TAKHINI HOT SPRINGS

Towards A Sustainable Eco Village Resort

A Concept Plan for Takhini Hot Springs

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DRAFT COPY

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EXECUTIVE SUMMARY

With its natural therapeutic hot springs, abundance of recreational activities, proximity to unlimited wilderness and the Yukon Wildlife Preserve, not to mention its ideal location for viewing the awe-inspiring Northern Lights, the magic of the Midnight Sun, and spectacular scenery, Takhini Hot Springs Resort is truly a unique travel destination. However, even though it possesses all the natural attributes that can make a destination resort successful, it is apparent that the Resort requires new facilities and improved services to accommodate the growing number of tourists and vacationers.

The Takhini Hot Springs Concept Plan outlines an ecologically responsible vision for the enhancement and further development of THS Resort. The following document responds directly to the commitment of the Resort owners to enhance guest experiences while ensuring that development is ecologically sustainable in this sensitive wilderness setting.

The THS Concept Plan provides a framework for the future development of the Resort by:

- defining an environmentally responsible or “eco-based” growth strategy for the Resort;
- outlining the goals and desired future land use character for the lands;
- providing a working document for communication between shareholders, owners, business partners, adjacent land owners, First Nations, and government; and
- providing a comprehensive set of both broad and specific guidelines for the long-term growth of the Resort.

A contemporary and sensitive environmental and architectural expression for Takhini Hot Springs Eco Village Resort will be achieved by designing responsively to the local context and climate, by using indigenous materials in construction, and by applying energy conservation strategies.

The Concept Plan demonstrates how various features such as an eco spa, resort-based commercial facilities, and a wilderness lodge can all be incorporated into the Resort setting, in balance with the surrounding ecosystem. The Plan incorporates environmentally conscious design practices such as the use of indigenous and recycled building materials, energy efficiency, passive solar technologies, environmental stewardship and the preservation of a rural wilderness atmosphere. Historical, cultural and physical aspects of the site are all taken into consideration in order to provide a strong sense of place within the existing beauty of the site.

General architectural and environmental guidelines are outlined to identify minimum design standards. These guidelines will serve as a tool to evaluate future development applications as they arise. The THS Concept Plan defines the features that will create an environmentally sustainable resort – one that embraces and protects the natural qualities of this very special area.

In brief, the objectives of the THS Concept Plan are to:

- establish a comprehensive sustainable development plan for a unique mix of chalets, spa and lodge facilities, recreational amenities and resort-based commercial facilities;
- create an overall vision and environmental design theme for the resort which integrates it with its natural setting and accommodates the needs of the resort community, and which will help to define it as an eco-destination facility;
- identify an appropriate built form which will enhance the experience for guests and for the livability of the community as whole;
- establish an energy conservation strategy for facilities and the hot spring resource; and
- define specific architectural and environmental guidelines for the development of the resort community

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The project team would like to express special thanks to the following individuals for their valuable assistance in the preparation of this document:

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Background studies that were consulted in the preparation of this document include:

1. Takhini Hot Springs, Investment Opportunities & Conceptual Development Plan, June 2004
2. Business Plan for Takhini Hot Springs Retreat Centre, Umbrich Consulting, April 2004
3. Master Plan 2004 Yukon Wildlife Preserve, Ministry of Environment, March 2004
4. Takhini Hot Springs, THS Draft Land-Use Plan, Garry Umbrich, Dec. 2002
5. Hotsprings Road Local Area Plan, UMA, AEM, Gartner Lee, Mougeot Geoanalysis, Jan. 2002
6. Takhini Hot Springs Business Plan, Feb. 2001, Dec. 2002
7. Takhini Hot Springs Resort Area Terrain & Development Constraints Report, C. Mougeot, Mougeot GeoAnalysis, Sept. 2000

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BIBLIOGRAPHY

APPENDICES
Water & Sewage Report - summary (Greg Bull & Associates)
Geothermal Report - summary (Hemmera Energy)
Hot Springs Report - summary (Sea to Sky Onsen Inc.)

Aerial view looking southeast of the existing Takhini Hot Springs Resort and vicinity (photo: ?)

1. INTRODUCTION

For millennia, people worldwide have used hot springs for their restorative, natural healing and mystical powers. The hot springs at Takhini are no exception. Their therapeutic value was long recognized by local First Nations, and over the last century, the warm waters have soothed many Yukoners. In recent years, Takhini Hot Springs (THS) has become a popular venue for international and local visitors alike, not only to bask in the hot pools, but also to view the awe-inspiring Northern Lights in winter or experience the magic of the Midnight Sun during the summer months. The area's stunning scenery, unique ecosystem, diverse climate, easy access and proximity to Whitehorse have all contributed to the attraction of THS as a destination resort.

THS has all the initial natural attributes that make a destination resort successful, however, it is apparent that new facilities and services are needed to accommodate and continue to attract the growing number of tourists and vacationers. This will require some encroachments upon the area's natural surroundings and changes to its current rural, community-based lifestyle. In order for the Resort to continue to be an attractive travel destination, it is important to retain and enhance its unique attributes.

The Resort owners are committed to enhancing the wilderness experience for all guests in an ecologically responsible manner. Takhini Hot Springs Ltd. recognizes the value of preserving the wilderness areas of the property for guests coming to the area for hiking, cross country skiing, horseback riding, natural interpretation and other outdoor recreational activities. It is proposed that future development of the Resort will focus on environmental sustainability, embracing and protecting the natural qualities of this very special area. In keeping with their sustainable stewardship mandate, the owners are committed, through the gifting of the hot springs source, to dedicating a portion of the lands for the benefit, education and enjoyment of present and future generations.

The consumer demand for mental, physical, and spiritual healing in a naturally "harmonious" environment will continue to increase. Good food, pure water, clean air and serene rest will all be featured at the proposed Eco VIllage Resort with a new full service wellness spa and related facilities planned to meet this growing market. The Resort will recognize, in both design and services, that human health is interconnected with environmental health.

A sustainable, conserver-oriented design theme can work well in creating a distinctive and cohesive image for the Resort. A contemporary and sensitive environmental and architectural expression for Takhini Hot Springs Eco Village Resort will be achieved by designing responsively to the local context and climate, by using indigenous materials in construction and by applying energy conservation strategies.

1.1 PURPOSE OF THE PLAN

This Concept Plan for Takhini Hot Springs provides a framework for the wise management of all THS Resort property to ensure that future growth will integrate with and be sympathetic to the rural, wilderness setting. The intent of the Plan is to provide direction for the long-term growth of the Resort that reflects the goals and aspirations of the shareholders and participating partners.

The Concept Plan establishes a common direction and provides specific recommendations for future physical development. It defines an "eco-based" vision for the Resort, outlines the goals and desired future land use character within the lands, and provides a working document for communication between shareholder owners, business partners, adjacent land owners, First Nations, and the territorial and other government agencies. It also provides a means to evaluate major development proposals as they come forward to ensure the proposals are consistent with the overall direction and intent of the Concept Plan.

1.2 PLAN OBJECTIVES

The objectives of the THS Concept Plan are to:

1. Establish a comprehensive sustainable development plan for a mix of chalets, spa and lodge facilities, recreational amenities and other resort-based commercial facilities
2. Create an overall vision and environmental design theme for the Resort which integrates it with its natural setting and accommodates the needs of the Resort community, and which will help define the Resort as an eco-destination facility
3. Establish an energy conservation strategy for all facilities and the hot spring resource
4. Define specific architectural, environmental design and planning guidelines for developing the Resort community
5. Preserve and protect the amenities of the Resort
6. Identify, preserve and protect heritage resources
7. Allow for a land use pattern which is complementary to a rural, conserver-based lifestyle
8. Provide consensus on land use which reconciles competing uses while providing for shareholder interests

1.3 GUIDING PRINCIPLES

Some basic guiding principles were followed in the development of the THS Concept Plan:

- **Sustainability** – to have a low impact on the environment
- **Community** – to reflect the needs of the Resort community
- **Health** – to be healthy for guests and staff
- **Energy Efficiency** – to be powered by sun, wind and earth
- **Resource Efficiency** – to use quality, long-lasting building materials
- **Cost Efficiency** – to be affordable to construct and operate

1.4 THS CORPORATE VALUES

The guiding principles reflect the THS corporate values:[1]

- Sustainable Development
- Optimal Use of all Resort Property
- Energy Conservation
- Social Responsibility
- Simplicity and Quality
- Economic Sustainability
- Educational Values
- Maintain Rural Lifestyle
- Authenticity
- Protection of Ecosystems
- Sustainable Agriculture
- Inclusive Decision-making

1. Excerpted from Garry Umbrich, Takhini Hot Springs, THS Draft Land-Use Plan, Dec. 2002

2. SITE DESCRIPTION

2.1 LEGAL DESCRIPTION

Latitude: 60° 53'
Longitude: 135° 21'

Subdivision of Lot 4
Quad 105 D/4
Group 854
Plan 40380 CLSR, 1940 L.T.O.
Yukon Territory

Lot 1048: 64.7 ha (159.87 ac)
Lot 56: 13.47 ha (33.3 ac)
Lot 1094: 10.1 ha (24.95 ac)
Lot 1095: 10.1 ha (24.75 ac)
Lot 56 (expansion): 24.5 ha (60.54 ac)

Total Area: 123.67 ha (303.41 ac)

2.2 LOCATION

Takhini Hot Springs is located approximately 30 kms from Whitehorse, 30 minutes by car. Its main access is from Hot Springs Road which connects with the North Klondike Highway and in turn with the Alaska Highway.

