BEFORE THE QUEENSTOWN LAKES DISTRICT COUNCIL

IN THE MATTER of the Resource Management Act 1991 (the "Act")

AND

IN THE MATTER of the Queenstown Lakes Proposed District Plan

Statement of Evidence of

Duncan Lawrence White

For Trustees of the Gordon Family Trust

(Submission #395

Further Submission #1193)

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4 April 2017

1.0 Introduction

1.1 My name is Duncan Lawrence White. I hold the qualifications of a Bachelor of Science in Geography, a Diploma for Graduates and a Post Graduate Diploma in Science. Both of the latter two qualifications are in Land Planning and Development. These qualifications are all from the University of Otago.

1.2 I have over 14 years experience as a planner. I have seven years planning experience with the Manukau City Council, including three years as a subdivision officer processing subdivision resource consent applications, followed by four years as an environmental policy planner undertaking district plan changes, policy development and the acquisition of reserves. For the past seven years I have lived in Wanaka and worked as a planner for Paterson Pitts Limited Partnership (Paterson Pitts). Paterson Pitts is a land development consultancy that undertakes a variety of rural and urban subdivision, resource consent applications and plan change work, primarily around Wanaka.

1.3 While this is a Council hearing, rather than an Environment Court process, I confirm I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014, and agree to comply with it. I can confirm that this evidence is within my area of expertise, except where I state that I have relied on material produced by other parties, and that I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

2.0 Scope of Evidence

2.1 This evidence has been prepared on behalf of the Trustees of the Gordon Family Trust in support of submission #395 and further submission #1193 to the Proposed District Plan.

2.2 Submission #395 has three components:

1. That Lot 2 DP 417191 (a 1.9 hectare site on the corner of Golf Course Road and Cardrona Valley Road) be rezoned from Low Density Residential (LDR) to Medium Density Residential (MDR).
2. That Lot 2 DP 477622 (between Gordon Road and Connell Terrace) be rezoned from Industrial B zone to Low Density Residential zone;
3. Opposition to the proposed Discretionary Activity subdivision regime.

Lot 2 DP 477622 has been sold to a different party, consequently submission point 2 is no longer pursued by the Trustees of the Gordon Family Trust. Submission point 2 has been considered in Hearing Stream 4. This evidence therefore focuses primarily on submission point 1.

2.3 Submission point 1 relates to Lot 2 DP 417191 a 1.9386 hectare parcel on the corner of Golf Course and Cardrona Valley Road, Wanaka. This area is shown in brown on the plan in Appendix **A** and is described in the following section.

2.4 This evidence examines the objectives from the Medium Density Residential chapter (section 8) of the Proposed District Plan in comparison to those from the proposed Low Density Residential chapter (section 7) to consider which of these represents the most appropriate way to achieve the sustainable management of natural and physical resources (the purpose of the Resource Management Act 1991) as required by Section 32(1)(a). In this evidence all references to the Act or the RMA are to the Resource Management Act 1991, PDP refers to the Proposed District Plan and ODP to the Operative District Plan, MDR refers to the Medium Density Residential zone and, LDR to the Low Density Residential zone.

2.5 This evidence then considers whether the provisions (the policies and methods) are the most appropriate way to achieve the objectives (Section 32(1)(b)) by identifying other reasonably practicable options for achieving the objectives, and assessing the efficiency and effectiveness of the provisions in achieving the objectives.

2.6 This evidence has been prepared to provide the level of assessment required by Sections 32 and 32AA of the Act in relation to the provisions sought by the submissions (S32(3)) at a level of detail that corresponds to the significance of the anticipated effects from the proposed change to MDR zone (S32(1)(c)).

2.7 In preparing this evidence I have reviewed (amongst other documentation) the following:

a) The PDP planning maps, primarily Map 23,

b) The S32 Evaluation Reports – Low Density Residential Zone (Chapter 7) and Medium Density Residential Zone (Chapter 8),

c) S42A Hearing Reports – Chapter 7 Low Density Residential Zone Chapter 8 Medium Density Residential, including the S32AA evaluations of recommended changes,

d) National Policy Statement on Urban Development Capacity 2016.

2.8 The Trustees of the Gordon Family Trust lodged a further submission (#1193) to respond to submissions from Willowridge (#249), Ledgerwood (#507), Pinfold and Satomi Enterprises Ltd (#622) and Ian Percy and Fiona Aitken Family Trust (#725). This evidence responds primarily to submissions #249 and #507 that seek a reduction in the Local Shopping Centre Zone proposed on Cardrona Valley Road, Wanaka, opposite the intersection with Stone Street.

3.0 The Submission Area

3.1 The submission relates to a 1.9 hectare area shown on the plan in Appendix **A**. The submission relates to a single vacant site covered in long grass and the occasional mature gum tree. The Golf Course Road frontage has a row of silver birch trees and a post and rail fence that continues around Cardrona Valley Road. The site is flat and level with Golf Course Road, rising to two hillocks. Cardrona Valley Road has been cut into the toe of the slope leaving a steep bank. Below and to the north-east of the site is the Aspiring Lifestyle Retirement Village. Adjacent to the site the village consists single level stand-alone houses or landscaped shared amenity areas. To the south of the site is the Aspiring Enliven Care hospital facility. This consists of a single level aged care facility.

This has also been cut into the toe of the slope and so also sits lower than the site.

3.2 The PDP as notified zones the submission site LDR which is consistent with the retirement village. The Aspiring Enliven Care site and the adjacent Wanaka Lakes Health Centre are proposed to be zoned Large Lot Residential. I note that submissions from the Wanaka Lakes Health Centre (submission #253) and Aspiring Lifestyle Retirement Village (submission #709) have sought alternative zoning for these areas than Large Lot Residential. I also note that the Aspiring Lifestyle Retirement Village's submission also sought that the LDR zoning over the retirement village be confirmed.

4.0 Evaluation of Proposed Objectives – Section 32 (1)(a)

4.1 The following table compares the relevant notified LDR objectives (as modified by the S42A report) with the notified MDR objectives (as modified by the S42A report). The S32 and S32AA assessments for the proposed MDR chapter have considered the appropriateness of the proposed residential objectives in the District-wide context and considered these to be an appropriate way of achieving sustainable management (see the S32 report for the Act's definition of sustainable management). The above submissions have sought to apply existing proposed objectives to an extended area of the District, therefore this assessment is a location specific assessment rather than an overall assessment of the appropriateness of the objectives as this overall assessment has been undertaken in the Section 32 and 32AA assessments already completed.

4.2 Two alternative zoning scenarios were considered in preparing the submission: the status quo LDR or MDR. The following table therefore compares the MDR objectives against the LDR objectives to provide an evaluation of which is the most appropriate for the submission area. The objectives listed below are those from the Recommended Revised Chapters from the relevant S42A reports:

Low Density Residential Objectives	Medium Density Residential Objectives	Comparison of Appropriateness in Relation to Submission Area in Achieving the Purpose of the Act.
7.2.1 – Development provides a low density	8.2.1 – Medium density development occurs	Both objectives seek to provide high levels of residential amenity.

residential living environment with high amenity values for residents, adjoining sites and the street.	close to town centres, local shopping zones, activity centres, public transport routes and non-vehicular trails.	The primary difference is in the respective residential densities. Medium density residential development in the submission area is considered more appropriate as it enables more residential density within the Urban Growth Boundary as it provides a more efficient use of residential land, provides choice of section and housing types, close to facilities and transport routes, as well as providing for a more competitive land market. MDR is also able to integrate with the commercial style building of the aged care facility adjacent and also with the adjacent residential activity in the retirement village.
7.2.2 – Development of higher 'gentle density' occurs where it responds appropriately and sensitively to the context and character of the locality and does not occur within the Queenstown Airport Noise Boundary or Outer Control Boundary.	8.2.2 - Developments contribute to the environment through quality urban design solutions which positively responds to the site, neighbourhood and wider context.	The MDR objective is considered more appropriate as it specifically seeks to provide for quality urban design outcomes that respond to the site's context.
7.2.3 – Arrowtown only – not relevant	8.2.3 – Development provides high quality living environments for residents and maintains the amenity of adjoining sites.	The MDR objective is more relevant and more specific as it specifies the high quality living environment outcomes desired for the area, while maintaining the amenity of adjoining sites.
7.2.4 – Community activities are best located where adverse effects on residential amenity are managed.	8.2.4 – Development supports the creation of vibrant, safe and healthy environments.	The community activity objectives are similar across both zones, with the MDR objective being less restrictive. Again each would be appropriate in the respective zone.
7.2.5 – Development efficiently utilises existing infrastructure and minimises impacts on infrastructure and roading networks.	8.2.5 – In Arrowtown medium density development responds sensitively to the town's character.	Both the LDR and MDR objectives relating to infrastructure are similar so which is more appropriate depends on the zoning.
7.2.6 – Commercial development is discouraged except where it is small scale and generates minimal amenity impacts.	8.2.6 - Medium density development efficiently uses existing infrastructure networks.	The MDR Objective is considered more appropriate as it encourages efficient use of infrastructure.
7.2.7 – Residential amenity is retained	8.2.7 – Community based activities are	See above for consideration of objectives relating to community

through pleasant living environments within which adverse effects are minimised while still providing the opportunity for community needs.	generally best located in a residential environment close to residents.	activities. The residential amenity provisions have also been assessed above.
	8.2.8 - Small-scale commercial activities are provided for where they: • contribute to a diverse residential environment; • maintain residential character and amenity; and • do not compromise the primary purpose of the zone for residential use.	The MDR objective is considered more appropriate than the LDR objective (7.2.6) as it is more specific in defining the circumstances in which small scale commercial activities would be considered appropriate.
No similar objective	8.2.9 - The development of land fronting State Highway 6 (between Hansen Road and Ferry Hill Drive) provides a high quality residential environment which is sensitive to its location at the entrance to Queenstown, minimises traffic impacts to the State Highway network, and is appropriately serviced.	Not relevant as the site does not front SH6.
No similar objective	8.2.10 - Non-residential development forms which support the role of the Town Centre and are sensitive to the transition with residential uses are located within the Wanaka Town Centre Transition Overlay.	Not relevant, as the site is not within the Wanaka Town Centre Transition Overlay.
	8.2.11 - Manage the development of land within noise affected environments to ensure mitigation of noise and reverse sensitivity effects.	There is no similar objective in the LDR zone. Road noise will be an issue for residential amenity as a result of the site's location on the intersection of two major roads.

4.3 The proposed residential objectives have already been considered through the S32 and S32AA assessments, and will be considered again during deliberations and so are considered to be appropriate and an appropriate way overall of achieving sustainable management. Through those assessments those provisions have also been assessed against the higher level strategic resource management plans and policies including national policy statements (including the National Policy Statement on Urban Development Capacity although I note this assessment has not yet concluded) and the Regional Policy Strategy and the Proposed Regional Policy Statement, consequently it is not proposed to undertake this assessment again.

4.4 The MDR objectives are considered more appropriate to achieve sustainable resource management in the submission area than the objectives of the LDR section of the Proposed District Plan in the submission area as they are considered to provide more explicit guidance on the level of amenity high levels of residential amenity as well as enabling more residential use within the Urban Growth Boundary, thus providing for a more efficient use of residential land, greater choice of section and housing types, and potentially enabling a more competitive land market.

5.0 Evaluation of Proposed Provisions – Section 32(1)(b)

5.1 As required by S32(1)(b) the following section considers whether the proposed LDR provisions (the policies and methods) are the most appropriate way to achieve the relevant objectives in relation to the submission area. This section also considers the costs and benefits of the proposed provisions.

5.2 The submission seeks that the proposed MDR provisions apply to the submission site instead of the LDR provisions. The proposed MDR provisions have been considered through the S32 and S32AA assessments in a District-wide context and considered by those assessments to be an appropriate way of achieving the objectives. As this submission seeks to extend the area these provisions apply to, this evidence relies on that overall assessment and so will focus on the appropriateness of key MDR policies and rules in relation to the submission area.

5.3 The key difference between the LDR and the MDR zones is the residential density (and associated minimum lot size). The LDR rules (Rule 7.4.9.1 and associated rules (S42A report version)) set a density of one residential unit per 450m² net site area as a Permitted Activity and one residential unit per 300m² net site area as a Restricted Discretionary Activity. This is consistent with the subdivision rules (S2A version) that identify subdivision as a Restricted Discretionary Activity (Rule 27.5.5) and at Rule 27.6.1 a minimum lot area of 450m². This compares with the MDR provisions that provide for a residential density of one unit per 250m² net site area.

5.4 Providing for medium density residential activities on the submission site is considered appropriate as it enables more residential density within the Urban Growth Boundary, provides a more efficient use of residential land, provides choice of section and housing types, close to facilities and transport routes, as well as providing for a more competitive land market. MDR is also able to integrate with the commercial style building of the aged care facility adjacent and also with the adjacent residential activity in the retirement village. There is The site is within the Urban Growth Boundary and it is considered appropriate to enable medium density residential development adjacent to existing residential area to provide a more efficient use of land for residential. Development to MDR standards in this location provides a greater choice of section and housing types, as it is likely to provide a range of site sizes as a result of the site's location and topography.

5.5 The submission seeks the application of an existing zone to cover the submission area, the other alternative (S32)(1)(b)(i) is the site maintains its proposed LDR zoning (as considered in the previous section). As the proposed provisions are the MDR provisions these have already been considered (and/or will be considered) through the S32 and S32AA assessments and commissioners' deliberations to be efficient and effective as required by S32(1)(b)(ii).

Other Provisions

5.6 If it is accepted that the site is suitable for MDR residential density (and associated minimum lot size) then it is considered appropriate, as well as

efficient and effective, for the remaining provisions to also be extended to cover the site.

6.0 Evaluation of Proposed Provisions – Section 32(2)

6.1 Section 32(2)(a) requires the identification and assessment of the anticipated benefits, costs, and the environmental, economic, social and cultural effects of the proposal.

