Assessment of effects

This assessment is addressed under the following headings and in no particular order:

- Infrastructure
- Urban design / Landscape
- Cultural and Heritage
- Geotechnical and Hazards
- Transport

Infrastructure

Stormwater

As part of the subdivision consenting process (RM 210908), AWA previously reported on the sites feasibility to treat and discharge stormwater from the development in accordance with best practice and QLDC's Engineering Code of Practice. We have attached AWA's reporting as Appendix B.

Essentially, AWA indicated that any stormwater is to be conveyed through conventional stormwater networks (i.e. pipes, open swales etc.) to appropriately sized stormwater basins predominantly located within the existing Silver Creek waterway. From the basins, the stormwater is to be discharged into the Silver Creek waterway at controlled rates similar to pre-development flows to ensure there are no detrimental downstream effects. Ultimately, the treated stormwater discharges to Lake Wakatipu.

We believe the stormwater management strategy proposed by AWA is feasible subject to further investigation and detailed design.

Wastewater

Hydraulic Analysis Ltd (HAL) were engaged by the developers to report on wastewater solutions for the development as part of the subdivision consent process (RM 210908).

HAL have indicated in their reports that the existing Frankton Tack gravity sewer in which the proposed Silver Creek development ultimately discharges into has capacity constraints. We are aware QLDC have near term intentions (circa next 2 years) to install a secondary rising main (proposed Frankton Track Rising main) along Frankton Road / SH6a to reduce the load on the existing Frankton Tack gravity sewer and increase its capacity. HAL has recommended QLDC to investigate options to reduce peak flows and mitigate the risk of overflows from the existing Frankton Track gravity sewer as part of the design of the proposed Frankton Track Rising Main to ensure spare capacity is available in the existing Frankton Track gravity sewer for future development. HAL have also indicated in their report that there'll be sufficient capacity in the Council's wastewater system for the full development once the downstream constraints are resolved (proposed Frankton Tracking Rising Main is constructed and their

pump stations are operating simultaneously), as envisaged in QLDC Wastewater Master Plan (2020).

QLDC has indicated that a short-term solution (until such time the Frankton Track rising main has been installed) is to allow up to 150 new lots from the Silver Creek development to discharge wastewater to their existing network via an attenuation tank and a restricted flow outlet. Beyond the 150 lots, Silver Creek in conjunction with QLDC will need to investigate options to reduce peak flows so that discharge of wastewater into the existing Frankton Track gravity sewer is possible should there be a delay of the installation of the proposed Frankton Track Rising Main. We envisage any interim wastewater attenuation system(s) can be decommissioned once QLDC is satisfied that their wastewater system upgrade is complete and can accommodate the unattenuated flows from the development.

We believe that the Silver Creek Development can be serviced with wastewater in the long-term provided that QLDC undertake the recommendations by HAL to investigate and optimise their wastewater network as part of the design of the proposed Frankton Track Rising Main. We believe the interim wastewater attenuation system proposed by HAL to provide a short-term solution to service up to 150 lots is feasible subject to further investigation and detailed design. In the event that the QLDC wastewater network upgrade is not complete by the time that more than 150 lots are required to be developed, we believe there are interim options for the development to discharge wastewater into the existing network which will need to be further investigated.

Potable Water

Watershed Engineering Ltd (WSE) were engaged by the developers as part of the subdivision consent process (RM 210908) to complete potable water modelling for the Silver Creek development. The modelling was required to illustrate how any existing QLDC water infrastructure could service the development, and what new infrastructure (if any) would be required to meet the expected demands of the 580 potential lots.

WSE have indicated in their report that Silver Creek Development can be serviced with potable water by limiting the flow of water from the existing Middleton Road watermain to 150 lots and by changing the valve arrangement on the existing Frankton Road watermain to service the full Silver Creek Development (beyond 150 lots) under a low flow demand scheme (250 L/s/day). As indicated in the WSE report, new reservoir(s) and pump station(s) are required to supply adequate pressures to Silver Creek Development. It should be noted that the change of valves to enable the Silver Creek Development has already been undertaken and detailed design of the water supply scheme is underway.

We believe the water supply scheme proposed by WSE is feasible subject to further investigation and detailed design.