2.3 THE HOT SPRINGS

"Takhini is in a geologically interesting area," says Tim Sadlier-Brown, a Vancouver geologist who has studied hot springs throughout western North America.[2] "These sorts of springs are the result of some fortuitous plumbing." He points out that not so long ago – in geologic terms – the area south of the springs was a center for volcanic activity. "There are types of volcanoes in which the magma originates way down deep, and for obscure reasons they discharge at the surface, deposit lava and cool down, never to be heard from again." He says "The odd thing is that the Takhini hot springs are not that far away from these old volcanoes. One possibility is that some magma never made it to the surface and has warmed up an area there. If the nearby volcanoes are not supplying the heat, the earth's natural gradient is most likely doing the job. Many of western Canada's major hot springs are formed by groundwater circulating down through faults in the earth."

The water at the THS emerges from the ground at about 47°C, approximately the same temperature as Banff Hot Springs in Alberta. In Banff, cooler water is diverted into the pools to lower the temperatures to a more comfortable 40°C. In the Takhini pool, located about 30 metres from the source, the water temperature is about 38°C.

Many hot springs are highly mineralized due to the fact that as the water heats and circulates underground, it actually dissolves surrounding rocks, thereby releasing the minerals. Sulphur springs, in particular, are touted for their therapeutic properties. The water at Takhini is highest in calcium and sulphate and is odorless, with no sulphur smell.

2. Environment Canada, Hot Spring Source A Secret, Column 114, 1999

2.4 SITE CHARACTER

The Takhini Valley is an area of stunning beauty and spectacular scenery. The Resort is located close to the Takhini River. Set against an impressive backdrop of snow-capped mountains, there are views to the south, west and east, encompassing a wide variety of landscapes. The boreal forest offers privacy and quiet trails for hiking, skiing, horseback riding and snowshoeing. Higher rocky ridges provide dramatic panoramic views and opportunities for climbing.

The hot springs at Takhini are of critical environmental importance to the region. Located in the suarctic zone, the area has a very special ecosystem that includes shrubs, coniferous and deciduous trees, particularly in valleys, and sheltered areas with a mix of tundra vegetation and poplar trees.

2.5 TOPOGRAPHY

The topography is varied, ranging from flat, arable meadowlands to gently rolling parkland, forested hills and steep rock cliffs. There are significant changes in elevation across the property with a variance of approximately 150 metres (490 ft). The high point is 866m located in the rocky ridge area in the NE of the property. The low point is 715m in the SW of the property along Takhini River Road. The majority of the site enjoys a sunny south-facing aspect.

2.6 CLIMATE

THS has a subarctic climate which means extremes in temperature ranges.[3] Historical weather records based on three decades show:

- the average daytime temperature in the region reaches a maximum of minus 13.3^{o}C in January, dropping to minus 22^{o}C overnight
- In July the average daytime temperature reaches a maximum of 20.5^{o}C, with overnight lows of 7.7^{o}C
- Whitehorse has a relatively dry climate - annual precipitation over the past 30 years has averaged 267 millimetres, including 163 mm of rain and 145 centimetres of snow.
- the record high in the area is 27.5^{o}C, and the record low is minus 47^{o}C

The summers are dry and have long hours of sunshine. Although the summer season is short, the length of the days helps to offset the limited growing period. Takhini Hot Springs reaches 18-20 hours of sunshine a day in June and July.

3. Environment Canada

2.7 HISTORY / OWNERSHIP

Historically, First Nations used the area around the Whitehorse region for food gathering and as a meeting place. The settlement of Whitehorse developed during the Klondike Gold Rush as a transportation hub and an important stop on the journey to the gold fields, at the head of navigable waters on the Yukon River. The region has experienced a series of population booms and busts, mainly linked to mining and highway construction. In 1953 the Yukon government moved the capital to Whitehorse from Dawson City.

The property has been owned by Takhini Hot Springs since 1981. The land has changed hands several times over the past 50 years and has had a very colourful past. In early times, the hot springs played a role in local First Nations history, being recognized for their restorative and healing powers. At the turn of the century, many aspiring miners stopped by on their way to the gold rush fields. During the wartime building of the Alaska highway, the army regularly visited the site. Today, travellers from all over the world visit THS to be soothed by its calming waters and enjoy the peace and serenity of the area.

Chronological History of Ownership[4]

Pre-1899	Local First Nations, goldminers, travellers and trappers stopped at hot springs
1902	Lease application by A. Puckett & A.R. Gordon
1907	Land purchased for $2 per acre by A. Puckett / S.A. Simmons
1907-1935	Owned and operated by A. Puckett. Operations included a roadhouse, barns, and a store beside Dawson Trail. Access to the springs was via Dawson Trail to Takhini River, then by boat to Spring Landing, and finally by foot for the last 1.5 miles
1940-1948	Owned by B. Rowland. Built two greenhouses on site and the first hot pool constructed out of wood. US Army were regular users of the springs during the wartime building of the Alaska Highway
1949-1950	T.C. Richard & C. Springer
1950-1969	Kunze brothers. Built first concrete pool. H. Cooper leased the pool with an option to buy, but the great fire of 1958 burned the area and destroyed the venture
1969-1977	E. & L. Brennan. Constructed present pool and existing building in 1972
1977-1987	E. & M. Kreft. Built first hot spring well house with chlorine system, cold water supply, barn, and small campground. Also renovated a number of buildings.
1987	Takhini Hot Springs (1981)
1999	Takhini Hots Springs Ltd.

4. Garry Umbrich, Takhini Hot Springs, THS Draft Land-Use Plan, Appendix 6.4 Dec. 2002

2.8 ADJACENT LAND USES

Land use in the area is a mix of country (rural) residential, commercial (tourism, recreation, retail), industrial (gravel quarries) and agricultural. Much of the directly adjacent and neighbouring lands are sparsely populated. Uninhabited wilderness stretches for hundreds of kilometres to the north. It contains many of the Yukon's wildlife species and is one of the region's important wildlife corridors.[6]

Residential Neighbours

First Nations own the majority of adjacent lands. There are a small number of country residential properties directly adjoining the Resort. One residential property (Lot 57 Rothe/ Densmore) remains vacant and is accessed with a right-of-way bisecting THS. The owners are in discussions with the Resort to include this parcel into the overall planning of the Resort as a future development area.

Commercial Neighbours

Bean North Coffee Roasting Company is one of the Resort's closest neighbours. This fair trade coffee company roasts premium quality, organic fairly-traded coffees from around the world. Their coffee is sold locally, across western Canada and in Alaska.

The **Yukon Wildlife Preserve** borders the Resort on the NE. The main entry to the Wildlife Preserve is a kilometre down the Hot Springs Road from the Resort. The Preserve encompasses over 700 acres, featuring five distinct habitats, and offering a unique opportunity to view ten major species of northern mammals in their natural environments. Trained interpretive staff at the Preserve offer an educational one-hour tour featuring northern indigenous species including moose, muskoxen, mountain goats, dall and stone sheep, woodland caribou, Wapiti (elk), wood bison and mule deer. Visitors to THS can enjoy this valuable educational experience as part of an overall visitor's tour package to the Resort.

Discussions are underway with the Wildlife Preserve to allow access directly into the Preserve from THS as well as partnering (providing interpretative programs) for a future lodge that would overlook this unique area.

6. UMA, AEM, Gartner Lee, Mougeot Geoanalysis, Hotsprings Road Local Area Plan, Jan. 2002

2.9 LOCAL FIRST NATIONS

The THS Resort is situated in the traditional territory of the Ta'an Kwach'an Council and Kwanlin Dun First Nation. Based on archaeological evidence of several old fishing and hunting camps along the Takhini River, the First Nations have used the Takhini River corridor for over 8,000 years.

Land claims in the area are concluded. At this time there are no impending tenure or water issues with respect to THS. The adjacent lands on two sides of Takhini Hot Springs are owned by First Nations.

It is the intent of THS to develop a strong working relationship and explore working partnerships with First Nations. Discussions with area First Nations are ongoing.

2.10 HERITAGE RESOURCES

As the hot springs water bubbles from its underground channel, it begins to drop the load of minerals it gained on its jouney though the earth. One of these minerals, calcium carbonate, hardens into a porous grey/brown rock called "tufa" (pronounced "too-fa"). The entire hillside around the spring is composed of tufa. THS has identified the hot spring source and its tufa fields as important heritage resources to be preserved and protected.

2.11 EXISTING LAND USES

The existing (123.67 ha (303.4 ac) THS property is zoned CMT, or Commercial Mixed Tourist Accommodation, which allows for the following uses:[5]

- Hotel / motel
- Eating and drinking establishments
- Indoor / outdoor recreation
- Skiing and hiking facilities
- RV park and commercial campground
- Resorts
- Golf course
- Guest ranch
- Gas bar
- Public utility
- Riding stables
- Game farming
- Convenience store
- Zoological display
- Souvenir shops
- Limited residential is allowed

Hot springs runoff and tufa deposits (photo: G. Umbrich)

5. Garry Umbrich, Takhini Hot Springs, THS Draft Land-Use Plan, Dec. 2002

3. SITE ANALYSIS

3.1 OPPORTUNITIES & CONSTRAINTS

The site has been evaluated in terms of potential opportunities and existing environmental and architectural constraints to development as discussed below.

