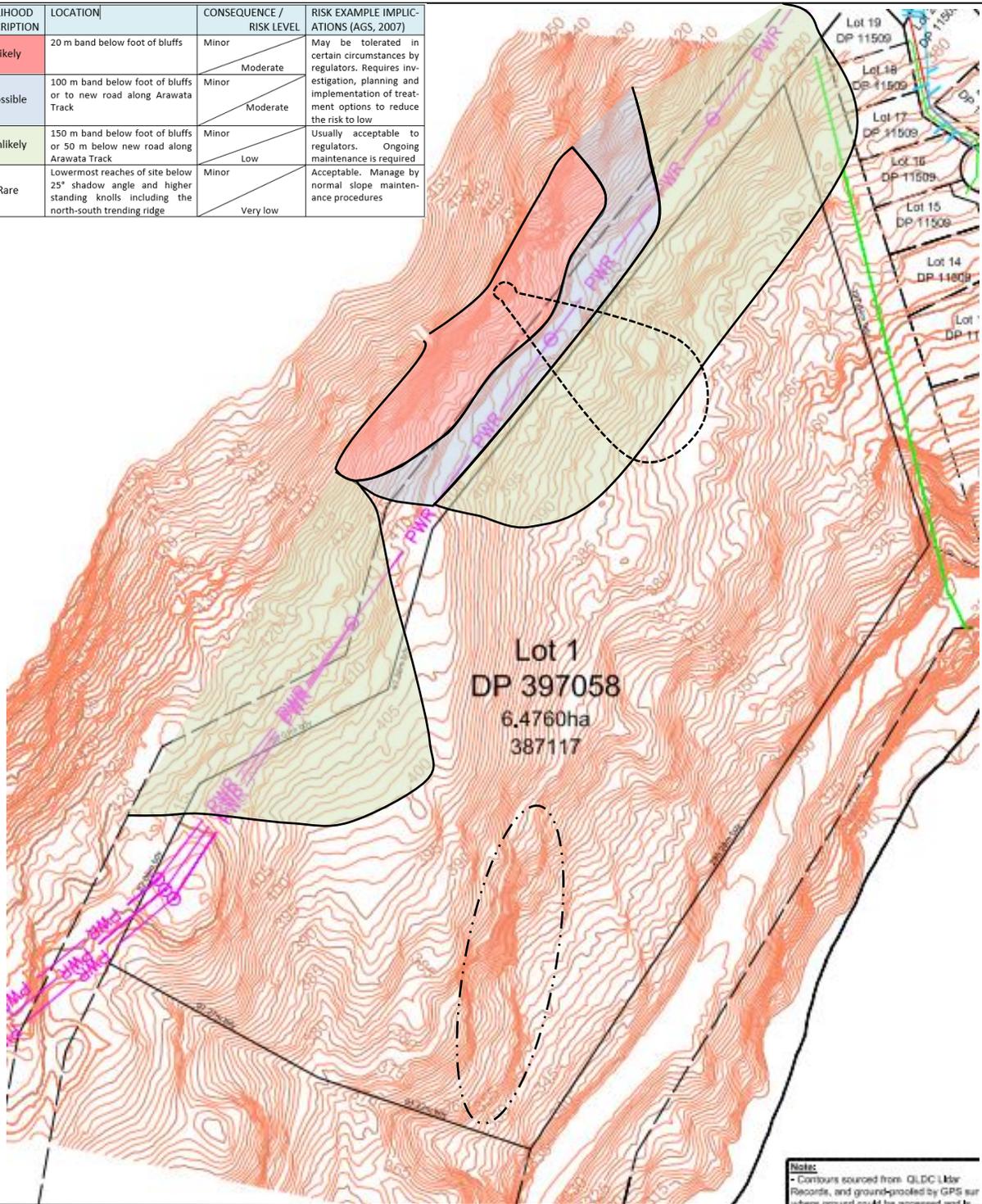
FIGURE: 7

Scale: NTS

Report:

Date: 21/05/2020

LIKELIHOOD DESCRIPTION	LOCATION	CONSEQUENCE / RISK LEVEL	RISK EXAMPLE IMPLICATIONS (AGS, 2007)
Likely	20 m band below foot of bluffs	Minor Moderate	May be tolerated in certain circumstances by regulators. Requires investigation, planning and implementation of treatment options to reduce the risk to low
Possible	100 m band below foot of bluffs or to new road along Arawata Track	Minor Moderate	Usually acceptable to regulators. Ongoing maintenance is required
Unlikely	150 m band below foot of bluffs or 50 m below new road along Arawata Track	Minor Low	Acceptable. Manage by normal slope maintenance procedures
Rare	Lowermost reaches of site below 25° shadow angle and higher standing knolls including the north-south trending ridge	Minor Very low	



PROJECT: 296 Queenstown-Glenorchy Road

DESCRIPTION: Site plan showing risk level zones

○ Potential rock fall sources – to be investigated

○ Detached block and run-out zone

FIGURE: 8

Scale: NTS

Report:

Date: 21/05/2020

LIKELIHOOD DESCRIPTION	LOCATION	CONSEQUENCE / RISK LEVEL	RISK EXAMPLE IMPLICATIONS (AGS, 2007)
Likely	20 m band below foot of bluffs	Minor Moderate	May be tolerated in certain circumstances by regulators. Requires investigation, planning and implementation of treatment options to reduce the risk to low
Possible	100 m band below foot of bluffs or to new road along Arawata Track	Minor Moderate	Usually acceptable to regulators. Ongoing maintenance is required
Unlikely	150 m band below foot of bluffs or 50 m below new road along Arawata Track	Minor Low	Acceptable. Manage by normal slope maintenance procedures
Rare	Lowermost reaches of site below 25° shadow angle and higher standing knolls including the north-south trending ridge	Minor Very low	

APPENDIX ONE

QUALITATIVE TERMINOLOGY FOR USE IN ASSESSING ROCK FALL RISK TO PROPERTY

QUALITATIVE MEASURES OF LIKELIHOOD

Approximate Annual Probability		Implied Indicative Landslide Recurrence Interval		Description	Descriptor	Level
Indicative Value	Notional Boundary					
10 ⁻¹	5x10 ⁻²	10 years	20 years	The event is expected to occur over the design life.	ALMOST CERTAIN	A
10 ⁻²		100 years		The event will probably occur under adverse conditions over the design life.	LIKELY	B
10 ⁻³	5x10 ⁻³	1000 years	2000 years	The event could occur under adverse conditions over the design life.	POSSIBLE	C
10 ⁻⁴	5x10 ⁻⁴	10,000 years		The event might occur under very adverse circumstances over the design life.	UNLIKELY	D
10 ⁻⁵	5x10 ⁻⁵	100,000 years	200,000 years	The event is conceivable but only under exceptional circumstances over the design life.	RARE	E
10 ⁻⁶	5x10 ⁻⁶	1,000,000 years		The event is inconceivable or fanciful over the design life.	BARELY CREDIBLE	F

Note: (1) The table should be used from left to right; use Approximate Annual Probability or Description to assign Descriptor, not *vice versa*.

QUALITATIVE MEASURES OF CONSEQUENCES TO PROPERTY

Approximate Cost of Damage		Description	Descriptor	Level
Indicative Value	Notional Boundary			
200%	100%	Structure(s) completely destroyed and/or large scale damage requiring major engineering works for stabilisation. Could cause at least one adjacent property major consequence damage.	CATASTROPHIC	1
60%		Extensive damage to most of structure, and/or extending beyond site boundaries requiring significant stabilisation works. Could cause at least one adjacent property medium consequence damage.	MAJOR	2
20%	40%	Moderate damage to some of structure, and/or significant part of site requiring large stabilisation works. Could cause at least one adjacent property minor consequence damage.	MEDIUM	3
5%	10%	Limited damage to part of structure, and/or part of site requiring some reinstatement stabilisation works.	MINOR	4
0.5%	1%	Little damage. (Note for high probability event (Almost Certain), this category may be subdivided at a notional boundary of 0.1%. See Risk Matrix.)	INSIGNIFICANT	5

Notes: (2) The Approximate Cost of Damage is expressed as a percentage of market value, being the cost of the improved value of the unaffected property which includes the land plus the unaffected structures.

(3) The Approximate Cost is to be an estimate of the direct cost of the damage, such as the cost of reinstatement of the damaged portion of the property (land plus structures), stabilisation works required to render the site to tolerable risk level for the landslide which has occurred and professional design fees, and consequential costs such as legal fees, temporary accommodation. It does not include additional stabilisation works to address other landslides which may affect the property.

(4) The table should be used from left to right; use Approximate Cost of Damage or Description to assign Descriptor, not *vice versa*

QUALITATIVE RISK ANALYSIS MATRIX – LEVEL OF RISK TO PROPERTY

LIKELIHOOD		CONSEQUENCES TO PROPERTY (With Indicative Approximate Cost of Damage)				
	Indicative Value of Approximate Annual Probability	1: CATASTROPHIC 200%	2: MAJOR 60%	3: MEDIUM 20%	4: MINOR 5%	5: INSIGNIFICANT 0.5%
A - ALMOST CERTAIN	10 ⁻¹	VH	VH	VH	H	M or L (5)
B - LIKELY	10 ⁻²	VH	VH	H	M	L
C - POSSIBLE	10 ⁻³	VH	H	M	M	VL
D - UNLIKELY	10 ⁻⁴	H	M	L	L	VL
E - RARE	10 ⁻⁵	M	L	L	VL	VL
F - BARELY CREDIBLE	10 ⁻⁶	L	VL	VL	VL	VL

- Notes: (5) For Cell A5, may be subdivided such that a consequence of less than 0.1% is Low Risk.
 (6) When considering a risk assessment it must be clearly stated whether it is for existing conditions or with risk control measures which may not be implemented at the current time.

RISK LEVEL IMPLICATIONS

Risk Level		Example Implications (7)
VH	VERY HIGH RISK	Unacceptable without treatment. Extensive detailed investigation and research, planning and implementation of treatment options essential to reduce risk to Low; may be too expensive and not practical. Work likely to cost more than value of the property.
H	HIGH RISK	Unacceptable without treatment. Detailed investigation, planning and implementation of treatment options required to reduce risk to Low. Work would cost a substantial sum in relation to the value of the property.
M	MODERATE RISK	May be tolerated in certain circumstances (subject to regulator's approval) but requires investigation, planning and implementation of treatment options to reduce the risk to Low. Treatment options to reduce to Low risk should be implemented as soon as practicable.
L	LOW RISK	Usually acceptable to regulators. Where treatment has been required to reduce the risk to this level, ongoing maintenance is required.
VL	VERY LOW RISK	Acceptable. Manage by normal slope maintenance procedures.

- Note: (7) The implications for a particular situation are to be determined by all parties to the risk assessment and may depend on the nature of the property at risk; these are only given as a general guide.



Sunshine Bay Limited – Sunshine Bay Plan Change

Infrastructure Feasibility Report



Prepared by: **Civilised Ltd**



Sunshine Bay Limited – Sunshine Bay Plan Change

Infrastructure Feasibility Report

Report prepared For: Sunshine Bay Ltd

Report Prepared By: John McCartney
[Redacted]

Report Reference: QV029
2019-10-16 Infrastructure Report.docx

Date: 16th October 2019

Issue	Details	Date
1	Draft for comment	15 th October 2019
2	Final	16 th October 2019

Executive Summary

Sunshine Bay Ltd are seeking a plan change to allow the future development of their land at Sunshine Bay, Queenstown. Civilised Ltd have assessed the necessary development infrastructure in relation to:

- Water supply
- Wastewater disposal
- Stormwater runoff
- Power Supply
- Telecommunications

We confirm that it is feasible to provide the necessary development infrastructure to service the proposed future development of the land.

It is proposed to connect the development area to the nearby QLDC water supply network. Water supply modelling has been undertaken on behalf of QLDC by Mott MacDonald and this showed that the development could be connected to the Council supply network provided some significant off-site upgrades were undertaken. The developer will be required to undertake these upgrades prior to completion of development on site.

Wastewater is able to be drained from the site to the nearby existing QLDC wastewater drainage network. The feasibility for this has been confirmed by modelling undertaken on behalf of QLDC by Hydraulic Analysis Limited. The modelling has shown that connection can be made to either the existing pipework in Arawata Terrace near the new road intersection or through reserve land to near the existing Sunshine Bay wastewater pump station provided some off-site upgrades were undertaken. The developer will be required to undertake these upgrades prior to completion of development on site.

Stormwater runoff from impervious areas constructed on the site will be reticulated from the site to the existing water course adjacent to the site. These flows may be attenuated to reduce peak runoff during heavy or prolonged rainfall events.

Service providers for power supply and telecommunications reticulation have confirmed that they are able to provide suitable connections to the proposed development area.

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1 Introduction

Sunshine Bay Limited (SBL) has engaged Civilised Limited (CL) to investigate and report on the feasibility of providing utility services and the necessary development infrastructure for their proposed plan change for land at Sunshine Bay, Queenstown.

This report considers the nature of the proposed development, the site conditions affecting the implementation of the necessary development infrastructure and describes the proposed implementation of the following elements;

- Water supply and internal reticulation
- Wastewater collection and disposal
- Stormwater control
- Telecommunications
- Power supply

The report is to supplement and support the planning submissions made by Vivian + Espie Ltd on behalf of SBL with regard to the application for the proposed plan change.

2 Description of Proposal

SBL proposes to develop their existing land between the Glenorchy Road and the Arawata Track at Sunshine Bay. The land is currently zoned Rural under the Queenstown Lakes District Council (QLDC) Proposed District Plan (Stage 1 and 2 Decisions Version).

A concept development plan has been prepared for the site by Boffa Miskell Limited. This shows a mixture of dwelling forms for predominantly residential development.

The new buildings to be created on sloping ground within the site and will have road access from a new road network constructed in order to service the site.

The draft concept plan showing the indicative layout of the proposed development is contained in Appendix A.

We note that this assessment of the necessary development infrastructure is limited to consideration of the scale of the development as it is currently proposed.

3 Site Description

The proposed development is located on terrain lying above and northwest of the Glenorchy Road adjacent to the existing urban area of Sunshine Bay.

The site has frontage to Glenorchy Road and also Arawata Track which runs within an existing paper road from Arawata Terrace.

The site consists of large moderately to steeply sloping area with vegetation and some rock outcrops.

The subject site of the development is contained within one Certificate of Title:

- 814710 (Lot 1 DP 397058) – 6.476 ha

The elevation of the proposed lots ranges from approximately RL 340 to RL 410m Mean Sea Level (MSL).

Generally, the land within the proposed development area may be described as vegetated and includes trees and brush.

The land receives approximately 900mm of rainfall per annum and may be subject to drought conditions during the summer months.

4 Water Supply

4.1 Existing System

There is no existing water reticulation on or to the site. The QLDC water supply scheme boundary does encompass the site but that was on the basis of the current zoning when only a single dwelling may have been constructed on the site. It is proposed that the QLDC water supply be extended to the site to provide for the proposed development of the site.

4.2 Water Demand Modelling

QLDC were requested to commission modelling of water supply options for the site. This work was completed on behalf of QLDC by Mott MacDonald.

The inputs for the modelling were on the basis that there would be 103 new domestic units on the subject site. These units would have the standard QLDC water demand of 2,100 litres per day and require firefighting flows to comply with FW2 requirements from SNZ PAS 4509:2008 New Zealand Fire Service Firefighting Water Supplies Code of Practice. It is noted that when the final yield from the development site is known, further water supply modelling maybe required in order to accurately determine the scope and nature of the upgrades required to enable the development.

The modelling showed that the site cannot be serviced without significant upgrades to the existing reticulation network. These upgrades are:

- Duplicate the section of 100mm pipe along Greenstone Pl with a 180mm ID (approximately 350m long)
- Duplicate the section of 100mm pipe along Arawata Terrace with 150mm ID (approximately 450m long)
- Install Pressure Reducing Valve within the development, at 389m RL elevation with a setting of 30m

These upgrades are only the offsite upgrades and do not include the necessary infrastructure required to connect to the existing network and reticulate water throughout the site as a normal part of the development.

A copy of the current modelling report is included with this report in Appendix B.

4.3 Fire Fighting Water

The water modelling has confirmed that the site will be provided with FW2 firefighting water supply coverage (in terms of SNZ PAS 4509:2008 New Zealand Fire Service Firefighting Water Supplies Code of Practice). This is suitable for:

- Housing; includes single family dwellings, multi-unit dwellings, but excludes multi-storey apartment blocks.
- All other structures (apart from single family homes) with a sprinkler system installed to an approved Standard.

