5.4 Infrastructure Analysis

5.4.1 Roading

The primary access to all properties in the study area is from SH6, which is a proposed limited access road. SH6 traverses through the study area on a north/ south alignment. This is a high capacity highway with a 100km/hr speed limit. Any access, driveway or road intersection will need the approval of Transit New Zealand. The only other formed legal road is Woolshed Bay Road which intersects with SH6 and heads in a more westerly direction, only the first kilometre or so of which is formed.

5.4.2 Wastewater

There is no existing wastewater system within the study area. The nearest community scheme is the Queenstown-Frankton Sewerage System operated by the Queenstown Lakes District Council. The nearest point of connection to the reticulation is at the Kawarau Falls Bridge on SH6. The treatment facility is on the true right bank of the Shotover River just downstream of SH6. The treated effluent discharges to the Shotover River.

In considering options for disposal of wastewater the strong cultural requirement and the growing community preference for disposal to land rather than to water should be respected.

5.4.3 Water Supply:

There is no existing water supply scheme in the study area other than scattered private bores. The nearest community scheme is the Queenstown-Kelvin Heights Water Supply operated by the Queenstown Lakes District Council. The nearest point of connection to the reticulation is at the Kawarau Falls Bridge on SH6 where a large diameter trunk main (approximately 300mm diameter) crosses the bridge. The source of water is Frankton Arm, Lake Wakatipu and there is a 1000 cubic metre storage reservoir above Peninsula Road.

5.4.4 Stormwater

There are a series of streams and watercourses that drain the western flanks of The Remarkables and then cross SH6 in a generally east to west direction. These streams and watercourses have high capacity for flood flows and the increase in runoff from development would be a relatively small additional flow. However these discharges will require the consent of the Otago Regional Council.

It is necessary to recognise that there is some potential risk of flood flows from these streams and watercourses due to the short and very steep catchments, which makes them vulnerable in the event of high intensity short duration rainstorms. Any necessary flood plain or channel containment works need to be identified as part of the land use planning.

5.4.5 Power Supply

There is an existing 11kv overhead power line setback from the east side of SH6 that serves the existing users as far south as Wye Creek. Currently there is no ring feed available for this supply.

5.4.6 Telecommunications:

Telecom NZ Ltd advise that there is an existing fibre optic cable that extends to the Lakeside Estates Development and that this has very high capacity to serve future development. Telecom does not expect that there would be any restriction on the expansion of its system to serve development in this area. (Contact is Innes Forbes, Telecom NZ Ltd Invercargill).

5.5 Existing Public Access within the Study Area

The State Highway is the main conveyor of public access through the study area. An unformed legal road cuts through both Henley Downs and Remarkables Station and terminates at Woolshed Bay. This road is currently unformed except for the first kilometre.

Access to the Remarkables is made available via the Ski Area road, located to the north of the study area. This provides good access for many recreational activities: skiing, mountain biking, hiking and also as a hang gliding launch location.

Public access to the lake edge is currently made available at the discretion of the landowners via the main entry to Remarkables Station. This is used primarily by the Queenstown Windsurfing club who have an arrangement with the landowners, the Jardine family. An existing 'paper' road provides legal access to the lake, but this remains unformed.

The Jardines also allow public access to two well known climbing areas at the foot of the Remarkables. Once again this is an informal arrangement and at the discretion of the landowners.

The airstrip is currently used by a commercial sky diving operation.

6.0 Planning Analysis

This section of the report assesses the relevant policy documents that have affected the Coneburn area for over the past 20 years.

6.1 Chronology of Policy Development

1982 Transitional District Plan
This plan was prepared under the Town and Country Planning Act 1977, which had a different philosophy to the current statute. This Act sought to direct and control development through specific lists of activities.

1993 Settlement Strategy
The Settlement Strategy was commissioned by the Council as part of its preparation of the 1995 District Plan. This strategy sought to identify the methods of accommodating future anticipated growth.

1995 Strategic Plan
This plan was adopted by the Council in 1995, and continues to be an operative Council policy document.

The plan was intended to "set the overall vision of what we would like to see the district achieve in 20 years' time".

The Strategic Plan is the high level plan – with implementation achieved through the District and Annual Plans.

Regional Policy Statement for Otago
The Otago Regional Council notified the RPS in 1993 and made it operative in 1998.

The RPS sets the policy framework for the region (including air, water, and land), and district plans cannot be inconsistent with it.

Plan Change 99 (to the Transitional District Plan)
In response to a large number of rural-lifestyle subdivisions and criticism from the Environment Court as to the permissive nature of the 1982 District Plan, the Council promoted Plan Change 99. Upon issue of the decisions on Plan change 99 a number of references were lodged with the Environment Court.

1995 District Plan
The Council decisions on Plan Change 99 were incorporated into the Proposed District Plan, which was notified for submissions in October 1995. It attracted approximately 4,500 submissions (20,000 points of submission) of which approximately 80% related to the rural area.

This was the first district plan to articulate the value of the landscape to the social and economic well-being of the District. It incorporated a Rural Uplands and Downlands zoning, and 'Areas of Landscape Importance' – with corresponding higher restrictions on use and development.

This plan also included a section on urban growth, with associated issues and objectives – as well as tackling the issue of growth management. Specific 'New Development areas' were identified by zoning and by text description.

After notification of the Proposed Plan, the Council withdrew Plan Change 99.

1998 Decisions on District Plan (submissions)
The Council then began a two year process of hearing from the various submitters, and as a result it amended the District Plan. The District Plan was re-released in 1998, containing the Council's decisions on the submissions received.

The Council amended the plan in response to the weight of submissions. This plan removed Areas of Landscape Importance, combined the two rural zonings, introduced a new 'Rural-Lifestyle' zoning, increased the number of 'rural-Residential' areas and softened the landscape policies. This Plan also removed references to growth management, although the balance of the 'urban growth' section was retained. The 'New Development Areas' were deleted from the Plan.

References
The amended District Plan was then appealed (by reference) to the Environment Court, with approximately 50 of the 201 references relating to the rural area.

Two of these references by the Jardines and Henley Downs sought rezoning of parts of their land from rural to 'Residential New Development' zone.

The Environmental Society lodged several references seeking, in general, a return to the provisions of the Plan as notified

Environment Court decisions - amending District Plan
Landscape has been the most significant issue before the Court. Intermingled within this broad issue have been various sub-issues such as methodology for controlling effects (ie. zoning), density of rural living, locations of rural sub-zones, subdivision rules, the introduction of 'tiers of landscape', restrictions on land-use, and the format for assessing development proposals.

