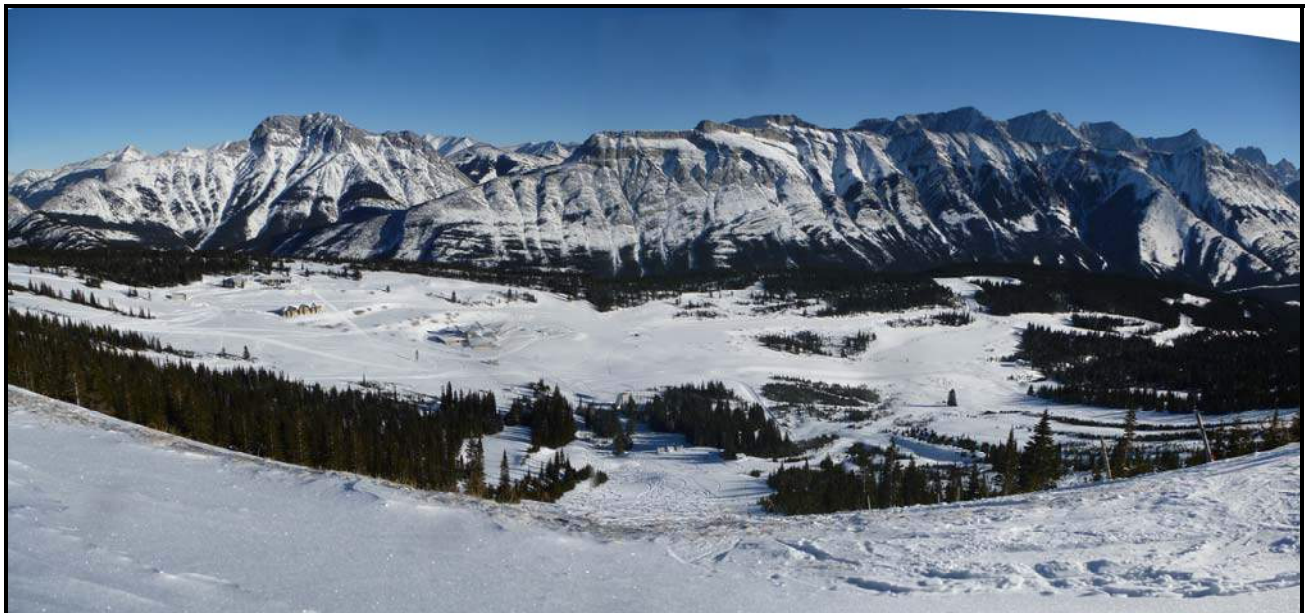




**FORTRESS MOUNTAIN
RESORT MASTER PLAN**

I. INTRODUCTION

Ecosign Mountain Resort Planners, Ltd. (Ecosign) has been retained by Fortress Mountain Holdings (FMH) to prepare a Resort Master Plan for the re-opening of Fortress Mountain as a commercial alpine ski operation. The Fortress Resort is located on land leased from the Province of Alberta and FMH are the current leaseholders. This Master Plan outlines FMH's vision for the future redevelopment of Fortress Mountain.



Fortress Mountain Base Area and Beginner Terrain looking East from the Top of the Frontside

.1 Location and Regional Context

Fortress Mountain Ski Resort is located in Kananaskis Country in southwestern Alberta, as shown on Figures 1 and 2. Kananaskis Country is a park system which includes 51 parks of various classifications (Provincial Parks, Provincial Recreation Areas, Ecological Reserves, Natural Area and Wildland Provincial Parks) administered by Alberta Tourism, Parks & Recreation. About two-thirds of Kananaskis Country has been designated as some type of park or conservation area, while the remaining third of the area is designated for commercial activities such as resource extraction or other commercial recreation activities. The Fortress Mountain lease area is surrounded by the jurisdictional boundary of Spray Valley Provincial Park; however the Park's Management plan does not directly impact Fortress's lease which falls under the authority of the Province of Alberta's Ministry of Environmental and Sustainable Resource Development (ESRD).

Nakiska Mountain Resort is the only other ski area operation within Kananaskis Country and is located within the Evan-Thomas Provincial Recreation Area to the North of Spray Valley Provincial Park. Nakiska is owned by the Crown but is operated by Resorts of the Canadian Rockies through a private contract with the Alberta Government. The Kananaskis Country Golf Course, Mt. Kidd RV Park, Kananaskis Village Centre and Beaver Ponds are other government facilities contracted to the private sector within Evan-Thomas Provincial Recreation Area. The Delta Lodge at Kananaskis, Executive Resort at Kananaskis, Ribbon Creek Hostel and Sundance Lodge are privately owned and operated on leased Crown land within the Evan-Thomas PRA. This cluster of overnight accommodation is located approximately 5 minutes' drive from the Nakiska base area and a 25 minute drive from the Fortress base area and provides a potential drive-to bed base for the Fortress Mountain Resort. A summary of the overnight accommodation and facilities located within Kananaskis Village in the Evan-Thomas PRA is provided in Table I.1.

**TABLE I.1
KANANASKIS VILLAGE EXISTING ACCOMMODATION**

	No. Units	No. Beds*	Other Amenities
Delta Lodge at Kananaskis	321	963	Spa, Fitness Center, Shops, Restaurants, Convention Facility, Employee Housing
Executive Resort at Kananaskis	90	360	Conference Facility, Fitness Center, Spa, Dining Room, Pub
Ribbon Creek Hostel	n.a.	48	Common Living Room, Self-Serve Kitchen, Employee Housing
Total	411	1,371	

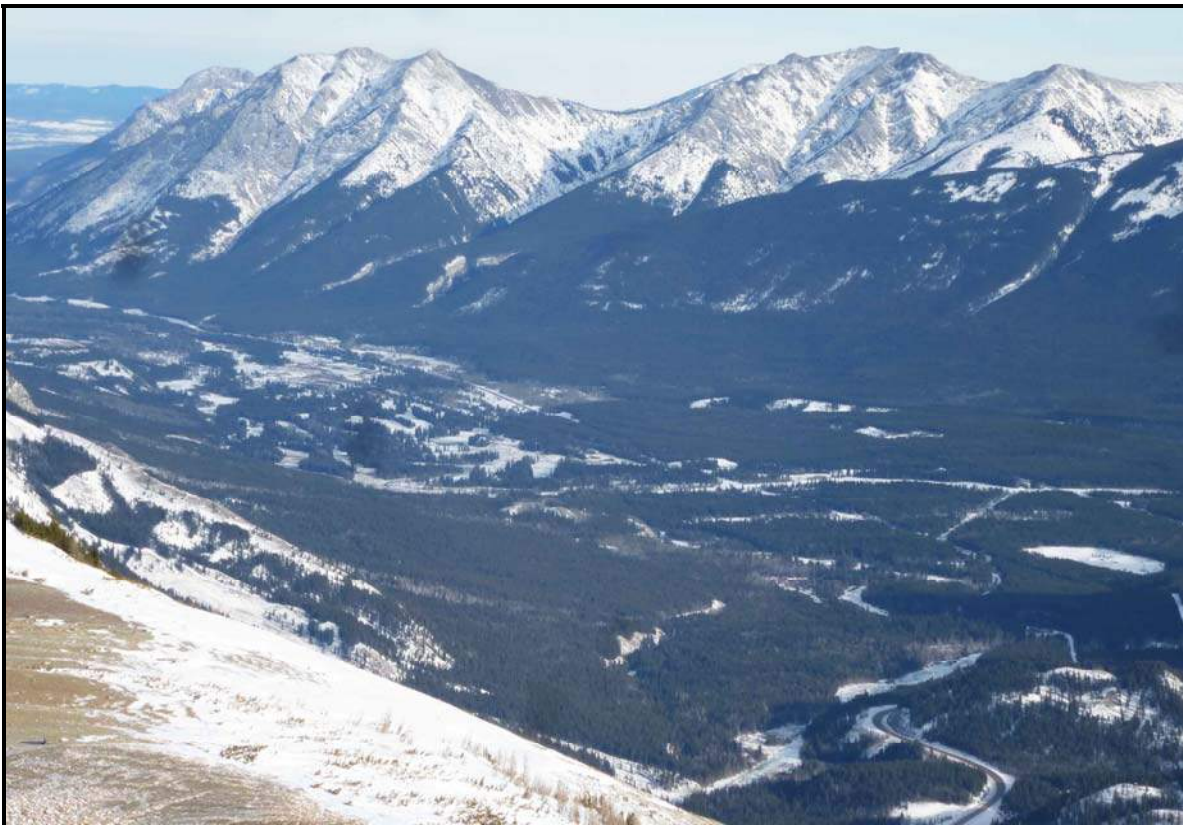
*Estimate

The Fortress Mountain Resort is 124 kilometers southwest of downtown Calgary and 142 kilometers from Calgary International Airport located on the north part of the city. Calgary has a regional population of approximately 1.2 million. From Calgary, the ski area is accessed via the Trans-Canada Highway (#1) to Highway 40 and south on Highway 40 to the Fortress Mountain Access Road. Canmore is the closest town to Fortress Mountain, located about 45 minutes' drive northwest of the ski area. The trip to Fortress Mountain from the centre of Calgary takes approximately one hour and thirty minutes. Figure 2 shows the location of Fortress Mountain Resort in relation to the nearby towns of Canmore and Banff. The Nakiska Mountain Resort is also accessed from Highway 40, 18 kilometers north of the junction with the Fortress Mountain Access Road.

.2 Historical Perspective

The first ski operation at Fortress Mountain opened in 1967 and was called the Snowridge family ski area. The resort's base area included a large day lodge offering some motel style accommodation; however most of the skiers were day visitors from Calgary. In the mid 1970's, the area was purchased by the Aspen Ski Company and the name was changed to Fortress Mountain.

In 1983, nearby Mount Allan was selected as the site for development of the Alpine Skiing venue for the 1988 Calgary Olympic Winter Games. Kananaskis Village was built 4 kilometers to the south to provide a satellite athletes' village for the alpine athletes. After the Games, the venue was opened as a public day ski area called Nakiska. The Alberta Government has developed a large cross-country ski trail network in Kananaskis Country, however, has not allowed the development of additional tourist accommodation within the area.



Looking North from Mt. Baldy in Fortress Mountain Lease Area to Highway 40 in Kananaskis Country

Fortress was purchased by Resorts of the Canadian Rockies (RCR) in the 1990's and the area enjoyed a bit of a rebirth when Freestyle Alberta used it as a training centre. However, with the lifts nearing the end of their life cycle and skier visits declining, RCR announced the closure of the ski area in April 2004 and the area has not operated since then. In 2005, the Banff Rail Co., Inc. purchased the resort but their efforts to reopen the ski area were not successful.

Fortress Mountain Holdings has owned the lease since 2010 and introduced cat skiing (KPOW!) during the winter of 2011/2012. The Resort area has been used as a location many times for filming Hollywood movies and commercials. The area currently owns a total of 3 ski lifts including one triple chairlift and 2 double chairlifts. There were formerly 3 T-bars within the Fortress ski area which have been removed. The top elevation within the existing tenures is 2,316 metres at the top of the Farside chairlift. The base area is located between 2,000 metres at the lower parking lot, and 2,045 metres at the existing lodge. The existing ski facility has a skiable vertical of 335 metres. The existing day lodge facility which included skier services and some overnight accommodation has been boarded up for over a decade and has deteriorated beyond repair. There is one townhouse building sitting in the upper parking lot that contains 6 units that were finished and occupied but are currently out of use.

The cat skiing operation utilizes a Pisten Bully 300 with a 14-passenger cab and a Bombardier BR400 with a 12-passenger cab. A second machine provides emergency back-up service.

.3 Planning Issues

The successful design and operation of a mountain resort requires a solid footing on three separate pillars. The three critical resort elements, as illustrated in Plate I.1, are: physical, market and economic characteristics and factors.

CRITICAL RESORT ELEMENTS

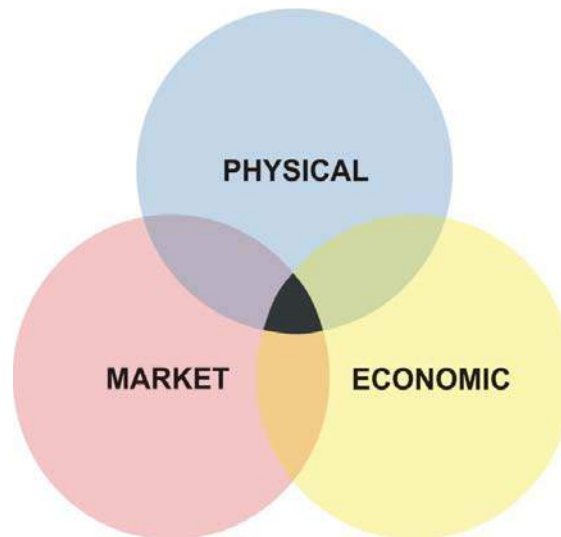


PLATE I.1

The physical site characteristics include:

- environmental resources including water, air, soil, vegetation and wildlife
- terrain
- climate
- natural hazards
- visual resources
- recreational resources

The master planning process incorporates research by scientists, ecologists and recreational planners to document the physical characteristics of each individual site with air photos, topographical maps, three-dimensional computer models, on-site field work and surveying, and analytical planning technologies.

The next critical element necessary for a feasible mountain resort deals with the market characteristics including:

- access to the site
- the size and proximity of local, regional and destination markets
- population demographics such as: age, income and education
- population dynamics such as: growth, aging, and social trends, for example, fitness

Finally, there are economic factors and characteristics to be considered such as:

- resort capacity
- length of operating season (winter and summer)
- infrastructure cost and availability
- capital costs of facilities
- operating efficiency
- revenue sources and pricing
- human resources

Every resort possesses a different blend of these characteristics. It is very important to understand and document the balance between the physical, market and economic characteristics of each individual project.

.4 Glossary

The ski industry has a number of terms and technical jargon specific to ski area development, hence, a glossary is provided:

1. **Skier Visit** - One person visiting a ski area for all or part of a day or night for the purpose of skiing or snowboarding. This is the total number of lift tickets issued and the number of uses in a season by season passholders. Skier visits include a person holding a full-day, half-day, night, complimentary, adult, child, season, or any other ticket type that gives a skier the use of an area's facilities.
2. **Rated Uphill Capacity** - The manufacturer's rated number of skiers per hour a lift can transport to the top of the lift. An area's total rated uphill capacity is the sum of the hourly capacity of each of the individual lifts.
3. **VTM/Hour (000) - (Vertical Transport Metres Per Hour)** - The number of people lifted 1,000 vertical metres in one hour (vertical rise of a lift, times the lift capacity per hour, divided by 1,000). An area's total VTM, is the sum of VTM for all lifts.

4. **VTM Demand/Skier/Day** - The amount of vertical skied (demanded) each day by a skier, which varies according to the skier's ability level.
5. **Skier (Comfortable) Carrying Capacity (SCC)** - The number of skiers that a given ski area can comfortably support on the slopes and lifts without overcrowding, or those that may be accommodated at one time and still preserve a congenial environment. A ski area's comfortable carrying capacity is a function of VTM demand per skier, VTM supplied per hour, difficulty of terrain and scope of support facilities. The Skier Carrying Capacity of an area is calculated assuming all the terrain is available for skiers and that the skiers are evenly distributed over the available terrain. If weather and or snow conditions make parts of the area more attractive than others, the more attractive areas may feel overcrowded even though there are fewer skiers on the mountain than the area's theoretical SCC. Skier Carrying Capacity assumes that there will be lift queues. A detachable chairlift would be expected to have a lift queue equal to 2 times the ride time while the fixed grip chairlift would have a lift queue equal to its ride time under peak conditions. Sometimes it is desirable to provide sufficient lift capacity at certain lifts so that access to the lifts is relatively free flowing and no queues develop. Ecosign refers to the design capacity where no lift queues develop during the peak skier visitation as the Quality Carrying Capacity (QCC) of the lift system.
6. **Utilization** – Utilization is measured as a percent of skier carrying capacity. Comfortable Seasonal Capacity is the product of a ski area's daily skier carrying capacity times its days of operation that season. Utilization compares actual skier visits to calculated comfortable seasonal capacity.
7. **Terrain Pod** - A contiguous area of land deemed suitable for ski lift and trail development due to its slope gradients, exposure and fall line characteristics.

II. TECHNICAL ASSESSMENT AND INVENTORY

.1 Introduction

Ecosign's Technical Assessment of the Fortress study area includes an inventory and assessment of all existing conditions and dynamics that affect the potential for mountain resort development. The inventory data includes climatic conditions, all existing site features, physiographic characteristics, hydrology and other environmental factors that impact potential development. The inventory data is analyzed according to international standards for mountain recreation and competition facilities, as well as design parameters for mountain resort base area development. The result of the Technical Assessment is the identification of the most suitable sites for various types of base area development and four-season recreation facilities, as well as an overall evaluation of the site's potential for the further development of alpine ski terrain. The Technical Assessment provides an empirical, scientific foundation from which conceptual site planning and detailed design can take place during subsequent phases of the planning process.

.2 Physiography

The quality and feasibility of a winter sports site is highly dependent upon the topographic characteristics of each individual site. Physiographic features which affect the potential for alpine ski development in particular include aspect, slope gradients, fall line patterns and elevation ranges.

Topographic Map Setup

The first step of the Technical Assessment of the terrain within the study area is to obtain mapping suitable for computer analysis. Ecosign was supplied with LIDAR mapping of the study area at a scale of 1:2500 with a 2-metre contour interval that was prepared by McElhanney Geosurveys in 2008. Since this mapping only contained topographic contour information, Ecosign has utilized a winter orthophoto from MapWorld Services 2000 Inc. in Calgary and a Google Earth image to establish planimetric features such as lift terminals, forest edges, roads, parking lots, building, etc.

Aspect

Aspect is defined as the horizontal direction in which a slope faces and is categorized using the 8 cardinal points of a compass (north, northeast, east, southeast, south, southwest, west and northwest). The slope gradient and aspect of terrain in combination greatly affect the amount and intensity of solar radiation received during the winter and spring ski season. The aspect of the terrain within the Fortress Mountain study area has been analyzed and is illustrated on Figure 3, with colours representing the eight primary slope orientations. Cooler colours such as purple, dark blue and light blue represent north facing aspects which receive the least solar radiation during the winter months in the northern hemisphere. South facing slopes are exposed to the greatest amount of solar radiation and are illustrated with warmer orange, red and yellow shades. Snow retention in cooler zones is important for some winter recreation activities, while accommodation and other types of facilities need to be oriented towards the sun in warmer zones.

As a general rule, southern slopes are the warmest, eastern and western slopes the next warmest and northern slopes the coolest. Snowpack retention is a critical concern for any skiing operation and for this reason, slopes and ski trails should naturally be located where the snowpack remains for the longest period of time.

Shadow Analysis

The site's topography and relationship with the sun is a critical design parameter, as it determines the time of day and for how long potential resort facilities will either be exposed to the sun or be in the shade. A detailed shadow analysis has been prepared to determine areas of topographic shading at 09:00 hrs., 12:00 hours and 15:00 hrs. during the winter months, as illustrated on Figures 4a, 4b and 4c. This analysis informs the design process and ensures that critical elements capture sun at the appropriate time of day. For example, mountain restaurants should be in the sun during mealtimes so that guests can enjoy a comfortable micro-climate and good views while eating. Likewise, in the morning and afternoon, pedestrian areas and arrival zones should be sun exposed to draw visitors into the commercial areas and restaurants. Conversely, snow quality is retained in areas with the least amount of solar exposure, requiring less maintenance.

Solar Radiation Analysis

The amount of solar radiation impacting the surface of the ground varies significantly with elevation, slope, aspect and solar shading from surrounding topographic features. As mentioned previously, topographic shading decreases the temperature near the ground which causes the snow to last longer, and the angle of which the sun strikes the ground also affects the rate of snow melt.

Even small changes in aspect can result in substantial differences in surface warming. With this in mind, we have calculated the cumulative quantity of the potential incoming solar radiation on a monthly basis for the winter ski season from December 1, to March 31. Time of year, sun position (azimuth and altitude), shadows cast by surrounding terrain, terrain slope, and terrain aspect are all analyzed to simulate and calculate direct, diffuse and reflected radiation¹. The result is an accurate representation of potential energy income in kilowatt-hours per square meter. The calculation has been repeated every 15 minutes from sunrise to sunset for each day in a grid system over the entire study area. Figure 5 illustrates, with a warm to cool colour spectrum, the warm and cool zones within the study area during the winter months of December, January, February and March.

The Solar Radiation Analysis on Figure 5 clearly shows how the majority of the terrain in the Fortress Study area (located at 50° 49' North Latitude) absorbs between 250-495 KWh/m² on the east facing slopes and 0-250 KWh/m² of energy on the steeper north facing aspects during the winter season. Only isolated south facing portions of the study area absorb between 495-577 KWh/m².

Mountain Slope Analysis

Slope gradients are a critical factor in evaluating potential ski area development. Ecosign analyzed the underlying topographical mapping described above to create Figure 6, the Mountain Slope Analysis. On this plan, ranges of slope gradients are represented by different colours to illustrate slopes suitable for different types of skier skill classes. Table II.1 outlines the five ranges in slope gradients represented in the Mountain Slope Analysis, their corresponding colour and suitability for skiing.

¹ SOLEI, I. Mészáros, P. Miklánek (2006): Calculation of potential evapotranspiration based on solar radiation income modeling in mountainous areas. *Biologia*, ISSN-1335-6372, Vol. 61, Suppl. 19, pp. S284-S288.

Areas represented in white on the slope map are too flat for skiing and red areas are too steep. In terms of slope gradients, ideal ski terrain is represented on the Mountain Slope Analysis by a mix of green and yellow with some blue.

**TABLE II.1
MOUNTAIN SLOPE ANALYSIS SLOPE CATEGORIES**

SLOPE GRADIENT	COLOUR	TYPE OF SKIING/ SNOWBOARDING
0% to 8%	White	Flat Terrain, Marginal Skiing
8% to 25%	Green	Beginner & Novice Skiing
25% to 45%	Yellow	Intermediate Skiing
45% to 70%	Blue	Advanced and Expert Skiing
70% +	Red	Unskiable, Hazard Area

The Mountain Slope Analysis, in combination with the Aspect Analysis and Elevation Analysis provide vital tools for identifying quality ski terrain and potential mountain resort development. The Mountain Slope Analysis is the foundation from which detailed mountain planning will be carried out later in this report.

The Mountain Slope Analysis for the Fortress Study area illustrates that there is a significant amount of beginner and novice ski terrain (green) near the base area. The slopes in the general vicinity of the Canadian and Backside chairs are predominately advanced slope gradients (blue). The zone to skier's left of the North T-bar is mainly intermediate terrain (yellow) while skier's right of this lift is advanced (mixed yellow and blue). The terrain associated with the Farside chairlift is a mix on blue and yellow, resulting in high intermediate and advanced slopes.

Base Area Slope Analysis

Ecosign prepared a second analysis of the slope gradients within the Fortress Study area to determine appropriate sites for the development of base area facilities and supporting four-season recreation facilities. The Base Area Slope Analysis is presented on Figure 7 and illustrates ranges in slope gradients with colours that represent terrain that is suitable for different types of base area development. The same five colours from the Mountain Slope Analysis are used, however, the acceptable slope ranges have been adjusted to match criteria for the development of buildings and parking. Table II.2 outlines the type of development that is practical and economical within each of the five base area slope ranges.

**TABLE II.2
SLOPE CATEGORIES
BASE AREA SLOPE ANALYSIS**

SLOPE GRADIENT	COLOUR	DEVELOPMENT SUITABILITY
0 to 8%	White	High density development; buildings, roads and parking with limited terrain modification. Suitable for 4-season recreation.
8 to 15%	Green	High-medium density; some terrain modification required for development. Suitable for 4-season recreation.
15 to 25%	Yellow	Medium-low density development; access roads require substantial grading and terrain modification. Suitable for low density 4-season recreation.
25 to 40%	Blue	Low density development possible. Road access needs to be designed carefully to minimize earthworks.
40%+	Red	Too steep for efficient base area development. Suitable for low density 4-season recreation.

High density, compact resort development such as hotels and parking lots should only be built on land with slopes less than 8% to minimize cut and fill and allow for development that is easily integrated into the surrounding landscape. Medium and low density development can occur in areas represented in green and yellow if connections to existing or proposed infrastructure can efficiently be made. Some low density single-family or chalet style development can occur on slopes above 25% (blue) if the underlying soil can support cut and fill banks. Often the earthwork required to provide vehicle access can be very unsightly and may not be economically viable. Terrain with natural slopes above 40% is represented in red and is too steep for base area development. Recreation facilities such as golf courses and cross-country ski areas require substantial areas with slopes less than 15%, while other recreational facilities that take advantage of the slope such as zip lines, mountain bike trails and alpine coasters can be built on steeper terrain.

The Base Area Slope Analysis (Figure 7) illustrates that there are lands with slopes less than 15% in the existing base area in white and green. Most of the areas with natural slopes less than 15% were previously used for either parking, the day lodge, maintenance facilities or beginner ski slopes. There is a relatively flat area on top of the ridge east of the existing maintenance facility and a much larger flat area east of the ridge at the 1,950 to 1,970-metre elevation which is separated from the base area by the steep side slope of the ridge.

.3 Climate

Climate, including temperature, humidity, precipitation, wind, etc., all contribute to the feasibility of mountain resort development. Adequate snowpack is essential for successful ski area operations. In areas where the natural snowpack is not adequate, machine-made snow can be produced to compensate for the shortfall, given favourable cold temperatures.

