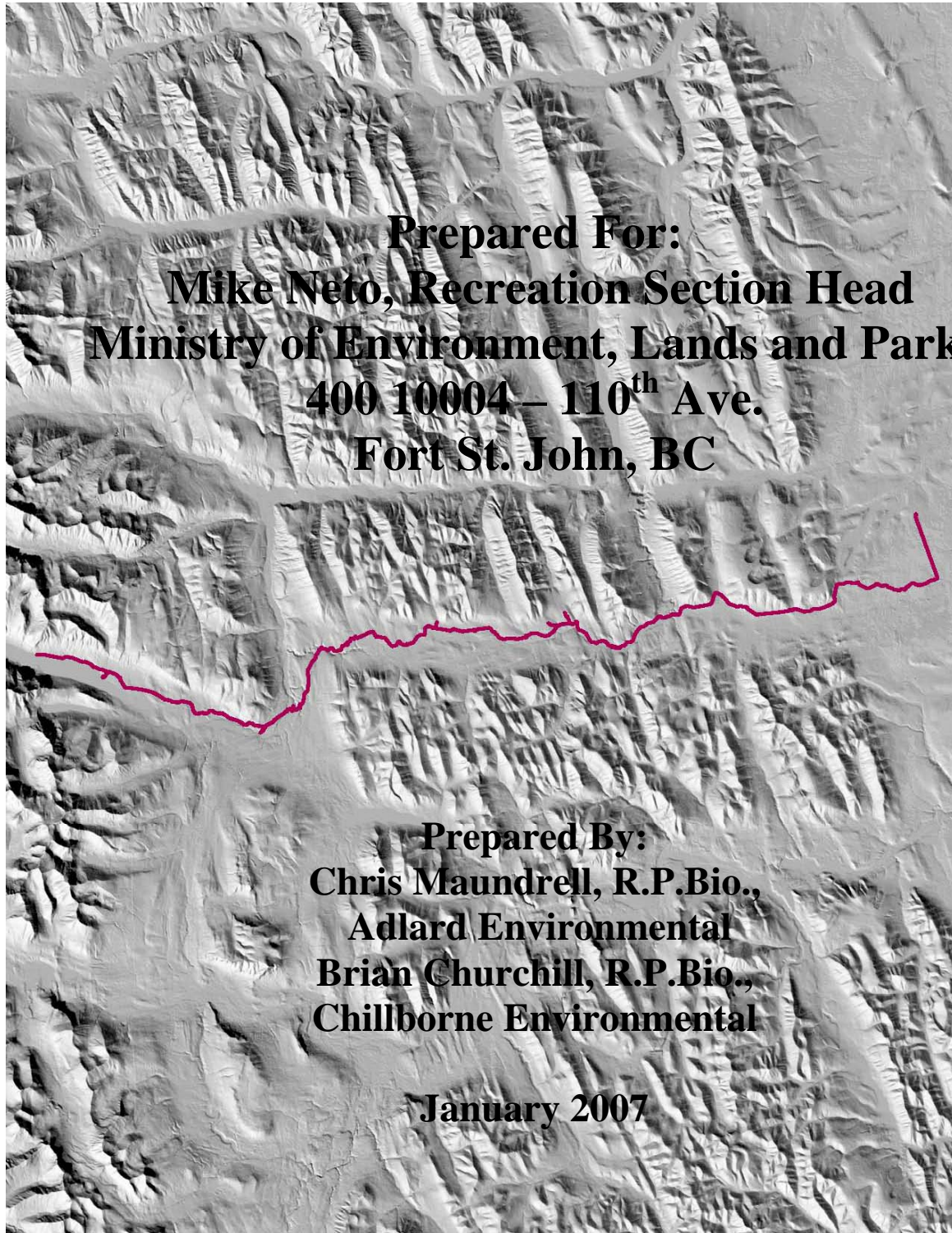


Muskwa-Kechika: Redfern Access Management Area Route Restoration Analysis and Recommendations



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1 Introduction

The Ministry of Environment, Lands and Parks requested an assessment of the Access Management Area (AMA) access route into Redfern Lake in Redfern-Keily Provincial Park (R-KPP). Chillborne and associates were contracted to assess the trail and its condition for values, accessibility, and management and to provide recommendations for future management options to maintain the trail as an outdoor adventure within the Muskwa-Kechika Management area (M-KMA) and R-KPP. We were not specifically tasked to provide recommendations on the trail outside of these management areas; however, it may be prudent to extend the trail management options to include the entire trail regardless of existing legislation. This assessment provides the history, current condition of the trail and potentially the future condition of the trail under various scenarios. We provide a map of the trail and recommendations for remedial work and management of the trail.

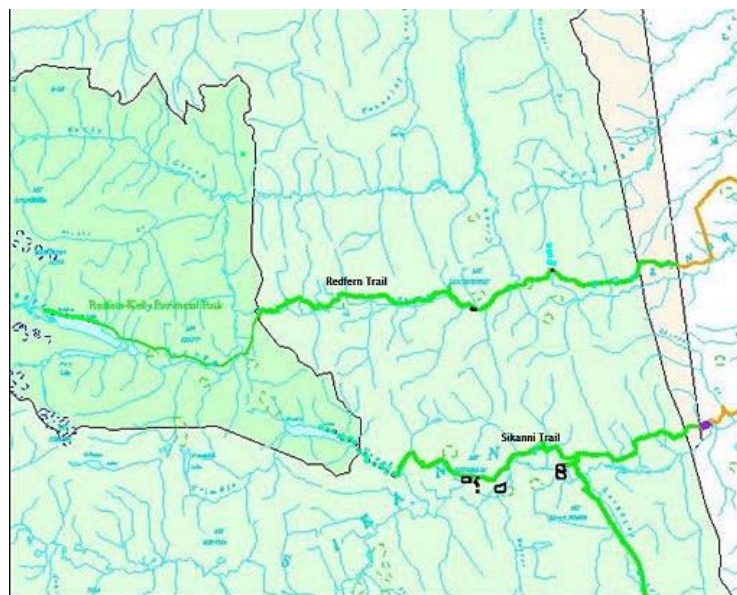
Redfern Lake has been a destination for aboriginal people and for approximately the past century for wilderness travellers. Initial access was by foot and horseback but has evolved using aircraft and motorized vehicles since seismic lines were cut in the 1960's. The Fort St John Land and Resource Management Planning (LRMP) recognized and validated the use of vehicles to access the lake. The Access Management Area regulations and subsequent legislation, the Muskwa-Kechika Management Area Act and Redfern-Keily Provincial Park Plan have codified the intent of the LRMP process with regulations that acknowledge the route and places parameters on its use as specified by the LRMP. The trail traverses the foothills and eastern slopes of the Muskwa Range of the Rocky Mountains. The area is a diverse northern landscape. Terrain varies, with increasing ruggedness as the trail penetrates the mountains. Vegetation varies, ranging from scrub birch willow lowlands to mature coniferous forests. The range of terrain types, soil moistures and forest types provides habitat for the wide range of wildlife species, plant and plant communities for which the Muskwa-Kechika is renowned. This trail accesses an area that is as unique as it is difficult to visit.

The access route begins approximately 250 km north of Fort St. John and 15 km west of the Alaska Highway. Staging begins at one of several abandoned petroleum industry campsites or well sites depending on wetness of conditions, as much of the access road is dry weather only. The All Terrain Vehicle (ATV) route begins in earnest at well site (94G 06/ h 65 a) and can be separated into three distinct sections based on existing regulations. The first and shortest section is outside of the M-KMA.

This section begins at the non-producing well site and travels approximately 5 kilometres to the boundary of the M-KMA. The longest section is in the M-KMA (approximately 40 kilometres) and goes to the boundary of Redfern-Keily Provincial Park. The third section of the trail begins at the park boundary and finishes at the western end of Redfern Lake, traversing approximately 30 kilometres within the park.

Figure 1:

Redfern and Sikanni Access routes



Currently each section of the trail has different management regime due to trail use regulations. Outside the AMA, the M-K or R-KPP, there are no regulations keeping vehicles to the trail or regulating the type, size or weight of vehicles. The AMA regulation specifies that motorized vehicles are restricted to a maximum weight of 500 kg (mostly ATVs) and are not permitted to travel farther than 400 meters from the designated routes in any direction. In addition, during the winter months (November 1st to April 30th), snowmobiles are allowed on and off designated routes. These

regulations also apply within the M-KMA outside of R-KPP. Within Redfern-Keily Provincial Park, motorized vehicles are restricted to 500 kg and only allowed 10 meters from the designated route in any direction; during the winter months (November 1st to April 30th) snowmobiles are allowed to use an alternative (seismic line) route within the park.

These vehicle management requirements allow for a considerable amount of flexibility for public use of the trail. Today the trail is used by a wide range of recreational users, including hunting, camping, hiking, fishing, horseback riding and sightseeing. There are two primary modes of transportation used on the trail, ATVs and horse. Hiking the entire length of the trail is a rare event, however many ATV riders do take hikes away from the trail and campsites. Recreationists on ATVs access the valley and lake mostly in June, July and August. Hunters come in August, September and October, often with ATVs in combination with horses. Most users appear to camp along the way at undeveloped (primitive) campsites and have at least one ATV trailer to pack camping gear. In addition to the parks public use (snowmobilers) cabin near the east end of the lake there are three commercial facilities, one at Nevis Camp, one at Ten Mile Lake and a lodge at Redfern Lake. Often commercial clients use the trail to access the camps. ATV riding along the trail for sightseeing or hunting is a common activity of these clients. Commercial operators also use the trail to transport staff and supplies.

2 Trail History

Locating records of the trail have been problematic. Janice Edwards (pers. comm.) was able to locate the file for the trail at the Peace District Ministry of Forests office in Dawson Creek, but could not locate any information on the road construction date. People interviewed believe the trail was originally constructed as a road to service oil and gas exploration into the Redfern Lake area in the late 50's or early 60's. The exact date when the road was constructed has not been located. It is generally believed the road was originally built for access to a bulldozer seismic operation that was conducted through the Nevis Creek and Besa River Valleys up to Redfern Lake. The seismic lines are still visible and at times the road and seismic join to become one linear route. The seismic line location is mostly through the middle of the valley and most snowmobiles use it in the winter. The seismic line is showing some establishment of willows, shrubs and short trees, but growth is slow and the lines are relatively clear, allowing access to the majority of the line by snowmobiles in the winter. The road on the other hand is generally located further upslope from the seismic line and has a more compacted base. However there are many "shoo flies" and short tangents built to access the seismic line, avoid unfavourable terrain or find suitable stream crossings. Additionally more short roads were constructed to access water sources or borrow pits. One site was found that was likely a seismic campsite. Occasionally one can still find debris that was left from the seismic construction operations.

People have been using the road for recreational vehicle access to the lake and for hunting since the 1960's. Prior to the common availability of modern ATVs (Trikes in the 1980's and Quads since the 1990's), four wheel drive trucks and jeeps uncommonly used the trail in summer conditions and commonly used it after freeze-up for hunting access. Vehicle travel from the Alaska Highway to the edge of the mountains (west of the current Muskwa-Kechika boundary) is in very poorly drained muskeg areas and usually was impassable until freeze up; these conditions prohibited much vehicle use in unfrozen conditions. The construction of dry weather roads by the oil and gas industry in the late 1980's in the Impa Lake area, along with new technology of four wheel drive quad ATVs (Quads) changed the options. The trail started to get more and more summer use after 1990 as Quad technology and availability changed. The safety of the trail and the use of the westerly end increased when the three log crossing of the Besa River was replaced with an engineered ATV bridge in 1999.