- locations for visually prominent functions
- appropriate overall land use zoning
- available services – water, hydro, septic
- existing open area and tree covered areas

Sensitive plant ecology at THS (photo: G. Umbrich)

Environmental Constraints

The key attractions of THS for both visitors and residents are clean hot water, clear skies and a pristine landscape. Protecting areas with environmental constraints is critical for maintaining a high quality environment. These areas include: the lagoon (pond), the old creek bed (gulley), the hot springs source including the current drainage stream bed, forested areas, and lands with slopes over 30%. Hot springs are extremely special and sensitive landscapes that can easily be damaged. Mitigation measures will have to be taken to protect these areas. These measures might include the use of a boardwalk around the lagoon, and the creation of trail systems in the old creek bed (gulley) and in sensitive forested areas.

Environmental Carrying Capacity

The Resort's capacity to accommodate guests is determined by the local environment's capacity to withstand public use of the land and existing and proposed facilities. As the popularity of the Resort grows, it will be important to plan for this increased demand. The Resort's capacity to tolerate increased demand will depend as much upon the type of use as the amount of use it receives. For example, destruction to plant and animal habitat resulting from guests walking off trails, unknowingly trampling sensitive areas, harvesting plants, and disturbing nesting sites. Through careful site planning, direction and control strategies will decrease potential for misuse and increase the Resort's environmental carrying capacity to accommodate guests.

Views

There are tremendous views from numerous locations on the site, with key long-range views to the west, south and southwest (including the Ibex Mountains, the Takhini River valley, and the Miners Range). It is important that planning for any development protect and enhance selective “view corridors” and “windows.”

Key view corridors and windows must be protected (photos: G. Umbrich)

Vehicular Circulation

A substantial amount of the site is currently dedicated to vehicles. Roadways and surface parking dominate the core area. Emphasis in the past has been on ease of access for cars and RVs, with little attention paid to the pedestrian. For example, the current main access to the Resort is a highway standard road (30m right-of-way), which is excessive in an environmentally-sensitive area such as THS.

Besides damaging the sensitive landscape, service and general access roads cutting through the heart of the core area increase the potential for conflicts between pedestrians and vehicles.

Wildlife

The Takhini region is adjacent to true wilderness lands. Uninhabited wilderness surrounds the Resort, with a wildlife corridor that stretches for hundreds of kilometres to the north. This corridor contains many of the Yukon’s important wildlife species.

A number of flora and fauna identified at THS found are nowhere else in the Yukon. Alteration of natural environments and ecosystems can adversely impact wildlife, including physical destruction of wildlife habitat, blocking or changing travel corridors, and increasing the potential for human / wildlife conflicts. It will be important to restrict and limit future trail systems to already impacted areas.

Water Quality & Availability

High water quality is of utmost importance for residents and visitors. Development and natural resource recovery can threaten water quality if not properly monitored and planned for.

In order to accommodate any new development, a variety of infrastructure services are needed, including improved water, sewer and utility systems.

The water supply ...

The waste water treatment plant will require ... Initiatives to reduce waste water discharge volumes will be explored.

Existing infrastructure ... Purchasing of ‘green power’ will be encouraged.

Surface parking will be kept to a minimum to help reduce the amount of land needed to support residential and visitor use and residential development. To aid in surface water percolation and help alleviate runoff, roadways and parking areas will be gravel.

3.2 EXISTING SITE FACILITIES

The facilities located on site at present include:

Hot Pools (±4,000 sf)

Pool Building (±4,500 sf)

Site 50 Picnic Shelter (512 sf) constructed 1984

Cold Water Pump House (80 sf) 1975

Water Pump House (80 sf) 1991

Trail Ride Office (192 sf) 1965

Garage (800 sf)

Pond Cabin

Little Cabin

Log House

A Frame Cabin

Other

Domestic Water / Fire,
Sanitary, Storm, Hydro, Telephone

The older existing buildings lack a consistency in architectural expression and do not relate to the climate, local culture, sense of place, general landscape or hot springs ecology. Some are in poor condition and will require demolition. The existing pool, for example, is nearing the end of its service life. Infrastructure is also in great need of general upgrading and, in some cases, replacement.

Existing hot pool facilities (photo: G. Umbrich)

The hot springs well house (photo: G. Umbrich)

A campground cooking shelter (photo: G. Umbrich)

... is this Bay 50?

Hot Pools

The natural mineral waters of Takhini Hot Springs flow from deep within the earth. They are uniquely odourless, with no unpleasant sulphur smell. The main minerals are calcium, magnesium and iron. The iron gives the water a reddish or brownish hue.

There are two connected pools. The water flows naturally into the pool at 340 litres per minute at 45^{o}C. It gradually cools to about 35^{o}C at the outflow. The maximum depth of the hotter pool is 1.2 metres (4 feet) while the other pool is 2 metres (6.5 feet) at the centre.

The pool and building total approximately 4000 sf in area. The pool building, restaurant and outdoor hot pools are in poor condition and are in need of major upgrading or replacement. The café seats 40 guests and the patio can accommodate up to another 30.

Hot Springs Well House

The existing hot springs well house is located directly over the source, a natural crater landform. The building and equipment are nearing the end of their service life.

Campground

A short distance up the slope from the hot pools, there are 100 campsites nestled in the woods. Each campsite has a picnic table, fire pit and flat gravel area for campers, trailers or tents.

The campground has a cooking shelter for day use. There are outdoor toilets and drinking water taps within easy walking distance of each campsite. A circular gravel road with access loops connects all the campsites. One site, known as Bay 50, is designed for large groups. It has a log shelter, housing 8 picnic tables and a double fit pit. 30 sites are designed specifically for RVs with pull-through access and large level pads.

The Retreat Centre (photo: G. Umbrich)

The Equinox Rox facilities (photo: C. Gishlev?)

A children's horseback ride (photo: G. Umbrich)

Retreat Centre

Nestled in a quiet pasture and surrounded by woods and rocky hillsides, the Retreat Centre is an independently owned and operated "partner" facility providing both accommodation and workshop / meeting space. The Centre also has a dining hall located in a rustic renovated barn that can accommodate 50 to 60 people.

The Retreat Centre has overnight accommodation for 22 people (double occupancy) in "wall-tent cabins" – a unique Yukon experience. The wall-tent cabins are modelled on the canvas homes of the early gold prospectors. Though the wall-tents are reminiscent of the Gold Rush, they are fully insulated and heated.

While the setting for the Retreat Centre is secluded, it is only a 5-minute walk from the hot spring pools.

Equinox Rox Climbing Tower & Zip Line

The Equinox Rox Outdoor Climbing Tower offers a challenge to both novice and advanced climbers. The tower is 10 metres (32 ft) high and can be scaled by six different routes. At the top of the tower, there is a 14 ft x 14 ft deck - perfect for rappelling, taking panoramic photographs of the beautiful Takhini River valley and watching sunsets.

From the deck you can launch yourself down the 220 metre (700 ft) "zipline," a steel cable stretching from the top deck of the climbing tower, across the existing pond and landing on the far side. Participants slide down the cable on a pulley, skimming across the hot springs pond and reaching speeds of 50-60 kph.

Equestrian

THS offers guided trail and children's rides. Future plans include developing a year-round covered and heated equestrian facility.

3.3 BIOPHYSICAL CONDITIONS

The Takhini Hot Springs Resort Area Terrain and Development Constraints Report (C. Mougeot, Mougeot GeoAnalysis, September 17, 2000), outlines in detail the various soil and terrain conditions at Takhini Hot Springs Resort. The report concludes that the existing land uses are well suited to the terrain characteristics and recommends appropriate areas that can support new residential, commercial, agriculture and infrastructure (sewage) development.

3.4 GEOTECHNICAL CONDITIONS

A detailed geotechnical survey of the property is not available at this time.

4. PLANNING FOR SUSTAINABILITY

The quality of life for residents and the resort experience for guests at Takhini Hot Springs is, in large part, determined by the spectacular natural setting and pristine environment of the Resort. Without careful consideration of how all new development occurs at the Resort, this eco-sensitive environment could be threatened.

All facility and infrastructure development at Takhini Hot Springs will be based on an appreciation of the environmental, historical and cultural attributes of the area and will be designed to enhance the beauty and ecological integrity of the area.

4.1 SUSTAINABILITY

Quite simply, “sustainability” is based on the notion that human activity takes place in the present without depleting natural resources or degrading the natural environment for the future. Sustainability is the key guiding principle for this development. It requires a balance of critical elements – economic, environmental and social – a balance that is achieved through comprehensive interdisciplinary planning.

Sustainability is a way of living and working. It integrates planning, architecture and environmental design through such measures as:

- efficient use of land
- orientation and design of buildings to take advantage of solar gain for space and water heating
- design to take advantage of daylighting, minimizing the use of incandescent fixtures and using low energy appliances to reduce energy consumption
- utilization of local resources, materials, labour and local participation
- application of the best principles of thermal efficiency in all buildings
- creation of a project that makes a positive statement about using the sun and earth resources including wind, biomass, and geothermal as alternative energy sources

Community-wide resource conservation and self reliance is possible when facilities are designed to fit the climate and natural environment, provide opportunity for food and energy production, conserve water, reduce consumption and waste, re-use materials and emphasize recycling as a philosophy.