Wind

Wind is a significant climatic influence in the Alberta Rockies. The prevailing winds at Fortress during the winter months are primarily from the western quadrant. Northerly and north-westerly flow occurs when cold continental polar air masses move through Alberta from the northern Arctic region. Westerly and south-westerly flow is dominant when warmer subarctic maritime masses move eastward from the Pacific Ocean/Gulf of Alaska area. Sufficiently strong high pressure systems established east of Alberta, when associated with the movement of warmer maritime air masses, on occasion create pressure gradients that cause the westerly and south-westerly flow in the vicinity of Fortress Mountain and the Kananaskis Valley to heat up by adiabatic compression. This phenomenon is known as the “Chinook Wind”.

.4 Ski Area Planning Parameters

Ski terrain and trails are classified in association with the International Ski Trail Standards (Table II.3), as well as the seven skier skill classification levels exhibited in Table II.4.

**TABLE II.3
INTERNATIONAL SKI TRAIL STANDARDS**

Ski Trail Designations	Skier Ability Levels
Easiest (Green circle)	Beginner
More difficult (Blue square)	Intermediate levels
Most difficult (Black diamond)	Advanced & Expert

TABLE II.4
SKIER SKILL CLASSIFICATION SLOPE GRADIENTS

Skill Classifications		Acceptable Terrain Gradients	Maximum Gradients
1	Beginner	8 - 15%	20%
2	Novice	15 - 25%	30%
3	Low Intermediate	25 - 35%	40%
4	Intermediate	30 - 40%	45%
5	High Intermediate	35 - 45%	50%
6	Advanced	45 - 60%	65%
7	Expert	60% +	

Ski trails are classified via an evaluation of the following parameters: slope width, average gradient and the steepest 30-meter vertical pitch. Since the average slope gradient of a ski trail is generally much lower than the steepest 30-meter vertical pitch, trails are usually classified to ensure that the steepest 30-meter vertical pitch falls within five percent of the acceptable terrain gradients listed in Table II.4. Furthermore, a gentle novice ski trail cannot suddenly turn into an advanced ski trail for obvious reasons. We have used the skill level classification system shown in the above table to rate the existing ski trails and terrain within the Fortress study area.

Skier/Snowboarder Densities

Ecosign has performed on-site research to determine comfortable and safe skier densities at ski areas in many parts of the world. The research consisted of performing on-site guest surveys while simultaneously taking aerial photos of the trails by helicopter. One of the questions on the survey asks skiers for their subjective opinion of the crowding on the particular trail they skied. Their opinions were then compared with the actual densities recorded in the photos. From these comparisons, we estimated skier densities which provide skiers with a high quality, comfortable experience, resulting in good memories and the likelihood of return visits.

Densities used in planning ski areas in different parts of the world are listed in Table II.5 and shown graphically in Plate II.1. In areas such as Europe, Canada and the United States, skier densities are relatively low compared to the densities at ski areas in Japan or Australia, where skiers have been historically conditioned to higher densities. For example, in the 1980s, skier densities in Japan were generally three times the densities in North American destination resorts based on the rapid growth the popularity of skiing. More recently, since the growth in skiing in Japan has stabilized, the skier densities are more in line with the European densities. Listed in Table II.5 are the “SAOT” (Skiers At One Time) densities and the “On-Slope” densities. The SAOT is based on the total number of skiers/snowboarders at the area, including those in lift queues, riding lifts, in restaurants and on the trails. The “On-Slope” densities take into account only those skiers and snowboarders actually on the trails at any given time.

As shown in Table II.5, acceptable skier/snowboarder slope densities tend to decrease as the proficiency of the skier increases. The lower density for better skiers occurs due to their increased speed, and therefore, longer stopping distances and the general increase in space needed to avoid obstacles and other skiers. The exception to this rule is that slope densities increase slightly on expert terrain since these steep, un-groomed slopes dictate controlled, short radius turns. Under these conditions, expert skiers have slower speeds and require less space for safe skiing. Based on our worldwide experience, Ecosign feels that the Western North American skier densities are the most appropriate to use for planning at Fortress.

**TABLE II.5
WORLDWIDE COMPARISON OF SKI TRAIL DENSITIES**

	1	2	3	4	5	6	7
Skill Classification	Beginner	Novice	Low Intermediate	Intermediate	High Intermediate	Advanced	Expert
Western N. America Destination							
SAOT (skiers/Ha.)	50	50	40	40	30	15	20
On-Slope (skiers/Ha.)	20	20	15	15	12	7	10
European							
SAOT (skiers/Ha.)	75	75	60	60	45	22	30
On-Slope (skiers/Ha.)	30	30	23	23	18	10	15
Eastern N. America Regional							
SAOT (skiers/Ha.)	135	100	80	80	60	30	40
On-Slope (skiers/Ha.)	54	40	30	30	24	14	20
Australia							
SAOT (skiers/Ha.)	135	100	80	80	60	30	40
On-Slope (skiers/Ha.)	55	40	30	30	25	15	20
Japan							
SAOT (skiers/Ha.)	156	156	125	125	97	55	70
On-Slope (skiers/Ha.)	62	62	47	47	39	26	35
Farwell - Eastern N. America							
SAOT (skiers/Ha.)	250	150	125	86	50	37	37
On-Slope (skiers/Ha.)	110	66	55	37	22	16	16

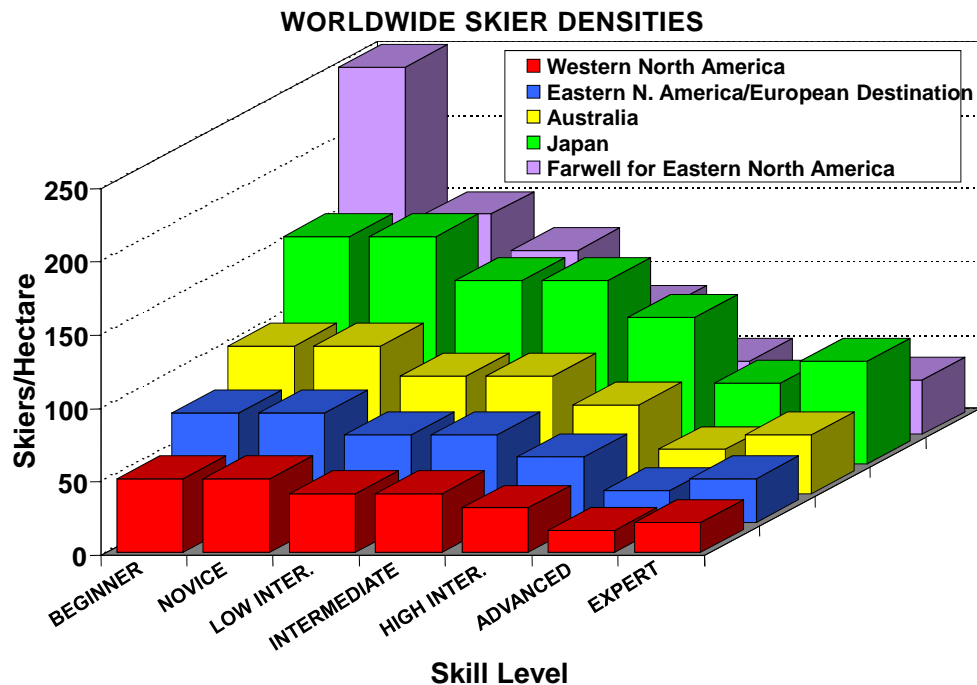


PLATE II.1

During the past several years, Ecosign has undertaken and reviewed research dealing with skiing demand and skier skill class distribution. This research and observation of the skiing/snowboarding population suggests that the total worldwide market would conform to a bell curve distribution of skier skill levels. Plate II.2 illustrates the normal “Bell Shape” distribution used for planning purposes.

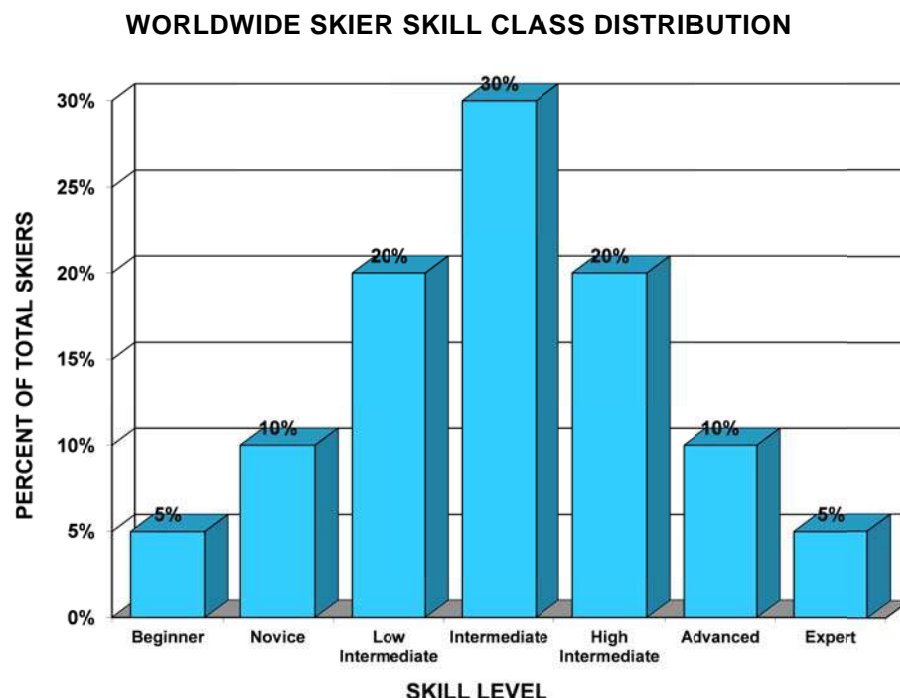


PLATE II.2

Some regions, such as Japan and Korea, where skiing and snowboarding has experienced high growth rates, the “Bell Shaped” curve is skewed towards the lower skill levels due to the high number of new participants entering the sport. On the other hand, regions with mature skiing populations, such as Europe, have the curve skewed slightly toward the more advanced skill levels. Ecosign believes that the normal bell curve skier market distribution will be appropriate for Fortress over the long term.

Skier Demand - Vertical Transport Metres

Each skier ability level places different demands upon an area's lift and trail system. Empirical observations have determined that each skier ability level will ski a relatively constant number of vertical metres per day. As the proficiency of the skier increases, the demand for vertical metres also increases. Table II.6 lists the skiing demand by skill classification.

**TABLE II.6
SKIING DEMAND BY SKILL CLASSIFICATION**

Skill Classifications	Skill Mix %	Skier Demand VTM/Day		
		Low	Average	High
1 Beginner	5	610	705	940
2 Novice	10	1 370	1 595	2 120
3 Low Intermediate	20	1 830	2 125	2 825
4 Intermediate	30	2 440	2 830	3 770
5 High Intermediate	20	3 290	3 840	5 085
6 Advanced	10	3 840	4 460	5 935
7 Expert	5	5 485	6 370	8 475

In Europe, Scandinavia, Canada and the United States, we use the industry high VTM demand to ensure a quality, uncrowded sliding experience for the better conditioned, more aggressive skiers. In urban markets and the emerging markets (Japan, Australia, China and Korea), we select the average levels of demand for use in planning. For Fortress, we will use the high level of demand.

Summary of the Fortress Study Area Planning Parameters

To determine the skier carrying capacity of the existing ski terrain at Fortress Mountain, we have utilized the planning parameters listed below in Table II.7. These same planning parameters will also be used to estimate the potential capacity of the terrain within the Fortress study area.

**TABLE II.7
FORTRESS MOUNTAIN PLANNING PARAMETERS**

Skill Classifications	Skill Mix	Acceptable Terrain Gradients	Skier Demand VTM/Day	Skier Densities/ha.	
				At Area	On Trail
1 Beginner	5%	8 - 15%	940	50	20
2 Novice	10%	15 - 25%	2,120	50	20
3 Low Intermediate	20%	25 - 35%	2,825	40	16
4 Intermediate	30%	30 - 40%	3,770	40	16
5 High Intermediate	20%	35 - 45%	5,085	30	12
6 Advanced	10%	45 - 60%	5,935	15	6
7 Expert	5%	60% +	8,475	20	8

.5 Existing Ski Facilities

Lifts

Fortress Mountain currently has one triple chairlift and two double chairlifts installed within the study area. These lift have not operated since 2004. The existing chairlifts have been plotted on the topographic base map at a scale of 1:2,500 with 2-metre contours, as illustrated on Figure 8, Existing Mountain Facilities. It is anticipated that the Canadian triple chairlift and the Backside double chairlift will be renovated and utilized in Phase 1 of the development. The Farside double chairlift will not be refurbished and will be replaced with a new detachable quadruple chairlift in Phase 1. The technical specifications for the Canadian and Backside chairlifts are listed in Table II.8.

**TABLE II.8
FORTRESS LIFT SPECIFICATIONS
EXISTING AREA**

Lift Number	A	B	TOTAL
Lift Name	Canadian	Backside	
Lift Type	3C	2C	
Year Constructed	1976	1978	
Top Elevation m.	2,248	2,252	
Bottom Elevation m.	1,998	2,062	
Total Vertical m.	250	190	440
Horizontal Distance m.	719	832	
Slope Distance m.	761	853	1,615
Average Slope %	35%	23%	
Rated Capacity	1,790	1,276	3,066
V.T.M./Hr.(000)	448	242	
Rope Speed m/sec.	1.8	1.8	
Trip Time min.	7.05	7.90	



The Canadian Triple Chairlift

Existing Ski Trails

In order to provide an accurate account of the existing Fortress Mountain ski trail system, we have classified each trail in concert with International Ski Trail Standards (Table II.3) and the Seven Skier Skill Classification Levels (Table II.4). The Existing Fortress Mountain ski trails have been plotted on the topographic base map at a scale of 1:10,000 with 2-meter contours, as illustrated on Figure 8. The Existing Mountain Facilities map illustrates 81 numbered return-cycle ski trails and off-piste routes covering approximately 164.5 hectares of slope area, over a total combined length of 46.9 kilometres, as listed in Table II.9. Based on the ski area planning parameters listed in Table II.7, we estimate that the existing Fortress ski trail system can comfortably accommodate 3,000 skiers per day at normal Western Canadian destination densities.

TABLE II.9
FORTRESS SKI TRAIL INVENTORY - EXISTING AREA

Trail Name	Trail No.	Skill Class	Elevation		Total Vert. Metres	Horz. Dist. Metres	Slope Dist. Metres	Percent Slope		Avg. Width Metres	Horz. Area Ha.	Slope Area Ha.	Skiers At Area	
			Top Metres	Bottom Metres				Avg.	Steep				Density	Total
FRIAR'S TUCK	1	7	2,256	2,012	244	644	689	38%	68%	17	1.10	1.18	20.0	20
PALISADE PARK	2	6	2,252	1,998	254	778	818	33%	60%	27	2.10	2.21	15.0	30
WATCH ME	3	6	2,240	2,000	240	666	708	36%	59%	41	2.70	2.87	15.0	40
PORTCULLIS	4	6	2,232	2,012	220	564	605	39%	53%	15	0.91	0.91	3.8	0
INCEPTION	5	6	2,230	2,004	226	598	639	38%	56%	62	3.70	3.96	15.0	60
TNT	6	6	2,224	2,010	214	558	598	38%	56%	88	4.90	5.25	15.0	80
THIRD CHUTE	7	6	2,202	2,028	174	444	477	39%	63%	54	2.40	2.58	15.0	40
HALF PIPE	8													0
CANADIAN RIDGE	9	2	2,246	2,136	110	907	914	12%	21%	21	1.90	1.91	50.0	100
FOURTH CHUTE	10	7	2,198	2,062	136	292	322	47%	65%	45	1.30	1.43	20.0	30
AERIALS	11													0
RACEWAY	12	5	2,134	1,998	136	854	865	16%	48%	42	3.60	3.65	30.0	110
GARDEN PATH	13	3	2,136	2,088	48	175	181	27%	36%	86	1.50	1.56	40.0	60
COURTYARD	14	1	2,042	2,002	40	368	370	11%	16%	35	1.30	1.31	50.0	70
SLOE GIN	15	1	2,132	2,048	84	735	740	11%	17%	45	3.31	3.33	50.0	170
RAMPART	16	6	2,124	1,978	146	592	610	25%	53%	34	2.00	2.06	15.0	30
TURKISH DELIGHT	17	4	2,118	2,004	114	425	440	27%	42%	23	0.97	1.00	40.0	40
ROOKIE RIGHT	18	3	2,124	1,982	142	664	679	21%	38%	45	2.96	3.03	40.0	120
ROOKIE TRAVERSE	19	2	2,134	2,036	98	1,153	1,157	8%	13%	25	2.93	2.94	50.0	150
PALISADE	20	3	2,118	2,032	86	335	346	26%	34%	28	0.94	0.97	40.0	40
BIG SCOOP	21	4	2,122	2,036	86	363	373	24%	42%	52	1.90	1.95	40.0	80
SORCERER	22	6	2,168	2,044	124	394	413	31%	54%	38	1.50	1.57	15.0	20
BACKSIDE GLADES	23	6	2,184	2,064	120	371	390	32%	48%	40	1.48	1.56	3.8	10
BURNT OUT	24	6	2,172	2,068	104	290	308	36%	47%	40	1.16	1.23	3.8	0
TIGHT PRIDE 2	25	6	2,202	2,066	136	373	397	36%	55%	30	1.12	1.19	3.8	0
TIGHT PRIDE 1	26	7	2,208	2,098	110	244	268	45%	62%	30	0.73	0.80	5.0	0

**TABLE II.9 – CONT.
FORTRESS SKI TRAIL INVENTORY - EXISTING AREA**

Trail Name	Trail No.	Skill Class	Elevation		Total Vert. Metres	Horz. Dist. Metres	Slope Dist. Metres	Percent Slope		Avg. Width Metres	Horz. Area Ha.	Slope Area Ha.	Skiers At Area	
			Top Metres	Bottom Metres				Avg.	Steep				Density	Total
HARRY'S	27	6	2,212	2,064	148	477	499	31%	52%	29	1.40	1.47	15.0	20
SHOW OFF	28	7	2,166	2,070	96	318	332	30%	63%	19	0.60	0.63	20.0	10
ENCHANTED FOREST	29	7	2,240	2,104	136	450	470	30%	79%	20	0.90	0.94	5.0	0
ROLLER COASTER	30	4	2,252	2,064	188	852	872	22%	43%	55	4.70	4.81	40.0	190
WALL STREET	31	6	2,254	2,076	178	884	902	20%	54%	26	2.30	2.35	15.0	40
EASY OUT	32	2	2,062	1,984	78	1,228	1,230	6%	6%	28	3.44	3.45	50.0	170
CANTERBURY TRAIL	33	2	2,316	2,062	254	2,062	2,078	12%	20%	14	2.90	2.92	50.0	150
JOLLY JESTER	34	2	2,158	1,984	174	1,534	1,544	11%	23%	18	2.80	2.82	50.0	140
DEAD TREE GULLY	35a	6	2,230	2,064	166	483	511	34%	56%	18	0.85	0.90	3.8	0
DEAD TREE GLADES	35b	6	2,220	2,066	154	438	464	35%	55%	59	2.60	2.76	3.8	10
GLADES	35c	5	2,202	2,096	106	366	381	29%	48%	20	0.72	0.75	7.5	10
DAMIEN'S GULCH	36	7	2,254	2,130	124	375	395	33%	82%	23	0.88	0.93	5.0	0
GINGER SNAP	37	6	2,260	2,188	72	446	452	16%	60%	9	0.42	0.43	3.8	0
DEVIL'S GULCH	38	6	2,270	2,190	80	710	714	11%	60%	30	2.12	2.13	3.8	10
NEW GETAWAY	39	6	2,268	2,080	188	572	602	33%	55%	33	1.90	2.00	15.0	30
TAINT	40	7	2,218	2,034	184	515	547	36%	79%	27	1.40	1.49	20.0	30
GETAWAY	41	6	2,286	2,034	252	804	843	31%	53%	68	5.50	5.76	15.0	90
PITCHFORK	42	6	2,288	2,016	272	836	879	33%	56%	30	2.50	2.63	15.0	40
FLYING FORTRESS	43	6	2,278	2,010	268	791	835	34%	64%	37	2.90	3.06	15.0	50
GOOD KNIGHT	44	6	2,300	1,984	316	1,023	1,071	31%	59%	32	3.30	3.45	15.0	50
COLLISEUM	45	6	2,316	2,228	88	354	365	25%	59%	23	0.80	0.82	15.0	10
CAULDRON	46	6	2,312	2,236	76	344	352	22%	59%	23	0.80	0.82	15.0	10
SHERWOOD	47	6	2,226	1,986	240	831	865	29%	59%	41	3.40	3.54	15.0	50
ELIZA	48	7	2,532	2,228	304	433	529	70%	81%	40	1.73	2.11	5.0	10
JOSIE	49	7	2,544	2,146	398	957	1,036	42%	86%	46	4.44	4.81	5.0	20
CHUTE 1	50	6	2,426	2,194	232	429	488	54%	65%	17	0.71	0.81	3.8	0
CHUTE 2	51	6	2,378	2,144	234	732	768	32%	56%	16	1.19	1.25	3.8	0
CHUTE 3	52	6	2,362	2,160	202	532	569	38%	47%	37	1.96	2.10	3.8	10
	53	6	2,138	2,046	92	235	252	39%	50%	21	0.50	0.54	15.0	10

**TABLE II.9 – CONT.
FORTRESS SKI TRAIL INVENTORY - EXISTING AREA**

Trail Name	Trail No.	Skill Class	Elevation		Total Vert. Metres	Horz. Dist. Metres	Slope Dist. Metres	Percent Slope		Avg. Width Metres	Horz. Area Ha.	Slope Area Ha.	Skiers At Area	
			Top Metres	Bottom Metres				Avg.	Steep				Density	Total
	54	5	2,262	2,182	80	226	240	35%	38%	35	0.80	0.85	30.0	30
GOOD KNIGHT GULLY	55	7	2,176	2,042	134	362	386	37%	62%	19	0.70	0.75	20.0	20
CAULDRON CHUTES	56	6	2,314	2,192	122	330	352	37%	53%	38	1.25	1.33	3.8	10
THE HAIRLINE	57	7	2,368	2,162	206	480	522	43%	70%	44	2.12	2.31	5.0	10
ARTESIANS	58	6	2,366	2,062	304	735	795	41%	47%	41	3.05	3.30	3.8	10
SHERWOOD FOREST	59	7	2,220	2,028	192	431	472	45%	61%	72	3.10	3.39	5.0	20
SHERWOOD GULLY	60	7	2,252	2,066	186	430	469	43%	62%	18	0.76	0.83	5.0	0
SUPER SHERWOOD	61	6	2,056	1,982	74	287	296	26%	54%	32	0.91	0.94	3.8	0
SUN BOWL	62	7	2,156	1,988	168	508	535	33%	67%	40	2.03	2.14	5.0	10
SCOTCH GLADES	63	6	2,126	1,860	266	1,026	1,060	26%	58%	40	4.10	4.24	3.8	20
PICNIC TABLE MEADOW	64	7	2,094	1,878	216	731	762	30%	67%	40	2.92	3.05	5.0	20
THE GOOD	65	7	2,226	2,110	116	170	206	68%	84%	20	0.34	0.41	5.0	0
THE BAD	66	7	2,236	2,110	126	194	231	65%	83%	20	0.39	0.46	5.0	0
THE UGLY	67	7	2,252	2,108	144	239	279	60%	91%	20	0.48	0.56	5.0	0
MAVERICK	68	7	2,254	1,962	292	749	804	39%	64%	48	3.57	3.83	5.0	20
PIPELINE	69	7	2,254	2,002	252	818	856	31%	64%	25	2.05	2.15	5.0	10
UPPER HOUR GLASS	70	7	2,532	2,266	266	376	461	71%	93%	50	1.88	2.30	5.0	10
SUPER WALL STREET	71	7	2,332	2,126	206	476	519	43%	67%	50	2.38	2.59	5.0	10
HOUR GLASS	72	7	2,254	2,024	230	497	548	46%	68%	35	1.74	1.92	5.0	10
GLADES	73	6	2,252	2,034	218	482	529	45%	54%	40	1.93	2.12	3.8	10
TREATY	74	6	2,210	2,090	120	259	285	46%	54%	50	1.30	1.43	3.8	10
LOUNGE TREES	75	6	2,164	2,058	106	260	281	41%	48%	100	2.60	2.81	3.8	10
	76	3	2,130	2,048	82	513	520	16%	27%	47	2.40	2.43	40.0	100
ROOKIE LEFT	77	4	2,132	2,018	114	525	537	22%	36%	66	3.49	3.57	40.0	140
OLD T BAR	78	3	2,122	1,986	136	482	501	28%	34%	25	1.20	1.25	40.0	50
CHEVY'S TREES	79	4	2,298	2,216	82	288	299	28%	39%	20	0.58	0.60	10.0	10
TOTAL	81						46,898				156.1	164.5		3,000

Ski Trail Balance by Skier Skill Class

Generally, an important part of the analysis of a ski area is the comparison of the variety of ski trails by the skier skill class with the target skier market. The Cumulative Ski Trail Balance Statement listed in Table II.10, shows the balance of the existing ski trails according to the seven skier skill classifications and compares them to the balance of the skier market.