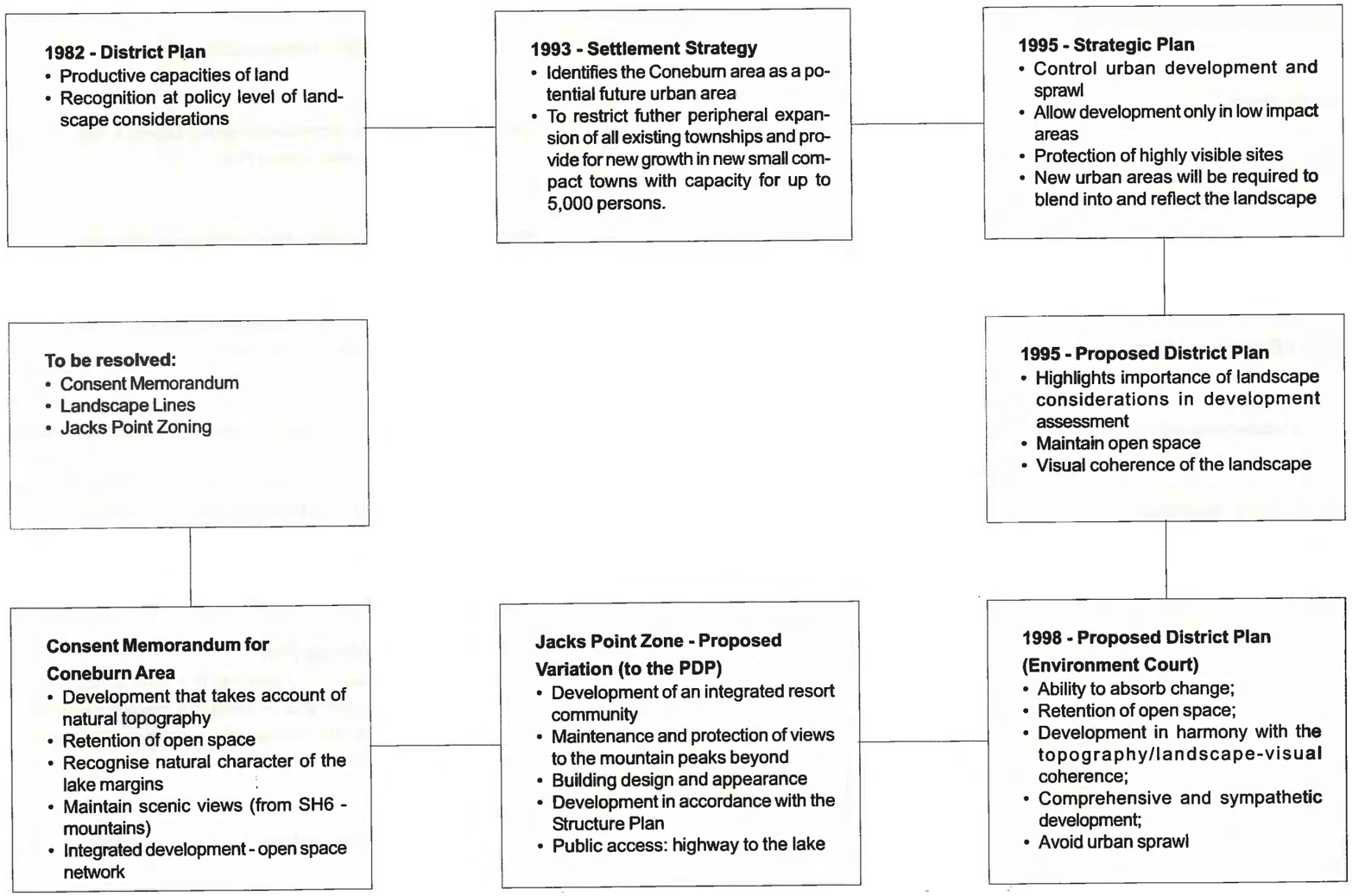
Consent Memorandum
The Jardines and Henley Downs references were resolved through a consent memorandum in 2002. This resulted in all parties (including the Council) agreeing that new policy provisions would be included in the District Plan; generally identifying the Coneburn area as being suitable for future urban development.

Jacks Point Zone Variation
The Council notified the Jacks Point zone variation in October 2001. This affected 410 hectares of rural land, providing for an integrated resort and residential community of up to 2 golf courses, 400 dwellings/ visitor units and ancillary recreation and central facilities.

A number of submissions were received, including one from each of the neighbours seeking an extension of this zoning to the north and the south (Henley Downs and the Jardines respectively).

The hearing for this zoning will occur in the latter part of 2002.

6.2 Flow Chart: Chronology of Policy Development



6.3 Chronology of Policy Development Affecting the Coneburn Area

1982 District Scheme

1993 Settlement Strategy

1995 Strategic Plan

1995 - Plan Change 99

1993/1998 Regional Policy Statement for Otago

1995 - District Plan

1998 - District Plan (Incorporating Councils decisions)

1998 - References to the District Plan lodged with the Environment Court

2000/2002 - Environment Court decisions on landscape released

2002 - Consent Memorandum for Jardines - Henley Downs References

2001/2002 - Jacks Point Zone advertised for submissions

6.4 Flow Chart: Chronology of Policy Development Specifically Affecting the Coneburn Area

1993 - Settlement Strategy identifying the Coneburn Area

1995 - Plan Change 99 - Identifying the Coneburn Area

1995 - Submissions to Plan Change 99 by Jardines and Henley Downs

1995 - Notification of Proposed District Plan

1995 - Submissions by Jardines and Henley Downs to the Proposed District Plan

1988 - Decisions on Proposed Plan submissions released

1998 - References lodged by Jardines and Henley Downs to Proposed Plan decisions

2001 - Proposed Resolution of Reference through Consent Memorandum

Jacks Point Zone advertised for submissions and cross-submissions

6.5 Identification of Key Policies (from each document)

1982 Transitional District Plan

The rural policy focus of this plan was to ensure protection of land for active farming purposes, while also ensuring that areas of interest to visitors would be protected. The term 'landscape' is not mentioned in the District-wide objectives and policies.

