Concession Application
Form 3b – Private/commercial facility/structures

The Department recommends that you contact the Department of Conservation Office closest to where the activity is proposed to discuss the application prior to completing the application forms. Please provide all information requested in as much detail as possible. Applicants will be advised if further information is required before this application can be processed by the Department.

This form is to be used when the proposed activity is the building or use of any private or commercial facility or structure on public conservation land managed by the Department of Conservation. Examples may include lease of land to erect an information centre; authorisation to erect a weather station; or construct or lease a private/commercial campground or lodge. This form is to be completed in conjunction with either Applicant Information Form 1a (longer term concession) or Applicant Information Form 1b (one-off concession) as appropriate.

Please complete this application form, attach Form 1a or Form 1b, and any other applicable forms and information and send to permissions@doc.govt.nz. The Department will process the application and issue a concession if it is satisfied that the application meets all the requirements for granting a concession under the Conservation Act 1987.

If you require extra space for answering please attach and label according to the relevant section.

Boarding the Richmond Range from the Heritage rope tow.

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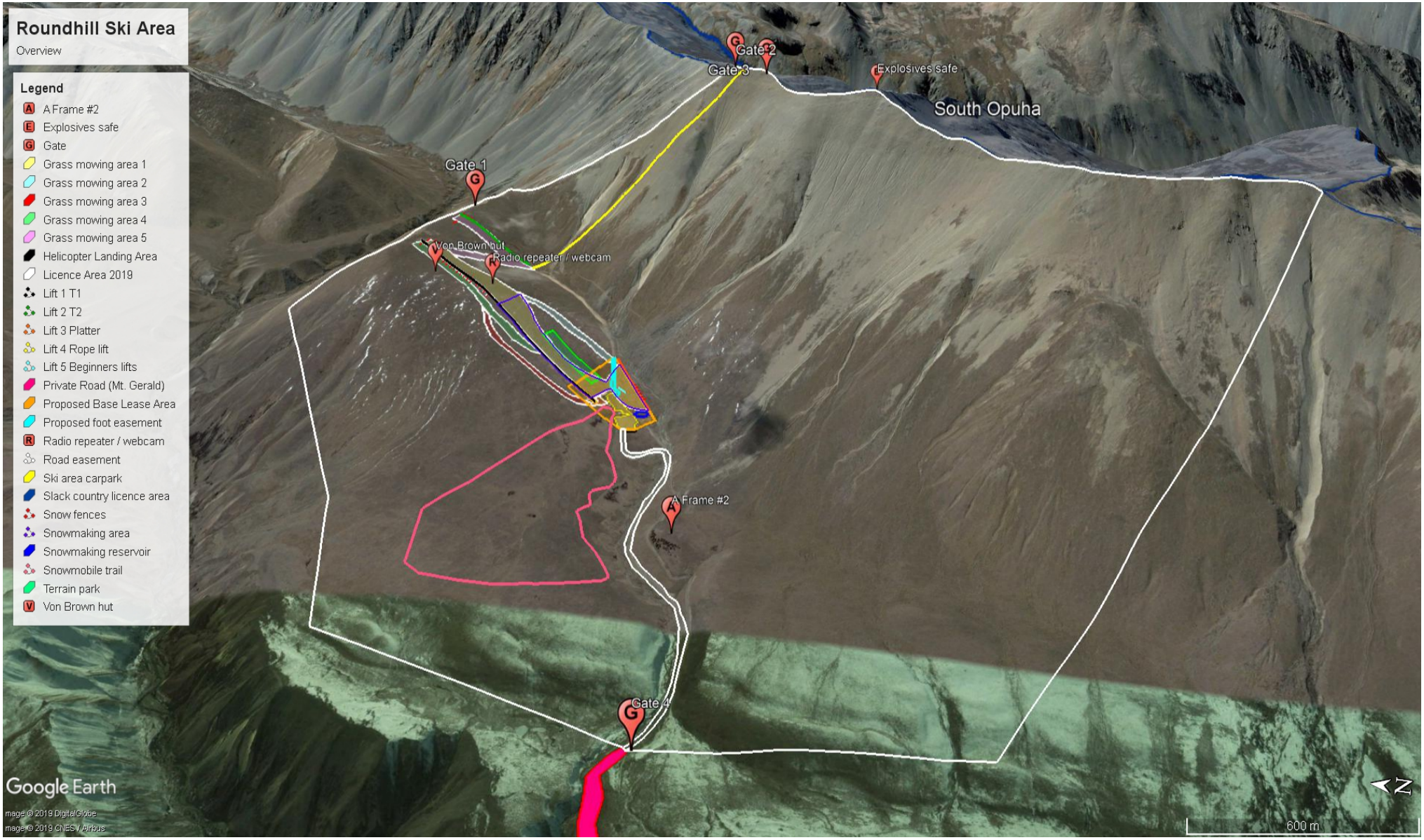
Roundhill in winter.



Roundhill Ski Area Overview (this has also been provided as a separate A3 document).

A. Description of Activity

Please describe the proposed activity in detail – where the site is located, please use NZTM GPS coordinates where possible, what you intend to use the building for, whether you intend to make any changes to the infrastructure.

Please include the name and status of the public conservation land, the size of the area for which you are applying and why this area has been chosen.

If necessary, attach further information including a map, a detailed site plan and drawings of proposal and label Attachment 3b:A.

Introduction

This part of the application covers the licence area, and the lease areas including the base facilities structures and other facilities which are required to enable the continued operation of the Round Hill Ski Area which has been under a lease since 1973.

Background

The Roundhill Ski Area is owned by Tekapo Ski Field Ltd (TSFL). It is located at the base of the Two Thumb Range. It is a shallow basin with rounded shoulders flanking an ephemeral shallow gully lying up to the south west.

The base area is at 1350masl and the highest point is at 2133masl. The vertical rise is 783m which is the biggest in Australasia.

The ski area is in the humid and sub-humid zone with 600-800mm of rainfall, an average of 2200 hours of sunshine and temperatures ranging from –10 to 30 degrees. The prevailing winds are from the west and north-west.

There are six lifts providing skiing and snowboarding for all ages and levels of experience and skill. It has a large beginner area and because of its aspect receives a lot of sunshine hours. This and its variety of beginner to intermediate terrain makes it very popular with families.

A terrain park provides another experience for both skiers and snowboarders.

History

Roundhill Ski Area was originally opened in the early 1960's as a club field by local farmers. In 1963 the Waters family took over from the Tekapo Ski Club to run the hill for the next 10 years.

Karl & Audrey Burtscher took over Roundhill in 1973 and ran it as a commercial ski field. Through the 70's and 80's the ski field was known as Tekapo Ski Field. In 1974 the road was widened and in 1976 the new chairlift was operational along with the new café and ticket office. The seasons continued until Karl & Audrey closed the skifield in 1990. The chairlift was sold and removed from the field following closure.

In 2001 after an 11 year closure the next generation, Christian Burtscher and Karoline and Oskar Rieder reopened the ski field calling it Roundhill Ski Area. There were major changes made such as introducing a comprehensive snowmaking system and installing the 1.2km T-Bar surface lift. In 2008 a terrain park with jumps and boxes was opened.

A major development for the 2010 winter was the installation of the Heritage Express Rope Tow and at 1473m long it is the world's longest rope tow. The Heritage Express has a top elevation of 2133m and a slope of 26 to 32 degrees and gives Roundhill a total vertical drop of 783m, the biggest in Australasia. This lift provides access to chutes, bowls and plenty of steep ungroomed terrain that appeals to the advanced and adventurous.

In 2012 another T- Bar was installed in the back basin, opening up more terrain.

Since 2012, Roundhill has been owned and operated by Oskar and Karoline Rieder, who are the directors of Tekapo Ski Field Ltd.

Current business operations

The ski field is a member of Ski Areas Association of New Zealand and operate a modern best practice ski area during the season from early June to early October (around 120 days).

The area employs around 50 staff during the season in Management/Operations (8), Ski School (14), Ski Patrol (6), Rentals (6), Lifts (6) and Cafe/Office (10).

The area has a safety and operations system which is outlined in the document Roundhill Ski Area Safety Management System (Alpine Safety Auditors Ltd, 2016).

Status of the conservation land

Declared a specially protected area, Te Kahui Kaupeka Conservation Park. New Zealand Gazette 2009 p 413 including Rural Section 40135.

Authorisations

The facilities which have been put in place since the field was reopened in 2001, and which are described below have all been authorised by the Department of Conservation. (Department of Conservation, 2001) (Department of Conservation, 1997).

Licence Areas

Two separate licence areas are being applied for being the main licence area and the second area for associated slack country snow activities.

Main licence area

The proposed main ski area licence has a length of 12km and encompasses 860ha of land that is within the Te Kahui Kaupeka Conservation Park. The proposed area includes all the assets of Roundhill and the potential skiable terrain from the existing lift facilities. It does drop below the base facilities, but this allows for skiing down below these facilities and getting picked up by a vehicle in a very good snow year. Some of these assets lay outside the old lease area and the boundary has been adjusted to include them.

The boundary follows around the 1200m contour line and crosses the access road at Mary's Flat where the easement for the road starts across the conservation land. On the south eastern border about 1km to the southeast of the road it runs uphill to a point on the ridge at 2119masl. The boundary then follows the ridge to the high point at 2161masl, then 120m north of the top of the rope tow before descending the ridge behind the top of T1 and T2 to the 1200m contour line. Figure 1: Licence area and main features.

Slack country licence area

The second licence area, (Slack Country licence), encompasses the rest of the original lease in the two upper catchments to the east of the ski area, being Boundary Stream and the South Opuha. The area (1520ha) is outlined in Figure 2: Slack country licence area, and ranges from gentle to steep terrain but with several safe routes for both descending and ascending.

This area was part of the original 1973 lease. The ski field wants to use this area for ski touring and snowshoeing instruction and would like to continue to retain a licence for this type of use over this area.

No avalanche control is undertaken in this area. The use of it as part of the ski field operations would be restricted to days when the rope tow is operating as this provides access to the ridge crest above these two catchments. For other users who are not under the supervision of ski field instructors access outside of the main licence area is controlled by the Boundary Closure and the Back Country Access Policy, (Alpine Safety Auditors Ltd, 2016), using a virtual gate and sign out system, (Figure 6: Backcountry access and gates).

Visitor numbers

Day visitors

The area is an important asset to the regional economy and has attracted around 50 percent of the total regional skier visits for the last nine years. Total skier visits per year have been growing over the period since it reopened from 11,500 in 2001 to 29,000 in 2018. (Figure 4: Roundhill Skier Visits).

These visitors are mostly families who are engaging in a healthy sport and visiting the great outdoors. It is estimated that 80 per cent of the skiing visitors are young families. The ski area is attractive to these families because it has excellent beginner and intermediate terrain and because of its aspect is a relatively sunny and warm field compared to other areas.

Race training

International ski race teams from the northern hemisphere have now been visiting New Zealand ski areas to train in their summers for a number of years. They use several of the South Island areas for their training, including Tekapo. These teams often include the top ski racers in the world. The international ski team visits usually happen in a six-week period after the July school holidays.

Teams that have trained at Tekapo include teams from the USA, Norway, Sweden and Austria. They bring with them ski racers, coaches and technicians and each team ranges in size from 10-30 people. On average there are between three and five teams on the mountain training each day during the six weeks. As a result, these teams provide a significant economic benefit to the ski area and the local community, which helps sustain the ski area as a viable winter season business.

Activities applied for under the licence

The ski area requires a licence enabling the full management and control of all the activities relevant to the operation and control of an alpine downhill snowfield. This includes the following activities:

Lift operation

Safe operation of the lifts for the public, racing teams and staff.

Retail and hire of equipment

Café operation including the sale of food and alcohol at both the main café and Von Brown hut. TSFL has a current alcohol on licence #63/ON/7/2014 (Figure 5: Alcohol On Licence). The retail operation includes the sale of snow sports accessories and equipment and the hire of ski and snowboarding gear and the future use of electric snowmobiles.

Snowsports instruction

Provision of snowsports instruction within the main licence area.

Electric snowmobiles

The hired electric snowmobiles are going to be used on a trail that is to the west of the main ski area. (See Figure 3: Electric snowmobile trail). The snowmobiles are powered by an electric engine. The two main advantages of the electric snowmobiles are zero-emissions and significantly less noise pollution. They are extremely quiet aside from the noise of snow being pushed underneath the vehicle, but that's inevitable and only audible from a relatively short distance. There are a couple of websites which provide information on these sort of snowmobiles[1].