Power Supply

As part of the subdivision consent process, PowerNet on behalf of Lakeland Network confirmed the existing network has adequate capacity to service the proposed Silver Creek development.

Telecommunications Supply

The developers confirmed with Chorus as part of the subdivision consent process that development could be serviced with fibre, and detailed design of the development is well underway.

Urban Design / Landscape

Nearby Amenities / Features

The subdivision is in a strategic location mid-way between Frankton and Queenstown accessed via. Frankton Road, a growing arterial route between the two town centres. The Queenstown Region contains a vast array of outdoor recreation pursuits, retail and commercial activities and living opportunities. A continued issue facing the region is a housing shortage for low to medium income workers and families.

Frankton Town Centre located 1.5km to the east contains a growing range of retail and recreation amenities, with Queenstown Airport within a short drive from site. Queenstown Town Centre is 3km to the west with established retail and commercial activities, access to numerous tourism and recreation activities. Remarkables and Coronet Peak ski fields are within 30 minutes' drive or accessed via public transport options from Frankton and Queenstown.

The Frankton walking / biking trial runs alongside the Lake frontage proving off-road access to the wider Basin including direct access to Queenstown, Arrowtown and Gibbston.

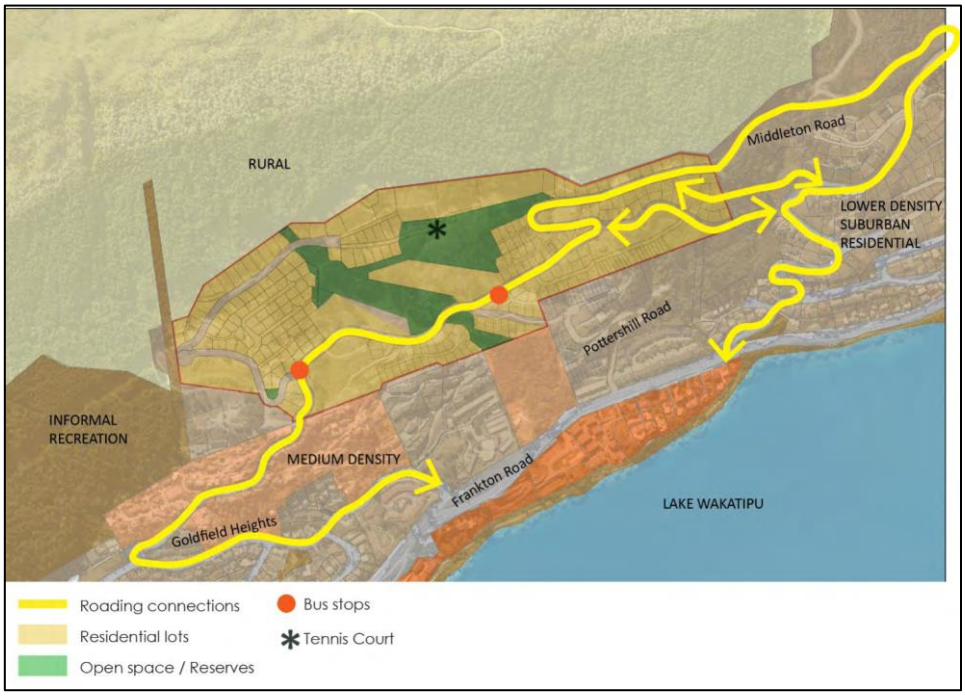
The Site

The property has been largely cleared of wilding forestry pines and is subject to on-going bulk earthworks to form the main spine roads and first stage bulk lots. The south-east facing topography is steeply sloping and undulating with elevated views of the Remarkables, Cecil Peak, Lake Wakatipu and Kelvin Heights.

Running centrally to site is a deeply incised gully containing Silver Creek around which will form the central open space reserve to the neighbourhood. A series of smaller minor drainage gullies run through site with some steeper areas of schist rock outcrops on exposed slopes.

The Proposal

The proposal comprises approximately 250 residential lots, and between 400 – 800 apartment units / terrace house lots, a Lodge and open space facilities including a tennis court and trail network.



The low-density residential lots will range between 300 – 1,000m2 in size, with a small number of larger lots between 1,000 – 5,000m2 located within the higher slopes. The majority of houses will be constructed on moderate to steeply sloping sites and it is anticipated the dwellings will be terraced into the slopes either built out and up or downslope from the lot access.