The Land and Resource Management Planning process for the Fort St. John Forest District (ongoing from 1993 to 1997) was a multi stakeholder consultation process that considered both the potential for a Redfern-Keily Provincial Park and objectives for the trail. The trail came into legislative focus with the creation of the Muskwa-

Kechika Access Management Area (AMA) Regulations in early 1994. The AMA regulation, under the Wildlife Act of British Columbia, manages wildlife and their habitat and restricts the use of vehicles for the protection of wildlife. The regulation was intended as an initial measure until the approval of the LRMP in 1997, the Muskwa-Kechika Management Area Act in 1998 and subsequent declaration of Redfern-Keily Provincial Park. These set land use objectives that included maintaining the trail as Off Highway Vehicle access only and it has remained regulated under the AMA regulation and Park Act since. In 1999 the Redfern Lake Recreation Trail was established under the Forest Practices Code of B.C. (Section 6(1) by order of the chief forester). These provisions of the Forest Practices Code have subsequently been replaced by Section 57 of the Forest and Range Practices Act (FRPA). Original order and proposal forms (Section 57 FRPA) are included in Appendix A.

The management intent of the Muskwa-Kechika Management Area is to “*maintain in perpetuity the wilderness quality, and the diversity and abundance of wildlife and the ecosystems on which it depends while allowing resource development and use in parts of the Muskwa-Kechika Management Area designated for those purposes including recreation, hunting, timber harvesting, mineral exploration and mining, oil and gas exploration and development*”. Access management has been identified as a primary conservation tool in the M-KMA. The preamble to the act states: “*the long-term maintenance of wilderness characteristics, wildlife and its habitat is critical to the social and cultural well-being of first nations and other people in the area; and the integration of management activities especially related to the planning, development and management of road accesses within the Muskwa-Kechika Management Area is central to achieving this intent and the long-term objective is to return lands to their natural state as development activities are completed*” (M-KMA 1998).

The draft management statement for Redfern-Keily Provincial Park (2007) includes: “*Access to and into Redfern-Keily Provincial Park is an issue that has significant impact on management and conservation of recreation values and use. Management of ATV and snowmobile access ensures that the wilderness areas of the park remain free from the influence of people. However, providing an adequate system of routes (for both motorized and non-motorized uses) ensures that the public will continue to be able to enjoy the natural beauty that the park has to offer. Access into the Park can be difficult, since it is approximately 80 km from the park to the nearest road, the Alaska Highway (Highway 97)..... Routes are a traditional means of traveling in the backcountry and are crucial to the wilderness experience, but there is great concern over the appropriate level of route development, not only in Redfern-Keily Park, but all of the M-KMA. Traditionally, the routes have not been developed to any standard and have been maintained by various user groups such as the guide outfitters, packers and resident hunters. Route use intensity varies greatly throughout Redfern-Keily Park, constrained by a heavy cover of vegetation and terrain features. Most main pack routes are generally confined to the valley floor.*”

The Redfern Trail route has evolved with use and has not been developed to any standards. Maintenance has been primarily by various individuals and some user groups such as the Moose ATV Club and Northland Trailblazers Snowmobile Club. However, significant funds were spent by the Forest Renewal British Columbia (FRBC) in 1998-2000 to provide an ATV bridge crossing the Besa River and for minor culverting and surface stabilization through the use of geotechnical fabric and small culverts (plastic). FRBC funded projects were implemented in the spirit of a wilderness route being installed by hand rather than machine with the exception of flying in the prefabricated parts to the Besa ATV Bridge.

The trail leading to Redfern Lake allows for a full range of outdoor recreation and backcountry recreation opportunities. For the zones covered by the Fort St. John LRMP the objectives and strategies include:

- “*protect, over the long-term for ecological representation and natural, culture, heritage, and recreation values,*

- *ensure that the Protected Area Management Plan respects the natural, culture, heritage and recreation values identified by the LRMP Table. The values include: public, commercial and backcountry recreation, hunting and fishing, culture -identified First Nations values: wilderness, wildlife, guide outfitting, trapping, ecological representation, fisheries, heritage - historic trails and existing trail networks, etc.”(Fort St John LRMP 1998).*

Today the trail is used by a wide range of recreational users, including hunting, camping, hiking, fishing, horseback riding and sightseeing. There are two primary modes of transportation used on the trail, ATVs and horse. Hiking the entire length of the trail is a rare event, however many do take side hikes from the trail and campsites.

2.1 Legislative Authority

Legislative Authority for the trail falls under the general provisions of the Muskwa-Kechika Management Area Act. However, authorization for trail improvements falls under the Forest Practices Code of BC or in R-KPP the Park Act. (Note: Forest Practices Code authority is now managed by Ministry of Tourism Sports and the Arts (T. Bennett, Recreation Officer pers. comm.) Authorization for use of the trail only by ATVs and snowmobiles is authorized by the Muskwa-Kechika Access Area Regulation (Wildlife Act) and the Park Act.

3 Methodology

We assessed the location and condition of the trail by travelling the entire length of the trail including all laterals of the trail that could be reasonably travelled. We used Global Positioning System (GPS) technology to map all trail and shoo fly segments and to waypoint special points. We photo documented special sites and campsites on the trail. GPS waypoints were recorded along with photographs at stream crossings, mud holes, rivers, trail junctions, lateral trail terminations, campsites, and any area on the trail that the investigators believed to be of interest for reporting. A table correlating waypoints, photographs and significant issues are found in Appendix F. GPS track points were used to generate a track map that is overlaid on NTS maps and satellite images to further illustrate the trail location and locations of potentially new routes as recommended by the team. These tracks and waypoints are available in shapefile format as part of this project.

During the time spent on the trail we monitored its use. This was accomplished by interviewing every person we encountered with a few simple questions:

- How long is your trip?
- Are you camped on the trail?
- How many people are in your party?
- How many ATVs are in your party?
- What types of ATVs are being used and how many ATV trailers accompany the party?
- What is the purpose of your visit?
- Have you been here before; how often?
- What area are you from?
- What standard do you think the trail should be maintained/improved to?

A Summary of this information is included in Appendix B.

Following a discussion with one of the parties we interviewed, we also spent a day on the Sikanni River/Trimble Lake Trail in the next drainage south of the Redfern-Keily Lake Trail as a comparison in experience of trail

options. This ATV trail is located through the upper Sikanni River valley to Trimble Creek, 5 km from the south end of Trimble Lake. We believe this trail to be a good reference to compare with because, even though the trails are in similar geographical locations, there is quite a contrast in the trails and user perceptions. The Sikanni trail for about half its length is located on a recently maintained petroleum development road and for the westerly half on a guide outfitter built bulldozer trace through mountainous area. This comparison information was used to help us assess the impact type of load that is being carried over the trail and the potential impact on the trail.

We searched the literature and made contact with people from other jurisdictions that have Off Highway Vehicle (OHV) trails. Looking for similar ecological and legislative jurisdictions meant searching for information from Alaska, the mountain states and from other regions in British Columbia. An online literature search was supplemented by contacting individuals and requesting references. Management of OHVs in a regulated, wilderness setting is not a common practice.

We consulted with local Ministry of Environment and Parks staff to solicit their ideas and information. We consulted with the local ATV club at a special meeting. We spent considerable time in discussion with the operator of Nevis Camp to identify use patterns, history of use and information/perception of the trail's values, issues and problems.

We conducted an all day workshop with the professionals involved with the project to review the field information and photo's, discuss the implications of various impacts on the environment, the users, the intent of the legislation and the options for management and remediation.

4 Trail Conditions-Field Observations

The trail has been separated into three distinctive sections: a section outside the legislated areas, a section within the AMA/M-KMA and a within Redfern-Keily Provincial Park. Within each of these sections we provide general observations and identify specific areas of concern and observations. The General Conditions Section of this report focuses on the overall state of the trail; we comment on ideas to maintain and improve this state of the trail. Specific Conditions and Concerns Section deals with specific locations that require serious investment and planning to address the problems found.

4.1 Section 1-Staging area(s) to MKMA

This section of the trail is somewhat indefinite in length as staging from highway vehicles to off highway vehicles occurs as far in from the Alaska Highway as the operator feels prudent based on the condition of the rustic oil and gas development roads. The last staging point that has a maintained road is some 8 km from the Alaska Highway north of Impa Lake (Figure 1) near wellsite 94G / i32b. Depending on the wetness of the road conditions highway vehicles can travel on to staging points 4 km (wellsite 94G6/i6b), 5 km, (wellsite 94G6/h75d) and 9 km farther. Road conditions are such that travel to the wellsite at 94G6/h65a some 17 km from the highway is unlikely and the farthest vehicles in late September 2006 were 13 km from the Highway.

With no clear staging point, the trail head has numerous makeshift camping sites, some with meat poles and some with makeshift latrines. The information sign erected by the Moose ATV and Northland Trailblazers Snowmobile clubs is located beyond the 13 km point on a seismic line used by snowmobiles but not a staging point for ATV travel. Travel on the last 4 km of the old severely rutted road is bumpy, muddy and has a bad stream crossing just before the well site. The trail proper begins at the wellsite and is approximately 3 km of narrow mud surface to the MK boundary sign at Waypoint 202 where there is a fairly wide but shallow mud hole.



Figure 1: Staging area for trail (in Red) is off the Alaska Highway in the Impa Lake Area.

4.1.1.1 Section 1-Environmental Issues:

There are no toilet facilities at or near the beginning of the trail. The high numbers of users congested at this point indicates that this is a serious environmental and possibly health issue. Information on where toilet facilities are located along the trail would also be useful.

Where the trail goes through organic soils the tire action moves soil away from the trail center to the edges causing the center of the trail to develop mud holes unless there is sufficient drainage. Organic soils occur in the first 3 km of this section of the trail after that organic soils are only found in depressions. Environmental damage on the first 3 kilometres is modest, simply the loss of vegetative cover on the trail and the tendency for braiding of additional trails (as riders try to avoid mud holes) widening the footprint. In general the trail is no wider than the original road surface and the environmental damage is confined to the old road surface area. Some muddy areas could benefit from minor drainage construction although the surface profile is basically flat, not conducive to drainage.

4.2 Section 2 -M-KMA to Park Boundary (38kms)

4.2.1 SECTION 2 -GENERAL CONDITIONS

The general condition of the trail within the M-KMA can be described as rough and sometimes rocky, with some stretches with deep organics, having mud holes and ruts from repeated use and erosion. The condition is typical for a back country trail that has not received any mechanical maintenance for a prolonged period of time (20+ years?) but has considerable use. The condition of the trail is the result of a lack of maintenance, heavy ATV use in all types of weather and a lack of a trail management strategy. Water management or water drainage is the single most important issue to manage on this section of the trail in both the rocky areas and the areas with organic soils. Simple drainage is needed most.

Water tends to remain on the trail for periods far beyond the spring freshet or after a rain event. In late September of 2006, a very dry year, we assessed the trail and found mud holes still being avoided by ATV riders as well as water in the middle or at times running down the middle of the trail (Figure 2 and 3).



Figures 2 and 3: water accumulation and water down the

These occur in low or locations where water has not opportunity



3: water in low areas running trail.

conditions lying areas, where the had an to recede

from the trail either naturally because of terrain or because of berms (Figure 4) that form the edge of the old road. The source of the berms is likely two fold. One source is the original construction of the trail which appears to have left a berm on the edges of the road without planned breaks for drainage. The second source is simply from repeated use of the trail without maintenance. This has forced soil materials to the edge of the trail where it has accumulated. In both cases the soil material along the edge of the road is now acting as a barrier to water moving perpendicular to the trail, forcing the water to remain on the trail or flow down the trail until it either accumulates to a level higher than the barrier or it finds a break through the barrier.