These limitations with the firefighting water supply will need to be taken into account when the detailed design of future buildings is undertaken on the site.

4.4 Development Contributions

When the subject site is ultimately developed, the developer will be responsible for paying development contributions to QLDC. Currently, for this area, the development contribution for water supply is \$3,885 per dwelling equivalent. This will apply to each domestic unit created and a contribution will be calculated for each visitor accommodation unit based on the demand for Council water services (dependent upon size and expected numbers using the units).

Given the off-site upgrades required for the water supply to the development, it may be advisable to enter into a stakeholders agreement with QLDC regarding the scope of works required to allow the development to connect to the QLDC water supply and also to reassure Council that funding is available to undertake the necessary off site upgrades. Stakeholder agreements have been utilised previously by the QLDC to apportion costs between developers and Council and to ensure that the necessary infrastructure is in place when required. Equally, the developer does not want to find that after having done the off-site upgrades more upgrades are required because of the additional demand on the water network from another development.

4.5 Recommendations

The water supply for the development will be provided for by way of connection to the nearby QLDC water supply. The necessary off-site upgrades to the water supply will be required to be undertaken by the developer in order to allow connection to the Council network.

It is noted that when the final yield from the development site is known, further water supply modelling maybe required in order to accurately determine the scope and nature of the upgrades required to enable the development.

5 Wastewater Disposal

5.1 Existing System

There is no existing wastewater drainage reticulation on the site. The QLDC wastewater drainage scheme boundary does encompass the site but that was on the basis of the current zoning when only a single dwelling may have been constructed on the site. It is proposed that the QLDC wastewater drainage reticulation be extended onto the site to allow wastewater flows from the development of the site to drain to the QLDC reticulation network.

5.2 Wastewater Drainage Modelling

QLDC were requested to commission modelling of wastewater drainage options for the site. This work was completed on behalf of QLDC by Hydraulic Analysis Limited.

The inputs for the modelling were on the basis that there would be 103 new domestic units on the subject site. These units would generate wastewater flows of 750 litres per dwelling per day (dry weather flows) in line with the standard QLDC wastewater flow figures.

Two possible connection points were evaluated:

- Connect to the existing reticulation in Arawata Terrace near the proposed new road access to the site.
- Connect to the existing reticulation in the reserve area adjacent to the site and near the existing QLDC Sunshine Bay wastewater pumping station.

The modelling has shown two issues to be addressed. The first of these is that the existing Sunshine Bay Wastewater Pump Station is already at or near capacity. Modelling shows that the introduction of any additional flows to the pump station may result in uncontrolled pump station overflows. The modelling report has noted that this constraint needs to be tested as the nominal capacity of the pump station is higher than the currently modelled capacity (which is derived from pumping records) and they have recommended that drawdown testing be undertaken to measure the actual capacity of the existing pump station. Depending upon the results of that drawdown testing either the pump station capacity will be proven to be able to cater for the additional flows from the

development site or further work will be required to determine the constraints and to upgrade the reticulation as necessary to allow for the additional flows from the development site.

The second issue that will require addressing is the capacity of the initial part of the gravity network that the rising main from the Sunshine Bay Wastewater Pump Station discharges into. Modelling shows that with the additional flows from the development site, this section of pipe will require upgrading or duplication to cater for the higher flows.

These upgrades are only the offsite upgrades and do not include the necessary infrastructure required to connect to the existing network and reticulate water throughout the site as a normal part of the development. It is expected that a new wastewater pump station will be required on the subject land to facilitate the drainage of wastewater from the site.

A copy of the current modelling report is included with this report in Appendix C.

5.3 Development Contributions

When the subject site is ultimately developed, the developer will be responsible for paying development contributions to QLDC. Currently, for this area, the development contribution for wastewater drainage is \$4,693 per dwelling equivalent. This will apply to each domestic unit created and a contribution will be calculated for each visitor accommodation unit based on the demand for Council wastewater services (dependent upon size and expected numbers using the units).

As discussed in section 4.4 above in relation to the water supply, given the off-site upgrades required for the wastewater drainage for the development, it may be advisable to enter into a stakeholders agreement with QLDC regarding the scope of works required to allow the development to connect to the QLDC wastewater infrastructure and also to reassure Council that funding is available to undertake the necessary off site upgrades. Stakeholder agreements have been utilised previously by the QLDC to apportion costs between developers and Council and to ensure that the necessary infrastructure is in place when required. Equally, the developer does not want to find that after having done the off-site upgrades more upgrades are required because of the additional demand on the water network from another development.

5.4 Recommendations

The wastewater drainage from the development will be provided for by way of connection to the nearby QLDC wastewater network. The necessary off-site upgrades to the wastewater network will be required to be undertaken by the developer in order to allow connection to the Council network.

It is noted that when the final yield from the development site is known, further wastewater modelling maybe required in order to accurately determine the scope and nature of the upgrades required to enable the development.

6 Stormwater Disposal

The intended access arrangements and the development of dwellings and associated buildings on the proposed building platforms on the site will alter the existing stormwater run-off patterns from the site catchment.

The proposed stormwater infrastructure on the site will comprise two primary elements as follows:

- 1) Roadside kerb and channel to receive and dispose of the runoff from the proposed roading on the site.
- 2) Proposed reticulation network to receive flows from the proposed roading network and the constructed impervious areas associated with future buildings, accesses and landscaping areas developed on the site.

The reticulation network will be used to convey stormwater flows to the lower part of the site at the northeast corner where there is a nearby stormwater culvert pipe that may be used to convey flows towards the lake. If there is insufficient capacity in the existing culvert pipe this will either be upgraded or appropriate detention used to attenuate the flows to pre-development levels. These options will be evaluated during the detailed design phase for the development of the land.

7 Power Supply & Telecommunications

7.1 Power Reticulation

Aurora Energy Limited has been contacted regarding the proposed development. Their response confirming their ability to make an electricity supply available for this development has been received. A copy of correspondence from Aurora is included with this report in Appendix D.

7.2 Telecommunications Reticulation

Chorus have been contacted regarding the proposed development. Their response confirming their ability to make telecommunications connections available for this development has been received. A copy of correspondence from Chorus is included with this report in Appendix E.

8 Limitations

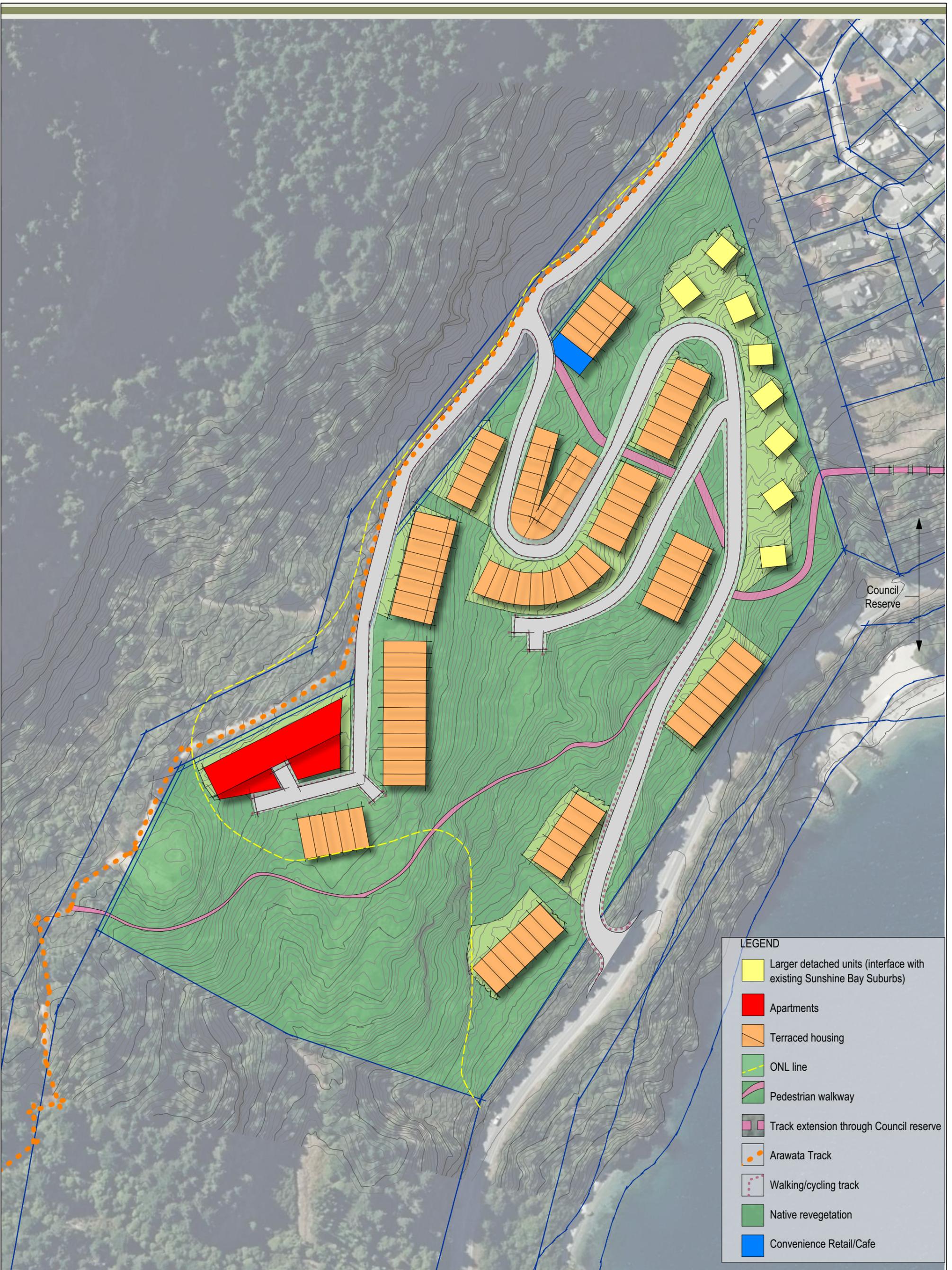
This report has been written for the particular brief to Civilised Ltd from their client and no responsibility is accepted for the use of the report for any other purpose, or in any other context or by any third party without prior review and agreement.

In addition, this report contains information and recommendations based on information obtained from a variety of methods and sources including inspection, sampling or testing at specific times and

locations with limited site coverage and by third parties as outlined in this report. This report does not purport to completely describe all site characteristics and properties and it must be appreciated that the actual conditions encountered throughout the site may vary, particularly where ground conditions and continuity have been inferred between test locations. If conditions at the site are subsequently found to differ significantly from those described and/or anticipated in this report, Civilised Ltd must be notified to advise and provide further interpretation.

Appendix A

Proposed Development Drawing



LEGEND

	Larger detached units (interface with existing Sunshine Bay Suburbs)
	Apartments
	Terraced housing
	ONL line
	Pedestrian walkway
	Track extension through Council reserve
	Arawata Track
	Walking/cycling track
	Native revegetation
	Convenience Retail/Cafe

REF: 1747-01
 DATE: 12.04.2021
 SCALE: 1:1500 @ A3

Sunshine Bay Limited Indicative Master Plan

Sunshine Bay, Queenstown

vivian+espie
 resource management and landscape planning
 vivian+espie Limited Resource Management and Landscape Planning
 PO Box 2514
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Appendix B

Water Supply Information

Queenstown Lakes District Council
Private Bag 50072
Queenstown 9348,
New Zealand

Water Infrastructure Assessment - Sunshine Bay Ltd – Arawata Terrace, Sunshine Bay, Queenstown

Our Reference
368980

09 October 2019

Mason Bros. Building
Level 2, 139 Pakenham

This memo summarises the results of the assessment undertaken for the proposed Sunshine Bay Ltd development, located at Arawata Terrace, in the Sunshine Bay DMA.

1 Background

Mott MacDonald was commissioned by Queenstown Lakes District Council (QLDC) to assess the system performance in terms of Level of Service (LOS) and firefighting capacity in the proposed development. The results of the analysis are detailed in this memo.

In this analysis, the latest Queenstown water supply model was used. Three scenarios were investigated, including the current condition and two future scenarios (2028 and 2058). Figure 1-1 below shows the location of the proposed development.



Figure 1-1: Development Location

2 Assumptions

2.1 Demand Calculations

The Sunshine Bay development consists of 103 residential units. Water demands for the proposed Sunshine Bay development was not provided, therefore QLDC NZS4404:2004 guideline was used, refer to table 1.

Table 1: Demand Calculations

Demand per person per day (l/pers/day)	700
Number of units	103
Number of persons per unit	3
Total daily demand (m ³ /day)	216.3
Total Peak Day Demand (l/s)	2.5
Peak Hour Factor	4
Instantaneous Peak Flow (L/s)	10.0

2.2 Connection Points

The development elevation is derived from the contour information provided by QLDC. The maximum elevation considered in this development is 403m and minimum elevation is 342m. It has been assumed that the development will connect to the 100mm pipeline along Arawata Tce via a proposed 150mm main (generally required for residential fire flow). It should be noted that a closed valve downstream of the proposed connection separates the high-pressure zone (to which the proposed development is connected) from the reduced pressure zone (William St and Fernhill Rd).



Figure 2-1: Development Connection Configuration

2.3 Firefighting Requirements

Fire flow capacity was assessed based on FW2 requirements (25l/s), in line with the SNZ PAS 4509:2008 New Zealand Fire Service Firefighting Water Supplies Code of Practice.

QLDC provides a minimum level of service of 25 l/s at 100 kPa within its water supply network. In commercial and industrial zones where there is currently 50 l/s at 100kPa, QLDC will maintain this higher level of service.

3 Scenarios Investigated

Three scenarios were investigated, including the above demand and the current network operations:

- Existing peak day scenario.
- 2028 peak day scenario.
- 2058 peak day scenario.

4 Model Results

4.1 System Performance Analysis in the Proposed Development

The model results have been analysed to verify whether levels of service can be met in the proposed development without any network modification. The table below summarises the results in terms of minimum and maximum pressure, as well as maximum head losses in the proposed network (150mm pipeline) for the current peak day scenario.

Table 2: System Performance in the Development

Demand	Minimum Pressure (m)	Maximum Pressure (m)	Maximum Head Losses (m/km)	Fire Flow
Current Peak (low elevation: 342m)	113.8	126.5	3.1	Cannot provide FW2
Current Peak (high elevation: 403m)	52.8	65.5		
Future 2028 Peak (low elevation: 342m)	112.0	126.5		
Future 2028 Peak (high elevation: 403m)	51.0	65.5		
Future 2058 Peak (low elevation: 342m)	110.2	126.5		
Future 2058 Peak (high elevation: 403m)	49.2	65.5		

The normal operating pressure and maximum head loss set by NZS4404:2004 (Development and Subdivision Engineering Standards) are 30 to 90m and 5m/km respectively. As shown in the table above, the recommended LOS are predicted to be met in the higher areas of the development but the pressure is too high in the lower areas. Only areas above 378.5m can be serviced without reducing the pressure in the development.

FW2 (25l/s) fire flow was verified for all scenarios: the model predicts that fire flow requirements cannot be met (residual pressure below 10m).

4.2 System Performance in the Existing network

Figure 4-1 and Figure 4-2 below show the system performance for current operational conditions, including current peak demand.