4.2 ENVIRONMENTAL STEWARDSHIP

Environmental stewardship encompasses all aspects of Resort development and operations, from the initial design of new buildings to incorporate sustainable building best practices, to effective waste management for the Resort including recycling and composting – all of which contribute to conserving the planet's natural resources and protecting the environment. THS, the community, and partnering businesses continuously strive to reduce the impact of their operations. Waste reduction, water conservation, recycling, use of environmentally-friendly products in Resort operations, and sewage treatment strategies are a few of the areas where THS will continue to be actively involved.

4.3 ZERO NET NEGATIVE ENVIRONMENTAL IMPACT

The proposed plan for THS Resort enforces the principle of Zero Net Negative Environmental Impact – the notion that development will not impact negatively on the existing environment and ecosystems – through such measures as:

- Rehabilitation of impacted lands
- Development of energy management and use strategies for the Resort
- Development of architectural and environmental design guidelines

4.4 SUSTAINABLE INFRASTRUCTURE & ENERGY SYSTEMS

The proposed plan for infrastructure and energy systems for THS Resort focuses on sustainability through such measures as:

- Identification and assessment of essential Resort services, utilities, roads, sewer, water and power
- Assessment and development of the potential for renewable energy resources such as solar and wind power
- Development of strategies for extracting earth energies including hot springs geothermal
- Establishment of guidelines for planning and siting of structures for optimal efficiencies
- Promotion of energy conservation measures, including recognition of the hot springs as a finite resource that requires balance in its use

4.5 ADOPTION OF ARCHITECTURAL & ENVIRONMENTAL DESIGN GUIDELINES

The adoption of architectural and environmental design guidelines for THS Resort will :

- provide some assurance to all interest groups – owners (shareholders), leaseholders, adjacent landowners, and YTG – that development will proceed in a carefully planned, designed and orderly fashion; and
- establish the upper limit on the total number of units and facilities that can be developed on the site without disrupting the environmental balance (the carrying capacity of the land).

5. THE CONCEPT PLAN

The Concept Plan is a comprehensive framework to guide the future development of Takhini Hot Springs Resort. The goal is to attain a distinct eco-based identity for the Resort, based upon the historical, cultural and physical environment. The identity will be derived from a building vernacular which will use indigenous and recycled building materials, incorporate energy efficiency and passive solar technologies, and harmonize with the essentially rural wilderness quality of the land.

The Plan recognizes the dramatic site features and the unique location of THS. Sun, shade, views, open space, retention of forested area, safe and attractive pedestrian environments, landscaping, and architectural forms are all priority factors to be considered in the planning and design of the proposed diverse range of facilities.

One of the main objectives in designing an environmentally sensitive resort is to provide a harmonious integration of all buildings and services within the natural setting. This will create a distinctive and cohesive environmental and conserver-oriented identity.

To achieve this objective, the vision for the site is based upon a village concept. This concept clusters functionally similar activities around the environmental amenities of the site and the recreational opportunities afforded by this special location. This concept emphasizes:

- the park-like, rural feeling
- the forest setting
- the lagoon
- spectacular mountain views
- trail linkages within the site
- easy access throughout the site
- high visibility of key Resort facilities
- proximity to the Yukon Wildlife Preserve

All areas would be carefully designed to integrate with the natural setting. The Plan requires an environmentally sensitive design concept to give this beautiful site a strong sense of place and well-defined order.

5.1 LAND USE

The Resort is divided into several distinct yet interconnected land use zones:

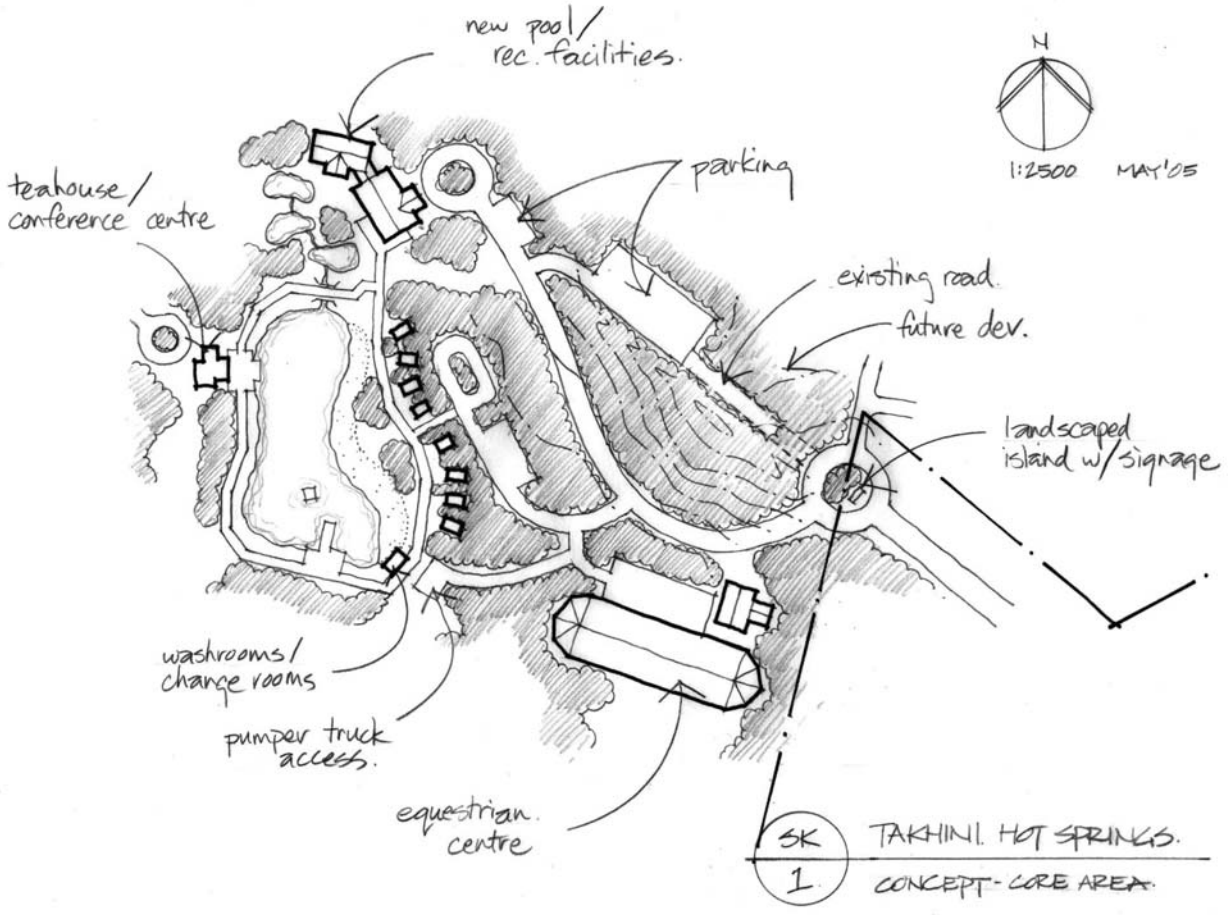
- Village Core Area
- Interpretive Area
- Day Use Recreation Area
- Campground
- Observatory
- Eco Spa
- Teahouse and Meeting Rooms
- Retreat Centre
- Hillside Chalets & Lodge Accommodation
- Lakeside Chalets
- Lower Co-Housing / Lower Strata Housing
- Upper Strata Housing
- Equestrian Centre
- Agricultural Lands
- The Meadows
- Zipline & Challenge Course
- Observation Tower
- Wildlife Preserve Lodge
- New Ponds and Watercourses
- Future Development Areas
  eg. atlatl, labyrinth and commercial sites

Village Core Area

The Village Core Area is the operational heart and the centre of commercial activities of THS Resort. The new pool facilities are the focal point of the Core Area, and include the public swimming pool, hot pools, restaurant, visitor information centre, and gift shop. The Hot Springs Interpretive Centre, Day Use Recreation Area, and Teahouse/Meeting Rooms are all components of the Village Core Area sited strategically on the land to integrate with the landscape and accommodate funtional requirements.

The existing outdoor hot pool has always been the centre of attraction for local residents. Given the age and condition of the existing facilities, the Concept Plan proposes new public hot pools and facilities be constructed just south of the existing site, close to the lagoon, taking advantage of the sloping topography and providing unobstructed views of the lagoon and surrounding mountains. The pools will be interconnected and will discharge via a small open stream into the lagoon.

The Village Core Area will be a pedestrian-oriented precinct, with vehicle traffic and parking located within close walking distance on the periphery. Public parking will be provided in a series of landscape screened lots to be constructed on lands presently devoted to the main access road. A new main access road is proposed, curving along existing contours from a landscaped roundabout at the entrance to the Resort.



Hot Springs Interpretive Centre

Without the existence of the hot springs at Takhini, there would be no Resort. As such, the source of the hot springs will play an important role in the plan for THS. A new Interpretive Centre will be constructed at the hot spring source, which will include a new Well House, and will provide information on the geology of the hot springs, unique ecosystems of the area, and local cultural history. The Centre will be the focus of educational and interpretive programs for the Village.