Ski patrol and avalanche control

The area needs to maintain a safe environment for visitors. This requires a comprehensive snow safety programme, rescue and first aid service. This is operated in accordance with best practice and industry standards and guided by the Roundhill Ski Area Safety Management System (RSASMS), (Alpine Safety Auditors Ltd, 2016).

These operations include the following:

- Day to day ski patrol operations.
- Closure (along the main ski licence boundary and within the licence area) and signing of areas for public safety. Winter season backcountry access is managed through a system of four virtual gates. When the licence boundary is open then backcountry access and re-entry can be gained through gates 1-3. When the licence boundary and gates 1-3 are closed, then backcountry access can be gained through gate 4 at Mary's Flat, and then along the western and southern licence boundary lines. Roundhill support the "Backcountry touring access guidelines[2]" and utilise them when access is requested by ski tourers.
- Storage, use of and disposal of explosives.[3]

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[1] http://www.snowxpark.ch/esnowmobile & https://electrek.co/2018/03/03/tesla-inspired-taiga-electric-snowmobile/
[2] Backcountry touring access guidelines published by FMC and NZAC.
[3] Roundhill has a current Location Test Certificate (renewed in 2018).

- Operation of helicopters for access and heli bombing within the licence area.[4]
- Public advice about avalanche hazard outside the licence area in the surrounding terrain, (slackcountry), using the New Zealand Mountain Safety Council system. There is an MSC avalanche advisory board at the top of T1.

Snow making and grooming

The operation of snowmaking and grooming machinery on a 24-hour basis, during suitable conditions to ensure the operation of the ski area. The snowmaking is currently undertaken over an area of 5.4ha, (Figure 8: Mown tussock and snowmaking area). This includes the addition of the additive Snomax[5] as part of the snowmaking.

Grooming of the snow surface and movement of snow to provide snow covered ski trails and access to all parts of the licence area as required. This occurs across all the ski trails and immediate surrounding areas.

Snowmax[6]

Water that contains Snomax freezes faster and more evenly, and lasts longer. The result is 40% more snow and better snow quality. The snow lasts longer and is easier to handle.

SNOMAX is a biological material whose proteins in small numbers catalyze the formation of ice crystals. It is used on ski slopes as an additive to snow-making water in order to produce better snow at higher temperatures. SNOMAX is produced from inactivated micro-organisms and is harmless to the health of humans, animals and plants. No negative effects of SNOMAX were observed on vegetation.

The efficiency of a snowmaking system can be measured with the aid of various parameters. Different systems can be compared with each other based on the water consumption, energy input, the quantity of snow generated and the amount of time spent on slope preparation. At the beginning of December 2013, the independent Brendle Group studied the difference between making snow with and without SNOMAX at Kirkwood Mountain Resort. The actual effect of SNOMAX was measured in a direct comparison.

The test carried out in real conditions in Kirkwood Mountain Resort confirms the positive effect of SNOMAX in many respects. SNOMAX produces up to 90% more snow with an extra 3.5% of water and the same amount of energy. The differences in warmer temperatures and high levels of atmospheric humidity are particularly pronounced. In total, therefore, less water and less energy are needed to generate the same amount of snow. At the same time less input is required from the snow operations team. This reduces the overall operating costs and, most importantly, it is good for the environment. The lower expenditure of energy and water brings lasting advantages in respect of the environment.

Helicopter operations

The ski area needs to be able to utilise helicopters for safety, avalanche management, maintenance and construction purposes in the easement, lease and licence areas. The avalanche management may require the landing and bombing of areas outside of the licence area for the purpose of protecting the safety of visitors using the licence area and the road.

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[4] Roundhill has adopted the SAANZ Snow Blasting Standard Operating Procedures.
[5] Snomax is a trade name.
[6] http://www.snomax.com/company/snomax-film.html

Summer slope grooming

This includes rock picking and mowing of runs (Figure 7: Grass mowing and snowmaking areas):

Rock picking

This is required because the frost heave is continually pushing rocks out of the ground and they become an issue as they both damage the groomer tracks when grooming the ski trails in winter and can become a hazard for skiers and snowboarders. This is undertaken in the summer months and the rocks are lifted out of the ground and set down in an area where they will not be an issue.

Mowing of Runs

Since reopening the field in 2001 Roundhill has mowed the snow tussock (*Chinochloa macra* and some *Chionchloa rigida*), which covers the ski runs especially those on the main face next to the T1 lift. Roundhill have a resource consent (RM20001), for vegetation clearance (mowing) granted by the Mackenzie District Council, subject to a management plan prepared by DOC. Increasing the mown area was discussed with DOC in 2003 and again in 2006. There are five areas that are mown. (Figure 7: Grass mowing and snowmaking areas). The ski runs are mown annually to reduce the amount of snow required to get the field operational. The tussocks are mown to a height of 150-200mm above ground level and this means the crown of the tussock is left intact. They usually need to be mown every two years.

A report in 2001, (DOC, May 2001), noted the following species in the mown areas, *Chionchloa macra, Celmisia lyalli, Raoulia subsericia, Poa colensoi, Lycopodium fastigiatum and Rytidosperma sp*. In the barer areas there were introduced grasses, mainly browntop and the occasional native geranium, *Geranium sessiliflorum*.

Mowing means that less natural or manmade snow is required to get a cover on the runs. This has become more of an essential requirement in the last decade as the effects of climate change with warmer temperatures reduce the length of the winter period and push the natural snowline further up the mountain. As a result, the area uses less diesel and water to get an adequate cover of snow from the snowmaking system. It also means the mown tussocks are not damaged by the subsequent grooming process.

The mowing of the tussocks was approved by DOC in 2001 subject to conditions and annual monitoring. The total area now mown totals 22ha. The total main ski area licence is 860ha, so this mowed area represents 2.5 per cent of the total area or 3.5 per cent of the area covered by snow tussock. The tussocks while obviously shorter in stature do not appear to be negatively affected by the mowing. The May 2001 report, (DOC, May 2001), noted that the difference in mown snowgrass and unmown snowgrass, was not discernible after the ten year period when the field was closed. See, Figure 8: Mown tussock and snowmaking area and Figure 9: Mown tussocks adjacent to normal tussocks.

Telecommunications

Operation and maintenance of the ski area radio system including the mast and with the solar powered radio repeater and webcam located on the main slope alongside the main lift. (See Figure 11: Radio repeater mast). The NZTM reference is noted in Table 2: NZTM and Lat/ Long coordinates for buildings and structures outside the base lease area.

Photography and filming for the promotion of the ski area

The ski area undertakes photography and filming for ski area advertising and promotional purposes on a regular basis. This will be either undertaken by staff or on contract. This material will be used in the website, brochures or for other marketing purposes for the ski area only. Aerial filming is quite likely to be done by drone nowadays so this should preferably be covered by the licence. Any other filming or photography by third parties will be referred to the Department for separate concession advice and permitting.

Maintenance

The area needs to be able to undertake maintenance of all the assets included within the licence area, base area and footprint leases, including the replacement of like with like and earth disturbance. This maintenance includes water, power, telephone, sewage, snowmaking, buildings and lifts.

Leases - Areas requiring a lease

It is proposed that the buildings, structures, reservoir and helicopter landing area be subject to either a lease area or footprint lease. It is proposed that the area adjacent to the carpark where there are thirteen buildings, structures, reservoir and helicopter landing area could be covered by the lease area of 7.3ha.

For the other facilities spread across the licence area they would be covered by a footprint lease for each individual facility, including the seven remaining buildings, snowfences and terrain park.

There are 19 buildings and storage facilities within the ski field licence area. All the buildings are detailed in a table (Table 1: Building descriptions), in the Attachment 3b:A. Photos of each building are provided in the attachment as well.

Floor plans are available for all these buildings if required.

Base lease area

The proposed base lease area would include the following thirteen buildings and all the underground infrastructure associated with these buildings and facilities. The base lease area will most likely be wrapped around the proposed carpark easement and foot access easement to enable public access through the base area. The proposed area is shown in Figure 16: Proposed base lease area

1. Main base area building
2. Ski hire, ski patrol, apartment
3. T1 Bottom Terminal Control Hut
4. Groomer shed
5. Generator shed
6. Toilet Block
7. A Frame building
8. Bulk Fuel Storage
9. Hazardous material container
10. Workshop
11. Storage containers
12. Pump shed
13. Explosive storage area and safe

The proposed base area would also include the:

- Helicopter landing area
- Snowmaking reservoir

Other buildings and structures requiring a footprint lease

There are six other buildings and storage facilities within the proposed licence area which are outside the proposed base area lease.

1. Platter lift control hut
2. Von Brown hut
3. T1 Top terminal hut
4. T2 and Rope tow Generator and storage container
5. Explosive safe (ridge).
6. A- frame #2 (below carpark)

These buildings and assets require individual footprint leases. NZTM map references for these assets are noted in Table 2: NZTM and Lat/ Long coordinates for buildings and structures outside the base lease area. See Figure 14: Other buildings and Figure 15: Buildings and assets outside base lease area.

Snow fences **(Figure 18: Snow Fences):**

- Snow fences are designed to deposit snow behind a barrier that slows the wind speed down and causes the snow to accumulate from where it can be groomed and used for providing better snow coverage. They are effective both with storm snow and snow making.
- There are 30 snow fences at three locations, constructed of tanalised wooden deer fence posts and 6-7 horizontal planks (150 x 25mm) with gaps between them (Figure 19). They were approved by DOC in 2004 and most of them were constructed in in the same year.
- They are between 10 -20m in length, 1.8m high and placed at 15- 20m centres down the slope.
- The construction of the snow fences was authorised under Land Use Resource Consent RM030083 and by DOC in 2004.

Terrain Park **(Figure 20: Terrain park):**

- This was constructed in 2008 and consists of 6 jumps and a series of rollers. The large jumps are 30-45m long and 10-20m wide and 3-6m high. The 4 rollers are 5m long, 8m wide and 2m high. The terrain park has a total area of 1.8ha, being 350m long and 50m wide.
- The construction involved an earthworks volume of 11,300m3.
- The area has been over sown in browntop and is now fully vegetated, (Figure 21: Terrain park revegetated with browntop).
- The construction of the terrain park was authorised under Land Use Resource Consent RM70126 and by DOC in 2008.

B. Alternative sites considered

If your application is to **build, extend or add** to any permanent or temporary structures or facilities on public conservation land, please provide the following details:

- Could this structure or facility be reasonably located outside public conservation land? Provide details of other sites/areas considered.
- Could any potential adverse effects be significantly less (and/or different) in another conservation area or another part of the conservation area to which the application relates? Give details/reasons

No - all these structures / facilities are existing.

The other permanent structures and facilities that are planned in the near future will be within the proposed main licence area and cannot be constructed outside this area. Replacements and modifications are being considered for the ski hire building and the A-frame accommodation. However, no plans have yet been drawn up for these proposals.

C. Larger area

Is the size of the area you are applying for **larger** than the structure/facility **YES** ~~/ NO~~

If **yes**, please detail the size difference in the box below, and answer the following 3 questions, if **no** please go on to the next section:

Is this necessary for safety or security purposes? **YES** ~~/ NO~~

Is this necessary as an integral part of the activity? **YES** ~~/ NO~~

Is this essential to carrying on the activity? **YES** ~~/ NO~~

If the answer to any of the above is yes, please provide details and attach supporting evidence if necessary and label Attachment 3b:C.

The main licence area, (860ha) which is larger than the structures and facilities covers all the skiable terrain accessible from all the lifts and includes all the easements (see 3C), footprint lease structures and the other features of the ski area like the terrain park and the snowmobile trail.

This larger area is essential for the legal operation of the ski area on public conservation land.

D. Exclusive possession

Do you believe you need **exclusive possession** of the public conservation land on which your structure/building is located, i.e. no one else can use the land during your use of it? **YES** ~~/ NO~~
(Exclusive occupation requires a lease which requires public notification of the application)

If **yes**, please answer the following 3 questions, if no please go to the next section:

Is exclusive possession necessary to protect public safety? **YES** ~~/ NO~~

Is exclusive possession necessary to protect physical security of the activity? **YES** ~~/ NO~~

Is exclusive possession necessary for the competent operation of the activity? **YES** ~~/ NO~~

If the answer to any of the above is yes, please provide details and attach supporting evidence if necessary and label Attachment 3b:D.