6.2 The proposed MDR zone extension will provide an increase in the residential land availability in a consistent and logical location adjacent to existing residential development. This will assist in providing a supply of residential land to provide a less restrictive property market. The rezoning will provide for economic benefits to existing owners, enabling them to provide for their economic wellbeing and provides additional economic and employment activity during the development and construction phases. Denser residential development would enable Council to collect additional development contributions to recover the costs associated with growth and rates for ongoing operation of physical infrastructure and other services. Denser residential development also provides the opportunity for more efficient use of infrastructure, primarily the wastewater network. The costs of infrastructure upgrades will be borne by the developers, with these assets vested in Council. These economic effects will not arise to the same extent under the MDR zoning.

6.3 Environmental and social effects of the proposal are expected to be limited as the PDP as notified anticipated LDR development on this site. No sites of cultural significance would be affected by the proposal and no cultural effects are anticipated as a result of the proposal.

6.4 Section 32(2)(c) requires an assessment of the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions. In the case of the proposed MDR zone in the submission area there is very limited uncertainty and sufficient information in order to make a decision on the submission. The risk associated with the zoning sought is very low as it is an existing zoning, with provisions similar to the Operative District Plan, in an area already developed to a similar density and adjacent to a LDR zoned area. The likely outcomes of the MDR sought can be predicted with some accuracy

and would be approximately 25 more houses/lots. As the environmental conditions are already known and well understood the level of risk associated with the rezoning is very low.

7.0 Assessment Against Higher Order Proposed District Plan Provisions

7.1 The proposal has been assessed against the higher order strategic provisions of the PDP contained in Chapter 3 – Strategic Direction and Chapter 4 Urban Development. This assessment is documented in the following paragraphs.

7.2 The Strategic Direction chapters includes objective 3.2.2 that seeks to ensure urban development is compact, well designed and integrated, and protects the District's rural landscapes from sporadic and sprawling development. The proposal would provide for an additional and integrated residential area adjacent to the LDR, this is compact and not sporadic or sprawling as adjacent land is already LDR and would reduce the need for further future residential expansion into rural areas. The design qualities are controlled by the MDR provisions and those contained in the PDP's Subdivision section (Chapter 27). The proposal is also in accordance with Objective 3.2.5.3.1 which directs new urban subdivision within those areas that have the potential to absorb change without detracting from landscape and visual amenity values.

7.3 These objectives and policies lead into those contained in Chapter 4 – Urban Development. The proposal is specifically in accordance with relevant objectives 4.2.1 – 4.2.3 and 4.2.6 and relevant policies. The proposal specifically provides for compact and integrated urban development within an existing major urban settlement, in a location that is integrated with existing infrastructure, adjacent to transport and does not have ecological, heritage or landscape significance and is not subject to natural hazards.

8.0 Evaluation Against Regional Planning Documents

8.1 Section 75(3)(c) of the RMA requires district plans to give effect to any regional policy statement and S74(2) requires Council to have regard any proposed regional policy statement when preparing a district plan. Consequently the proposal has been assessed against the relevant provisions of the Otago Regional Policy Statement 1998 (the RPS) and the Proposed Regional Policy

Statement for Otago 2016 (Decisions Version) (the PRPS) as documented in the following paragraphs.

8.2 The relevant sections from the RPS are Chapter 5 – Land and Chapter 9 – Built Environment. Chapter 5 primarily relates to the sustainable management of rural land environments and so focuses on productive capacity, protection of outstanding features and landscapes, public access and mineral resources, none of which are particularly relevant to the submission area as it is already developed for rural residential uses and on the boundary between residential and rural residential uses.

8.3 Chapter 9 – Built Environment is more relevant. In relation to these objectives and policies it is considered that as a result of current and projected population growth there is a current demand and a foreseeable future demand for additional housing stock (objective 9.4.1(a)), associated with this is a rising cost of housing (see the S42A report for PDP Chapters 3 and 4 for additional details). The proposed MDR rezoning would, in a small way, assist in meeting the foreseeable housing demands. The submission area is on the edge of the residential area and medium density residential on this site could be designed so as not to significantly impact on amenity values (objective 9.4.1(b) and policy 9.5.4 (d)) within the submission area or in relation to adjacent sites as this will be controlled by the Medium Density Residential zone provisions. As demonstrated in the infrastructure report (Appendix **B**) infrastructure can be provided to serve additional medium density style development and this would be sustainable (objective 9.4.2 and policy 9.5.2) (see S42A report). Residential development would be undertaken in accordance with regional plans and the provisions of the MDR zone to avoid effects from residential development (Objective 9.4.3).

8.4 As a result of the above it is considered that the rezoning of the submission area would give effect to the RPS in the sense of avoiding effects on the environment and would assist in the provision of additional housing supply to meet the foreseeable demand for further housing stock in a location that can sustainably be provided with infrastructure.

8.5 The proposal has also been assessed against the relevant provisions of the Proposed Regional Policy Statement (the PRPS). The relevant provisions are

the urban growth objectives and policies are contained in objective 4.5 and policies 4.5.1 – 4.5.7. These are listed below, but for completeness I note that these provisions have been appealed by various parties.

"Objective 4.5 - Urban growth and development is well designed, reflects local character and integrates effectively with adjoining urban and rural environments

Policy 4.5.1 Managing for urban growth and development
Manage urban growth and development in a strategic and co-ordinated way, by all of the following:

a) Ensuring there is sufficient residential, commercial and industrial land capacity, to cater for the demand for such land, over at least the next 20 years;
b) Coordinating urban growth and development and the extension of urban areas with relevant infrastructure development programmes, to provide infrastructure in an efficient and effective way;
c) Identifying future growth areas and managing the subdivision, use and development of rural land outside these areas to achieve all of the following:
    i. Minimise adverse effects on rural activities and significant soils;
    ii. Minimise competing demands for natural resources;
    iii. Maintain or enhance significant biological diversity, landscape or natural character values;
    iv. Maintain important cultural or historic heritage values;
    v. Avoid land with significant risk from natural hazards;
d) Considering the need for urban growth boundaries to control urban expansion;
e) Ensuring efficient use of land;
f) Encouraging the use of low or no emission heating systems;
g) Giving effect to the principles of good urban design in Schedule 5;
h) Restricting the location of activities that may result in reverse sensitivity effects on existing activities.

Policy 4.5.2 Planned and coordinated urban growth and development
Where urban growth boundaries or future urban development areas, are identified in a district plan, control the release of land within those boundaries or areas, by:

a) Staging development using identified triggers to release new stages for development; or
b) Releasing land in a way that ensures both:
    i. a logical spatial development; and
    ii. efficient use of existing land and infrastructure before new land is released; and
c) Avoiding urban development beyond the urban growth boundary or future urban development area.

Policy 4.5.3 Urban design
Encourage the use of Schedule 5 good urban design principles in the subdivision and development of urban areas.

Policy 4.5.4 Low impact design
Encourage the use of low impact design techniques in subdivision and development to reduce demand on stormwater, water and wastewater infrastructure and reduce potential adverse environmental effects.

Policy 4.5.5 Warmer buildings
Encourage the design of subdivision and development to reduce the adverse effects of the region's colder climate, and higher demand and costs for energy, including maximising passive solar gain.

Policy 4.5.6 Designing for public access
Design and maintain public spaces, including streets and open spaces, to meet the reasonable access and mobility needs of all sectors.

Policy 4.5.7 Integrating infrastructure with land use
Achieve the strategic integration of infrastructure with land use, by undertaking all of the following:

a) Recognising the functional needs of infrastructure of regional or national importance;

b) Locating and designing infrastructure to take into account all of the following:
- *i. Actual and reasonably foreseeable land use change;*
- *ii. The current population and projected demographic changes;*
- *iii. Actual and reasonably foreseeable change in supply of, and demand for, infrastructure services;*
- *iv. Natural and physical resource constraints;*
- *v. Effects on the values of natural and physical resources;*
- *vi. Co-dependence with other infrastructure;*
- *vii. The effects of climate change on the long term viability of that infrastructure;*
- *viii. Natural hazard risk.*

c) Locating growth and development:
- *i. Within areas that have sufficient infrastructure capacity; or*
- *ii. Where infrastructure services can be upgraded or extended efficiently and effectively;*

d) Coordinating the design and development of infrastructure with land use change in growth and redevelopment planning."

8.6 In relation to this objective and these policies I consider that rezoning the submission site to MDR would specifically provide for urban growth, the MDR provisions require well designed development in accordance with local character that would integrate well with adjacent LDR and Large Lot Residential or Local Shopping Centre zonings, and as a result of its position does not impact on rural environments.

8.7 These policies are similar to those of the PDP Strategic Direction and Urban Development chapters (Chapters 3 and 4 respectively) and for the Medium Density Residential Zone (Chapter 7). The zone extension is part of a package that would provide land for future residential development within an existing residential area that can be provided with efficient and effective infrastructure in an area that is inside the Urban Growth Boundary.

8.8 The proposal is therefore considered to give effect to these provisions and therefore the PRPS. The MDR provisions achieve more of the outcomes sought by the RPS than the LDR provisions.

9.0 Evaluation Against National Planning Instruments

9.1 The National Policy Statement on Urban Development Capacity 2016 (the NPS) is relevant to this proposal as Wanaka is an urban environment and is expected to experience growth. Council's response to this NPS is not yet fully known, however the proposal to extend the MDR to include the subject site would assist Council to achieve its obligations under the NPS by providing opportunities for housing development to meet demand, provide choices and future generations by providing for more intensive residential use of a vacant site within an existing urban area to meet current and future residential demand.

10.0 Section 42A Report

10.1 I have reviewed the S42A report and agree with the conclusion that the site would be suitable for rezoning to MDR.

11.0 Local Shopping Centre

11.1 The Trustees of the Gordon Family Trust provided a further submission in opposition to submissions from Willowridge (#249), Ledgerwood (#507), Pinfold and Satomi Enterprises Ltd (#622) and Ian Percy and Fiona Aitken Family Trust (#725). This evidence responds primarily to submissions #249 and #507 that seek a reduction in the Local Shopping Centre Zone proposed on Cardrona Valley Road, Wanaka, opposite the intersection with Stone Street.

11.2 As a result of these submissions the S42A report recommends reducing the extent of the Local Shopping Centre Zone to an area of 1 hectare. John Polkinghorne has been asked by the submitter to provide input on the suitability of the proposed extent of the LSC zone for commercial and retail use. His conclusions support a 2.7 hectare area for the LSC zone in this area.

11.3 I note that the proposed revised extent of the LSC zone from the S42A report is 1 hectare. I consider that the proposed location of the LSC adjacent to the main southern entry to Wanaka, adjacent to the retirement village, medical facilities and surrounded by existing or proposed residential development and as the only LSC zone identified for the residential areas on the western side of

Wanaka means that this location is well suited for LSC and accordingly I expect it will be well supported by local residents and those passing by.

11.4 I also note that there is an arterial road proposed along the southern boundary of the health centre site (Lot 1 DP 410739) which forms the northern extent of the revised extent of the LSC zone. There is a resource consent application (RM170094) that is currently being processed by Council that includes the formation and vesting of this road. This arterial road is to be 23 metres wide and so would reduce the available area of the LSC by 3,000m² down to 7,000m². I note that as a result of the intersection design and the location of the existing wastewater line in this area this is the only location for this road.

Conclusions

12.1 Submission #395 from the Trustees of the Gordon Family Trust sought that the 1.9 hectare Lot 2 DP 417191 on the corner of Golf Course and Cardrona Valley Roads be rezoned from Low Density Residential zone as notified to Medium Density Residential zone. This evidence provides an assessment of the proposal against the criteria contained in 32 of the RMA. In relation to these criterial it is considered that the rezoning to Medium Density Residential is appropriate as the Medium Density Residential objectives are the most appropriate way to achieve sustainable resource management, the medium density provisions are the most appropriate way of achieving the objectives, and are efficient and effective in doing so.

12.2 The evidence assesses the benefits and costs of the environmental, economic, social and cultural effects of the proposal and considers there are economic benefits to the Medium Density Residential zoning with limited adverse environmental, social or cultural effects and would be a suitable zoning adjacent to existing residential development on the neighbouring retirement village site and a community activity (the Aspiring Enliven Care facility) to the south.

12.3 The risks of acting or not acting have also been considered. It is considered that there is very limited uncertainty and sufficient information in order to make a decision on the submissions. The risk associated with the zoning sought is very low as it is an existing zoning, with provisions similar to the Operative

District Plan, in an area already developed to a similar density and adjacent to a Low Density Residential zoned area.

12.4 The proposal to extend the Medium Density Residential zone has been assessed against the relevant provisions of the Strategic Direction and Urban Development chapters of the Proposed District Plan and is considered to be consistency with these higher level policies. The proposal has also been considered against the Regional Policy Statement and is considered to give effect to it as the proposal avoids effects on the environment and provides additional housing supply to meet the foreseeable demand for housing. Regard has also been had to the Proposed Regional Policy Statement and it is considered that the zone extension would provide land for future residential development adjacent to existing residential uses, can be provided with efficient and effective infrastructure in an area that is inside the Urban Growth Boundary and therefore gives effect to its urban growth objectives and policies. The proposal would also assist Council to achieve its obligations under the National Policy Statement on Urban Development Capacity (2016) by providing opportunities for housing development to meet demand, provide choices and future generations by intensifying an existing urban area to meet residential demand.

12.5 As a result of the above it is considered that rezoning of Lot 2 DP 417191to Medium Density Residential provides a more sustainable option as it better achieves the objectives of the Proposed District Plan and the higher order resource management documents than the Low Density Residential zone of the notified Proposed District Plan. Therefore it is sought that the submission be adopted and that the submission site be rezoned to Medium Density Residential.

12.6 In relation to the extent of the Local Shopping Centre zone on Cardrona Valley Road opposite Stone Street and West Meadows Drive. The Trust have sought addition input from a retail specialist on the practicalities of the reduced extent of the Local Shopping Centre zone and I have noted that the area of this zone will be reduced by future roading links and this will affect the shape of the area available for building development.