Key Policy Points:

- Maintenance of the existing land use categories and their respective boundaries
- Support for the tourism industry
- Retention of farming land for such purposes

1993 - Settlement Strategy

The preliminary landscape assessment recognised the Coneburn area as one

of two locations suitable for residential development (the other being Gibbston terrace).

Six potential settlement options were identified, and four included as recommendations (x):

- Higher density development within existing settlements x
- Incremental growth
- Infilling and planned extension to existing settlements x
- New towns x
- Hamlets x
- Rural subdivision

Key Policy Points:
To restrict further peripheral expansion of all existing townships and provide for new growth in new small compact towns with capacity for up to 5,000 persons. One of the four recommended options was to provide for new towns of between 2500 and 5000 residents. Two of the six possible township locations were within the Coneburn area; Woolshed/ Homestead Bay and an area straddling the boundary of Henley Downs and Jacks Point.

1995 Strategic Plan
The plan canvassed 25 topics, including management of growth, urban form and housing and established the 'vision' for 2015.

Key Policy Points:

- Control urban development and sprawl
- Allow development only in low impact areas
- Protection of highly visible sites
- Limit size of urban areas
- Create areas of comprehensively planned higher density housing
- Development of new urban areas in appropriate locations will be supported
- New urban areas will be required to blend into and reflect the landscape
- Growth in existing urban areas will be restricted to roughly the existing urban boundaries

Regional Policy Statement for Otago
Like the Strategic Plan, this document provides an overview or policy framework, without touching on any specific area.

Key Policy Points:

- Promotion of sustainable land management practices
- Protect Otago's outstanding natural features and landscapes
- Ensure public access opportunities exist
- Avoid, remedy, or mitigate degradation of Otago's natural and physical resources
- Safeguard the life supporting capacity of Otago's water resources
- Maintain and enhance the ecological, intrinsic, amenity and cultural values of Otago's water resources

Plan Change 99 (to the Transitional District Plan)
Key Policy Points:

- Areas of Landscape Importance
- Indicative 'new town' locations
- A minimum allotment size of 150 hectares
- Introduction of landscape matters as principal development consideration

Five possible new settlement areas were shown, the two settlements areas for the Coneburn area were rationalised to a single area within the Central Valley and Hummocks

Council received over opposing 900 submissions to the change, including one from the Ministry of the Environment opposed to indicating locations of 'new towns'.

The Jardines and Henley Downs both lodged submissions to this plan change. The Jardine submission notes that the 'new settlement area' should be approved.

In it's decisions the Council:

- Retained the Areas of Landscape Importance
- Deleted the 'new town' locations
- Decreased the minimum lot size to 20 hectares

1995 District Plan
This plan was the culmination of a number of studies, including the Settlement Strategy and Plan Change 99.

Key Policy Points:

- Identified 'Areas of Landscape Importance'
- Avoid adverse effects on landscape values
- Preserve visual coherence of the landscape
- Identification of 'Residential New Development Areas' at 7 locations, including one at "Frankton, south of the airport"
- New urban development:
- to maintain open character/ minimise modification of the landscape
- to avoid urban sprawl

Environment Court decisions - amending District Plan
The Court's decisions on landscape have resulted in the following:

Introduction of a three-tier approach to categorising the landscape:

- Outstanding Natural Landscapes ('ONL') and Outstanding Natural Features ('ONF')
- Visual Amenity Landscapes ('VAL')
- Third tier other rural landscape ('ORL')

Inclusion of more specific policies in Part 4 (District–Wide Matters) of the Plan, that encourage development to occur within landscapes that have the ability to absorb change.

Inclusion of Assessment Matters into the rules that establish a methodology for assessing development proposals.

Inclusion of policies and assessment matters that ensure the impact of a development upon the landscape is a primary consideration.

Retention of the 'Urban Development' polices (4.2.5 (6), page 4/9) only slightly modified since the 1995 plan.

Key Policy Points:

In the rural areas, the Proposed Plan generally discourages development unless:

- it occurs in areas that have the ability to absorb change;
- it achieves the retention of open space;
- the development is in harmony with the topography/ landscape ~visual coherence;
- it comprises comprehensive and sympathetic development;
- it avoids urban sprawl

Consent Memorandum

The various parties to the Jardines and Henley Downs references, including the Council, finalised and agreed a Consent Memorandum in 2002.

Key Policy Points:

- Overriding acknowledgement that future development is generally appropriate in this
- area, subject to detailed plans being presented.
- Development that takes account of natural topography
- Retention of open space
- Recognise natural character of lake margins
- Maintain scenic views (from SH6 - mountains)
- Integrated development – open space network

Jacks Point Zone – Variation

Key Policy Points:

- Development of an integrated resort community
- Maintenance and protection of views
- Protection of views across the site (from the State Highway) to the mountains beyond
- Building design and appearance controls
- Open space performance standards
- Development in accordance with the Structure Plan
- Public access from highway to the lake

6.6 Bibliography

Critical extracts from the following documents, referred to in this section of the report, are contained in Appendix 7.

1	1982	(Transitional) District Plan
2	1993	Queenstown-Lakes Settlement Strategy
3	1995	Strategic Plan
4	1993 – 1998	Regional Policy Statement for Otago
5	1995	Plan Change 99 - to the 1982 Transitional District Plan
6	1995	Decisions on submissions - to Plan Change 99
7	1995	Proposed District Plan
8	1995	Submissions to the Proposed District Plan
9	1998	References to the 1998 District Plan (Jardine and Henley Downs)
10	1998	Proposed District Plan (as amended by Environment Court decisions 2001)
11	2001	Consent Memorandum to resolve (Jardine and Henley Down) 1998 Proposed Plan references
12	2001	Jacks Point Zone
13	Jacks Point Zone – neighbour submissions	

7.0 Resource Assessment

7.1 Landscape's Ability to Absorb Change (Figure 12)

In the rural areas such as Coneburn the Proposed Plan generally discourages development unless:

- it occurs in areas that have the ability to absorb change
- it ensures retention of open space
- the development is in harmony with the topography/landscape
- it achieves visual coherence
- it comprises comprehensive and sympathetic development
- it avoids urban sprawl

In assessing the Coneburn area's suitability for development it is necessary to identify areas that "have the ability to absorb change". By overlaying the area's visibility analysis with its landscape character, an assessment can be made of the various landscape's ability to absorb change on a scale of 1 (high potential) through to 5 (low potential):

CATEGORY	POTENTIAL TO ABSORB CHANGE
1	High Potential
2	Medium to High Potential
3	Medium Potential
4	Low to Medium Potential
5	Low Potential

Landscapes can be distinguished by their visibility from surrounding public areas, and landscape characteristics such as vegetation or landform, that assist successful integration of changes into the landscape. These characteristics enable the landscapes of the Coneburn area to be graded from low to high potential to absorb change. Figure 12 provides a broadscale categorisation within the various catagories mapped. There maybe smaller pockets of different category land but due to their small area they are not considered relevant at this broadscale level.