An exclusive lease is required over the buildings, storage containers and the hazardous assets as they are all required as part of the business of running a professional and safe ski area and are locked and inaccessible to the public. These buildings and facilities are all detailed in the section Leases - Areas requiring a lease (p.13).

E. Technical Specifications (for telecommunications sites only)

Frequencies on which the equipment is to operate
Power to be used (transmitter output)
Polarisation of the signal
Type of antennae
The likely portion of a 24 hour period that transmitting will occur
Heaviest period of use

F. Term

Please detail the length of the term sought (i.e. number of years or months) and why.

Note: An application for a concession for a period over 10 years must be publicly notified, an application for a concession up to 10 years will not be publicly notified unless the adverse effects of the activity are such that it is required, or if an exclusive interest in the land is required.

The term for the licence, leases and easements should be 30 years because the TSFL has invested a large amount of capital and is planning further improvements which require the certainty of term. Certainty of term is also likely to mean that the concessionaire will take good care of the public conservation land.

G. Bulk fuel storage and other hazardous substances

Under the Hazardous Substances and New Organisms Act 1996 (HSNO Act) 'Bulk fuel storage' is considered to be any single container, stationary or mobile, used or unused, that has a capacity in excess of 250 litres of Class 3 fuel types. This includes petrol, diesel, aviation gasoline, kerosene and Jet A1. For more information on Hazardous Substances, go to: http:/www.business.govt.nz/worksafe/information-guidance/legal-framework/hsno-act-1996

Do you intend to store fuel in bulk on the land as part of the activity? **YES ~~/ NO~~**

If you have answered yes, then please provide full details of how and where you intend to store the fuel, and label any attachments including plans, maps and/or photographs as Attachment 3b:G. If your concession application is approved you will be required to provide a copy of your HSNO compliance certification to the Department before you begin the activity.

Bulk fuel storage

The generators, main snowmaking pump and groomers used on the ski area are fuelled with diesel. There are two bulk diesel storage tanks, the larger tank is 21,000l and the smaller tank is 13,000l, located next to the workshop. They are connected to the generator shed and snowmaking pump by underground fuel lines. These tanks comply with the HSNO Act and the relevant regulations and are located on a concrete bund. See Building 8; Figure 13: Base buildings and Figure 38: Bulk fuel storage at base area.

There is also a 3000l diesel bulk fuel container at the rope tow and T2 lift storage container. This tank is a double skinned tank, so it does not require a bunded system. See Figure 14: Other buildings, Building 17 and Figure 40: Bulk fuel storage at rope tow .

Petrol supplies for the snowmobiles are brought to the field in 20l containers and stored in combined volumes less than the trigger for bulk storage standards (less than 50l).

Hazardous Substances Storage

There is also a controlled hazardous goods storage facility located next to the workshop. See Building 9; Figure 13: Base buildings. The types of goods stored in here are engine oil, hydraulic oil and other lubricants for the machinery.

Explosives Storage

There are two explosive safes on the field for storing the explosives used for avalanche control. One is situated near the reservoir and another identical one on the ridge at the top of the rope tow. See Buildings 14 and 18 and Figure 41: Explosives magazine . The explosives stores (magazines) are of modern construction, fully compliant with AS2187, (Australian Government, 1998) and located in isolated sites away from public and staff. The explosives storage has a current Location Test Certificate (renewed in 2018).

NZTM map references for the assets outside the base lease area are noted in Table 2: NZTM and Lat/ Long coordinates for buildings and structures outside the base lease area.

H. Environmental Impact Assessment

This section is one of the most important factors that will determine the Department's decision on the application. Please answer in detail.

In column 1 please list all the locations of your proposal, please use NZTM GPS coordinates where possible. In column 2 list any special features of the environment or the recreation values of that area. Then in column 3 list any effects (positive or adverse) that your activity may have on the values or features in column 2. In column 4 list the ways you intend to mitigate, remedy or avoid any adverse effects noted in column 3. Please add extra information or supporting evidence as necessary and label Attachment 3b:H.

Refer to Steps 1 and 2 in your Guide to Environmental Impact Assessment to help you fill in this section.

H. Environmental Impact Assessment			
Location on public conservation land	**Special feature or value**	**Potential effects of your activity on the feature or value (positive or adverse)**	**Methods to remedy, mitigate or avoid any adverse effects identified**
Roundhill Ski Area	Tall tussock grasslands	The facilities are all existing and have been constructed over the last 55 years. The construction of these facilities have all had various effects on the vegetation ranging from the removal of vegetation to the replacement with other species like browntop in order to revegetate disturb areas. The effect is dependent on the type and size of the facility.	In sensitive areas an ecological assessment has been completed during the planning stage which is taken into account in the construction phase. Design has tried to avoid where possible the removal of and damage to vegetation. Where feasible the replanting of tussocks has occurred in accordance with the Vegetation Protocols (See Form 3C, Figure 25). Staff are briefed on the importance of the minimising and avoiding unnecessary damage. Ensure the damage is restricted to the final build platform.

H. Environmental Impact Assessment			
Location on public conservation land	**Special feature or value**	**Potential effects of your activity on the feature or value (positive or adverse)**	**Methods to remedy, mitigate or avoid any adverse effects identified**
Roundhill ski area	Landscape features	The Roundhill Ski Area has been established for 55 years and is an accepted part of the landscape.	Developments which are going to have an impact on landscape are always subject to a landscape assessment. Earthworks have generally triggered an earthworks consent which is granted with strict conditions. Construction is always done to best practice and current standards. For instance banks are battered and excavated material placed and landscaped so as to minimise the effect on the surrounding area. More sensitive areas are re- grassed where they are prone to erosion following the build phase. Other areas are allowed to naturally revegetate.
Toilets and septic system	Water quality and clean air	Sewage spill or overflow which either pollutes the site or the water table.	Maintain the waste process to prevent odour developing and empty the septic tank regularly.

H. Environmental Impact Assessment			
Location on public conservation land	**Special feature or value**	**Potential effects of your activity on the feature or value (positive or adverse)**	**Methods to remedy, mitigate or avoid any adverse effects identified**
Groomed areas within the licence area	Tall tussock grasslands Fragile soils	Oil, diesel and hydraulic fluid spills. Damage to vegetation when there is a shallow snowpack.	Maintain the groomers in top condition with regular maintenance including the regular checking of hydraulic hoses. Mop up any spills which do occur by using best practice spill retrieval techniques and preventing any spillage into waterways. Removing any affected snow from the site to an appropriate site for disposal. Avoiding grooming areas with shallow snowpack and uncovered vegetation. Mowing the main ski runs to enable operation of the area with shallow snowpack.

H. Environmental Impact Assessment			
Location on public conservation land	**Special feature or value**	**Potential effects of your activity on the feature or value (positive or adverse)**	**Methods to remedy, mitigate or avoid any adverse effects identified**
Mown ski runs	Tall tussock grasslands	The ski runs are mown annually to reduce the amount of snow required to get the field operational. The tussocks are mown to a height of 150 - 200mm and this means that the crowns are not disturbed or damaged in this process.	Mowing the tussocks to a height of 200mm at the maximum. They are only mown on average every two years. The mower used is a tractor mounted rotary mower which can be accurately set to the right height.
Snow making areas and use of Snomax	Tall tussock grasslands	SNOMAX is a biological material whose proteins in small numbers catalyze the formation of ice crystals. It is used on ski slopes as an additive to snow-making water in order to produce better snow at higher temperatures. SNOMAX is produced from inactivated micro-organisms and is harmless to the health of humans, animals and plants. No negative effects of SNOMAX have been observed on vegetation.	No negative effects of Snowmax on the environment have been reported in the literature. In total, therefore, less water and less energy are needed to generate the same amount of snow. At the same time less input is required from the snow operations team. This reduces the overall operating costs and most importantly, it is good for the environment. The lower expenditure of energy and water brings lasting advantages in respect of the environment.

H. Environmental Impact Assessment			
Location on public conservation land	**Special feature or value**	**Potential effects of your activity on the feature or value (positive or adverse)**	**Methods to remedy, mitigate or avoid any adverse effects identified**
Fuel storage	Soils and vegetation	Fuel spillage damaging vegetation or soils	Bunded fuel storage facility at base area and double skinned tank at T2.
Access road	Generally, weed free environment	Importing of weeds and weed seeds (especially Californian thistles)	Removal of any weeds from the surface of the gravel quarry at Mary's Flat before quarrying and transporting gravel up the road.
Ski area and especially around the base area	Clean unspoilt environment	Rubbish left around the area during and after the ski season	Rubbish and recycling system in accordance with MDC guidelines. Rubbish and recycling is regularly transported to the Lake Tekapo Resource Recovery Centre.
Ski area	Increased visitors	Human impacts on the environment Exposure of visitors to the conservation park and its values Healthy outdoor activity which has positive benefits for the individuals both visiting and engaging in snow activities.	Provision of excellent facilities like toilets and rubbish disposal. Managing ski traffic to minimise impacts on the environment like where there is a shallow snowpack.

H. Environmental Impact Assessment			
Location on public conservation land	**Special feature or value**	**Potential effects of your activity on the feature or value (positive or adverse)**	**Methods to remedy, mitigate or avoid any adverse effects identified**
Snowmobile trail	Natural quiet and no motorised transport	Motorised vehicles in an area where skiers and snowboarders have normally been the only users. Conflicts between the traditional users and the more modern users.	The snowmobiles are very quiet and the area that they are going to be using is not one of the main trails. It is a back run used by a small percentage of traditional users. The snowmobile trail has been designed so it minimises the user conflict.
Avalanche control	Vegetation and the clean environment	Possible damage to vegetation and manmade structures. Remains of exploded charges littering the slope in summer. Unexploded charges on the slope.	This damage is the collateral for running a safe ski area for the public. This litter (if any) is cleaned up when the snow has melted. TSFL has standard procedures for unexploded charges as part of its avalanche control procedures[7].

[7] Roundhill has adopted the SAANZ Snow Blasting Standard Operating Procedures

H. Environmental Impact Assessment			
Location on public conservation land	**Special feature or value**	**Potential effects of your activity on the feature or value (positive or adverse)**	**Methods to remedy, mitigate or avoid any adverse effects identified**
Slack country	Natural quiet and low visitation	Increased visitors to this area may affect the experience of other back country skiers. Increased visits to the backcountry are also a positive as active backcountry recreation is a key objective of protecting and making these lands accessible.	Roundhill will be visiting this area with small groups and only on days when the rope tow is operating. The level of current back country use is low so the effect will be minimal.

I. Other

Is there any further information you wish to supply in support of your application? Please attach if necessary and label Attachment 3b:I.

The Attachment 3b:I contains extracts from relevant reports on the Landscape, Botanical and Fauna values.