Appendix A – Plan Showing Submission Area

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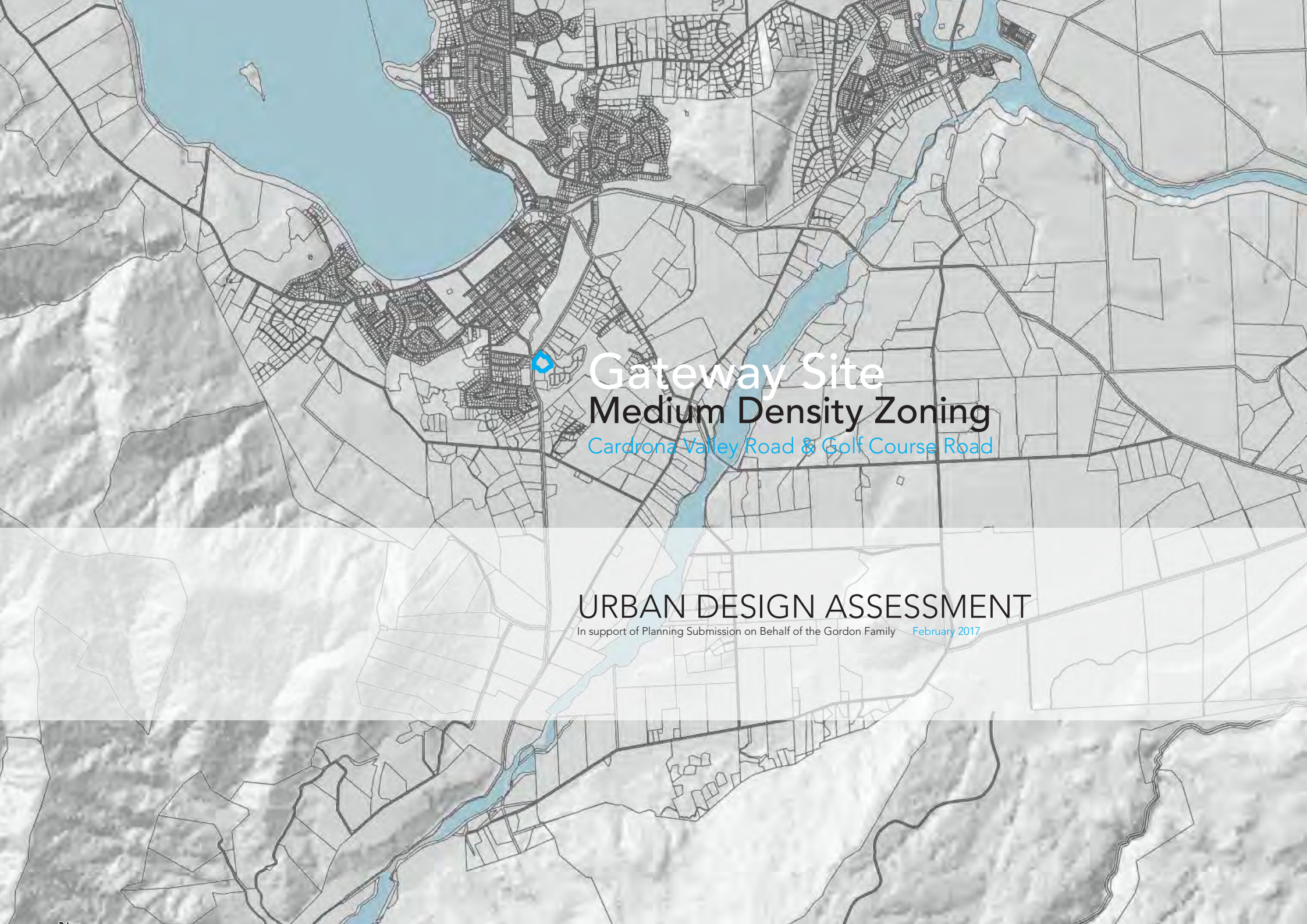
Client & Location:
Peter Gordon
70 Golf Course Road, Wanaka

Purpose & Drawing Title:
Site Plan

Surveyed by:	-	Original Size:	Scale:
Designed by:	-	A3	1:1500 @ A3
Drawn by:	DHP		DO NOT SCALE
Checked by:	-		
Approved by:	DLW		
Job No: W4743		Sheet No: 100	Revision No: A
			Date Created: 22/03/2017

Appendix B – Urban Design Report



Gateway Site
Medium Density Zoning
Cardrona Valley Road & Golf Course Road

URBAN DESIGN ASSESSMENT
In support of Planning Submission on Behalf of the Gordon Family February 2017

INTRODUCTION

The proposed low-density residential zoning for the 2ha site at the corner of Cardrona Valley and Golf Course Roads is being challenged.

QLDC's Low Density Zone proposed for the site provides for a minimum lot size of 300m^2. The proposed *Medium Density Zone* provides for smaller lot sizes (if supported by Homestar certification) and a range of higher density dwelling options.

The rationale for seeking the *Medium Density Zoning* comes down to a number of factors:

- Location
- The particular site and its inherent attributes
- The developing urban context
- The ability to apply denser urban forms with little additional impact from a less-dense approach

As the following pages illustrate, it is clear that this particular site is capable of delivering far better outcomes for Wanaka than enabled by a low-density zoning.

More importantly, developed well, the site could become a significant *gateway marker* to reinforce and contribute to Wanaka's developing urban environment.

BACKGROUND

The opportunity represented by this site was identified over 10 years ago and was captured then in QLDC's 2007 Wanaka Structure Plan Review.

This plan identified several key elements which supported medium density development responses, including:

- Within 200m of a retail node
- In areas of high amenity
- Avoidance of "squashed-up" urban responses and development in an integrated fashion based on preserving quality private amenity

(Paraphrased from pg 7)

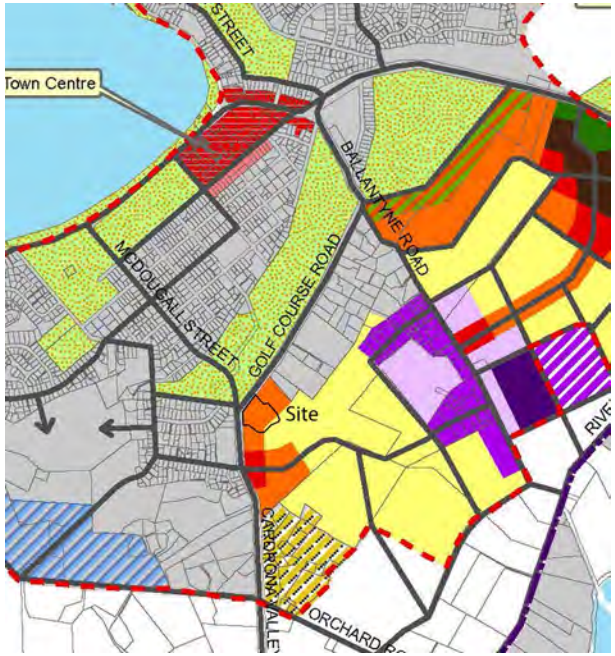
Not only do these factors remain relevant today, but in consideration of growth pressure their importance has intensified.

The medical centre and hospital complex (zoned Large Lot Residential in the Proposed Plan) have been, and are continuing to be developed between the site and the proposed Local Shopping Centre to the south. These developments establish a more intensive commercial and mixed use future when population intensity can justify it. The commercial success of such centres requires a heightened level of residential intensity.

The retirement village immediately adjacent to the site provides a natural transition between these environments and the Large Lot Residential environment to the east .

Unfortunately the clarity and intent of the 2007 Structure Plan has not been captured in the Proposed District Plan.

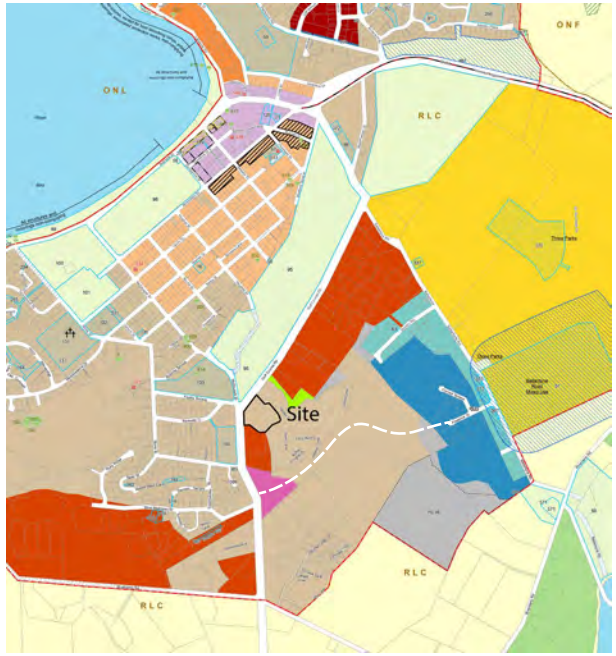
PROPOSED ZONING: 2007 STRUCTURE PLAN REVIEW



Commercial/Retail
Mixed Business
Existing Business/Industrial
Industrial Yard based
Medium/High Density Residential
Low Density Residential

Pursuing the low density zoning for the site undermines the significance and development potential of this site for Wanaka.

2016 PROPOSED DISTRICT PLAN



Medium Density Residential
Large Lot Residential
Low Density Residential
High Density Residential
Town Centres
Local Shopping Centre
Arrowtown Residential Historic Management Zone
Business Mixed Use

URBAN CONTEXT

The site is located equidistant from the southern edge of Wanaka and the Town Centre. It occupies a prominent position at the intersection of Cardrona Valley Road, McDougall Street, Faulks Terrace and Golf Course Road.

It is also the same distance from the industrial/employment zone along Ballantyne Road to the east.

Residential expansion of the town is zoned for the entire eastern sector of the map from Orchard Road to near the intersection of Riverbank and Ballantyne Roads, backing on to the industrial strip along Ballantyne Road (see previous planning maps).

The Cardrona Valley Road / McDougall Street route, though not a designated state highway, is none-the-less a major, heavily-trafficked road and the primary route between Wanaka and Queenstown.

The Cardrona Valley Road section of this approach to town already features numerous visitor accommodation and related tourism and commercial activities in close proximity to the site.

The centre of this strip is a proposed local shopping centre, the subject site functioning as an anchor to the north in response to the Oakridge Resort marking the edge of town to the south.

The site is within walking distance to both the lake front and town centre.

In addition to a number of tourism-commerical activities and visitor accommodation in close proximity, it is immediately adjacent to high amenity activities including:

- North: the golf course
- East: Retirement village, commercial / industrial zone
- South: Medical Centre and aged care facility, local centre (future), cafe, function venue
- South West: Visitor accommodation, bar, cinema, Climbing Centre

LANDFORM CONTEXT – TWO GATEWAYS

The southern entry to Wanaka is marked by two gateways.

The first is the cross-road intersection between Cardrona Valley Road and Orchard / Studholme Roads. It is not topographically defined though nonetheless, is clearly recognised as the boundary between the town and rural environments. The sense of arriving is intensified by the abrupt change in land-use and by those uses being 'destination' – the extensive Oakridge Resort and a cafe and function venue (Florences, The Venue).

The second gateway position is far more pronounced topographically, defined by a prehistoric lake terrace slope. It is also defined (and therefore reinforced through landuse) by the road being contained on either side by open space reserves – the golf course to the east and Faulks Terrace Reserve to the west. Historically, this slope contained the town within a basin in front of the Lake.

The sense of this being an edge between two environments of sidtinct character is further reinforced by the top of the bank rising to a small knoll at the intersection of Cardrona Valley and Golf Course Roads (the subject site property).

In urban design terms this indicates a requirement to mark the knoll in some way for reasons of legibility and expressiveness, to create a level of intensity and activity that helps define the environment of which it is part.

Indicative Long Section

URBAN DESIGN CONTEXT

The existing and evolving land-use pattern is clear and logical in the wider urban context.

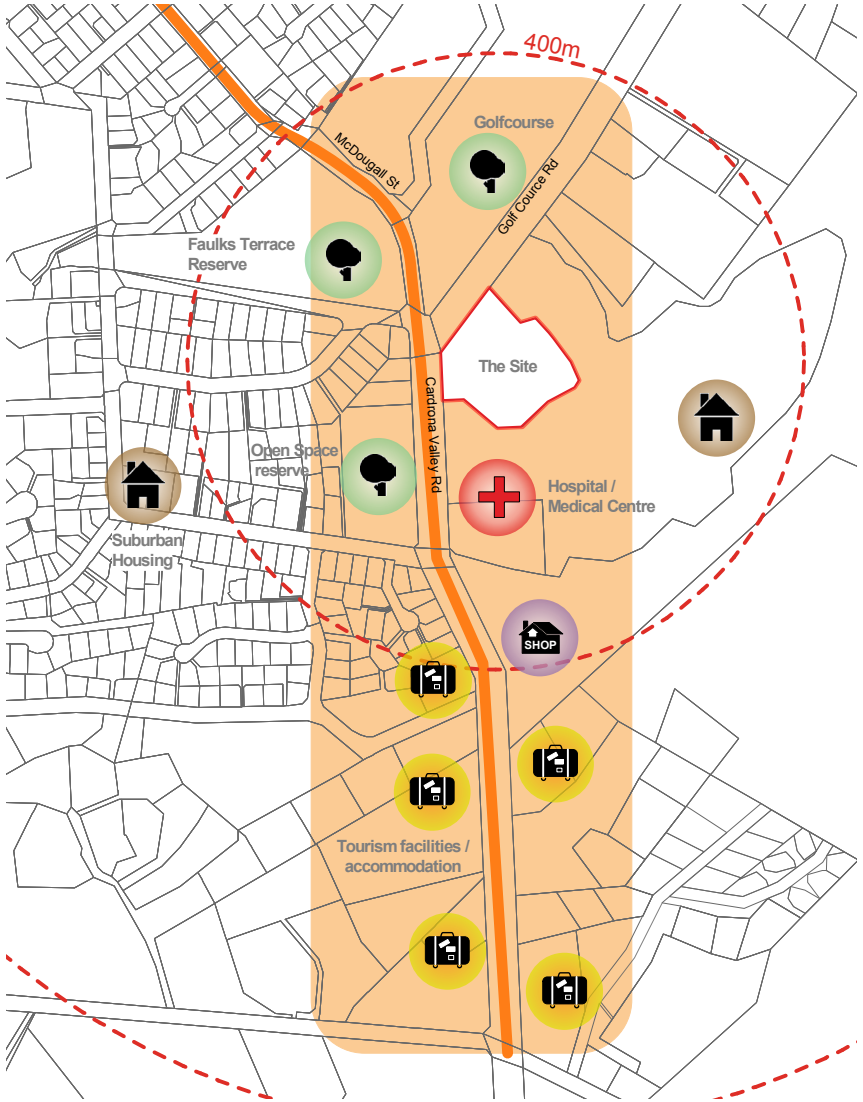
A strip of intense activity is building along Cardrona Valley Road, as could be anticipated from it being the longest and most connected route. This is a finite strip, closed at both ends by gateway nodes, and centred appropriately on a planned local shopping complex that also marks a major planned link east to Ballantyne Road.