The following is examples of the anticipated housing typologies:

Detached Housing:

The majority of site will be detached lots and housing ranging from 300 – 1,000m2 in size. These lots will be subject to standard residential setbacks with more spacious gardens around the buildings. It is anticipated many properties will be steeply terraced with smaller lawns and planted slopes.

On-street parking will be kept to a minimum. A covenant will be included to all detached housing properties requiring on-site parking to be provided with each lot. Where garages face the road, a minimum setback of 5m will be required for driveway parking. Where garages are perpendicular to the street frontage, the garage can be within the 2m setback. This will ensure garaging does not dominate the street frontage, and to provide for guest parking within the private lots.

Terrace Housing:

Located at the south-western end of site is proposed a worker accommodation village which will include terrace house type units and on-site laneway parking. This will provide a range of affordable housing for smaller families and seasonal workers.

Apartments:

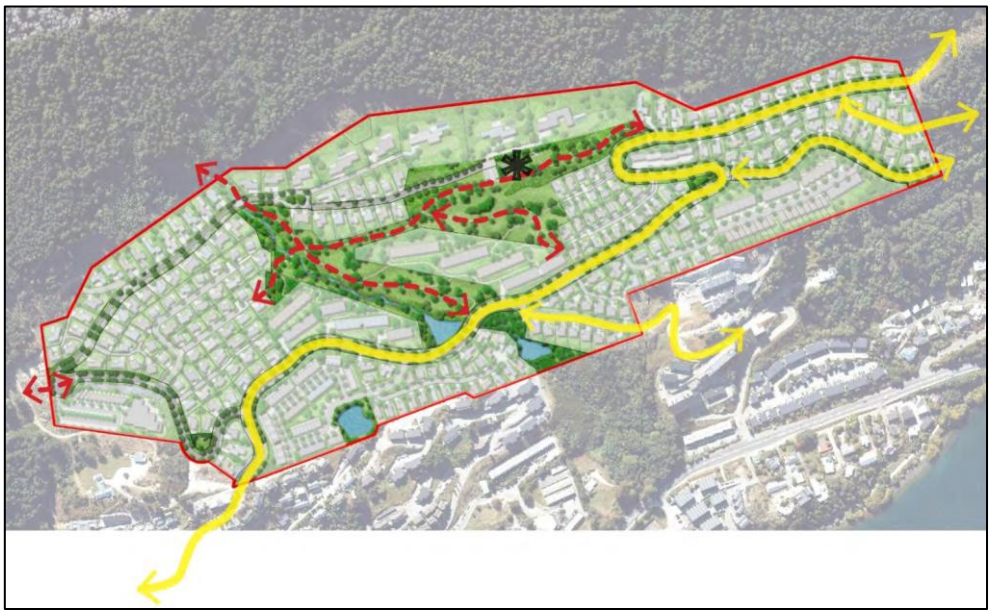
In two locations surrounding the central Silver Creek Reserve and towards the south-eastern end of site will be 300 – 600 unit / apartments of 150 – 300m2 lot size. The buildings will range in height from 2-4 stories with a combination of shared underground parking or lane access for terrace type housing. The apartments surrounding the Silver Creek Reserve will contain shared private open space surrounding the buildings with pathways directly access the adjoining public open space reserves and wider trail network.

Lodge:

A Lodge building is located towards the western end of site which will include a restaurant and other commercial activities. A series of terrace house units will be associated with the Lodge for Visitor accommodation use.

Roading and Trail Network:

Connections with the wider road network will be formed with a primary east-west roading corridor running through site, connecting at the western end to Goldfield Heights, and the eastern end via a new roading connection to Middleton Road. This primary road will comprise a wide carriageway and footpaths and will cater for buses with two bus stops centrally to site providing a public transport link to Frankton Road (subject to QLDC altering or adopting a bus route through the Queenstown Hill area).



Secondary road connections will be formed to the south and east of site via Potters Hill Road connection, and two road connections that will eventually link up to Middleton Road.

The design profile of roading will be based largely around efficiencies on the steeply sloping ground. Where space permits, a verge will be provided with tree planting alongside the road. In steeper locations, footpaths will be adjacent to the carriageway to minimise earthworks and cut to fill slopes either side of the road.