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Attachment 3b:A

Licences

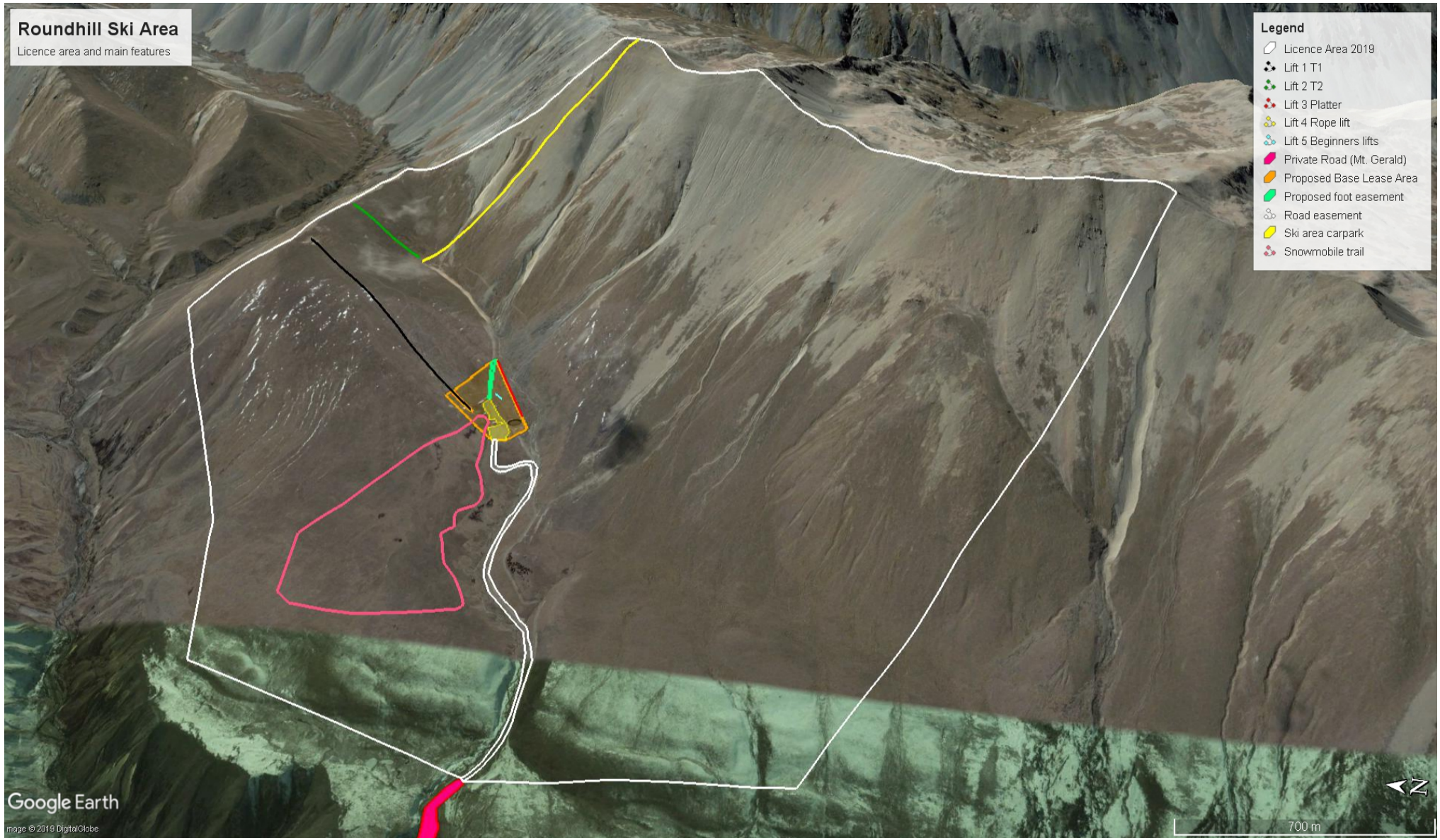

Figure 1: Licence area and main features

Figure 2: Slack country licence area

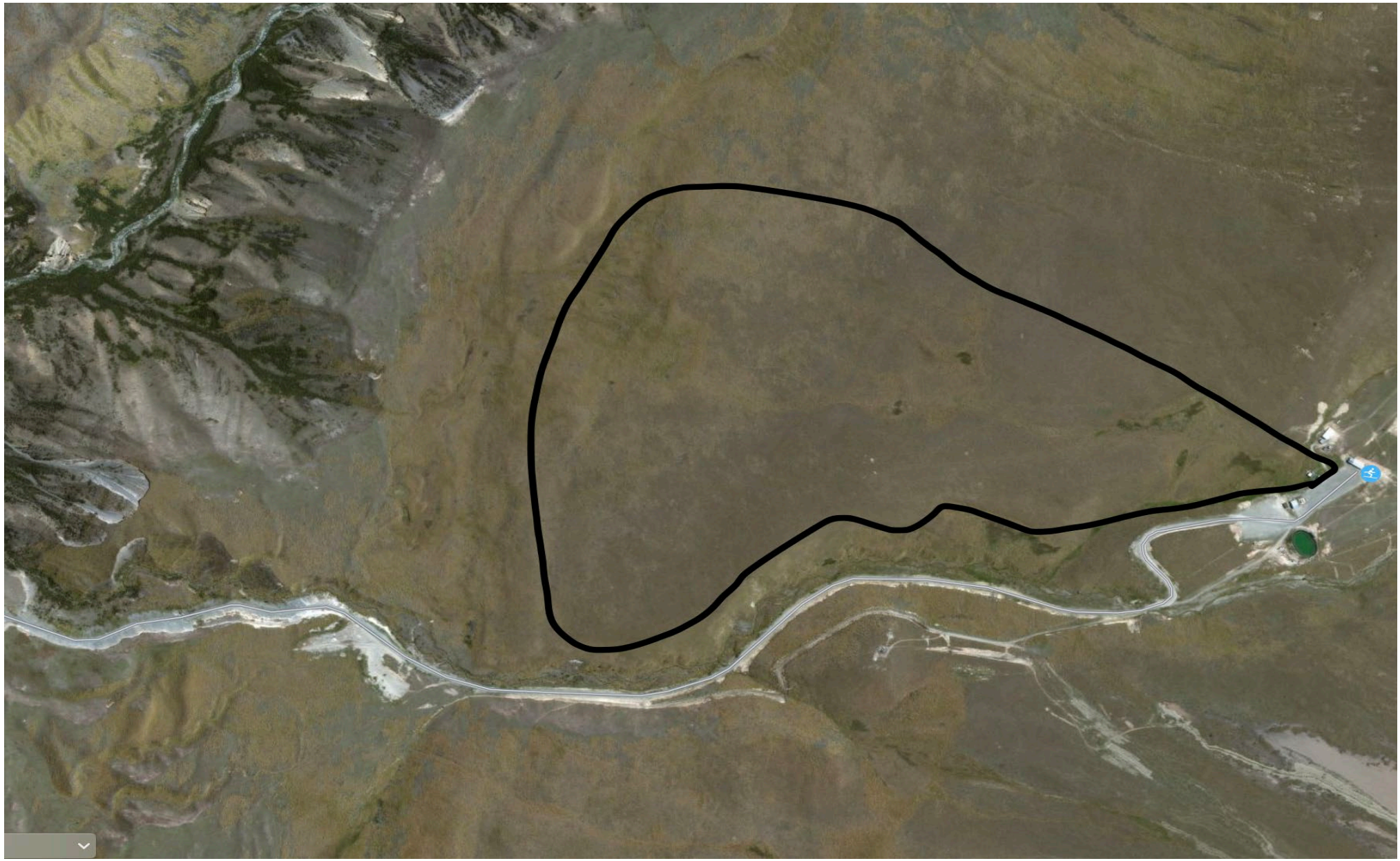

Figure 3: Electric snowmobile trail

Visitor Numbers

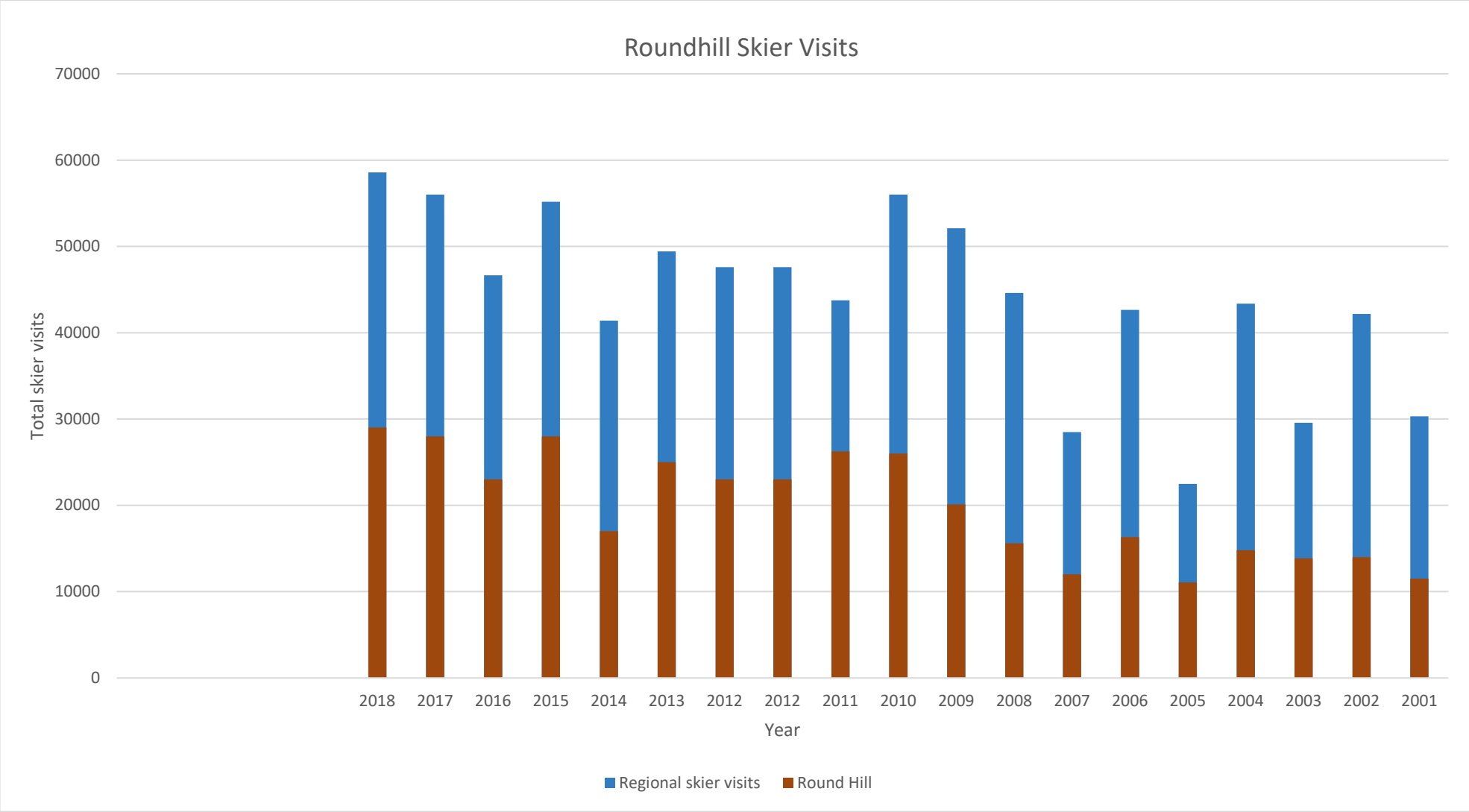

Figure 4: Roundhill Skier Visits

63/ON/7/2014

ON LICENCE

Sections 14 to 16 and 64 Sale and Supply of Alcohol Act 2012

Pursuant to the Sale and Supply of Alcohol Act 2012 (the Act), **TEKAPO SKI FIELD LIMITED** (the licensee) is authorised to sell and supply alcohol on the premises situated at Roundhill Ski Area, Lilybank Road, Lake Tekapo and known as the **"ROUNDHILL SKI AREA"** to any person for consumption on the premises.

Conditions

This licence is subject to the following conditions:

(a) Alcohol may be sold only on the following days and during the following hours:
Monday to Sunday - 9.00am to 6.00pm during the period 1 June to 31 October each year

(b) No alcohol is to be sold on the premises on Good Friday, Easter Sunday, Christmas Day, or before 1.00 pm on Anzac Day to any person who is not:
(i) residing or lodging on the premises; or
(ii) present on the premises to dine.

(c) The following steps must be taken to promote the responsible consumption of alcohol:
Water – drinking water must be readily available and free of charge at the counter while business is operating.

Food – A range of choices must be readily available at reasonable prices at all times that the premises are open. The range or style of food will be as shown on any menu submitted.

Non-Alcoholic / Low-Alcohol Beverages – A range of non-alcoholic and low-alcohol beverages must be readily available at reasonable prices.

Transport – Information relating to safe transport options must be readily available to customers.

(d) The licensee must ensure that the provisions of the Act relating to the supply of alcohol to prohibited persons are observed.

(e) **Licensed area** is the premises in general including the outdoor deck area and the Von Brown Hut (and outside area) as per the floor plans attached to the application and date stamped 22 March 2017 and is **undesignated.**

Subject to the requirements of the Act relating to the payment of fees, and to the provisions of the Act relating to the suspension and cancellation of licences, this licence expires on—

25 June 2020

Dated at Timaru this 5th day of May 2017.