The northern end of the strip is enclosed by a major open-space link.

Residential housing (planned, in the case of the eastern side) abuts this north / south strip to both the east and west.

The site has an important urban design function, positioned and contained as it is at one end of this land-use unit. The importance is reinforced by the coincidence of:

- Second Wanaka gateway
- Important intersection
- Raised landform



All these matters suggest the following urban design response:

- Architecturally prominant and strong – particularly at the corner
- More dense rather than less in order to best support local commercial and retail businesses
- Containing residential forms that can best support the neighbouring care and medical facility (eg short-stay apartments)

SITE APPROACHES

As illustrated below, while the site occupies a prime position, it is dominated by surrounding trees which stand in excess of 15m high.

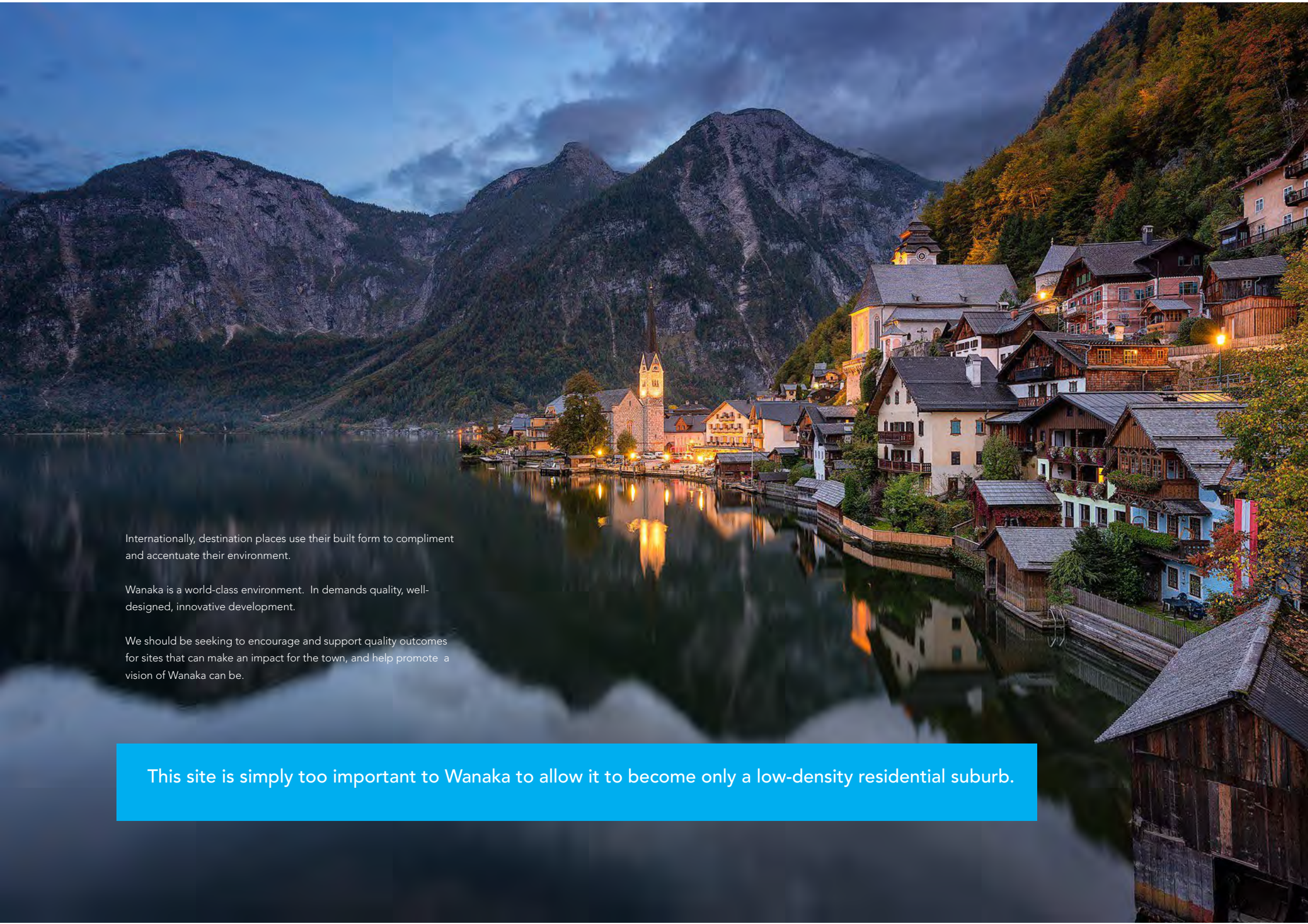
Using this is a benchmark, the additional visual impacts between an 8m height limit of a Low Density Zone and the 11m of the Medium Density Zone would be difficult to discern from most vantage points.

1. **View From West:** 11 Faulks Tce Kennedy Cres.
Site is almost impossible to discern even from this direction with just the top of trees on site showing.

2. **View From North:** McDougall St at layby by 6th green.
Following the main route out of town the site is almost impossible to discern from the golf course landscape with only the top of the trees on site showing.

3. **View From East** 3 Golf Course Rd Opp 30 34
The site is obvious but the medical centre is completely hidden from view.

4. **View From South:** 17 Cardrona Valley Rd /Stone St
The site is most prominent from this direction, sitting above single-level construction of the hospital/medical centre.



Internationally, destination places use their built form to compliment and accentuate their environment.

Wanaka is a world-class environment. In demands quality, well-designed, innovative development.

We should be seeking to encourage and support quality outcomes for sites that can make an impact for the town, and help promote a vision of Wanaka can be.

This site is simply too important to Wanaka to allow it to become only a low-density residential suburb.

AN URBAN DESIGN FRAMEWORK

The following diagram and images indicate an approach to developing the site which would enable medium density development to occur.

KEY

- Main vehicle entry points
- Internal amenity area
- More intensive frontage
- "like" development - back to back
- Opportunity to integrate and front neighbours
- Activate ground floor - mixed use potential

1 Gateway intersection corner
This corner demands a strong design response.
The site is well set back from Cardrona Valley Road and is below the crest of the hill. Taller, more-intensive development (potentially mixed use) could occur here as most impacts will be internalized within the site.

2 South / Hospital boundary
The site is elevated above the neighbouring property. Any development on this edge can utilise the height differential to create dual frontage buildings.

3 View towards gateway intersection and golf course
Reinforces how more intensive development on the northern edge can easily be accommodated.

4 View from Cardrona Valley Road towards the site illustrating the elevation change. This provides the opportunity to provide a sympathetic development form on these boundaries, while internalising the effects of more intensive development elsewhere.

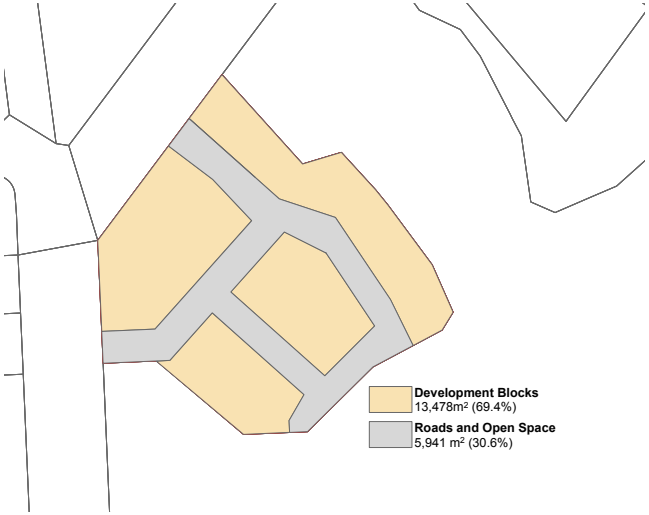
APPLYING CONCEPTS TO THE SITE

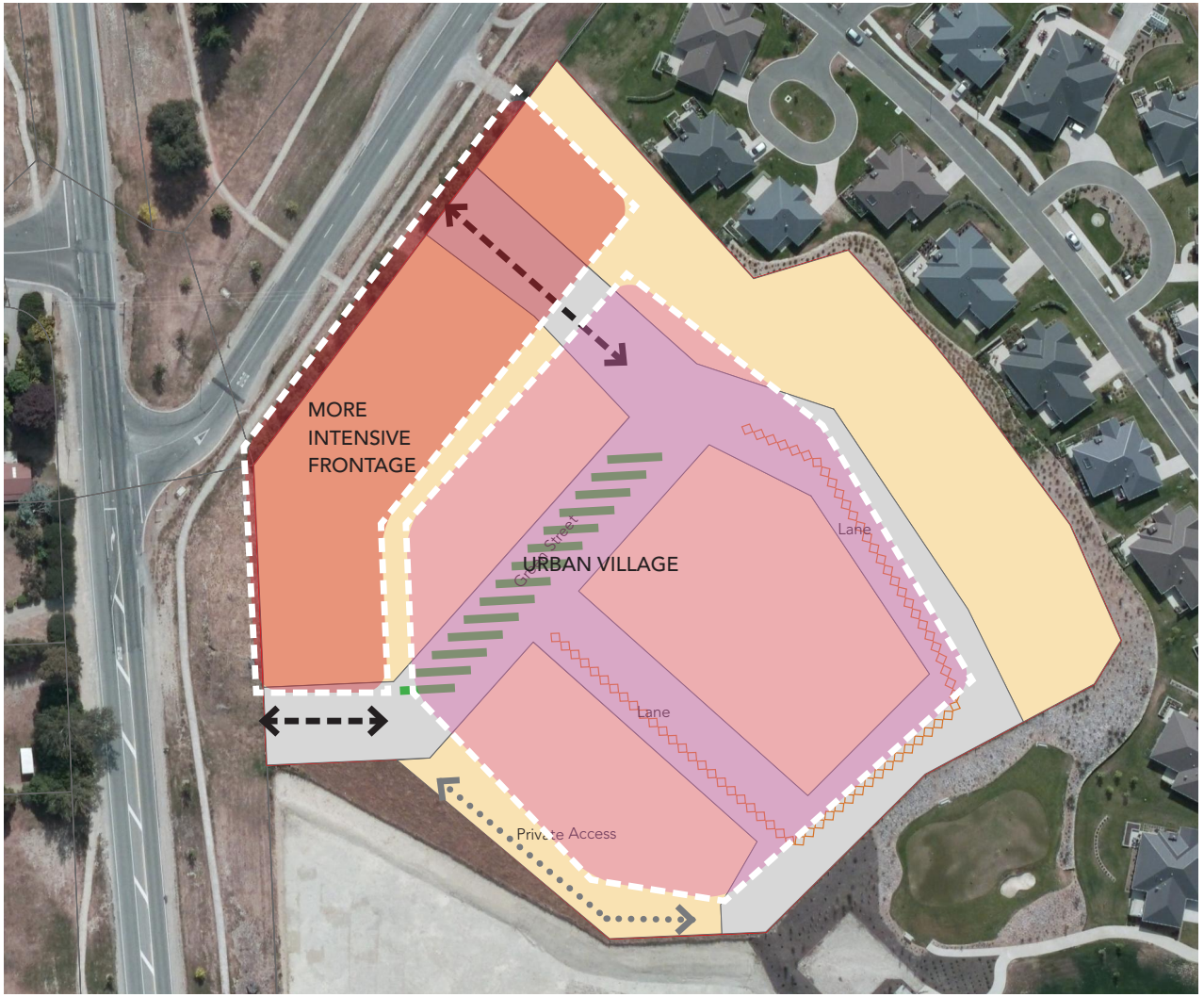
Utilising the outline Urban Design Framework developed on previous pages it is possible to start structuring a conceptual development approach.

As illustated opposite (and below) seeking increased density requires more open space amenity balanced with roads and access. In the preliminary assessment of the site, around 31% of the available land would be required for vehicle access. This would generally be provided in shared streets or narrower lanes to create a village, pedestrian-centric ambience.

Where a low-density design might deliver around 20 houses, a designed, compact environment could more than double this – and provide a range of housing options that a "quality urban environment in walkable distance of amenity" will support.

This in turn enables inherently affordable housing options and visitor accommodation.





APPROPRIATE BUILT FORM

The Queenstown Lake District envions already provide some excellent built-form examples that can be applied to the site. These can be complimented with modern international compact living ideas and approaches.

Developers must strive to deliver quality urban environments to ensure higher density developments are both desirable and saleable – increasing the land for public amenity (roads, parks etc.), delivering innovative building solutions and ensuring these are held together by a compelling design rationale.

The *Medium Density Residential Zone* demands a far higher standard of design response to off-set the inherent amenity transfer (outlined above), higher costs of construction and market demands for intensive development.