Figure 4. Berm on lower slope position of road restricts water movement.

4.2.1.1 Section 2-General Environmental Issues:

Where the trail goes through organic soils the tire action moves soil away from the trail center to the edges causing the center of the trail to develop mud holes unless there is sufficient drainage. Organic soils occur in the first 3 km

of this section of the trail; after that organic soils are only found in depressions. Environmental damage on the first 3 kilometres is modest, simply the loss of vegetative cover on the trail and the tendency for braided trails (as riders try to avoid mud holes) widening the footprint. In general the trail is no wider than the original road surface and the environmental damage is almost totally confined to the old road surface area. Some muddy areas could benefit from drainage, although the surface profile is basically flat for a large area; not conducive to establishing drainage.

On much of this section the trail is on rocky substrate that has been compacted by the original road building activity. While frequent travel by ATVs along this section of the trail restricts the establishment of vegetation, the rocky trail is quite stable except where water tends to flow along the trail between the berms created by both the original construction and the movement of materials away from the travelled portion. Minor to modest erosion and movement of fine materials is occurring at many sites where water is flowing along the road. With the exception of the Ice Hill (addressed later in this section) these environmental impacts need drainage breaks in the berms and some minor cross drainage to repair and maintain the trail.

Additionally there are a number of crossings of small streams in this section. The streams are either on rocky ground with well developed channels or very low gradient in organic marshy areas. While there is some concern about erosion of the trail leading into the rocky streams, we noted no severe areas and the amount of material eroded over the 40+ years the trail has been in place makes this impact modest to minor. Crossings of the low gradient streams have the potential to cause more silt and sediment to enter the stream. However, with the exception of the stream at six mile, the streams have low flow rates and are vegetation choked, preventing fine material from moving the necessary distance to reach potential fish bearing streams. A more detailed assessment of the six mile stream crossing could be made to reduce the potential for material movement.

The three largest stream crossings, those of Nevis Creek, clearly impact a fish bearing stream and we deal with them in the specific concern section later in the report.

The trail clearly is a disturbed linear corridor in a wilderness area that is little disturbed. The trail has a strong visual impact, similar to any road. The trail surface is a loss of wildlife habitat due to loss of vegetation and some drainage issues exist.

There are numerous ad hoc (primitive) camps in this section, but we did not encounter any toilet facilities except at the commercial camp. The commercial operator and several of the users expressed concern about the depletion of dry timber for firewood within the 400 meter corridor although this was only apparent at Nevis Creek, six mile and 10 mile cabin areas.

4.2.2 SECTION 2- SPECIFIC CONCERN SITES

There are three locations that require specific attention and planning to address the trail location and condition. The areas are the first (east) Nevis Creek crossing, the route through Nevis Camp (with two stream crossings) and the area known as Ice Hill.

4.2.2.1 Nevis Crossing East

Approximately 16 km from the M-KMA boundary is the first (east) crossing of Nevis Creek.

This creek crossing has numerous trails incised into the banks of the creek at a variety of crossing places (Figure 5). These crossings are particularly challenging during periods of high water as the water can be deeper than the ATVs ability to maintain solid traction to the ground and therefore can lead to swamping of the ATV, a particular concern to families (Moose ATV Club pers. com.). There is also concern that the crossings are in areas of fish habitat. Bull Trout and Arctic Grayling are known to occupy and spawn in Nevis Creek and the area at the

crossings and in the vicinity of the crossings exhibit good spawning characteristics for these species. Disturbing fish habitat with every crossing event is possible, yet no alternative is available. No trail restrictions are in place to manage impacts (in stream timing windows) for fish. An engineering evaluation and review of crossing options would be appropriate.



Figure 5 : Nevis East Crossing quad routes

4.2.2.1.1 Environmental Issues Nevis Creek East:

Where the trail goes through organic soils on the stream banks the tire action moves soil downhill and into the stream (Figure 6). Much of the stream bank at Nevis East is on rocky substrate but it is difficult to navigate off a rocky bank onto gravel bars or the shallow parts of the stream. Additionally at different levels of stream flow there appears to a different place that is “best” to cross this large stream. Consequently there has been much trial and error (within the 400 meter zone either side of the



designated trail) and a number of crossings now exist that show bank degradation where ATV traffic has caused ongoing bank erosion.

Nevis is a fish bearing stream, spawning and rearing habitat sites have not been identified, however it is quite possible that these stream crossings are in spawning or rearing habitat and traffic of ATVs fording is impacting this habitat through disruption of substrate and possibly localized introduction of particulates.

Figure 6: Nevis Creek east crossing bank cut on north side main trail.

4.2.2.2 Nevis Camp

Nevis Camp is approximately 19 km from the M-KMA boundary. The trail crosses Nevis Creek in two locations, once in front (east Figure 7) of the main building at Nevis Camp and another approximately half a kilometre west of the camp (Figure 8). In between the two crossings the travellers must pass through Nevis Camp. Traffic through the camp can be an issue when young children are playing and horses are loose. Stopping at the camp is allowed and cabins are usually available for rent, however most people travelling the route are prepared for outdoor camping and don't use the camp for accommodations (Morley Dressler pers. com.). They simply drive through the camp. All travellers must take the route through the camp as there is no other alternative at this time. The creek crossings at the camp are wide and the trail is well incised into the banks of the creek



(Figures 7, 8) Nevis Camp Crossings (aerial)



These crossings are particularly challenging during periods of high water as the water can be deeper than the ATV's ability to maintain solid traction to the ground and this lack of stability can lead to swamping of the ATV, a particular concern to families (Moose ATV Club pers. com.). There is also concern that the crossing are in areas of fish habitat. Current crossing at the west end follows along stream channels for approximately 100 meters. (Figures 9, 10)



Figures 9, 10: Stream Crossing in Channels west of Nevis Camp



Bull Trout and Arctic Grayling are known to occupy and spawn in Nevis Creek and the area at the crossings and in the vicinity of the crossings exhibit good spawning characteristics for this species. Disturbing fish habitat is possible with every crossing event, yet no alternative is available. Trail timing restrictions to meet in stream timing windows for fish are not practical.

The original road route followed the north side of the creek, but portions of this route have since washed out (Figure 11). The washed out part of the trail can be seen in the foreground of the photo.



Figure 11: Washed out trail location along Nevis Creek at Nevis Camp.

Parts of the route that have not washed out are still accessible and are used by horses as travel corridors between local (Nevis Creek Camp area) grazing sites. There are possible alternatives to the existing designated route; the most likely alternative follows portions of the old trail, but detours around the washout on a hogs back to the north (Figure 12). The detour could stay on the north side of the creek on the old trail, and then head north for 50-100 m up to the hogs back where it would join with existing ATV and horse trails on an ancient fluvial terrace. The terrace is currently being used as grazing areas and there is a campsite location.

From the terrace the trail could continue to travel west on existing trails, eventually joining with the current designated route about 50 meters west of the edge of the terrace.

The total length of the new trail route would be about 800 meters. In order to establish this new route some minor construction would be necessary. This would include brushing and clearing of the hogs back to clear the brush wide enough to create an ATV trail and widening the top of the hogs back to allow ATVs to navigate the new narrow trail safely. At the bottom of the hogs back there is an intermittent stream that is best crossed using a short span ATV bridge.

Figure 12: Hogs back alternative trail route location at Nevis Camp.



4.2.2.2.1 Environmental Issues Nevis Camp:

The easterly stream crossing at Nevis Camp is quite stable with a single crossing forming a partial weir below the trail. Constant use of this crossing by ATVs and livestock will eliminate useable fish habitat.

The westerly stream crossing at Nevis Camp is in an area of braided stream channels that shift with annual freshet around clumps of willows. This is on rocky substrate but it is difficult to navigate through the willows. To keep to the gravel bottom in the shallow parts of the stream ATVs use various channels as the trail. Additionally with different levels of flow there appears to be a different place that is “best” to cross this large stream. Consequently there has been much trial and error (within the 400 meter zone either side of the designated trail) impacting a number of stream reaches during the summer. Nevis is a fish bearing stream. Spawning and rearing habitat has not been identified, however it is quite possible that these stream crossings could be in spawning or rearing habitat and the ATV fording is impacting this habitat.

4.2.2.3 Ice Hill

Ice Hill is located some 38 km west of the M-KMA boundary and one kilometre east of the boundary of Redfern-Besa Park. Trail damage at Ice Hill is extensive. The original trail followed the old road, however this route was washed out some time ago and now a series of alternative routes going directly down the hill are being used. The alternative routes are creating substantial ecological damage where the trails become eroded and runoff uses the trails as stream courses (Figure 13). Native vegetation vital to holding the soil in place on this sensitive site is rapidly removed by ATV use and erosion soon follows. Navigating down the hill can be difficult if not dangerous in dry conditions, as it was for us. In wet conditions the hill could be dangerous to the traveller. The ruts in this area are between one and two feet deep. These ruts are extremely rough with large rocks exposed. It is not uncommon for ATVs to become high centred on the centre piece between the ruts.



Figure 13: Trail braiding showing erosion and ecological damage at Ice Hill.

Once water gets trapped in these ruts there is no place for it to run except down the ruts. Preventing traffic from using the existing routes will require considerable investment and planning. ATV riders keep attempting new routes as the old routes become more difficult or are unmanageable in poor conditions. This activity continues to

erode the ecological integrity of the hill. This section will need future monitoring, planning and restoration to protect the integrity of the ecology of this area, allow the hill to heal, and create a safe route for passage.

Most of the original road location is still intact except for a short section near the top of the hill that has been washed out (Figure 14, 15).

With a lack of use over the past years the gully is partly overgrown with willows, cottonwood and the occasional black spruce. Past the gully, lack of use combined with a relatively hard surface has likely helped to protect the original trail surface from further erosion and much of the original road is intact. Once again water management is the most important issue to deal with at this location, whether or not the current trails receive continued use. However, if the current situation is allowed to continue there will be further ecological damage to the hill (loss of vegetation and erosion). The loss of vegetation compounds the erosion problem, as the soils on this moist slope are sensitive to disturbance by nature of their parent material. Ice Hill soils are primarily colluvial materials, with minor glacial till overlaid with an organic layer. There is very little bonding material such as fine clays, intermixed with the coarse fragments. The organic layer and fine materials that are present are rapidly removed from the hill. One pass with an ATV in wet conditions will initiate erosion that could take years to repair. These finer materials are eventually deposited in the stream at the bottom of the ravine. This stream is of moderate size and even if it is not fish bearing, it flows directly into the fish bearing Besa River about 3 km away.

This loss of fine soil material then exposes the coarse colluvial under layers. These colluvial rocks are moved downhill by the actions of ATVs and water creating additional obstruction to ATV travel.



Figure 14: Original road bed at Ice Hill
Erosion Channel

Figure 15: Gully where original road bed is transitioning to an
washed out.

4.2.2.3.1 Environmental Issues - Ice Hill:

Ecological damages that need to be addressed in a future plan are the erosion and loss of vegetation and the impact on the stream at the bottom of the hill. This stream should be considered fish bearing. The high water mark would place the stream at approximately 5 meters, making the stream a S3 fish bearing stream. This stream is a direct (first order) tributary to the Besa River. The current situation will promote the expansion of trails on the hill compounding this problem. A single maintained route needs to be constructed.