MACKENZIE DISTRICT LICENSING COMMITTEE

Chris English
Secretary
Mackenzie District Licensing Committee

LL_LICE/Sep16

Figure 5: Alcohol On Licence

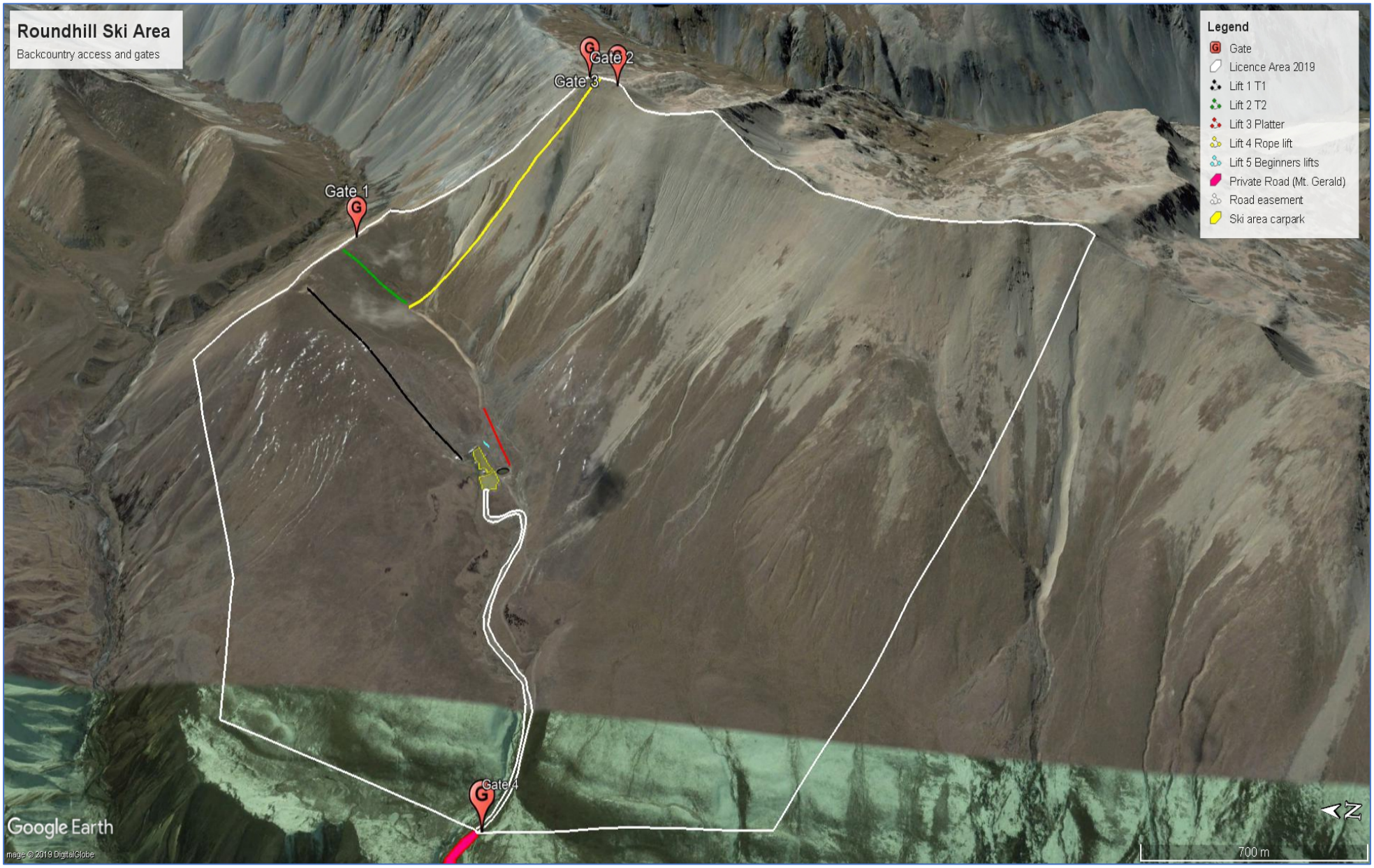

Figure 6: Backcountry access and gates

Mowing and snowmaking

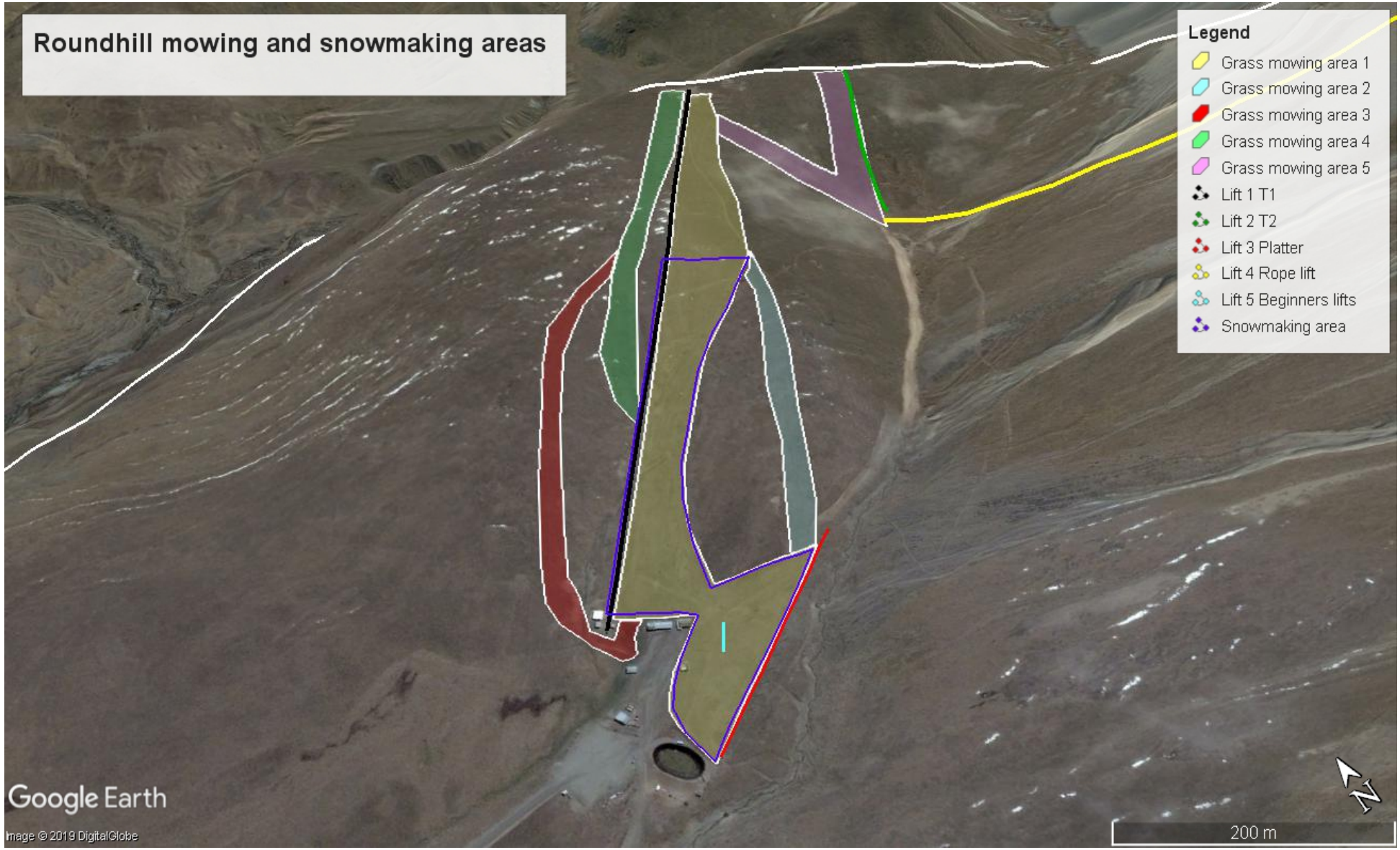

Figure 7: Grass mowing and snowmaking areas

Figure 8: Mown tussock and snowmaking area

Figure 9: Mown tussocks adjacent to normal tussocks

Avalanche paths

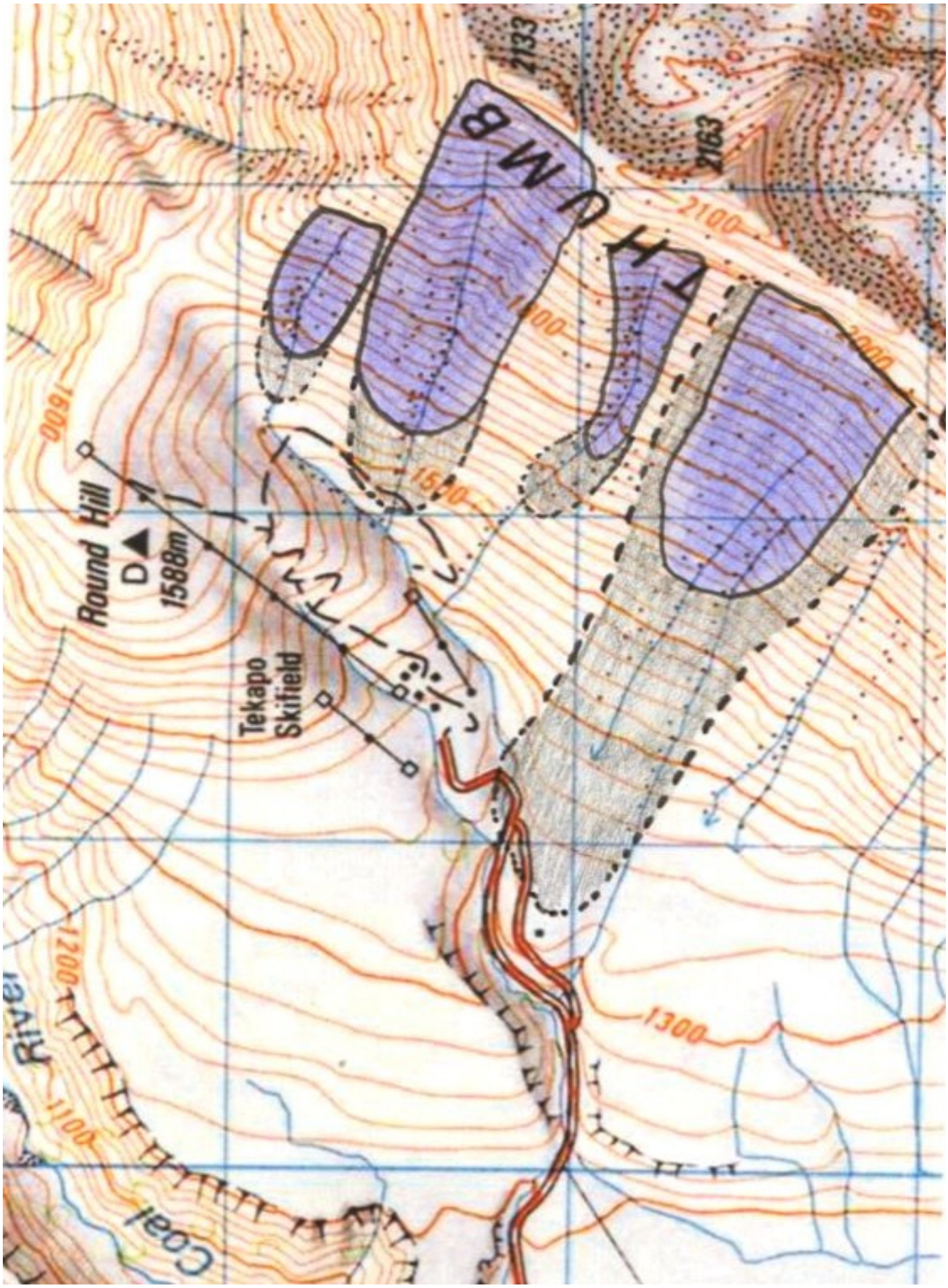

Figure 10: Richmond Range avalanche paths

Figure 11: Radio repeater mast

Leases for buildings, structures and other assets

Building descriptions						
Building name	**Map ref. no.**	**Photo reference**	**Purpose**	**Area main building m^2**	**Area of ancillary features (deck etc) m^2**	**Construction**
Main base area	1	Figure 22	Ticket office, café, staff room, administration office, toilets.	210	118	Roof – corrugated iron Exterior – corrugated iron Foundation- concrete This is a two storied building so the total floor area is 420m^2.
Ski hire, ski patrol, apartment	2	Figure 23	Ski hire, ski patrol HQ and first aid room, apartment for ski patrol to stay overnight when doing snow safety.	189	70	Roof – corrugated iron Exterior – corrugated iron Foundation- timber piles
T1 Bottom Terminal Control Hut	3	Figure 24	Controls for the main lift T1.	10		Roof – corrugated iron Exterior – wood Foundation- concrete
Groomer shed	4	Figure 25	Groomer storage	202		Roof – zincalume Exterior – zincalume Foundation- concrete