Built-Form Requirements:

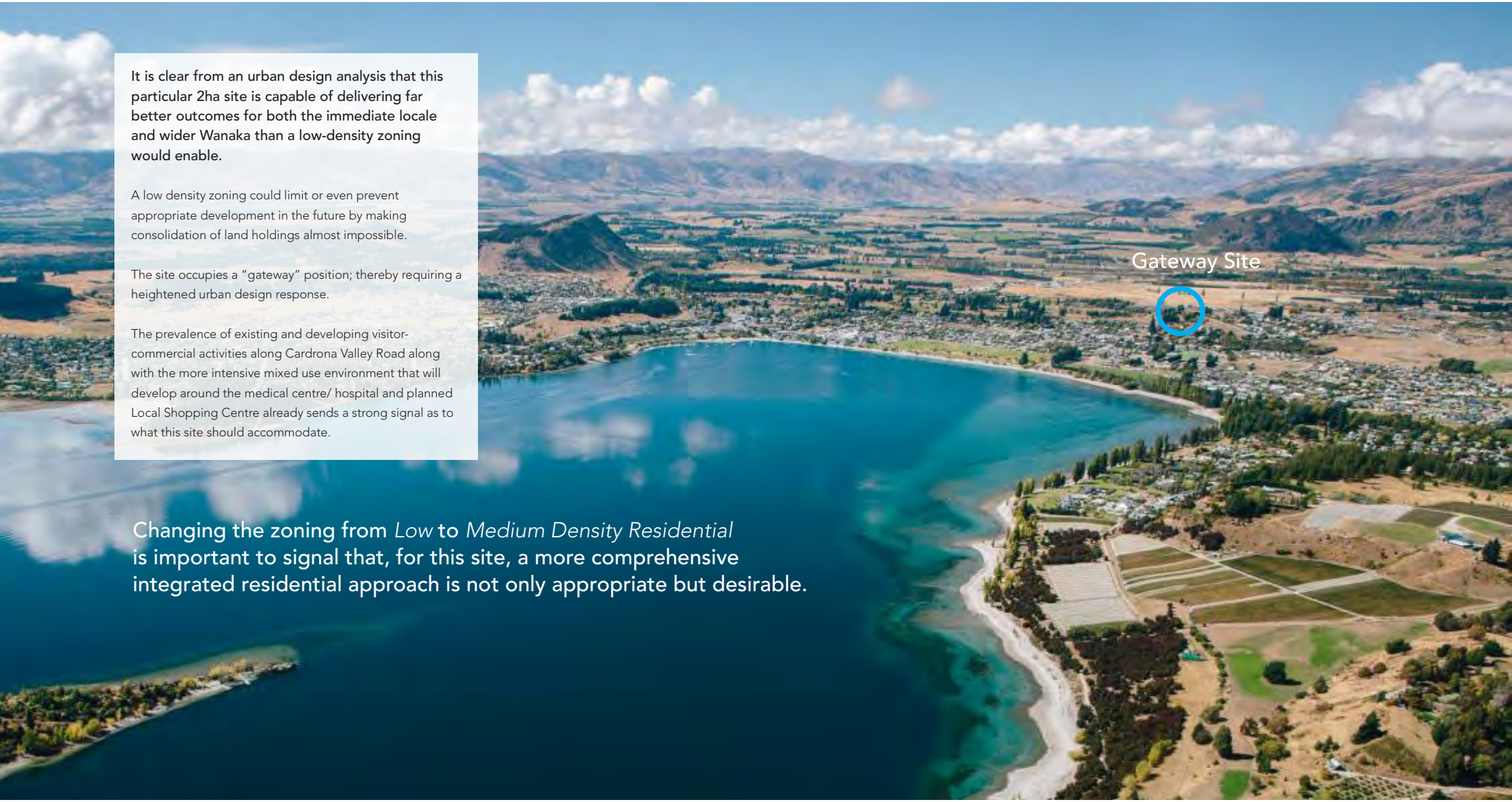
- Compact sites and building design
- Generally 2 levels although 3 (or more) where appropriate
- Extensive use of zero-lot side yards and party walls
- Courtyard and balcony living
- Reduced parking provision

THESE ARE THE ATTRIBUTES OF THE MEDIUM DENSITY PLANNING PROVISIONS.

Medium density development forms as illustrated above deliver densities of around 40–60 dwellings per hectare – and can feature freehold lots as small as 150m^2.

UTILSING THE MEDIUM DESNITY ZONE PROVISIONS AS A BASELINE FOR FUTURE DEVELOPMENT WILL ENABLE QUALITY BUILT OUTCOMES THAT HELP REINFORCE WANAKA AS A DESTINATION OF CHOICE TO LIVE, WORK AND STAY.

SUMMARY



It is clear from an urban design analysis that this particular 2ha site is capable of delivering far better outcomes for both the immediate locale and wider Wanaka than a low-density zoning would enable.

A low density zoning could limit or even prevent appropriate development in the future by making consolidation of land holdings almost impossible.

The site occupies a "gateway" position; thereby requiring a heightened urban design response.

The prevalence of existing and developing visitor-commercial activities along Cardrona Valley Road along with the more intensive mixed use environment that will develop around the medical centre/ hospital and planned Local Shopping Centre already sends a strong signal as to what this site should accommodate.

Changing the zoning from *Low* to *Medium Density Residential* is important to signal that, for this site, a more comprehensive integrated residential approach is not only appropriate but desirable.

Appendix C – Infrastructure Report

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0800 PPGROUP

INFRASTRUCTURE REPORT

Golf Course Road and Cardrona Valley Road, Wanaka

Medium Density Residential Zone Submission

PROJECT:	**W4046**
PRINCIPAL:	**P D Gordon Trust**
OUR REF:	**W4046**
DATE:	**31 March 2017**

DUNEDIN: P.O. Box 5933, Dunedin 9058. **T** 03 477 3245
CHRISTCHURCH: P.O. Box 160094, Christchurch 8441. **T** 03 928 1533
ALEXANDRA: P.O. Box 103, Alexandra 9340. **T** 03 448 8775
CROMWELL: P.O. Box 84, Cromwell 9342. **T** 03 445 1826
QUEENSTOWN: P.O. Box 2645, Queenstown 9349. **T** 03 441 4715
WANAKA: P.O. Box 283, Wanaka 9305. **T** 03 443 0110

REVISION / APPROVAL PANEL

Rev:	Date:	Prepared By:	Reviewed By:	Comments:
A	20/03/17	PHJ	DLW	Original issue

CONTENTS

SCOPE

This report has been prepared to provide servicing information to support submission #395 (Trustees of the Gordon Family Trust). This submission seeks that Lot 2 DP 417191 which is a 1.9 hectare site on the corner of Golf Course Road and Cardrona Valley Road be rezoned from Low Density Residential (LDR) to Medium Density Residential (MDR). The submission area is shown on the plan in Appendix **A**.

This report covers the following infrastructure issues.

- Water Supply
- Wastewater
- Stormwater
- Network Utility Services (electricity and telecommunications)
- Access

1. PROPOSED INFRASTRUCTURE

1.1 General

It is anticipated that all infrastructure for development would be designed and constructed in accordance with Council's infrastructure standards – "Land Development and Subdivision Code of Practice" adopted June 2015 and any subsequent amendments.

1.2 Water Supply

There are existing Council trunk water mains located in Golf Course Road and Cardrona Valley Roads. These mains are 200mm and 300mm respectively. Capacity modelling will need to be undertaken at the time of any future development application to confirm sufficient capacity is available at this time.

1.3 Wastewater

The site is serviced by a 150mm diameter foul sewer lateral, this lateral connects into a 150mm diameter foulsewer line in Cardrona Valley Road. The Cardrona Valley line has 2 additional lots contributing before it joins into the Council 300mm gravity trunk main. This trunk main runs to the Gordon Road pump station. A 150mm foulsewer line laid at minimum grade has sufficient capacity to services 250 dwelling units.

There is therefore sufficient capacity in the line servicing this site to service the additional demand created by the proposed future development densities.

1.4 Stormwater

There is no Council reticulated stormwater servicing this lot. The nearest gravity stormwater mains are located in Faulks Terrace and McDougall Street. It is unlikely that stormwater can be reticulated to either of these systems by gravity. Any solution for stormwater disposal will therefore need to dispose of stormwater to ground.

A series of percolation tests have been undertaken across the site, these indicate that the underlying geology has a limited shallow gravel band at the northern end of the site that has good soakage. The underlying glacial till below the shallow gravel band and the rest of the site has poor soakage rates varying between 0.5mm and 4mm per hour. The geotechnical report for the site does not recommend that stormwater for the site be disposed of to ground on site. Consequently, alternate solutions will need to be explored to provide a stormwater solution suitable for the proposed development densities.

The GeoSolve stormwater report is attached as Appendix **B**.

1.5 Network Utility Services

1.5.1 Electricity

There is existing electrical reticulation to the site of single phase 15kVA. A letter from Aurora confirming that future development in this area can be serviced to this standard is included in Appendix **C**.

1.5.2 Telecommunications

Chorus has confirmed that telecommunications can be made available to future development within the submission area. Confirmation from Chorus is included as Appendix **D**.

1.6 Access

A traffic assessment has been undertaken by Bartlett Consulting included as Appendix **E**.

The conclusions of this report indicate that there are suitable access points available on both Golf Course Road and Cardona Valley Road. These access points will require detailed design at the time of future development applications.

2. CONCLUSION

Development within the submission area can be serviced in accordance with Council's District Plan and Land Development and Subdivision Code of Practice. Specific design issues can be identified and resolved at the time of resource consent or specific engineering design and approval (if necessary). There are no engineering or servicing issues that would preclude the subject area being rezoned from Low Density Residential to Medium Density Residential.

Peter Joyce
Registered Professional Surveyor
Paterson Pitts Limited Partnership

Appendix A Site Plan

PATERSONPITTSGROUP
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WANAKA BRANCH
19 Reece Crescent
or P.O. Box 283
Wanaka 9343
T 03 443 0110
E wanaka@ppgroup.co.nz

Client & Location:
Peter Gordon
70 Golf Course Road, Wanaka

Purpose & Drawing Title:
Site Plan

Surveyed by:	-	Original Size: A3	Scale: 1:1500 @ A3
Designed by:	-		
Drawn by:	DHP		DO NOT SCALE
Checked by:	-		
Approved by:	DLW		
Job No: W4743		Sheet No: 100	Revision No: A
			Date Created: 22/03/2017

Appendix B Stormwater disposal report

GEOSOLVE
GEOTECHNICAL ENGINEERING | ENGINEERING GEOLOGY | PAVEMENTS | HYDROGEOLOGY | HYDROLOGY

ACENZ MEMBER

GeoSolve Ref: 170126
21 March 2017

Gordon Family Trust
c/- Paterson Pitts Group
PO Box 283
Wanaka

Attention: Duncan White

Lot 2 DP 417191 Golf Course Rd, Wanaka
Stormwater Soakage Disposal Assessment

Introduction

This report presents the results of a site investigation to assess potential stormwater soakage to ground for a subdivision of Lot 2 DP 417191 Golf Course Rd, Wanaka.

The investigations were carried out for the Gordon Family Trust care of Paterson Pitts Group in accordance with GeoSolve Ltd's proposal dated 3 March 2017, which outlines the scope of work and conditions of engagement.

Topography and Surface Drainage

The site is generally hummocky moraine topography with a gently sloping outwash channel at the western side adjacent to Golf Course Road. There are no streams or watercourses on the property.

Site Investigations

Thirteen test pits were excavated over the lot to assess the potential for stormwater infiltration. See Site Plan, Appendix A for locations and Appendix B for logs. Four standpipe field permeability (HT 21) tests were carried out adjacent to test pits across the site.

Stratigraphy

The geological model predominantly comprises glacial till with a smaller area of outwash gravel adjacent to Golf Course Road (see Site Plan, Appendix A). Minor thicknesses of topsoil, loess and colluvium was observed at the surface of some test pits.

The outwash gravel comprises loose to medium dense sandy GRAVEL to GRAVEL with minor to some sand. The outwash gravel was observed to be 0.4 to 1.15 m thick in the north of the site as shown on the Site Plan, Appendix A and interbedded with the glacial till in test pit 10.

The glacial till predominantly comprises medium dense to dense silty SAND to SAND with trace to some gravel. The glacial till was observed to be the main soil type across site and extended to the base of all test pits.

Full details of the observed subsurface stratigraphy can be found within the test pit logs contained in Appendix B.

Groundwater

No groundwater seepage was observed in any of the test pits during the site investigation. Nearby boreholes have observed the regional watertable at 18 m below ground level.

Permeability Testing

Four standpipe field permeability tests were completed, two in representative glacial till soil and two in the outwash gravel.

Indicative Permeability

The table below shows indicative permeability values of the soil types in the proposed soakage area based on the permeability testing.

Soil Type	Indicative Permeability Rate (m/s)
Glacial Till (SAND and silty SAND with minor gravel)	$1x10^{-6}$ to $1x10^{-7}$
Outwash Gravel (sandy GRAVEL and GRAVEL with some sand)	$1x10^{-4}$ to $5x10^{-5}$

Table 1 Indicative Permeability values

The permeability of the glacial till is too low for effective stormwater soakage. The outwash gravels have suitable permeability but the deposit (0.4 m to 1.15 m thick) is not extensive or deep enough to provide sufficient soakage capacity for the subdivision.

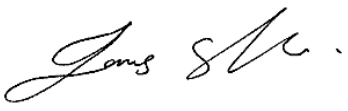
We would not recommend soakage as a suitable solution for stormwater disposal for the proposed subdivision.

Applicability

This report has been prepared for the benefit of the Gordon Family Trust with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose without our prior review and agreement.