TABLE II.10
CUMULATIVE TRAIL BALANCE STATEMENT
EXISTING AREA

Skill Classification	Hectares	Skiers	Balance	Ideal
1 Beginner	4.6	240	8%	5%
2 Novice	14.0	710	24%	10%
3 Low Intermediate	9.2	370	12%	20%
4 Intermediate	11.9	460	15%	30%
5 High Intermediate	5.3	150	5%	20%
6 Advanced	78.4	810	27%	10%
7 Expert	41.0	260	9%	5%
TOTALS	164.5	3,000	100%	100%

Average Density =	3.8 Skiers/Hectare
Optimum Density =	34.2 Skiers/Hectare
Weighted Demand =	4,095 VTM/Skier/Day

SKI TRAIL SKILL LEVEL BALANCE
EXISTING AREA

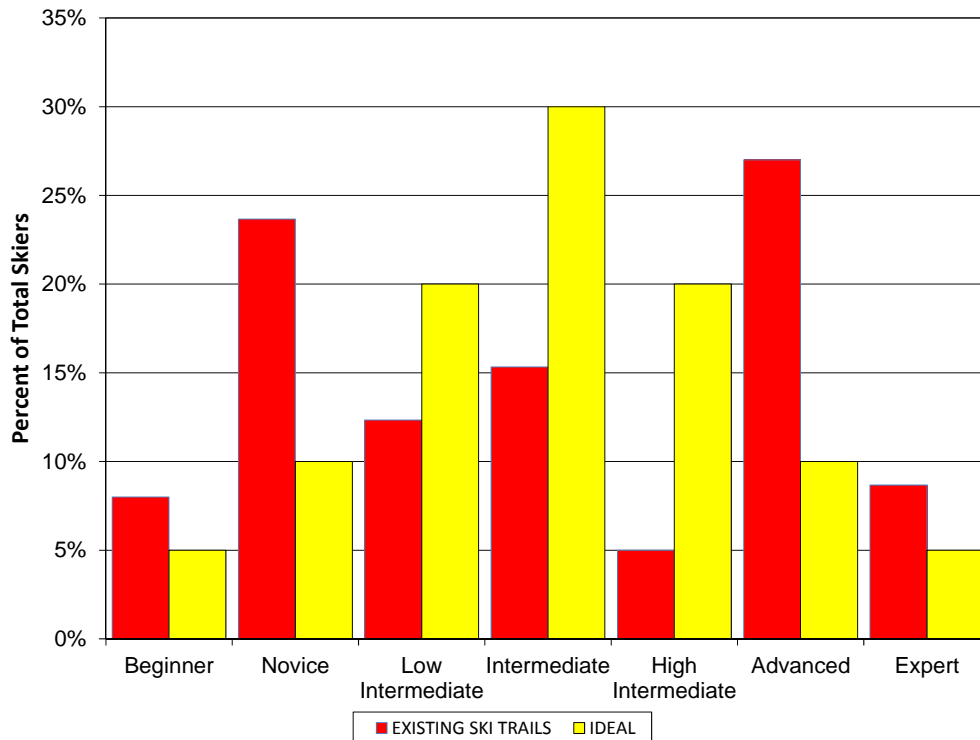


PLATE II.3

Plate II.3 illustrates that the presently developed ski trails have an excess of terrain in the beginner, novice, advanced and expert skill classes, with shortages in the low intermediate and intermediate skill classifications. A high percentage of the novice terrain however, is located on skiways on the Farside and must be accessed using the Rookie traverse. This apparent excess of Farside novice terrain is misleading because it is not readily accessible to novice skiers staging directly from the parking lots.

.6 Existing Parking

The existing day skier parking lots at Fortress Mountain have been terraced into the base area along the access road, as shown on Figure 9, Existing Base Area Facilities. The parking lots have been identified as P1 to P3 on the map including a small lot reserved for buses. Lot P1 would likely be the most attractive for ski area employees due to its proximity to the maintenance shops. The bus lot above the day lodge was historically used as parking for ski buses arriving from Calgary. Lots P2 and P3 were the prime day skier lots. The estimated capacity of these lots to supply skiers to the ski area is calculated in Table II.11. An approximate parking density of 330 cars per hectare can be achieved on unmarked gravel lots when parking attendants are used to direct the vehicles where to park. Without attendants, the drivers tend to park much further apart resulting in parking densities closer to 200 cars per hectare. For the purpose of determining the base capacity of the existing parking at Fortress Mountain, we have used the higher density. We have assumed average vehicle occupancy rates of 2.5 skiers per car and 40 skiers per bus. With up to 19 buses and the use of parking attendants, the existing parking lots would be able to supply approximately 2,900 skiers. Since the accommodation in the former lodge only contained 30 rooms, the base capacity at Fortress is made up almost entirely from parking. Based on the assumptions outlined above, the base capacity is in balance with Fortress Mountain's capacity of 3,000 skiers per day.

TABLE II.11
EXISTING PARKING LOT CAPACITIES

	Elevation m.	Area Ha.	No. Cars	No. Buses	No. Skiers fr. Cars	No. Skiers fr. Buses	Total Skiers
P1 - Employees	2,070	0.7	231	-	-	-	-
Bus Lot	2,054	0.3	-	19	-	756	756
P2 - Day Skiers	2,044	1.0	330	-	825	-	825
P3 - Day Skiers	2,000	1.6	528	-	1,320	-	1,320
Total Existing Parking		3.6	1,089	18.9	2,145	756	2,901

.7 Existing Skier Services

Skier services at Fortress were originally provided in the day lodge and a separate ski school/rental building. The ski school building was torn down in 2012 and the day lodge has been boarded up and neglected since the ski area last operated in 2004. Over the years, the interior of the lodge has deteriorated due to moisture infiltration and it is unlikely that the building could be renovated for reuse economically.



Former Day Lodge and Accommodation Building

.8 Existing Accommodation

The former day lodge contained approximately 30 motel style accommodation units. A 6-unit townhouse building was constructed on the south end of P1 and the units were sold and occupied but are currently sitting vacant and have been appropriated as part of the purchase of Fortress Mountain. The townhouse building is in better shape than the day lodge and could likely be renovated for reuse. There was an employee housing building containing 6 units located adjacent to the maintenance building that was torn down in 2012.



Townhouse Building

.9 Mountain Ski Terrain Capacity Analysis

We have analyzed the natural terrain within the Fortress study area which possesses skiing potential to accurately establish the area's overall ski development potential. The Ski Terrain Capacity Analysis (Figure 10) graphically illustrates major terrain “pods” within the study area which possess good potential for ski development. The pods were selected by consulting the Mountain Slope Analysis Map and observing the following criteria:

- Continuous fall line skiing from top to bottom.
- Suitable upper and lower lift terminal locations (e.g., 0.2 hectares less than 25 percent slope).
- Good slope continuity to allow interesting skiing from top to bottom for one or more skier ability levels.
- Natural slope gradients primarily greater than 8 percent and less than 70 percent.

Within each ski terrain pod, the upper and lower points are joined to establish the total vertical rise, horizontal distance, straight line slope and average slope gradient. The total ski terrain pod area was measured and documented in hectares. The above data comprises the inputs to the Terrain Capacity Analysis calculation. The final input is a judgment which identifies the primary skier skill classification for each terrain pod. The program outputs are as follows.

AVAILABLE SKI TERRAIN – net developable terrain within the pod. It is assumed that pods will be able to support skiing on about 30 percent of the useable terrain within the pod, depending on topography, as well as the shape of the pod. Small beginner or novice ski pods (< 10 ha.) may support skiing on between 50-75% of the total pod area.

TOTAL SKIERS– number of skiers possible in the pod within developable terrain at acceptable densities.

DEMAND VTM (000) – vertical transport metres required to service the total skiers.

LIFT CAPACITY/HR. – the net hourly lift capacity necessary to maximize the development of each pod.

The Ski Terrain Capacity Analysis Map and program outputs provide a reliable indication of the maximum development potential of each pod and the various zones of the study area and the lift capacity necessary to balance with the terrain.

Figure 10 illustrates a total of 12 terrain pods within the Fortress study area which contain topography suitable for skiing/snowboarding. The detailed specifications for the 12 ski pods that have been identified within the Fortress study area are listed in Table II.12. These 12 pods, if developed to 40% of their total area, could support 4,870 skiers.

**TABLE II.12
FORTRESS MOUNTAIN
TERRAIN CAPACITY ANALYSIS**

Terrain Pod	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL
Top Elevation m.	2,146	2,235	2,254	2,128	2,252	2,133	2,128	2,370	2,315	2,298	2,185	2,465	
Bottom Elevation m.	1,814	1,916	1,984	2,003	2,037	2,015	1,972	1,964	1,984	2,014	2,056	2,274	
Total Vertical m.	332	319	270	125	215	118	156	406	331	284	129	191	2,876
Horizontal Distance m.	1,028	933	697	1,129	1,130	518	673	903	1,070	974	761	479	
Slope Distance m.	1,080	986	747	1,136	1,150	531	691	990	1,120	1,015	772	516	10,734
Average Slope %	32%	34%	39%	11%	19%	23%	23%	45%	31%	29%	17%	40%	
Skill Class	6	6	5	2	4	4	4	6	5	5	3	7	
Skier Density/Ha.	15	15	30	50	40	40	40	15	30	30	40	20	
VTM Demand/Day	5,935	5,935	5,085	2,120	3,770	3,770	3,770	5,935	5,085	5,085	2,825	8,475	
Total Area Ha.	42.1	36.4	53.5	23.3	48.9	13.6	20.5	51.5	40.5	61.7	24.2	9.7	426.0
% Ski Terrain Available	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	
Available Ski Terrain	16.8	14.6	21.4	9.3	19.6	5.4	8.2	20.0	16.0	23.7	9.7	3.9	168.6
Total Skiers	250	220	640	470	780	220	330	300	480	710	390	80	4,870
Demand VTM (000)	236	207	517	158	467	132	197	283	387	573	175	108	
Lift Capacity.Hr.	709	650	1,913	1,265	2,171	1,116	1,266	696	1,170	2,018	1,356	563	14,894
Shelter Sq. Metre	280	250	720	530	880	250	370	340	540	800	440	90	5,490
Parking Area Ha.	0.31	0.27	0.79	0.58	0.96	0.27	0.41	0.37	0.59	0.87	0.48	0.10	6.0
Staging Area Ha.	0.36	0.32	0.93	0.69	1.14	0.32	0.48	0.44	0.70	1.03	0.57	0.12	5,496.0
Cumulative Total	7.1	0.3	1.3	1.9	3.1	3.4	3.9	4.3	5.0	6.0	6.6	6.7	

As listed in Table 11.13 and illustrated in Plate II.4, the natural terrain within the study area is skewed to the intermediate and advanced skill classes. There is a shortage of true beginner terrain and low intermediate terrain. While there appears to be a shortage of expert

terrain, this is not the case. There is a significant amount of expert terrain that can be accessed outside of the formally delineated pods.

**TABLE II.13
TERRAIN POD BALANCE
ALL PODS**

Skill Classification	Hectares	Skiers	Balance	Ideal
1 Beginner	0.0	0	0.0%	5%
2 Novice	9.3	470	9.7%	10%
3 Low Intermediate	9.7	390	8.0%	20%
4 Intermediate	33.2	1,330	27.3%	30%
5 High Intermediate	61.2	1,830	37.6%	20%
6 Advanced	51.4	770	15.8%	10%
7 Expert	3.9	80	1.6%	5%
Total	168.6	4,870	100%	100%

Optimum Density =	32.9 Skiers/Hectare
Weighted Demand =	4,449 VTM/Skier/Day

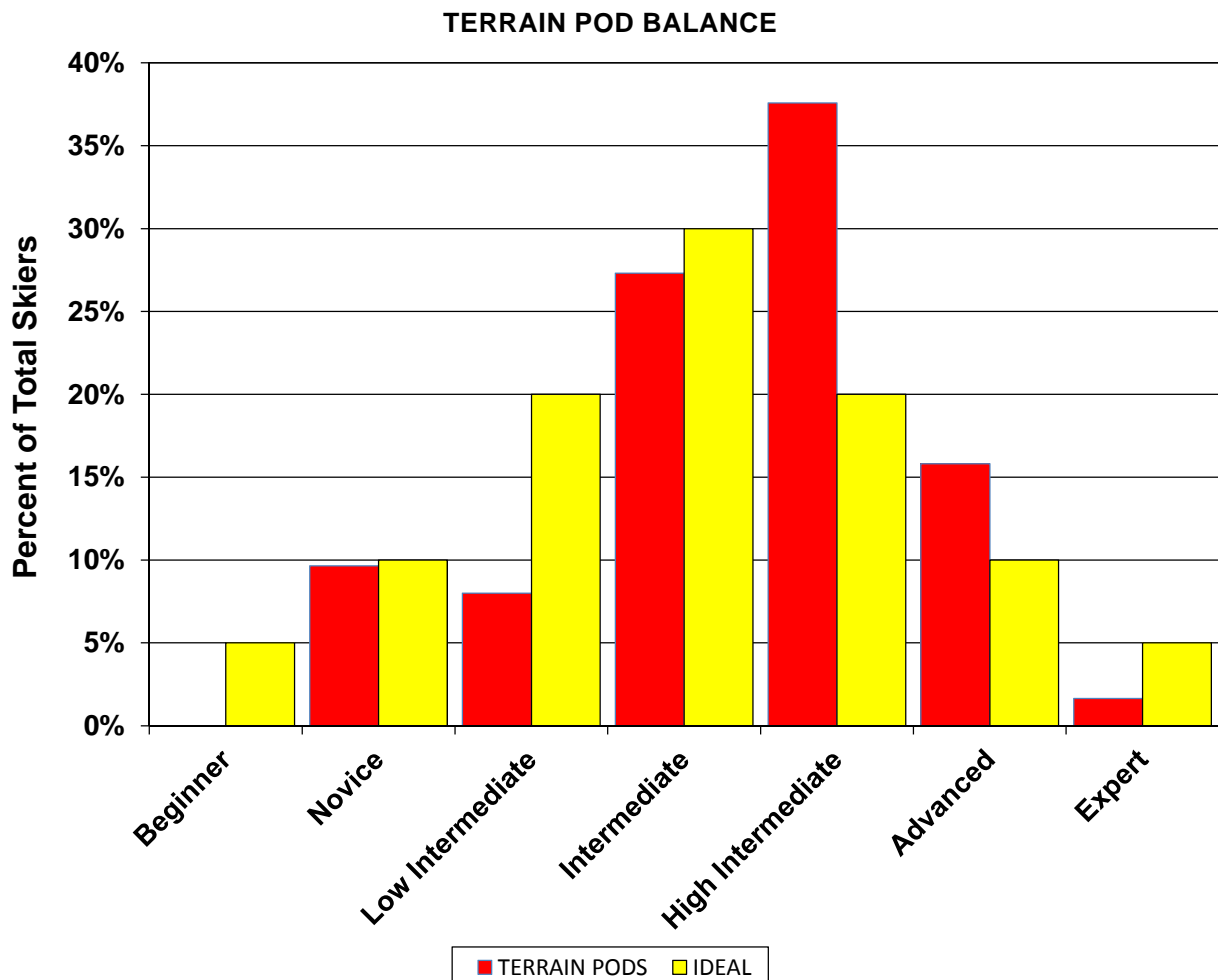


PLATE II.4

.10 Base Area Development Suitability Analysis

The Base Area Development Suitability Analysis is a process that identifies and assesses potential suitable terrain for the development of base area facilities to support the mountain resort development. For the Fortress study area, these facilities could include day visitor parking, skier service facilities in a day lodge, employee housing, a snow play and tubing zone, beginner ski/snowboard terrain expansion and finish areas for Alpine or Freestyle Ski and Snowboard competitions. In conjunction with the Terrain Capacity Analysis, the Base Area Development Suitability Analysis is a preliminary step in the planning process where all suitable potential base area development sites are identified and evaluated. These areas will be considered for detailed design in subsequent phases of the planning and design process.

The Base Area Development Suitability Analysis is prepared by overlaying the Base Slope Analysis discussed previously with existing roads, trails, buildings, water courses and the potential ski terrain pods, as shown on Figure 11. Lands that are suitable for the development of primary base area facilities are shown in white and green, and areas that are too steep for development are shown in red and blue. Other development constraints considered in the Base Area Development Suitability Analysis include water setbacks, scree slopes, cold zones, and comfortable skier walking distance.

Typically, a minimum setback of 15 metres from the natural bank of existing creeks and rivers to any proposed development is respected to preserve the riparian zone and protect against flood risk. Utilizing the Shadow Analysis illustrated on Figures 4a-4c, areas that are in shadow for significant parts of the day have been avoided since these areas are not ideal for the development of real estate, commercial village, or public gathering areas. Most of the undeveloped gently sloping land in the Fortress base area has favourable solar aspects.

Slope gradients and proximity to potential ski terrain are the primary considerations when identifying suitable land for base area development. The spatial relationship between potential developable base area lands and the potential ski area facilities are evaluated using “Comfortable Skier Walking Distance” (SWD) as a planning tool. Comfortable Skier Walking Distance is defined as the distance an individual wearing ski boots and carrying equipment can walk in a 10-minute period. Assuming a 2.7-kilometer per hour walking speed, SWD is approximately 450 metres over level ground and the distance is reduced by 4 metres for every metre of vertical grade change. It is critical to locate base area facilities and parking within SWD to make the resort truly pedestrian friendly and avoid the requirement for guests to use

their vehicle to get around the ski area. The bottom terminals of the existing staging lifts are identified on Figure 11 with red stars and the corresponding skier walking distances are shown with a red dashed “necklace” around each of the staging points.

The Base Area Development Suitability Analysis for the Fortress study area is presented on Figure 11. A total of 17 areas with slopes suitable for base area development potential have been identified within the study area. Almost 53 hectares of land has been identified, indicating that there are some opportunities to expand the base area at Fortress Resort. These areas have been numbered from 1 to 17 as elevation is gained coming up the access road. Areas 1 through 5 are somewhat disconnected from the rest of the base and therefore would be the least attractive for development in the near term. Areas 6 and 10, located near the existing sewage treatment and snowmaking ponds could be used for expansion of these facilities. Areas 7 and 8 will be within SWD once the Canadian lift is replaced, which will make it attractive for parking or skier services. Areas 9, 12, 13 and 14 contain the existing parking lots and are the best candidates for base area redevelopment. The existing maintenance facility is contained in Area 15. A potential new road to provide access to Areas 10, 11 and 16 is shown opposite the entrance to Parking Lot P3. These areas could be used for recreation facilities or accommodation in the future. The largest piece of flat land, Area 17, is located behind the steep ridge on the eastern side of the existing ski area. This area could be considered for the development of Nordic skiing, provided an access route is constructed.

III. FORTRESS MOUNTAIN RESORT MASTER PLAN

.1 Introduction

After completing an Inventory and Technical Assessment of the Fortress study area, as well as several days of field work in January 2015 with Fortress management, Ecosign has prepared the Fortress Mountain Resort Master Plan. The Master Plan outlines the first phase of development (Phase 1), as well as the ultimate buildout of the resort (Phase 4).

.2 Goals and Objectives

A ski area master plan generally involves the renovation of older facilities, as well as placement of new equipment and new facilities on the mountain and base area over time. To provide guests with the highest quality ski experience, modern ski areas require the most efficient, user-friendly lift and trail systems possible. Facilities are generally constructed over several phases of development, increasing the quality and size of the area over time and as market demand dictates. It is critical to have a complete understanding of the total project at buildout so that the facilities can be balanced and capital effectively invested over the life of the project.

The chief objectives of the Fortress Resort Master Plan are as follows:

- Create a modern, high quality ski facility that will provide a quality recreational experience for the local, regional and destination skiers, with modern state-of-the-art equipment and design.
- Integrate the mountain facilities and the base areas to provide convenient access for all users, concentrating on ski-in/ski-out access to the parking and skier service facilities.
- Optimize the use and the operational efficiency of the facilities within the ski area, while providing a very high quality, winter recreation experience.
- Balance lift and ski trail capacities with available natural terrain to best service all segments of the skier market. Maintain acceptable on-slope skier densities and ensure that the time waiting in lift line-ups does not exceed the ride time of the lift.

We have utilized a number and letter code to indicate the type of lift installations proposed. The coding is illustrated below.

D4C	Detachable Quadruple Chairlift
4C	Fixed Grip Quadruple Chairlift
3C	Fixed Grip Triple Chairlift
2C	Fixed Grip Double Chairlift
P	Platter Surface Lift
MC	Moving Carpet Conveyor Lift (mostly for beginners)

.3 Fortress Mountain Master Plan – Phase 1

Ski Lifts - Phase 1

The Phase 1 Master Plan is illustrated on Figure 12. The Phase 1 lift and ski trail system consists of one high speed detachable grip four-passenger chairlift, one fixed grip “up and over” quadruple chairlift with a mid-offload, two platter surface lifts, one refurbished fixed grip triple chairlift, one refurbished fixed grip double chairlift, and one moving carpet beginner lift, as described below. In Phase 1, the ski terrain in the Frontside, Backside and Farside Zones are serviced with six cable lifts and one moving carpet. The total lift capacity in Phase 1 is 2,540 Skiers At One Time (SAOT).

Lift 1 is the refurbished “Canadian” fixed grip triple chairlift with a rated capacity of 1,790 passengers per hour and a vertical of 250 metres. This lift will be able to service 410 skiers at one time in the Frontside zone. Lift 1 will have a cable speed of 1.8 metres/ second and a ride time of 7 minutes.

Lift 2 is the refurbished “Backside” fixed grip double chairlift with a rated capacity of 1,276 passengers per hour and a vertical of 190 m. This lift will be able to service 310 skiers in the Backside zone. Lift 2 will have a cable speed of 1.8 metres/ second and a ride time of close to 8 minutes.

Lift 3 is a two section “up and over” fixed grip quadruple chairlift with a mid-station at the top of the ridge, and a rated capacity of 2,000 passengers per hour. Section 3a starts at the 2,047-metre elevation near the location of the old day lodge and extends up to the ridge that separates the Frontside from the Backside to a mid-offload at 2,136 metres. This section of Lift 3 has a vertical of 89 metres and will be able to service 200 skiers in the Frontside zone. The 3b section pulls skiers up from the Backside zone so they can return to

the Frontside. The bottom of Lift 3b is planned at 2,036 metres in elevation and off-loads at the mid-station at 2,136 metres, giving it a total vertical rise of 100 metres. This section can service approximately 300 skiers in the Backside zone. Lift 3 provides access to intermediate terrain in both the Frontside and Backside zones but is planned predominantly as a highly efficient access and egress lift between Fortress Mountain's base area and the Farside zone.

Lift 4 is a platter lift with a capacity of 720 passengers per hour and services the beginner ski terrain between the north end of Parking Lot 3 and the bottom of Lift 3a. This lift also provides access for skiers who arrive in Parking Lot 3 and wish to access Lift 3a. This platter lift has a vertical rise of 41 metres and can service 150 beginner skiers at one time, in addition to its access functions.

Lift 5 is a platter lift with a rated capacity of 720 passengers per hour and a vertical rise of 145 metres. This lift services intermediate, high intermediate and advanced terrain on the north end of the Backside zone and provides egress for skiers from the Backside and Farside to return to the day lodge and parking lots. This lift can service about 190 skiers at one time.

Lift 6 is a moving carpet conveyor belt beginner lift located adjacent to the bottom of Lift 4 and the Phase 1 day lodge. This lift is 30 metres long with skiing on both sides and an average grade of 10% which can service about 50 beginner skiers at one time.

Lift 7 is a detachable four-passenger chairlift with an hourly capacity of 2,000 passengers per hour which will replace the old Farside double chairlift and service roughly the same terrain. The bottom terminal of Lift 7 is in approximately the same location as the former lift at 1,983 metres in elevation, while the top terminal has been moved 350 metres northwest of the former top to a small ridge at an elevation of 2,318 metres. Lift 7 has a total vertical of 335 metres and can service 950 skiers at one time. Lift 7 will service the south side of the Farside zone in Phase 1 with a new traverse skiway that connects to Canterbury Road at the top of Dead Tree Gully. The Artesian zone is accessed from the top of Lift 7, with 54 metres of vertical boot pack to the top of Mt. Baldy. A catch trail that follows a flat bench of terrain at the bottom of the Artesian zone collects skiers in this area to return to the bottom of Lift 7.

The technical specifications of the Phase 1 lifts are listed in Table III.1. This first phase of development will have a total hourly capacity of 11,306 passengers per hour and generates 1.87 million Vertical Transport Metres (VTM). The lift system will support 2,560 skiers at one time (SCC) based on the VTM demand criteria outlined in Section II of this report.

**TABLE III.1
FORTRESS MOUNTAIN
PHASE I SKI LIFT SPECIFICATIONS**

Lift Number Lift Name Lift Type Year Constructed	1 Canadian Re-build 3C 1976	2 Backside Re-build 2C 1978	3a 4C	3b 4C	4 P	5 P	6 MC	7 D4C	TOTAL
Top Elevation m.	2,248	2,252	2,136	2,136	2,047	2,128	2,010	2,318	
Bottom Elevation m.	1,998	2,062	2,047	2,036	2,006	1,983	2,007	1,983	
Total Vertical m.	250	190	89	100	41	145	3	335	1,153
Horizontal Distance m.	719	832	336	447	375	590	30	1,070	
Slope Distance m.	761	853	348	458	377	608	30	1,121	4,556
Average Slope %	35%	23%	26%	22%	11%	25%	10%	31%	
Rated Capacity	1,790	1,276	2,000	2,000	720	720	800	2,000	11,306
V.T.M./Hr.(000)	448	242	178	200	30	104	2	670	1,874
Rope Speed m/sec.	1.8	1.8	2.2	2.2	2.0	2.0	0.8	5.0	
Trip Time min.	7.05	7.90	2.63	3.47	3.14	5.06	0.63	3.74	
Operating Hr./Day	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0 mean
V.T.M. Demand/Day	6,350	4,942	4,487	3,770	940	3,466	940	4,699	
Loading Eff. %	85%	90%	80%	80%	90%	90%	90%	95%	
Access Reduction	3%	0%	8%	0%	25%	0%	0%	0%	
Skier Carrying Capacity (SCC)	410	310	200	300	150	190	50	950	2,560

Ski Trails - Phase 1

In Phase 1, the existing trails at Fortress Mountain will be utilized where possible and very little new trail development will be required. There are, however, three new trail construction and grading projects that are recommended in conjunction with the Phase 1 development.