7.2 Ecological Assessment

7.2.1 Ecological Heritage

Considerable potential exists for protection and enhancement of the ecological heritage of the Coneburn area. Planning for new land uses and open space presents an opportunity to create linked corridors of native habitat. High energy ephemeral streams draining the steep scarps of the Remarkables down through the fans, downlands and terraces to the lake provides obvious corridor opportunities.

Reinstatement of the stream margins with native vegetation creates valuable linked habitat and reinforces natural landscape patterns. Similarly the lake margins with already a strong cover of native shrubland presents opportunities for habitat enhancement and extension along the lakeshore within the study area.

Extensive use of locally characteristic native species such as matagouri, silver tussock, red tussocks and mountain beech (where suitable) in future landscape plantings will also enhance the ecological heritage of the Coneburn area.

7.2.2 Species lists for revegetation and enhancement planting for the Coneburn Study Area

Species suitable for enhancement and creation of habitat types identified in this document are appended (Refer Appendix 3). These species list have been compiled from Meurk (1997) and Simpson (2001).

Additional comments on the suitability of species for particular locations or roles within the habitats are given. Such comments include the ability of the species to act as a colonising plant, ameliorating the habitat for the planting, or natural regeneration, of other native species. One species, bracken (Pteridium esculentum) that performs this role in the high-energy stream and lake forest habitats in the study area is not noted. It is capable of self-introducing and thus it does not need to be actively planted. In many instances, allowing bracken to develop prior to planting in areas that are desired to become forest habitats will benefit regeneration and revegetation.

7.2.3 Beech forest regeneration

The development of beech forest, a habitat type that is now poorly represented in the study area, can be slow. To ensure good growth of beech forest the inclusion of appropriate mycorrhizal microbes in the potting mix is essential. Initial shelter from companion plantings of kohuhu (Pittosporum tenuifolium) and mingimingi (Coprosma propinqua) will provide necessary shelter. However beech does grow naturally in open locations so deep shade, or planting in copses of shrubs, would not appear to be beneficial. Growth rates in excess of 0.2 - 1m per year have been reported by Meurk (1997), who further notes that beech has a 'fast' growth rate. He further comments that poor growth in plant species, such as that noted from some beech revegetation plantings in the study area (pers. obs.), are not an indication of poor potential. This poor growth may be the result of missing ingredient (mycorrhizal infections), a pathogen (Meurk 1997) or planting in an inappropriate location. To date, detailed research on revegetation requirements of beech, and other species (that Meurk (1997) notes need study), have not been completed.

In general, of the soil types that Meurk (1997) note as being suitable to sustain mountain and red beech forest, there are only small amounts in the study area. These Dunstan and Blackstone soils are sparingly distributed on the lakeshore terrace, and Jacks Point and Peninsula Hill rouches moutonées. Consideration of the appropriateness of beech revegetation in regard to the soils may increase the success of beech revegetation.

7.3 Infrastructural Assessment

7.3.1 Roading

Transit New Zealand will require access to new development to be from an existing local road or approved new local road. Transit will also limit the number of new road intersections and will require adequate sight distances (330m at 1.5m height) and adequate separation of road intersections. The few existing local roads and approved intersections together with new intersections that meet the criteria of Transit NZ will have to provide access to a number of adjoining properties. However it is expected that it will be possible to gain approval for a sufficient number of new intersections to provide an adequate local roading network to any proposed development within the study area.

7.3.2 Wastewater

There are two primary alternatives for the disposal of wastewater.

(a) On Site Disposal to Land

There are several alternatives for this method of disposal from individual septic tanks for isolated dwellings or large lots (say 4000m2 plus), collection and treatment (see below) or a single community treatment and disposal scheme serving the area of development.

(b) Connection to Council's Treatment Facility

The future of this facility is currently under review as required by the resource consent to discharge treated effluent to the Shotover River. The report is due for release shortly but at this stage it is not certain what the future capacity of this scheme will be or the implications of a large additional area being added to the system. One of the review outcomes is understood to be a shift from disposal of treated effluent to natural water to disposal to land. The distance of some 9km from Remarkables Lodge to the Shotover River may make this option prohibitively expensive except for land closest to Frankton. It is also unlikely that the existing system, from the Kawarau Falls Bridge to the Frankton Beach pump station, will have sufficient capacity to cope with the additional load from the study area as this was not considered at the time of design.

The recommended option is decentralised wastewater management serving clusters of housing with disposal of the treated effluent to land. This option is explained in some detail in the attached report prepared by Professor Ian Gunn for Darby Partners Ltd (Appendix 2). Each separate disposal of treated effluent will require consent from the Otago Regional Council. The size of each housing cluster will be dependent on the layout and the topography but this method of wastewater management allows for considerable flexibility and is particularly suitable for the relatively low overall density proposed. This method also meets the cultural requirement and growing community preference for land disposal.

It will be necessary to ensure that on site disposal of treated wastewater cannot contaminate any existing or proposed water supply.

7.3.3 Water Supply

There are three primary alternative water sources available for the proposed area of development – Lake Wakatipu, a secure bore, or connection to Council's water supply at the Kawarau Bridge. It may be that all of these options are utilised based on proximity to the source.

Lake Wakatipu – this is already Queenstown's only source of drinking water and is pumped from the lake at two locations – west of Two Mile and Frankton Arm. The amount of water needed is extremely small compared to the quantity stored in the lake and compared to the amount of outflow even in low flow conditions. Consents would be needed from the Otago Regional Council (right to take water, right to disturb the lake bed), LINZ acting for the Crown as owner of the lakebed, Civic Corp land use consent and Doc for crossing the foreshore reserve. This is a very good source of drinking water although treatment would still be necessary.

Bores – it is likely that the central valley between SH6 and the high ground close to the lake will be a suitable site for a bore water supply. Preliminary drilling within the Jacks Point property gave promising results for a water bore in the central valley at the northern end of the property. This has yet to be proven by the installation of a permanent bore and pump testing.