Day Use Recreation Area

The Day Use Recreation Area, located adjacent to the Interpretive Centre and pool facilities, is an existing open space that will be reclaimed and re-landscaped for such uses as tennis, casual field sports, outdoor picnics, and festival events. The area is large enough to act as a marshalling/training area for large groups or to accommodate tents for seasonal outdoor events.

Teahouse / Meeting Rooms

The existing log structure located to the northwest of the lagoon is to be retained and retrofitted, possibly to be used as a tea house and to accommodate small meetings. The new facility will be part of the Village Core Area, linked to the pool facilities by the boardwalk constructed around the existing lagoon.

Lakeside Chalets

Several new chalets will be located along the east side of the existing lagoon, linked to the Village Core Area along the proposed lagoon boardwalk. The chalets will be self-contained rental accommodations which would cater to families or groups, and will take full advantage of the proposed new beach area at the lagoon. Parking for the chalets will be located in a small, screened lot behind the structures.

Equestrian Centre

Accessed from the new road leading to the Lakeside Chalets, the Equestrian Centre will be located close to the entrance to THS Resort. With a covered arena and floors heated with recycled hot water discharged from the hot pools, the proposed Centre will allow for year-round equestrian activities. It is expected that the group that currently operates the trail rides at the Resort will operate the new equestrian facility.

Campground

The campground continues to be a popular venue for visitors to the area. It has recently been redeveloped, and now includes 50 sites with electrical service. A new Campground Centre building will include laundry facilities and a convenience store to service the campground clientele, and will be located within easy walking distance of all sites.

Observatory

An observatory with a viewing platform and telescope will be sited to the north of the campground. The proposed location, a prominent outcrop that overlooks the Resort, will provide for excellent stargazing and Northern Lights viewing opportunities.

Retreat Centre

The Retreat Centre is one of the first new developments at the Resort in recent years. Located in the northern sector of the property, the Retreat Centre provides accommodation and workshop/meeting space in a quiet, secluded area separate from but within easy walking distance of the Village Core. The Retreat Centre is presently nearing completion.

Eco Spa

A new, full-service wellness spa is planned for the northwest sector of the Resort. Backing onto a forested slope separate from the Village Core Area, the spa facilities are located in a quiet zone well suited for guests coming for serene rest, rejuvenation and healing.

The facility will contain four hot pools created from a new diversion from the existing hot springs source, treatment rooms, fitness facility and associated administrative and support services. Along with the mineral-based hot pools, the spa will offer guests traditional therapies (western massage, steam and hot stone treatments, body wraps, and skin care) alternate holistic therapies (yoga, Thai massage, and nutrition).

Vehicle access to the spa will be via a new road constructed off of Takhini River Road, controlled at a separate gateway entry point. Parking will be provided in screened lots within short walking distance of the spa. Chalet and lodge accommodation and restaurant dining will be located close to the spa, while the Village Core Area will be within comfortable walking distance.

The Meadows

The area fronting the spa facilities to the south will remain as open meadow. A portion of the green space is designated for outdoor seasonal events, with the remainder to be cultivated at some point in the future for growing raspberries and other locally-based agricultural products. The meadows will provide an open, visual amenity for visitors to the spa, with the spectacular mountain views beyond.

Hillside Chalets & Sunset Lodge

Also in the northwest sector of the property, located on the hillside above the Eco Spa, chalets and a lodge will provide accommodation, primarily for the spa clientele. Twenty hillside chalets will offer a mix of single and double units. The chalets are proposed to be sited to nestle into the forest, with some units taking advantage of spectacular views over the valley. The chalets will be linked via a boardwalk and the complex will include a guest support services building.

The new Sunset Lodge will provide 15 to 20 accommodation units on a second bluff overlooking the spa and meadow below. The lodge will also contain a restaurant which will have unimpeded panoramic views of the valley – an excellent venue for viewing sunsets and the Northern Lights.

As with the Eco Spa, the chalets and lodge will be accessed by vehicle from the new road constructed off of Takhini River Road. The chalets and lodge will share parking with the spa, and will be a short walk from spa facilities.

Agricultural Lands

Several hectares of the THS Resort property are to be organically managed. Two parcels of land comprising some of the best growing soils of the area have been set aside for organic agriculture and greenhousing. Local shareholders will be involved in the operations.

Lower Co-Housing / Strata Housing

The concept of clustering promotes sustainability as less land is used more efficiently. Both the co-housing and strata housing models are sound environmental approaches to residential development, as less infrastructure is required with more land left for open space. The potential for overall energy conservation is greater. Allowance in the plan has been made for 10 co-housing units or strata residential lots along the gulley in the southernmost sector of the property, accessed from Takhini River Road.

Upper Strata Housing

Ten strata lots have been defined for single family residential accommodation on a hillside in the southeast sector of the property, close to the main entry of THS Resort. Provision has been made at the stata site for a small community facility to service the strata lots.

Zipline & Challenge Course

It is proposed that the existing zipline and climbing wall facilities be relocated out of the Village Core Area and away from the lagoon. Two possible sites which take full advantage of the existing terrain have been chosen for the new location of these facilities. The new facilities will include adventure-based learning programs and “challenge courses” – challenge elements laid out in a golf course format in conjunction with a zipline. These facilities are to be provided for spa clientele as well as the general public.

Wildlife Observation Tower

The Yukon Wildlife Preserve provides for a unique wildlife viewing experience along the eastern border of THS Resort. Encompassing over 1680 ha (700 ac), the Preserve features five distinct natural habitats and offers many scenic photo opportunities. An observation tower is proposed in the southeastern corner of the site, on a natural bluff overlooking the Yukon Wildlife Preserve.

Wildlife Preserve Lodge

An area has been designated in the northeast sector of the property near the Yukon Wildlife Preserve for a Wildlife Preserve Lodge. It is proposed this lodge will provide accommodation and interpretive facilities specifically related to wildlife interpretation programs and wildlife viewing experiences.

New Ponds / Watercourses

It is proposed that a number of new ponds and watercourses be created at THS Resort, both for utilitarian purposes and to provide an additional amenity for visitors.

The new Eco Spa hot pools require a discharge watercourse, which is proposed to lead into a new holding pond below the meadow. From this pond, the discharge will continue down an existing gulley which was an original creekbed of the hot springs. Three new holding ponds are proposed in the southern portion of the site, where the water from all the hot pools and the existing lagoon will collect before flowing into the existing stream to the south of the Resort property.

The new holding ponds will provide an attractive amenity for residents of the Lower Co-Housing / Strata Housing site. The existing stream bed that currently discharges into the lagoon will be retained and enhanced, becoming an important landscape feature within the Village Core Area.

Future Development Sites

A number of site have been identified as suitable to accommodate future development, including commercial and/or recreational facilities. These sites are located along existing main roadways near the entry points to the Resort, to minimize impact on the resort activities.

5.2 CIRCULATION

Roadways & Parking

Roadways and parking areas currently dominant the existing heart of the Resort. The plan is to make the core area a more pedestrian-oriented environment by reducing road widths, reclaiming roadbeds, and reconfiguring traffic circulation to reduce the potential for pedestrian/vehicle conflicts. The main road into the Resort will be reduced in width and reconfigured to follow the existing contours of the land, curving gently through the trees. Parts of the existing road are to be redeveloped as screened parking areas, with the remainder reclaimed as green space.

Vehicles will be restricted from the Village Core Area to allow people to stroll unimpeded. Access will be provided into the Core Area for service and emergency vehicles only. Parking is kept to the edge of the Core Area, and away from the Eco Spa facilities. Lots will be screened by landscaping.

Future plans include using horse drawn wagon and sleigh in winter as part of the overall circulation to minimize use of cars.

Trails & Walkways

Pedestrian circulation is encouraged throughout the Resort, with easy and safe access along existing roadways connecting with a series of designated walking, hiking trails throughout the property. The Plan provides for a continuous system of well-marked pedestrian trails and sidewalks that link the community's facilities and services.

Trails provide visitors with an intimate connection to natural areas. It is proposed that a continuous designated natural walkway throughout the Resort will provide connections to off-site trails provide opportunities for cross country skiing, skating, walking, jogging, hiking, biking, horseback riding, dog sledding and snow shoeing. The trails will be designed and managed to minimize environmental impact.

5.3 GATEWAYS

Two new gateways are planned – at the existing entry to the Resort on Hot Springs Road to serve the general public, and at the entrance off Takhini River Road to serve spa clientele. At both gateways, the “sense of arrival” for guests will be greatly improved through traffic calming devices, enhanced landscaping and attractive signage.

5.4 LANDSCAPING & OPEN SPACE

The Concept Plan protects the natural beauty and character of the area. Existing tree stands are protected with minimum disruption, with very effort made to focus development in already impacted areas. Additional landscaping and replanting will be undertaken to further enhance the natural setting. Natural greenbelts and sensitive areas are identified and protected in the Plan.

The removal of parking lots, roadways, and damaged areas and returning disturbed sites to a natural state will reduce the amount of the site that is covered by development and have important ecological benefits. Two measures which are proposed are the removal of a portion of the existing highway standards Takhini Hot Springs Road near the main entry to the Resort, and the rehabilitation of the area adjacent to the existing pool facilities, including the tufa fields.

5.5 BUILDINGS

Integration of Buildings

One of the main purposes of the Plan is to achieve a harmonious integration of resort facilities with the natural setting and to create a distinctive and cohesive identity for the project. The plan recognizes the importance of the careful selection of building materials, building forms and massing.