Figure 4-1 - Current Peak Day - Without Development

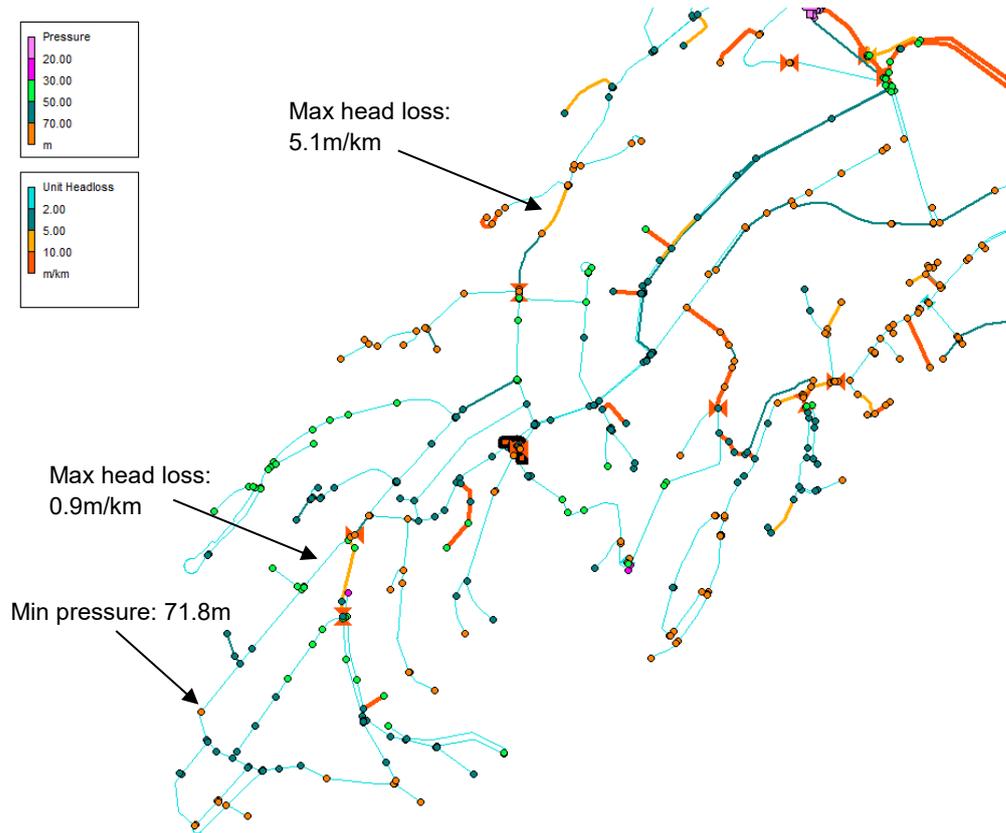
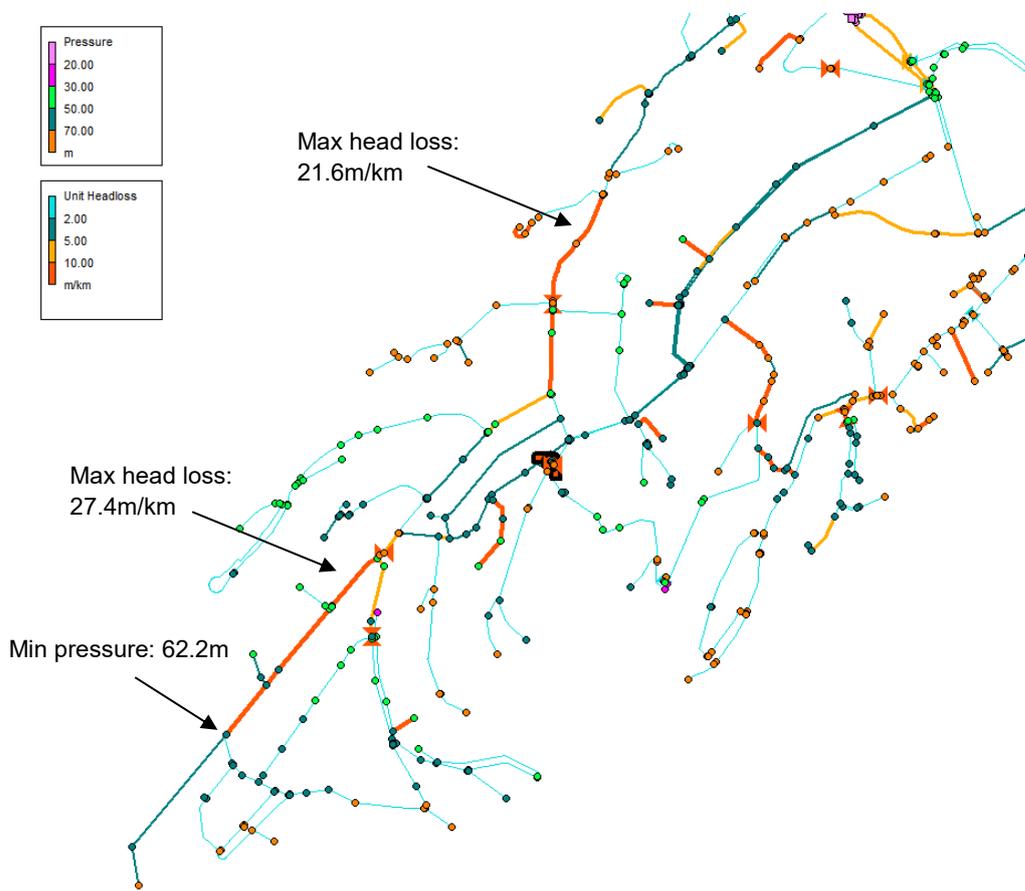


Figure 4-2 - Current Peak Day - With Development



The table below summarises forecasted minimum pressure at the connection point and maximum head losses in the existing DN100 main on Arawata Street, before and after the proposed development.

	Prior Development	After Development	Difference
Min pressure (m)	71.6m	62.2m	-9.4m
Max head losses along 100mm main	0.9m/km	27.4m/km	+26.5m/km

The proposed development is predicted to have a significant impact on the existing network, with a pressure drop of 9.4m at the connection point and head loss increase of 26.5m/km along Arawata St. Pressure in the area is generally high, therefore the pressure remains above the recommended minimum pressure (30m) in Fernhill and Arawata Terrace pressure zones.

Recommended head losses however are predicted to be exceeded along Arawata terrace (27.4m/km in the 100mm DN pipe) and Greenstone PI (21.6m/km), due to the additional demand.

The future (2028 and 2058 peak day) simulations show similar results.

4.3 High Level Option Investigation

A high-level option investigation was undertaken. Preliminary model results show that the following option would allow meeting LOS in terms of head losses in the existing network, and also provide more capacity in terms of firefighting and pressure in the development:

- Duplicate the section of 100mm pipe along Greenstone PI with a 180mm ID
- Duplicate the section of 100mm pipe along Arawata Terrace with 150mm ID
- Install PRV within the development, at 389mRL elevation with a setting of 30m. This elevation and setting are suggested to allow meeting pressure LOS in the entire site. However, the development site digital elevation model was not available at the time of this study, the proposed PRV elevation and setting should be further investigated.

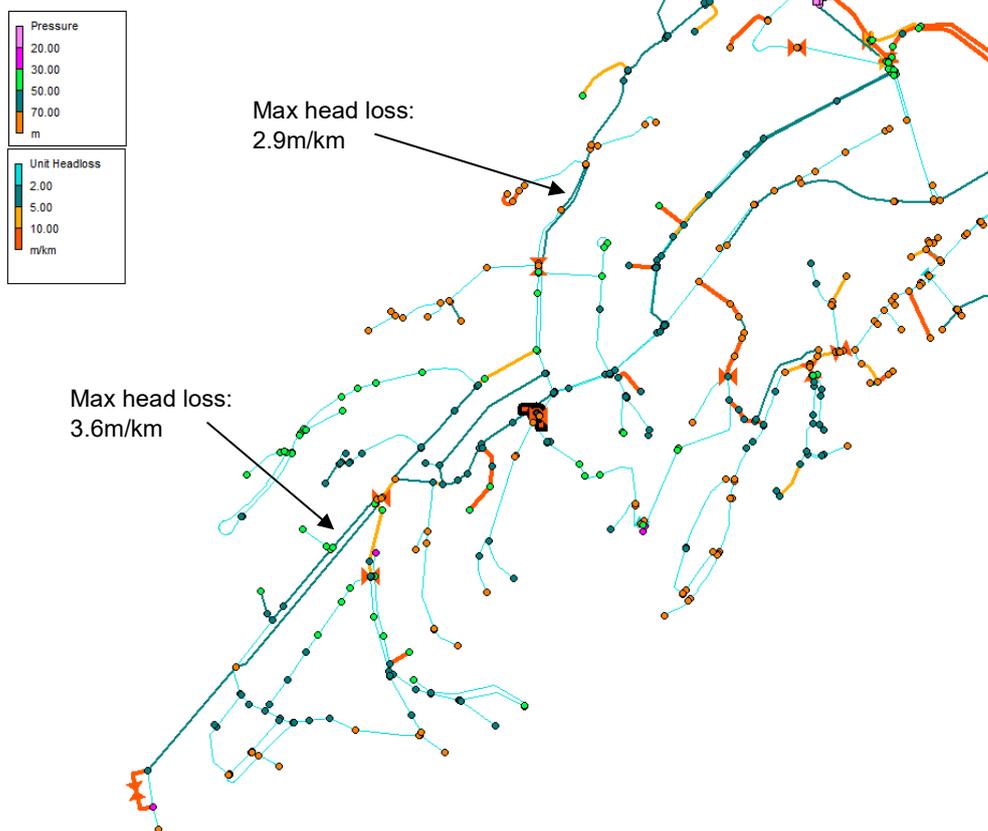
Figure 4-3 below shows the proposed upgrades. Figure 4-4 shows the system performance including the proposed upgrades, for the 2058 peak day scenario. Maximum head losses are within the recommended LOS (2.9m/km along Greenstone PI and 3.6m/km along Arawata Tce). Maximum pressures within the development are below 80m and fire flow can be provided with more than 50m residual pressure upstream of the PRV.

Further investigation is recommended once the contours of the proposed development site are known, to allow LOS to be met throughout the development.

Figure 4-3 - Proposed Upgrades



Figure 4-4 - System Performance with Proposed Upgrades – 2058 Peak Day



5 Conclusions and Recommendations

Additional demand for the proposed development on Arawata Tce has been added to the network for the Current, Future 2028 and Future 2058 Peak Day scenarios to determine if suitable levels of service could be obtained.

The model predicts the development will not meet LOS in terms of maximum pressure for all modelled scenarios based on QLDC NZS4404:2004 standards (maximum forecasted pressure ranging between 65 and 126.5m instead of the recommended 90m). The model also predicts that residential fire flow requirements cannot be met in any scenarios.

The proposed development is also anticipated to have a major impact on the existing network, with a pressure drop of 9.4m at the connection point and head losses increasing by 26.5m/km along Arawata St. While pressure remains within the recommended LOS, head losses are predicted to exceed QLDC's standards.

A high-level option investigation was undertaken. It was found that duplicating the section of 100mm pipe along Greenstone PI with a 180mm ID and duplicating the section of 100mm pipe along Arawata Terrace with a 150mm ID would reduce forecasted network head losses to a suitable LOS. It is also recommended to install a PRV within the development, at 389mRL elevation with a setting of 30m to meet pressure requirements. The elevation and pressure setting of the PRV should be reviewed and confirmed once detailed elevation are available at the proposed development site.

Regards

Chhan Chau
Principal Hydraulic Engineer



Revision	Date	Originator	Checker	Approver	Description
A	09/10/2019	Chhan Chau	Julie Plessis	Nasrine Tomasi	Draft for client review

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Appendix C

Wastewater Drainage Information

QUEENSTOWN LAKES DISTRICT COUNCIL

SUNSHINE BAY DEVELOPMENT IMPACT ASSESSMENT

OCTOBER 2019



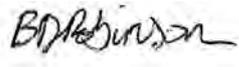
HYDRAULIC
ANALYSIS
LIMITED

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REVISION HISTORY

Revision	Publication Date
Draft	14 October 2019

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1. INTRODUCTION

1.1. OBJECTIVE

The objective of this study is to utilise the existing hydraulic model (Wakatipu Wastewater Model with HAL updates, 2018) of the Queenstown wastewater network to assess the impact of the proposed Sunshine Bay development on the wastewater network. The current (2015) population scenario has been used for this assessment.

1.2. BACKGROUND

The proposed development site is located on Lot 1 DP 397058, Sunshine Bay. The development proposal seeks to create approximately 103 residential units.

The development has proposed two possible connection locations. The first to the existing 200mm AC network on Arawata Terrace, with construction of a pump station and associated rising main. The second to the existing 150mm CONC network near the Sunshine Bay Wastewater Pump Station, with construction of a smaller pump station and rising main in the recreational reserve above Glenorchy-Queenstown Road.

2. SCOPE

The following tasks have been undertaken as part of this assessment:

- Calculation of design flows for the Sunshine Bay development
- Assessment of the Sunshine Bay development impact on the existing network for the current (2015) population scenario

Each of these tasks is discussed in more detail in the following sections.



3. SUNSHINE BAY DESIGN FLOWS

3.1. OVERVIEW

The Sunshine Bay development proposal seeks to create 103 residential units. The location of the proposed development is shown in Figure 3-1 below.



FIGURE 3-1 SUNSHINE BAY DEVELOPMENT SITE LOCATION

As shown in Figure 3-2 and Figure 3-3 below, the development proposes two different options for connection into the local wastewater network. Option 1 is a direct connection into existing manhole (MH ID: 102712) on Arawata Terrace. This would require construction of a pump station and associated rising main. Option 2 is a direct connection into an existing manhole (MH ID: 101964) near the Sunshine Bay Wastewater Pump Station. A pump station would also be required to service the development's lower catchment with a rising main constructed through the recreational reserve located above Glenorchy-Queenstown Road.



FIGURE 3-2 SUNSHINE BAY OPTION 1 - PROPOSED WASTEWATER NETWORK CONNECTION



FIGURE 3-3 SUNSHINE BAY OPTION 2 - PROPOSED WASTEWATER NETWORK CONNECTION

3.2. DEVELOPMENT DESIGN FLOWS

The development consultant has not completed a wastewater demand assessment for the proposed development. There is reference to standard wastewater demand flows from the QLDC 'Land Development and Subdivision Code of Practice' for the proposed residential units.

The PWWF for this development assessment has been calculated using the proposed 103 residential lot yield provided in the infrastructure report.

The QLDC CoP assumes 250 l/p/day, a dry weather diurnal peaking factor of 2.5, and a wet weather dilution/infiltration factor of 2 (i.e. a peak wet weather flow (PWWF) of 5 x average dry weather flow (ADWF)). Using the CoP, the proposed development at 103 residential units with an occupancy rate of 3 people per household would equate to a residential PWWF of 4.5 l/s.

Calculations for the Sunshine Bay development are shown in Table 3-1 below.

TABLE 3-1: SUNSHINE BAY DEVELOPMENT DESIGN FLOWS

	Units
No. of Units	103
Occupancy	3
Population	309
<i>ADWF (l/p/day)</i>	<i>250</i>
ADWF (l/s)	0.89
<i>DWF Peaking Factor</i>	<i>x2.5</i>
PDWF (l/s)	2.24
<i>WWF Peaking Factor</i>	<i>x2</i>
PWWF (l/s)	4.5 l/s

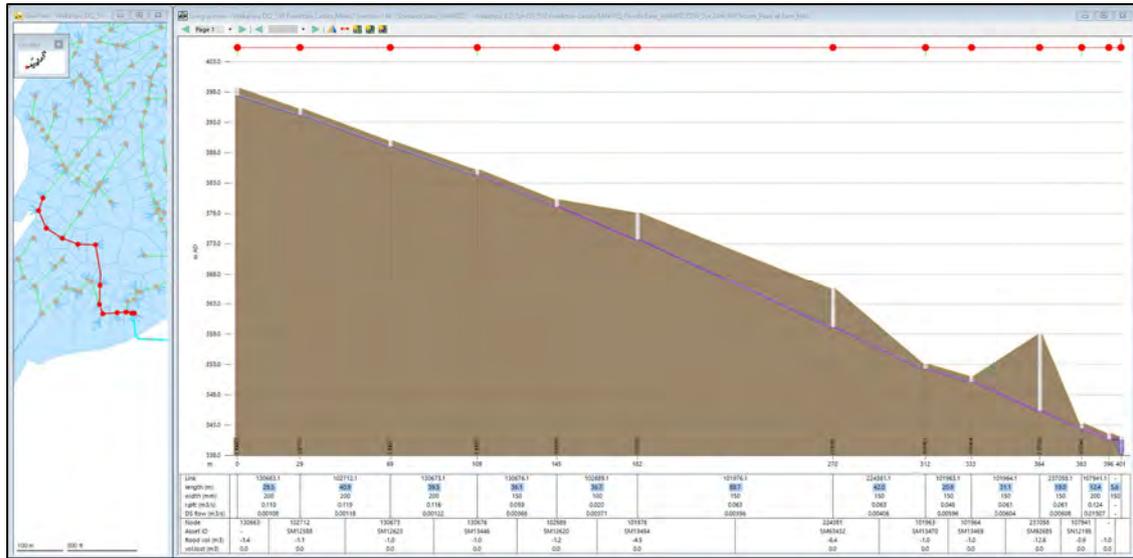
4. SUNSHINE BAY DEVELOPMENT IMPACT

4.1. PRE-DEVELOPMENT SCENARIO

The Wakatipu wastewater model (with 2018 HAL updates) was run under the current (2015) population scenario, Sunshine Bay development flows. A monthly seasonal DWF profile has been applied to the updated model to represent increased visitor numbers during peak periods, with a maximum peaking factor of 1.1x calibrated DWF over the December/January period. The network was assessed against a 5-year ARI design storm to understand the existing performance of the network.