Smaller lanes will be designed as shared space driveways where accessing smaller number of houses or cul de sacs.

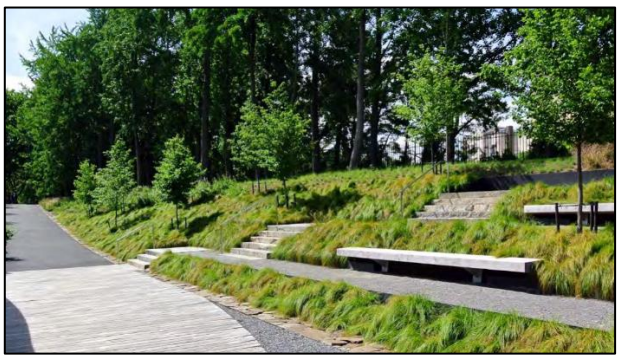
A network of trails will be formed through the central Silver Creek reserve, connecting the main spine road with apartments and to the western neighbourhood. A potential western connection may be formed in the future to the

Open Space Reserve to the west of site through negotiations with Parks Department.

Where possible trails will connect to cul de sac ends to provide a public link through to open space reserves.

Public Open Space:

A reserve network located centrally to the development will be located around Silver Creek and land to the east, including native gully planting, amenity planting, trails and seating areas. The eastern reserve will contain a public tennis court on a flat terrace and a small flat area for passive recreation. The open space will be well connected with the wider residential areas via a series of tracks linking with road ends and the main spine road. The design of these trails will depend on the final grade / slope to enable safe and accessible access throughout.



Potential designs will see seating areas terraced into the slope integrated into tree / native planting to make the most of the sloping topography and scenic views.

A smaller pocket park will be formed on the lower western end of site providing a small seating area and play area with views to the south-east. A smaller reserve will be formed central to the work accommodation village, potentially around a stormwater reserve pond at the lower end of site.

Street Design and Landscape Treatment:

The streets will be designed as green and spacious roading corridors. Design will largely be dictated by engineering constraints on the steeply sloping ground. Design considerations will include:

- A consistent spacing of street trees to maintain a ‘boulevard’ effect;
- Grass verges as required by council;

- On the primary road connections, footpaths will be continuous and where possible surfacing will continue across the roading material (for example as a paved or concrete strip threshold) to maintain a pedestrian focus;
- Speed reduction interventions will be included in strategic locations to increase pedestrian safety;
- Smaller laneway streets will be designed as shared space streets;
- On-street parking will be kept to a minimum due to spatial demands of the steep slopes. Guest parking will be largely provided within private lots by way of covenant.

Urban Design Assessment

The Seven Cs' of the NZ UD Protocol

The following provides commentary against the 'Seven C's' of the New Zealand Urban Design Protocol (MfE 2005):

Context: Seeing buildings, places and spaces as part of whole towns and cities.

- The proposal is designed as a well-connected extension to the low-density residential street network of the surrounding suburbs. The lot density is consistent with surrounding neighbourhoods which have a similar zoning. The new neighbourhood once established, with integrated transport connections will form a seamless extension to the surrounding residential areas.
- Building typologies will provide for a range of housing consistent with the surrounding Goldfield Heights area.
- Proposed pedestrian connections will ensure that the new neighbourhood is linked with the established surrounding neighbourhood to encourage walking / cycling along direct routes.

Character: Reflecting and enhancing distinctive character, heritage and identity of urban environments

- Goldfield Heights has a suburban resort town character, with detached and terraces homes built onto the steep south facing slopes of Queenstown Hill. Housing is designed around promoting scenic views of the Remarkables, Cecil Peak and Lake Wakatipu.
- The proposal will promote a continuation of this established character.

Choice: Ensuring diversity and choice for people

- The masterplan provides a range of lot sizes between 150 – 1,500m2. The lots are arranged with a variety of orientation, street frontage and aspect depending on topography and location within the neighbourhood.
- The following building typologies will be promoted by lot design:

    - 3-4 storey apartments (Unit titles);
    - Terrace housing (Unit titles including small area of land);
    - Smaller lot detached housing (350 – 450m2 lots);
    - Medium lot detached housing (450 – 1,000m2 lots);
    - Large lot premium residential sites (1,000-1,500m2 lots).
- A range of transport options will be available for residents, including car, bus and walking / cycling. In addition, once a future trail link is established through to Queenstown via. The Informal Recreation reserve to the west, a range of walking options will be available for residents to access Queenstown.