Diversity of Building Types

The intent is to accommodate a variety of eco tourism options and lifestyle requirements to meet the demands of the eco tourism market and community as a whole. The diversity of building types will include:

- chalets
- lodge accommodation
- bed and breakfast
- meeting / conference facilities
- insulated wall tent cabins
- co-housing, strata housing, staff housing
- guest services, service buildings
- observatory
- equestrian arena
- campground store and laundromat

5.6 INFRASTRUCTURE

- Create infrastructure that respects the natural environment and resources
- Electricity, telephone / data / cable to be supplied through an underground infrastructure where possible
- Infrastructure to include peripheral parking and ample pedestrian trails
- Bicycle parking and circulation
- Service / delivery, fire lane / emergency, departmental vehicle, visitor, disabled and other vehicle access and on-site parking

5.7 VIEWS

- protect and enhance important views of natural and cultural features
- protect the ability of people to enjoy the night sky (in particular the Northern Lights) by adopting “dark sky” lighting standards

5.8 OTHER DEVELOPMENT

Atlatl

Atlatl (pronounced “at-la´-tel”) is a form of traditional spear throwing which is found in many hunter-gatherer societies around the world. It is the precursor technology that led to the development of the bow and arrow. Today, after thousands of years of obscurity, atlatl is enjoying a renaissance as a popular hobby and is rapidly becoming an international sport. Plans are currently underway to develop a designated atlatl area.

Labyrinth

Dog Mushing / Sledding / Kennels

6. ARCHITECTURAL & ENVIRONMENTAL DESIGN GUIDELINES

The purpose of the guidelines is to outline minimum design standards for architectural design, energy efficiency and sustainable building practices that complement and respect the land base and ecosystems, and protect the intrinsic qualities of the environment. The guidelines will serve as a tool to evaluate future development applications as they arise.

A contemporary and sensitive environmental and architectural expression for Takhini Hot Springs Eco Village Resort can be achieved by designing responsively to the local context, climate, and by using indigenous materials in construction and applying energy conservation strategies.

These guidelines formalize an environmental and architectural design approach for Takhini Hot Springs that will help promote a consistent standard of design for all phases of development and:

- ensure that any redevelopment of the built environment at THS will be sympathetic with the natural surroundings;
- create a level of shareholder and public awareness for the importance of environmental and architectural considerations in the development;
- ensure that distinctive architectural components and features are provided in any new development or upgrading;
- include recommendations on overall image and character (building form, size design features and materials), energy performance standards for buildings, and standards for water use and site sewage treatment; and
- recommend that policies also be developed for the management of THS natural resources including issues related to land, water, air, solar access, flora and fauna.

6.1 SITE DEVELOPMENT

Ensure a balance of built space to natural space, ensuring necessary new development impacts as little as possible on the existing natural environment.

The Concept Plan establishes a framework that will guide and structure open space systems, visual linkages, movement patterns, appropriate building placement, orientation, and land uses. It is essential that the design of new and updated buildings take into account building siting as well as architectural design. Poorly sited buildings, no matter how well designed, will always be a detriment to the overall resort environment.

Site development guidelines focus on:

- land use and density
- design with the natural features
- vehicular circulation and parking
- site microclimate
- landscaping materials
- open space
- trail system
- site and facility interpretation
- southern orientation of buildings

Land Use and Density

- Encourage low scale, low impact, small footprint developments
- Adjust zoning to address environmentally sensitive areas, housing, recreational and open space, and parking
- Create a resort centre and protect adjacent lands by centralizing and clustering commercial activity
- Ensure a balance of built space to natural space by decentralizing accommodations and activities over the entire property
- Use already impacted areas where possible while respecting the importance of green space and buffers
- Encourage a diversity of uses including co-housing, single family housing, chalets, lodge, spa, and neighbourhood scale commercial

Design with the Natural Features

- Ensure balance in the relationship of built spaces to natural spaces of the site
- Ecologically integrate new development with existing natural and built environment
- Improve and manage the natural environment and habitat values of the Resort
- Avoid areas of known or suspected natural hazard (ie. flood and avalanche areas)
- Restore and reclaim by providing landscaping to areas which have been cleared
- Take advantage of solar aspect (maximize exposure to the sun)
- Consider physical appearance from higher elevations
- Ensure compatibility with existing community context
- Where possible and appropriate, locate buildings within forest edges or backed onto slopes away from meadows and open landscape areas
- Minimize disruption of natural grades to ensure that facilities fit into the natural environment
- Use lands already impacted by development where possible
- Manage the forest, lagoon, meadow, and hot springs ecologies over the long term to address guest use, habitat value, hazards, erosion, invasive species and the Resort's ongoing sustainable management and operations standards

Vehicular Circulation & Parking

- Use already impacted areas where possible to develop parking required for new developments
- Ensure parking and service areas are unobtrusive – provide screening
- Avoid locating open parking immediately adjacent to buildings which will provide a barrier to pedestrian circulation
- Avoid large, expansive parking areas
- Utilize landscaping and natural buffers to break up parking areas and provide visual screening and separation of parking from buildings and roads
- Encourage joint use of parking for mixed-use areas
- Minimize conflicts between pedestrians and vehicles

Attention to these factors will be instrumental in reducing the dominance of vehicles and reinforcing the village ambiance of the Resort.

Site Microclimate

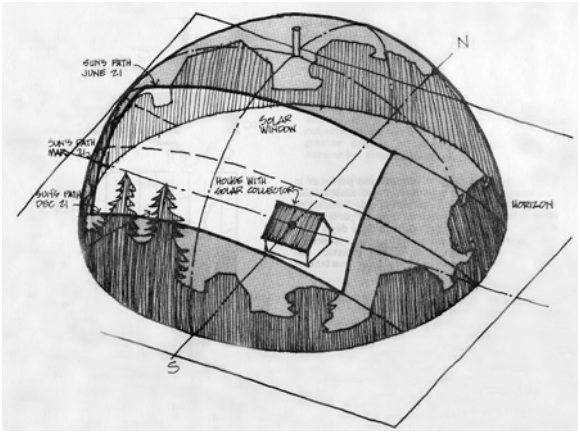
Microclimatic factors include sun, shade, glare, precipitation, and wind. Modifications to the microclimate can be produced by landscaping, walls, grading, water features, and other built or natural elements, and the shape and form of the buildings.

The siting and layout of new buildings and facilities development should take into consideration any resulting modifications to the microclimate of the site.

Southern Orientation of Buildings

A building's response to the harsh winter climate and the sun in general is a major factor in the functionality of the building, occupant comfort, and energy efficiency. Given the major impact of sun in this climate area, it is appropriate for different building facades to respond differently to solar access and impacts based on their orientation. Passive solar design should be promoted for all facilities.

The "solar envelope" refers to the area that represents maximum solar access for a building, allowing buildings to take greatest advantage of the sun's light from its eastern rising to its western setting. All facilities at THS should be oriented to attain maximum benefit from the solar envelope, within 15 degrees of true south (ie. buildings oriented along an east to west axis, with the maximum window area oriented toward the south).



The solar envelope

Landscaping Materials

- Use indigenous landscape elements and other plant materials that complement the natural setting
- Use low maintenance, drought tolerant materials to minimize water consumption.
- Plant native species that wildlife do not find palatable
- Use vegetation, not structures, to screen undesirable views and to soften the appearance of buildings where possible
- Plant native species in natural groupings
- Rehabilitate disturbed areas

Open Spaces

- Retain views of distant mountain peaks from all public open spaces
- Connect building fronts with pedestrian areas and outdoor open spaces
- Take advantage of significant natural features such as the meadow, lagoon, and rock outcroppings
- Provide open space in close proximity to buildings
- Avoid locating buildings in meadows and open landscape areas
- Where possible, meadows and open landscape areas within development areas should be preserved by integrating them into the open space systems
- Set back buildings to maintain views and preserve a feeling of openness (ie. nestle buildings into forest edges away from open landscape areas

Trail System

There are opportunities to provide a linkage of all the site's facilities through a comprehensive trail system. A universal access trail should be developed as a main trail, with a hierarchy of trails of various types throughout the property based on integrating with the varied environments. Horse trails should be carefully planned and designated as they can be very damaging to local flora and fauna.

- Locate trails away from vehicular areas
- Continue to develop trails for joint use (ie. pedestrian / cycle / cross country ski trails) to prevent overuse and overbuilding in natural areas
- Improve wayfinding using natural elements wherever possible to avoid overuse of signage at the Resort

Site & Facility Interpretation

There are several opportunities for education and interpretation at THS Resort. Possible themes might include:

- Hot springs ecology
- Heritage resources
- Unique plant life
- Wildlife
- First Nations and local history
- Eco building practices
- Sustainable administration and guest services management

Special landscape zones for interpretation could be developed around the site.

6.2 LAND & TREE COVER

Respect, retain and enhance the natural landscape, including the visual dominance of forested areas.

Given that the natural environment is the single most important factor to be considered in the overall planning of the site, guidelines governing land and tree cover cannot be overestimated. Removal of trees and disruption of the natural landscape for any type of development will have profound effects on the image of the Resort.