Building descriptions						
Building name	**Map ref. no.**	**Photo reference**	**Purpose**	**Area main building m²**	**Area of ancillary features (deck etc) m²**	**Construction**
Generator shed	5	Figure 26	Three diesel generators for running the base facilities and base area lifts, snowmaking	33		Roof – corrugated iron Exterior – corrugated iron Foundation- concrete
Toilet Block	6	Figure 27	Main public toilet block with a 73,000l septic tank beneath it.	69		Roof – corrugated iron Exterior – corrugated iron Foundation- concrete
A-Frame	7	Figure 28	Accommodation for staff working on the mountain at night like groomer, snowmaking and ski patrol staff.	66		Roof – corrugated iron Exterior – wood Foundation- timber piles
Workshop	10	Figure 29	Engineering workshop for maintaining assets and storage of tools.	135		Roof – corrugated iron Exterior – corrugated iron / wood Foundation- concrete
Storage containers	11	Figure 30	Storage of goods.	64		10m container
Pump shed	12	Figure 31	Diesel powered pump for snowmaking.	31		12m container

Building descriptions						
Building name	**Map ref. no.**	**Photo reference**	**Purpose**	**Area main building m²**	**Area of ancillary features (deck etc) m²**	**Construction**
Platter lift control hut	13	Figure 32	Controls for the platter lift.	4		Roof – corrugated iron Exterior – corrugated iron Foundation- concrete
Von Brown hut	15	Figure 33	Café and top of mountain shelter.	15	9	Roof – corrugated iron Exterior – corrugated iron Foundation- timber piles
T1 Top terminal hut	16	Figure 34	Top hut for lift operator shelter.	13		Roof – corrugated iron Exterior – corrugated iron Foundation- timber piles
T2 and Rope tow Generator and storage container	17	Figure 35	Diesel generator for the T2 lift and rope tow. Storage container for gear for lifts.	20		6m container
A-Frame #2	19	Figure 36	Building below the carpark, constructed prior to 1973 and is used occasionally for events.	49		Roof – corrugated iron Exterior – wood Foundation- timber piles

Table 1: Building descriptions

Roundhill NZTM Lat / Long Coordinates for buildings and structures: NZTM Map:BY17.							
Building/ Structure	**NZTM East**	**NZTM North**	Lat	Long	NZMG East	NZMG North	Group
A FRAME #2	1410772.9	5144475.3	-43.82856944	170.64659167	2320741.4	5706100.2	Building
T2 AND ROPE TOW GENERATOR/STORAGE	1412298.8	5145351.0	-43.82108056	170.66586111	2322267.3	5706975.6	Building
RADIO REPEATER / WEBCAM	1412009.7	5145440.7	-43.82020000	170.66230000	2321978.2	5707065.3	Building
VON BROWN HUT	1411989.2	5145676.0	-43.81807778	170.66212778	2321957.8	5707300.6	Building
T1 TOP TERMINAL HUT	1412219.7	5145802.6	-43.81699722	170.66503700	2322188.3	5707427.2	Building
PLATTER LIFT CONTROL HUT	1411489.7	5144682.7	-43.82688682	170.65557202	2321458.2	5706307.5	Building
EXPLOSIVES SAFE (RIDGE)	1413032.9	5143939.0	-43.83396944	170.67448889	2323001.1	5705563.6	Hazardous
FUEL STORAGE (T2)	1412301.3	5145352.0	-43.82107222	170.66589167	2322269.8	5706976.5	Hazardous
BACKUP WEIR	1411187.1	5144575.2	-43.82777681	170.65177359	2321155.5	5706200.0	Snowmaking
MAIN WEIR	1411455.7	5144629.8	-43.82735356	170.65513088	2321424.2	5706254.6	Snowmaking
HOLDING TANK	1411825.9	5144885.5	-43.82514748	170.65982178	2321794.4	5706510.3	Snowmaking
SPRING	1412005.8	5144987.5	-43.82427592	170.66209318	2321974.3	5706612.2	Snowmaking

Table 2: NZTM and Lat/ Long coordinates for buildings and structures outside the base lease area

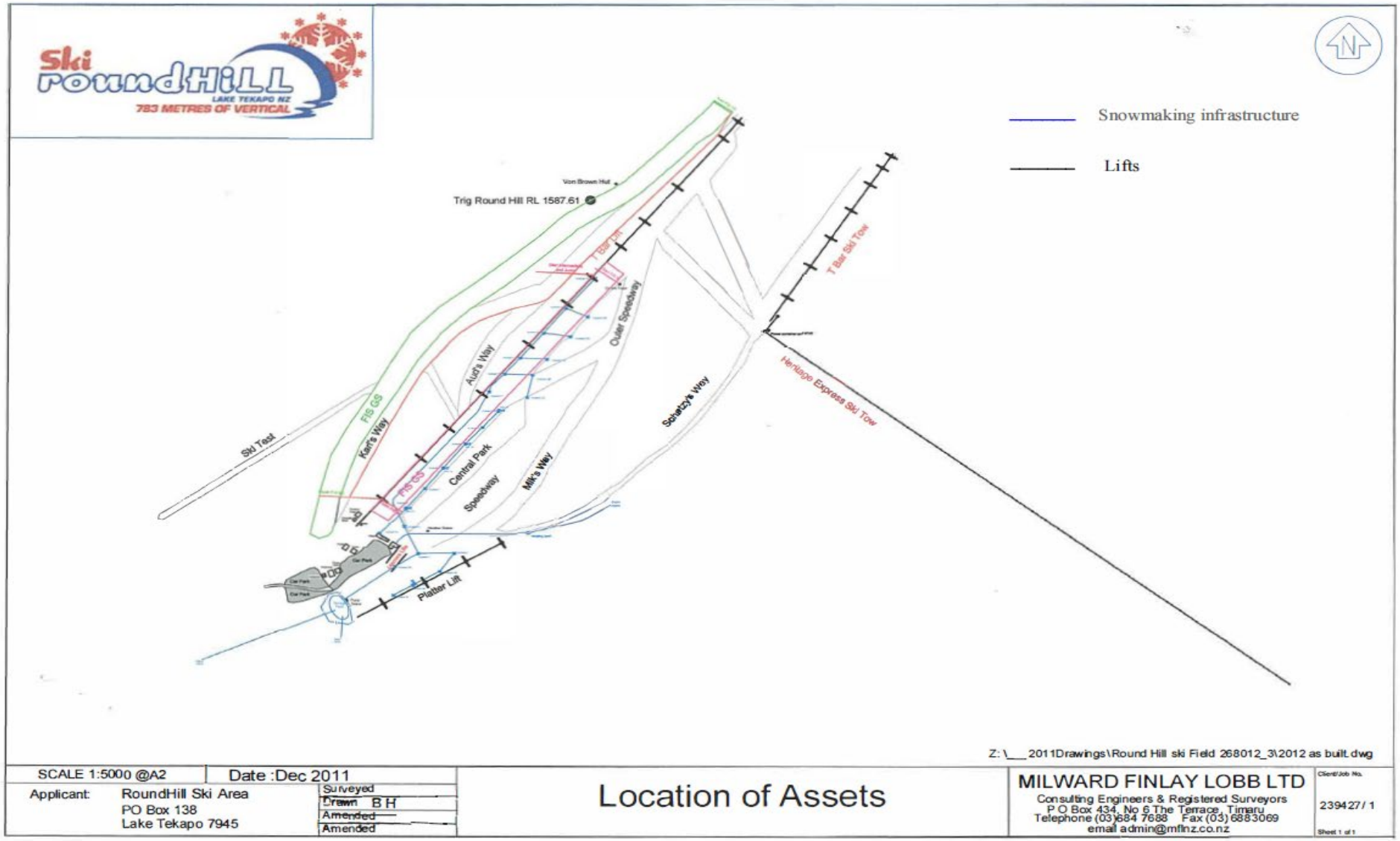

Figure 12: Location of assets

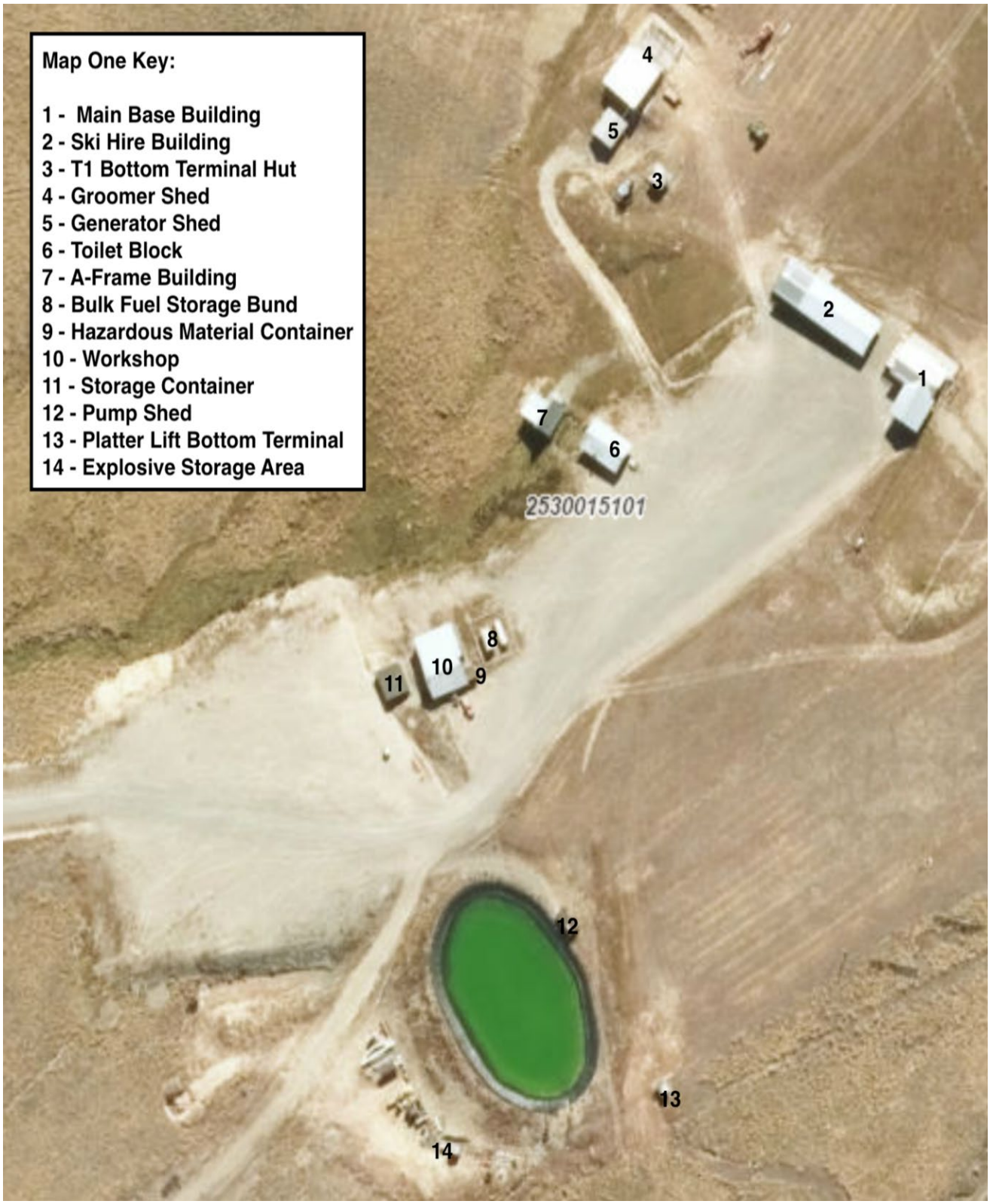

Figure 13: Base buildings

Figure 14: Other buildings

Figure 15: Buildings and assets outside base lease area

Figure 16: Proposed base lease area [8]