- New traverse skiway/road with an average grade of 9% from the top of Lift 7 south to the meet Canterbury Trail at the top of Dead Tree Gully. Total length = 1,065 metres.
- Re-grading of Courtyard and removing of the existing halfpipe feature to create two beginner runs on both sides of Lift 4.
- Remove and re-grade the Frontside and Backside halfpipe features, as well as the Frontside aials course.

Base Area Facilities - Phase 1

In Phase 1, base area facilities for day skiers are planned in Lot P3 adjacent to the bottom terminal of Lift 1 and Lift 4. The Phase 1 day lodge has been planned as a Sprung structure which will contain tickets, rentals, guest services, public restrooms, lockers, ski school and a restaurant and bar. The day lodge is located at the north end of the parking lot to allow for a good connection to the moving carpet beginner area planned on the north side of the building and to maximize the available space in Lot P3 for parking. A drop-off loop and short term parking will be designated in front of the entrance to the building. The Phase 1 day lodge will be the only guest service facility in the first phase of the Fortress Mountain Resort development. The former day lodge located at Lot P2 is currently condemned and will remain closed to all public access until a later development phase when it will be replaced.

The existing townhouse building located on the south end of Lot P1 will be renovated and converted into administration offices for the ski area. Ski patrol, employee facilities and other operations functions will be located in the existing snowcat garage building on the far north end of the existing base area.

In Phase 1, the only food service facility for skiers is provided in the day lodge. A full service restaurant with a seating capacity of 550 seats is planned as part of the Sprung structure with an outdoor seating area on the west side of the building.

Parking – Phase 1

In Phase 1, parking for day skiers arriving by car is provided in Lots P1, P2 and P3. The existing bus lot to the north of P2 will remain available for bus parking once skiers have been dropped off in front of the day lodge in Lot 3. We estimate that 10 buses from the Calgary area will service Fortress Mountain in Phase 1. Lot P3 is the largest day skier lot in Phase 1 and has direct access to the day lodge facilities and beginner area, making it the main arrival point for day skiers. Because of this, Lot P3 has been expanded onto the existing flat terrain around its edges to the greatest extent possible without significant earthworks. Season passholders and other guests who do not require services immediately on arrival may favour Lots 1 or 2 and ski-in to the day lodge or directly to the lift terminals.

Table III.2 outlines the assumptions applied to determine parking lot capacity in the Fortress Mountain base area in Phase 1 and Buildout of the resort. An average of 2.5 skiers per car is applied to the total number of cars to estimate the number of skiers that will be generated from a full parking lot during peak periods. An average of 40 skiers per bus is applied to estimate the total number of visitors generated.

**TABLE III.2
FORTRESS MOUNTAIN
PARKING ASSUMPTIONS**

Cars per Hectare	330
Skiers Per Car	2.5
Buses Per Hectare	70
Skiers Per Bus	40

Table III.3 provides a summary of the capacity of the four parking lots planned in the Fortress base area in Phase 1. Lot 1 has a capacity of 231 cars, 100 of which are dedicated to employee parking. Lots 2 and 3 provide additional capacity for 330 cars and 561 cars, respectively. Lot 3 is expanded as much as possible of flat terrain along its perimeter for a total net increase of 0.1 hectares from the existing parking lot. The total capacity of the three main parking areas is approximately 1,100 cars and 10 buses which could generate over 2,800 skiers on peak days when the parking lots fill to capacity. With no overnight accommodation planned in Phase 1 of the Fortress Resort, the day skier parking reflects the total base capacity is more than adequate with the Phase 1 SCC of 2,540 skiers.

**TABLE III.3
FORTRESS MOUNTAIN**

PHASE I DAY SKIER PARKING

	Area Ha.	No. Cars	No. Buses	No. Skiers fr. Cars	No. Skiers fr. Buses	Total Skiers
Lot P1*	0.70	231	-	328	-	328
Bus Lot	0.27	-	10	-	400	400
Lot P2	1.00	330	-	825	-	825
Lot P3	1.70	561	-	1,403	-	1,403
Total Parking Phase 1	3.7	1,122	10	2,556	400	2,956

*100 Stalls reserved for employee parking

.4 Fortress Mountain Resort Master Plan – Buildout

Ski Lifts - Buildout

The Fortress Mountain Master Plan at Buildout is illustrated on Figures 13a and 13b. The lift and ski trail system at Buildout consists of five high speed detachable grip quadruple chairlifts, two fixed grip quadruple chairlifts of which one is an “up and over” chairlift with a mid-offload, five platter surface lifts, and four moving carpet beginner lifts, as described in the following text. Ecosign has suggested the following conceptual lift phasing as part of the Buildout Master Plan. The actual phasing of development between Phase 2 and Buildout may vary with fewer or more phases based on economic and market factors which are unknown at this time.

Ski Lifts - Phase 2

In Phase 2, the old fixed grip Lifts 1 and 2 are removed and replaced with detachable quadruple chairlifts. Lift 1R is a detachable quadruple chairlift with an hourly capacity of 2,400 passengers per hour and will be realigned so that the bottom station is located about 450 metres south of the old Lift 1 terminal at the 1,962-metre elevation. The top terminal of Lift 1R is relocated 80 metres to the south of the former top at the 2,254-metre elevation resulting in a vertical rise of 292 metres and an SCC of 650 skiers at one time. The new Lift 2R bottom terminal is moved 515 metres north and 30 metres lower than the old terminal to an elevation of 2,036 metres directly adjacent to the bottom of Lift 3b. The top terminal of Lift 2R is situated at 2,246 metres on the ridge about 65 metres north of the old Lift 2 top terminal. This lift will have a vertical rise of 210 metres, a capacity of 2,400 passengers per hour and be able to service 680 skiers at one time.

Lift 8, a second detachable four-passenger chairlift in the Farside zone is included in the Phase 2 program. Lift 8 has a vertical rise of 278 metres and at 2,000 passengers per hour, will be able to service 960 skiers per day. The bottom terminal of Lift 8 is located at 2,036 metres in elevation next to a two directional skier bridge with a length of 75 metres which provides access and egress between Lift 8 and the Farside zone and Lifts 2R and 3b and the Backside zone. These three lifts load at the same elevation (2,036 m.) to allow skiers to circulate between both zones on flat terrain utilizing the proposed bridge.

The top of Lift 8 is located on a small natural bench at the 2,314 metre elevation. This terminal location needs to be evaluated from the point of view of avalanche danger and may require some sort of structure/roof to protect it from avalanches.

In Phase 2, another moving carpet, Lift 9, is installed on the north side of the Sprung Day lodge to increase the beginner teaching area close to the day lodge.

Phase 3 Ski Lifts

In Phase 3, the Lift 5 platter is moved to Lift 10 and replaced with a fixed grip quadruple chairlift (Lift 5R) on a slightly modified alignment. The new quadruple chairlift will have an hourly capacity of 2,000 passengers per hour and a vertical rise of 145 metres. This fixed grip quadruple chairlift will service about 470 skiers at one time and also improve the egress capacity from the Farside to the Frontside.

In conjunction with the replacement of Lift 5R in Phase 3, the former Lift 5 platter equipment is relocated into the Lift 10 configuration with a vertical rise of 85 metres and an hourly capacity of 720 passengers per hour. This platter lift will service about 130 beginner skiers and provide additional staging capacity from the Upper Base to the Backside and Farside zones.

Expansion of resort infrastructure into Whiskey Bowl is planned for Phase 3 with the installation of Lift 11, a high speed detachable quadruple chairlift with a vertical rise of 468 metres and an hourly capacity of 1,200 people per hour. The bottom station is located at the 1,792-metre elevation and is accessed with a skiway from the bottom of Lift 1R. The top station is located on a natural flat bench at the 2,260-metre elevation which allows skiers to access the terrain in Whiskey Bowl or connect back to the bottom of Lift 1R. Lift 11 has an SCC of 610 skiers and provides access to a significant amount of new ski terrain at Fortress Mountain Resort.

In Phase 3, two new moving carpets are installed for beginners in the Fortress Base area. Lift 12 (MC) is located at the Upper Base next to the Fortress Mountain Lodge and P2 arrival zone. Lift 12 is 60 metres long with an average grade of 10% and skiing on its west side. Lift 13 (MC) is added to the beginner area on the north side of P3 to further expand the facility in this area. Lift 13 is 60 metres long with an average grade of 10%.

Ski Lifts – Phase 4

Lift 14 is planned in Phase 4 as a platter lift that provides some beginner terrain, as well as a secondary access to the Lower Base area facilities and staging lifts from Lots P4 and P5. This lift has a vertical rise of 56 metres and a capacity of 210 skiers at one time after morning access reduction and afternoon egress reduction has been accounted for. Lift 14 provides additional egress capacity from Whiskey Bowl at the end of the day, as well as access for beginner skiers who cannot ride Lift 1R to the base area facilities and beginner area.

Lift 15, a platter lift, provides further expansion to advanced and expert ski terrain in Whiskey Bowl with an impressive vertical rise of 495 metres; this lift can service a total capacity of 260 skiers at one time. Lift 15 has an average slope of 57% which is pushing the limits of lift technology and terrain suitable for commercial skiing, however this lift has potential to increase the total skiable vertical to 776 metres from the top of this lift (2,568 metres) down to the bottom of Lift 11 (1,792 metres) and add world class expert ski terrain to Fortress Mountain Resort.

Phase 4 includes Lift 16, the fifth platter surface lift in the Master Plan, installed in the Farside zone to provide access to advanced and expert terrain above the top terminal of Lift 8. Lift 16 will have an hourly capacity of 720 passengers per hour, a vertical rise of 284 metres and a capacity of 150 skiers at one time. Lift 16 has an average grade of 43%, which, like Lift 15, pushes the limit of lift technology but provides access to high quality advanced and expert terrain, as well as increase the total skiable vertical in the Farside zone from 329 metres to 518 metres.

The technical specifications for the sixteen lifts planned in the Fortress Mountain Master Plan are listed in Table III.4. At buildout, the Fortress Mountain Resort will have a lift system with a total hourly capacity of 22,800 passengers per hour and generate 4.37 million Vertical Transport Metres. The lift system will be able to service 6,000 skiers per day based on the VTM demand criteria outlined in Section II of this report.

**TABLE III.4
FORTRESS MOUNTAIN
BUILDOUT SKI LIFT SPECIFICATIONS**

Lift Number	1R	2R	3a	3b	4	5R	6	7	8	9
Development Phase	2	2	1	1	1	3	1	1	2	2
Lift Type	D4C	D4C	4C	4C	P	4C	MC	D4C	D4C	MC
Top Elevation m.	2,254	2,246	2,136	2,136	2,047	2,128	2,010	2,318	2,314	2,022
Bottom Elevation m.	1,962	2,036	2,047	2,036	2,006	1,983	2,007	1,983	2,036	2,010
Total Vertical m.	292	210	89	100	41	145	3	335	278	12
Horizontal Distance m.	832	1,139	336	447	375	581	30	1,070	954	81
Slope Distance m.	882	1,158	348	458	377	599	30	1,121	994	82
Average Slope %	35%	18%	26%	22%	11%	25%	10%	31%	29%	15%
Rated Capacity	2,400	2,400	2,000	2,000	720	2,000	800	2,000	2,000	800
V.T.M./Hr.(000)	701	504	178	200	30	290	2	670	556	10
Rope Speed m/sec.	5.0	5.0	2.2	2.2	2.0	2.2	0.8	5.0	5.0	0.8
Trip Time min.	2.94	3.86	2.63	3.47	3.14	4.54	0.63	3.74	3.31	1.71
Operating Hr./Day	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
V.T.M. Demand/Day	6,365	4,942	4,487	3,770	940	3,466	940	4,699	3,790	2,120
Loading Eff. %	95%	95%	80%	80%	90%	80%	90%	95%	95%	90%
Access Reduction	11%	0%	9%	19%	18%	0%	0%	0%	1%	0%
Skier Carrying Capacity (SCC)	650	680	200	240	160	470	50	950	960	120

Lift Number	10	11	12	13	14	15	16	
Development Phase	3	3	3	3	4	4	4	
Lift Type	P	D4C	MC	MC	P	P	P	TOTAL
Top Elevation m.	2,132	2,260	2,053	2,016	2,020	2,568	2,555	
Bottom Elevation m.	2,047	1,792	2,047	2,010	1,964	2,073	2,271	
Total Vertical m.	85	468	6	6	56	495	284	2,905
Horizontal Distance m.	510	1,400	60	60	394	872	653	
Slope Distance m.	517	1,476	60	60	398	1,003	712	10,275
Average Slope %	17%	33%	10%	10%	14%	57%	43%	30% Mean
Rated Capacity	720	1,200	800	800	720	720	720	22,800
V.T.M./Hr.(000)	61	562	5	5	40	356	204	4,374
Rope Speed m/sec.	2.5	5.0	0.8	0.8	2.2	3.0	3.0	
Trip Time min.	3.45	4.92	1.26	1.26	3.01	5.57	3.96	
Operating Hr./Day	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0 Mean
V.T.M. Demand/Day	2,541	5,935	940	940	940	8,475	8,475	
Loading Eff. %	90%	95%	90%	90%	90%	90%	90%	
Access Reduction	16%	3%	0%	0%	22%	0%	0%	
Skier Carrying Capacity (SCC)	130	610	80	80	210	260	150	6,000

Ski Trails - Buildout

At Buildout, the ski trail system will consist of 186 hectares of lift serviced ski trails, 2.37 hectares of connecting skiways and 7 hectares of boot pack hiking on Mount Baldy. The total length of these ski trails is approximately 55 kilometres. Based on slope densities outlined in Section II of this report, this ski trail system will be able to ultimately support 4,840 skiers per day on the lift serviced ski trails, 90 skiers per day on the connecting skiways and an additional 100 skiers on the Mount Baldy boot pack hiking ski terrain. There are also ski trails that are not serviced by lifts at Buildout. These trails can be hiked to or serviced by snowcat. The Fortress Mountain ski trail specifications at buildout are listed in Table III.5.

**TABLE III.5
FORTRESS MOUNTAIN
BUILDOUT SKI TRAIL SPECIFICATIONS**

Trail Name	Trail No.	Skill Class	Elevation		Total Vert. Meters	Slope Dist. Meters	Percent Slope		Avg. Width Meters	Slope Area Ha.	Skiers At Area	
			Top Meters	Bottom Meters			Avg.	Steep.			Density	Total
Lift 1												
	1A	6	2,254	1,962	292	1,169	26%	62%	34	3.98	15	60
	1B	7	2,226	1,974	252	655	42%	71%	29	1.92	20	40
	1C	7	2,232	2,032	200	611	35%	70%	37	2.24	20	40
	1D	6	2,244	1,962	282	848	35%	63%	52	4.39	15	70
	1E	7	2,252	2,050	202	436	52%	70%	23	1.02	20	20
	1F	6	2,252	2,022	230	604	41%	57%	44	2.63	15	40
	1G	6	2,238	2,016	222	593	40%	54%	58	3.45	15	50
	1H	6	2,230	2,010	220	576	41%	52%	143	8.24	15	120
	1I	6	2,204	2,004	200	674	31%	59%	36	2.41	15	40
	1J	6	2,200	2,002	198	734	28%	60%	49	3.59	15	50
Partial Shared with Lift 1	2A	4	2,254	2,136	118	1,005	12%	21%	3	0.30	40	10
Total Lift 1	11					7,905				34.17		540
Lift 2												
	2A	6	2,254	2,036	218	1,506	15%	54%	22	3.29	15	50
	2B	5	2,246	2,092	154	609	26%	43%	62	3.80	30	110
	2C	7	2,240	2,104	136	468	30%	79%	22	1.05	20	20
	2D	7	2,166	2,087	79	236	36%	63%	15	0.36	20	10
	2E	6	2,212	2,078	134	368	39%	55%	37	1.35	15	20
	2F	6	2,174	2,050	124	403	32%	58%	40	1.60	15	20
	2G	4	2,157	2,038	119	756	16%	38%	22	1.66	40	70
	2H	4	2,254	2,136	118	1,005	12%	21%	27	2.69	40	110
Total Lift 2	8					5,351				15.80		410
Lift 3a												
	3B	4	2,136	2,070	66	261	26%	36%	52	1.35	40	50
	3C	5	2,136	2,047	89	361	25%	44%	52	1.89	30	60
Total Lift 3a	2					623				3.24		110
Lift 3b												
	3A	4	2,136	2,036	100	490	21%	38%	68	3.32	40	130
Total Lift 3b	1					490				3.32		130
Lift 4												
	4A	1	2,047	2,006	41	395	10%	13%	42	1.68	50	80
Total Lift 4	1					395				1.68		80
Lift 5												
	5A	3	2,128	2,004	124	554	23%	35%	48	2.66	40	110
	5B	4	2,122	1,996	126	453	29%	36%	41	1.85	40	70
	5C	3	2,124	1,983	141	543	27%	34%	35	1.92	40	80
	5D	5	2,128	1,983	145	634	24%	48%	35	2.19	30	70
	5E	3	2,128	2,112	16	169	10%	10%	26	0.44	40	20
Total Lift 5	5					2,352				9.06		350
Lift 6												
	6A	1	2,010	2,007	3	35	9%	12%	166	0.58	50	30
	6B	1	2,010	2,007	3	35	9%	12%	166	0.58	50	30
Total Lift 6	2					70				1.16		60

**TABLE III.5
FORTRESS MOUNTAIN
BUILDOUT SKI TRAIL SPECIFICATIONS**

Trail Name	Trail No.	Skill Class	Elevation		Total Vert. Meters	Slope Dist. Meters	Percent Slope		Avg. Width Meters	Slope Area Ha.	Skiers At Area	
			Top Meters	Bottom Meters			Avg.	Steep.			Density	Total
Lift 7												
	7A	5	2,256	2,076	180	512	38%	49%	97	4.95	30	150
	7B	4	2,276	2,034	242	800	32%	37%	47	3.78	40	150
	7C	6	2,198	2,134	64	177	39%	51%	35	0.62	15	10
	7D	6	2,112	2,018	94	302	33%	53%	23	0.71	15	10
	7E	6	2,136	2,010	126	374	36%	60%	52	1.95	15	30
	7F	6	2,278	1,992	286	943	32%	60%	39	3.66	15	50
	7G	5	2,280	1,983	297	1,076	29%	44%	38	4.13	30	120
	7H	6	2,298	2,188	110	328	36%	55%	33	1.07	15	20
	7I	6	2,302	2,214	88	259	36%	54%	47	1.22	15	20
	7J	5	2,318	2,186	132	388	36%	50%	44	1.70	30	50
	7K	3	2,318	2,254	64	782	8%	20%	12	0.95	40	40
	7L	3	2,098	1,983	115	1,167	10%	12%	21	2.40	40	100
	7M	5	2,216	2,169	47	137	36%	41%	16	0.21	30	10
	7N	4	2,222	2,152	70	267	27%	34%	22	0.58	40	20
	7O	7	2,176	2,028	148	495	31%	62%	21	1.02	20	20
	7P	7	2,161	2,036	125	426	31%	79%	26	1.09	20	20
	7Q	6	2,268	2,136	132	407	34%	46%	32	1.32	15	20
	7R	6	2,124	2,044	80	202	43%	47%	15	0.31	15	0
Partial Shared with Lift 8	8A	3	2,314	2,036	278	2,044	14%	22%	4	0.76	40	30
Total Lift 7	19					11,086				32.43		870
Lift 8												
Partial Shared with Lift 7	8A	3	2,314	2,036	278	2,044	14%	22%	21	4.31	40	170
	8B	4	2,314	2,164	150	481	33%	41%	47	2.24	40	90
	8C	4	2,304	2,210	94	328	30%	39%	58	1.89	40	80
	8D	5	2,202	2,098	104	370	29%	48%	45	1.66	30	50
	8E	3	2,086	2,058	28	172	16%	18%	48	0.83	40	30
	8F	3	2,254	2,228	26	128	21%	21%	46	0.58	40	20
	8G	6	2,222	2,070	152	445	36%	56%	60	2.68	15	40
	8H	3	2,066	2,040	26	181	15%	15%	41	0.74	40	30
	8I	3	2,306	2,234	72	269	28%	31%	44	1.19	40	50
	8J	6	2,228	2,060	168	515	34%	64%	57	2.94	15	40
	8K	3	2,052	2,036	16	172	9%	15%	37	0.63	40	30
	8L	6	2,300	2,124	176	571	32%	53%	17	0.99	15	10
	8M	6	2,282	2,192	90	330	28%	31%	21	0.70	15	10
	8N	6	2,246	2,042	204	632	34%	43%	22	1.37	15	20
Total Lift 8	14					6,636				22.75		670
Lift 9												
	9A	2	2,026	2,010	16	88	18%	18%	28	0.24	100	20
Total Lift 9	1					88				0.24		20
Lift 10												
	10A	2	2,132	2,047	85	503	17%	23%	44	2.19	50	110
	10B	2	2,132	2,047	85	703	12%	16%	40	2.80	50	140
	10C	3	2,132	2,032	100	437	24%	30%	63	2.74	40	110
	10D	3	2,132	2,018	114	505	23%	31%	75	3.78	40	150
	10E	3	2,034	1,983	51	736	7%	31%	37	2.76	40	110
Total Lift 10	5					2,884				14.27		620

**TABLE III.5
FORTRESS MOUNTAIN
BUILDOUT SKI TRAIL SPECIFICATIONS**

Trail Name	Trail No.	Skill Class	Elevation		Total Vert. Meters	Slope Dist. Meters	Percent Slope		Avg. Width Meters	Slope Area Ha.	Skiers At Area		
			Top Meters	Bottom Meters			Avg.	Steep.			Density	Total	
Lift 11													
	11A	6	2,260	2,053	207	1,916	11%	56%	33	6.27	15	90	
	11B	6	2,140	1,874	266	749	38%	58%	45	3.40	15	50	
	11C	6	2,140	2,053	87	1,284	7%	67%	32	4.15	15	60	
	11D	6	2,026	1,822	204	674	32%	55%	39	2.63	15	40	
	11E	6	1,996	1,804	192	506	41%	52%	38	1.93	15	30	
	11F	6	2,052	1,996	56	1,017	6%	58%	36	3.69	15	60	
Total Lift 11	6					6,145				22.07		330	
Lift 12													
0	12A	1	2,053	2,047	6	66	9%	9%	23	0.15	100	20	
Total Lift 12	1					66				0.15		20	
Lift 13													
	13A	1	2,016	2,010	6	61	10%	10%	18	0.11	100	10	
Total Lift 13	1					61				0.11		10	
Lift 14													
	14A	1	2,018	1,968	50	358	14%	15%	39	1.38	50	70	
	14B	1	2,020	2,002	18	227	8%	0%	35	0.78	50	40	
	14C	1	2,000	1,962	38	464	8%	0%	27	1.27	50	60	
Total Lift 14	3					1,048				3.43		170	
Lift 15													
	15A	7	2,568	2,073	495	1,085	51%	76%	27	2.97	20	60	
	15B	7	2,538	2,112	426	792	64%	75%	35	2.81	20	60	
	15C	7	2,568	2,234	334	729	52%	72%	38	2.80	20	60	
Total Lift 15	3					2,607				8.58		180	
Lift 16													
	16A	7	2,555	2,228	327	703	53%	81%	30	2.08	20	40	
	16B	7	2,550	2,146	404	1,041	42%	86%	46	4.79	20	100	
	16C	7	2,500	2,144	356	910	42%	75%	24	2.16	20	40	
	16D	7	2,450	2,162	288	711	44%	71%	41	2.90	20	60	
	16E	7	2,555	2,320	235	503	53%	70%	34	1.70	20	30	
Total Lift 16	5					3,868				13.63		270	
Total All Lifts	88					52 km				186.09 Ha		4,840	
Skiways													
	A	1	2,006	1,970	36	483	7%	0%	28	1.37	50	70	
	B	6	1,994	1,962	32	430	7%	0%	11	0.48	15	10	
	C	6	1,962	1,922	40	460	9%	0%	11	0.52	15	10	
Total Skiways						1.4 km				2.37 Ha		90	
Boot Pack Hiking													
Mount Baldy	MBA	6	2,372	2,126	246	585	46%	0%	37	2.18	15	30	
Mount Baldy	MBB	6	2,372	1,983	389	1,268	32%	0%	38	4.78	15	70	
Total Mount Baldy Boot Pack Hiking						1.8534 km				6.96 Ha		100	

Table III.6 lists the cumulative ski trail balance of the ski area at Buildout as compared to the North American skier market. Plate III.1 illustrates a ski area that is skewed toward the higher skill classes of terrain (advanced and expert). There is a notable shortage of terrain in the novice, intermediate and high intermediate skill classes. Ecosign has worked diligently to optimize the terrain balance but ultimately, this is a reflection of the natural Terrain at Fortress.