- Replant and landscape areas that have been impacted in the past
- Save and protect groves of poplars
- Located buildings along forest edges, deep enough into the trees that the forest cover remains visually dominant
- Utilize natural materials and colors in building construction so buildings blend visually with the forest
- With the possible exception of architectural features in the Resort core area, building heights should not extend above tree line
- Utilizing variations in building rooflines and facades to reduce the visual dominance of building massing
- Step buildings down hillsides, utilizing the natural landform
- Locate buildings so as not to break the views of natural ridgelines
- Retain the open character of meadows and other open landscape areas

6.3 ECO VILLAGE RESORT IDENTITY

Create a distinct identity for Takhini Hot Springs Resort based on the historical, cultural and physical environments.

A distinctive THS Resort architectural style could make a significant contribution to the overall village ambiance. The scale, mass, form, and construction materials used for the buildings, as well as the placement of artwork throughout the site, are all factors that would have an impact on the Resort identity.

Critical to the success of the Resort's overall architectural design will be how buildings respond to the northern climate and rich culture of the area. Building design should respond to the unique characteristics of the Whitehorse regional climate by providing appropriate regionally-based shelter from the cold northerly winds and hot summer sun, accommodating natural ventilation, views and maintenance, and providing a cohesive overall image.

The architecture of the Resort should promote a sense of place and community, and reflect the history and indigenous materials found in the region. There are many themes and ideas that may be appropriate. The following few are included to illustrate appropriate images and character for future development

- Establish a quality and character of architecture, site development and landscape architecture that is appropriate to the Yukon and, in particular, the Whitehorse area
- Ensure each new development contributes to the image of a cohesive and consistent Resort character
- Utilize a limited number of roof forms, colours and materials as an important component of defining cohesive image and character
- Incorporate historical references and local artwork

6.4 FORM & SPACE

Provide a form that fits with the environmental context and is sympathetic to the forms of the local resort community context.

The form of a building is dependent upon many variables, from the structural requirements of the building, to the building technologies that are utilized, and the building's functional requirements.

Building form takes on a beauty and timelessness when it respects and responds to the special natural and cultural environment that it emanates from.

Considerations such as framing of distant mountain views, establishment of orienting landmarks and reference points, and overall proportioning contribute to a building's massing. Large and long buildings should be visually broken into "human scale" components.

Massing should take into account shadow effects, and relationships to open space and other buildings. Building's exterior facades are in the public domain and provide definition and enclosure of outdoor spaces, as well as control access and views to and from those spaces. Form of the building should express and speak of the activity contained within and express the structure of the building.

- Recognize proportion, massing and scale
- Provide building forms sympathetic to the mountain setting
- Break up the mass of buildings by utilizing variation in rooflines and building facades
- Provide a strong base – a solid connection to the ground
- Discourage flat roofs, large building masses and long linear buildings
- Emphasize natural building materials and color schemes
- Minimize the effect of shadows
- Consider overlook from higher elevations

6.5 HISTORIC REFERENCES & ARTWORK

Provide references and context with the past. Incorporate artwork into new developments.

Artwork and craftsmanship in detailing can play an important role in projects and should be viewed as an integral part of the built environment. As a design philosophy, incorporating references can greatly enrich the resort experience.

Works of art add an important cultural component in a project and should be considered for integration into the overall design of each building and site, especially in building entrance areas (indoor and outdoor) and other high-use common areas. This may include sculpture, murals, architectural relief, and pavement patterning.

- Care should be taken to ensure that the intent is not to merely mimic past forms but to incorporate building technologies and program and functional requirements
- Incorporate traditional forms including local First Nation artwork
- Integrate artwork in the built form

6.6 ROOF SHAPES

Use roofs to reinforce the primary functions of providing shelter, shedding snow and rain, and as a unifying design element throughout the property.

A roof's design can be a major element in overall character of the building and can be effective in snow management.

- Provide adequate shelter against snow, rain, and sun
- Integrate roof design with building forms
- Utilize roof form to provide scale appropriate to the resort setting (ie. sloping roofs that blend in with the natural environment and allow for natural snow removal)
- Integrate mechanical equipment within the roofscape
- Define entries using gables

THS has selected steeply pitched roofs as a desired design standard. Flat roofs are discouraged and should be limited to extraordinary functions where cost and function dictate.

6.7 SCALE

Build in scale with relationship to people, the existing buildings in the Resort, and the mountain setting.

Scale is the relative size of one thing to another – the relationship of the building to the users, to the mountain setting, to the local existing community context, and to a building's specific parts and materials. A building is in scale when it fits or belongs to the environment of which it is part.

- Ensure that a building's massing is in scale with the existing context
- Respond to the need for human scale
- Ensure that individual parts of any development and its details are in scale with the whole

6.8 DETAILS & CRAFTSMANSHIP

Promote and express craftsmanship and fine detailing in all buildings.

Good detailing follows from an understanding of the use and nature of materials and the craftsmanship in which they are executed to create a building. Good detailing can bring a sense of order to spaces and volumes.

- Integrate all building components (structural, mechanical, lighting)
- Provide a sense of order through a direct expression of structure and materials (ie. log columns, exposed beams, trusses)
- Use available high quality natural materials such as sawn wood, logs, and local stone
- Express craftsmanship in construction detailing

6.9 MATERIALS

Use natural, healthy, low embodied energy conserving materials indigenous to the area.

The quality and type of material used to construct buildings will affect their image, long-term performance and ease of maintenance. The structure and all elements of the site associated with it should be considered from the start of a project to ensure that the materials are not used as mere decorative elements. Buildings should be considered from inside and outside with materials selected for their suitability and compatibility with the natural landscape.

- Use materials indigenous to the mountain setting and the existing context. For example, some native materials include heavy timber for structure, spruce or pine for exterior siding material, local stone, local crush for pathways, and native plants
- Use materials that affirm permanence and timelessness (eg. stone, timbers, logs)
- Select materials with economy, maintenance and energy efficiency in mind

The following materials are particularly appropriate for use at THS based on historical context and quality, and have been endorsed by the Resort:

- wood siding (spruce or pine)
- logs for entries, accents, and structural components
- local stone and river rock

Roofing materials which may be considered include:

- standing seam metal roofs
- traditional sod roofs (for added interest and historical reference only – there are limited applications due to energy considerations)

6.10 COLOUR

Use colour sensitively, with a preference for natural earth hues, natural colours of wood, foliage and ground covers that are common in the area.

Colours of buildings should be in balance and complement the natural setting, while adding to the cohesive image of the Resort. Natural colours are preferred, where the colour palette is derived from integrally coloured natural materials such as stone and wood. Bright colours which draw attention away from the natural environment are discouraged and recommended only as accents. It is recommended that all roofs have a consistent style and colour. For emphasis, the landmark building may differ slightly from the rest.

- Use colours derived from the natural materials of the Resort environment
- Use bright colours sparingly and in small areas, only as accents
- Use a consistent metal roof colour for all new developments and upgrading

THS has endorsed dark green standing seam metal roofs as the preferred roofing material and colour.

6.11 LIGHTING

Use lighting sensitively, as light pollution can be a major concern, especially in relation to the Northern Lights viewing experience.

- Careful consideration should be given to the quality of illumination required and the degree of light intensity required for the purpose intended
- Protect the ability for guests to enjoy the night sky, particularly for Northern Lights viewing by adopting “dark sky” lighting standards
- Encourage lighting of roads, parking, plazas and pedestrian areas within resort areas in a manner which is consistent with the Resort’s overall image and provides for safety and security without resulting in excessive glare or visual impact
- Avoid high mast lighting of areas
- Ensure all lighting is energy efficient
- Ensure signage lighting does not add glare
- Ensure illumination is an important part of planning review and development approval processes

6.12 SIGNAGE

Create a coordinated signage and information system that provides maximum information with a minimum number of signs.

- Avoid overuse of commercial signage – ie. the proliferation of company / product logos
- Design signage, graphics and lighting in a consistent style compatible with THS Resort architecture
- Keep signs in scale with the buildings
- Integrate signage with building design and site development
- Encourage use of natural and durable materials, such as wood
- Keep signs at ground level, off of trees and natural features
- Be energy conscious – eg. for illuminated signs, promote subtle, low key, non glaring signage

6.13 NOISE

Define a desirable soundscape, giving careful consideration to noise mitigation.

Many guests visiting the Resort are coming for serene, quiet rest. The sounds in our environment can collectively be referred to as our "soundscape." The soundscape, like our landscape, is dynamic and complex. Sound travels from a source, through a medium, to a receiver. The nature of the source, the type of path taken by the sounds, and the characteristics of the receiver determine whether the sounds created are pleasant and enjoyable (singing birds) or annoying and disruptive (chainsaw). Creating an enjoyable soundscape at THS Resort for all guests and varied activities is a desirable goal.

Site Planning

- Zone noisy activities away from passive uses; isolate noise sensitive areas
- Separate noisy sources by distance and buffers (transitional zone, berms, vegetation)
- Buffer vehicular parking areas; locate roadways away from guest accommodation and quiet areas

Building Design

- Construct exterior walls, party walls, doors, windows, and floors to a high STC (Sound Transmission Class) ratings
- Insulate plumbing, and heating / cooling systems
- Quiet the source (eg. zipline – use rubber wheels)

6.14 SMOKE

Smoke pollution is a problem in the valley.