Queenstown Water Supply – there is a large diameter trunk main crossing the Kawarau Falls Bridge supplied from the reservoir above Peninsula Road. Lake water is pumped from the lake to the reservoir where it is treated. The existing pump station, reservoir and mains have been sized to cope with growth within the existing zone boundaries. No allowance has been made in the asset planning for new growth in entirely new areas such as Coneburn. Therefore it is reasonable to expect that the existing system would need substantial upgrade to cope with the additional demand from the Coneburn area. However, it may be suitable to supply water to some of the stuudy area from this source.

Storage – all of the options, for water source will require storage above the highest level of development (30m desirable, 25m minimum after friction losses) in the vicinity of the development. There is a suitable site in a deep hollow near the top of Jacks Point and there is high ground under the Remarkables. The visibility of both sites would require the structures to be partially buried and to be completely screened. The storage capacity would have sufficient volume to provide for fire flows (expected to be Class D – 50 litres/second for 2 hours or 360m3) plus sufficient operating storage to cover power outages and mechanical failure. The source would either be from a bore in the central valley as described above or Lake Wakatipu at Woolshed Bay where there is good access. For the latter there would be a lake intake at Woolshed Bay (309m at low level), an in-
ground pump station, a pumping main to a reservoir near the top of Jacks Point at 455m where the water will be treated and then reticulated by gravity mains to the proposed development.

There are a number of options one or several of which can be utilised to serve any proposed development. There does not appear to be any constraints that would inhibit development.

7.3.4 Stormwater

It is expected that stormwater will be directed to natural watercourses and streams, all of which discharge into either Lake Wakatipu or the Kawarau River (at the northern end). Water quality is an issue and it would be necessary to install pollution interceptors in carparks to intercept runoff from the first flush rainfalls.

These watercourses, although dry for most of the year, are fed by reasonably large catchments and the small additional flows from the proposed development will have little impact. Furthermore it is expected that the stormwater design will incorporate features such as grassed watertables and landscape retention ponds that will assist in recharging the water table and to filter any runoff as well as reducing the peak flows.

7.3.5 Power Supply

Delta Utility Services has advised that there is sufficient capacity in the grid exit point (GXP) operated by Transpower from 110kv lines to cope with the expected load increase of up to 1000 lots. (Refer to the attached email from Delta Utility Services Ltd dated 26 March 2002. (Appendix 1)). However the 11kv feeder lines into the area are at 50% capacity. Therefore, an upgrade of the capacity into the area will be required at some time during the development period.

Long term power supply planning has identified the need to construct a zone substation in the Commonage to provide greater security of supply to the Queenstown CBD. One option is to link an 11kv feeder cable to the western end of Kelvin Heights to provide greater capacity and a back feed potential to the CBD. This cable could be extended along the eastern lakeshore by Deer Park Heights, into the Coneburn area and back into the existing 11kv overhead lines to supply the capacity required. There are other options and the planning has not advanced sufficiently to determine which option will best suit the growth of the whole area.

7.4 Potential Public Access (Refer Figure 15)

7.4.1 Potential Public Access

Roading

Potential access roads off the highway corridor have been identified on Figure 14 utilising the existing legal road access off the state highway through Henley Downs. A loop road could then reconnect this back to the State Highway.

Walking

Walking/biking trails could be formed as part of a potential Open Space Network within the study area. A walkway connection linking Lakeside Estates with Kelvin Heights has long been discussed but is difficult to achieve due to the current tenure and incompatibility with existing farming operations. This connection along with the Open Space Network is proposed as part of the Jacks Point Variation. Incentives could be provided to extend this network and public access into neighbouring lands which have lake frontage.

Recreation

Incentives for the landowners could be provided to formalise access to the rock climbing areas, thus ensuring accessibility for future users.

The water sports potential of Woolshed Bay could be further developed to add to the recreational amenity of the area: e.g. windsurfing, recreational boating and fishing.

A potential water taxi/ferry connection from Woolshed Bay to the Queenstown CBD could be developed, thus providing direct public access to Coneburn and its recreational potential. This has the distinct advantage of potentially minimizing road usage to access this area.

8.0 Resource Summary and Guidelines

8.1 Resource Tables

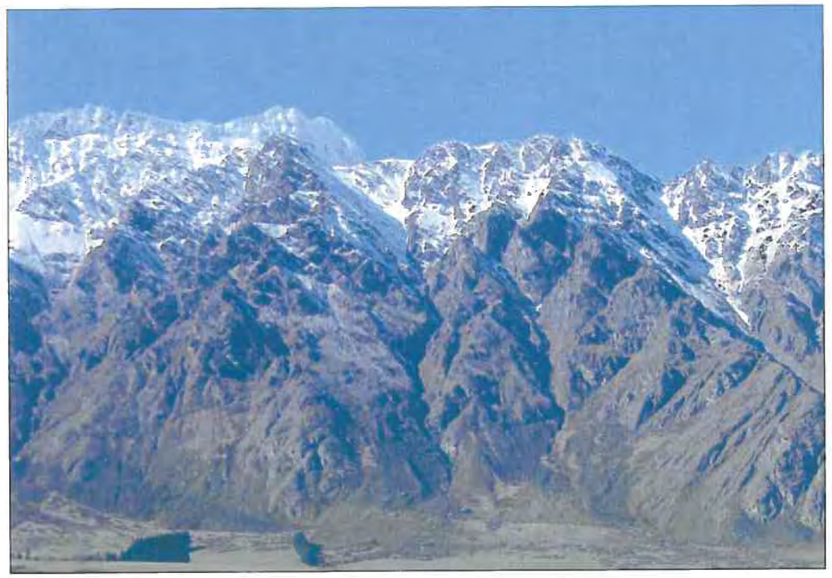
The following tables provide a summary for each landscape type within the Coneburn area in terms of resources, land uses and its inherent ability to absorb change.