**TABLE III.6
FORTRESS MOUNTAIN
BUILDOUT SKI TRAIL BALANCE STATEMENT**

Lift SCC =	6,000
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Skill Classification	Hectares	Skiers	Balance	Ideal
1 Beginner	6.5	340	7.0%	5%
2 Novice	5.2	270	5.6%	10%
3 Low Intermediate	26.7	1,080	22.3%	20%
4 Intermediate	19.7	780	16.1%	30%
5 High Intermediate	20.5	620	12.8%	20%
6 Advanced	76.5	1,130	23.3%	10%
7 Expert	30.9	620	12.8%	5%
TOTALS	186.1	4,840	100%	100%

Average Density =	32.2 Skiers/Hectare
Optimum Density =	31.6 Skiers/Hectare
Weighted Demand =	4,545 VTM/Skier/Day

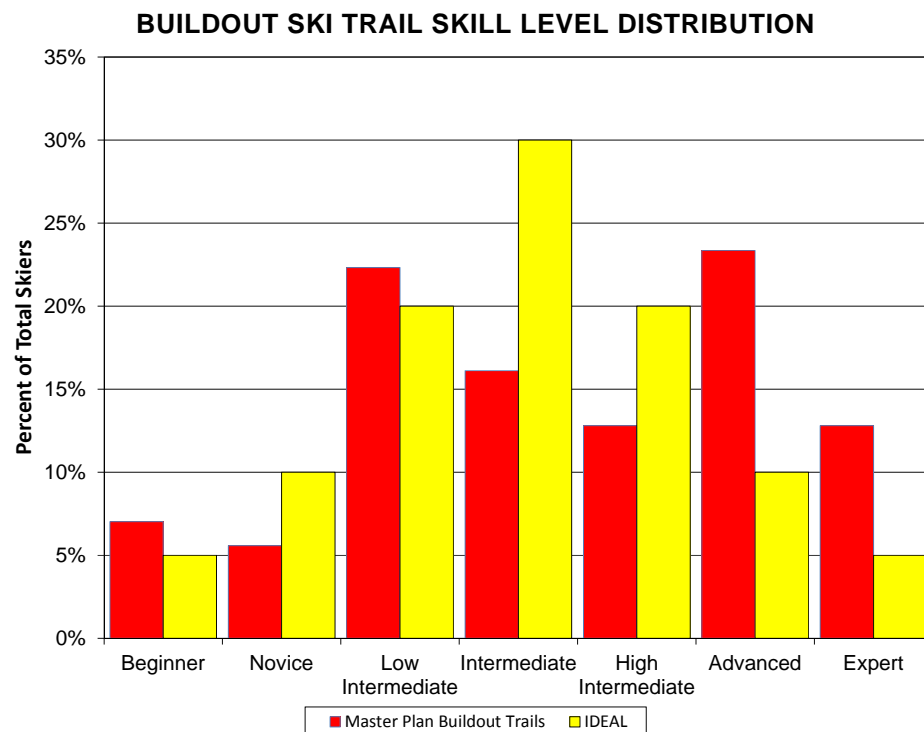


PLATE III.1

Farside Mountain Restaurant

A mountain restaurant is planned at the bottom of Lift 7 in the Farside zone. The restaurant has a footprint of 900m² and two levels, both of which can be accessed from the snow. The main floor on the upper level has a large south facing exterior deck oriented towards the Lift 7 terminal and will provide panoramic views of the surrounding peaks. The indoor restaurant seating area, kitchen and a small retail shop are located on the upper floor of the building which is accessed from its west side. The lower level is accessed from the east side of the building and contains bathrooms, storage and ski patrol space. The lower level may not be constructed over the full extent of the footprint of the upper level and should be sized based on the requirements for storage and operations space. The restaurant is situated to allow for skier circulation from the Artesian zone back to the bottom of Lift 7, cross traffic between Lift 7 and Lift 5R during access and egress periods, a skier maze at the bottom of Lift 7, ski racks in front of the restaurant, as well as a large south-facing deck on the south side of the building. The restaurant is planned with 400 indoor seats and 200 outdoor seats. On sunny days when the patio space is in use, at 4 turns per seat the Farside Mountain Restaurant could serve 2,400 skiers. On inclement weather days with no patio seats, the restaurant could serve 1,600 skiers at 4 turns per seat.

Base Area Facilities - Buildout

When needed, a second base area (Upper Base) can be developed in Lot P2. The Upper Base will provide a second portal for skiers to access services and facilities and includes a major expansion of Lot P2 and the removal and replacement of the existing day lodge building with a new mixed-use Fortress Mountain Lodge. The Base Area Master Plan for Fortress Mountain at buildout is presented on Figure 14.

Upper Base Area - Buildout

The proposed Fortress Mountain Lodge is planned on the north side of P2 in approximately the same location as the existing day lodge. The footprint of the proposed building is 3,150 m² (existing footprint = 2,888 m²) and is designed in a “U” shape with a drop-off loop and access to underground parking in the center of the U. The following design objectives have been considered in the conceptual design of the new Fortress Mountain Day Lodge, as illustrated on Figure 14:

- Low maintenance and safe snow storage areas around the building.
- Positive site drainage around the building footprint.
- 1 m “snow pillow” between the ground-level of the building and the surrounding terrain to create a level transition when snow accumulates in the winter.
- The building is situated as far north as possible in P2 to reserve the largest remaining area for parking.
- The drop-off is planned to provide convenient access to both the day lodge functions and accommodation in an area that doesn’t take away from parking or access to the snow surface.
- The accommodation wing is planned on the north end of the building to provide a separation between the accommodation functions and skier service functions and also allow day lodge facilities to be conveniently located adjacent to parking and the snowfront. The accommodation wing can be developed with up to 4 storeys, which will integrate into the sloping terrain on the north side of the building creating a “stepping-down” of the building mass to one storey on the south side of the building which is surrounded by parking and snow.
- Adequate underground parking for accommodation is planned below the accommodation wing only. The underground parking level should be located at 1 - 1.5 m. below existing grade to stay well above the water table.
- The vision for the new Fortress Mountain Lodge is to integrate some of the architectural features of the existing day lodge by reclaiming and recycling some of the old building material into the new structure. The conceptual roofline of the proposed day lodge reflects the idea of re-creating a central fireplace as the focal point of the restaurant space and designing a roof structure that reflects some of the iconic features of the existing building. Detailed architectural design of this building will be completed in subsequent phases following Phase 1.
- A southwest oriented outdoor restaurant patio with snow front access is planned adjacent to the restaurant.
- The day lodge facilities on the south wing of the Fortress Mountain Lodge are accessible from the parking lot and can be planned on one or two levels.

P2 is expanded to the west with a total area of 2.3 hectares, making it the largest day skier lot in the Fortress base area. The parking lot expansion will require filling in the terrain between the Lift 4 platter and the existing parking lot with a maximum of 6 metres of fill on the south end of the lot to create a 5% grade across the lot. A drop-off zone and short term parking is planned next to the snow front to allow for a convenient bus drop-off/pick up area, as well as easy access to services and lifts for families with small children, etc. The capacity of Lot P2 at Buildout is presented in Table III.7.

Lower Base Area - Buildout

Further expansion to Lot P3 is planned in conjunction with replacing Lift 1 with a detachable chairlift and moving the Lift 1R lower terminal location approximately 400 metres south of the existing terminal. P3 can then be expanded to a maximum area of 2.0 hectares by filling in the small gully to the east of the Lift 1 terminal and expanding the parking lot to the west and south. As P3 and P2 are the only day skier parking lots with direct access to day lodge facilities, it is important that these two lots be expanded to the greatest extent possible. Additional parking in the Lower Base is provided with Lots P4, P5 and P6. These three parking lots are needed to provide the necessary base capacity to achieve 6,000 skiers at Buildout and will require grading to fit into the existing terrain below P3. Lots P4 and P5 are ski-in/ski-out to Lifts 1R and Lift 14 for skiers who arrive with their own equipment and direct-to-lift ski pass. Lot P6 is the final lot to be developed and is within comfortable walking distance of the snow front and the Lower Base Day Lodge. A safe pedestrian crossing at the main access road should be designed in conjunction with the development of Lot P6. A 12 metre wide ski-out is designed on the east side of the existing main drainage and west side of Lots P3, P4 and P5 to provide ski-in/ski-out access to the parking lots and a connection across the drainage to the bottom of Lifts 1R and 14.

The Phase 1 sprung structure day lodge could remain in place at the Buildout phase or replaced with a permanent structure at an appropriate point in the development of the Fortress Mountain Resort. If the sprung structure is replaced, it could be sold or repurposed in a new location in the base area. Expansion of the Lot 3 day lodge or an additional skier service building may be considered as the parking lot expands in the Lower Base Area.

Parking - Buildout

At buildout of the Fortress Mountain Resort, Lots P2 and P3 will provide the main reservoir of day skier parking with a combined total of 1,420 cars and 3,550 skiers. The bus parking lot will remain and can accommodate 20 buses which will drop off skiers at the drop-off zones planned in Lot P2 and P3. An additional 670 stalls of day skier parking is planned with Lots P4, P5 and P6. Lot P1, with a capacity of 220 cars, is dedicated exclusively to staff parking. Utilizing the assumptions outlined in Table III.2, the total base capacity of the five Fortress Mountain day skier lots is approximately 6,000 skiers which is in balance with the mountain SCC of 5,900. Table III.7 provides a summary of the parking planned in the Fortress base area.

**TABLE III.7
FORTRESS MOUNTAIN
BUILDOUT DAY SKIER PARKING**

	Area Ha.	No. Cars	No. Buses	No. Skiers fr. Cars	No. Skiers fr. Buses	Total Skiers
Lot P1 - Staff Parking	0.67	220	-	-	-	-
Bus Lot	0.27	-	20	-	800	800
Lot P2 (Upper Base)	2.3	760	-	1,900	-	1,900
Lot P3 (Lower Base)	2.0	660	-	1,650	-	1,650
Lot P4	0.57	190	-	475	-	475
Lot P5	0.75	250	-	625	-	625
Lot P6	0.7	230	-	575	-	575
Total Parking Buildout	7.3	2,310	20	5,225	800	6,025
Lot P7 Nordic Parking	0.67	220	-	-	-	-

Skier Services

Staging facilities and commercial services for skiers are provided in the Lower Base and Upper Base lodges. Both lodges will include the following services.

- Tickets and Guest Services
- Restrooms
- Children's Programs/Ski School
- Restaurant/Café
- Rentals
- Lockers
- Retail
- Employee Facilities

A detailed skier service program for both lodges will be developed in later stages of the planning process. Administration space for the resort will be located in the existing unfinished townhouses in Lot P1. The gross floor area (GFA) of the four planned skier service buildings in the Fortress Mountain Master Plan is summarized in Table III.8. There is a total of approximately 5,000 m² of skier service space planned in the two proposed lodges, the renovated townhouses and the Farside mountain restaurant. Ecosign typically uses the standard of 1.4 m² of service space per skier when planning and designing skier services in mountain resorts. Services are planned for a “Design Day” of 80% of the buildout SCC following the rationale that services need to be provided to meet the needs on average busy days, but it is acceptable for a certain level of overcrowding of services on the busiest days of the year. The preliminary skier service analysis in Table III.8 shows that the 5,000 m² of planned services can accommodate 3,500 skiers comfortably at 1.4 m² per skier. With a Design Day capacity of 4,800 skiers (80% of 6,000 SCC), 5,000 m² of service space allows for 1 m² of service space per skier. This may be an acceptable standard for Fortress Mountain due to the high number of season pass holders that are anticipated at a resort which is less than a two hour drive from a major urban area.

**TABLE III.8
FORTRESS MOUNTAIN
DAY LODGE FOOTPRINT**

	G.F.A. m²
Upper Lodge	1,800
Lower Lodge	1,400
Townhouse offices	540
Mountain Restaurant	1,200
Total	4,940
No. skiers served @ 1.4m ² /skier	3,529
Design Day (80% SCC)	4,800
m ² /skier at Design Day	1.03

Overnight Accommodation

The existing lodge at Fortress Mountain formerly operated 30 rooms and a dorm which provided overnight accommodation for guests at the ski area. The exact pillow count is unknown at this time but we estimate the lodge could accommodate approximately 100 guests.

The accommodation in the existing day lodge is replaced in the newly proposed Fortress Mountain Lodge, with total bed capacity to be determined at a later date. The accommodation will be managed for overnight use only and operated by Fortress Mountain Resort.

Employee Housing

A 3-level employee housing building is proposed on the former employee housing site. As shown on Figure 14, the employee housing building has a footprint of 800 m² and could accommodate 150-200 employees in various unit configurations. Parking can be provided in underground parking below the building footprint or in a surface lot on the south end of the building.

Nordic Ski Area

A potential Nordic ski facility is identified on the eastern part of Fortress Mountain's Lease area boundary, as shown on Figures 13a and 13b. This area includes 48 hectares of gently sloping terrain on a bench of land that connects to the bottom of Lift 5R and the Farside Mountain Restaurant on its north end. A parking lot with a capacity of 220 cars is planned at the south end of the Nordic facility with two potential road connections to the Fortress Mountain main access road.

Option A is 1 km. long and stays completely within the Fortress Mountain lease area boundary, extending off the main access road at the existing access point to the sewage lagoons near Lot P6. The Option A road extends along the north side of the sewage lagoons and then slopes down at 8% to connect to the Nordic Ski Area parking lot.

The Option B road extends off the main access road at the 1,920-metres elevation and connects to the Nordic ski area parking lot at 1,968 m. This road follows the natural features of the terrain and has a length of 1.6 km. and an average grade of 3%. However, the Option B road extends outside of the Fortress Mountain lease area boundary in two places. Option B is the preferred alignment, as it would require minimal earthworks and separates the Nordic skiing traffic from the Alpine ski traffic in the Fortress base area. Option A provides an alternative if there are complications with providing access to a recreation facility from outside of the lease area boundary.

IV. MARKET ANALYSIS

.1 Introduction

Ecosign Mountain Resort Planners has completed a brief evaluation of the market demand for skiing within the local and regional area surrounding Fortress Mountain. We have prepared an assessment of the other ski resorts operating within a five hour drive of Fortress.

.2 Inventory of Ski Facilities within the Local and Regional Markets

The nearest major city to Fortress Mountain Resort is Calgary, Alberta. Ecosign has completed an inventory of the major features of all the ski resorts operating within Calgary's local market (2 hour drive) and regional market (5 hour drive) based on Google Maps driving times from Calgary City Hall. The small ski facility at Canada Olympic Park has been included in this analysis since it receives a high proportion of the region's total skier visits in comparison to its size, due to its location within the City of Calgary.

The information in this inventory has been compiled from our internal databases supplemented by internet research of publicly available information. We are not in a position to verify if the mountain statistics claimed for a particular area are accurate unless we have gathered this information through previous site visits. We have calculated the total Vertical Transport Metres (VTM) per hour for each lift system at the areas within the Fortress market area. VTM (000)/Hr. is the number of people lifted 1,000 vertical metres in one hour (vertical rise of a lift, times the lift capacity in people per hour divided by 1,000). The VTM/Hour is used as a method of comparing the lift capacity of different areas, as it takes into account both uphill capacity and vertical rise and accurately reflects the size of the lifting system.

There are five other ski resorts operating within the local market. Since second home properties are not allowed within Banff National Park or Kananaskis Village; the accommodation at these resorts is commercially operated public accommodation. With the exception of Sunshine Village, the accommodation is not located at the base of the hill, so transportation is required. The Town of Canmore, located just east of the entrance to Banff National Park, has developed a large amount of second home properties that are owned by

people from Calgary who spend weekends and holidays in the Park or Kananaskis Country. Canmore also contains a large supply of commercial accommodation. The five local ski areas are described below and the inventory data is presented in Table IV.1.

1. Canada Olympic Park (COP) operates a day and night ski area originally known as Paskapoo, on the western side of the City of Calgary.
2. Nakiska Mountain Resort was the Alpine venue built for the 1988 Olympic Winter Games located in Kananaskis Country. Nakiska is the closest ski mountain to the City of Calgary, about 55 minutes west of COP. Public accommodation is provided in Kananaskis Village, 4 km. from the resort or in Canmore 56 km away.
3. Mount Norquay is the oldest of the three Banff/Lake Louise ski resorts located within Banff National Park adjacent to the Town of Banff. The three resorts are marketed together to destination visitors with a combined lift and transportation pass. Overnight visitors to Mt. Norquay stay in the Town of Banff.
4. Sunshine Village Ski and Snowboard Resort is another of the three Banff/Lake Louise Resorts, located 18 kilometres north of the Town of Banff. Sunshine has the highest elevation of any ski area in Canada. The ski area and resort hotel are accessed via a long gondola from the parking lot. Sunshine Village is a destination resort with a limited amount of overnight accommodation in the alpine village; however, most of the overnight skiers stay in Banff.
5. Lake Louise Ski Resort is the largest of the Banff/Lake Louise ski resorts. Lake Louise ski resort is located across the Bow River Valley from the Hamlet of Lake Louise and overnight guests stay either in Lake Louise or Banff.

In comparing Fortress, Phase 1 with the four other ski mountains (excluding COP) in Calgary's local area, Fortress will have the least lift serviced vertical drop, while Norquay has the least amount of skiable terrain. Driving time to Fortress from downtown Calgary is approximately 10 minutes less than to Sunshine Village and 20 minutes less than to Lake Louise. These differences could be longer if there is a lineup at the Banff National Park gates.

**TABLE IV.1
COMPETITIVE AREA ANALYSIS – LOCAL MARKET**

	LOCAL					
	Fortress Mountain (Phase 1)	Canada Olympic Park	Nakiska Mountain Resort	Mount Norquay	Sunshine Village	Lake Louise Ski Resort
SKI AREA						
Nearest Town	Canmore	Calgary	Canmore	Banff	Banff	Banff
Distance to Nearest Town (km)	81	16	56	7	18	57
Nearest Major City	Calgary	Calgary	Calgary	Calgary	Calgary	Calgary
Distance to Nearest Major City	125	16	100	134	144	185
Drive time to Nearest Major City (hours)	1.7	0.4	1.3	1.6	1.8	2.1
Top Elevation (metres)	2296	1243	2260	2,183	2,730	2,637
Base Elevation (metres)	1984	1143	1525	1,680	1,660	1,646
Vertical Drop (metres)	312	100	735	503	1,070	991
Skiable Terrain (hectares)	378	36	413	77	1358	1,700
Longest Run (km)		0.6	3.2	1.2	8	8
Number of Trails	47	4	71	38	107	145
Number of Gondolas	-	-	-	-	1-D8G	1-D8G
Number and Type of Chairlifts	1- D4C, 1-4C, 1-3C, 1-2C	2-D4C, 1-1C	3-D4C, 1-2C	1-D4C, 2-4C, 1-2C	6-D4C, 2-4C, 1-2C	D4C, 1- 4C,13C
Surface Lifts	2-P, 1-MC	4-MC, 1-HT	2-MC	MC	2-MC	P, TB, MC
Hourly Capacity (pph)	11,306	8,200	8,830	7,000	16,950	16,850
Vertical Transport Metres (x1000)	2,002	697	2,896	1,779	5,329	6,910
Beginner Terrain	20%	25%	13%	20%	20%	25%
Intermediate Terrain	50%	75%	59%	36%	55%	45%
Advanced Terrain	30%	0%	28%	44%	25%	30%
Terrain Park	Y	Y	Y	Y	Y	Y
Snowboard/Ski Cross Course	N	N	Y	N	N	Y
Snowshoeing	N	N	N	Y	Y	Y
Cross-country Skiing	N	Y	N	N	N	Y
Tubing	N	N	Y	Y	N	Y
Night Skiing	N	Y	N	Y	N	N
On-Mountain Restaurants			Y		Y	Y
Snowmaking Coverage (% of trails)		97%	95%	85%	4 Snow Guns	40%
Area Type	R	L	R	R/D	R/D	R/D
2013/14 Ticket Price (top adult) w/o tax		\$50.00	\$71.95	\$61.00	\$85.00	\$84.95

DC-Detachable Chair, Fixed Grip Chairs - 4C-Quad, 3C-Triple, 2C-Double, TB-T-Bar, R-Rope Tow, HT-Handle Tow, P-Platter

The regional market (two to five hour drive) from Calgary includes seven additional ski resorts; Castle Mountain is located in southern Alberta and the other six are in British Columbia. Since the resorts in B.C. have ski-in/ski-out accommodation at the base and allow the purchase of second homes, many skiers from Alberta purchase property and become frequent visitors to these resorts. The seven resorts are outlined below and the inventory is summarized in Table IV.2.

1. Kicking Horse Mountain Resort is located just over the Alberta/British Columbia border near the town of Golden. Kicking Horse has the 4th largest vertical drop of any ski area in North America and approximately 1,200 beds in the new resort village. Kicking Horse Mountain Resort opened in 2000.
2. Panorama Mountain Village, near Invermere, is an established four-season regional/destination resort with a resort village and large second home bed base, golf course and a number of other recreational amenities.
3. The ski area at Fairmont Hot Springs is relatively small with only two lifts and 16 trails. The major attraction at Fairmont is its three golf courses.
4. Kimberley Alpine Resort is located within the City of Kimberley and its bed base is a combination of ski-in/ski-out accommodation at the base of the lifts and other providers within the City.
5. The Revelstoke Mountain Resort is a five hour drive from Calgary and B.C.'s newest mountain resort. The main appeal at Revelstoke is the abundant natural snowfall and the largest vertical drop in North America at 1,713 metres (5,620 ft.).
6. The Fernie Alpine Resort in southeastern British Columbia is a 3.5 hour drive from Calgary and has been popular for many years for people wanting a second home property.
7. Castle Mountain is an older ski area near Pincher Creek, Alberta, with limited accommodation at the base of the mountain.

**TABLE IV.2
COMPETITIVE AREA ANALYSIS – REGIONAL MARKET**

	LOCAL	REGIONAL						
	Fortress Mountain (Phase 1)	Kicking Horse Mountain Resort	Panorama Mountain Village	Fairmont Hot Springs Resort	Kimberley Alpine Resort	Revelstoke Mountain Resort	Fernie Alpine Resort	Castle Mountain
SKI AREA								
Nearest Town	Canmore	Golden	Invermere	Invermere	Kimberley	Revelstoke	Fernie	Pincher Creek
Distance to Nearest Town (km)	81	14	20	27	4	6	7	49
Nearest Major City	Calgary	Calgary	Calgary	Calgary	Calgary	Calgary	Calgary	Calgary
Distance to Nearest Major City	125	277	297	299	395	414	298	250
Drive time to Nearest Major City (hours)	1.7	3.4	3.8	3.7	4.8	5.1	3.5	3.2
Top Elevation (metres)	2296	2,450	2,375	1,482	1,982	2,225	1,925	2,273
Base Elevation (metres)	1984	1,190	1,150	1,213	1,230	512	1,052	1,410
Vertical Drop (metres)	312	1,260	1,225	269	751	1,713	857	863
Skiable Terrain (hectares)	378	1115	1,150	35	729	1265	1,015	
Longest Run (km)		5.5	5.5	1.3	6.4	15.0	5	5.0
Number of Trails	47		120	16	80	65	142	104
Number of Gondolas	-	1-D8G	P Cab	-	-	1-D8G	-	
Number and Type of Chairlifts	1- D4C, 1-4C, 1-3C, 1-2C	2-4C, 1-2C	2-D4C, 1-4C, 1-3C, 1-2C	1-3C	1-D4C, 1-3C, 1-2C,	2-D4C	2-D4C, 3-4C, 3-3C	2-3C, 2-2C
Surface Lifts	2-P, 1-MC	MC	P, HT, MC	P	TB, MC	2-MC	TB,, HT, MC	TB, HT
Hourly Capacity (pph)	11,306	5,250	8,500	2,140	6,452	10,000	14,624	7,400
Vertical Transport Metres (x1000)	2,002	2,915	3,049	515	2,411	5,900	4,913	2,478
Beginner Terrain	20%	20%	20%	7%	20%	7%	30%	15%
Intermediate Terrain	50%	20%	55%	87%	42%	46%	40%	40%
Advanced Terrain	30%	60%	25%	7%	28%	48%	30%	45%
Terrain Park	Y	Y	Y			Y	Y	Y
Snowboard/Ski Cross Course	N		N				Y	
Snowshoeing	N	Y	N			Y	Y	
Cross-country Skiing	N	Y	N				Y	Y
Tubing	N	Y	Y			Y	N	
Night Skiing	N	N	Y		Y	Y	N	
On-Mountain Restaurants		Y				Y		
Snowmaking Coverage (% of trails)		N	40%	N		5%	1%	N
Area Type	R	R/D	R/D	L	R/D	R/D	R/D	R
2013/14 Ticket Price (top adult) w/o tax		\$79.95	\$77.00	\$43.00	\$67.95	\$80.00	\$83.95	\$69.00

DC- Detachable Chair, Fixed Grip Chairs - 4C-Quad, 3C-Triple, 2C-Double, TB-T-Bar, R-Rope Tow, HT-Handle Tow, P-Platter

With the exception of Fairmont Hot Springs, the other resorts in the regional market are larger than Fortress - Phase 1 in terms of Vertical Transport Metres per Hour and skier terrain. Given this factor, it is likely in the near term that while the BC resorts will continue to attract skiers from the Calgary area and destination visitors arriving at Calgary International Airport, skiers living in eastern BC are not likely to come to Fortress since there are bigger resorts closer to home.

.3 Population within Local and Regional Markets

Using data from the Alberta and British Columbia Governments, we have calculated the population within the local (2 hour drive) and regional (5 hour drive) markets. The local market includes the Greater Calgary area, Banff, Cochrane, Canmore, and extends north to Airdrie. The regional market in Alberta extends just north of Edmonton and south to include Lethbridge. A five hour drive from Fortress extends into the Kootenays and as far west as Revelstoke, however, this area is not densely populated and includes fewer than 130,000 people.

**TABLE IV.3
POPULATION WITHIN THE LOCAL AND REGIONAL MARKET**

	Alberta	BC	Total
Population within 2 hour drive	1,301,563		1,301,563
Population between 2 and 5 hour drive	1,891,156	128,209	2,019,365
Total within a 5 hour drive	3,192,719	128,209	3,320,928

Sources:

2013 Municipal Affairs Population List

Municipal Services Branch, Municipal Affairs

Government of Alberta

Demographic Analysis Section, BC Stats

Ministry of Technology, Innovation and Citizens' Services

Government of British Columbia

The population in Alberta and British Columbia has been growing over the past ten years, as shown in Table IV.4. Alberta's population growth over ten years is 24%, more than double that of British Columbia. The median age in Alberta is 36.0 and is not increasing as quickly as the median age in British Columbia.