Connections: Enhancing how different networks link together for people

- The street network is designed with continuous streets that link to the wider road network. Due to topography constraints, some streets will require to be cul de sacs running along the contours. Where possible these road ends will contain pedestrian links to the surrounding reserve.
- A future bike and walking track is proposed to the western end of the neighbourhood, linking with the informal recreation reserve to the west. Council is planning this track to potentially link with Queenstown along the contour providing an off-road transport option to the commercial centre.

Creativity: Encouraging innovative and imaginative solutions.

- The masterplan includes a range of living environments to provide a diverse neighbourhood context and identity while closely aligning with the streets within the older suburbs of Goldfield Heights.
- Building designs will be required to encourage creative architectural solutions to build into the terraced slopes.

Custodianship: Ensuring design is environmentally sustainable, safe and healthy.

- The neighbourhood will be green, spacious and an attractive environment for its residents to walk, cycle and move around safely. The provision of footpaths and through links will encourage walking over vehicle use and the new neighbourhood will be close enough to Frankton and Queenstown to encourage walking / cycling.
- Built around a central open space reserve, higher density buildings will interface and make use of the surrounding private open space with the public reserve. In addition to passive surveillance, this provides benefits to people living in higher density environment, including:
    - Stress relief: Open spaces and greenery next to buildings can help people relax and connect with nature.

- Healthy lifestyle: Having extra space to move around outside can motivate people to exercise.
- Fresh air: Open spaces allow fresh air to circulate, purifying the air and surroundings.

Collaboration: Communicating and sharing knowledge across sectors, professions, and communities.

The masterplan has been led by Landscape Architect in collaboration with engineers and the project architect to achieve a common goal of creating a well-designed, attractive, sustainable and healthy neighbourhood.

National Policy Statement on Urban Development 2020 (NPS: UD)

Objective 1 – Well Functioning Urban Environment:

New Zealand has well-functioning urban environments that enable all people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety, now and into the future.

Policy 1:

Planning decisions contribute to well-functioning urban environments, which are urban environments that, as a minimum:

a. *have or enable a variety of homes that:*
    i. *meet the needs, in terms of type, price, and location, of different households; and*
    ii. *enable Māori to express their cultural traditions and norms; and*
b. *have or enable a variety of sites that are suitable for different business sectors in terms of location and site size; and*
c. *have good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport; and*
d. *support, and limit as much as possible adverse impacts on, the competitive operation of land and development markets; and*
e. *support reductions in greenhouse gas emissions; and*
f. *are resilient to the likely current and future effects of climate change.*

Silver Creek is considered to achieve Objective 1 and Policy 1 of the NPS: UD providing approximately 640 - 1040 dwellings / units on a variety of lot sizes. The intention is for the development to provide housing to a wide range of family types and social economic groups where they have access to jobs, schools, community services and open spaces. The development is well-connected internally and externally with the State Highway running along the base of the development. The development also ties into cycle tracks which then provides further connection to Frankton, Queenstown and the wider district.

The mix of housing typologies will enable a wide range of housing choice. The current design proposes 238 detached housing typologies with a variety of lot sizes, and between 400 – 800 apartment unit / terrace housing typologies including 1 – 200 terrace units, 1 – 200 apartment units and between 2 – 400 managed apartments. The position of the apartments and terraces have been strategically located throughout the masterplan where future residents will directly benefit from the amenity provided by the adjacent open space and landscaping.

Conclusion

The proposal is for a new neighbourhood as a logical extension to the low-density suburbs at Goldfield Heights, Queenstown. The masterplan provides a range of lot sizes and resulting building typographies built around a centralized open space network. With vehicle and pedestrian linkages to the surrounding existing neighbourhoods, the proposal will enable a resilient network and provide transportation choices for future residents to carry out healthy and active lifestyles.