As shown in the Figure 4-1 long section below, the existing network shows evidence of some pipe surcharge in the downstream network. No uncontrolled manhole overflow events are simulated.





4.2. REPORTED OVERFLOWS

QLDC’s reported overflow database has been reviewed for evidence of existing capacity issues. The database shows one reported incident on Evergreen Place, downstream from the proposed development site. However, this was found to be a temporary blockage caused by a foreign object and is therefore not indicative of an existing capacity constraint in the network.

4.3. POST-DEVELOPMENT SCENARIO 1 (CONNECTION TO ARAWATA TERRACE)

The Wakatipu wastewater model (with 2018 HAL updates) was run under the current (2015) population scenario, with the additional peak wet weather flows of 4.5 l/s from the proposed Sunshine Bay development added into MH ID: 102712 on Arawata Terrace. The development impact was assessed against a 5-year ARI design storm to understand the performance of the network.

As shown in the Figure 4-3 long-section below, the post-development scenario (1) simulates an uncontrolled overflow of 26.2m³ at the Sunshine Bay WWPS as a result of the additional development flows. Based on available QLDC SCADA data, the pump station has been modelled with a maximum pump rate of 15 l/s. The incoming flows from the receiving catchment and additional development peak at 19 l/s.

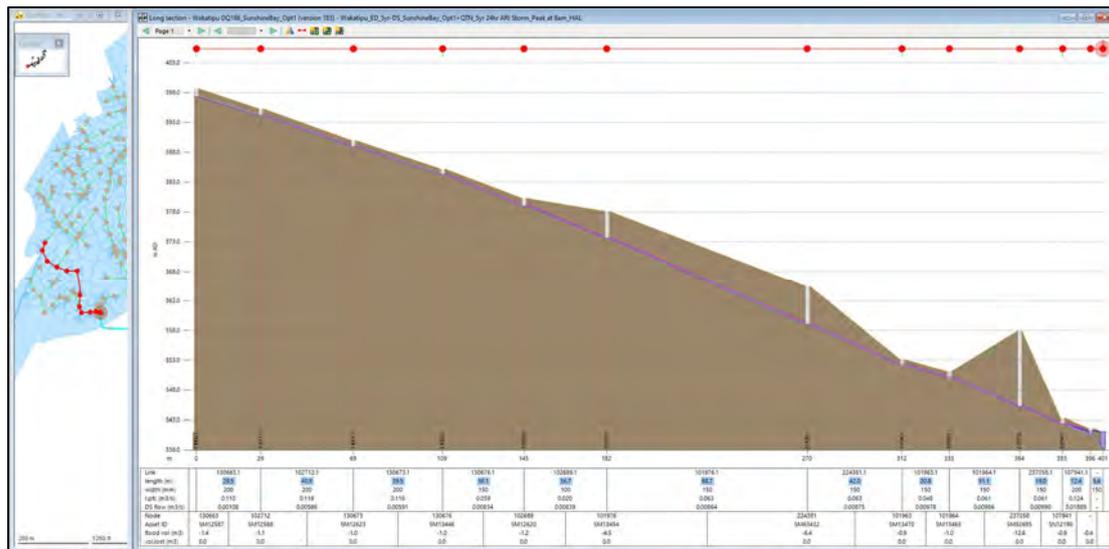


FIGURE 4-3 SUNSHINE BAY SCENARIO 1 (4.5 L/S FLOWS) (2015) LONG SECTION – 5 YEAR ARI DESIGN STORM

Due to the elevation of the Sunshine Bay development site, the development will require construction of a local pump station and ancillary rising main to connect to the existing Sunshine Bay WWPS network. The capacity requirements or operating regime of this pump station and associated infrastructure have not been included as part of this assessment. It is expected the development consultant will design the new pump station to QLDC requirements.

4.4. POST-DEVELOPMENT SCENARIO 2 (CONNECTION THROUGH RECREATIONAL RESERVE)

The Wakatipu wastewater model (with 2018 HAL updates) was run under the current (2015) population scenario, with the additional peak wet weather flows of 4.5 l/s from the proposed Sunshine Bay development added into MH ID: 101964 through the recreational reserve. The development impact was assessed against a 5-year ARI design storm to understand the performance of the network.

As shown in the Figure 4-4 long-section below, the post-development scenario (2) simulates a slightly larger uncontrolled overflow of 26.5m³ at the Sunshine Bay WWPS as a result of the additional development flows. Based on available QLDC SCADA data, the pump station has been modelled with a maximum pump rate of 15 l/s. The incoming flows from the receiving catchment and additional development peak at 19 l/s.

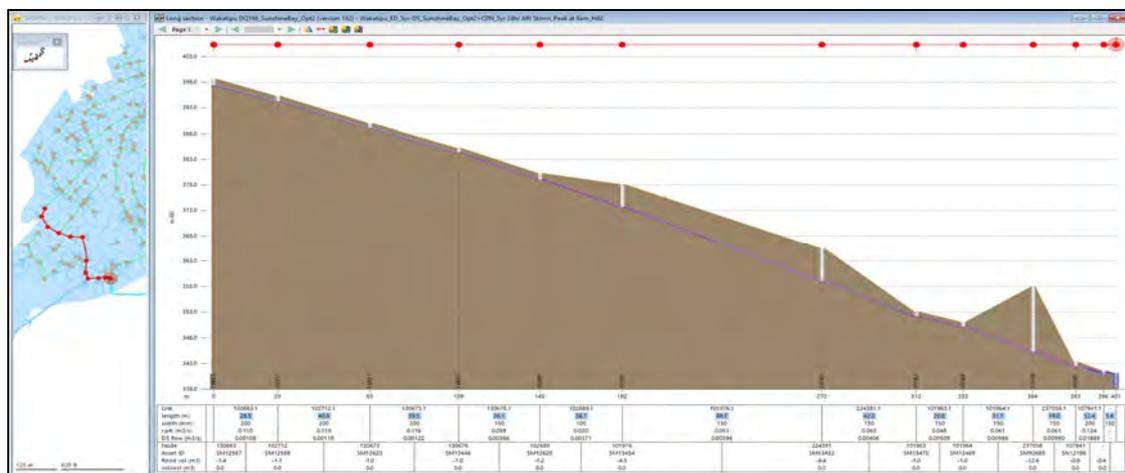


FIGURE 4-4 SUNSHINE BAY SCENARIO 2 (4.5 L/S FLOWS) (2015) LONG SECTION – 5 YEAR ARI DESIGN STORM

Due to the elevation of the Sunshine Bay development site, the development will require construction of a local pump station and ancillary rising main to connect to the existing Sunshine Bay WWPS network. The capacity requirements or operating regime of this pump station and associated infrastructure have not been included as part of this assessment. It is expected the development consultant will design the new pump station to QLDC requirements.

4.5. PUMP STATION ASSESSMENT

As illustrated in Figure 4-3 and Figure 4-4, the post Sunshine Bay development scenarios simulate an uncontrolled overflow event of approximately 26m³ at the Sunshine Bay WWPS. Based on available QLDC SCADA data, the pump station has been modelled with a maximum pump rate of 15 l/s. As shown in Figure 4-5 below, the post-development scenario simulates a peak inflow rate of 19 l/s for a duration of approximately 4 hours, which exceeds the modelled pump station capacity.

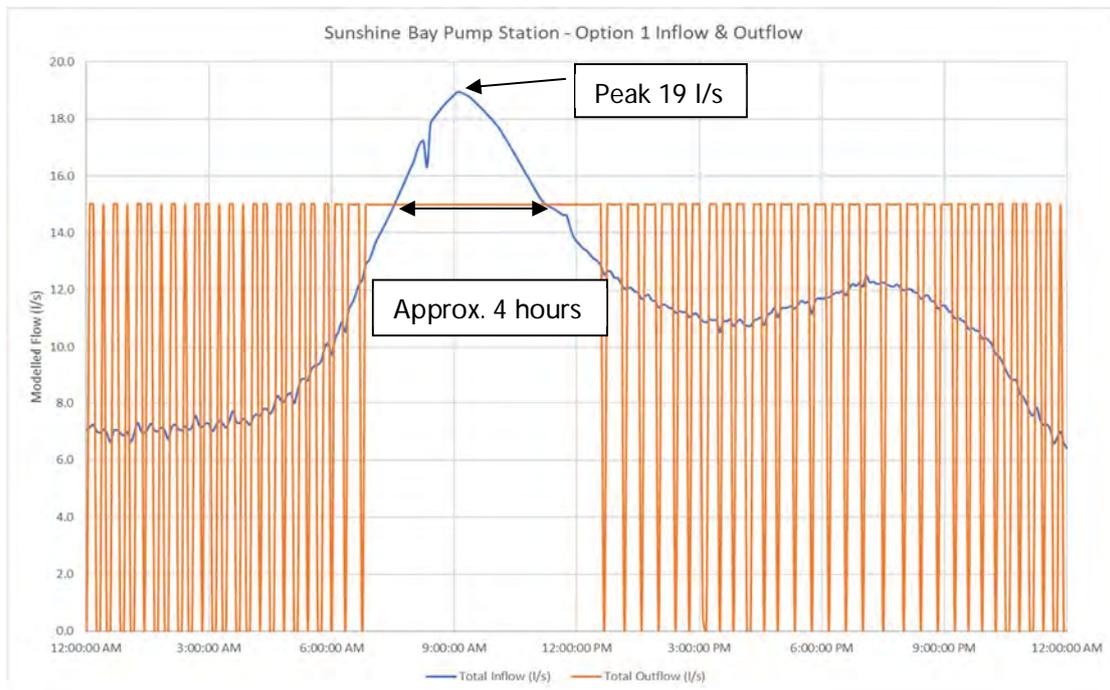


FIGURE 4-5 SUNSHINE BAY PUMP STATION SCENARIO 1 INFLOW AND OUTFLOW

4.6. SUNSHINE BAY WWPS INDICATIVE UPGRADES

The Sunshine Bay WWPS has been modelled based on available QLDC SCADA data, with a maximum pump rate of 15 l/s. This is significantly less than what is stated in the QLDC pump station manual (40 l/s with a duty-assist arrangement). It is recommended that QLDC carries out drawdown testing at the pump station to confirm its performance at significantly less than the originally commissioned expectation.

An upgrade of the Sunshine Bay WWPS may be required to accommodate additional development flows in the catchment. The model indicates an additional 4 l/s can be accommodated within the existing local network downstream of the pump station. However, further upgrade of Sunshine Bay WWPS would require some additional downstream pipework upsizing. As shown in Figure 4-6 below, approximately 100m of 150mm local network between MH ID: 102765 to MH ID: 102760 is potentially undersized to receive future development flows. The maximum flow rate of this section of local network is 19 l/s.

It is recommended that the investigation, design, and delivery of the Sunshine Bay WWPS upgrade is considered as part of QLDC's future long-term plan, to enable further development within the Sunshine Bay catchment. It is recommended that a pump station drawdown test is undertaken to confirm the Sunshine Bay WWPS flow rate, including an assessment of manhole lid and invert levels to confirm any current operational issues and assess the risk of future overflow events. Potential upgrades to the pump station should take into consideration future catchment growth and development.

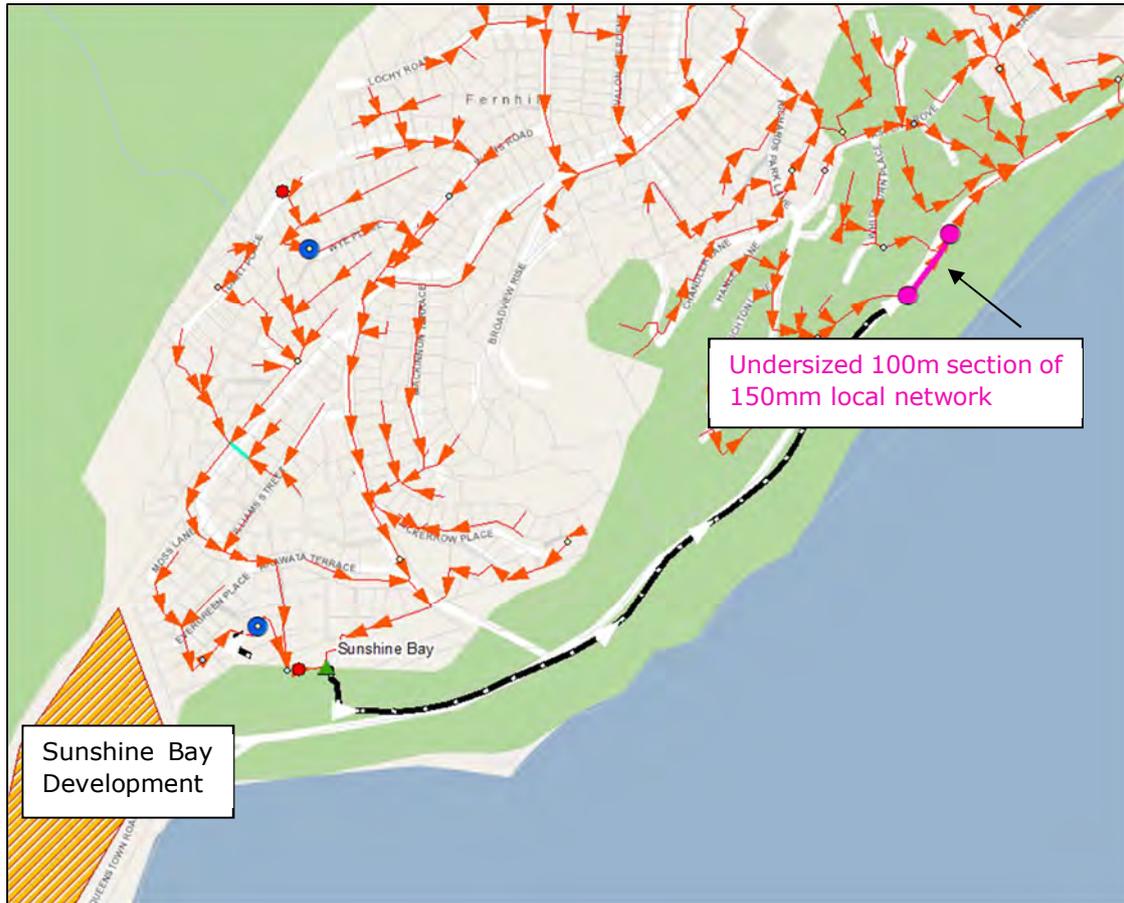


FIGURE 4-6 SUNSHINE BAY POTENTIAL UPGRADES

4.7. IMPACT OF PROPOSED PROJECTS

There is a proposed future QLDC project (Rec Grounds Pump Station Project) which aims to reduce flows (and the risk of overflow) at the downstream Marine Parade WWPS in the CBD by diverting part of the upstream catchment away from the CBD through the provision of a new pump station in the Recreation Grounds. The location of the proposed pump station is shown in Figure 4-7 below. While the future WWPS receiving catchment does not directly impact the development proposal at Sunshine Bay, it is aimed to free up capacity at Marine Parade WWPS.



FIGURE 4-7 PROPOSED QLDC REC GROUNDS PUMP STATION PROJECT

5. MODEL ASSUMPTIONS AND LIMITATIONS

The model assumptions should be read in conjunction with the following reports.

- 'Wakatipu Wastewater Model Build & Calibration Report' (Beca, August 2016)
- 'Wakatipu Wastewater Network Future System Performance Report' (Beca, August 2017)
- 'QLDC Interim Performance Report' (Morphum/HAL, April 2018)

The following limitations apply to the modelling undertaken as part of these studies:

- The model was originally calibrated against flows developed from field data collected in 2015 supplemented by QLDC pump station SCADA data. The 2018 model review undertaken by HAL has determined only a medium degree of confidence in the accuracy of the model. Additional flow gauging and model re-calibration is proposed for 2019.
- The distribution of the modelled population is an approximation based on the 2013 census residential population, factored up for a high population scenario. No allowance has been made for additional growth since 2013, other than known development areas.
- Modelled network asset data for manholes and pipes is generally as provided in the BECA calibration model, and its origin is not clear. Manhole and pipe level data has not been validated against QLDC's GIS, as-builts or survey data as part of this assessment, or as part of the HAL model review/update. Where potential network constraints are identified, it is recommended asset data in these areas is confirmed through manhole survey.
- Pump station model parameters have been determined based on information provided by the QLDC planning team, SCADA data (where available) and pump station manuals, and the accuracy has not been validated as part of these studies.
- The assessment excludes information on any additional recently consented neighbouring developments in the contributing catchment.
- This assessment focuses on the wastewater network downstream of the site, and does not consider sizing of infrastructure within the proposed site to service future development upstream of the site.
- It has been assumed that no existing overarching structure plan has been developed by QLDC for servicing this area.
- The impact of expected flows on the WWTP has not been considered as part of this assessment.