**TABLE IV.4
HISTORIC POPULATION GROWTH FOR ALBERTA AND BRITISH COLUMBIA**

	Alberta			British Columbia		
	Population	Growth Rate	Median Age	Population	Growth Rate	Median Age
2003	3,182,852		35.1	4,123,937		38.9
2004	3,238,387	1.7%	35.3	4,155,017	0.8%	39.4
2005	3,321,638	2.6%	35.4	4,195,764	1.0%	39.7
2006	3,421,361	3.0%	35.5	4,241,691	1.1%	40.1
2007	3,514,031	2.7%	35.6	4,290,988	1.2%	40.3
2008	3,595,755	2.3%	35.6	4,349,412	1.4%	40.5
2009	3,679,092	2.3%	35.7	4,410,679	1.4%	40.6
2010	3,732,573	1.5%	35.8	4,465,924	1.3%	40.8
2011	3,790,191	1.5%	35.9	4,499,139	0.7%	41.1
2012	3,888,739	2.6%	36.0	4,543,308	1.0%	41.4
2013	4,025,074	3.5%	36.0	4,581,978	0.9%	41.7
Ten Year Growth Rate		24%			10%	

Source:

Statistics Canada. Table 051-0001 - Estimates of population, by age group and sex for July 1, Canada, provinces and territories, annual (accessed June 02/14)

Looking forward, we obtained population growth forecasts from the Alberta and British Columbia Government websites. The population in the Kootenay region of B.C. is expected to remain flat for the foreseeable future. The Alberta Treasury and Finance Board have prepared low, medium and high growth forecasts for the province's population. These projections for the years 2013 to 2026 are presented in Table IV.5.

**TABLE IV.5
POPULATION FORECASTS FOR ALBERTA**

	Low		Medium		High	
	Population	% Increase	Population	% Increase	Population	% Increase
2012	3,873,745		3,873,745		3,873,745	
2013	3,986,105	2.9%	3,993,350	3.1%	4,004,670	3.4%
2014	4,056,655	1.8%	4,086,865	2.3%	4,127,010	3.1%
2015	4,121,265	1.6%	4,174,240	2.1%	4,243,090	2.8%
2016	4,178,515	1.4%	4,252,735	1.9%	4,349,010	2.5%
2017	4,234,270	1.3%	4,330,435	1.8%	4,457,215	2.5%
2018	4,289,130	1.3%	4,407,145	1.8%	4,564,815	2.4%
2019	4,341,110	1.2%	4,481,020	1.7%	4,669,950	2.3%
2020	4,392,445	1.2%	4,554,745	1.6%	4,775,915	2.3%
2021	4,443,175	1.2%	4,628,300	1.6%	4,882,515	2.2%
2022	4,493,195	1.1%	4,701,525	1.6%	4,989,760	2.2%
2023	4,542,510	1.1%	4,774,415	1.6%	5,097,660	2.2%
2024	4,591,055	1.1%	4,846,950	1.5%	5,206,025	2.1%
2025	4,638,660	1.0%	4,918,965	1.5%	5,314,675	2.1%
2026	4,685,440	1.0%	4,990,615	1.5%	5,424,045	2.1%

Sources: Statistics Canada and Alberta Treasury Board and Finance

Notes: 1. Population as of July 1.

2. Numbers may not add to totals due to rounding.

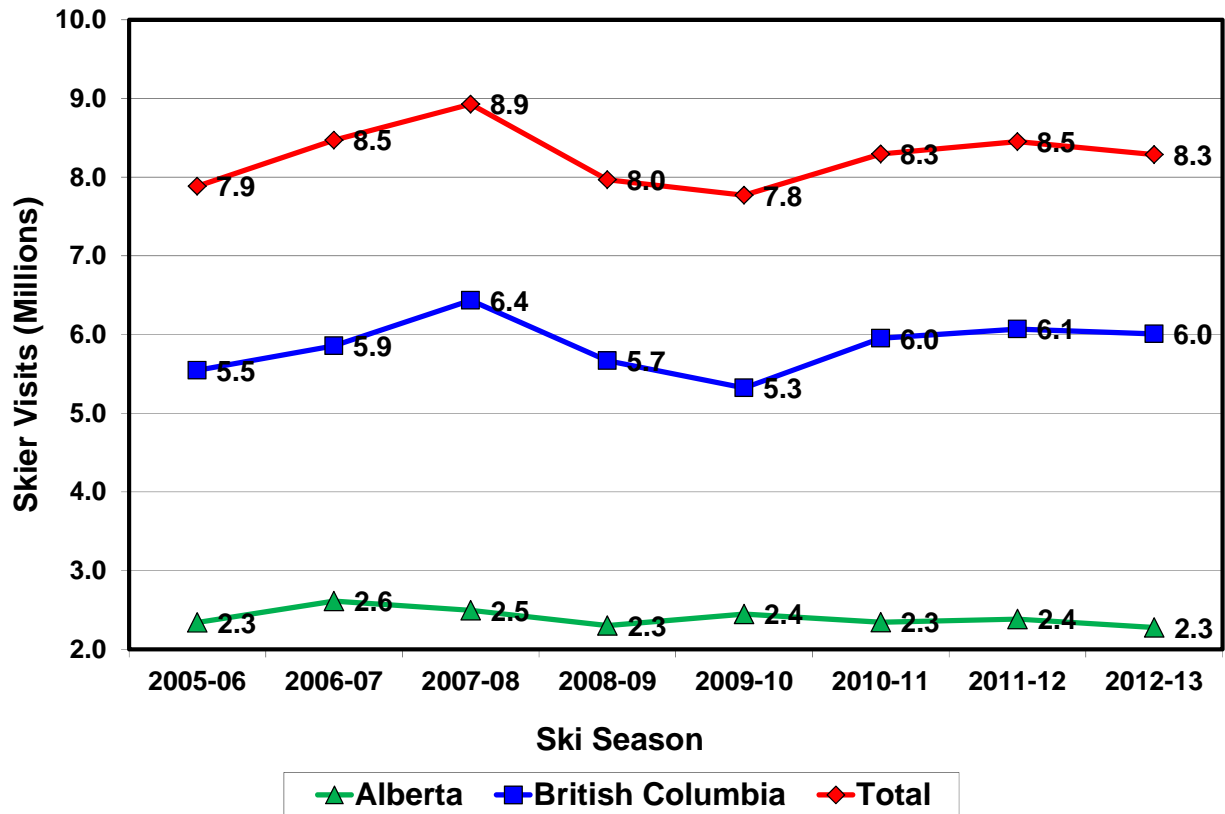
Prepared by Economics, Demography and Public Finance. Last updated on July 25th, 2013.

For further information contact Jennifer Hansen (780.427.8811)

.4 Skier Visit Estimate

The historic alpine skier visits for Alberta and British Columbia since the 2005/06 ski season are shown in Plate IV.1. Total alpine skier visits between the two provinces increased from 7.9 million in 2005/06 to 8.9 million in 2007/08 before the 2008 end of year recession. Since then, alpine skier visits recovered to 8.5 million in 2011/12. In Alberta, the skier visits have been relatively flat over the eight year period even though the population has been increasing. All the growth in skier visits between the two provinces has occurred in British Columbia, primarily due to the investments in new ski resorts in eastern B.C. (Kicking Horse and Revelstoke). Since the increase in skier visits has not kept up with the increases in ski area capacity, some areas have experienced an overall decline in annual skier visits over the eight year period and annual utilization has dropped.

ALBERTA AND BRITISH COLUMBIA ANNUAL ALPINE SKIER VISITS



SOURCE: CWSAA
PLATE IV.1

Using information from various sources, Ecosign has estimated that the total annual skier visits for the twelve ski areas in the Calgary local and regional markets was approximately 2,521,000 during the 2012/13 ski season. In total, these twelve ski areas have a combined Vertical Transport Metres per Hour of 39,791,000.

If a ski area received 10 percent of the total skier visits within the region and had 10 percent of the total VTM/hr., it would be receiving its fair share of the skier visits and would have an effective penetration rate of 1.0. If a ski area received 12 percent of the total visits and had 10 percent of the VTM/Hr. it would be getting more than its fair share of the market and would have an effective market penetration rate of 1.2. Conversely, a ski area that only received 8 percent of the total skier visitation would have a market penetration of 0.8.

There are many reasons why an area may achieve more or less than its fair share; most of these have to do with the quality of the facilities at the ski area. However, with everything else being equal, ski areas closest to the population centres would likely have effective penetration rates greater than 1.0, while the ski area farthest away would have the lowest EPR.

To determine Fortress' fair share of the annual skier visits, we need to add the VTM/Hr. of Fortress - Phase 1 (2 million) to the total VTM of the other twelve ski areas to get a revised total VTM for the thirteen ski areas. Then the fair share for Fortress is calculated based on its share of the total VTM, as shown in Table IV.6. Using this method, the annual skier visits at Fortress with an EPR of 1.0 would be approximately 120,800 skiers.

**TABLE IV.6
FORTRESS "FAIR SHARE" OF 2012/13 ANNUAL SKIER VISITS**

CALGARY LOCAL AND REGIONAL MARKET	
Estimated Annual Skier Visits 2012/13	2,521,000
Total Vertical Transport Metres (x1000) for 12 ski areas	39,791
Fortress - Estimated Phase 1 VTM (x1000)	2,002
New Total Vertical Transport Metres (x1000)	41,793
Fortress - Phase 1 % of Total VTM	4.8%
Fortress - Phase 1 Share of Annual Skier Visits	120,800

Typically, a new ski area takes time to build up its market share. An optimistic forecast for Fortress would be reaching its full market share within four years. A conservative scenario has Fortress reaching an EPR of 0.7, or 70%, of its fair market share after four years. Our medium forecast is in the middle of this range with an EPR of 0.85 by year four. From the four year mark, we have assumed that annual skier visits will grow at the rate of the growth in Alberta's population using the middle growth rate scenario. The low, medium and high annual skier visit estimates determined using this method are illustrated in Plate IV.2 and listed in Table IV.7.

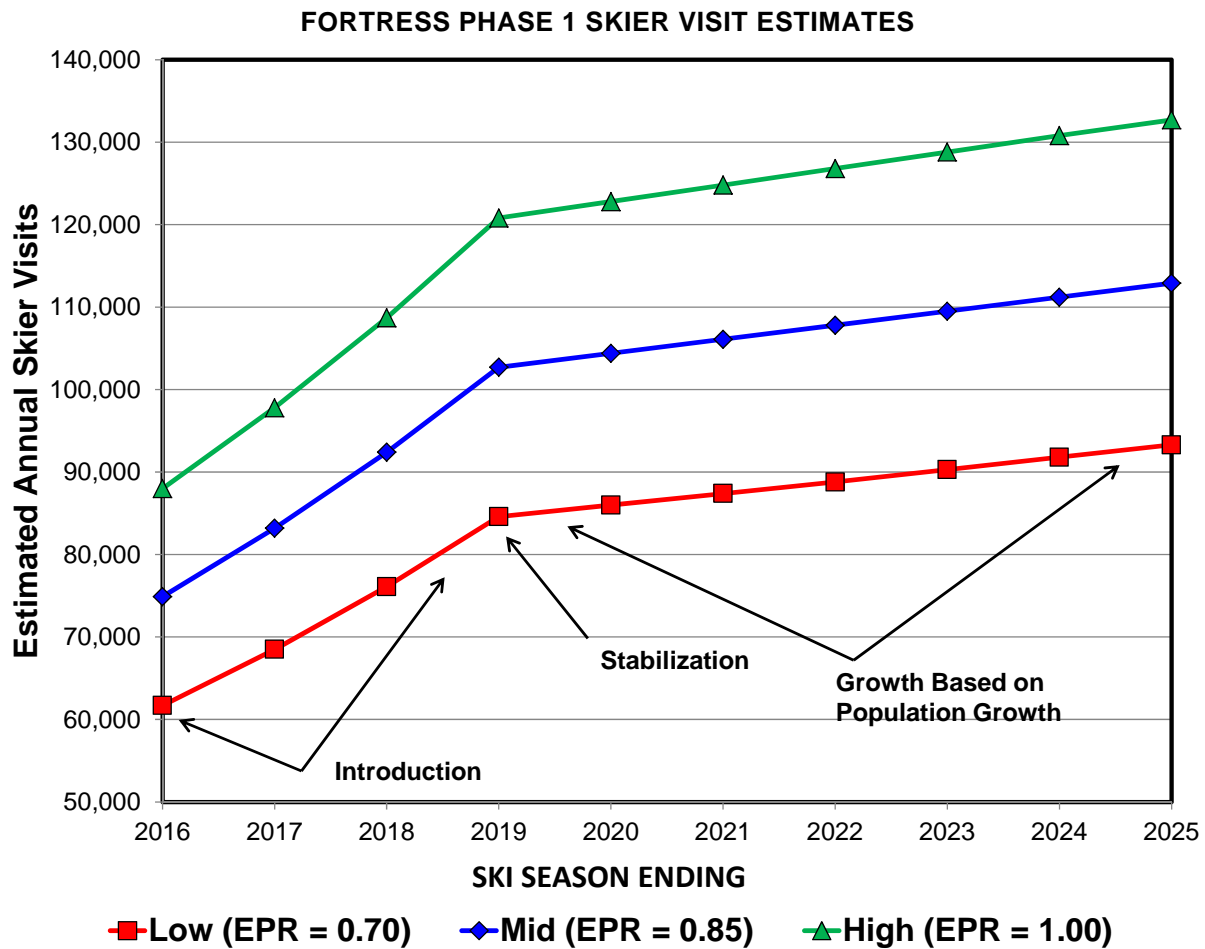


PLATE IV.2

**TABLE IV.7
FORTRESS SKIER VISIT ESTIMATES**

Year	Season Ending	Low (EPR = 0.70)	Mid (EPR = 0.85)	High (EPR = 1.00)
1	2016	61,700	74,900	88,000
2	2017	68,500	83,200	97,800
3	2018	76,100	92,400	108,700
4	2019	84,600	102,700	120,800
5	2020	86,000	104,400	122,800
6	2021	87,400	106,100	124,800
7	2022	88,800	107,800	126,800
8	2023	90,300	109,500	128,800
9	2024	91,800	111,200	130,800
10	2025	93,300	112,900	132,700

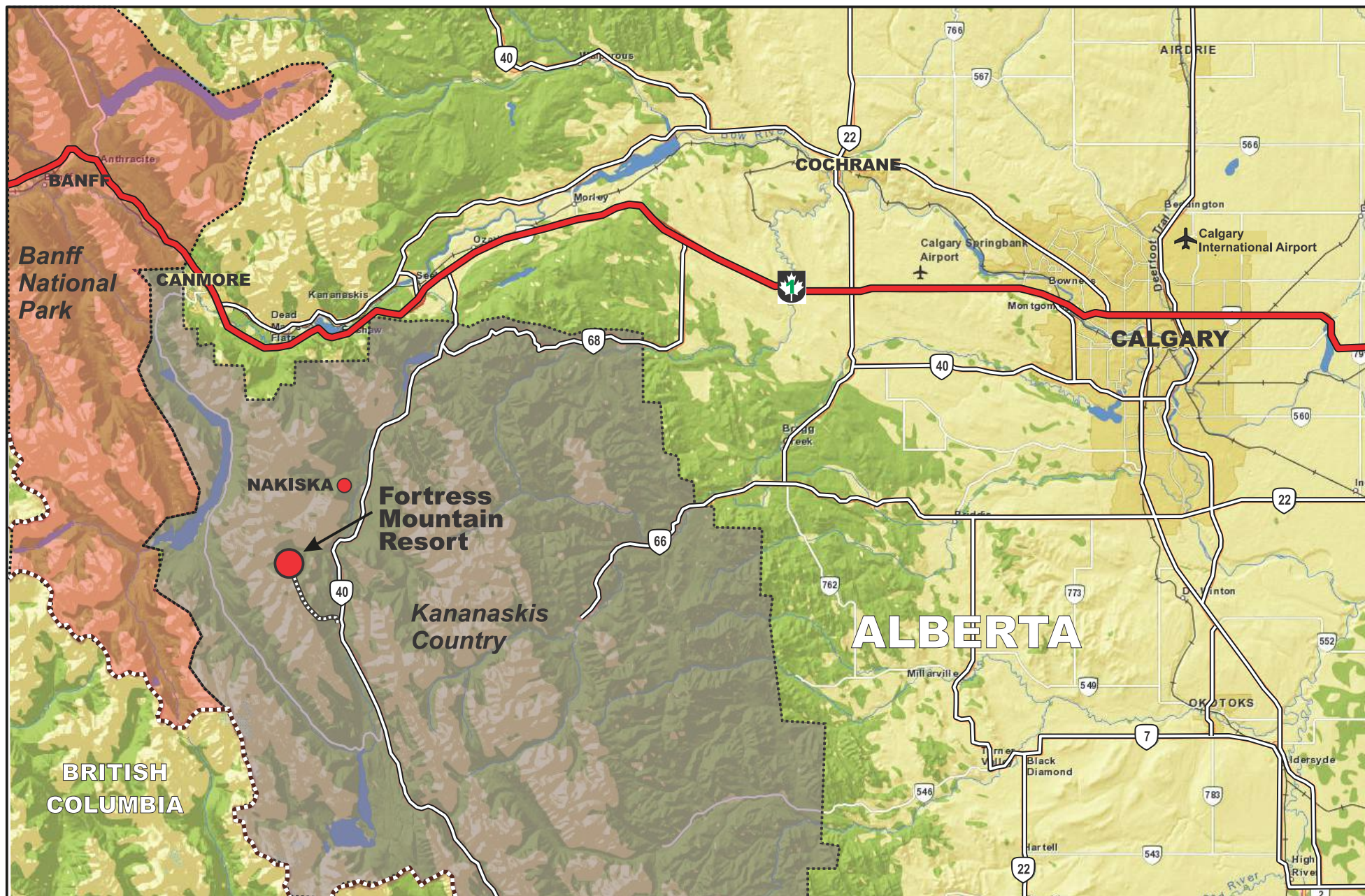


Date: 04/2015

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AREA LOCATION

1



Date: 04/2015

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REGIONAL CONTEXT 2

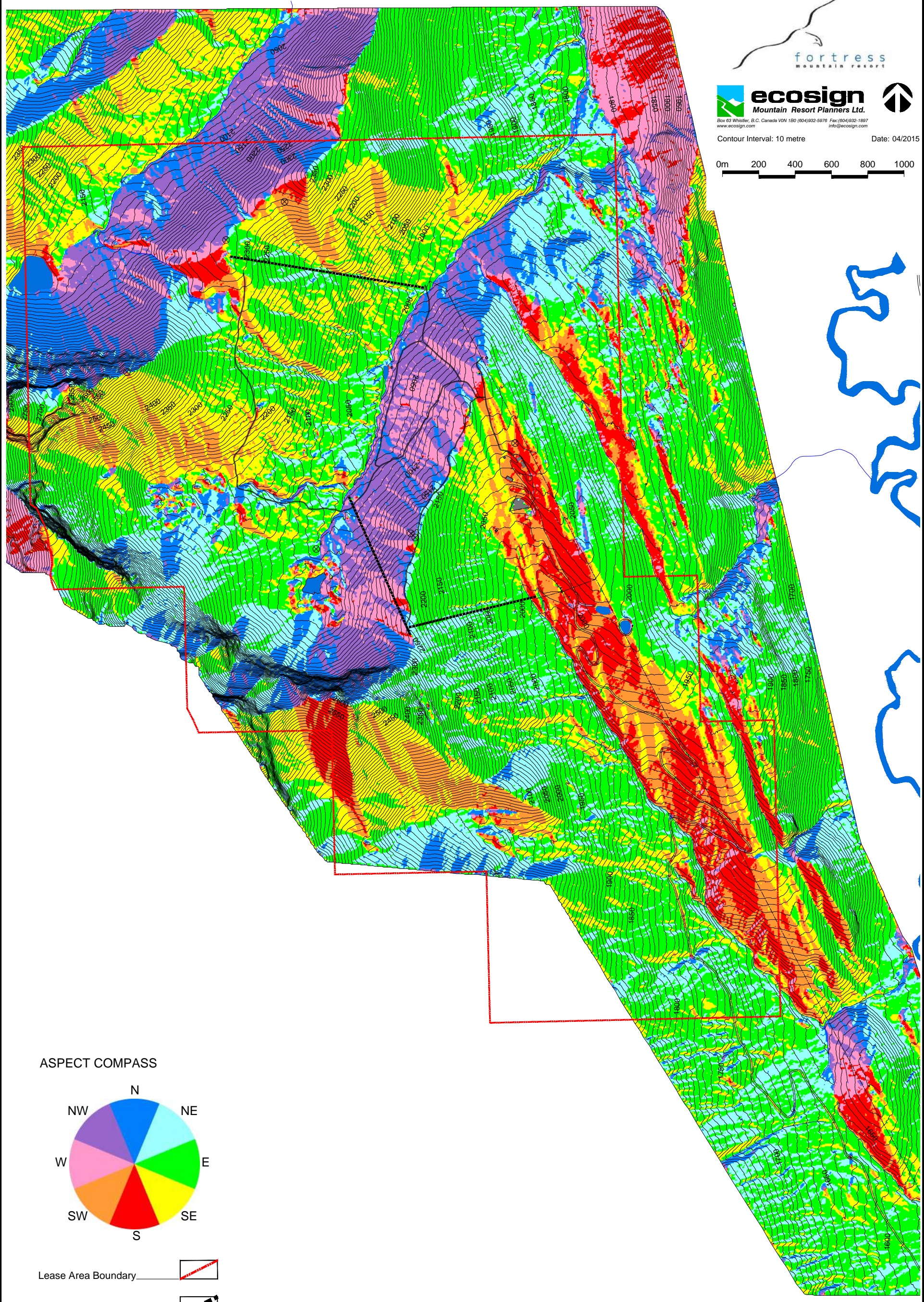
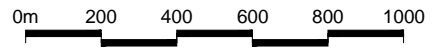


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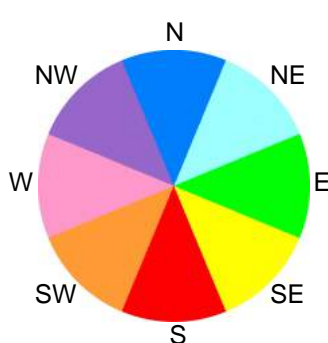



Contour Interval: 10 metre


Date: 04/2015



ASPECT COMPASS



Lease Area Boundary 

Existing Lifts 






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Date: 04/2015




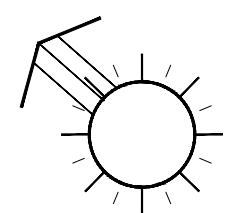
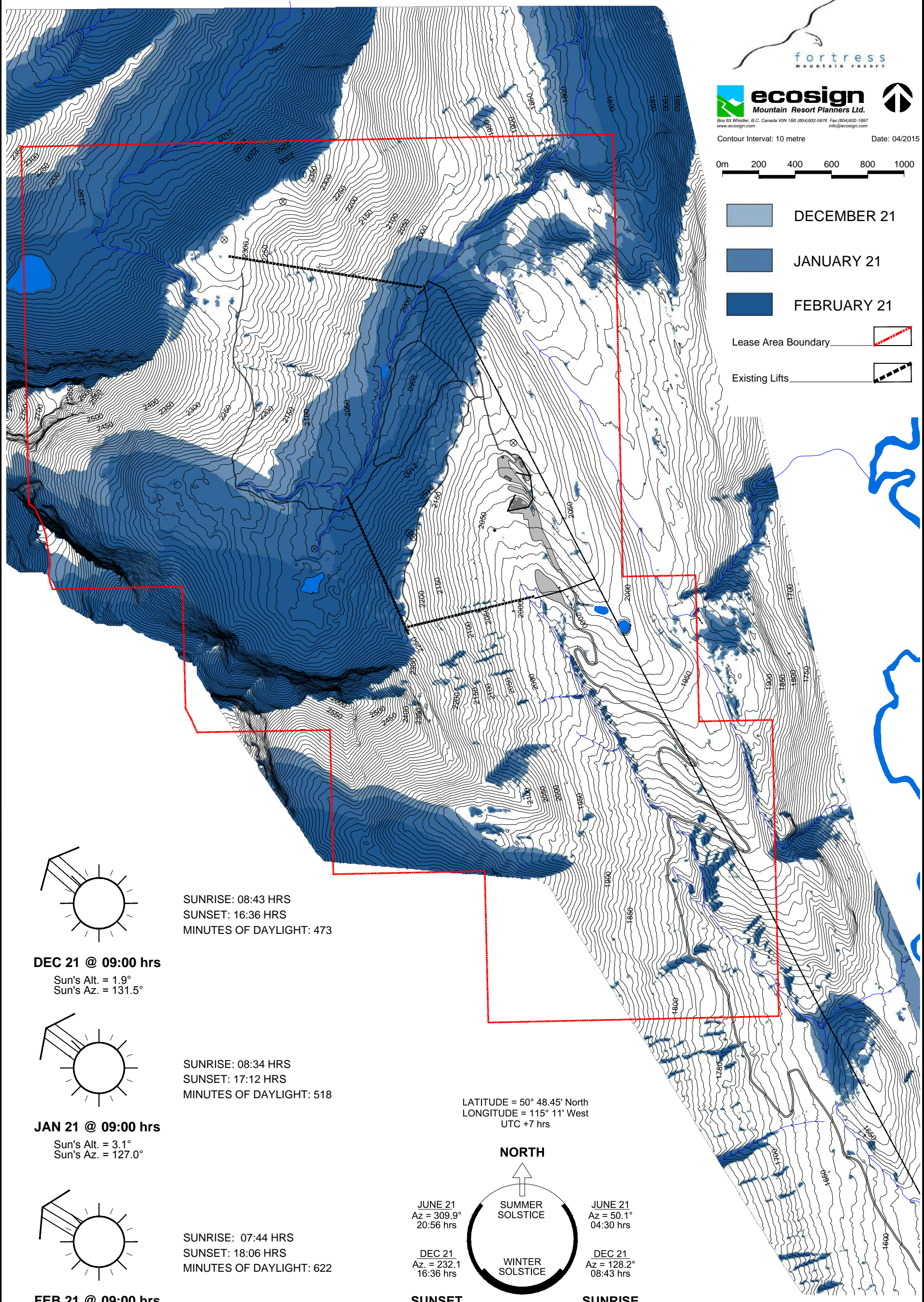
 DECEMBER 21