Yours faithfully,

Written By:



James Stewart
Geologist

Reviewed By:

Fraser Wilson
Senior Engineering Geologist

Attached:

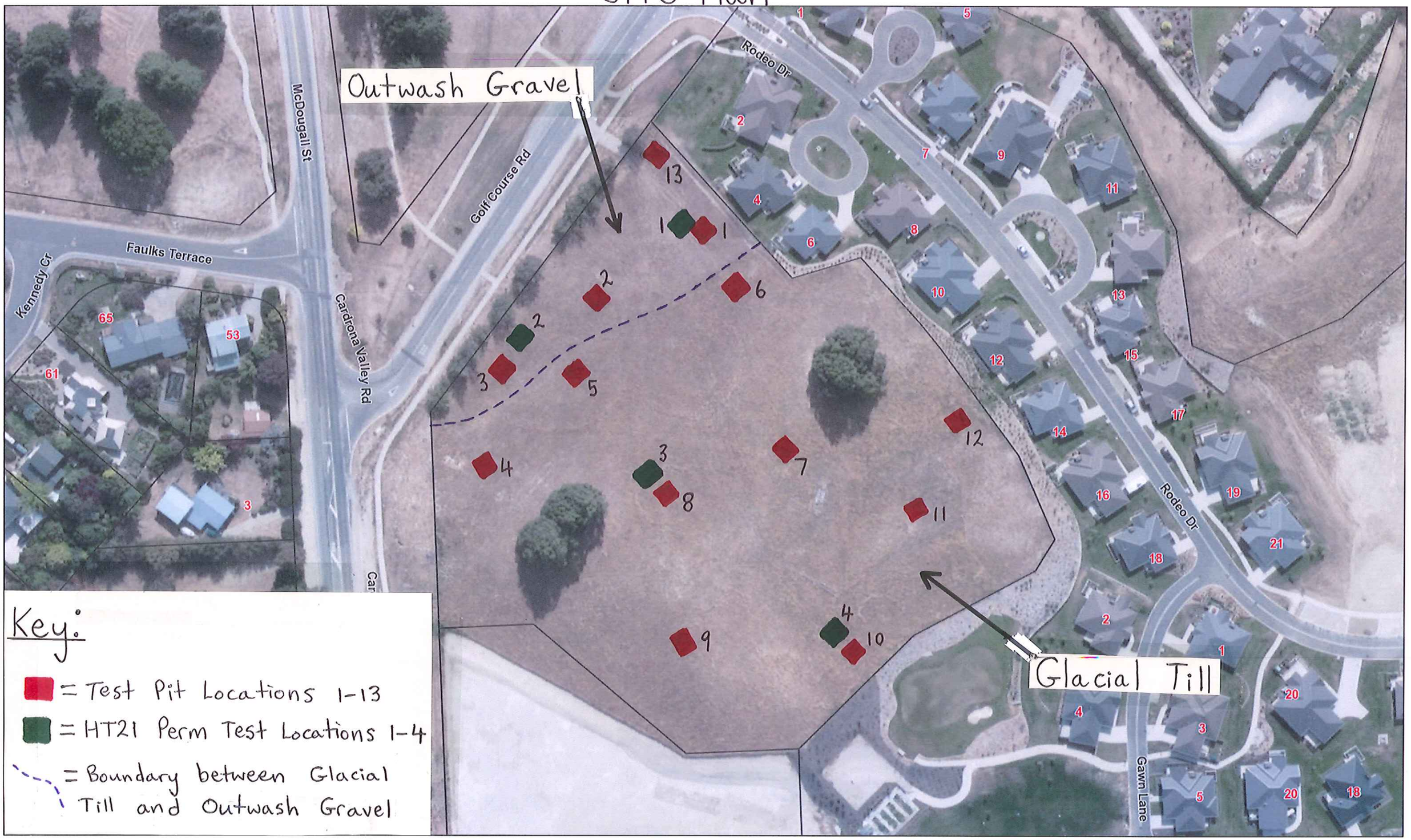
Appendix A Site Investigation Plan

Appendix B Test Pit Logs

APPENDIX A:

Site Plan

Site Plan



Queenstown Lakes District Council

Webmaps your view of your information

Lot 2 DP 417191 Golf Course Rd

15 March 2017

0 9.5 19 28.5 38 Metres

N

APPENDIX B:

Test pit logs

GeoSolve Ltd
EXCAVATION LOG

EXCAVATION NUMBER: **TP 1**

PROJECT: Lot2 DP417191 Golf Course Rd		Job Number: 170126
LOCATION: See Site Plan	Inclination: VERTICAL	Direction:

EASTING:	mE	EQUIPMENT: 8 Tonne digger		OPERATOR: Jim	
NORTHING:	mN	INFOMAP NO.		COMPANY: Diverse Works	
ELEVATION:	m	DIMENSIONS:		HOLE STARTED: 14-Mar-17	
METHOD:		EXCAV. DATUM:		HOLE FINISHED: 14-Mar-17	

SCALA PENETRATION	GROUNDWATER / SEEPAGE	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK CLASSIFICATION, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, WEATHERING, SECONDARY AND MINOR COMPONENTS	WATER CONTENT	GEOLOGICAL: SOIL / ROCK TYPE, ORIGIN, MINERAL COMPOSITION, DEFECTS, STRUCTURE, FORMATION
		0.25		Brown, silty SAND with minor gravel. Sand is fine. Gravel is fine to coarse. Poorly graded. Loose to Medium Dense. Massive.	Dry	LOESS
		1.3		Brown, sandy GRAVEL with trace of cobbles. Sand is fine to coarse. Gravel is fine to coarse. Gravel is sub-rounded. Well graded. Loose to Medium Dense. Bedded.	Dry	OUTWASH GRAVEL
	NO SEEPAGE	3.6		Grey, silty SAND with trace to minor gravel. Sand is fine. Gravel is fine to coarse. Poorly graded. Medium Dense to Dense. Massive.	Dry to Moist	GLACIAL TILL

Total Depth = 3.6 m

COMMENT: No water level. Test pit walls stood well - no slumping.

Logged By: J A Stewart
Checked Date:
Sheet: 1 of 1

GeoSolve Ltd
EXCAVATION LOG

EXCAVATION NUMBER: **TP 2**

PROJECT: Lot2 DP417191 Golf Course Rd		Job Number: 170126
LOCATION: See Site Plan	Inclination: VERTICAL	Direction:

EASTING:	mE	EQUIPMENT: 8 Tonne digger		OPERATOR: Jim	
NORTHING:	mN	INFOMAP NO.		COMPANY: Diverse Works	
ELEVATION:	m	DIMENSIONS:		HOLE STARTED: 14-Mar-17	
METHOD:		EXCAV. DATUM:		HOLE FINISHED: 14-Mar-17	

SCALA PENETRATION	GROUNDWATER / SEEPAGE	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK CLASSIFICATION, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, WEATHERING, SECONDARY AND MINOR COMPONENTS	WATER CONTENT	GEOLOGICAL: SOIL / ROCK TYPE, ORIGIN, MINERAL COMPOSITION, DEFECTS, STRUCTURE, FORMATION
		0.25		Brown, silty SAND with trace to minor gravel. Sand is fine. Gravel is fine to medium. Poorly graded. Loose to Medium Dense. Massive.	Dry	LOESS
		1.4		Brown, sandy GRAVEL with trace of cobbles. Sand is fine to coarse. Gravel is fine to coarse. Gravel is sub-rounded. Well graded. Loose to Medium Dense. Bedded.	Dry	OUTWASH GRAVEL
		2.3		Grey, SAND with trace to minor gravel. Sand is fine. Gravel is fine to medium. Poorly graded. Medium to Dense. Massive.	Dry to Moist	GLACIAL TILL
	NO SEEPAGE	3.6		Grey, SAND with minor to some gravel. Sand is fine. Gravel is fine to medium. Poorly graded. Medium to Dense. Massive.	Dry to Moist	GLACIAL TILL

Total Depth = 3.6 m

COMMENT: No water level. Test Pit walls stood well - no slumping.

Logged By: J A Stewart
Checked Date:
Sheet: 1 of 1

GeoSolve Ltd
EXCAVATION LOG

EXCAVATION NUMBER: **TP 3**

PROJECT: Lot2 DP417191 Golf Course Rd			Job Number: 170126
LOCATION: See Site Plan	Inclination:	VERTICAL	Direction:

EASTING:	mE	EQUIPMENT: 8 Tonne digger		OPERATOR: Jim	
NORTHING:	mN	INFOMAP NO.		COMPANY: Diverse Works	
ELEVATION:	m	DIMENSIONS:		HOLE STARTED: 14-Mar-17	
METHOD:		EXCAV. DATUM:		HOLE FINISHED: 14-Mar-17	

SCALA PENETRATION	GROUNDWATER / SEEPAGE	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK CLASSIFICATION, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, WEATHERING, SECONDARY AND MINOR COMPONENTS	WATER CONTENT	GEOLOGICAL: SOIL / ROCK TYPE, ORIGIN, MINERAL COMPOSITION, DEFECTS, STRUCTURE, FORMATION
		0.35		Brown, silty SAND with trace of gravel. Gravel is fine. Sand is fine. Uniformly graded. Loose to Medium Dense. Massive.	Dry	LOESS
		0.9		Brown, sandy GRAVEL & GRAVEL with some sand. Gravel is fine to coarse. Sand is fine to coarse. Gravel is sub-rounded. Poorly graded. Loose to Medium Dense. Bedded.	Dry	OUTWASH GRAVEL
	NO SEEPAGE	3.4		Grey, silty SAND with trace to minor gravel & trace of cobbles. Sand is fine. Gravel is fine to coarse. Gravel is sub-rounded. Poorly graded. Medium Dense to Dense. Massive.	Dry to Moist	GLACIAL TILL

Total Depth = 3.4 m

COMMENT: No water level. Test pit walls stood well. Minor slumping of test pit walls within the outwash gravel.

Logged By: J A Stewart
Checked Date:
Sheet: 1 of 1

GeoSolve Ltd
EXCAVATION LOG

EXCAVATION NUMBER: **TP 4**

PROJECT: Lot2 DP417191 Golf Course Rd		Job Number: 170126
LOCATION: See Site Plan	Inclination: VERTICAL	Direction:

EASTING:	mE	EQUIPMENT: 8 Tonne digger		OPERATOR: Jim	
NORTHING:	mN	INFOMAP NO.		COMPANY: Diverse Works	
ELEVATION:	m	DIMENSIONS:		HOLE STARTED: 14-Mar-17	
METHOD:		EXCAV. DATUM:		HOLE FINISHED: 14-Mar-17	

SCALA PENETRATION	GROUNDWATER / SEEPAGE	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK CLASSIFICATION, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, WEATHERING, SECONDARY AND MINOR COMPONENTS	WATER CONTENT	GEOLOGICAL: SOIL / ROCK TYPE, ORIGIN, MINERAL COMPOSITION, DEFECTS, STRUCTURE, FORMATION
		0.15		Dark Brown, organic SILT. Firm.	Dry	TOPSOIL
		0.4		Light Brown, silty SAND. Sand is fine. Uniformly graded. Loose to Medium Dense. Massive.	Dry	LOESS
		0.7		Light Brown, silty SAND with some gravel. Sand is fine. Gravel is fine to coarse. Poorly graded. Loose to Medium Dense. Massive.	Dry	COLLUVIUM
		2.5		Grey, SAND with some gravel to gravelly SAND. Sand is fine. Gravel is fine to coarse. Poorly graded. Medium Dense to Dense. Massive.	Dry to Moist	GLACIAL TILL
	NO SEEPAGE	3.6		Grey, SAND with minor silt & trace to minor gravel. Sand is fine. Gravel is fine to coarse. Poorly graded. Medium Dense to Dense. Massive.	Dry to Moist	GLACIAL TILL

Total Depth = 3.6 m

COMMENT: No water level. Test pit walls stood well - no slumping.	Logged By: J A Stewart
	Checked Date:
	Sheet: 1 of 1

GeoSolve Ltd
EXCAVATION LOG

EXCAVATION NUMBER: **TP 5**

PROJECT: Lot2 DP417191 Golf Course Rd		Job Number: 170126
LOCATION: See Site Plan	Inclination: VERTICAL	Direction:

EASTING:	mE	EQUIPMENT: 8 Tonne digger		OPERATOR: Jim	
NORTHING:	mN	INFOMAP NO.		COMPANY: Diverse Works	
ELEVATION:	m	DIMENSIONS:		HOLE STARTED: 14-Mar-17	
METHOD:		EXCAV. DATUM:		HOLE FINISHED: 14-Mar-17	

SCALA PENETRATION	GROUNDWATER / SEEPAGE	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK CLASSIFICATION, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, WEATHERING, SECONDARY AND MINOR COMPONENTS	WATER CONTENT	GEOLOGICAL: SOIL / ROCK TYPE, ORIGIN, MINERAL COMPOSITION, DEFECTS, STRUCTURE, FORMATION
		0.4		Brown, organic SILT & SAND. Sand is fine. Loose to Medium Dense/Firm. Massive.	Dry	TOPSOIL/LOESS
		3.0		Grey, silty SAND & silty SAND with minor gravel. Sand is fine. Gravel is fine to coarse. Poorly graded. Medium Dense to Dense. Massive.	Dry	GLACIAL TILL
	NO SEEPAGE	3.5		Light Grey, SAND & silty SAND with trace of gravel. Sand is fine. Gravel is fine to coarse. Poorly graded. Medium Dense to Dense. Massive.	Dry	GLACIAL TILL

Total Depth = 3.5 m

COMMENT: No water level. Test pit walls stood well - no slumping.

Logged By: J A Stewart
Checked Date:
Sheet: 1 of 1

GeoSolve Ltd

EXCAVATION LOG

EXCAVATION NUMBER: **TP 6**

PROJECT: Lot2 DP417191 Golf Course Rd		Job Number: 170126
LOCATION: See Site Plan	Inclination: VERTICAL	Direction:

EASTING:	mE	EQUIPMENT: 8 Tonne digger		OPERATOR: Jim	
NORTHING:	mN	INFOMAP NO.		COMPANY: Diverse Works	
ELEVATION:	m	DIMENSIONS:		HOLE STARTED: 14-Mar-17	
METHOD:		EXCAV. DATUM:		HOLE FINISHED: 14-Mar-17	

SCALA PENETRATION	GROUNDWATER / SEEPAGE	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK CLASSIFICATION, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, WEATHERING, SECONDARY AND MINOR COMPONENTS	WATER CONTENT	GEOLOGICAL: SOIL / ROCK TYPE, ORIGIN, MINERAL COMPOSITION, DEFECTS, STRUCTURE, FORMATION
		0.3		Dark Brown, organic SILT. Firm.	Dry	TOPSOIL
		0.5		Light Brown, silty SAND. Sand is fine. Uniformly graded. Loose to Medium Dense. Massive.	Dry	LOESS
		0.7		Light Brown, silty sandy GRAVEL. Sand is fine to coarse. Gravel is fine to medium. Poorly graded. Medium Dense. Massive.	Dry	COLLUVIUM
		2.8		Grey, SAND to silty SAND with minor gravel. Sand is fine. Poorly graded. Medium Dense to Dense. Massive.	Dry	GLACIAL TILL
	NO SEEPAGE	3.5		Dark Grey, SAND with minor silt & trace to minor gravel. Sand is fine. Gravel is fine to medium. Poorly graded. Medium Dense to Dense. Massive.	Moist	GLACIAL TILL

Total Depth = 3.5 m

COMMENT: No water level. Test pit walls stood well - no slumping.	Logged By: J A Stewart
	Checked Date:
	Sheet: 1 of 1

GeoSolve Ltd
EXCAVATION LOG

EXCAVATION NUMBER: **TP 7**

PROJECT: Lot2 DP417191 Golf Course Rd			Job Number: 170126
LOCATION: See Site Plan	Inclination:	VERTICAL	Direction:

EASTING:	mE	EQUIPMENT: 8 Tonne digger		OPERATOR: Jim	
NORTHING:	mN	INFOMAP NO.		COMPANY: Diverse Works	
ELEVATION:	m	DIMENSIONS:		HOLE STARTED: 14-Mar-17	
METHOD:		EXCAV. DATUM:		HOLE FINISHED: 14-Mar-17	

SCALA PENETRATION	GROUNDWATER / SEEPAGE	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK CLASSIFICATION, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, WEATHERING, SECONDARY AND MINOR COMPONENTS	WATER CONTENT	GEOLOGICAL: SOIL / ROCK TYPE, ORIGIN, MINERAL COMPOSITION, DEFECTS, STRUCTURE, FORMATION
		0.4		Brown, organic SILT & SAND. Sand is fine. Firm/Loose to Medium Dense. Massive.	Dry	TOPSOIL/LOESS
		0.75		Light Brown, silty sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse. Gravel is predominantly fine to medium. Poorly graded. Medium Dense. Massive.	Dry	COLLUVIUM
	NO SEEPAGE	3.3		Light Grey, SAND & silty SAND with trace to minor gravel & lenses of SILT. Sand is fine to medium. Gravel is fine to coarse. Gravel is sub-rounded. Poorly graded. Medium Dense too Dense. Massive.	Dry	GLACIAL TILL

Total Depth = 3.3 m

COMMENT: No water level. Test pit walls stood well - no slumping.	Logged By: J A Stewart
	Checked Date:
	Sheet: 1 of 1

GeoSolve Ltd

EXCAVATION LOG

EXCAVATION NUMBER: **TP 8**

PROJECT: Lot2 DP417191 Golf Course Rd		Job Number: 170126
LOCATION: See Site Plan	Inclination: VERTICAL	Direction:

EASTING:	mE	EQUIPMENT: 8 Tonne digger		OPERATOR: Jim	
NORTHING:	mN	INFOMAP NO.		COMPANY: Diverse Works	
ELEVATION:	m	DIMENSIONS:		HOLE STARTED: 14-Mar-17	
METHOD:		EXCAV. DATUM:		HOLE FINISHED: 14-Mar-17	

SCALA PENETRATION	GROUNDWATER / SEEPAGE	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK CLASSIFICATION, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, WEATHERING, SECONDARY AND MINOR COMPONENTS	WATER CONTENT	GEOLOGICAL: SOIL / ROCK TYPE, ORIGIN, MINERAL COMPOSITION, DEFECTS, STRUCTURE, FORMATION
		0.35		Grey, organic SILT. Firm.	Dry	TOPSOIL
		2.5		Grey, SAND & silty SAND with trace of gravel & lenses of SILT. Sand is fine. Gravel is fine to medium. Poorly graded. Medium Dense to Dense. Massive.	Dry	GLACIAL TILL
	NO SEEPAGE	3.6		Dark Grey, silty SAND with minor gravel & lenses of silt. Gravel is fine to coarse. Sand is fine. Poorly graded. Medium Dense to Dense. Massive.	Moist	GLACIAL TILL

Total Depth = 3.6 m

COMMENT: No water level. Test pit walls stood well - no slumping.

Logged By: J A Stewart

Checked Date:

GeoSolve Ltd
EXCAVATION LOG

EXCAVATION NUMBER: **TP 9**

PROJECT: Lot2 DP417191 Golf Course Rd		Job Number: 170126
LOCATION: See Site Plan	Inclination: VERTICAL	Direction:

EASTING:	mE	EQUIPMENT: 8 Tonne digger		OPERATOR: Jim	
NORTHING:	mN	INFOMAP NO.		COMPANY: Diverse Works	
ELEVATION:	m	DIMENSIONS:		HOLE STARTED: 14-Mar-17	
METHOD:		EXCAV. DATUM:		HOLE FINISHED: 14-Mar-17	

SCALA PENETRATION	GROUNDWATER / SEEPAGE	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK CLASSIFICATION, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, WEATHERING, SECONDARY AND MINOR COMPONENTS	WATER CONTENT	GEOLOGICAL: SOIL / ROCK TYPE, ORIGIN, MINERAL COMPOSITION, DEFECTS, STRUCTURE, FORMATION
		0.2		Grey, organic SILT. Firm.	Dry	TOPSOIL
		0.9		Light Brown, GRAVEL with trace to minor sand. Sand is fine to coarse. Gravel is fine to coarse. Predominantly fine to medium gravel. Poorly graded. Loose to Medium Dense. Massive.	Dry	OUTWASH GRAVEL
		2.9		Light Grey, SAND, SAND with minor to some gravel, silty SAND & gravelly SAND with trace of cobbles. Sand is fine. Gravel is rounded to sub-rounded. Poorly graded. Medium Dense to Dense. Massive.	Dry	GLACIAL TILL
	NO SEEPAGE	3.6		Grey, silty SAND with minor to some gravel. Sand is fine. Gravel is fine to coarse. Poorly graded. Medium Dense to Dense. Massive.	Moist	GLACIAL TILL

Total Depth = 3.6 m

COMMENT: No water level. Test pit walls stood well - no slumping.

Logged By: J A Stewart
Checked Date:
Sheet: 1 of 1

GeoSolve Ltd
EXCAVATION LOG

EXCAVATION NUMBER: **TP 10**

PROJECT: Lot2 DP417191 Golf Course Rd		Job Number: 170126
LOCATION: See Site Plan	Inclination: VERTICAL	Direction:

EASTING:	mE	EQUIPMENT: 8 Tonne digger		OPERATOR: Jim	
NORTHING:	mN	INFOMAP NO.		COMPANY: Diverse Works	
ELEVATION:	m	DIMENSIONS:		HOLE STARTED: 14-Mar-17	
METHOD:		EXCAV. DATUM:		HOLE FINISHED: 14-Mar-17	

SCALA PENETRATION	GROUNDWATER / SEEPAGE	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK CLASSIFICATION, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, WEATHERING, SECONDARY AND MINOR COMPONENTS	WATER CONTENT	GEOLOGICAL: SOIL / ROCK TYPE, ORIGIN, MINERAL COMPOSITION, DEFECTS, STRUCTURE, FORMATION
		0.15		Grey, organic SILT. Firm.	Dry	TOPSOIL
		0.4		Light Brown, silty SAND. Sand is fine. Medium Dense. Massive.	Dry	LOESS
		0.7		Light Brown, silty sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse. Gravel is predominantly fine to medium. Poorly graded. Medium Dense. Massive.	Dry	COLLUVIUM
		1.6		Light Grey, silty SAND with minor gravel. Sand is fine. Gravel is fine to medium. Poorly graded. Medium Dense to Dense. Massive.	Dry	GLACIAL TILL
		2.5		Grey, sandy GRAVEL to gravelly SAND with minor cobbles & boulders. Sand is fine to coarse. Gravel is fine to coarse. Boulders up to 300 mm. Well graded. Medium Dense to Dense. Massive.	Moist	OUTWASH GRAVEL
	NO SEEPAGE	3.6		Grey, silty SAND with some gravel. Sand is fine. Gravel is fine to coarse. Poorly graded. Medium Dense to Dense. Massive.	Moist	GLACIAL TILL

Total Depth = 3.6 m

COMMENT: No water level. Test pit walls stood well - no slumping.	Logged By: J A Stewart
	Checked Date:
	Sheet: 1 of 1

GeoSolve Ltd

EXCAVATION LOG

EXCAVATION NUMBER: **TP 11**

PROJECT: Lot2 DP417191 Golf Course Rd		Job Number: 170126
LOCATION: See Site Plan	Inclination: VERTICAL	Direction:

EASTING:	mE	EQUIPMENT: 8 Tonne digger		OPERATOR: Jim	
NORTHING:	mN	INFOMAP NO.		COMPANY: Diverse Works	
ELEVATION:	m	DIMENSIONS:		HOLE STARTED: 14-Mar-17	
METHOD:		EXCAV. DATUM:		HOLE FINISHED: 14-Mar-17	

SCALA PENETRATION	GROUNDWATER / SEEPAGE	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK CLASSIFICATION, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, WEATHERING, SECONDARY AND MINOR COMPONENTS	WATER CONTENT	GEOLOGICAL: SOIL / ROCK TYPE, ORIGIN, MINERAL COMPOSITION, DEFECTS, STRUCTURE, FORMATION
		0.1		Dark Brown, gravelly organic SILT. Firm.	Dry	TOPSOIL
		0.85		Light Brown, silty sandy GRAVEL with trace of cobbles. Sand is fine to coarse. Gravel is fine to coarse. Gravel is rounded to sub-rounded. Well graded. Medium Dense. Massive.	Dry	COLLUVIUM
	NO SEEPAGE	3.6		Light Grey, silty SAND with some gravel & trace of cobbles. Sand is fine. Gravel is fine to coarse. Gravel is rounded to sub-rounded. Poorly graded. Medium Dense to Dense. Massive.	Dry	GLACIAL TILL

Total Depth = 3.6 m

COMMENT: No water level. Test pit walls stood well - no slumping.

Logged By: J A Stewart

Checked Date:

Sheet: 1 of 1

GeoSolve Ltd
EXCAVATION LOG

EXCAVATION NUMBER: **TP 12**

PROJECT: Lot2 DP417191 Golf Course Rd		Job Number: 170126
LOCATION: See Site Plan	Inclination: VERTICAL	Direction:

EASTING:	mE	EQUIPMENT: 8 Tonne digger	OPERATOR: Jim
NORTHING:	mN	INFOMAP NO.	COMPANY: Diverse Works
ELEVATION:	m	DIMENSIONS:	HOLE STARTED: 14-Mar-17
METHOD:		EXCAV. DATUM:	HOLE FINISHED: 14-Mar-17

SCALA PENETRATION	GROUNDWATER / SEEPAGE	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK CLASSIFICATION, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, WEATHERING, SECONDARY AND MINOR COMPONENTS	WATER CONTENT	GEOLOGICAL: SOIL / ROCK TYPE, ORIGIN, MINERAL COMPOSITION, DEFECTS, STRUCTURE, FORMATION
		0.4		Brown, organic SILT & SAND. Firm/Loose to Medium Dense. Massive.	Dry	TOPSOIL/LOESS
		0.9		Light Brown, silty sandy GRAVEL with trace of cobbles. Sand is fine to coarse. Gravel is fine to coarse. Gravel is sub-rounded. Well graded. Medium Dense. Massive.	Dry	COLLUVIUM
		2.0		Light Grey, SILT & silty SAND with minor to some gravel & horizons of gravelly SAND. Sand is fine. Gravel is fine to coarse. Poorly graded. Medium Dense to Dense. Massive.	Dry	GLACIAL TILL
	NO SEEPAGE	3.5		Grey, silty SAND with some gravel & horizons of sandy GRAVEL. Sand is fine. Gravel is fine to coarse. Poorly graded. Medium Dense to Dense. Massive.	Moist	GLACIAL TILL

Total Depth = 3.5 m

COMMENT: No water level. Test pit walls stood well - no slumping.	Logged By: J A Stewart
	Checked Date:
	Sheet: 1 of 1

GeoSolve Ltd
EXCAVATION LOG

EXCAVATION NUMBER: **TP 13**

PROJECT: Lot2 DP417191 Golf Course Rd			Job Number: 170126
LOCATION: See Site Plan	Inclination:	VERTICAL	Direction:

EASTING:	mE	EQUIPMENT: 8 Tonne digger		OPERATOR: Jim	
NORTHING:	mN	INFOMAP NO.		COMPANY: Diverse Works	
ELEVATION:	m	DIMENSIONS:		HOLE STARTED: 14-Mar-17	
METHOD:		EXCAV. DATUM:		HOLE FINISHED: 14-Mar-17	

SCALA PENETRATION	GROUNDWATER / SEEPAGE	DEPTH (m)	GRAPHIC LOG	SOIL / ROCK CLASSIFICATION, PLASTICITY OR PARTICLE SIZE CHARACTERISTICS, COLOUR, WEATHERING, SECONDARY AND MINOR COMPONENTS	WATER CONTENT	GEOLOGICAL: SOIL / ROCK TYPE, ORIGIN, MINERAL COMPOSITION, DEFECTS, STRUCTURE, FORMATION
		0.25		Brown, organic SILT & SAND. Sand is fine. Firm/Loose to Medium Dense.	Dry	TOPSOIL/LOESS
		0.65		Brown, sandy GRAVEL & GRAVEL with trace of sand. Sand is fine to coarse. Gravel is fine to coarse. Gravel is sub-rounded. Poorly graded. Loose to Medium Dense. Bedded.	Dry	OUTWASH GRAVEL
	NO SEEPAGE	3.5		Light Grey, SAND to silty SAND with trace of gravel & cobbles. Sand is fine. Gravel is fine to coarse. Poorly graded. Medium to Dense. Massive.	Dry to Moist	GLACIAL TILL

Total Depth = 3.5 m

COMMENT: No water level. Minor slumping of test pit walls within outwash gravel.

Logged By: J A Stewart
Checked Date:
Sheet: 1 of 1

Appendix C Confirmation of supply Telecommunications

Chorus Network Services
PO Box 9405
Waikato Mail Centre
Hamilton 3200
Telephone: 0800 782 386
Email: tsg@chorus.co.nz

1 March 2017

Chorus Ref: WNK39181
Your Ref: W4046

C/- Paterson Pitts Group
PO Box 283
Wanaka 9343

Attention: Duncan White

Dear Sir / Madam

SUBDIVISION RETICULATION - WNK: Cnr Cadrona Valley Road and Golf Course Roads, Wanaka - 70 Lots - Estimate Only

Thank you for your enquiry regarding the above subdivision.

Chorus is pleased to advise that, as at the date of this letter, we would be able to provide ABF telephone reticulation for this subdivision. In order to complete this reticulation, we require a contribution from you to Chorus' total costs of reticulating the subdivision. Chorus' costs include the cost of network design, supply of telecommunications specific materials and supervising installation. At the date of this letter, our estimate of the contribution we would require from you is $128,800.00 (including GST).