6. CONCLUSION

The objective of this study was to utilise the existing hydraulic model of the Wakatipu wastewater network to assess the impact of the proposed Sunshine Bay development. The development seeks to construct 103 new residential units.

The model was run under the current (2015) population scenario, with the additional peak wet weather flows (4.5 l/s) from the proposed Sunshine Bay development added in. The existing modelled scenario shows the Sunshine Bay WWPS has an existing capacity constraint with simulated surcharge to within 400mm of the lid level which is considered an unacceptable level of risk.

QLDC's reported overflow database shows one reported wet weather incident on Evergreen Place, downstream of the development. However, this was found to be a temporary blockage caused by a foreign object and is therefore not indicative of an existing capacity constraint in the network.

Both post-development scenarios simulate an uncontrolled overflow event of approximately 26m³ at the Sunshine Bay WWPS. The network downstream of the Sunshine Bay WWPS predicts negligible change from the pre-development scenario.

The Sunshine Bay WWPS has been modelled based on available QLDC SCADA data, with a maximum pump rate of 15 l/s. This is significantly less than what is stated in the QLDC pump station manual (40 l/s with a duty-assist arrangement). It is recommended that QLDC carries out drawdown testing at the pump station to confirm its performance at significantly less than the originally commissioned expectation.

Indicative upgrades to remove the capacity constraint at the Sunshine Bay WWPS include the upsizing of the pumps to accommodate the additional inflow. The model indicates 19 l/s can be accommodated within the local network downstream of the pump station. However, further upgrade of the pump station would require upgrading of a small section of undersized pipework, approximately 100m of 150mm network further downstream.

It is recommended that the investigation, design, and delivery of the Sunshine Bay WWPS upgrade is considered as part of QLDC's future long-term plan, to enable further development within the Sunshine Bay catchment. It is recommended that a pump station drawdown test is undertaken to confirm the Sunshine Bay WWPS flow rate, including an assessment of manhole lid and invert levels to confirm any current operational issues and assess the risk of future overflow events. Potential upgrades to the pump station should take into consideration future catchment growth and development.



Appendix D

Aurora Energy Confirmation

[REDACTED]
[REDACTED]

9 October 2019

Sunshine Bay Ltd
C/- John McCartney
Civilised Ltd

Sent via email only [REDACTED]

Dear John,

ELECTRICITY SUPPLY AVAILABILITY BEING FOR A PROPOSED DEVELOPMENT FOR CREATION OF UP TO 239 UNITS. GLENORCHY – QUEENSTOWN ROAD, SUNSHINE BAY. LOT 1 DP397058.

Thank you for your inquiry outlining the above proposed development.

Subject to technical, legal and commercial requirements, Aurora Energy can make a Point of Supply¹ (PoS) available for this development.

Disclaimer

This letter confirms that a PoS can be made available. This letter does not imply that a PoS is available now, or that Aurora Energy will make a PoS available at its cost.

Next Steps

To arrange an electricity connection to the Aurora Energy network, a connection application will be required. General and technical requirements for electricity connections are contained in Aurora Energy's Network Connection Standard. Connection application forms and the Network Connection Standard are available from www.auroraenergy.co.nz.

Yours sincerely



Niel Frear

CUSTOMER INITIATED WORKS MANAGER

¹ Point of Supply is defined in section 2(3) of the Electricity Act 1993.

Appendix E

Chorus Correspondence



John McCartney [REDACTED]

Proposed Sunshine Bay Development - Confirmation of Ability to Service

1 message

John McCartney [REDACTED]

9 October 2019 at 11:36

Reply-To: [REDACTED]

To: TSG [REDACTED]

Hi,

We represent Sunshine Bay Limited who are currently seeking a plan change to rezone their land at Sunshine Bay, near Queenstown.

The land is legally described as:

- LOT 1 DP 397058

The proposed development is shown on the drawings. It comprises the creation of up to 239 units.

Could you please provide confirmation that Chorus can provide the appropriate telecommunications infrastructure to reticulate the site.

Please contact me if you require any further information at this stage.

Regards,

John McCartney

Civilised Ltd

Email: [REDACTED]

Phone: [REDACTED]

2 attachments



QV029-F-110 Rev A.pdf

711K



Concept_Draft_Plan_191008_2.pdf

9900K



Chorus Development, QST54495, Glenorchy Queenstown Road

Chorus Property Developments [REDACTED]
To: [REDACTED]

15 October 2019 at 16:39

Hello John,

Thank you for providing an indication of your development plans in this area. I can confirm that we have infrastructure in the general land area that you are proposing to develop. Chorus will be able to extend our network to provide connection availability. However, please note that this undertaking would of course be subject to Chorus understanding the final total property connections that we would be providing, roll-out of property releases/dates and what investment may or may not be required from yourselves and Chorus to deliver the infrastructure to and throughout the site in as seamless and practical way as possible.

The cost involved would be a minimum of our current standard fee of \$1200 per lot excluding GST. This cost can only be finalised at the time that you are ready to proceed with the 1st stage.

Chorus is happy to work with you on this project as the network infrastructure provider of choice. What this ultimately means is that the end customers (business and home owners) will have their choice of any retail service providers to take their end use services from once we work with you to provide the physical infrastructure.

Please reapply with a detailed site plan when you are ready to proceed with stage 1.

Kind regards,

Aimee Smith
Property Development Coordinator



www.chorus.co.nz



Please consider the environment before printing this email

The content of this email (including any attachments) is intended for the addressee only, is confidential and may be legally privileged. If you've received this email in error, you shouldn't read it - please contact me immediately, destroy it, and do not copy or use any of the content of this email. No confidentiality or privilege is waived or lost by any mis-transmission or error. This communication does not designate an information system for the purposes of Part 4 of the Contract and Commercial Law Act 2017. Although we have taken reasonable precautions to ensure no viruses are present in this email, we cannot accept responsibility for any loss or damage arising from the use of this email or its attachments.

Sunshine Bay - Arawata Terrace

Arawata Terrace Intersection

This report has been prepared for the benefit of Sunshine Bay Limited. No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other person.

This disclaimer shall apply notwithstanding that the report may be made available to Queenstown Lakes District Council and other persons for an application for permission or approval or to fulfil a legal requirement.

Rev. No.	Date	Description	Prepared By	Checked By	Reviewed By	Approved By
1	01/10/2019	Draft	C Rossiter		S Lloyd	
2	04/10/2019	Final	C Rossiter		S Lloyd	C Rossiter
3	23/10/2019	Update – higher density	C Rossiter			C Rossiter

1 Introduction

Sunshine Bay Limited (SBL) owns 6.5ha of land to the south of the existing residential development at Fernhill overlooking Sunshine Bay. The land is bounded to the east by Glenorchy-Queenstown Road and by an unformed legal road to the West. SBL proposes to develop the site for residential activity and also allow for some visitor accommodation. Vehicle access is proposed via a new road to be formed along the legal road alignment to the west with a connection to Arawata Terrace. This report provides a review of the proposed new road and intersection.

2 Existing Transport Environment

Fernhill is a residential suburb of Queenstown located about 2km south of the Queenstown Central Business District. Fernhill Road is classified as a Collector Road in the Queenstown Lakes District Council (QLDC) District Plan and has been formed as a loop road through the suburb. At its northern limit, it meets Lake Esplanade and Glenorchy-Queenstown Road at a roundabout intersection. The southern limit of Fernhill Road meets Glenorchy-Queenstown Road at a priority intersection.

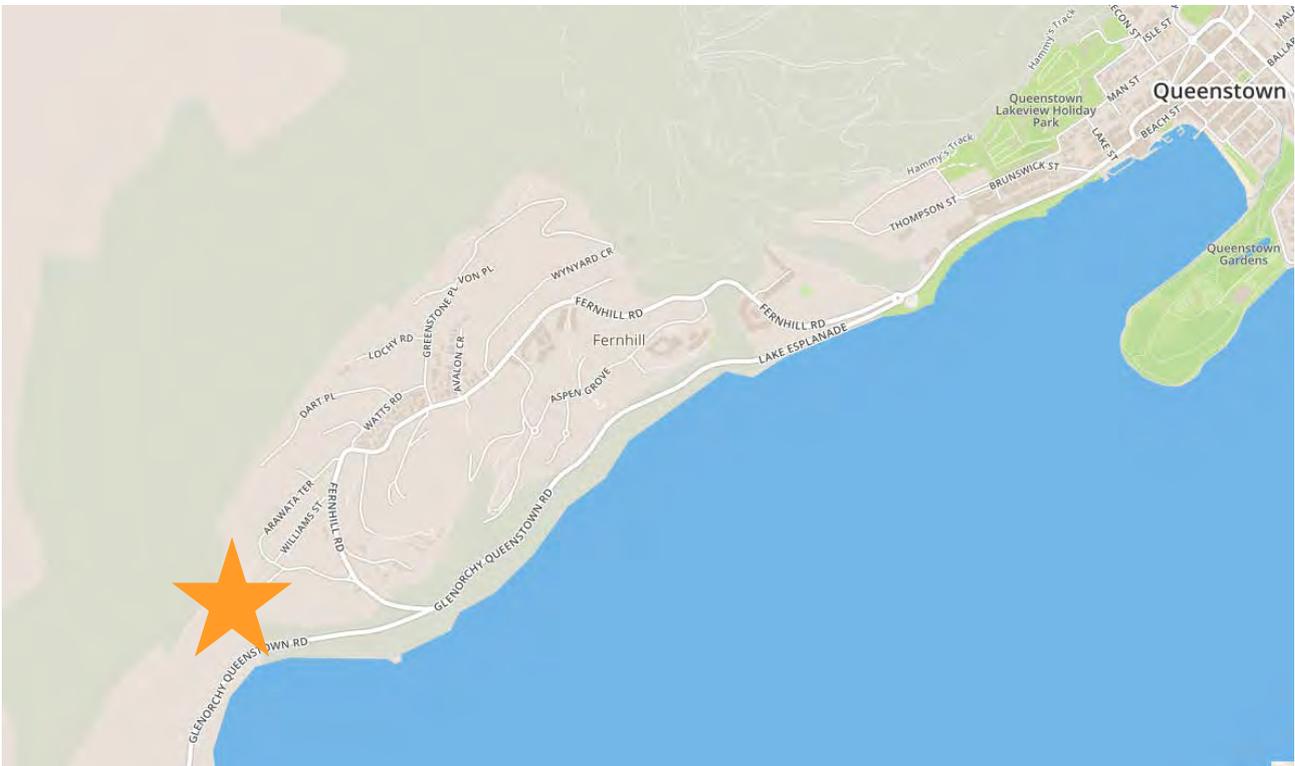


Figure 2-1: Road network and site location (Source: QLDC GIS)

Figure 2-1 shows the site location to the south of the existing residential development. Vehicle access to the site is via the Arawata Track along the legal road alignment which connects to Arawata Terrace, a local road in the District Plan.

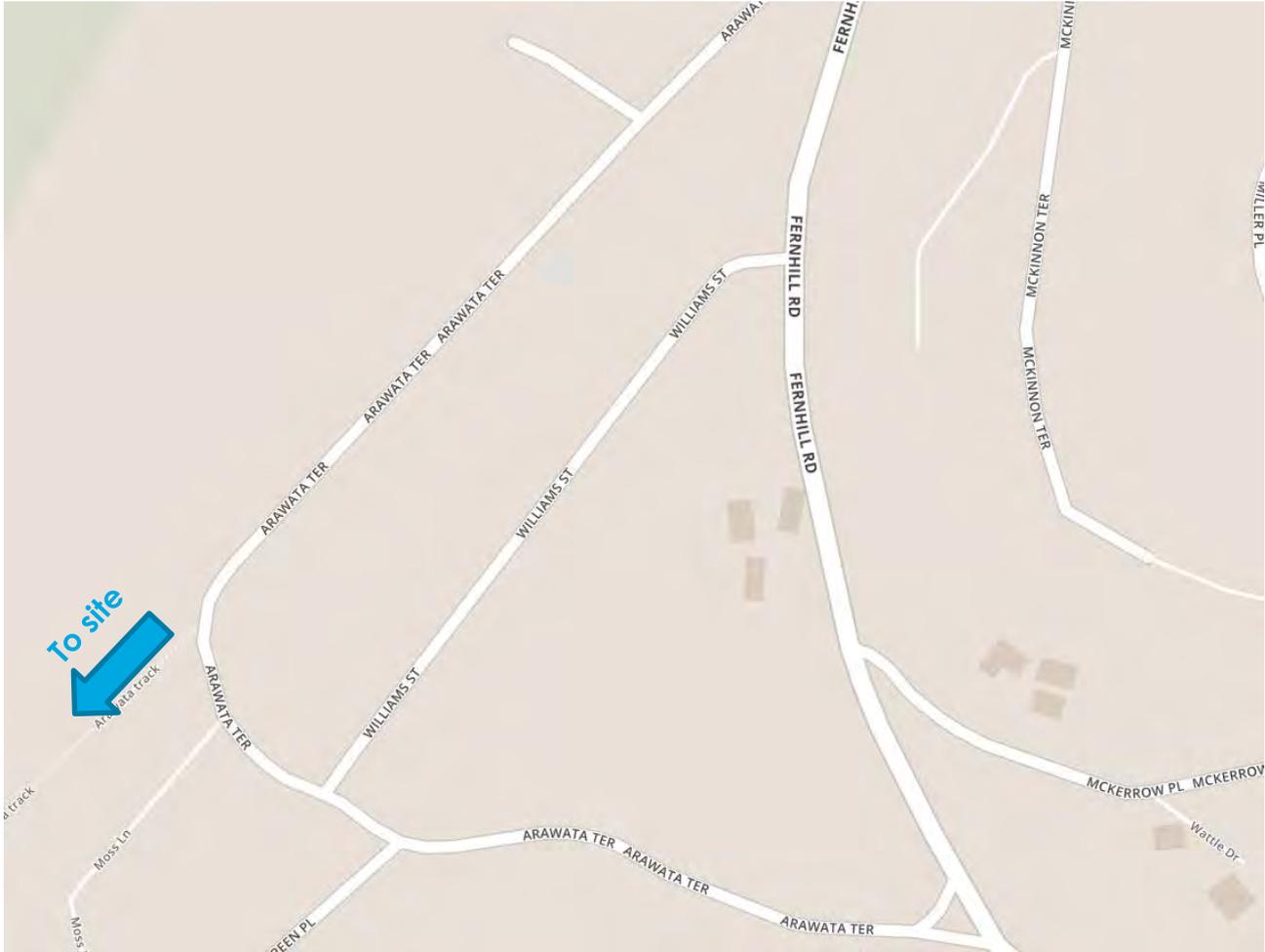


Figure 2-2: Site Location

The Arawata Track currently meets Arawata Terrace at a vehicle crossing as shown in Photograph 1. Photograph 2 and Photograph 3 show views of Arawata Terrace to the north and south of the crossing.

In this location, Arawata Terrace has a formed width of 7.5m with a footpath on the eastern boundary and has a moderate gradient rising towards the north. "No-stopping" lines have been marked around the inside the curve.