 JANUARY 21

 FEBRUARY 21

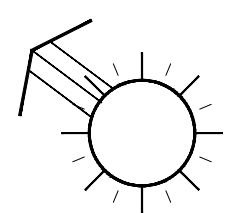
Lease Area Boundary 

Existing Lifts 



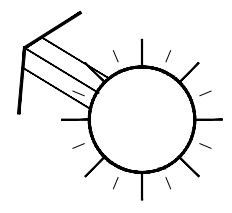
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Sun's Az. = 131.5°

SUNRISE: 08:43 HRS
SUNSET: 16:36 HRS
MINUTES OF DAYLIGHT: 473



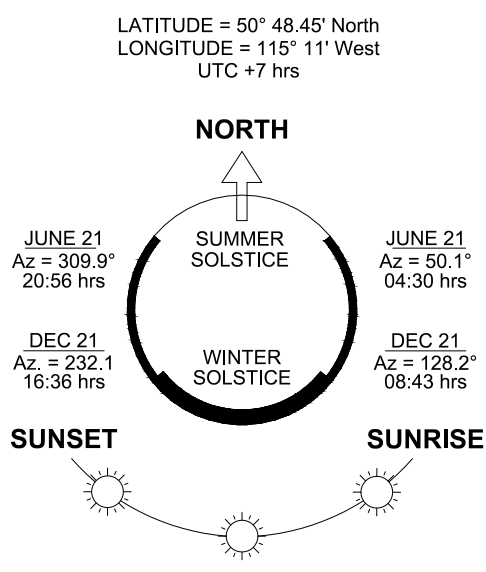
JAN 21 @ 09:00 hrs
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Sun's Az. = 127.0°

SUNRISE: 08:34 HRS
SUNSET: 17:12 HRS
MINUTES OF DAYLIGHT: 518



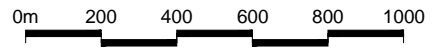
FEB 21 @ 09:00 hrs
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Sun's Az. = 121.5°

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SUNSET: 18:06 HRS
MINUTES OF DAYLIGHT: 622



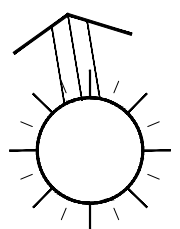
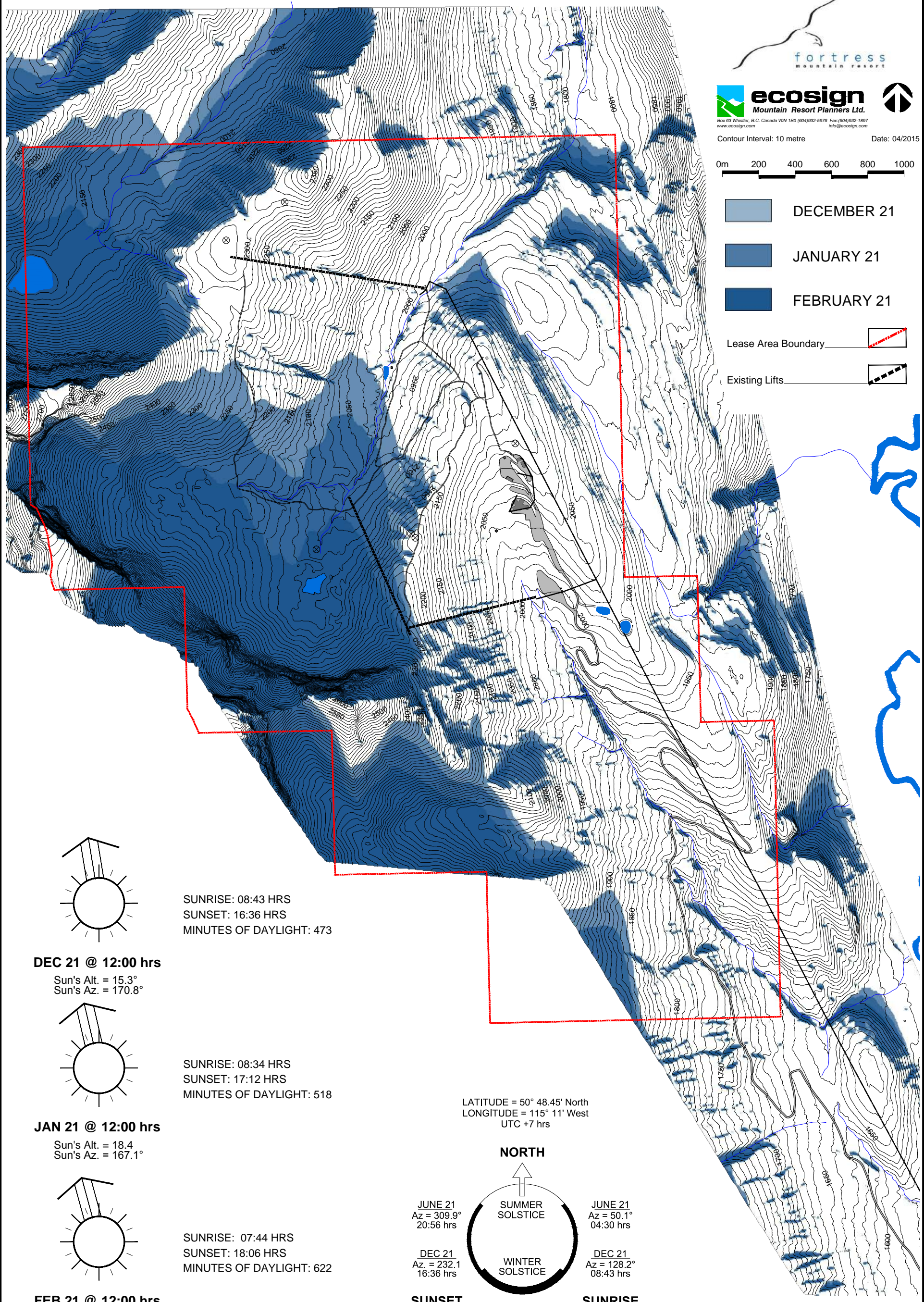


Contour Interval: 10 metre Date: 04/2015



- DECEMBER 21
- JANUARY 21
- FEBRUARY 21

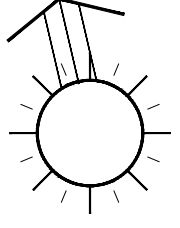
- Lease Area Boundary
- Existing Lifts



SUNRISE: 08:43 HRS
SUNSET: 16:36 HRS
MINUTES OF DAYLIGHT: 473

DEC 21 @ 12:00 hrs

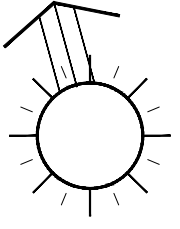
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SUNSET: 17:12 HRS
MINUTES OF DAYLIGHT: 518

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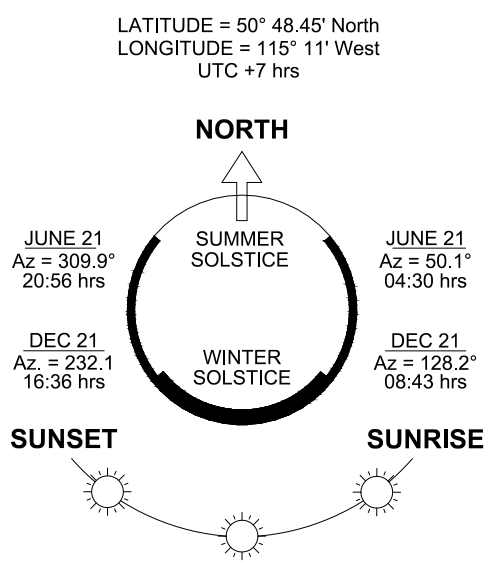
Sun's Alt. = 18.4°
Sun's Az. = 167.1°



SUNRISE: 07:44 HRS
SUNSET: 18:06 HRS
MINUTES OF DAYLIGHT: 622

FEB 21 @ 12:00 hrs

Sun's Alt. = 27.5°
Sun's Az. = 164.9°









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Contour Interval: 10 metre Date: 04/2015




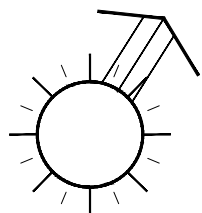
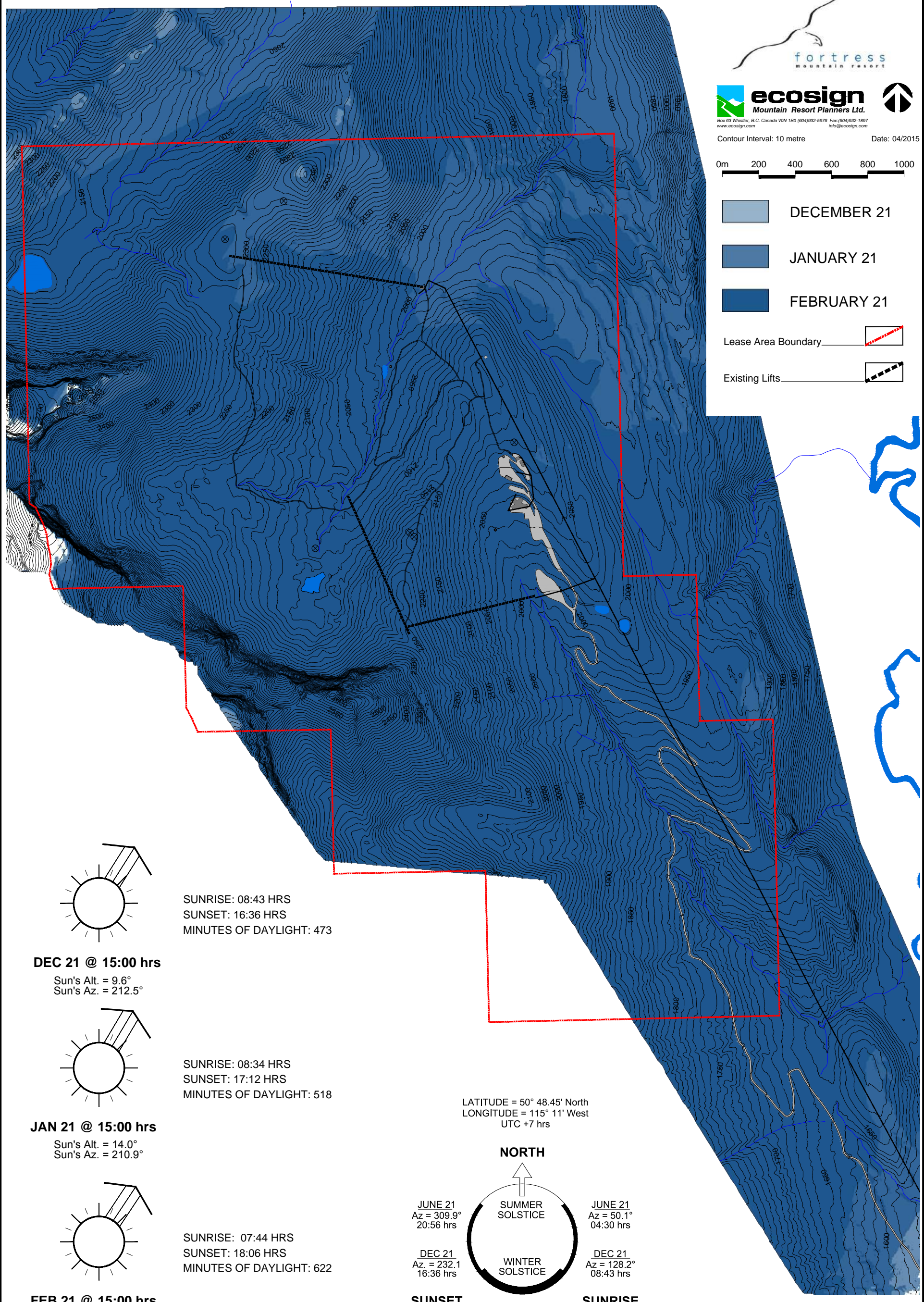
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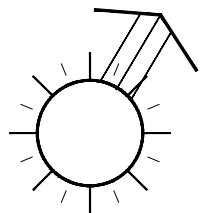
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Existing Lifts 



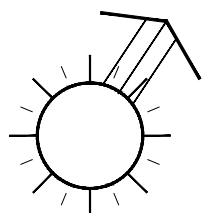
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SUNSET: 16:36 HRS
MINUTES OF DAYLIGHT: 473



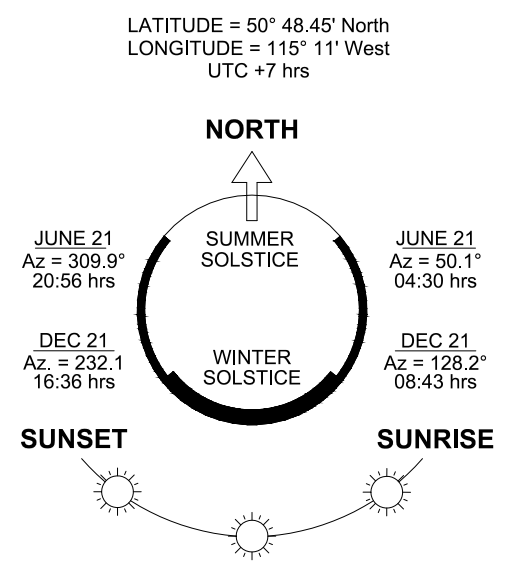
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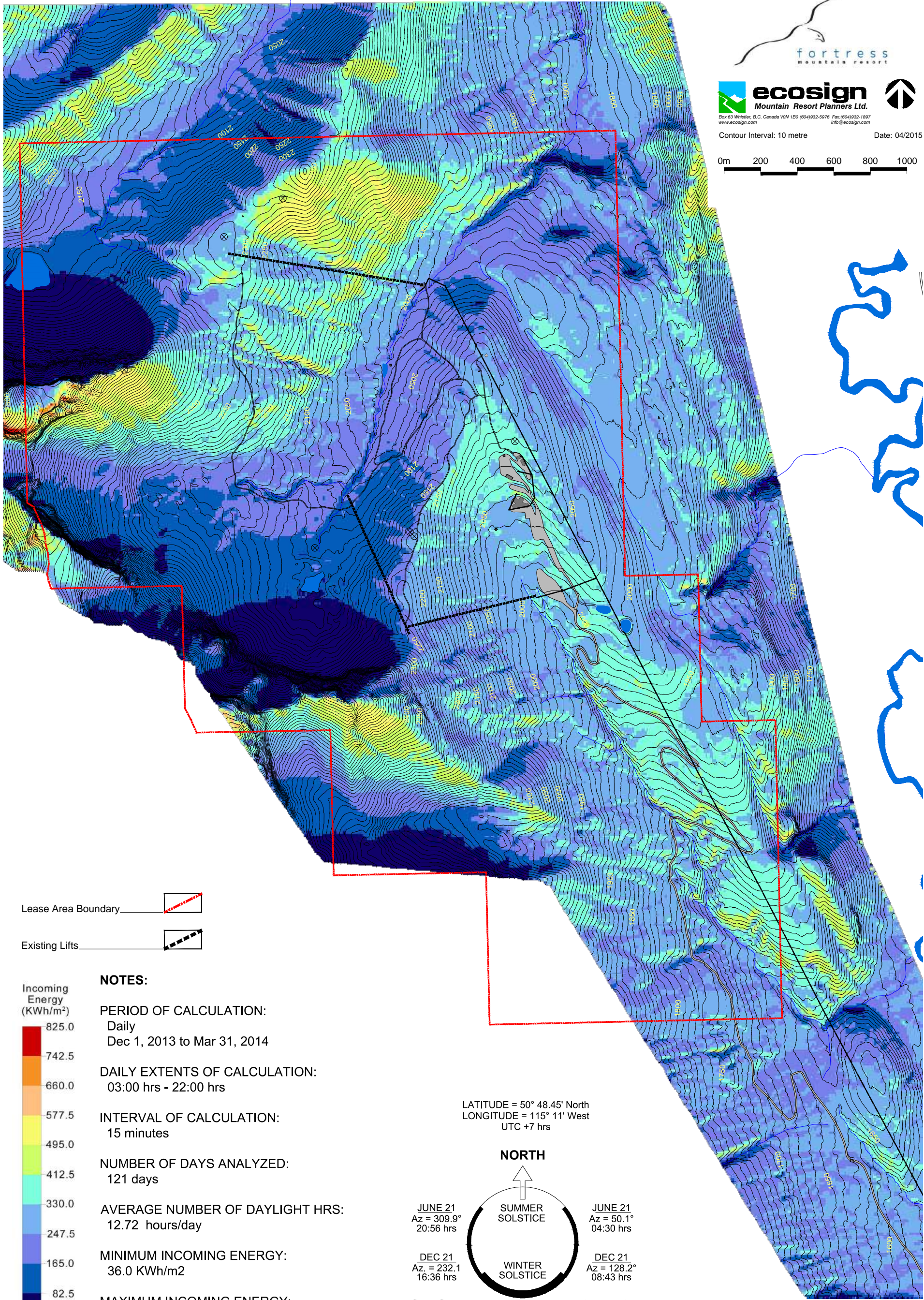
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MINUTES OF DAYLIGHT: 518



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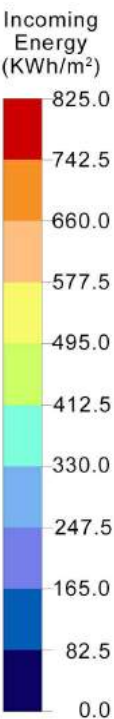
SUNRISE: 07:44 HRS
SUNSET: 18:06 HRS
MINUTES OF DAYLIGHT: 622





Lease Area Boundary

Existing Lifts



NOTES:

PERIOD OF CALCULATION:
Daily
Dec 1, 2013 to Mar 31, 2014

DAILY EXTENTS OF CALCULATION:
03:00 hrs - 22:00 hrs

INTERVAL OF CALCULATION:
15 minutes

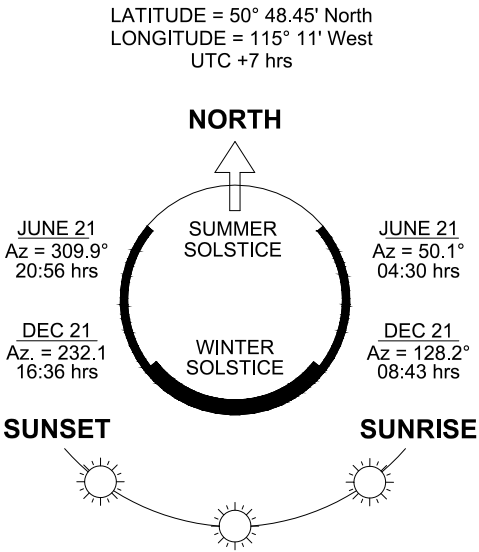
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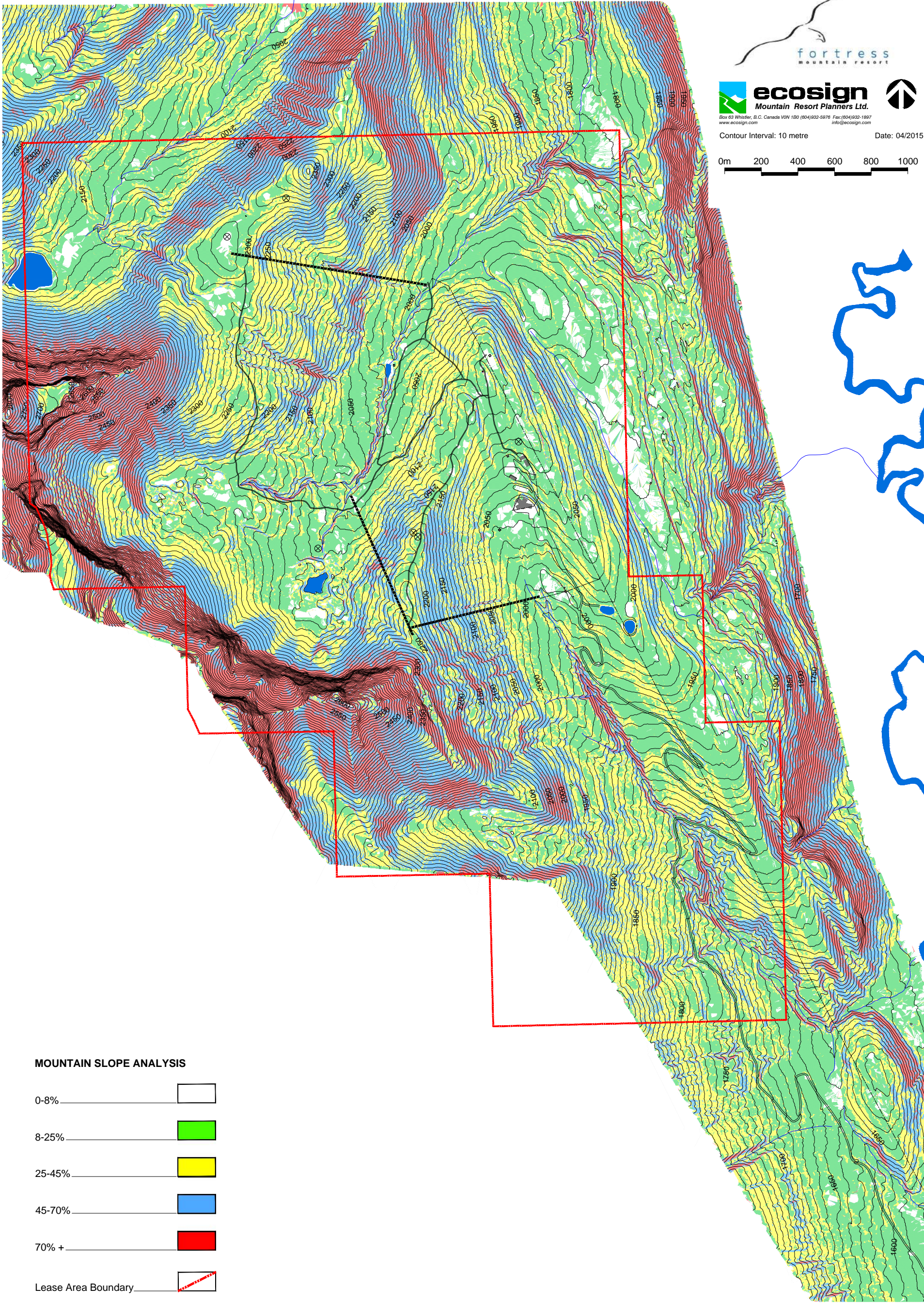
AVERAGE NUMBER OF DAYLIGHT HRS:
12.72 hours/day