In sustainable neighbourhoods, streets are considered equally as pedestrian spaces rather than solely for the purpose of transportation. This encourages walking and cycling and perception of the street as a space to spend time and play in. The landscape framework will provide ecology and biodiversity enhancements along the creek / open space corridor and form a green context to balance the surrounding built environment.

For a successful outcome, the proposal will ideally be continued as a multi-disciplinary collaborative process between architect, engineer, and landscape architect to ensure a balanced and sustainable residential environment. As it stands, the masterplan is designed as a well-connected diverse neighbourhood that will be consistent with the intentions of the Low-density Suburban Residential Zone of the QLDC PDP.

Cultural and Heritage

The wāhi tupuna layer extends across the whole of Queenstown Hill and is not specific to the site. Urban development is considered appropriate in relation to the site due to the existing zoning. No significant adverse effects are anticipated and the proposal is considered consistent with the objective and policies of the Queenstown Lakes District Council District Plan.

There are no known heritage values associated with the site, the proposal does not comprise any work that will undermine the cultural significance of the site nor will it change the form or character of the site which is zoned for residential development, and any potential adverse effects from this proposal on the cultural, heritage, and archaeological values of the site will be less than minor.

Geotechnical and Hazards

Hazard Summary and Geotechnical Suitability for Residential Development

Kirk Roberts Consulting have not completed the Geotechnical Investigations for the proposed stages of Silver Creek at the time of preparing this letter however to provide a high level hazard assessment, have reviewed desk top information and available reporting.

Rockfall hazard mitigation include rock pinning, removal of loose boulders, debris diversion structures, retaining walls and catchment structures. Utilising the measures detailed, the hazard of rockfall risk, if present on site, can be suitably mitigated.

Surface water/inundation is expected to be mitigated through practical civil design such as stormwater run-off from roofs, driveways and hardstand areas should be appropriately managed and discharged appropriately.

Due to the shallow depth of Haast Schist across the site, the nil to low risk of liquefaction on the QLDC maps is acceptable and no further mitigation is required.

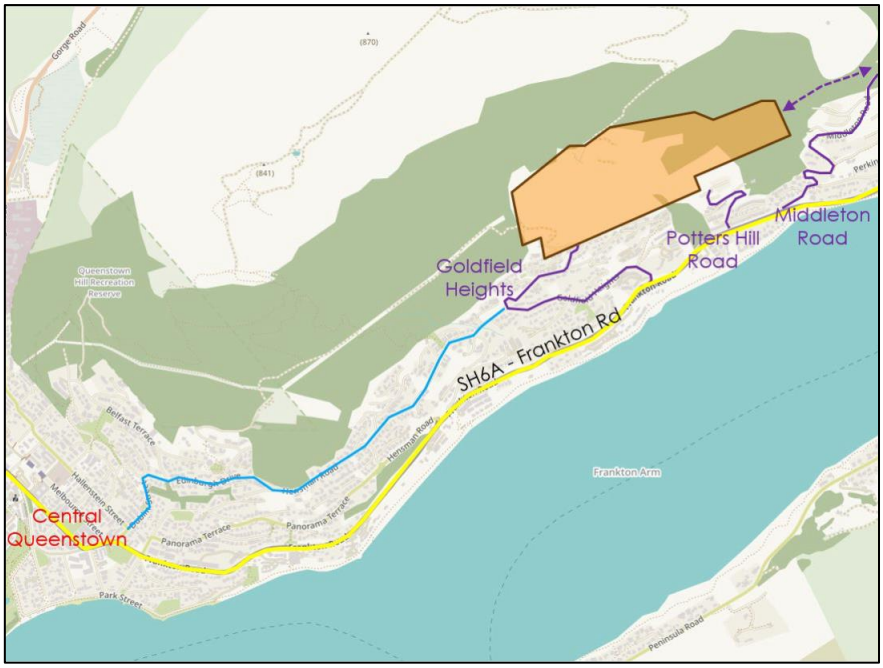
As outlined within GCL's zone map (Attachment 3), Zone D outlines the steep slopes located along the central gully and certain areas located within the landslide toe. The current plan indicates there is approximately 18,000 m² of Zone D, which represents 6% of total land within the development.