Photograph 1: Arawata Track crossing to Arawata Terrace

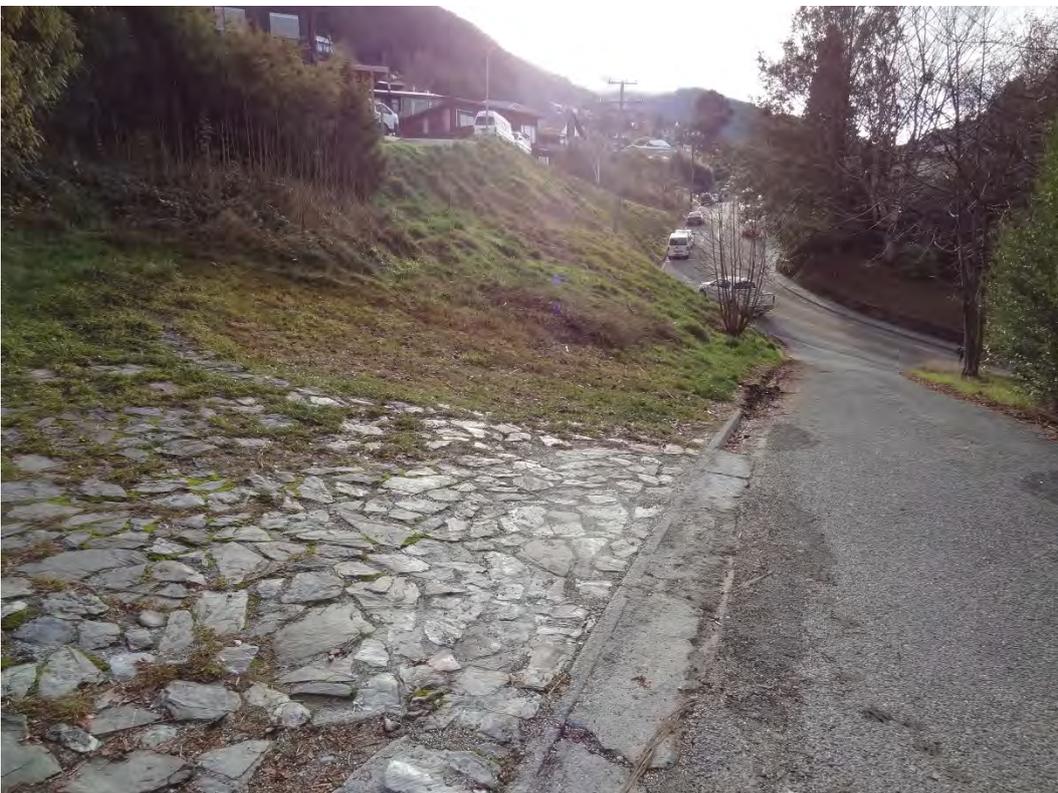


Photograph 2: Arawata Terrace – View North



Photograph 3: Arawata Terrace – View South

Arawata Track provides vehicle access to one property on the western side of the track. It has been formed with a 4m wide sealed surface from Arawata Terrace to the property access, a distance of about 40m (Photograph 4). The track has a moderate gradient that descends toward the crossing at Arawata Terrace.



Photograph 4: Arawata Track - View north to Arawata Terrace

South of the residential property, the track continues as an unformed road that is used primarily by trampers and mountain bikers. It also provides vehicle access to the electrical pylons that run broadly parallel to the track.



Photograph 5: Arawata Track

3 Existing Travel Patterns

3.1 Traffic Volumes

The Mobile Road website has been used to determine existing traffic volumes on roads close to the site. It indicates that Arawata Terrace carries a daily traffic volume of less than 400 vehicles per day (vpd) beside Arawata Track. The peak hour of traffic generation for residential activity typically represents about ten percent of the average daily traffic generation and on that basis, peak hour volumes on Arawata Terrace are expected to be about 40 vehicles per hour (vph).

The traffic volume on Arawata Terrace rises to nearer 600vpd west of its intersection with Fernhill Road.

Fernhill Road carries an average daily traffic volume of about 2,400vpd east of its southern intersection with Arawata Terrace.

Glenorchy-Queenstown road carries an average daily traffic volume of about 4,400vpd south of Fernhill Road and about 5,700vpd north of Fernhill Road.

3.2 Road Safety

The NZTA Crash Analysis System (CAS) has been used to investigate recent crashes in the area to assess the existing levels of road safety. Figure 3-1 shows the locations of reported crashes over the full five period 2014-2018 and any crashes reported in 2019. 13 crashes were reported over the 2014-18 period with no crashes reported in 2019. Eleven of the crashes involved a single vehicle only and were generally attributed to a loss of control.

One of the crashes involving two vehicles occurred at the Fernhill Road / Glenorchy-Queenstown Road intersection and was attributed to mis-judgement by an inexperienced driver. The other crash was a rear-end collision when the following vehicle was too close to the leading vehicle and the driver did not react to the slowing of the lead vehicle.

Only one crash resulted in injuries (minor) and was attributed to excess alcohol.

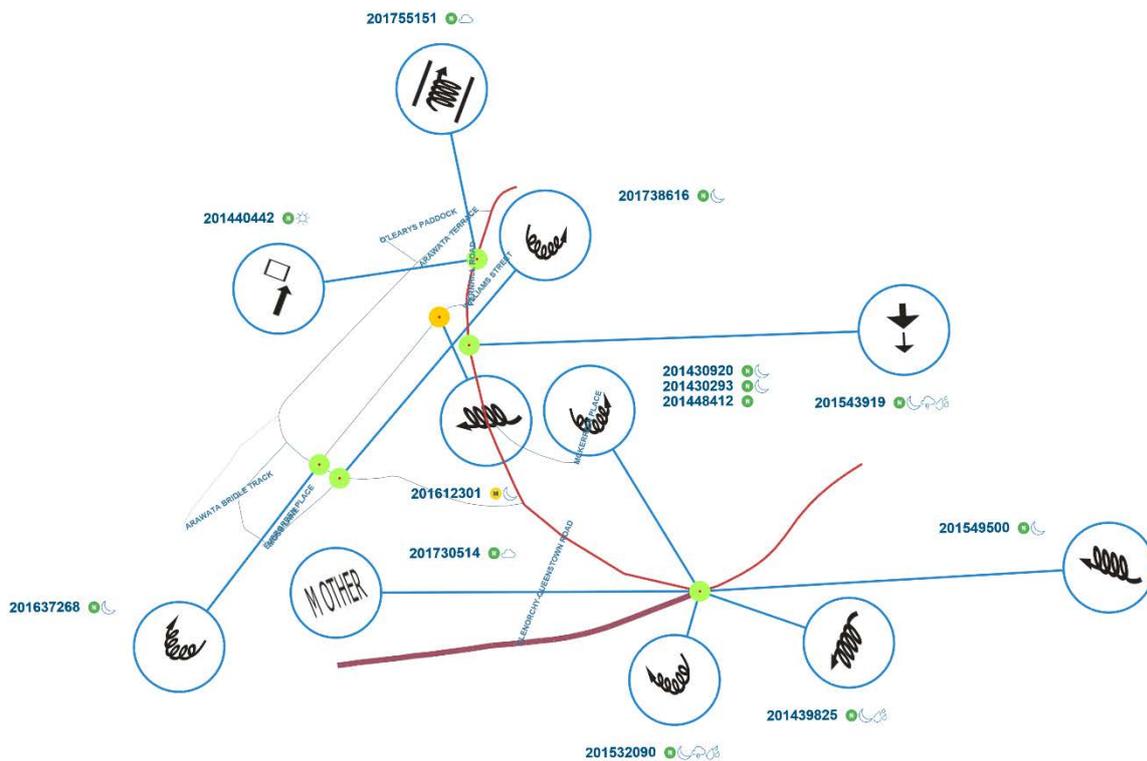


Figure 3-1: Reported Crash Locations 2014-19 (See Appendix 1 for key)

The loss of control crashes have a wide variety of contributing factors including loose surfaces, animals, excessive speed and excessive alcohol. The crashes occurred at different times of the day and different days of the week. This does not raise any particular concerns with the road network.

4 Proposed Development

SBL propose that a range of housing types are constructed within the site included detached housing, low density and high-density terrace housing plus short-term visitor accommodation. New roads will be constructed through the site to connect to a new road along the Arawata Track legal road alignment.

The preliminary development plans suggest that the site would enable 100-200 new residential dwellings to be constructed. The dwellings would comprise a mix of detached houses, terraced units and integrated units.

The new roads for the subdivision will be constructed largely in accordance with the QLDC Engineering Code of Practice (COP) road design standard for an E12 type road. Proposed differences from the design standard include:

1. 6m wide carriageway to provide more space for emergency vehicles to pass any parked vehicles;
2. 1.5m wide footpath on one side of the road only because of topographic constraints;
3. Centre-line gradient marginally exceeds 12.5% in two locations over a distance of about 10m; and,
4. Reduced road reserve width.

The COP includes a requirement for residential subdivisions to provide a minimum on-street parking supply of one space per dwelling based on permitted density. The steep topography of the site and consequential winding nature of the new roads will constrain the number of opportunities to provide on-street parking and it is unlikely that the number of on-street parking spaces that could be provided will achieve the supply rate of one space per dwelling set out in the COP. This aspect of the road design is under review and will be refined

through the detailed design to ensure that the supply rate is as high as practical in accordance with the COP requirement.

The design of the new road leading to the residential development will allow the access to the one existing property located off Arawata Track to be maintained.

Appendix A to this report includes drawings that show the proposed new intersection on Arawata Terrace. It shows that a new intersection can be formed that provides sufficient space for a NZS2890.2 medium-sized, rigid vehicle to negotiate the intersection. This size of design vehicle has been adopted because it is representative of a typical waste collection vehicle and of a fire truck.

5 Expected Traffic Generation

The QLDC Engineering Code of Practice requires that new residential developments are assessed using a traffic generation rate of 8vpd per unit. Since the current development concept will provide 100-200 new dwellings, full development of the site could generate up to 1,600vpd on Arawata Track.

During the morning and evening peak hours, residential activity will typically exhibit an average traffic generation rate of 1vph per dwelling and on this basis, the site could generate about 160vph during the peak periods. During the morning peak, the dominant movement is expected to be outbound and account for about 85 percent of all movements. The directional flows are expected to be more balanced in the evening with about 65 percent being inbound and 35 percent being outbound.

6 Expected Traffic Effects

Since the most direct route from the site to Queenstown is via the southern sections of Arawata Terrace and Fernhill Road respectively, it is likely that the majority of vehicle movements from the site will use these roads. This means that during the morning peak period, there could be up to 135vph turning right onto Arawata Terrace and an additional 135vph turning right from Arawata Terrace into Fernhill Road.

With the low volume of existing vehicle movements on Arawata Terrace, it is expected that the right turn movement from Arawata Track into Arawata Terrace could be undertaken with negligible delays and would not be expected to generate any queues.

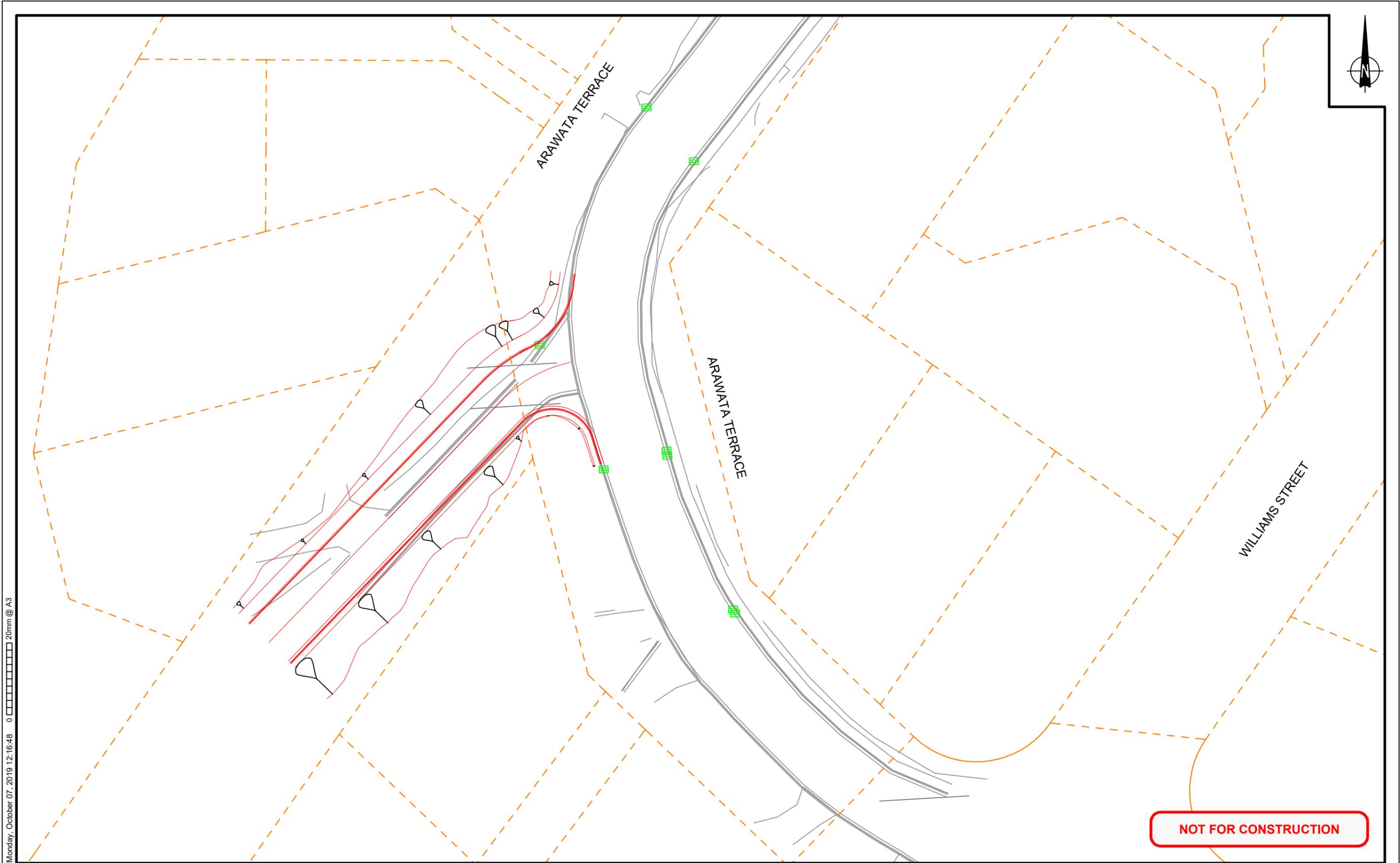
Although the development will increase the right turn volumes in the morning peak at the Arawata Terrace / Fernhill Road intersection and also the left turn volumes at the Fernhill Road / Glenorchy-Queenstown Road intersections, the existing traffic volumes are low and it is expected that the intersections will continue to operate with Level of Service B or better.

7 Conclusions

SBL propose to establish a new residential subdivision on 6.5ha of land at the southern end of Fernhill with vehicle access provided along the alignment of an existing legal road, Arawata Track. The new roads for the subdivision can be largely formed in accordance with the QLDC COP design standards.

A concept design for the new intersection linking Arawata Track to Arawata Terrace has been developed and provides sufficient space to accommodate the tracking of a medium sized rigid truck.

Although the new development will increase the volume of movements on Arawata Terrace and Fernhill Road, these roads currently carry low volumes of traffic and have sufficient capacity to accommodate the additional movements with no noticeable effects on intersection performance.