[8] Buildings are indicative

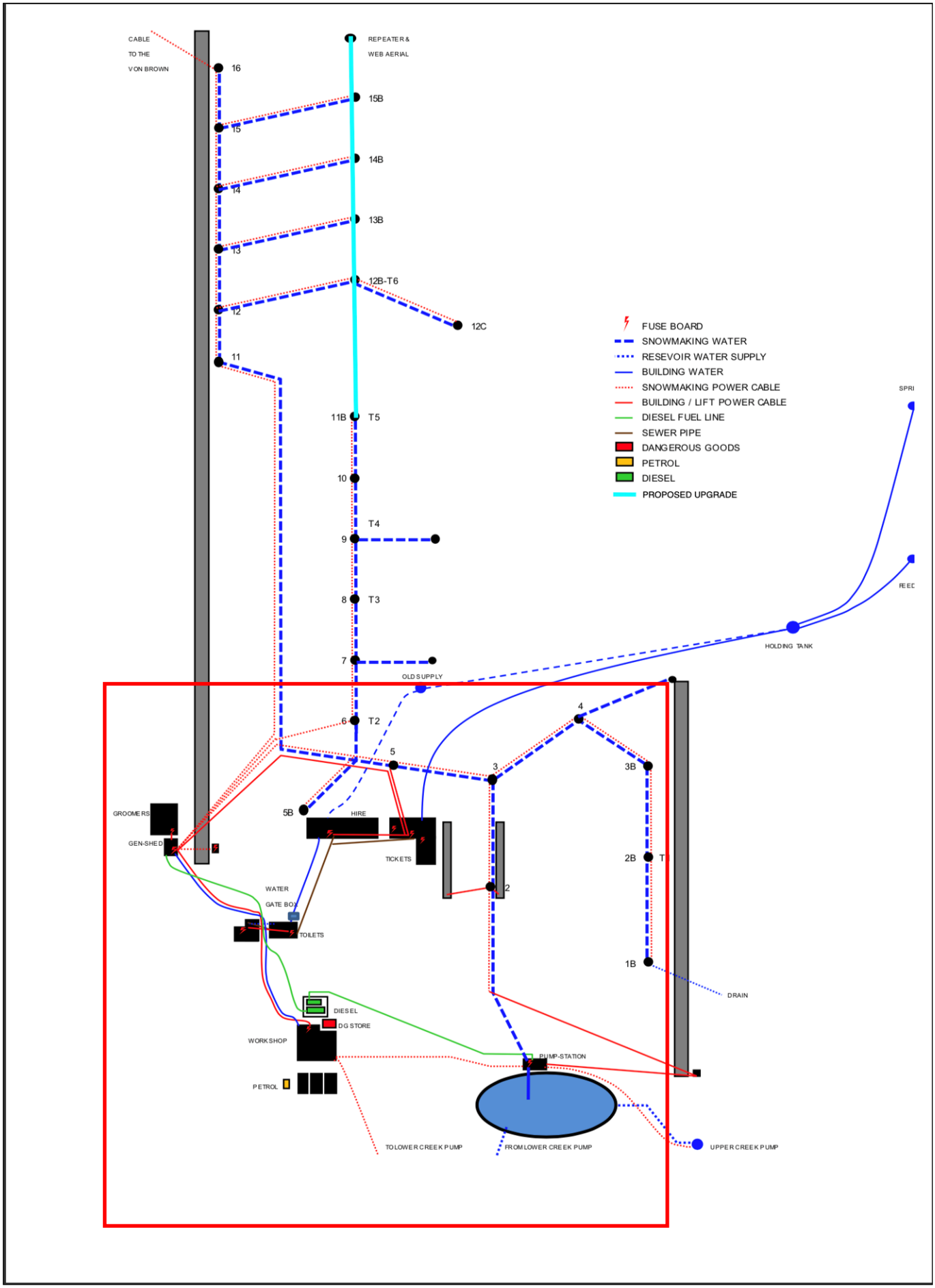

Figure 17: Underground infrastructure (red box indicates area included in proposed base lease area).

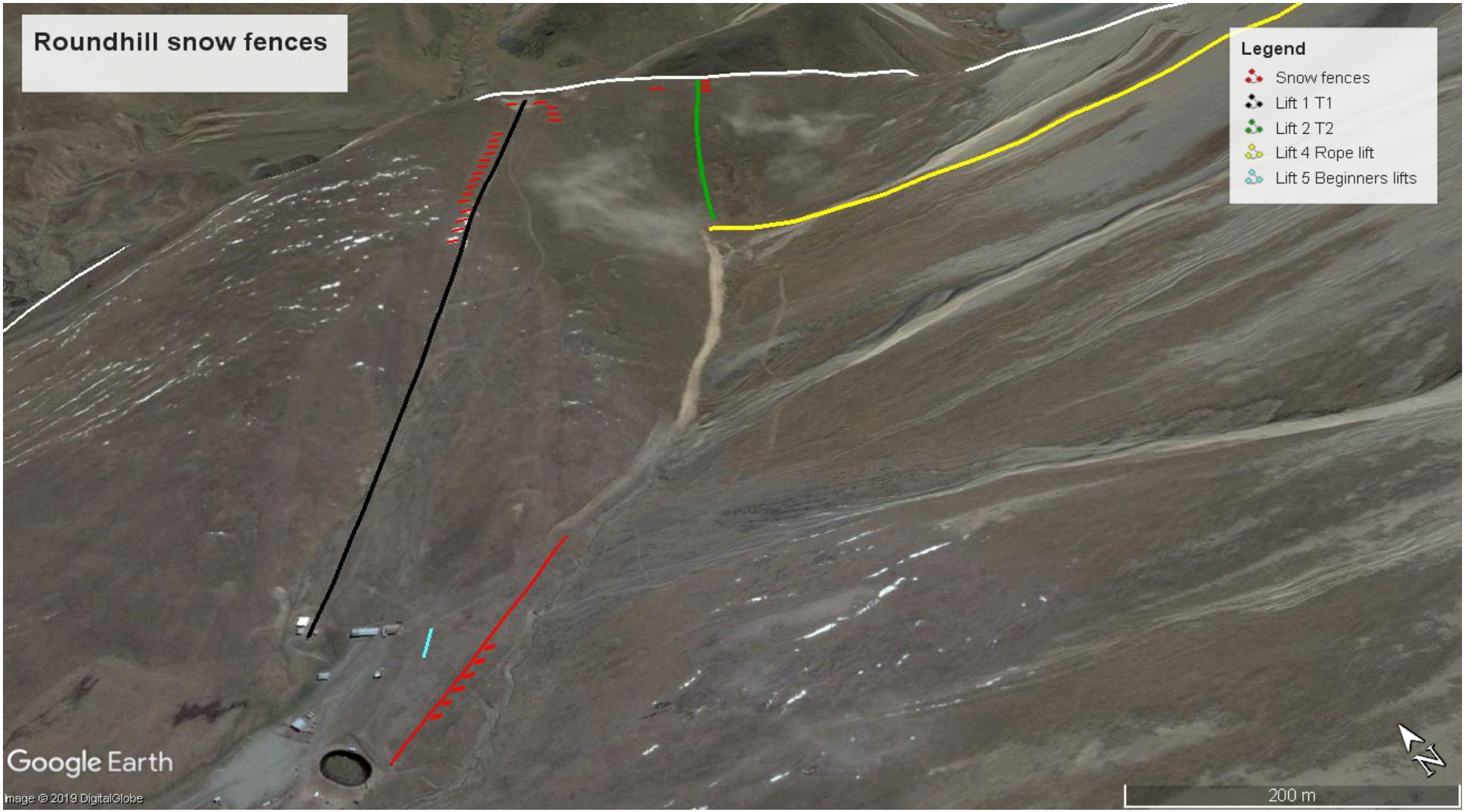

Figure 18: Snow Fences

Figure 19: Snow fences at the top of T1

Figure 20: Terrain park

Figure 21: Terrain park revegetated with browntop

Figure 22: Main base building

Figure 23:Ski hire building

Figure 24: T1 Bottom terminal hut

Figure 25: Groomer shed

Figure 26: Generator shed

Figure 27: Toilet block

Figure 28: A-frame building

Figure 29: Workshop and hazardous material container

Figure 30: Storage container

Figure 31: Pump shed and reservoir

Figure 32: Platter lift bottom hut

Figure 33:Von Brown hut

Figure 34: T1 Top terminal hut

Figure 35: T2 / Rope tow generator shed and fuel tank

Figure 36: A-frame #2 (below carpark)

Figure 37: Helicopter landing area

Attachment 3b:G.

Hazardous substances

Hazardous substances						
Building name	**Map reference no.**	**Photo reference**	**Location description**	**Purpose**	**Area building m^2**	**Construction**
Bulk fuel storage	**8**	Figure 38	Located beside the workshop below the top carpark area	Storage of diesel fuels for the generators and machinery.	103	Fuel tanks and concrete bunded area.
Hazardous materials container	**9**	Figure 29	Located beside the workshop below the top carpark area.	Storage of controlled hazardous substances.	8	Certified and vented hazardous material container.
Fuel storage tank	**18**	Figure 40	Located beside the rope tow drive terminal.	Storage of diesel fuel for the generator situated next to the rope tow terminal.	4.5	Double skinned tank.
Explosives storage area and safe	**14**	Figure 41	Located below the reservoir	Storage of explosives in a safe for the purpose of avalanche control and shed for making up charges	5.25 2.4	Steel safe.
Explosives safe	**18**	N/A	Located on ridge at top of rope tow	Storage of explosives in a safe for the purpose of avalanche control (both heli-bombing and ground).	2.4	Steel safe.

Table 3: Hazardous fuels and goods

Figure 38: Bulk fuel storage at base area

Figure 39: Bulk fuel storage at base area

Figure 40: Bulk fuel storage at rope tow

Figure 41: Explosives magazine and preparation hut

Attachment 3b:I

Landscape

The landscape values of the area around the Tekapo Ski Field are summarised in two reports. The Tenure Review Conservation Resources Report (CRR) for Richmond Station, (Land Information NZ, 2005), and the report completed for the rope tow development, Landscape Assessment: Proposed Rope Tow, Richmond Range, Tekapo Skifield Ltd (Steven, 2010).

The CRR provides commentary on the landscape unit of "Western facing slopes of the Richmond Range" which the ski area is part of, at its northern extent.

The rope tow report notes that from Mount John and the western side of Lake Tekapo, "*Round Hill is some 20-25km away. The existing infrastructure at Round Hill is very hard to see with the naked eye at this distance although in winter with snow cover, the line of the T bar can be seen.*

The existing ski field development is not considered to detract in any significant way from the Lake Tekapo valley landscape as it is experienced from these southern viewpoints."

It then concludes with, "*Generally, except for viewpoints close in to the ski area or above it, the existing ski area infrastructure is not visually prominent (in comparison to Coronet Peak, or Cardrona for example).*

In the vast and expansive landscape of the east side of Lake Tekapo, the ski area development does not detract significantly from the overall landscape quality. The overall impression of an open and natural high country tussock grassland landscape prevails, over the mid to high altitude country at least."

The relevant text from both reports are extracted below:

From the CRR report:

"Western Facing Slopes, Richmond Range

This landscape unit includes all of the western facing slopes of the Richmond Range, which is a lateral extension of the Two Thumb Range. These rangelands descend towards the south where the terrain is broken by the down-cutting of Boundary Stream.

The physical relief of the Richmond Range can be divided into three finite sections.

(a) Along the summit (highest point being 2150masl), there is an over-steepened ridgeline which includes extensive craggy outcrops.

(b) The main surface cover within the mid-section is bare scree, with some scree chutes extending down to the base of the slope at about 1400masl. At frequent intervals along the slopes the headwaters of streams cut v-shaped depressions into the surface.

(c) The lower slopes, which have been formed by a debris layer (colluvium) producing a transitional slope that merges in with the adjoining remnant terrace.

The vegetative pattern is relatively simple with snow tussock being the primary cover and extending up the slopes to a point where the scree becomes unstable due to frost lift and wind erosion. Some of the older scree faces, particularly along the base, are being colonised by grey shrublands.

There are no "built" elements such as access tracking or fence lines within this unit.

This unit creates a fundamental part of a larger high country landscape. It is dominated by landform with natural forces being highly conspicuous in the shape of the large scree faces. The vegetation is in a natural condition showing little intervention from pastoral farming, the result being a cohesive landscape expressed by a simplicity and uniformity in both natural processes (weathered greywacke) and vegetation patterns (dense snow tussock)."

From the Landscape Assessment Report for the Rope Tow

"The Round Hill Ski Field is a node of obvious development and modification with an access road, earthworks, ski lifts, buildings, car parks and human activity (mostly winter). It has been present for some 50 years now.

The Richmond and other off-shoot ranges of the Two Thumb range are prominent and highly visible, providing dramatic enclosure to the wide valley of Lake Tekapo and the Macauley-Godley Rivers at its head. Lake Tekapo itself is an artificially raised hydro lake but appears a natural high country lake. The Lake Tekapo landscape is part of the widely recognised outstanding natural landscape of the Mackenzie Basin. It is a very well-known and heavily-viewed landscape, forming the spectacular outlook from the Tekapo township (and in particular, the Church of the Good Shepherd and adjacent lake shore area and SH8, a major tourist corridor.