4.3 Section 3 - Park Boundary to end of Trail (19km)

The general condition of the trail within the Park boundaries can be described as difficult. There are many deep mud holes and ruts from repeated use and erosion. This portion of the trail is different from the M-KMA portion as it has many smaller wetland crossings. The trail did not receive any maintenance for a prolonged period of time. However recently both FRBC and the Parks Staff have constructed corduroy from local materials at various locations to reduce damage and guide travellers. The condition of the trail is the result of its alignment crossing a succession of broad wetland drainages. A lack of maintenance, heavy ATV use in all types of weather combined with location has created significant impacts on these sedge wetlands. Throughout this park section, water management is the single most important issue. Water tends to remain on the trail for extended periods either in deep mud holes or in low laying wetland areas (Figures 16, 17).



Figure 16:
Drying mud
hole.



Figure 17:
Extended
lowland.
Water remains
on the trail for
extended
periods.

Attempts have been made to encourage travellers to use the corduroy with corduroy and simple bridges at the most severe wet sites; however these are not always used (Figure 18). We speculate the corduroy sections are sometimes avoided because the corduroy doesn't cover enough of the wetland, the rider believes the corduroy is unsafe or the corduroy is submerged and can't be located. Either way, riders continue to expand the area of disturbance by braiding out around the original route. Due to terrain, the greatest number of corduroy crossings occurs within the Park where travel is restricted to 10 meters from the main route.



Figure 18: Corduroy constructed trail route.

4.3.1 SECTION 3- CONCERNS

The corduroy construction within the park section is a specific concern for two reasons. First the corduroy is being cut from trees within the park without a common construction standard. Secondly, once in place it is apparent that travellers still navigate around the corduroy to avoid difficult conditions.

The cutting of trees in the Park is a concern because of the limited supply of wood consistent with this wilderness setting, the slow growth rates of trees and the perception of the public that tree cutting may be acceptable in the park. The amount of cutting to build enough corduroy is too much, even if Park Staff are cutting the trees. Campers on the trail may be encouraged to cut their own firewood or build more corduroy if they notice trees have been cut along the route. This forest is generally old age classes, even though the trees are generally small diameter and short, due to the extreme growing and soil conditions of the area. Preserving this forest is a mandate of the park and this may become extremely difficult to accomplish if trees are continually removed for corduroy.

The use of the corduroy bridges also needs to be addressed. A system that identifies where the corduroy trail is located needs to be implemented to guide travellers over the bridges. During wet conditions the bridges may be extremely slippery. Getting off the ATV or losing contact with the bridge could be dangerous. Figure 19 illustrates the width and current construction of corduroy bridges in the Park. There is hardly enough width on the corduroy for an ATV; if one has to get off and stand beside the ATV they are likely to be standing in mud or water. If one was to miss or slide off the corduroy during passing over the bridge there is a risk of injury. These issues need to be addressed in a management plan and by a common construction standard for corduroy bridges.



Figure 19: Typical corduroy bridge in Redfern-Keily Provincial Park.

Additional Environmental concerns in this trail section are; the limited camp areas, lack toilet facilities near the lake and the extensive forest cutting that has occurred near Redfern Lodge.

5 Literature and Practices Review

The M-KMAA has created a unique land use planning tool. It has no counterparts in British Columbia or elsewhere in North America. Subsequently the designation of the Redfern trail as a “wilderness” vehicle route also seems to be distinctly a “made in northern British Columbia” creation.

We contacted Randy Goodwin of Bureau of Land Management in Alaska and Alan Jubenville, an Emeritus from the University of Alaska seeking published and unpublished reports and contacts. While Mr. Goodwin (pers. com.) was able to provide some verbal information on OHV trail management in his state and identified an upcoming conference on Alaska Trail problems, his comments were the total available information from that jurisdiction. Mr. Goodwin indicated that they had a simple approach to trail damage in wet cold organic areas, elevate and drain. They approached each problem trying to find a way to elevate the trail higher than the surrounding area and keeping water drained from the trail surface. He indicated that in many areas this involved substantial construction and movement of materials to raise the trail grade and resulted in significant “hardening” of the trail. He indicated that they were relying on small, light backhoes and other equipment that worked in the small footprint of OHV trails and he referred me to the website of the USFS cooperative venture with Trails Unlimited.

We searched the following websites looking for topical publications or information:

- The National Science & Technology Center, Publications data base of the US Bureau of Land Management, <http://www.blm.gov/nstc/library/techref.htm>
- The Publications of the Society for Range Management, <http://www.rangelands.org/publications.shtml>
- The US Forest Service, Treesearch comprehensive publications database, <http://www.treesearch.fs.fed.us>
- The Grasslands Conservation Council of British Columbia , Off road management strategy and publications, <http://www.bcgrasslands.org/conservation/orv.htm>
- Outdoor Recreation Council of British Columbia, publications, http://www.orcbc.ca/research_pub.htm
- Coalition for registering and licensing of Off Road Vehicles, website and Final Recommendations, <http://www.orvcoalitionbc.org>
- US Department of Agriculture, Forest Service Trails Unlimited program site. <http://www.fs.fed.us/trailsunlimited>
- Redfern in the Rain story on Quads.ca <http://www.quads.ca/072104.htm>

We also contacted local MOE Staff (Scott Fraser, Mike Neto, Rob Honeyman, Blake Parker pers. com.) and former MOE parks resource staff (Mike Gall pers. com.)

The Treesearch website provides a list of over 300 publications on trails in the US Forest, BLM and National Parks systems. Not one of these publications deals with the low footprint wilderness type trails and their physical management/ remediation.

The Trails Unlimited Website is promoting a USFS endorsed a trail management training and consulting approach. The information provided there as illustrated by Figure 20 shows similar issues in vastly different ecosystems and some basic engineering solutions using small equipment. What is clear is that the issues are common to general construction; the techniques use small equipment or manual labour to dramatically reduce the construction footprint to the ATV trail width.

Tractor training in Colorado (left).

Trail construction instruction (right).

6 Camps

Chillborne was requested to document campsites along the trail. Excluding the 3 commercial sites and the Public Use Cabin just east of Redfern Lake (Figure 21) we documented 26 non-developed camp sites. Only the site east of the Besa River Crossing had toilet facilities. Waypoints and Photographs for campsites are listed in Appendix C. A typical campsite was a fire pit in a grove of trees with a dry grassy under story that was near a source of water and/or horse feed. Quite often rudimentary tarp or tent frames had been constructed. In a couple of extreme situations considerable debris was left behind (See Campsite Collage Figure 22)

Figure 21 Public Use Cabin



**Figure 22 Collage of
campsites encountered
September 2006**



7 Notes on Compliance

We were aware of existing requirements during our field trip and made notes on compliance issues. We were quite heartened to find only one party of hunters out of compliance with the 400 meter rule in Section 2; they had gone to retrieve a moose and were about 50 meters beyond the 400 meter boundary along a seismic that angled away from the trail. The marker sign was bent over and not really visible. It was interesting to observe a hunter take his Quad to the 400 meter unmarked boundary (using his GPS) and then proceed on foot.

We followed each trail as it departed from the designated route as can be seen electronically on the track provided as part of Appendix G. We noted (from observing vegetation phenology) that with one exception ATV traffic from this year appeared to stop at the boundary signs, even if the signs were missing from the posts.

The exception was near a campsite location just west of the Besa Bridge on a hardened shoo fly that lead to a old gravel pit on the river. The campsite was located near the boundary sign (but more than 10 meters away, but clearly ATVs had travelled beyond the sign (away from the camp) the additional 350 meters to the river/gravel pit.

We noted for the large part there were very few incidental tracks varying more than a few meters from the designate route and we wondered if it reflected the presence of the park rangers on a regular basis. However we noted the same circumstances on the rustic portion of the Sikanni trail.

While there was some litter (primarily drink cans and bottles and the occasional wrapper from a candy bar) the trail and campsites were quite litter free. However the tendency to leave poles and structures at campsites detracted from the wilderness setting. At one old site (not used this year) there was an accumulation of debris that had been bagged and stacked some time past but not removed.

8 Discussion

8.1 Current Trends

Our investigation of the trail occurred in late September 2006. While there had been an early snowfall that had melted the previous week, the fall of 2006 was extremely dry. These conditions provided the perspective of how even small amounts of water can accumulate on the trail and we were able to see the structure of many sites that under more normal conditions were most assuredly inundated with accumulated surface water.

The trail has been in place for some 40+ years and has seen a dramatic increase in traffic in the past decade. Unfortunately there are no statistics documenting the amount of use of the trail. However, most of the trail is remarkably stable with exposed soil only on active tracks most of which are within the right of way of the old road grade. Native vegetation is often slowly re-establishing on sites that have received little traffic recently.

Within Section 3, Redfern-Keily Provincial Park, the maintenance efforts of the park rangers is evident and with the exception of some improvement to several corduroy sections needs little work. We note that a few sites could use some cross drainage to prevent water flowing down the trail, most notably just east of the intersection of the main trail and the access to the Park Maintenance site. Corduroy sections have not been built to any standard and the transitions from unimproved trail to corduroy need some attention/extension.

Section 2, within the M-KMA and the longest section, has the most issues. The majority of this 40 kilometre section is very stable but there are approximately 62 sites where lack of cross drainage is either causing trail

surface erosion or is causing ponding and mud hole development. The most important issues in this section are a serious erosion and safety problem at Ice Hill and problematic stream crossings of Nevis Creek. Without active intervention Ice Hill erosion will get worse. Nevis Creek stream crossing issues will continue to widen the footprint of the trail and with increasing traffic increasingly impact fisheries resources. Within this section there are no developed toilet facilities except the private ones at Nevis Camp yet this is where the majority of use occurs.

Section 1, outside the M-KMA is a bumpy, messy, muddy trail that has cross drainage issues. This part of the trail includes several trailhead points none of which have toilet facilities. The trail in this section is stable west of the well site at 94G 6/h65a.

8.2 Future Options

The Land and Resource Management Plan and the AMA regulations identify long term maintenance of the “rustic” nature of the trail for ATV (OHV) use. Users have expressed strong support for maintaining the current “challenge” of the trail which extends the trail riding time, limits the number of users and provides adventure. On balance, while minor environmental and safety issues can be identified regularly along the trail, the only urgent issue is the erosion at Ice Hill. Our review of trail management in other jurisdictions and even the Sikanni trail indicates that while a large amount of “tinkering” with the trail could be done; such tinkering would have serious consequences in changing the nature of the trail, increasing its use and perhaps even increasing accident potentials due to increased speeds. Future management of this trail requires basic monitoring of use, with trail counters and questionnaires. Issues such as speed and maintenance are best first addressed through design and then reflected in management goals and work plans. We believe the regular presence of park rangers encourages the high level of compliance and can contribute to minor maintenance very positively.

Outside of Redfern-Keily Provincial Park, within the context of the current nature of the trail, we can envision cross ditching, relocation of alignment at Ice Hill, rerouting around Nevis Camp, and possibly some kind of crossing at Nevis east while still maintaining the “traditional ATV” access as indicated in the LRMP.

Within Redfern-Keily Park there are mud holes in organic sites that likely do not fit a wider standard of acceptable management for Provincial Parks. The current efforts to corduroy or bridge these sites somewhat change the nature of the trail but are ecologically sound. The ad hoc nature of the corduroy efforts with inconsistent results along with the use of materials from the park environment should be reviewed.