Guidelines have also been developed in accordance with key policy points of the proposed district plan relating to:

- mitigation of adverse effects on landscape values
- retention of open space
- achieving development that is in harmony with the topography/landscape – visual coherence
- achieving comprehensive development and avoidance of urban sprawl

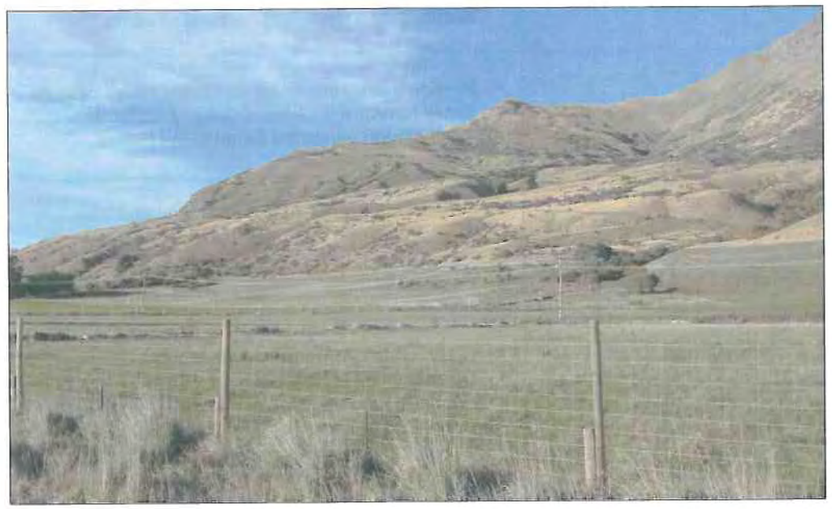
Guidelines have been provided under the following 3 headings: Landscape Management, infrastructure and Public Access, and Recreation. These provide a resource basis for assessing land use suitability and evolving a planning and land use strategy for the Coneburn area.

8.1.1 Remarkables



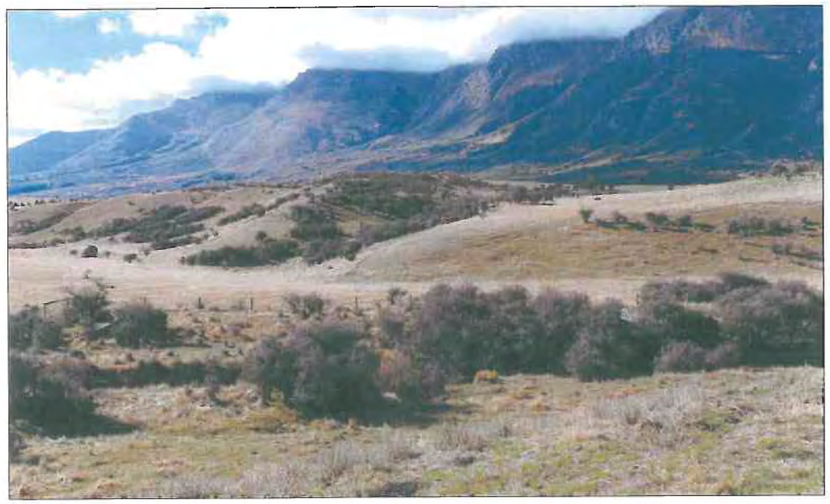
RESOURCE SUMMARY	REMARKABLES
Geology	• Steep Schist scarps and tors • Glacial till and incidential rock slips
Ecology	• Snow Tussockland • Remnant beech forest on lower slopes
Visibility	• Highly visible from the Lake (HV) • Highly visible from SH6 (HV)
Existing Land Uses	• Conservation/ wildlife habitat • Admin by Doc, non interventionist management
Potential Land Uses	• Maintain existing regime • Visual amenity / Open space
GUIDELINES	
Potential to Absorb Change	• Low potential to absorb change (5)
Landscape Management	• Continuation of conservation and allow regeneration to occur • Minimise spread of exotic wildings on lower slopes • Encourage regeneration of ecological heritage, particularly mountain beech
Infrastructure	• N/A
Public Access and Recreation	• Access to this part of Remarkables is limited by topography • There is existing access to the mountain basins via the ski area road

8.1.2 Fans, Fan Deltas and Lower Slopes



RESOURCE SUMMARY	FANS, FAN DELTAS AND LOWER SLOPES
Geology	• Post glacial fans have been constructed by streams draining off the Remarkables • Fans moderately cut by emphemeral streams
Ecology	• Predominantly improved and unimproved pasture • Small remnant pockets of Grey Shrubland
Visibility	• Highly visible from the Lake (HV) • Highly visible from SH6 (HV) • Pockets of lower visibility
Existing Land Uses	• Pastoral farming, farm buildings, structures and dwellings
Potential Land Uses	• Farming and related buildings • Visual amenity / Open space • Native regeneration in ephemeral streams and on the upper fan slopes of the Remarkables
GUIDELINES	
Potential to Absorb Change	• Low potential to absorb change (4/5) with small pockets with moderate ability to absorb change (3) (suitable for siting farm buildings.)
Landscape Management	• Grazing of freehold land to minimise spread of exotic wildings • Landscape management of highway corridor to maintain the open rural character and views to distant mountains • Control type and scale of planting to preserve distant views • Minimise spread of exotic wildings on lower slopes • Encourage regeneration of ecological heritage, around existing stands of mountain beech, grey shrubland and along stream margins
Infrastructure	• Limited development able to be serviced by existing overhead power supply and farm track network
Public Access and Recreation	• Access to this part of Remarkables is limited by topography • There is existing access via the ski area road • Possible formalisation of access for climbers