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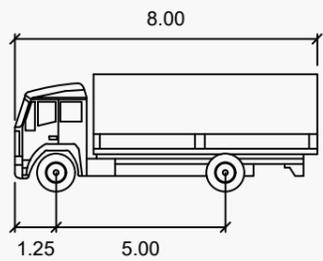
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SUNSHINE BAY LIMITED
ARAWATA TERRACE
SITE PLAN

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 STATUS:
 DWG NO: 310203375_C2A



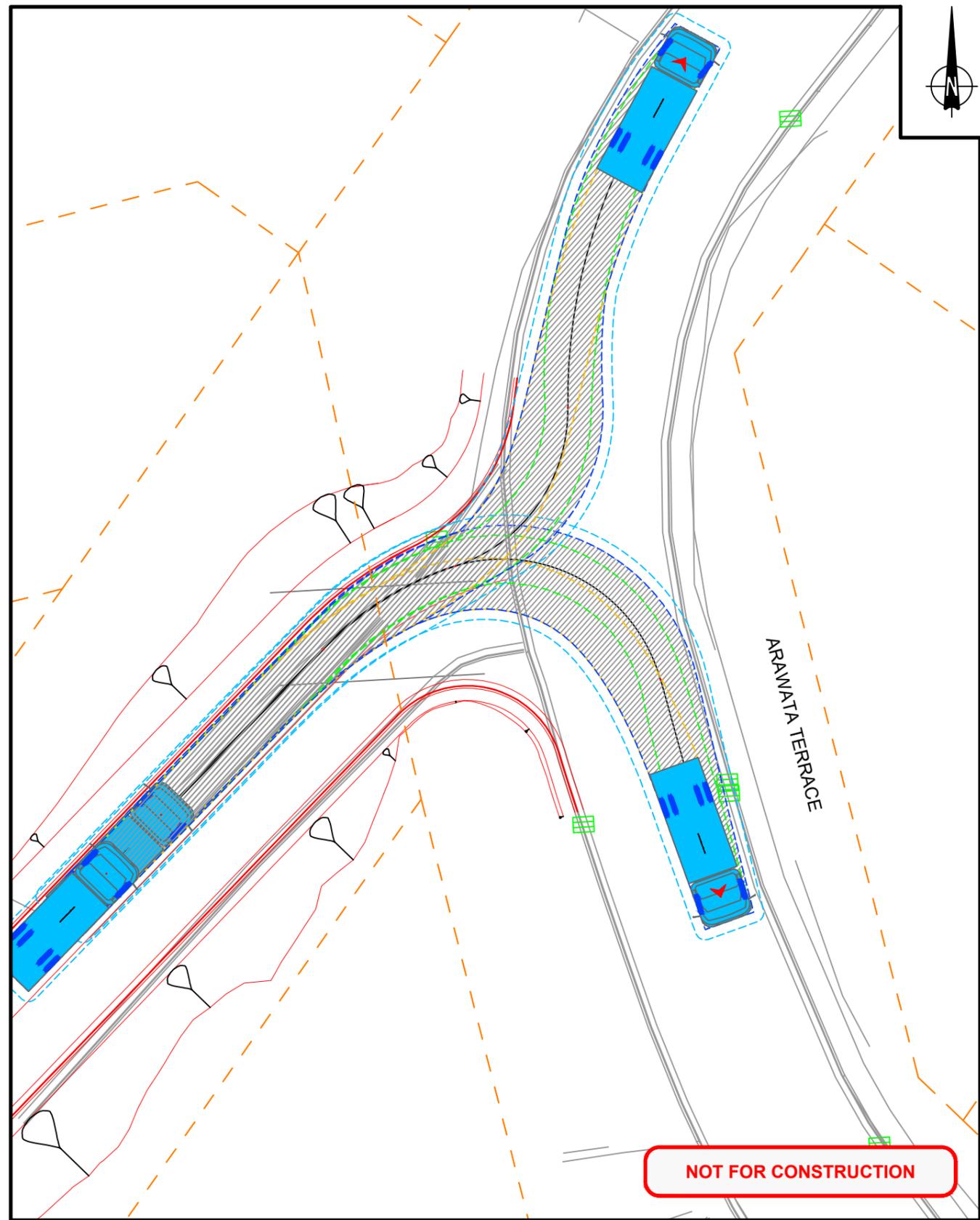
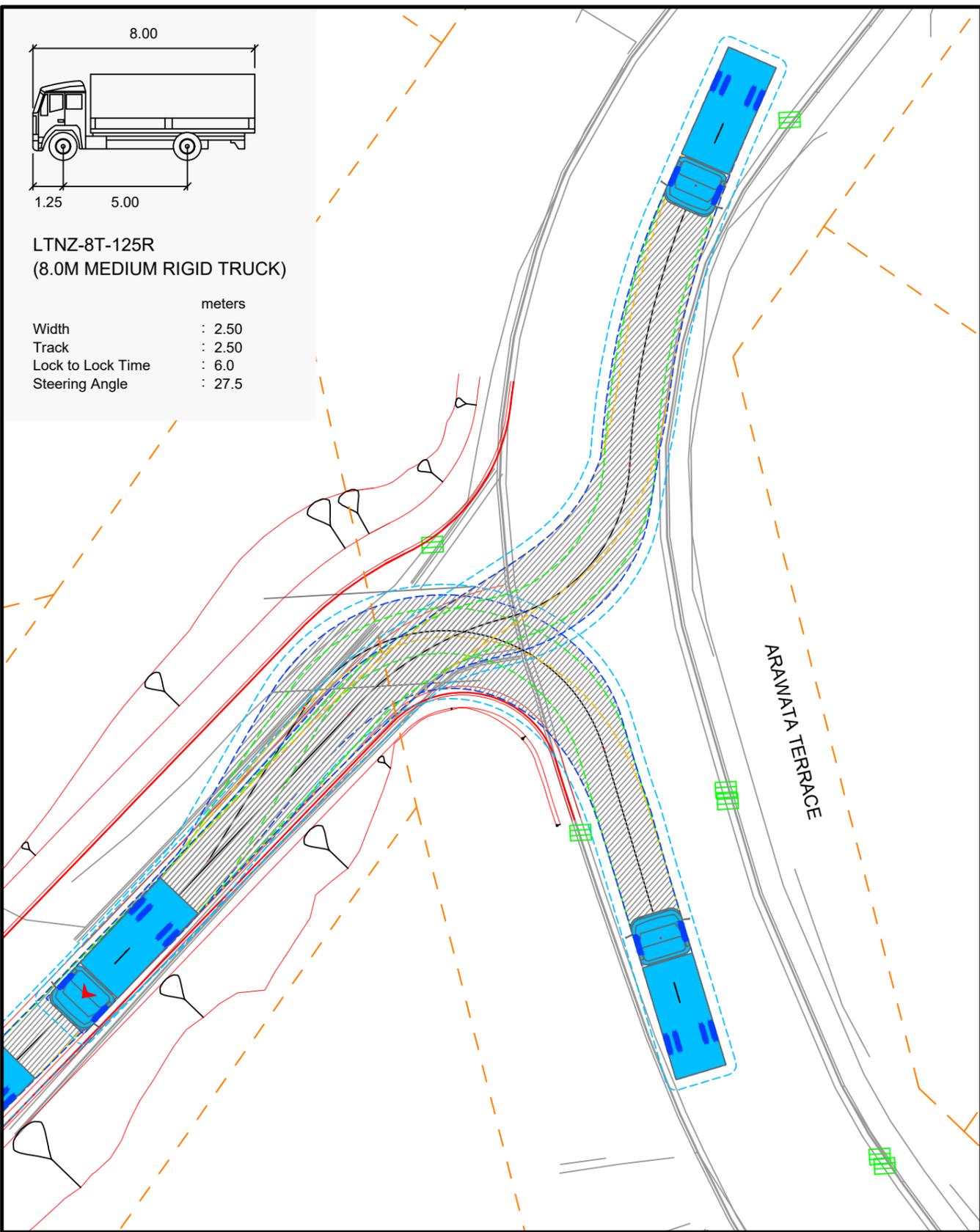
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 SHT 1 OF 2



LTNZ-8T-125R
(8.0M MEDIUM RIGID TRUCK)

	units
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Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 27.5

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NOT FOR CONSTRUCTION

REV	DATE	DRN	DESCRIPTION	CHK	APPR
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SUNSHINE BAY LIMITED
ARAWATA TERRACE
VEHICLE TRACKING

DRN: AKJ | DATE: 07/10/2019 | REV: 0
SCALE: 1:250 @ A3
STATUS:
DWG NO: 310203375_C2A



2

SHT 2 OF 2



ARAWATA TERRACE ALIGNMENT
 Length 520m
 Approx Volumes STRIP 2210m³
 CUT 2050m³
 FILL 2790m³
 Max Depths CUT 4.9m
 FILL 3.5m
 Earthworks Area 7210m²

ALIGNMENT #2
 Length 110m
 Approx Volumes STRIP 360m³
 CUT 820m³
 FILL 450m³
 Max Depths CUT 4.5m
 FILL 2.8m
 Earthworks Area 1210m²

ALIGNMENT #1
 Length 550m
 Approx Volumes STRIP 2280m³
 CUT 3365m³
 FILL 4840m³
 Max Depths CUT 4.8m
 FILL 5.9m
 Earthworks Area 7725m²

REV	DATE	DESCRIPTION	APPROVED
B	18.09.19	ALIGNMENTS REVISED	JFM
A	27.08.19	DRAFT	JFM

CONSULTANT



CIVILISED LTD
 PO BOX 1461
 QUEENSTOWN 9348
 T: 027 223 3036
 E: john@mccartneys.nz

JFM	27.08.19
DESIGN	DATE
JDR	27.08.19
DRAWN	DATE
JFM	27.08.19
CHECKED	DATE

CLIENT

SUNSHINE BAY Ltd

191

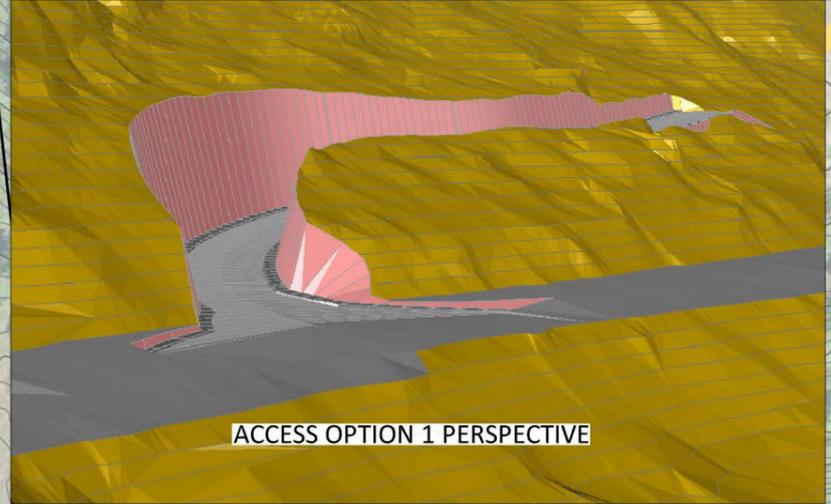
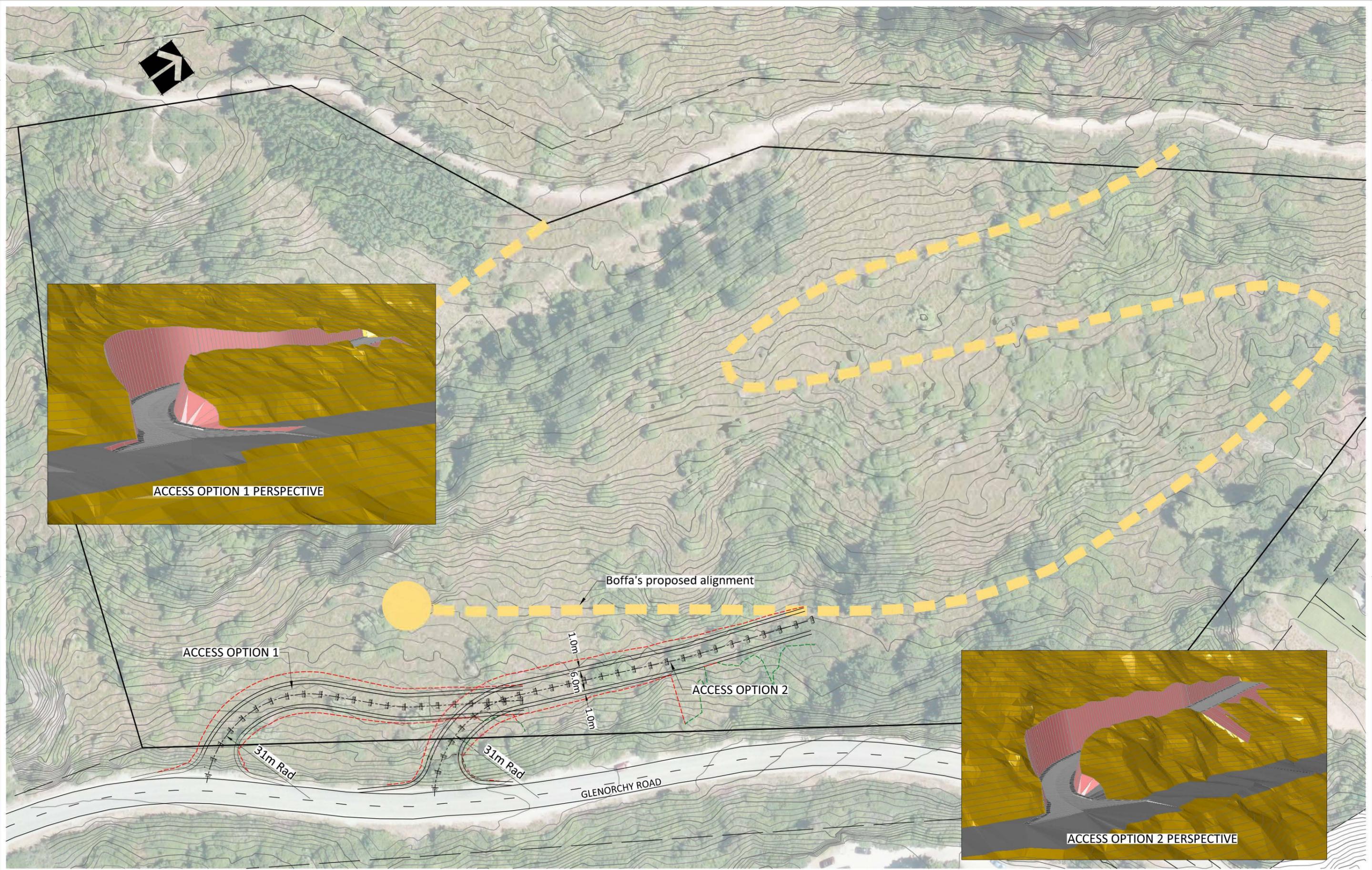
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 GLENORCHY RD / ARAWATA TCE - QUEENSTOWN

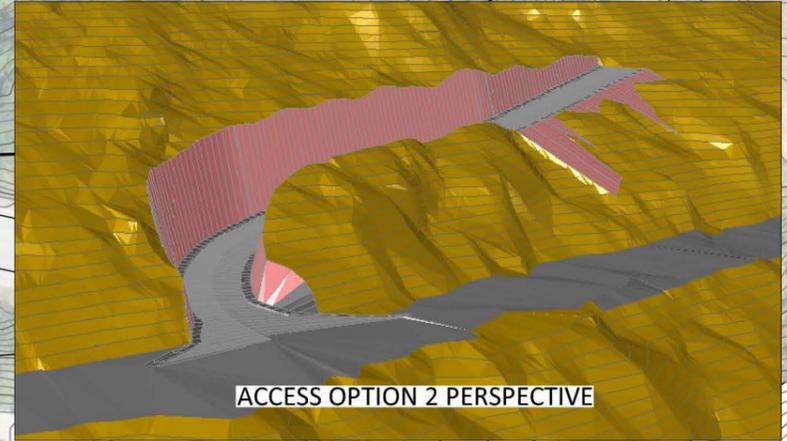
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SCALE (AT A3)	1:1500
DRAWING NUMBER	QV029-F-1200
REVISION	B



ACCESS OPTION 1 PERSPECTIVE



ACCESS OPTION 2 PERSPECTIVE

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CONSULTANT



CIVILISED LTD
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JFM	18.07.19
DESIGN	DATE
JDR	18.07.19
DRAWN	DATE
JFM	18.07.19
CHECKED	DATE

CLIENT

SUNSHINE BAY Ltd

192

PROJECT LOCATION

PROPOSED SUBDIVISION
GLENORCHY RD / ARAWATA TCE - QUEENSTOWN

TITLE

PROPOSED ACCESS FEASIBILITY - GLENORCHY ROAD
OVERALL PLAN

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REVISION	A



REV	DATE	DESCRIPTION	APPROVED
A	18.07.19	Initial Issue	JFM

CONSULTANT



CIVILISED LTD
PO BOX 1461
QUEENSTOWN 9348
T: 027 223 3036
E: john@mccartneys.nz

JFM	18.07.19
DESIGN	DATE
JDR	18.07.19
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JFM	18.07.19
CHECKED	DATE