The landscape assessment for Richmond pastoral lease tenure review described it as nationally significant. It could be described too as one of the classic (or iconic) views of South Island scenery, and has been painted and photographed often.

In views from the central and eastern Tekapo township and SH8 Round Hill is a low but somewhat indistinct brown bulge seen in front of the distant skyline brown and grey ridges leading north into Mesopotamia (see Photo 1). The Richmond Range forms a prominent skyline profile framing the east side of the view. This part of the panoramic view is particularly pleasing to the eye due to the arrangement of landforms, patterns of light and shadow, and pattern of brown and grey coloration. The part forming the profile lies about 2km south of the north end of the range where the proposed tow line is.

Moving west, the northern end of the range comes into view obliquely from the access road and summit of Mt John, and from the Mt John and Peninsula Walkways. Round Hill is some 20-25km away. The existing infrastructure at Round Hill is very hard to see with the naked eye at this distance although in winter with snow cover, the line of the T bar can be seen.

The existing ski field development is not considered to detract in any significant way from the Lake Tekapo valley landscape as it is experienced from these southern viewpoints. Farming development and exotic tree planting are much more obvious modifications.

The Round Hill access road is also the only public vehicle access directly to the Te Kahui Kaupeka Conservation Park.

Generally, except for viewpoints close in to the ski area or above it, the existing ski area infrastructure is not visually prominent (in comparison to Coronet Peak, or Cardrona for example).

In the vast and expansive landscape of the east side of Lake Tekapo, the ski area development does not detract significantly from the overall landscape quality. The overall impression of an open and natural high country tussock grassland landscape prevails, over the mid to high altitude country at least."

Summary of the landscape values

In summary, it is fair to conclude that the landscape impact of the ski area is minimal, both at a distance and close up and even the more recent developments like the rope tow, terrain park and the T2 lift have not been a significant landscape impact.

Botanical

The botanical values of the area around the Tekapo Ski Field are summarised in the Tenure Review Conservation Resources Report (CRR) for Richmond Station, (Land Information NZ, 2005). The relevant sections of this report are extracted below.

The values on the ski area are typical of the rocky ridge and scree and tall tussock grassland communities found on much of Richmond Station.

A further report produced by botanist, Neill Simpson of Conservation Consultancy Ltd, (Simpson, 2010), for the rope tow development on the botanical values of the rope tow base area and line provides some commentary on that part of the ski area.

<u>From the CRR report for Richmond Station:</u>

"2.4.2. Rocky ridge and scree

The upper property boundary traverses part of the Two Thumbs ridge and the Richmond Range. On the shattered rock of the ridge crest the only vegetation is an occasional cluster of *Aciphylla dobsonii*. The Richmond Range is in the Two Thumbs Ecological district, which is at the northern limit for A*ciphylla dobsonii*. Long screes of shattered rocks descend down from the ridge. Here plants typical of Canterbury screes or partly stable rock debris are to be found, including penwiper plant Notothlaspi rosulatum, vegetable sheep (*Raoulia eximia), Haastia sinclairii, Cardamine bilobata, Leptinella atrata, Hebe epacridea*[9]*, Hebe haastii, Epilobium crassum, Luzula traversii, Poa buchanii, Myosotis traversii, Stellaria gracilenta, Ranunculus haastii, Pimelea traversii.*

Patches of vegetation occur in scree where some soil has collected in stabilised rubble. Here *Chionochloa macra* and associated herbs and grasses grow including *Celmisia angustifolia*, *C. laricifolia*, *Raoulia subsericea, R. grandiflora, Leptinella pectinata, Aciphylla monroi, Dracophyllum pronum*, bristle tussock (Rytidosperma setifolium) and blue tussock (*Poa colensoi*). Below about 1600m scree gives way to tall tussock although scree lobes from the Richmond Range descend down to 1200m and the screes descending from the Two Thumbs ridge north of Round Hill drop nearly 800m down to Coal River.

2.4.3. Tall tussock grasslands

Tall tussock grassland provides the dominant vegetation cover between 1000m to 1600m. *Chionochloa macra* dominates above about 1300m descending lower on colder south facing slopes. *Chionochloa rigida* dominates below 1300m but intermingles with *Chionochloa macra* and ascends higher on the warmer sunny slopes.

Where the scree descends into tall tussock there is a lot of loose rubble between tussocks. The plant cover and diversity increases with blue tussock, *Gaultheria novae-zelandiae, Celmisia lyallii, Anisotome flexuosa, Scleranthus uniflorus, Raoulia subsericea, Luzula rufa, Pentachondra pumila, Brachyscome sp., Pimelea oreophila, Craspedia sp*., and *Wahlenbergia albomarginata* occurring amongst the tall tussock.

Some patches of mouse-ear hawkweed (*Hieracium pilosella*) and scattered plants of king devil (*Hieracium praealtum*) are the only exotic plants. Scattered plants of mouse-ear hawkweed and king devil were recorded up to about 1600m. Although there is a dense cover of mouse-ear hawkweed in the *Chionochloa macra* community near the skifield, generally it is the short tussock grassland at lower

[9] *Hebe* is now *Veronica spp.*

altitude that has the greatest mouse-ear hawkweed cover. Generally, mouse-ear hawkweed cover declines with increasing altitude.

On the relatively flat kame terrace that runs along the foot of the steep slopes off the Richmond Range, mouse-ear hawkweed is the dominant inter-tussock species amongst fescue tussock, blue tussock and scattered *Chionochloa rigida*. Growing amongst the mouse-ear hawkweed are large cushions of *Celmisia sessiliflora* (a species usually occurring on short snow tussock herbfield on permanently damp sites). Also growing in this area are *Pimelea oreophila, Leucopogon fraseri, Raoulia subsericea, Kelleria dieffinbachii, Anisotome flexuosa, Scleranthus uniflorus*. Although there are only scattered patches of *Chionochloa rigida* throughout the long flat area along the kame terrace, the area provides a linkage between the two areas of tall tussock above and below the kame terrace."

<u>From the botanical report on the rope tow:</u>

Vegetation

The vegetation in the area of the base station is mainly tussock grassland with patches of wetland and many exotic species. Narrow-leaved snow tussock (*Chionochloa rigida*) dominates at about 80% cover with *Hieracium praealtum* up to 30% in places and exotic grasses dominating the inter tussock spaces elsewhere. The slopes to the north above the proposed base area for the rope tow are wet with much seepage and wetland vegetation. Comb sedge (*Oreobolus pectinatus*) is prominent with marsh marigold (*Psychrophila obtusa*[10]), *Carex gaudichaudiana* and *Coprosma atropurpurea*). Exotic grasses, white clover and dandelion (*Taraxacum officinale*) are also plentiful

On the well-drained slopes above and to the east along the line of the tow to the upper scree slopes are also narrow-leaved tussockland but with much false spaniard (*Celmisia lyallii*). The tussock is quite open in places with a cover of 40% to 60% and with *Celmisia lyallii* 30% to 40%. Bare ground and *Hieracium* (2 species) can be up to 10%, with other native species such as *Pimelia oreophila, Aciphylla montana, Raoulia subsericea, Anisotome flexuosus, Brachyglottis bellidioides* and blue tussock (*Poa colensoi*).

Much of the west face, up which the tow will run, is scree with only a few scattered scree plants. The tussockland extends long fingers of vegetation upwards into the scree slopes. The new line will run alongside one of these fingers of vegetation but out in the scree so probably less than 25% of its length will on vegetated ground.

Summary of the botanical values

In summary, it is fair to conclude that the botanical values of the ski area are typical of the ecosystems at this altitude in the Mackenzie. Of the plants identified they are all classified as "Not Threatened" except for one, Ranunculus haastii (Haasts buttercup), which is classified as At Risk – Declining. This plant is found in the mobile screes like on the faces of the Richmond Range so will only be affected by the operations in the vicinity of the rope tow.

Fauna

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[10] *Psychrophila obtusa is now Caltha obtusa*

The fauna values of the Richmond Station are described in the Tenure Review Conservation Resources Report (CRR) for Richmond Station, (Land Information NZ, 2005). The relevant sections of this report are extracted below. While the values described are across the whole area of Richmond Station this includes the area surrounding Roundhill, and is typical of the values found in this habitat.

The birds most likely to be found at the altitude of the ski area include New Zealand falcon, pipit, black backed gull and the Australasian harrier. Kea have not been sighted in recent times at the ski area. The reptiles and invertebrates described as frequenting the habitats above 1300m are all likely to be found at the ski area.

From the CRR report:

2.5.1 Birds

A total of forty-one species of birds have been recorded on Richmond. This includes nine endemic, sixteen native and sixteen introduced species. Of particular note is the presence of kaki (black stilt) which sometimes use the lower Coal River for feeding and nesting.

The endemic species are: kaki, black billed gull, black fronted tern, banded dotterel, paradise shelduck, grey warbler, New Zealand falcon, New Zealand scaup and wrybill. Native species recorded are Australasian harrier, spur winged plover, white faced heron, welcome swallow, pied stilt, grey teal, Australasian shoveler, grey duck, black shag, little shag, marsh crake, black backed gull, pied fantail, silvereye, pipit and pied oystercatcher.

Black billed gull, black fronted tern, wrybill and white faced heron all feed in the lower part of the Coal River and the wetland at the mouth of the river. New Zealand scaup and marsh crake feed and nest in the pond near the homestead while banded dotterel and spur wing plover nest and feed on dry stony ground and depleted grasslands on the property.

2.5.2 Reptiles

Two species have been found on Richmond. They are the common gecko and the common skink. Both are found throughout the property with the gecko found mainly on rock outcrops and in stony areas, including screes, while the skink is found in most habitats. The presence of a larger species, either spotted or scree skink, is indicated by droppings along scree cliffs immediately above Lake Tekapo and their presence on the adjacent property, Mt Hay.

2.5.3 Invertebrates

Richmond Range: This area has a good representation of the alpine invertebrate communities found in the Mackenzie Country and South Canterbury region. High alpine species like the grasshopper *Sigaus villosus* and the black mountain ringlet (*Percnodaimon pluto*) are found above 1,600 m. The grasshopper *Sigaus villosus* is found only between 2,000 and 2,100 m and is on its southern boundary. This is only the third time in 30 years it has been recorded outside it known distribution range. Two other grasshoppers are also recorded *Brachaspis nivalis* and *Sigaus australis.*

Eight moth species are recorded above 1,300m (*Notoreas* n. sp., *Eudonia deltoptophora*, *Orocrambus aethenellw*, *Aletia cuneata*, *Aponotoreas insignis*, *Tawhitia pentadactyla*, *Orocrambus melampetrus*, *Aponotoreas anthracias*). A new species of *Notoreas* has been recorded at its new northern limit. The larvae of this moth feed on the native daphne *Pimelea.*

General: An extremely rich grasshopper fauna with eight species of grasshoppers has been recorded on the lease. On the lowland the grasshopper *Phaulacridium marginale* is common throughout the lease with *P. otagoense* preferring the dryer area. Both *Paprides nitidus and S. campestris* have been only found north of Coal River. The grasshopper *S. minutus* has been found on the Coal River washout and three alpine species have been recorded from the Richmond Range, *Brachaspis nivalis, S. australis and S. villosus."*

Native fish

Three species of endemic native fish were found on Richmond Station at the time of the tenure review work. However, while they were found in the lower parts of Coal River, none were found at higher altitudes similar to the ski field. A recent conversation with DOC Twizel has confirmed that in the survey on the neighbouring property of Mt Hay similar findings were made with no native fish at higher altitudes.[11]

Summary of fauna values

In summary, it is fair to conclude that the fauna values of the ski area are typical of the ecosystems at this altitude in the Mackenzie. The pipit is an "At Risk" species and the New Zealand falcon is considered to be "Recovering" species. None of the alpine grasshopper species likely to be found within the ski area are threatened. No native fish were noted at this altitude in any of the reports or in recent discussion with DOC Twizel.

Other relevant natural value and planning information

LENZ classification

The ski area is within an area classified under the Land Environments of New Zealand threat category as "less reduced and better protected". Therefore, it is well represented in protected systems.

Sites of Natural Significance

There are no SONS within the ski area. The Coal River SONS (#69), lies below the proposed ski area licence boundary in and around Coal River.

District Plan

The ski area is within the Rural Zone in the Mackenzie District Plan.

[11] Pers. comms. Dean Nelson 2019.

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