8.3 Management and Project Recommendations

8.3.1 ICE HILL

We identify there is a possibility of realigning the trail at Ice Hill and suggest options of reopening the original alignment or bypassing the major washout and reconnecting with the lower half of the original alignment. However this would require mechanical equipment and an engineering study to provide a stable alignment and appropriate drainage would be prudent. Getting equipment to the site without impacting the nature of the trail and ecologic values will be challenging but is likely possible with the use of small equipment as illustrated in the Trails Unlimited website.

8.3.2 CROSS DRAINAGE

The establishment of cross drainage along Section 1 and 2 of the trail would be ecologically responsible and would stabilize the trail and drain a number of mud holes. Due to the compact nature of the side berms, this would require the use of a small backhoe as illustrated in the Trails Unlimited website. Site plans would not need to be drawn up, but pre-flagging the specific sites is necessary along with special training for the operator.

8.3.3 NEVIS CAMP BY-PASS

Realignment of the trail and the route designation to bypass Nevis Camp would eliminate two problematic stream crossings. We suggest an alignment along a hogs back and construction of a small bridge. This can be achieved most easily with the use of small equipment as illustrated in the Trails Unlimited website but is possible to achieve with hand work. A rudimentary site plan and pre-flagging would be optimal.

8.3.4 NEVIS EAST STREAM CROSSING

The second most serious safety issue existing in the trail at this time is the Nevis East stream crossing. The ATV club members had a variety of suggestions for improving this crossing. Detailed plans were beyond the scope of this report. However this location has evidence of a number of different crossing options within a short distance and a detailed air photo review of options, the possibility of a bridge should be undertaken.

8.3.5 CORDUROY OF THE TRAIL

Corduroy of the trail is a useable option for managing ecological and visual impacts in Redfern-Keily Provincial Park. However a lack of consistent technique and the use of local materials have consequences on the parks resources, ecological and visual. Consideration should be given to establishing a standard design, bringing in manufactured timbers and using preserved wood for corduroy sections. Additionally our research indicates that transitions from “normal” trail to corduroy are important and should be incorporated into the design.

8.3.6 MINOR CROSS DRAINAGE MAINTENANCE

Minor cross drainage can be affected on an ongoing basis; we would recommend that MOE staff travelling the trail place a priority on carrying a shovel and fixing minor disruptions on an ongoing basis. It is particularly important to reroute small flows that start running down the trail.

8.3.7 BIO-REMEDIATION

A number of old seismic lines, shoo flies and ATV trails are not used but have had the woody vegetation (shrubs and trees) removed. Re-vegetation of these sections (especially old seismic) with woody shrubs would attenuate the visual impact of these disturbances and encourage compliance to the designated route. Consideration of a fall bioremediation project, where woody stems are cut from adjacent areas and immediately planted would help deal with this issue.

8.3.8 SPEED MANAGEMENT

Speed of ATVs using the trail has consequences for the trail. The faster ATVs go the more material the tires dislodge on the travelled portion, causing rutting and erosion particularly on hills and corners. We are not aware of serious ATV caused injury occurring on the trail; however if the trail is improved speed will increase and potential for injury increases dramatically (Speed Kills). We suggest that the trail surface not be improved to the

level that speeds will increase, users are educated to maintain lower speeds and MOE staff procedures direct that staff set a good example by maintaining lower speeds.

8.3.9 ROUTE WIDTH AND DESIGNATION

There are two standards for the designated trail width, 400 meters and 10 meters. We saw little reason for the 400 meter width if the side trails to campsites were also designated trails. Consideration could be given to fine tuning the designated route (s) and revising the width.

8.3.10 CAMPSITES

There are few public camping sites at the Redfern Lake destination; the last almost 5 km of trail along the lake has no campsites. Consideration should be given to establishing a campsite with toilets at the west end of the lake and perhaps another somewhere along the westerly half.

8.3.11 PUBLIC TOILET FACILITIES

To our knowledge the only public toilet facilities are at the Besa Bridge and they are not identified to users who have not gone that far. Consideration could be given to provide public toilet facilities at the trailhead and part way along section 2 (at Nevis East crossing).

8.3.12 INFORMATION AND DOWNLOADABLE GPS TRACKS

Information about the trail is not readily available. Most users appear to have at least one GPS in their party. Consideration could be given to providing a GPS track of the designated route and locations of various points of interest (campsites/toilets). The posting of downloadable tracks on a publicly accessible website along with basic information on the trail might be achievable.

9 Appendices

9.1 Appendix A: Legal Establishment of Trail



COLUMBIA

Ministry of
Forests

Forest Practices Branch

MEMORANDUM

File: 16660-04

February 12, 1999

To: See attached distribution list

From: Ralph Archibald
Director
Forest Practices Branch

Re: Establishment of Recreation Sites and Recreation Trails

As requested by you over the last few months, and in accordance with Section 6(1) of the *Forest Practices Code of B.C. Act* (the Act), the Chief Forester has established 56 recreation sites and 22 recreation trails, effective January 28, 1999. Copy of order attached.

In accordance with Section 6(3) of the Act, objectives must be established within six months of the effective date of the order to establish the sites and trails. Forest Practices Branch staff are available to assist your staff in the development of the site and trail objectives.



The Forest Practices Branch is required to publish a notice announcing these establishments in the B.C. Gazette (attached). Districts are required to publish a similar notice in a newspaper as per the requirements of Section 8 of the Strategic Planning Regulation.

For further information on the administrative processes and responsibilities for site, trail and objective establishment refer to the document, Higher Level Plans: Policy and Procedures, chapter 7.

Please contact Bill Marshall at 250-387-8382 or Ward Trotter at 250-356-5887 if you or your staff have any comments or questions.

Ralph Archibald
Director
Forest Practices Branch

Attachments

9.2 Appendix B: User Comments

Question	Common Answer	Uncommon	Moose ATV Club	Nevis Camp Operator
How long is your trip?	One week	Two weeks	Weekend	Season from June to October
Are you camped on the trail?	Yes	Nevis Camp or 10 mile cabin	Yes mostly	N/A
How many people are in your party?	2	8	6 (families and friends)	2
What type of ATVs are being used and how many ATV trailers accompany the party?	Quads with one Tandem trailer per quad	6x6 with Tandem Trailer	Quads with one to two trailers per group	Use horses from camp, quads to go in and out, Ranger OHV by permit (too heavy)
What is the purpose of your visit?	Hunting	Camping and Family with hunting	Trip, Fishing , Camping, Family Fun	Provide lodging and some meals
Have you been here before, how often?	Yes several times	Yes second time	One or two trips per year	Many years, depends on changing ownership
What area are you from?	Out of Region (Kelowna, Chilliwack, Vancouver Island)	Fort St. John	Fort St. John	Fort St. John
What standard do you think the trail should be maintained/improved to?	Leave it as is	Make it worse	Leave substantially it as is, safety issue of stream crossings of Nevis Creek/Ice Hill	Rough trail, can't make time to highway. Don't want more traffic leave it rough.

Letter from Moose ATV Club

Page 1 of 1

Brian, as per our conversation, here are some notes I had made based upon the discussions I have had with club members on how to fix up the Redfern trail (not an exhaustive list, but some general ideas). Obviously we are very supportive of keeping this route open and there would always be the possibility of getting some volunteer support (no commitments though, as something like that depends on people being able to get time off). We realize that there will never be a grand high grade trail in there and actually don't want to see that. Rather we would like to see the problem areas that are causing people to have to go around fixed up, so that everyone sticks to one route. There is no cheap fix for that, just a lot of hard work. Anyways, here are some ideas we had talked about and if we could get you to our next monthly meeting that would be great too (second Tuesday of every month, 7PM at the Sportex building).

Parts to fix –

- Beginning, old ruts, redirect water to limit erosion
- From there on there are some mudholes that could be drained, but not bad, just rough
- Pretty good to Nevas Creek, the crossing there can be rough, there is a second trail around, should maybe make one safe crossing to prevent bikes rolling in the creek during high water (an environmental as well as safety issue)
- Up to ten mile lake pretty good then get into the muskeg. For that corduroy in and cover with fill and a gravel top, the side trails will disappear in time.
- The ice hill – can't fix it – find a new route, fix the drainage, let it reclaim itself
- The corduroying they did, runs parallel, should be crosswise and covered with dirt/fill and a gravel top – could be done with a backhoe possibly.
- Into the lake the trail is deeply rutted in and this fills with water, need to drain that before fixing, then install rock drains under the trail so the water has somewhere to go.
- A little more signage would be good too at the points where the trail splinters off
- More campsites along the route may relieve some of the congestion too, make it a two day trip in, instead of one long day

I'm sure our members have plenty more ideas, so it would be good to have you to a meeting, even if we have to call a special one, it would be worth it. What we don't want to see is more restrictions on the route, by making the problem areas more stable and the trail more predictable, I believe we could bring it back into the acceptable terms set out for the M-K. If you have any questions or what not, please feel free to contact me or Joe at any time. Anyone I cc'd in this e-mail if you have further ideas or comments for Brian (he is doing that contract to evaluate what needs to be done to the Redfern trail) please forward along. Thanks.

Dan Webster B.Sc., P.Ag.
Project Scientist

Eco-Web Ecological Consulting

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Reducing man's influence on nature

From: "Dan Webster" <dwebster@eco-web.ca>

To: <brian@chillborne.ca>

Cc: "Joe Bourque" <j.bourque@shaw.ca>,

"doocy" <doocywoodworking@telus.net>,

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"Jason Gyr" <slcjason@telus.net>

Subject: Redfern Trail

Date: Wed, 20 Sep 2006 14:20:22 -0700

9.3 Appendix C: Campsites Data Index

Waypoint	Photograph	Comment	Campsites
aerial shot	1050766	Camp at redfern by park site	1
114	1050797	unused campsite	2
117	1050801	campsite and sign end of trail west of bridge	3
119	1050807	campsite at Besa Bridge firepit and wood	4
123	1050811	old campsite	5
132	1050841	Campsite	6
134	1050844	Campsite	7
135	1050845	camp at 10mile cabin jnct.	8
135	1050847	camp at 10mile cabin jnct. Meat on pole	9
137	1050851	six mile camp 1	10
139	1050852	six mile camp2xing	11
139	1050854	Polaris 6x6 six mile camp	12
141	1050855	camp	13
142	1050856	camp on hill missing boundary sign	14
145	1050864	Dry camp nevis camp area	15
147	1050866	camp above nevis camp	16
148	1050867	horse meadow camp by Nevis Camp	17
149	1050868	horse meadow camp by Nevis Camp 2	18
152	1050880	Campwhere Nevis Creek heads north, no ATV	19
153	1050884	Nevis Crossing east Camp	20
154	1050885	Nevis Crossing east Camp south side	21
182	1050889	camp by creek griz attack	22
183	1050890	camp for lunch	23
188	1050897	heavy constructed camp old	24
191	1050904	sign knocked over	25
192		Old Camp not used	26

9.4 Appendix D: Remedial Sites Index

Waypoint	Photograph	Comment
	1050770	Blocked culvert along lake trail
	1050772	water running down trail parks access
	1050773	water running down trail parks access jnt
	1050774	Typical trail along lake with blocked drainage to park access
107	1050778	detour through trees for mudhole
	1050782	multi trail in R/W
	1050783	dry bumps
109	1050784	trail splits
110	1050790	small stream xing
111	1050791	lenthwise corderoy drainage maintained
112	1050792	recent mixed corderoy
113	1050793	recent mixed corderoy 2
113	1050795	recent mixed corderoy 4
113	1050796	drainage plastic pipes
115	1050798	erosion down trail
116	1050799	dry trail on gravel fan
117	1050802	road recently used in non compliance to river fix
124	1050812	typical rutted road surface
126	1050819	ice hill bottom trails
128	1050831	very braided throug sedge top of ice hill
129	1050834	Mudhole with stick potential corderoy
131	1050839	Cutting down to creek crossing
136	1050848	wet spot
138	1050850	near six mile camp braid in sedge
155	1050886	Old fabric in trail
156	1050887	mudhole and braid drainage possible?
157	1050888	mudhole and braid drainage possible2enviro damage
158		x drain needed
159		x drain needed
160		x drain needed
161		x drain needed
162		x drain needed
163		x drain needed
164		x drain needed
165		x drain needed
166		x drain needed
167		x drain needed
168		x drain needed
169		x drain needed
170		x drain needed
171		x drain needed
172		x drain needed
173		x drain needed
174		x drain needed
175		x drain needed
176		x drain needed
177		x drain needed
178		x drain needed
179		x drain needed
180		x drain needed

9.5 Appendix E: Project Projected Costs

9.5.1 ICE HILL DESIGN

This project involves the services of an engineer with an understanding of the “rustic” nature of the trail to do a site investigation and provide design and alignment options for the realignment of the Ice Hill section. We anticipate that it involves a site visit and quality air photographs.