We note that (i) the contribution required from you towards reticulation of the subdivision, and (ii) our ability to connect the subdivision to the Chorus network, may (in each case) change over time depending on the availability of Chorus network in the relevant area and other matters.

If you decide that you wish to undertake reticulation of this subdivision, you will need to contact Chorus (see the contact details for Chorus Network Services above). We would recommend that you contact us at least 3 months prior to the commencement of construction at the subdivision. At that stage, we will provide you with the following:

- confirmation of the amount of the contribution required from you, which may change from the estimate as set out above;

- a copy of the Contract for the Supply and Installation of Telecommunications Infrastructure, which will govern our relationship with you in relation to reticulation of this subdivision; and

- a number of other documents which have important information regarding reticulation of the subdivision, including - for example - Chorus' standard subdivision lay specification.

Yours faithfully

Jordan Kennedy
Network Services Coordinator

Appendix D Confirmation of supply Electricity

Aurora

Your Ref:
Our Ref:

28 February 2017

Duncan White
Paterson Pitts Partners Ltd
P O Box 283
WANAKA 9343

By email only: duncanwhite@ppgroup.co.nz

Dear Duncan

RE: ELECTRICITY SUPPLY FOR SUBDIVISION 70 GOLF COURSE ROAD, WANAKA PROPOSED 70 LOT SUBDIVISION OF LOT 2 DP 417191

Thank you for your request dated 25 February 2017, outlining the above proposed development.

Aurora can make an electricity supply available for this development, subject to the following conditions:

- Supply confirmation is limited to a single phase 15kVA supply per lot.
- Easements in gross, in favour of Aurora, must be granted over the placement of all new and existing Aurora plant associated with this development, unless installed in road reserve.
- Where the development involves further subdivision of a land parcel containing an existing serviced installation, the mains cables (overhead or underground) intended to supply each lot must be completely contained within the lot that it serves. In some cases this will require relocation of the cable serving the existing installation.
- All electrical installations must comply with Aurora's Network Connection Requirements and related standards & policies.
- The developer must comply with the Electricity Act, subordinate Regulations and associated Codes of Practice. Particular attention must be paid to the minimum distances between power lines and other structures defined in NZECP34:2011 "NZ Electrical Code of Practice for Electrical Safe Distances".
- No building shall be erected over any electricity easement without specific written authority from Delta's General Manager – Asset Management
- The developer is responsible for all resource consents and local authority approvals.
- The developer will be required to make capital contributions toward the costs of providing the power supply, in accordance with Aurora's Capital Contributions policy prevailing at the time the development, or each stage of development, proceeds.
- This approval will lapse within 12 months of the date of this letter, unless the developer enters into a formal supply agreement with Aurora for this development.

Aurora Energy Limited
10 Halsey Street • Dunedin • New Zealand
Email enquiries @auroraenergy.co.nz
Postal PO Box 1404
Phone 03-474-0322
Fax 03-477-5771

Please note that this letter is to confirm that a power supply can be made available and does not imply that a power supply is available now, or that Aurora will make power available at their cost.

Aurora's Network Connection Requirements and Capital Contributions policy are available from http://www.auroraenergy.co.nz/. Should you require further information or clarification please contact the undersigned.

Yours sincerely

Richard Starkey
Commercial Development Manager (Delta)
For Aurora Energy Limited

DDI Phone	(03) 470 7504
Mobile	(021) 117 5100
Fax	(03) 477 5771
Email	richard.starkey@thinkdelta.co.nz

Please send this form to: Network Connections Manager
P.O. Box 1404
DUNEDIN

Phone (03) 479-6680
Fax (03) 477-5771
Email: networkconnections@thinkdelta.co.nz

Developer's Details

Name:
Company: Gordon Family Trust
Postal address: 70 Golf Course Rd
Wanaka
Phone: _____ Postcode: 9305
Email: _____

Surveyor / Project Manager Details

Name: Duncan White
Company: Paterson Pitts Group
Postal address: PO Box 283
Wanaka
Phone: (03) 443 0110 Postcode: 9343
Email: duncan.white@ppgroup.co.nz

Type of Development

- [x] Residential subdivision
- [ ] Commercial / industrial subdivision
- [x] Individually metered apartment building (Possibly)
- [ ] Individually metered commercial building

Subdivision Only - Details of Land Being Subdivided

Legal Decription: Lot 2 DP 417191

Total number of lots: approx 70

Staged development? [x] Yes [ ] No

If 'Yes', please provide details of the staging plan, including the number of lots and the proposed completion dates, for each stage.

Resource Consent no.: concept only

Connection Capacity - Subdivision

Please refer to Aurora's Network Connections Standard for a list of available connection capacities.

Standard residential capacity (≤ 15kVA)? [x] Yes [ ] No

If 'No', state required connection capacity _____ kVA

Connection Capacity - Apartment

Please refer to Aurora's Network Connections Standard for a list of available connection capacities.

Standard residential capacity (≤ 15kVA)? [x] Yes [ ] No.

If 'No', state required connection capacity _____ kVA

Body corporate / landlord supply? [ ] Yes [ ] No.

If 'Yes', state required connection capacity _____ kVA

Connection Capacity – Commercial Building

Please refer to Aurora's Network Connections Standard for a list of available connection capacities.

No. of connections:		Capacity:	kVA
No. of connections:		Capacity:	kVA
No. of connections:		Capacity:	kVA
No. of connections:		Capacity:	kVA
No. of connections:		Capacity:	kVA

Notes:

1. Aurora's Network Connections standard is available from www.auroraenergy.co.nz
2. The developer may be required to make a capital contribution toward the cost of developing the distribution network, in order to make the new connections available. Aurora's capital connection policy is available from www.auroraenergy.co.nz
3. Connection capacities should be carefully considered. Where capacity requirements are over-stated, and a capacity downgrade is subsequently requested, there may be additional capital contributions payable before the capacity downgrade will be authorised.

I confirm that the details provided in this application are correct:

Signed: DM White Name: (Print) Duncan White Date: 25/07/17

Appendix E Traffic engineering report

23 March 2017

P D Gordon Family Trust

C/- Paterson Pitts Group
PO Box 283
Wanaka, 9343

Attention: Duncan White

Dear Duncan,

P D Gordon Family Trust, Medium Density Residential Proposed Zone Change – Transport Assessment

The purpose of this letter is to provide a transport assessment for a possible Medium density zone change for a portion of land owned by P D Gordon Family Trust.

1 Site

1.1 Location

The land is located at the intersection of Cardrona Valley Road and Golf Course Road, Wanaka is legally described as Lot 2 DP 417191. The Figure 1 below shows the location of the application site.

Figure 1 – Site Location, source QLDC webmaps

1.2 Land Use and Zoning

The site is undeveloped and generally used for grazing. Along with land to the south (accessed from Cardrona Valley Road) and west (accessed from Golf Course Road) the site is zoned as Rural Residential in the Operative QLDC District Plan as rural residential. The land to the west is developed as Aspiring Lifestyle Retirement Village and land to the south has recently been developed as the Aspiring Enliven Care Centre to the south.

The land to the north (opposite) on Golf Course Road is designated Recreational Reserve (Designation 95) and accommodates the Wanaka Golf Course. To the west on the opposite side of Cardrona Valley Road is generally zoned and developed as Low Density Residential.

1.3 Road Network

Legal access to the site land can be provided from Cardrona Valley Road or Golf Course Road.

Based on the Operative QLDC District Plan both Cardrona Valley Road and Golf Course Road are considered as Local Road, they are not identified as Collector Roads or Arterial Road within the Road Hierarchy[1].

Crown Range Road and McDougall Street are both listed as arterial roads suggesting that Cardrona Valley Road would also function as an arterial road being part of the transport link between the Wakatipu area and Wanaka town centre.

It is also noted that Golf Course Road would also provide a future link between the southwest Wanaka area and the future Three Parks area. It is considered that Golf Course Road should be considered as a collector road.

For the purpose of this assessment it is prudent to assume that Cardrona Valley Road would be an Arterial Road and Golf Course Road would be a Collector Road.

2 Proposed Zone Change

The Proposed District Plan identifies the site as potentially becoming zoned as Low Density Residential which is consistent with the majority of the surrounding land. The Urban Design Assessment undertaken for the Submitters (P D Gordon Family Trust) suggest that the site could be developed as approximately 40 low density residential dwellings.

The Submitters have requested that the site is to be rezoned as Medium Density Residential. The Urban Design Assessment[2] has been undertaken to investigate a potential development concept for the site. This concept identifies that it is possible to develop approximately 65 medium density residential dwellings on the site. The medium density concept identifies possible accesses from both Golf Course Road and Cardrona Valley Road.

2.1 Traffic Generation

As a suburban residential development it is likely that a residential dwelling at the site may generate approximately 10.9 vehicles per day (vpd). For the suggested 40 low density residential units this would equate to approximately 440vpd. For the 65 medium density residential units this would increase to 710vpd. It is likely that whichever the development type, medium density or low density, that any accesses should be treated as high volume accesses and should be designed as intersections following current Austroads guidance.

[1] Refer Operative QLDC District Plan, Appendix 6 Road Hierarchy.
[2] Refer Gateway Site, Medium Density Zoning, Urban Design Assessment (February 2017)

Depending on the future traffic flows on Cardrona Valley Road and Golf Course Road it is possible that any intersection design may require basic intersection modelling[3].

2.2 Access

The Operative QLDC District Plan uses road frontage length to determine the maximum number of accesses allowed from a site, refer Section 14.2.4.2 v Maximum Number of Vehicle Accesses. This suggests that the proposed development may have 1 access from Cardrona Valley Road (based on 61m frontage length on an Arterial Road) and 3 accesses from Golf Course Road (based on a 104m frontage length on a Collector Road).

The Operative QLDC District Plan also provides minimum separation distances to limit any potential effect on the nearest intersection being the existing intersection of Cardrona Valley Road with Golf Course Road refer Section 14.2.4.2 vi Distances of Vehicle Crossings from Intersections. This suggested that any proposed access on Cardrona Valley Road should be located greater than 40m from the intersection with Golf Course Road. Likewise, any access from Golf Course Road should be located greater than 35m from the intersection with Cardrona Valley Road as well as 30m from the access to the Aspiring Lifestyle Retirement Village which is a private access formed as a local road.

The Urban Design Assessment suggests that the proposed development would have two accesses; one from Cardrona Valley Road and one from Golf Course Road. The proposed access are:

- Cardrona Valley Road - Access proposed on the southern property boundary which will be separated from the Golf Course Road intersection by more than the 40m minimum. The proposed access will have visibility sight distances of greater than 125m in either direction which will be greater than the minimum Austroads guidance[4].
- Golf Course Road - only one access is proposed which will be greater than 35m from the intersection with Cardrona Valley Road. This access will also be greater than 30m from the adjacent Rodeo Drive (the private road accessing the Aspiring Lifestyle Retirement Village). The proposed access position will meet the minimum visibility sight distance to the east. To the west this will be restricted by the intersection with Cardrona Valley Road where approach speed will be reduced thereby meeting the minimum requirements.

The proposed accesses to the medium density residential concept provided in the Urban Design Assessment are considered to be feasible and can be designed to meet minimum requirements of an intersection based on current Austroads guidance.

2.3 Internal Road Layout

The layout concept developed in the Urban Design report provides a simple on-site road network which allows for circulation of traffic between the proposed accesses from the adjacent local road network. Based on this layout it is expected that the internal road design would be developed in accordance with the New Zealand Standard, NZS:4404: 2010 Land Development and Subdivision Infrastructure[5].

[3] Refer Austroads Guide to Road Design, Part 4A – Unsignalised and Signalised Intersections, Section 4 Types of Intersection and their selection.
[4] Refer Austroads Guide to Road Design, Part 4A – Unsignalised and Signalised Intersections, Section 3.2.2 Safe Intersection Sight Distance (SISD) which recommends the absolute minimum SISD for 60km/hr is 114m and desirable minimum SISD is 123m.
[5] The QLDC Land Development and Subdivision Code of Practice is based on this standard.

3 Transport Effects

3.1 Off-site Effects

Potential off-site traffic effects are most likely to be noticed at the access intersections. Based on the medium density concept developed in the Urban Design Assessment it is recommended that any access is designed as an intersection in accordance with current Austroads guidance. Utilising Austroads guidance will minimise any safety effects of the proposed development at the access locations.

It is possible that cumulative effects of zone changes in the Proposed District Plan and current committed development could generate potential queuing at the adjacent intersection of Cardrona Valley Road and Golf Course Road is investigated. It is possible that future turning queues at the intersection of Golf Course Road and Cardrona Valley Road could extend to, or beyond the proposed Golf Course Road access. This element can only be assessed with future traffic flows which may be obtained from the QLDC Wanaka traffic model[6].

3.2 On-site effects

Any on-site transport effects can be managed through the design process. The level of development, approximately 65 medium density residential dwellings, suggests that the internal road network is likely to be vested with Council as public roads. It is recommended that any internal road network is design in accordance with the current New Zealand Standard NZS 4404:2010 Land Development and Subdivision Infrastructure.

4 Summary

The Proposed District Plan has identified that a site, owned by P D Gordon Family Trust, is to be rezoned as Low Density Residential. Which could facilitate the development of approximately 40 low density residential dwellings. P D Gordon Family Trust have Submitted that the site be rezoned as Medium Density Residential which would facilitate the development of approximately 65 residential dwellings at the site.

This assessment has reviewed any potential traffic effects as a result of the site rezoning to Medium Density Residential based on the concept developed within the Urban Design Assessment undertaken for the Submitters. This concept suggests two site accesses, one from Cardrona Valley Road and one from Golf Course Road. It is considered that these accesses are appropriate and to minimise any potential traffic effects it is recommended that these accesses are designed as intersections in accordance with current Austroads guidance.

The internal road network is provided as a conceptual layout. It would appear that this conceptual layout would provide a simple internal road network which is considered to be appropriate. To minimise any traffic effects as a result of the internal road network it is recommended that the design is undertaken in accordance with the current New Zealand Standard.

Should you require any further information please contact me.

Yours sincerely,

Jason Bartlett
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Traffic Engineer

[6] The Wanaka Transport Study (2007, MWH) developed a Wanaka traffic model. It is expected that this model would need to be updated to reflect proposed rezoning and future (committed) development.