8.1.3 Hummocks



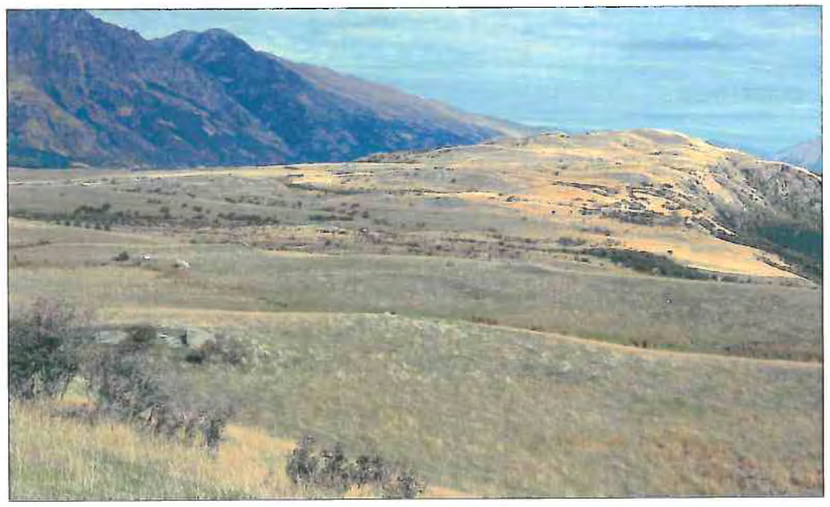
RESOURCE SUMMARY	HUMMOCKS
Geology	• Complex geomorphology • Fans, comprising glacial till, have been deeply incised by distributary channels/ephemeral streams
Ecology	• Predominantly improved and unimproved pasture • Small remnant pockets of Grey Shrubland • Soils of high versatility found in the gullies
Visibility	• Predominantly not visible from SH6 and lake
Existing Land Uses	• Pastoral farming
Potential Land Uses	• Community/Residential development • Open Space/Recreation • Native regeneration • Continued farming
GUIDELINES	
Potential to Absorb Change	• High Potential to absorb change (1) • Medium to High Potential to absorb change (2) where partly visible in distant view from lake
Landscape Management	• Landscape management of highway corridor to maintain the open rural character and views to distant mountains • Control type and scale of planting to preserve distant views • Provide for significant areas of Open Space and Open Space corridors • Revegetation of ephemeral streams with native species to create wildlife corridors connecting to the Remarkables and lake margin • Instigate appropriate design controls on both architecture and landscape • Provide incentives for the regeneration of Grey Shrubland
Infrastructure	• Roading to avoid steeper terrain and extensive earthworks • Services reticulation to be located underground • Wastewater: preferred methods are cluster or communal collection followed by land application of treated wastewater • Where possible, stormwater transport and retention systems should adopt natural engineering principles, using swales and wetlands
Public Access and Recreation	• Incentivise landowners to encourage public access to Lake Wakatipu for hiking and water sport activities

8.1.4 Central Valley (Lake Wakatipu, Middle Valley and SH6)

RESOURCE SUMMARY	CENTRAL VALLEY
Geology	• A combination of fan deltas and beach deposits along the old lake margin
Ecology	• Improved and unimproved pasture • No significant areas of ecological value
Visibility	**Lake Wakatipu End** • Low visibility from SH6 • Moderate visibility from the Lake due to intervening landform of Jacks Point **Middle Valley** • Not visible from the lake • Not visible from SH6 **Northern Valley End by Ski Access Road** • Not visible from the lake • Highly visible from SH6
Existing Land Uses	• Pastoral farming, farm buildings and dwellings • Airstrip
Potential Land Uses	• Integrated residential/village development with emphasis on Open Space • Reinstatement of wetland areas and appropriate native planting in low-lying part of site • Intensive farming and in certain areas with versatile soils • Establishment of ecological corridors • Continued farming
GUIDELINES	
Potential to Absorb Change	**Lake Wakatipu End** • The Wakatipu end of the valley has absorption range from low to medium potential (4) by the Lake edge, through to a medium to high potential (2) where it joins the middle valley. It extends to the upper lake terraces to middle valley and is rated as (2), with medium to high potential to absorb change. **Middle Valley** • The middle valley has a high potential (1) to absorb change **Northern Valley End** • The SH6 end has a low to medium potential due to its close proximity to SH6 and the open nature of the pastoral landscape
Landscape Management	• The areas with an absorption classification of (1) are well suited to higher density village and medium density residential development • Areas classified as (2), are suited to low density or carefully sited village/cluster residential/commercial development enclosed by landscape

RESOURCE SUMMARY	CENTRAL VALLEY
	• Incentives should be provided to encourage the revegetation along lake margin and in ephemeral streams using native species. • Establishment of appropriate architectural and landscape design controls to ensure the intergration of the built with the natural environment • Landscape controls to provide coordinated and unified planting themes to integrate developed areas into landscape.
Infrastructure Guidelines	• All services reticulation to be located underground • Disposal to ground is preferred wastewater treatment method. • Where possible, stormwater transport and retention systems should adopt natural engineering principles, using swales and wetlands. • Wastewater: preferred methods are cluster or communal collection followed by land application of treated wastewater
Public Access & Recreation Guidelines	• Provide incentives to formalise public access to the lake edge at Homestead Bay. Access currently exists, but at the discretion of the landowner. Access via the legal (paper) road through Henley Downs is currently not possible due to its alignment through a wetland area.

8.1.5 Tablelands



RESOURCE SUMMARY	TABLELANDS
Geology	• Glacial Till surrounding a bedrock of schist, located in the midpoint of the tablelands
Ecology	• Predominantly unimproved pasture with stands of Grey Shrubland and several wetland pockets
Visibility	• Not visible from the lake • Low visibility from SH6
Existing Land Uses	• Pastoral farming
Potential Land Uses	• Managed open space, conservation and recreation (golf) • Low density residential/visitor accommodation
GUIDELINES	
Potential to Absorb Change	• Medium (3) and medium to high potential (2) to absorb development.
Landscape Management	• Revegetation of Grey Shrubland and wetland • Guidelines on preferred planting for this area to encourage skink habitat • Low density development with a predominance of Open Space • Instigate appropriate design controls on both architecture and landscape (earthworks) • Strict planting controls (native species) on type and species to avoid domestication of rural landscape • Irrigation retention ponds to be integrated into the natural landscape • Integration of golf course with native shrubland margin
Infrastructure	• All services reticulation to be located underground • Wastewater: Options are density dependent and range from on-site septic tanks to cluster systems with land application of treated effluent • Where possible, stormwater transport and retention systems should adopt natural engineering principles, using swales and wetlands
Public Access and Recreation	• Encourage the landowners to establish open space/public access corridors connecting through to the lake escarpment and onto a public walkway connecting to Kelvin Heights

8.1.6 Jacks Point and Deer Park Heights

RESOURCE SUMMARY	JACKS POINT AND DEER PARK HEIGHTS
Geology	• Schist tors and scarps
Ecology	• Unimproved pasture • Grey Shrubland
Visibility	• Highly visible from the lake • Low visibility on the northern slopes from both the lake and SH6 • Medium visibility of the eastern side from SH6
Existing Land Uses	• Low intensity pastoral farming
Potential Land Uses	• Regeneration/ Revegetation of Grey Shrubland and short tussock grassland • Creation of ecological preserve • Lodge accommodation • Extensive pastoral grazing
GUIDELINES	
Potential to Absorb Change	• Medium/Low (4) to Low potential (5) to absorb change except on the Jacks Point Terrace where there is medium/ high potential (2) in an isolated pocket
Landscape Management	• Incentives to encourage regeneration and revegetation of • Grey Shrubland and minimise grazing • Architecture and landscape design on Jacks Point Terrace to have appropriate design control in respect of height, materials roofing and exterior lighting • Strict controls on type and species of planting to avoid domestication of rural landscape. Endemic native species to predominate.
Infrastructure	• All services reticulation to be located underground • Disposal to ground is preferred wastewater treatment method • Where possible, stormwater transport and retention systems should adopt natural engineering principles, utilizing swales and wetland retention areas
Public Access and Recreation	• Provision of public access walking track to the high point on Jacks Point as part of open space network connecting this to the overall Open Space network