No proposed lots are made up completely of Zone D land. It is expected that no development zones will be included in the Geotechnical Completion Report as consent notices with appropriate setbacks. Zones A, B & C pending further investigations may provide specific building platforms suitable for SED foundation design. As detailed in Attachment 3, areas of Zone C may also be classed as Zone D following further assessment.

Transport

Site Context

The site which has been zoned for residential development is about 4 km east of Queenstown and is located above the existing residential development along the lower slopes of Queenstown Hill. Goldfield Heights, Potters Hill Drive and Middleton Road provide the road connections for the existing residential development between the site and State Highway 6A (SH6A) Frankton Road which provides the only strategic road connection between Queenstown and wider state highway network through Frankton to the east.



Queenstown Lakes District Council (QLDC) and the NZ Transport Agency Waka Kotahi (NZTA) have developed plans for improvements to the Frankton Road corridor to improve safety and public transport facilities. The proposed works include signalisation of the Frankton Road / Goldfield Heights intersection.

Goldfield Heights forms part of the Collector Road network on Queenstown Hill which also includes St Georges Avenue, Highview terrace, Hensman Road, Edinburgh Drive and Dublin Street. Together these roads provide an alternate route between Queenstown and the upper sections of Goldfield Heights.

Potters Hill Drive and Middleton Road effectively represent long cul-de-sacs within the road network and have no lateral connections between them. Potters Hill Drive currently terminates south of the subdivision site boundary. The existing residential development on Middleton Road currently finishes east of the subdivision site boundary.

Subdivision proposal

The subdivision road designs will be designed to align with the QLDC Land Development and Subdivision Code of Practice (COP) as far as is practical given the steep topographic constraints that exist.

The road network within the subdivision has been designed to provide good connectivity to all surrounding residential areas. A Collector standard road will be constructed to link the existing upper limit of Goldfield Heights at the southwestern corner of the site through the southern portion of the site to the eastern boundary. The eastern limit of the Collector Road has been designed to allow for an onward connection to Middleton Road.

Additional connectivity will be provided via local road connections to Potters Hill Drive and also Middleton Road. Together, the connections will create a more permeable and resilient network by creating links between the upper limits of the existing cul-de-sacs.

Public Transport

The existing public transport services do not utilise any of the local road network in the Queenstown Hill area and all services between Queenstown and Frankton travel along Frankton Road. Although there is a high frequency of buses on Frankton Road, the accessibility of the services to residents of Queenstown Hill is generally poor and involves walking times of more than five minutes.

The proposed development of the subdivision site with a collector road standard connection between Goldfield Heights and eastern boundary would enable a future onward connection to Middleton Road.

This creates the opportunity for a new bus route to be established that would provide good accessibility to public transport services for existing residents on Queenstown Hill and also new residents within the subdivision site.

Summary

The ongoing development of residential zoned land on Queenstown Hill including the Silver Creek site will add to the overall travel demands in the area. The proposed master plan will result in a level of development that is consistent with the underlying land zoning and will not contribute to any effects that would not have been anticipated by that zoning. The signalisation of the Frankton Road / Goldfield Heights intersection which is proposed as part of the wider Frankton Road improvement works will ensure that this intersection will have an increased capacity to accommodate the growth in travel demands safely.

The Silver Creek residential subdivision creates an opportunity to improve the transport connectivity across the eastern end of Queenstown Hill and reduce reliance on Frankton Road for travel to Queenstown. The proposed connections to Potters Hill Drive and Middleton Road will create a more permeable and resilient network by creating links between the upper limits of the existing cul-de-sacs.

The proposed road network includes an eastern extension to the existing Queenstown Hill Collector Road network that would create an opportunity to establish a new bus service route with a higher level of accessibility than the existing services on Frankton Road. This represents a critical design requirement for the subdivision and means that the road network design will be able to support the QLDC objective of increasing the public transport mode share by creating a route with a high level of accessibility to the public transport service.

Overall, Stantec considers that the subdivision transport network can be designed to create a robust and resilient road network for the Queenstown Hill area using designs that achieve a high level of compliance with the council standards.

Conclusion

In consideration of the abovementioned, it is considered that there are no persons on adjacent sites that will be adversely affected by the proposed development. Any potential for adverse effects can be appropriately avoided, remedied or mitigated, and will be less than minor in the context of the receiving environment.