Cost Estimate:	Site Visit (helicopter)	\$3000
	Professional Services	\$7000
	Total	\$10,000

9.5.2 ICE HILL CONSTRUCTION

After a design option has been chosen a more precise cost estimate would be available. This is a very preliminary estimate.

Cost Estimate:	Site Visit (helicopter)	\$ 3000
	Machinery transport	\$ 1500
	Machinery walk in/out on trail	\$ 2500
	Machinery work on site	\$20000
	Fuel and flying costs	\$ 2500
	Supervision	\$ 3000
	Accommodation	\$ 3000
	Contingency	\$ 3000
	Total	\$38,500

9.5.3 CROSS DRAINAGE

This is the cost estimate for a small hoe to walk in on the trail as far as Ice Hill and construct appropriate cross drains (estimate 150) all the way to the staging area.

Cost Estimate:	Pre flagging sites & Supervision	\$ 3000
	Machinery transport	\$ 1500
	Machinery walk in on trail	\$ 1000
	Machine drain work and walking	\$ 10000
	Fuel and flying costs	\$ 2000
	Accommodation	\$ 1500
	Contingency	\$ 1000
	Total	\$20,000

9.5.4 NEVIS CAMP BYPASS

This is the cost estimate for a small hoe to work on by-pass in conjunction with the cross drain or Ice Hill work; therefore there are no machine transport costs. Doing this on the way in reduces the number of crossings of Nevis Creek to one instead of three. Costs would be about the same if it was done by hand labour only.

Cost Estimate:	Pre flagging sites & Supervision	\$ 3000
	Bridge materials	\$ 2500
	Bridge assembly	\$ 2500
	Machine	\$ 1500
	Fuel	\$ 400
	Accommodation	\$ 500
	<u>Contingency</u>	<u>\$ 1000</u>
	Total	\$11,400

9.5.5 NEVIS EAST CROSSING EVALUATION

This project involves the services of a hydrologist with an understanding of the “rustic” nature of the trail to do a site investigation and provide design and alignment options for the realignment of a single crossing that works for all seasons and cost estimates for the work. We anticipate that it involves a site visit and quality air photographs.

Cost Estimate:	Site Visit (helicopter)	\$ 2000
	<u>Professional Services</u>	<u>\$ 4000</u>
	Total	\$ 6,000

9.5.6 CORDUROY STANDARDS

This project involves drafting up a standard design for corduroy suitable to the “rustic” nature of the trail, providing the quantities and materials list to put out a BC Bid request. We suggest treated materials flat on two sides (landscape ties) tied together with cable or bolts. The standard design should incorporate transitions at both ends. We suggest that materials can be purchased and stockpiled at Buckinghorse and flown to site in conjunction with other flights. Park staff could place the corduroy on an ongoing basis. Flight cost per 1000 lbs should be about \$ 1000.

Cost Estimate:	<u>Drafting Services</u>	<u>\$ 2000</u>
	Total	\$ 2,000

9.6 Appendix F: Index of Pictures, Waypoints and Campsites

Waypoint	Photograph	Comment	Campsites
aerial shot	1050684	Besa Jump off trucks	
aerial shot	1050685	Trail Jump off #1 trucks	x
aerial shot	1050686	Trail Jump off #1 trucks	
aerial shot #99	1050687	Trail Jump off #2 trucks	x
aerial shot	1050688	road to wagon	
aerial shot	1050689	horses on road to wagon	
aerial shot	1050690	lease site with wagon	
aerial shot	1050691	start of trail	
aerial shot	1050692	first mud hole	
aerial shot	1050693	detour	
aerial shot	1050694	braid in mud	
aerial shot	1050695	slide and creek crossing	
aerial shot	1050696	trail through forest	
aerial shot	1050697	rocky trail	
aerial shot	1050698	camp and junction	x
aerial shot	1050699	lowland bog crossing	
aerial shot	1050700	trail skirting bog	
aerial shot	1050701	mud hole and braid in	
aerial shot	1050702	creek crossing clean	
aerial shot	1050703	creek crossing clean close-up	
aerial shot	1050704	creek crossing clean with bank cut	
aerial shot	1050705	Nevis Camp	x
aerial shot	1050706	Nevis Camp + Crossing	
aerial shot	1050707	Nevis Crossing above camp	
aerial shot	1050708	Quad on dry trail past jct.	
aerial shot	1050709	dry ground braiding birch habitat	
aerial shot	1050710	2 quad on dry trail past jct.	
aerial shot	1050711	Trail through Nevis extensive Birch Meadow	
aerial shot	1050712	2 Trail through Nevis extensive Birch Meadow	
aerial shot	1050713	west end of Trail through Nevis extensive Birch Meadow	
aerial shot	1050714	six mile camp	x
aerial shot	1050715	braid and regrow in sedge meadow	
aerial shot	1050716	braid and regrow in sedge meadow overview	
aerial shot	1050717	10 mile big camp	x
aerial shot	1050718	trail at e end 10 mile lake	
aerial shot	1050719	two braids w 10mile	
aerial shot	1050720	waterholes on trail	
aerial shot	1050721	large mud hole with stick and creek xing	
aerial shot	1050722	jct and braid	
aerial shot	1050723	major braiding off route with regrowth	
aerial shot	1050724	major braiding off route with regrowth 2	
aerial shot	1050725	ice hill bottom	
aerial shot	1050726	growth on rw in trees and braid	
aerial shot	1050727	dry trail besa?	
aerial shot	1050728	dry trail besa?2	
aerial shot	1050729	Besa ATV bridge	
aerial shot	1050730	Besa ATV Bridge 2	
aerial shot	1050731	Log bridges streams in Park	

M-K Redfern Access Management Area (AMA) Route Restoration Project

aerial shot	1050732	Overview looking toward Redfern w Besa x	
aerial shot	1050733	Trail along Besa	
aerial shot	1050734	Braid and corduroy-reflection	
aerial shot	1050735	longitudinal corduroy	
aerial shot	1050736	mild detouring- reflection	
aerial shot	1050737	multilane trail - reflection	
aerial shot	1050738	trail along Redfern Lake	
aerial shot	1050739	West end Redfern Lake	
aerial shot	1050740	non compliance west end Redfern Lake	
aerial shot	1050741	dud	
aerial shot	1050742	West end Redfern Lake inflow	
aerial shot	1050743	Parks site Redfern lake	
aerial shot #105	1050744	Lodge at Redfern	
aerial shot	1050745	Upper Besa Valley View	
aerial shot	1050746	forest and birch meadow with creek	
aerial shot	1050747	several kinds of corduroy	
aerial shot	1050748	several kinds of corduroy overview	
aerial shot	1050749	Besa ATV Bridge distance shot	
aerial shot	1050750	Trail accent east of besa bridge	
aerial shot	1050751	west decent to ice hill	
aerial shot #103	1050752	overview ice hill	
aerial shot	1050753	looking back at ice hill	
aerial shot	1050754	washout at ice hill	
aerial shot	1050755	seismic down Nevis birch meadows	
aerial shot	1050756	trail in birch near Nevis Camp	
aerial shot	1050757	Start of trail from West	
aerial shot	1050758	campsite at start	x
aerial shot	1050759	meat poles at start	
aerial shot	1050760	improvised outhouse	x
aerial shot	1050761	Muddy Park Rangers	
aerial shot	1050762	hunters in non compliance?	
aerial shot	1050763	hunters in non compliance? Close up	
aerial shot	1050764	caribou at 10 mile lake	
aerial shot	1050765	caribou at 10 mile lake overview	
aerial shot	1050766	Camp at redfern by park site	1
aerial shot	1050767	tracks at west end of lake	
106	1050768	Chris at end of trail?	
106	1050769	Sign at end of trail	
	1050770	Blocked culvert along lake trail	
	1050771	fire ring by lake	
	1050772	water running down trail parks access	
	1050773	water running down trail parks access jnt	
	1050774	Typical trail along lake with blocked drainage to park access	
	1050775	Rocky creek crossing	
	1050776	Rocky creek crossing old trail	
	1050777	Blocked? Seismic	
107	1050778	detour through trees for mud hole	
108	1050779	Woodcutting trail near lodge	
	1050780	snowmobiles cabin	
	1050781	sign at snowmobiles cabin bullet holes	
	1050782	multi trail in R/W	
	1050783	dry bumps	
109	1050784	trail splits	

M-K Redfern Access Management Area (AMA) Route Restoration Project

	1050785	grouse on trail 1	
	1050786	combination of corduroy with regrowth beside	
	1050787	dual trail in row	
	1050788	dual trail in row lge	
	1050789	unused seismic	
110	1050790	small stream xing	
111	1050791	lengthwise corduroy drainage maintained	
112	1050792	recent mixed corduroy	
113	1050793	recent mixed corduroy 2	
113	1050794	recent mixed corduroy 3	
113	1050795	recent mixed corduroy 4	
113	1050796	drainage plastic pipes	
114	1050797	unused campsite	2
115	1050798	erosion down trail	
116	1050799	dry trail on gravel fan	
116	1050800	gravel fan scenery	
117	1050801	campsite and sign end of trail west of bridge	3
117	1050802	road recently used in non compliance to river fix	
113	1050803	pipes for drainage with corduroy	
113	1050804	pipes for drainage with corduroy 2	
118	1050805	Besa Bridge	
118	1050806	Besa bridge	
119	1050807	campsite at Besa Bridge fire pit and wood	4
119	1050808	campsite at besa bridge	
120	1050809	traffic stops at sign near Besa Bridge NEEDS REVEG	
121 & 122	1050810	road to outhouse	
123	1050811	old campsite	5
124	1050812	typical rutted road surface	
125	1050813	seismic to besa no use	
	1050814	typical rutted trail near park boundary creek	
	1050815	Park boundary sign 10meter rule	
126	1050816	ice hill bottom1	
126	1050817	ice hill bottom2 quad	
126	1050818	ice hill bottom fork	
126	1050819	ice hill bottom trails	
126	1050820	ice hill erosion middle	
126	1050821	ice hill erosion middle 2	
127	1050822	the cause of ice hill, erosion on old road	
127	1050823	Chris on bottom old road at ice hill	
127	1050824	side hill to cut ice hill detour	
127	1050825	washout old road ice hill	
127	1050826	washout old road ice hill 2	
127	1050827	side hill to cut ice hill detour 2	
127	1050828	washout old road ice hill 2	
127	1050829	the cause of ice hill, erosion on old road 2	
127	1050830	the cause of ice hill, erosion on old road 3	
128	1050831	very braided through sedge top of ice hill	
128	1050832	very braided through sedge top of ice hill 2	
128	1050833	very braided through sedge top of ice hill 3 blurry	
129	1050834	Mud hole with stick potential corduroy	
129	1050835	Mud hole with stick potential corduroy 2	
129	1050836	needs drainage? Near Mud hole with stick potential corduroy	
130	1050837	old borrow pit nearby	