Rework this

- Use of EPA and high temperature thermal mass wood burners

7. SUSTAINABLE ENVIRONMENTAL DESIGN

The idea behind sustainable resort planning is to use land efficiently and design facilities that reduce costs and minimize environmental impacts while creating a liveable resort “eco community” that reflects its unique characteristics.

The basic concepts of sustainable environmental design and planning are:

- Sustainability Focus
- Resort Community-Oriented Focus
- Health Focus
- Energy Efficiency
- Cost Efficiency
- Resource Efficiency
- Sustainable Infrastructure
- Environmental Stewardship

7.1 SUSTAINABILITY FOCUS

Design to be environmentally responsible, with a low impact on the environment

- Use clean, pollution free, renewable energy sources
- Employ solar, wind and geothermal systems to conserve energy and resources
- Use recycled building materials (where possible)
- Construct using recycled and low energy input materials and building products
- Use local materials (ISO & CFI certified lumber from sustainably managed forests)
- Install water conserving plumbing fixtures (low flush toilet, low flow shower head)
- Provide rainwater collection system for irrigation and for toilets
- Install low-e double glazed, argon filled high performance windows
- Plant drought tolerant and indigenous trees and plants that require less irrigation
- Identify and ensure the maintenance of the environmental carrying capacity of the area by not overbuilding
- Promote the development of an edible landscape
- Design efficient site which results in smaller building footprint using less materials and resources
- Balanced environmental carrying capacity
- Energy efficient systems result in fewer greenhouse gas emissions
- Minimize hard surface areas
- Provide erosion control
- Allow passage of wildlife
- Allow passage of groundwater
- Employ selective logging, with a minimum of clear-cutting

7.2 COMMUNITY ORIENTED FOCUS

Design to reflect the preferences, culture, history and needs of the Resort community

- Design variety of commercial buildings. lodge and residential types (multi-family, semi-detached, single story, two storey) to accommodate different needs
- Employ flex design elements to provide safe, comfortable accommodation and facilities, for guests, staff residents and people with disabilities.
- Universal design – provide handicap accessible facilities and accommodation throughout
- Main floors should have at-grade access
- Use an integrated design process with extensive participation
- Facilitate self-construction
- Provide training for locals and support local economy
- Use local suppliers and wherever possible self-construction processes
- Incorporate traditional design elements in architecture and landscaping to reflect heritage and culture
- Provide a variety of housing types (townhouse, duplex and single family home) to accommodate various needs

7.3 HEALTH FOCUS

Many people today suffer from environment-caused ailments including asthma and allergies. It is very important to design a proper interior environment especially for the wellness spa (a healing environment) using non-toxic materials that will reduce or effectively eliminate indoor toxicity levels and also limit the opportunity for harmful moulds to accumulate. Use flexible universal design strategies to allow for the changing needs the Resort.

- Install non-toxic building materials and products and avoid materials that cause off-gassing
- Install formaldehyde-free insulation, cabinets, and adhesives
- Install mould-resistant drywall and other materials
- Use low VOC paints and non-solvent based damp proofing
- Install lead-free faucets
- Install high efficiency fans to prevent moisture accumulation and mould growth
- Design to maximize natural daylighting in main living areas
- Install engineered hardwood floors, polished concrete and tile floors to reduce off-gassing
- Design using rainscreen technology to handle moisture and prevent mould growth

7.4 ENERGY EFFICIENCY

The cost of conventional energy continues to increase at a rapid pace. The Resort will be incurring significant expenses to heat guest and administrative service facilities as well as guest accommodation unless alternative strategies are employed. Develop a resort that integrates renewable energy sources such as wind, solar and geothermal to reduce heating, lighting, water and infrastructure costs. The Hot Springs Resort is blessed with having an on-site geothermal source. However this is a finite resource and will have to used wisely to achieve the greatest energy saving benefit.

Utilizing geothermal and geo-exchange systems are extremely efficient. Geo-exchange systems draw on the earth's constant temperature of approximately ... degrees, and use less energy than air-to-air heat pumps. These systems offer a constant, even temperature, humidity control, hot water heating, and can cut heating and cooling costs by 50%-75%.

- Construct well insulated building envelope
  - minimum R-30 exterior wall insulation
  - minimum R-50 ceiling insulation
  - add 1" minimum rigid exterior insulation sheathing wherever possible, especially at basement walls and 2", R10 for concrete floor slabs
- Harness the sun, wind and earth energies wherever possible
- Hot water pre-heating using either recovered heat from wastewater or use solar
- Provide for daylighting to minimize the need for artificial lighting
- Install energy efficient lighting fixtures and appliances
- Provide opportunity for the contractor as well as the owners and users to reduce, re-use and recycle
- Employ energy-efficient heating system that results in fewer greenhouse gas emissions
- Install "Energy Star" appliances (stoves, refrigerators, washers, dryers, and dishwashers)
- Buildings oriented to the south, to take advantage of the sun's heat
- Interior space zoning – storage, stairs and sleeping areas oriented to the north, living areas to the south
- Use solar energy to preheat water
- Install metal roofs to help provide solar heat
- Construct solariums to retain heat and permit year-round gardening
- Install air tubes to circulate hot air from roof and solarium under slab
- Install solar walls
- Install earth tubes to preheat or cool incoming outside air (low tech geo-thermal)
- Promote continuous recycling of heat throughout the buildings
- Provide radiant floor heating systems to eliminate the need for a standard furnace
- Provide high efficiency water heater (radiant floors, domestic water)
- Consider wind generators to supply supplemental power (determine feasibility)
- Install energy-efficient appliances, lighting fixtures, windows, and doors

Introduce policies and standards that promote energy-efficient building practices:

- Require all new development proposals to include energy conservation strategies
- Submit all development proposals to an independent energy audit (Yukon Energy Solutions Centre)
- Set minimum energy conservation targets and monitor progress
- Purchase "green power" (e.g. wind, hydro generated) where possible
- Waste management to include composting toilets, gray-water treatment, waste reduction, and recycling

7.5 COST EFFICIENCY

Design buildings that are affordable to build, operate and maintain while making decisions based on sound long term, cost-effective strategies.

- Plan for higher-density buildings to reduce overall building, land, and infrastructure costs
- Design built-in flex space to reduce future renovation costs
- Install low maintenance durable materials and finishes
- Lower heating and electricity costs due to energy efficiency and solar orientation
- Design using easily duplicated, modular elements

7.6 RESOURCE EFFICIENCY

- Increased housing density and a variety of housing types to maximize land use
- Design and construct to minimize construction waste
- Construct using durable building materials, including metal roofing, full dimension rough-cut wood siding, logs, concrete and wood flooring, wood countertops
- Provide multi-functional elements such as:
  - concrete finishes floor, stores heat, and is part of the structure
  - metal roof provides long-lasting protection and solar heat
  - solariums used for growing, living and heating
  - earth tubes pre-condition air for heating as well as cooling
- Install water-efficient plumbing fixtures such as low-flow toilets, low-flow shower heads
- Employ modular construction techniques to reduce construction waste
- Use recycled building materials such as:
  - plastic lumber for sill plates and strapping
  - refinished power and telephone poles for interiors, porches and carvings
  - recyclable steel in metal roofs
  - high recycle content batt insulation
- Use indigenous building materials such as gravel, wood, logs and rock
- Use drought-tolerant plantings, requiring less irrigation
- Use of local suppliers and resources to support the local economy resulting in less energy being expended in transportation and manufacturing

7.7 SUSTAINABLE INFRASTRUCTURE

- Develop opportunities for energy savings in infrastructure and services
- Assess and develop the potential for renewable energy resources such as solar and wind.
- Develop strategies for extracting earth energies including hot spring geothermal
- Establish guidelines for planning and siting of structures for optimal energy efficiencies.
- Promote energy conservation measures, as hot spring must be recognized as finite resource that requires balance in its use.

7.8 ENVIRONMENTAL STEWARDSHIP

Environmental stewardship encompasses everything from environmental education, to sustainable waste management practices, to individual actions such as recycling and composting, all of which contribute to conserving the planet's natural resources and protecting the environment. THS, the community, and partnering businesses continuously strive to reduce the impact of their operations. Waste reduction, water conservation, recycling, sewage treatment strategies are a few of the areas where THS will be actively involved.

Air Quality

- Prohibit the use of diesel generators, except in emergencies
- Discourage the use of wood burning fireplaces, limit number of open campfires
- Identify ways to reduce emissions from buses (ie. tour operators)

Hot Water, Water Quality & Conservation

- Develop hot springs water management program
- Develop water withdrawal, return and storm runoff standards
- Use a vegetated buffer to reduce the effects of runoff from parking lots and roads on aquatic resources
- Identify water conservation programs when renewing water permits
- Require all new development proposals to include water conservation programs
- Implement a community program to reduce phosphates

Sewage Treatment

- Utilize the best available, affordable green technology
- Implement treatment capability to reduce the amount of phosphorus being introduced
- Explore ways to reduce waste water discharge
- Share responsibility for these initiatives with the community anad business operators
- Promote recycling services

Hazardous Waste

- Identify and monitor contaminated areas
- Prepare a strategy to clean up priority sites

Other

- Highlight environmental stewardship initiatives
- Educate guests, staff and residents
- Include sustainability in site interpretive programs
- Adjust leases to reflect the stewardship program
- Make environmental stewardship a condition for all development proposals and partner business operators
- Adopt Resort purchasing policies that promote the use of environmentally-friendly products

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APPENDICES