MINIMUM INCOMING ENERGY:
36.0 KWh/m²

MAXIMUM INCOMING ENERGY:
825.3 KWh/m²

AVERAGE INCOMING ENERGY:
303.5 KWh/m²














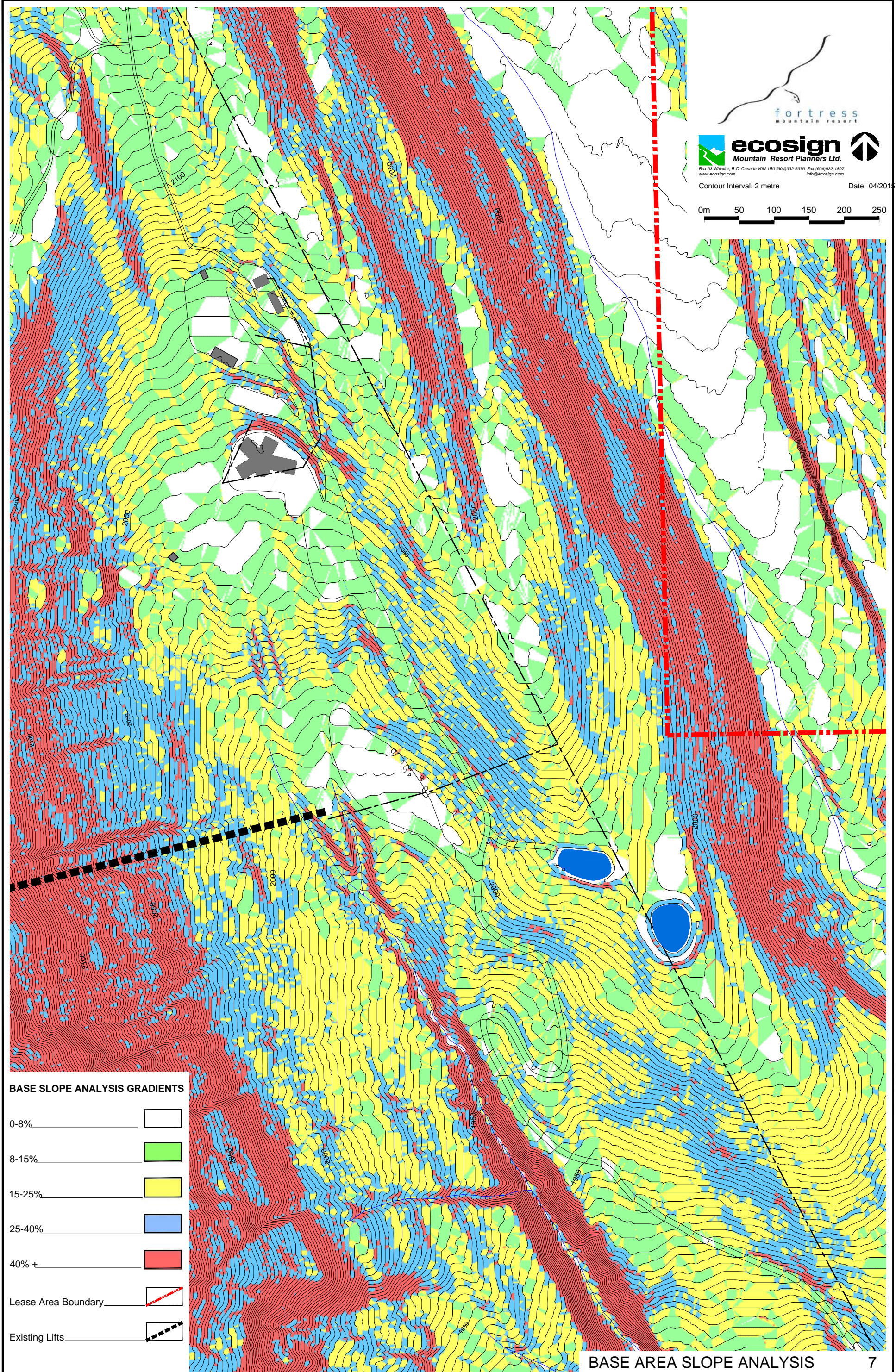
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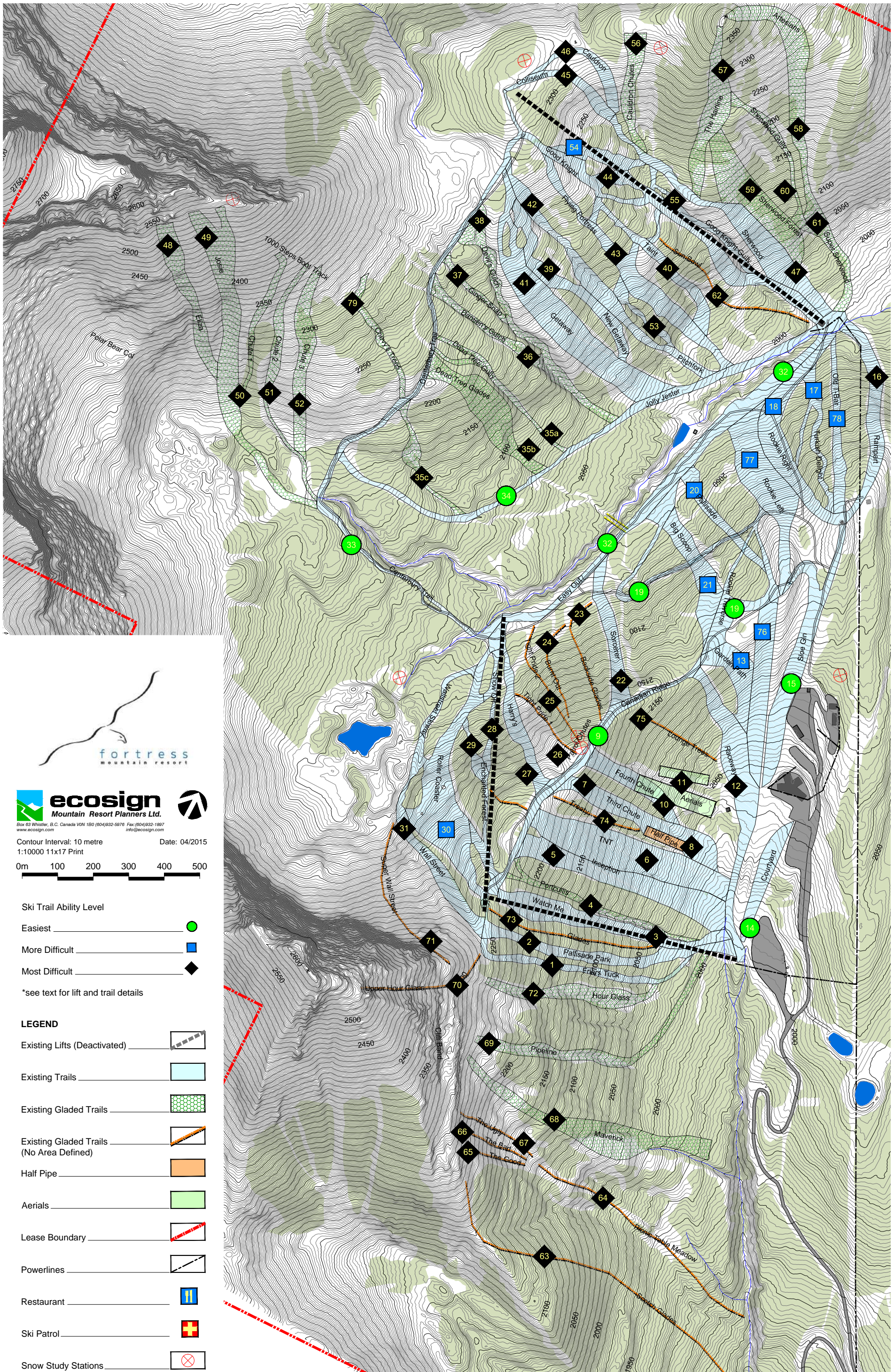
Contour Interval: 10 metre Date: 04/2015

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MOUNTAIN SLOPE ANALYSIS

- 0-8% 
- 8-25% 
- 25-45% 
- 45-70% 
- 70% + 
- Lease Area Boundary 
- Existing Lifts 

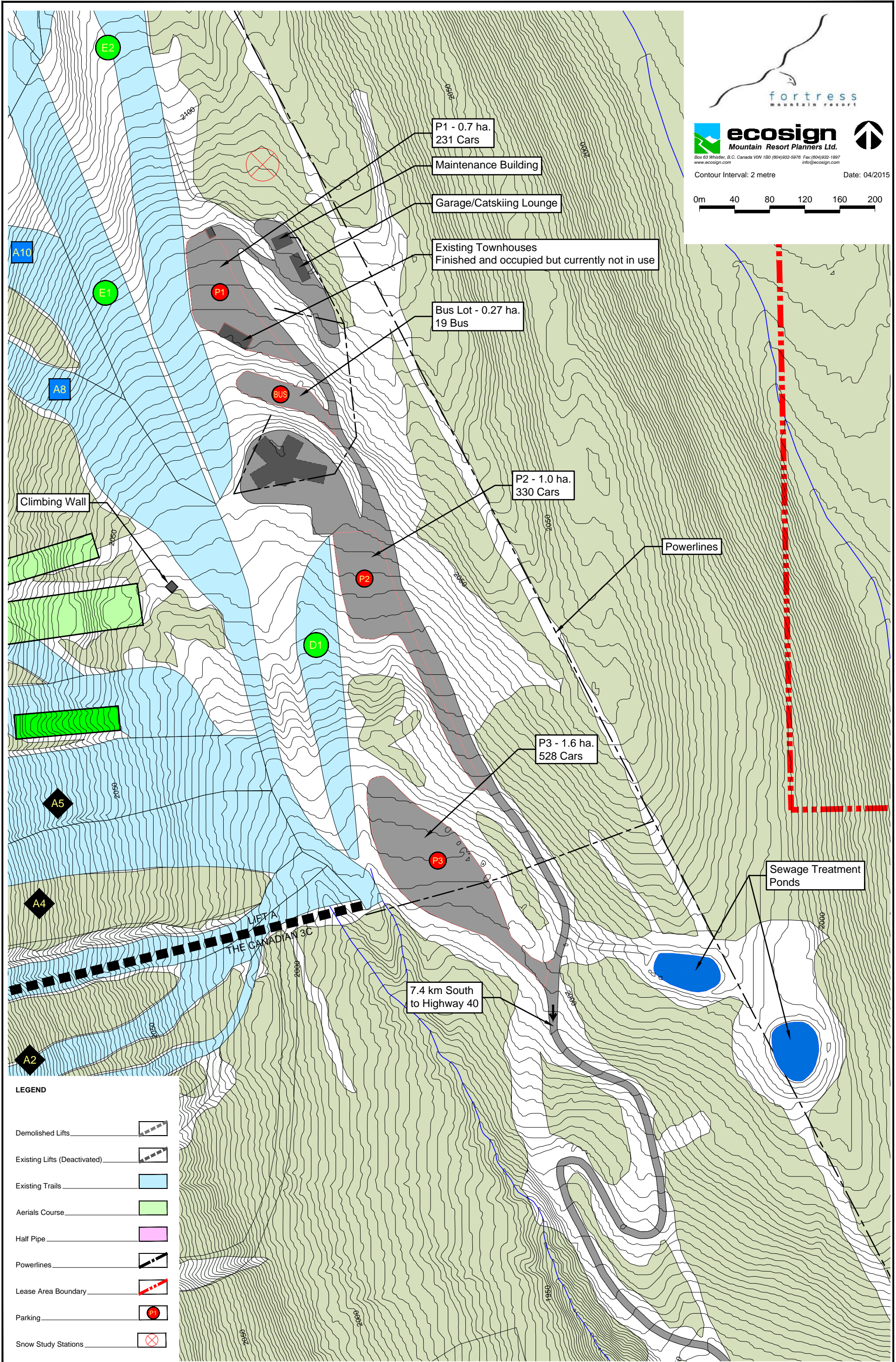


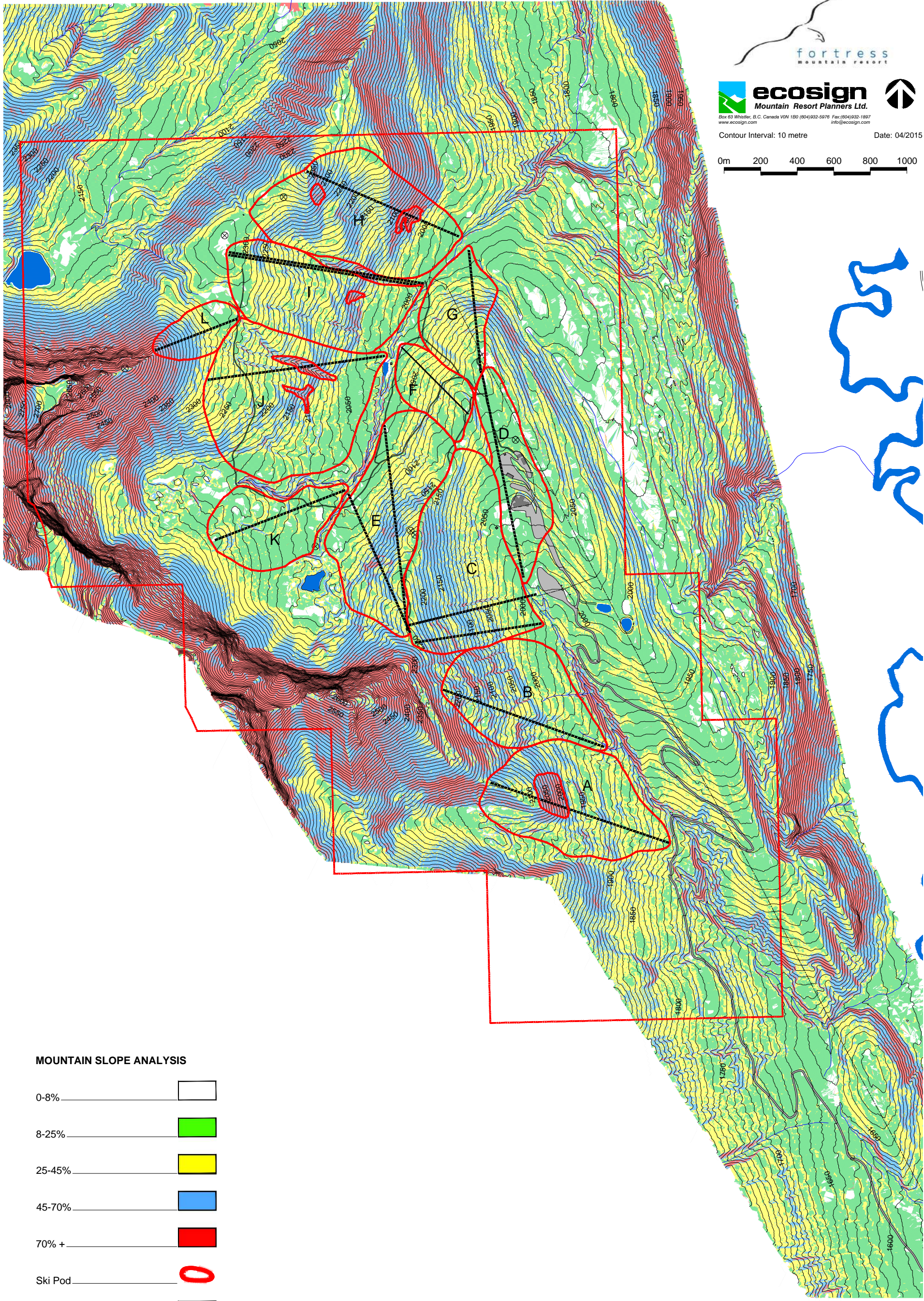


Contour Interval: 10 metre Date: 04/2015
1:10000 11x17 Print
0m 100 200 300 400 500

Ski Trail Ability Level
Easiest
More Difficult
Most Difficult
*see text for lift and trail details

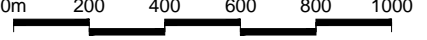
LEGEND
Existing Lifts (Deactivated)
Existing Trails
Existing Gladed Trails
Existing Gladed Trails (No Area Defined)
Half Pipe
Aerials
Lease Boundary
Powerlines
Restaurant
Ski Patrol
Snow Study Stations





Box 63 Whistler, B.C. Canada V0N 1B0 (604)932-5976 Fax: (604)932-1897
www.ecosign.com info@ecosign.com

Contour Interval: 10 metre Date: 04/2015



MOUNTAIN SLOPE ANALYSIS

- 0-8%
- 8-25%
- 25-45%
- 45-70%
- 70% +
- Ski Pod
- Straight Line Slope
- Existing Lift

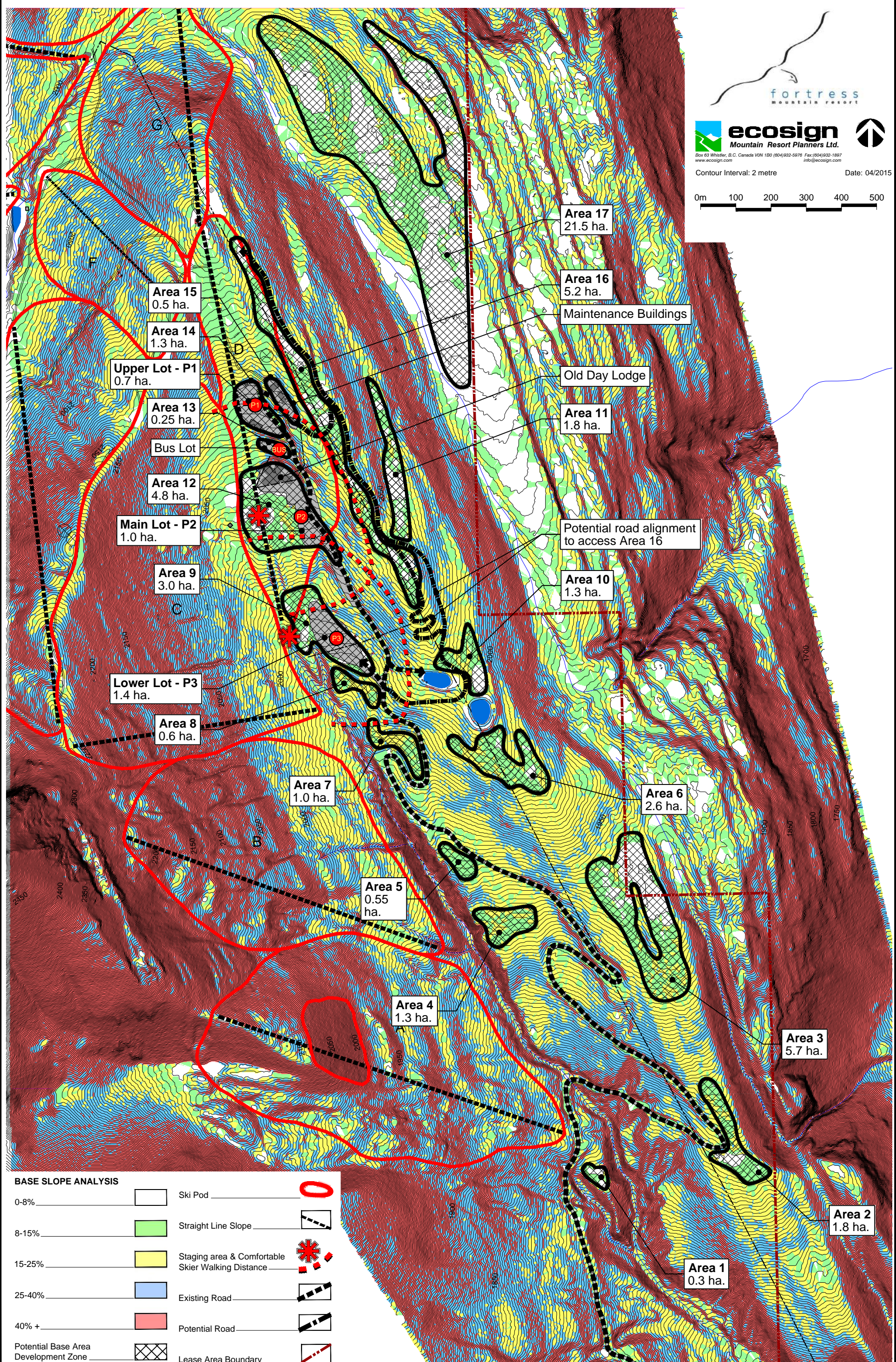


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




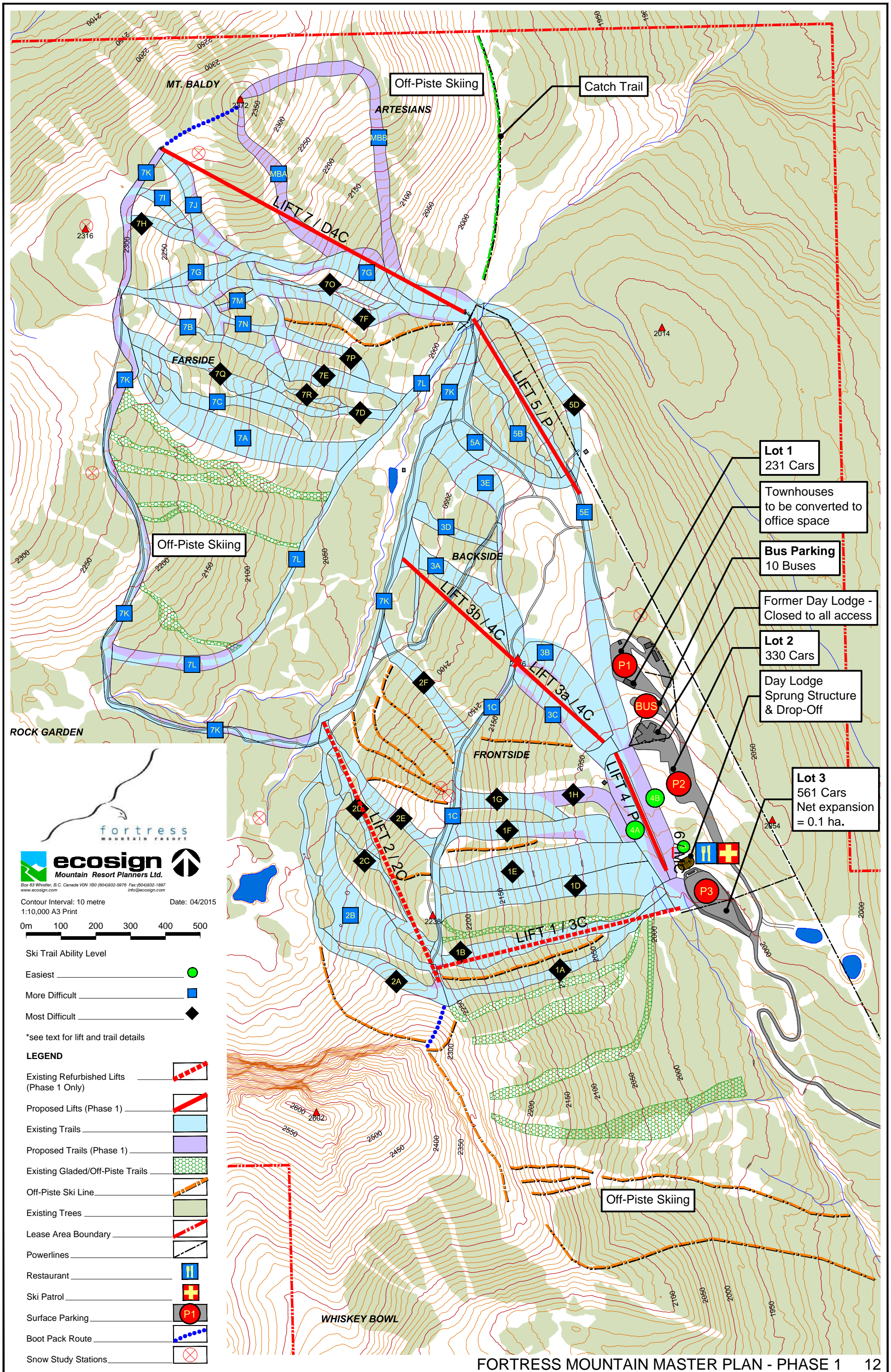
Contour Interval: 2 metre

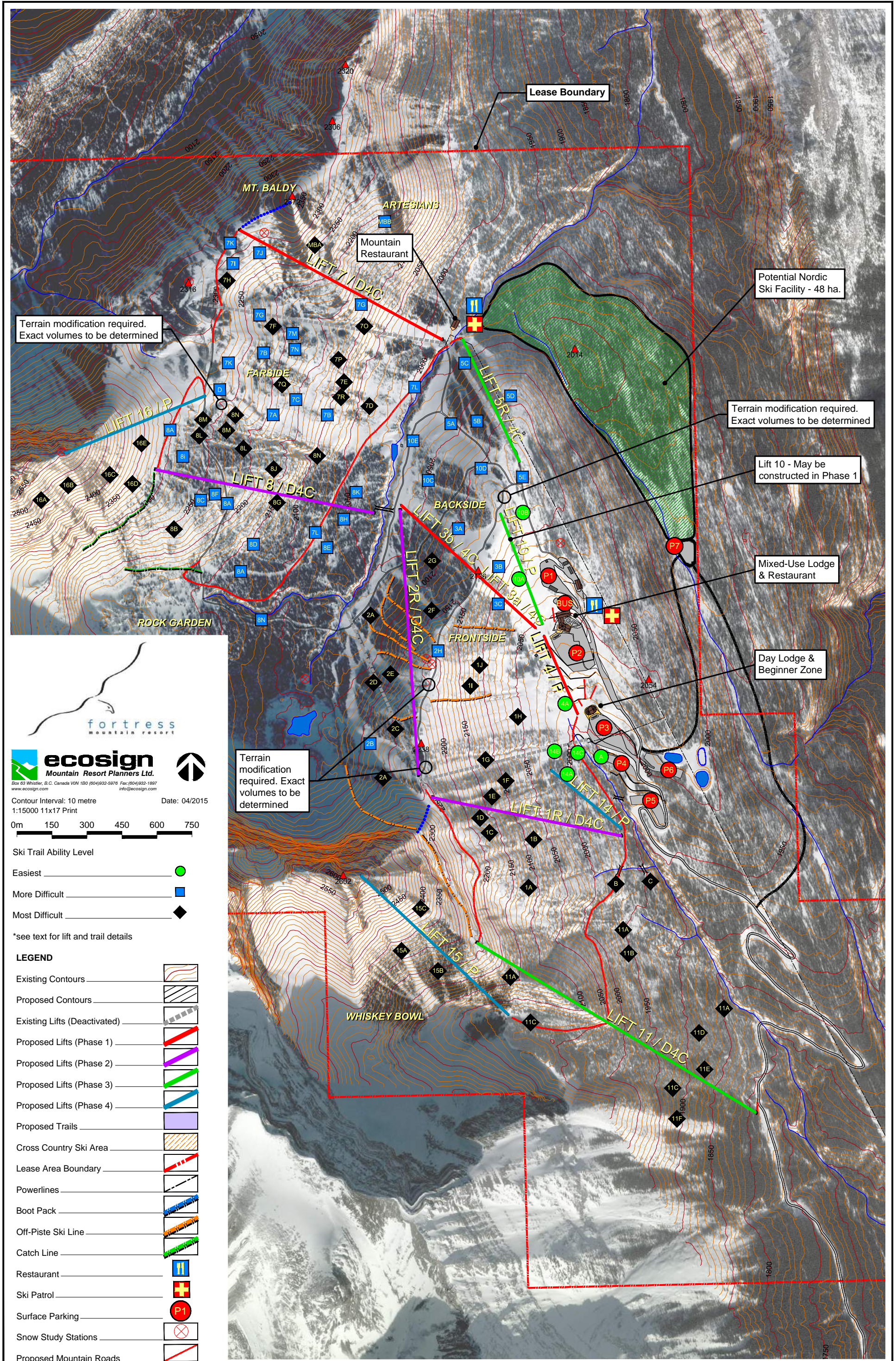
Date: 04/2015



BASE SLOPE ANALYSIS

0-8%		Ski Pod	
8-15%		Straight Line Slope	
15-25%		Staging area & Comfortable Skier Walking Distance	
25-40%		Existing Road	
40% +		Potential Road	
Potential Base Area Development Zone		Lease Area Boundary	





FORTRESS MOUNTAIN MASTER PLAN WITH PHOTO 13b