M-K Redfern Access Management Area (AMA) Route Restoration Project

	1050838	needs drainage? near Mudhole with stick potential corduroy	
131	1050839	Cutting down to creek crossing	
131	1050840	Cutting down to creek crossing how deep	
132	1050841	Campsite	6
133	1050842	quad at 400m limit	
133	1050843	quad hunter to 400m limit way out there	
134	1050844	Campsite	7
135	1050845	camp at 10mile cabin jnct.	8
135	1050846	camp at 10mile cabin jnct. Woman	
135	1050847	camp at 10mile cabin jnct. Meat on pole	9
136	1050848	wet spot	
136	1050849	wetspot 2	
138	1050850	near six mile camp braid in sedge	
137	1050851	six mile camp 1	10
139	1050852	six mile camp2xing	11
139	1050853	creek xing six mile camp	
139	1050854	Polaris 6x6 six mile camp	12
141	1050855	camp	13
142	1050856	camp on hill missing boundary sign	14
	1050857	Blooper	
	1050858	Nevis ford channel approach	
	1050859	Nevis ford channel the only route	
	1050860	Nevis ford channel Chris1	
	1050861	Chris in Nevis ford channel	
	1050862	Nevis ford channel	
144	1050863	missing sign	
145	1050864	Dry camp Nevis camp area	15
146	1050865	end of trail switch to horses, compliance Nevis camp area	
147	1050866	camp above Nevis camp	16
148	1050867	horse meadow camp by Nevis Camp	17
149	1050868	horse meadow camp by Nevis Camp 2	18
	1050869	ruffed grouse 1	
	1050870	ruffed grouse 2	
	1050871	Old trail washed out opposite Nevis Camp	
	1050872	Chris at creek crossing east end washout Nevis Camp	
	1050873	Chris in marsh east end Nevis camp washout	
	1050874	Trail up from Nevis Camp east crossing	
	1050875	Ridge above Old trail washed out opposite Nevis Camp	
	1050876	#2 Ridge above Old trail washed out opposite Nevis Camp	
150	1050877	End of trail north of Nevis Camp, good compliance	
151	1050878	Trail where Nevis Creek heads north, no ATV	
151	1050879	Trail where Nevis Creek heads north, at sign ATV	
152	1050880	Camp where Nevis Creek heads north, no ATV	19
	1050881	Nevis Valley trail	
153	1050882	Nevis Crossing east bank cut	
153	1050883	Nevis Crossing east bank cut close up	
153	1050884	Nevis Crossing east Camp	20
154	1050885	Nevis Crossing east Camp south side	21
155	1050886	Old fabric in trail	
156	1050887	mud hole and braid drainage possible?	
157	1050888	mud hole and braid drainage possible2enviro damage	
158		x drain needed	
159		x drain needed	

M-K Redfern Access Management Area (AMA) Route Restoration Project

160		x drain needed	
161		x drain needed	
162		x drain needed	
163		x drain needed	
164		x drain needed	
165		x drain needed	
166		x drain needed	
167		x drain needed	
168		x drain needed	
169		x drain needed	
170		x drain needed	
171		x drain needed	
172		x drain needed	
173		x drain needed	
174		x drain needed	
175		x drain needed	
176		x drain needed	
177		x drain needed	
178		x drain needed	
179		x drain needed	
180		x drain needed	
181		Griz attack site	
182	1050889	camp by creek griz attack	22
183	1050890	camp for lunch	23
183	1050891	camp for lunch garbage	
184	1050892	Creek running down trail	
185		end of creek running down trail 1200meters	
	1050893	mule deer	
	1050894	detour to shoo fly	
	1050895	Quad through organic after	
	1050896	quad through organic before	
188	1050897	heavy constructed camp old	24
189	1050898	detour for mud holes needs drainage	
	1050899	designated route sign + 400 meters	
	1050900	designated route sign	
	1050901	Moose hunters non compliance mud hole	
	1050902	Moose hunters non compliance mud hole soft tires	
191	1050903	Tourist camp Ceska Republic 1-2 persons 2quads 2 trailers	
191	1050904	sign knocked over	25
	1050905	typical hill	
	1050906	typical hill 2	
	1050907	typical hill 3	
	1050908	typical hill4	
192		Old Camp not used	26
193		Trail needs 400m sign	
194		mud hole needs drainage	
195		mud hole needs drainage	
196		detour and Serious drainage for mud hole	
197		mud hole needs drainage	
198		mud hole needs drainage	
199		mud hole needs drainage	
200		mud hole needs drainage	
201		mud hole needs drainage	

M-K Redfern Access Management Area (AMA) Route Restoration Project

202	1050909	Chris at MK sign
202	1050910	MK sign
	1050911	Big load coming quad and trailer
	1050912	quad wheel
	1050913	2 loaded quads and trailer
	1060001	Sikanni falls
	1060002	Sikanni falls
	1060003	Sikanni falls
	1060004	Sikanni falls
	1060005	Sikanni falls
	1060006	Sikanni falls
	1060007	Sikanni falls
	1060008	Sikanni falls
	1060009	Sikanni falls
	1060010	Sikanni falls
	1060011	Sikanni falls
	1060012	Sikanni falls
	1060013	Sikanni falls
	1060014	Sikanni falls
	1060015	Sikanni falls
219	1060016	Sikanni falls
	1060017	Sikanni falls
	1060018	Sikanni falls
	1060019	Sikanni falls
	1060020	Sikanni falls
	1060021	Sikanni falls
	1060022	Sikanni falls
	1060023	Sikanni falls
	1060024	Sikanni falls
	1060025	Sikanni falls
	1060026	Sikanni falls
	1060027	Sikanni falls
	1060028	Sikanni falls
	1060029	Sikanni Trail
	1060030	Sikanni Trail
	1060031	Sikanni Trail
	1060032	Bison?
	1060033	Trimble Trail
	1060034	Trimble Trail
	1060035	Trimble Trail
	1060036	Trimble Trail
	1060037	Trimble Trail
	1060038	bison in field
	1060039	bison field nice pic
	1060040	bison field gate
	1060041	Sikanni Trail
	1060042	Sikanni Trail
	106112	eager hills sign
	106113	eager hills sign

9.7 Appendix G: Pictures and Shapefiles, electronic formats

Spreadsheets of Campsite locations, Remedial Sites, User Comments, Aerial Pictures, Pictures by theme, complete database of all pictures/all waypoints and Shapefiles of waypoints and track are attached in electronic format.

9.8 Appendix H: Forest and Range Practices Act Jurisdiction

The M-K Act and AMA route are the governing body to restrict access, but the FRPA is the governing body to "establish trails" and allow the construction/maintenance of trails on Crown land.

A summary of the FRPA that pertains to recreation

Part 5, Division 3

57 (1) Unless authorized in writing by the minister or under another enactment, a person must not

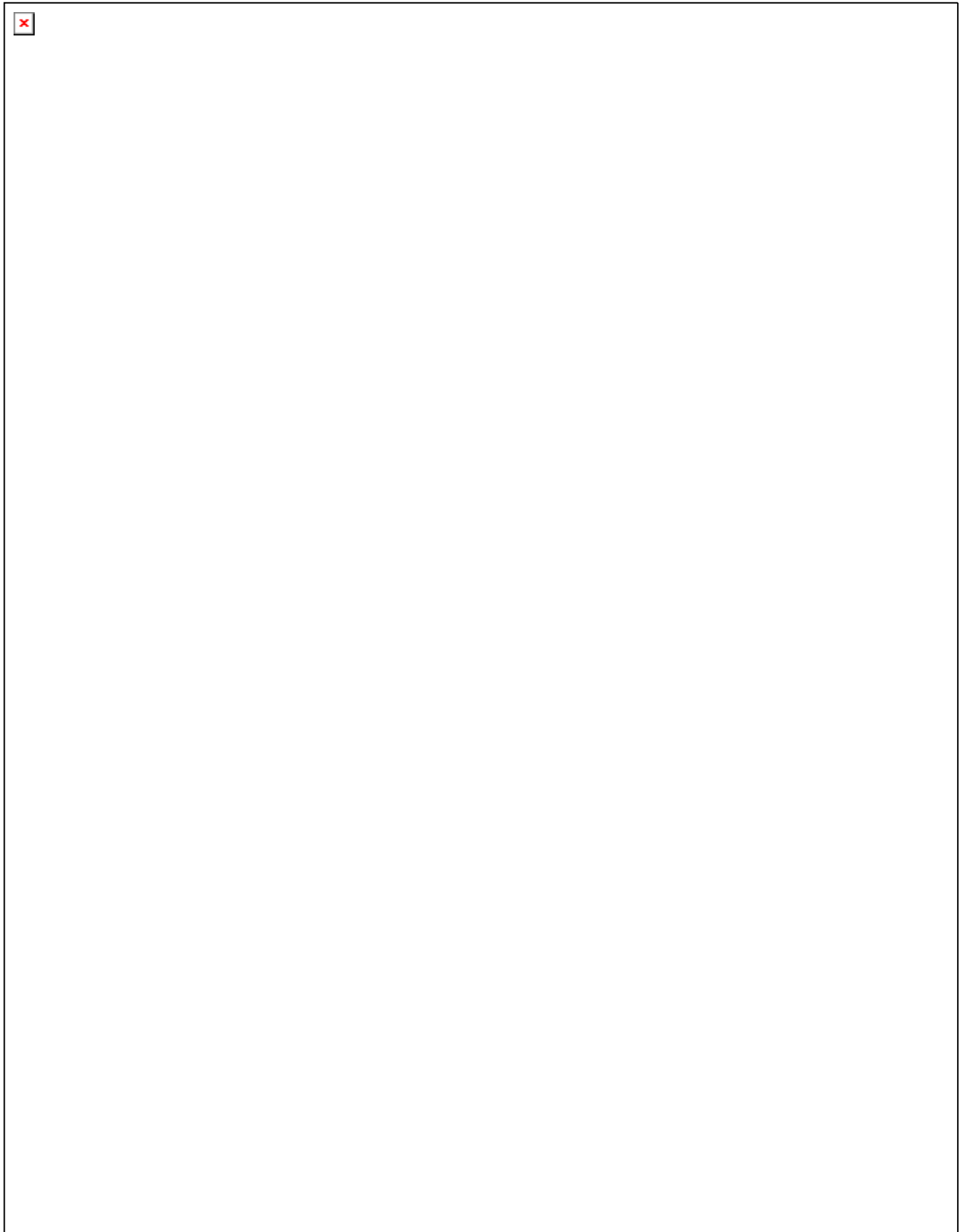
- (a) construct,
- (b) rehabilitate, or
- (c) maintain

a trail or other recreation facility on Crown land.

Since the Red fern trail (outside of Redfern-Keily Provincial Park) is an established trail it requires authorization to do works on the trail under FRPA. This also allows the Recreational Sites and Trails program to keep track of the structures on the trails and assists in managing the risks the government may have on Crown land.