CLIENT

SUNSHINE BAY Ltd

193

PROJECT/LOCATION

PROPOSED SUBDIVISION
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TITLE

PROPOSED ACCESS FEASIBILITY - GLENORCHY ROAD
SWEPT PATHS

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REVISION	A



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NOT FOR CONSTRUCTION

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SUNSHINE BAY LIMITED
 ARAWATA TERRACE
 SIGHT LINE DIAGRAM

DRN: AKJ | DATE: 27/06/2019 | REV: 0
 SCALE: 1:1000 @ A3
 STATUS:
 DWG NO: 310203375_C1A



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SHT 1 OF 1



Thursday, June 27, 2019 13:54:55 0 20mm @ A3

AERIAL PHOTO SOURCED FROM: LINZ

NOT FOR CONSTRUCTION

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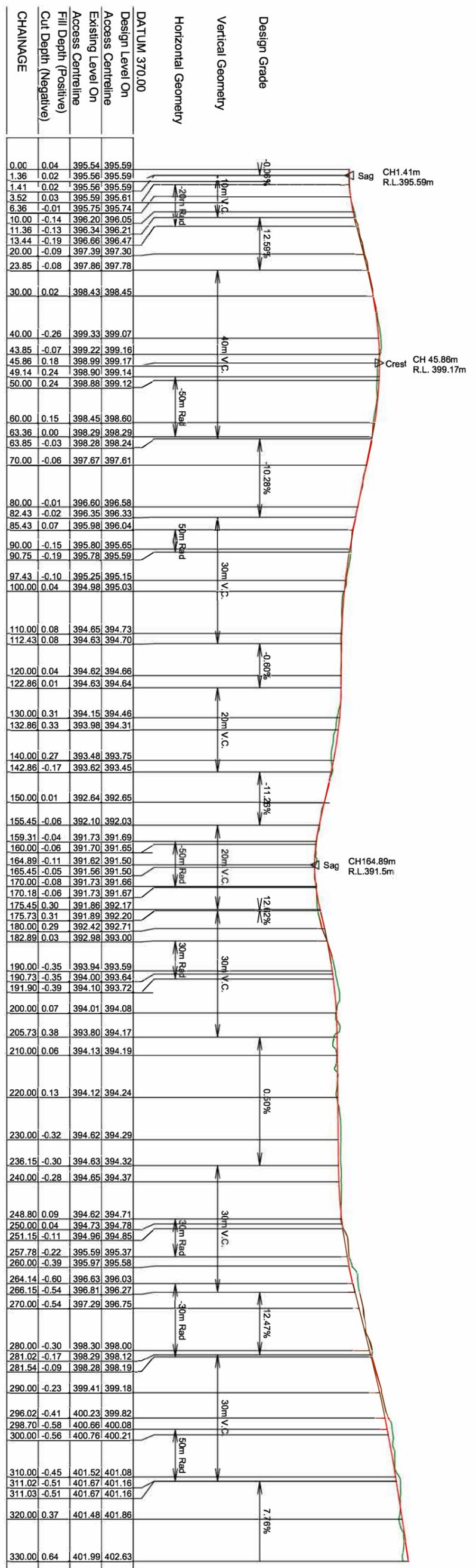
SUNSHINE BAY LIMITED
 ARAWATA TERRACE
 SIGHT LINE DIAGRAM

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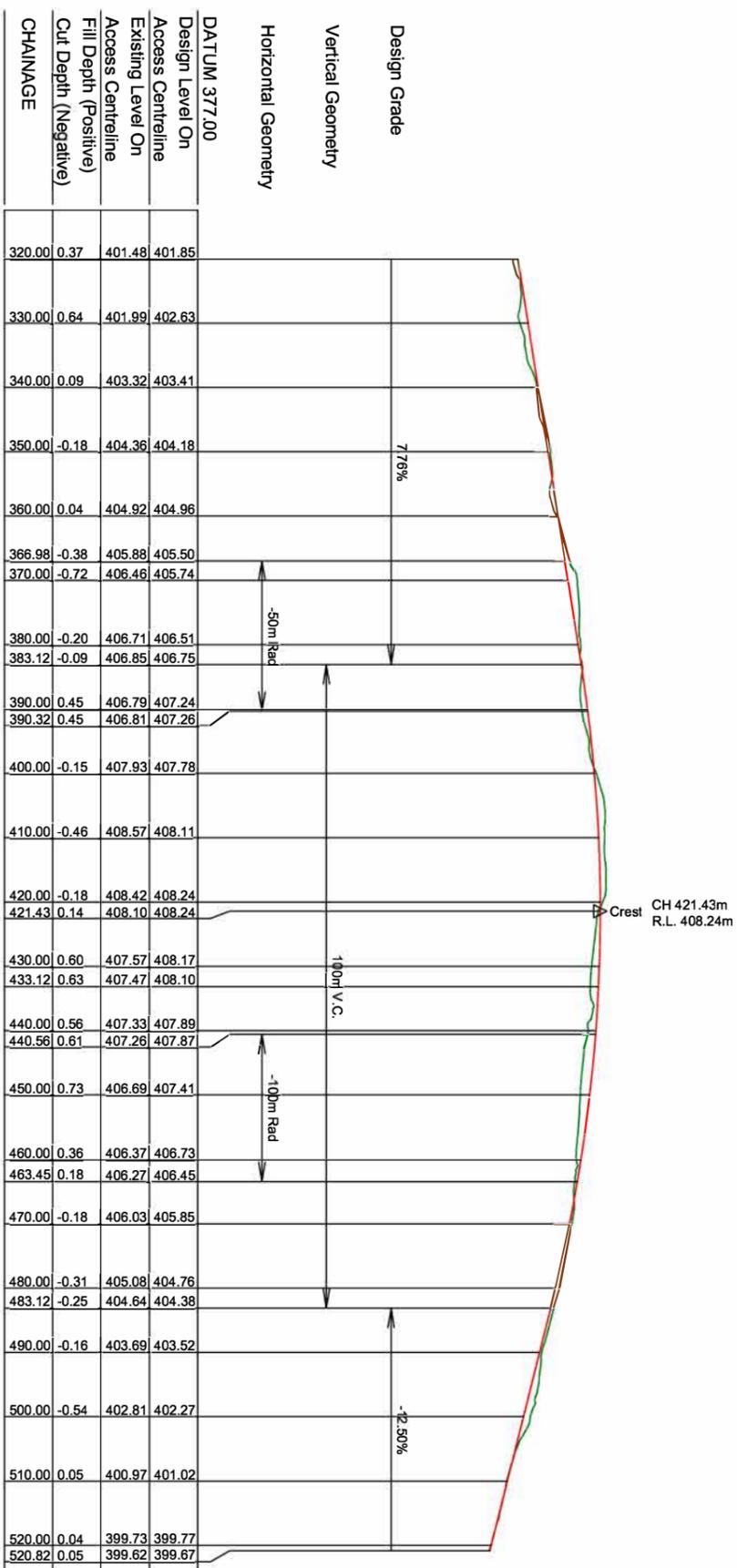


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SHT 1 OF 1

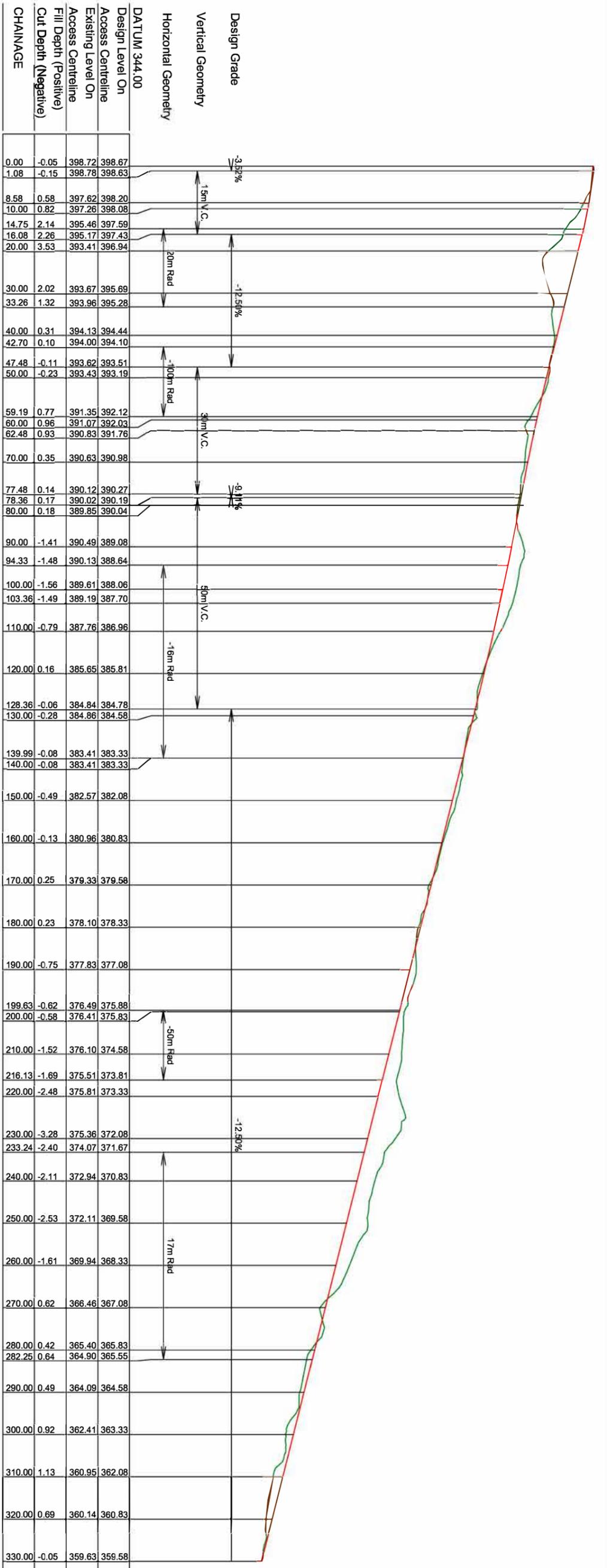


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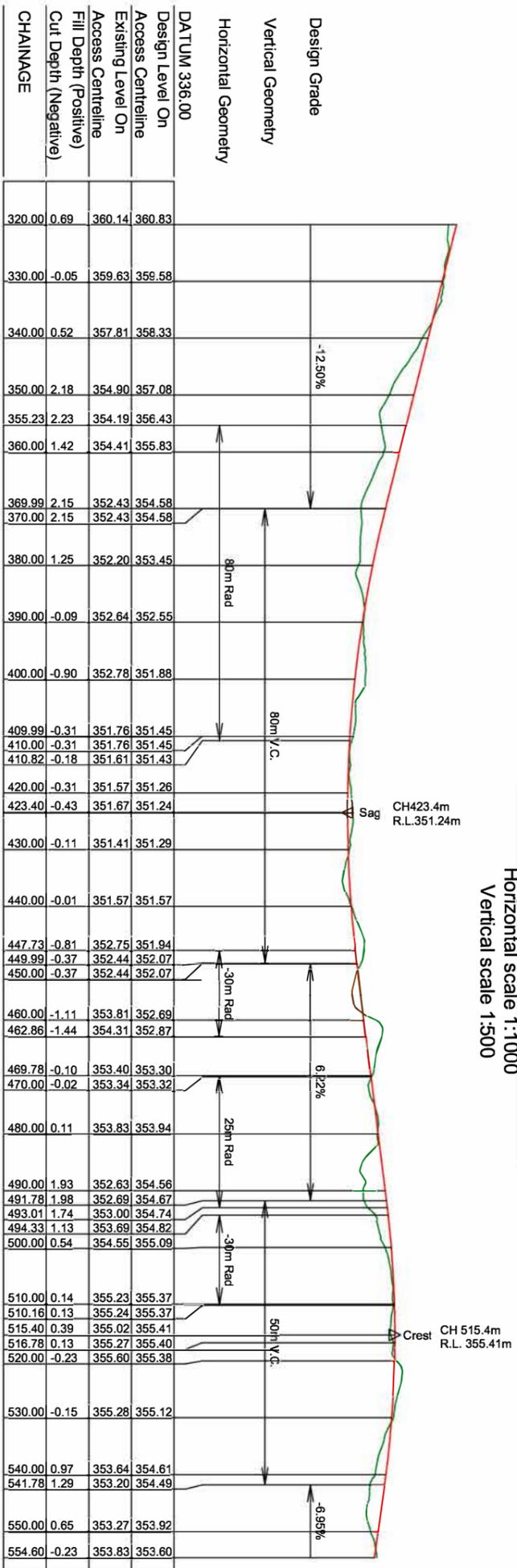


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4	27.08.19		DRAFT	JFM
CONSULTANT				
 CIVILISED LTD PO BOX 1461 QUEENSTOWN 9348 T: 027 223 3096 E: john@civilised.co.nz				
CLIENT		SUNSHINE BAY LTD		
PROJECT/LOCATION		PROPOSED SUBDIVISION GLENORCHY RD / ARAWATA TCE - QUEENSTOWN PROPOSED ACCESS FEASIBILITY - ARAWATA TCE ARAWATA TRACK LONGITUDINAL SECTION		
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DRAWING NUMBER		QV029-F-1210		
REVISION		B		



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LONGITUDINAL SECTION ALIGNMENT 1 cont'd
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CONSULTANT	CIVILISED LTD PO BOX 1461 QUEENSTOWN 9348 T: 027 223 3098 E: john@mcarrthy.co.nz
CLIENT	SUNSHINE BAY LTD
PROJECT LOCATION	PROPOSED SUBDIVISION GLENORCHY RD / ARAWATA TCE - QUEENSTOWN
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REVISION	B

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Datum 393

DESIGN HEIGHT	394.60	395.53	395.54	395.56	395.59	395.59	396.35
EXISTING SURFACE	394.60	394.87	394.95	395.06	395.13	395.54	396.35
DESIGN OFFSET	-6.45	-4.60	-4.00	-3.15	-2.65	-0.00	5.79

CHAINAGE 0.000

Centreline Data
 X = 417618.58
 Y = 809723.78
 Z = 395.03

Datum 392

DESIGN HEIGHT	394.08	394.97	394.98	394.99	395.02	395.02	396.82
EXISTING SURFACE	394.08	394.16	394.35	394.61	394.76	394.98	396.82
DESIGN OFFSET	-4.82	-4.60	-4.00	-3.15	-2.65	-0.00	5.10

CHAINAGE 100.000

Centreline Data
 X = 417630.2
 Y = 809740.03
 Z = 396.58

Datum 392

DESIGN HEIGHT	393.98	395.52	396.54	396.55	396.58	396.58	400.04
EXISTING SURFACE	393.98	395.79	396.08	396.32	396.43	396.60	400.04
DESIGN OFFSET	-9.69	-4.60	-4.00	-3.15	-2.65	-0.00	9.84

CHAINAGE 80.000

Centreline Data
 X = 417640.88
 Y = 809756.94
 Z = 398.6

Datum 394

DESIGN HEIGHT	395.68	398.54	398.55	398.57	398.60	398.60	399.27
EXISTING SURFACE	395.68	398.36	398.45	398.45	398.45	398.45	398.76
DESIGN OFFSET	-10.32	-4.60	-4.00	-3.15	-2.65	0.00	5.66

CHAINAGE 60.000

Centreline Data
 X = 417581.62
 Y = 809676.52
 Z = 391.65

Datum 389

DESIGN HEIGHT	389.91	391.59	391.60	391.61	391.65	391.65	395.22
EXISTING SURFACE	389.91	390.03	390.20	390.58	391.61	391.65	395.22
DESIGN OFFSET	-5.02	-4.60	-4.00	-3.15	-2.65	0.00	5.54

CHAINAGE 160.000

Centreline Data
 X = 417593.93
 Y = 809692.27
 Z = 393.75

Datum 389

DESIGN HEIGHT	390.74	393.69	393.70	393.72	393.75	393.75	396.02
EXISTING SURFACE	390.74	391.21	391.59	392.04	393.72	393.75	396.02
DESIGN OFFSET	-5.34	-4.60	-4.00	-3.15	-2.65	-0.00	5.22

CHAINAGE 140.000

Centreline Data
 X = 417606.26
 Y = 809708.03
 Z = 394.66

Datum 391

DESIGN HEIGHT	392.51	394.60	394.61	394.62	394.66	394.66	397.03
EXISTING SURFACE	392.51	392.72	392.97	393.45	394.62	394.66	397.03
DESIGN OFFSET	-5.12	-4.60	-4.00	-3.15	-2.65	0.00	5.24

CHAINAGE 120.000

REV	DATE	DESCRIPTION	APPROVED
B	18.09.19	ALIGNMENTS REVISED	JFM
A	27.08.19	DRAFT	JFM

CONSULTANT



CIVILISED LTD
 PO BOX 1461
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 T: 027 223 3036
 E: john@mccartneys.nz

JFM	27.08.19	CLIENT
DESIGN	DATE	SUNSHINE BAY Ltd
JDR	27.08.19	
DRAWN	DATE	
JFM	27.08.19	199
CHECKED	DATE	

PROJECT LOCATION	PROPOSED SUBDIVISION GLENORCHY RD / ARAWATA TCE - QUEENSTOWN
TITLE	PROPOSD ACCESS FEASIBILITY - ARAWATA TCE ARAWATA TRACK CROSS SECTIONS Sheet 1

CONTRACT NUMBER	
SCALE (AT A3)	1:200
DRAWING NUMBER	QV029-F-1220
REVISION	B