8.1.7 Lake Escarpment

RESOURCE SUMMARY	LAKE ESCARPMENT
Geology	• Schist scarps with incidental rock slips
Ecology	• Pastoral farming occurs where the Tableland interfaces with the escarpment • As it steepens and grazing is less prevalent broadleaf forest species have colonized
Visibility	• Some areas highly visible from parts of the lake, other less so due to intervening landscape features eg: Jacks Point • Not visible from SH6 due to intervening landform
Existing Land Uses	• Grazing at the interface with the Tablelands • Natural regeneration occurring where grazing is excluded.
Potential Land Uses	• Regeneration/conservation • Walking tracks/ public access
GUIDELINES	
Potential to Absorb Change	• Low potential (5) to absorb change
Landscape Management	• Continued regeneration/revegetation of native vegetation along the lakeside escarpment up to the Lake Edge Landscape Protection Line • Restriction of pastoral farming • Predominance of Open Space
Infrastructure	• N/A
Public Access and Recreation	• Incentives to provide public access to lake escarpment and lake edge as part of Open Space network

8.1.8 Lake Terraces

RESOURCE SUMMARY	LAKE TERRACES
Geology	• Lake Sediments with areas of glacially associated river alluvium in the gullies
Ecology	• Mixture of improved and unimproved pasture • Native regeneration in the gullies and in some areas along the lake shore, with pockets of Grey Shrubland
Visibility	• Medium to Highly visible from the lake. Some parts less so due to being located in the visual shade of Jacks Point. • Southern terraces more visible than the northern ends • Nil visibility from SH6
Existing Land Uses	**Homestead Bay** • Pastoral farming • Farm homestead and associated farm structures • Natural regeneration in gullies at the southern end of foreshore • Extensive landscaping and tree planting **Lakeside Estate/Wye Creek Subdivision** • Residential subdivision predominates in two distinct locations • Native regeneration in gullies • Wye Creek has undertaken revegetation along lake margin

RESOURCE SUMMARY	LAKE TERRACES
Potential Land Uses	• Clustered lakeside village in native landscape, low density • Open Space network • Public access to waterfront • Horticulture, viticulture and associated buildings • Revegetation of streams margins, gullies and foreshore
GUIDELINES	
Potential to Absorb Change	• Area ranges from medium to high (2) potential on terraces to medium potential (3) from Homestead Bay to Wye Creek
Landscape Management	• Architecture and landscape design control in respect of height, colour and materials. • Draw on 'Farm Homestead' architectural themes to ensure continuity with existing farm structures • Strict planting controls on type and native species to avoid over domestication of rural landscape • Incentives to continued regeneration/revegetation of native vegetation along the lakeside escarpment • Predominance of Open Space
Infrastructure	• All services reticulation to be located underground. • Disposal to ground is preferred wastewater treatment method • Where possible, stormwater transport and retention systems should adopt natural engineering principles
Public Access and Recreation	• Public Access to lake escarpment and lake edge as part of open space network • Creation of watersports activity zone in Woolshed Bay • Potential water taxi/ferry connection from Woolshed Bay to Queenstown Bay

9.0 Landuse and Landscape Management Strategy

9.1 Area Wide

Figure 14 illustrates a recommended land use and landscape management strategy for the Coneburn area. The strategy has been devised in accordance with the resource studies and guidelines developed for the various landscape character types of the study area.

Key considerations in formulating the strategy have been:

- Protection of the open rural character of SH6 visual corridor and preservation of distant mountain views.
- Protection and enhancement of the natural character of the lake margin
- Restriction of building development and densities to areas with highest potential to absorb landscape change without significant adverse effects on the open rural landscape character of the Coneburn area and the visual quality of its backdrop, the Remarkables.
- Creation of a strong and dominant pattern of open space within any development area to avoid overdomestication of the landscape and ensure adequate area to accommodate land based effluent disposal
- Protection of ecological values and the incorporation of linked natural habitats into an open space network.
- Extension of public access to the lakeshore and areas of recreational opportunity

9.2 Area with Development Potential

Figure 14 illustrates the areas identified as having potential to absorb change (areas 1,2,3). The Jacks Point zone structure plan is based on a more detailed level of site analysis that has enabled a finer grain mapping of areas suitable for high, medium and low density residential and visitor accommodation development. Areas of steeper slopes (above 25%), southern aspect, overland drainage paths and native vegetation cover have been incorporated into the open space network along with areas suited for recreational use and land based effluent disposal.

The balance development areas have the potential to accommodate between 1,200 and 1,500 residential unit equivalents. At a district average of between 2.50 and 2.70 persons/ unit, Coneburn has the potential to ultimately accommodate an integrated residential and visitor population of between 3,000 and 4,000 persons.

Calculation of projected populations has been based on the following area measurement and yield analysis:

ABILITY TO ABSORB CHANGE	AREA	OPEN SPACE	AVERAGE DENSITY	No. of DWELLINGS
JACKS POINT ZONE STRUCTURE PLANS *(includes Homestead Bay and Henley Downs)*				
Area with high potential (1)	250 Ha	50%	High - Med (8 per Ha average)	1000
Area with medium to high (2) potential and medium (3) potential	400 Ha	80%	Low (2 per Ha)	160
RURAL ZONE				
Area with medium to high (2) potential	112 Ha	80%	Low (2 per Ha) High-Med (8 per Ha average)	45 -180
	762 Ha			**1205 - 1385**

The above forecast is an assessment only and assumes all landowners fully develop their respective properties at the densities proposed. This forecast should therefore only be considered a broad brush assessment of the Coneburn area's longterm potential residential carrying capacity having had full regard to infrastructure, open space, landscape and ecological considerations.