For Muskwa-Kechika established routes see <http://ilmbwww.gov.bc.ca/ilmb/lup/lrmp/northern/mk/maps/access/index.html>

9.9 Appendix I: Trail establishment and Changes Form, FRPA



The Forest & Range Practices Act, Section 57 and the Application Process Information Package

The purpose of this information package is to assist and provide direction to outdoor recreation groups and ministry staff in meeting the requirements of *Section 57, Unauthorized trail or recreation facility construction, in the Forest and Range Practices Act (FRPA) and Part 3 of the Forest Recreation Regulation*.

Section 57 of *FRPA* applies to all provincial Crown land outside of parks. It applies to all forested and non-forested provincial forest lands and other provincial Crown lands such as non-municipal and rural settlements. It does not apply to private lands, national parks and other federal Crown lands, provincial parks and other protected areas, regional parks and municipal lands. If you are in doubt as to the status of an area and whether or not this guidebook applies, please contact the nearest Recreation District Officer.

This information package:

- outlines and clarifies which activities do not or do require consent of the Recreation Regional Manager,
- provides direction on how an applicant should prepare a proposal (for activities that do require consent),
- explains what the Recreation Sites and Trails Section does when it receives a proposal,
- identifies the criteria which a Recreation Regional Manager must base a determination and how that determination should be communicated to the applicant,
- outlines enforcement of unauthorized activities (i.e., non-compliance with Section 57).

Section 57 was established on the grounds of fairness and consistency in regulating forest practices and the need for this authority to ensure public safety, protect the environment and manage resource use conflicts. Section 57 was designed to encourage a more planned approach to trail and recreation facility construction, rehabilitation and maintenance on provincial Crown land. It assists Forest Service staff in carrying out this intent by providing them with enforcement authority.

Activities that DO NOT require consent of the Recreation Regional Manager

Section 57 does not apply to basic public access or basic recreational use of Crown land. The following activities are not considered to be trail or recreation facility construction, rehabilitation or maintenance and do not require the consent of the Recreation Regional Manager before the activity may begin:

- Basic access or travel through the forest or across the land, by individuals or groups, whether on a one-time basis or repetitive use of the same route.
For example: hiking on Crown land and the normal ground disturbance associated with this activity.
- Route finding or route marking using ribbons, cairns or other directional indicators.
For example: marking one's way with cairns in an alpine area or with ribbons in a forest.

Note: the standard practice of nailing route markers to trees is an allowable practice and is not considered tree spiking under Section 55 of the *Act* (Tree Spiking Prohibited).

- Minor, piecemeal or incidental clearing of brush or downed trees either on or off established trails.
For example: bushwhacking, or clearing branches or deadfall that have fallen across an established path or trail.
- Emergency repairs to a trail or recreation facility that is necessary to prevent imminent damage to the environment, the trail or the facility.
For example: repairing a water bar on a section of trail where flooding is occurring and immediate repair is needed.
- Emergency construction or maintenance of a trail when this is the only reasonable way of minimizing risk to personal safety.
For example: placing a log over a stream that is necessary to cross to get out of the woods by dark.
- Basic recreational use of a localized area, by individuals or groups.
For example: camping on Crown land and the normal ground disturbance associated with this activity.
- Construction of small, rustic structures of a temporary nature.
For example: construction of rock fire rings, latrines, etc.

If you are uncertain whether or not your intended activity requires consent, please contact the nearest District Recreation Officer, or use the toll-free Enquiry BC line: (1-800-663-7867).

If your intended activity does not require consent, please proceed and enjoy yourself. Feel free to contact the nearest Recreation District office for information on public recreation opportunities, outdoor recreation etiquette or other assistance.

Activities that DO require consent of the Recreation Regional Manager

Section 57 does apply to “trails” and “recreation facilities” as these terms would reasonably be interpreted and understood. The following activities are considered trail or recreation facility construction, rehabilitation or maintenance and do require the consent of the Recreational Regional Manager before the activity may begin:

- ground disturbance
 - significant, continuous grubbing of the soil or rocks along a linear route to establish a visible, long-lasting treadway
 - significant ground excavation for the purpose of parking vehicles, launching boats, etc.
 - significant ground or root disturbance associated with corralling horses.
- clearing or cutting of vegetation
 - significant, continuous uprooting of shrubs or understory plants along a linear route or over an extended area
 - cutting of standing trees.

- construction of structures
 - water bars, stairs, bridges, signs, corrals, poles for hanging game, etc.
 - other significant structures of a long-term or permanent nature.

Some other related activities that may be restricted or prohibited, but not under FRPA, Section 57 are:

- uses within parks and other protected areas
- restricted or prohibited public recreation uses of Crown land, and recreation and non-recreation activities that threaten a protected recreation resource
- recreation activities authorized under other enactments, i.e. commercial backcountry recreation guiding under the *Land Act* or vehicle closures under the *Wildlife Act*
- construction or occupation of a building, including lodges, cabins and huts
- construction or modification of a road
- building of an excavated or bladed trail
- cutting of Crown timber

Preparing a proposal

Individuals or groups planning to construct, rehabilitate or maintain a trail or recreation facility must prepare a written proposal and submit it to the District Recreation Officer of the appropriate recreation district.

Before you begin a proposal please consider if the intended activity or facility is of a “commercial” or “exclusive” nature.

- “commercial” means there is locally recognized business entities using the area for commercial purposes.
- “exclusive” means there is a membership requirement for use or a facility is locked with no key available to the public”.

In these cases, please contact Ministry of Environment about their requirements under various authorities, including their commercial recreation policy.

http://www.env.gov.bc.ca/wsd/water_rights/cabinet/water_rights_in_bc.pdf
http://www.env.gov.bc.ca/wsd/water_rights/policies/index.html

The standard proposal form assists an applicant in preparing a proposal. The proposal should include:

1. The **name and address** of the individual or group making the proposal.
For example: ABC Nordic Ski Club, Box 555, Snow Valley, B.C., V1A 1A2 Contact person: Sally Skier, phone: 365-5555
2. The overall **purpose** of the proposed trail or recreation facility.
For example: The overall purpose of the proposal is to open up a new area for public recreation opportunities. The trails and/or facilities established will be of a non-commercial, non-exclusive nature.
3. A brief **description** of the proposed work.

For example: Work will consist of constructing 15 km of cross-country ski trails. Existing, abandoned roads will be used for about 10 km, and new trails will be constructed for the remaining 5-km.

4. The **location** of the proposed work.

The most efficient way of establishing the location of the proposed work may depend upon whether the work is on an existing trail or facility, and on how well known the trail or facility is to the Recreation Sites and Trails Section. Proposals can generally be broken into three categories as follows:

Managed trail or recreation facility

If a trail or recreation facility has undergone a status check (i.e., is on crown land, checked for conflicts and entered in Ministry records) and established as a trail or recreation site under Section 56 of *FRPA*., then simply providing the name of the trail or facility may be sufficient to convey its location. The recreation district office may be contacted to find out the extent to which the Recreation Sites and Trails Section knows about a trail or facility and has noted it in their records.

Un-managed trail or recreation facility

If an existing trail or recreation facility is not formally managed and not in the Ministry records, a map and brief description will be required to convey its location. The recreation district office may be contacted for information and suggestions.

For example: The Ladybird Creek Trail, located on the west side of Ladybird Creek, commencing at the junction of Koch Creek and Ladybird Creek Forest Service roads at kilometer 16 on the Ladybird Creek Forest Service Road (map included).

New trail or recreation facility

If a trail or recreation facility does not exist, a detailed map and description will be required to convey an intended location. The recreation district office may be contacted for information and suggestions.

5. Expected **dates** on which the proposed work will begin and finish.

For example: Work is expected to begin in September 2004 and be completed by November 2004.

6. Expected **use**, including:

- the kind of use (i.e., horse use, hiking, snowmobiling, cross-country skiing, motorized, non-motorized, beginner, advanced, general public, etc.)
- the season(s) of use (i.e. summer, winter, year round, etc.)
- the amount of use (i.e., estimated number of users per season or per year).

For example: The proposed ski trails will be developed at a level suitable for the beginner to intermediate cross-country skier. The trails will also be designed for hiking and

horse use in the summer. It is estimated that the trails will receive about 3000 visitor days per year.

7. **Standards** or other provisions to ensure that the trail or recreation facility doesn't conflict with other resource values or uses, is safe, environmentally sound, and durable, given the purpose and expected use.

Note: The Recreation Sites and Trails Section has drawings and specifications for a number of structures that are available upon request and may help an applicant in preparing a proposal. Please contact the nearest recreation district office.

For example: The proposed ski trails will be two laned to handle the expected traffic. They will be routed around the base of the avalanche run-out zone at km 6, and a footbridge will be built across the narrow V-shaped gully at km 10.

8. Demonstration of **capability and commitment** to provide maintenance over the long term. This information is important, as the Ministry may have to close, or take over the management of, a trail or recreation facility, in the event that an applicant is unable to follow through. Information about any previous projects or experience may be attached.

For Example: The ABC Nordic Ski Club has worked on many cooperative trail projects with the XYZ forest district and has actively maintained these trails over the five years since they were developed (see information attached).

9. An identification of the **actions** being requested of the Recreation Regional Manager. For example, a request for one or more of the following:
- *consent* to proceed with the proposal,
 - *inclusion* of the trail or recreation facility in the recreation inventory,
 - *creation* of a map notation. This notes the trail or facility on the status maps and assists in identifying a trail or facility in a referral process for resource development,
 - *establishment* of the trail or recreation facility as a recreation trail or site by the Minister under Section 56 of the *Act*. This requires a formal process of a status check, creation of a map notation, establishment by the Minister and possibly objectives to be set to enable the Recreation Regulations to apply. The trail or recreation facility would have to be constructed to Ministry standards ,
 - *co-operative* management with the Ministry of the trail or recreation facility. In this case, the trail or recreation facility would have to be constructed to Ministry standards ,
 - *inclusion* of the trail or recreation facility on Ministry maps and web sites. In this case, the trail or recreation facility would have to meet Ministry standards and be intended and suitable for use by a number of recreation users
 - *establishment* of the trail or recreation facility as a "Resource Feature" by the minister (or delegate) under Section 2 of the Government Actions Regulation, ensure's that forest practices do not damage or render ineffective the trails or recreation facilities.
 - *other* Ministry assistance (e.g., general information, technical advice, equipment, financial assistance, or staff time).

Recreation Sites and Trails Section processing of a proposal

Upon receiving a proposal to construct, rehabilitate, or maintain a trail or recreation facility, the Recreation Sites and Trails Section responds to a proposal as follows:

1. Review

the Ministry will review the proposal with respect to the requirements in the *Act* and the *Recreation Regulation*, consistent with this information package. The District Recreation Officer will notify the applicant if the proposal is incomplete.

2. Statusing

the Ministry will carry out a status check to look for any conflicts between the proposed work and resource tenure holders, private landowners, or other rights or interests. This will normally be limited to a preliminary status check carried out within the recreation district office rather than a full status check carried out in consultation with the Forest Service's resource tenures branch. A full status check would be required, for example, before a trail or recreation facility could be established as a recreation trail or site.

3. Referral

the Ministry may refer the proposal to all affected resource agencies and resource users, including other outdoor recreation groups. In some cases, to expedite the process, the Ministry may request the applicant carry out the referral process.

4. Evaluation

Based on comments received and other information, the Ministry will evaluate the proposal with respect to the criteria set out in Section 4(3) of the *Recreation Regulation*. The Recreation Regional Manager may refuse consent if the proposal will result in one or more of the following:

- significant risk to public safety
- unacceptable damage to the environment
- Un-resolvable conflict with other resource values or uses.

The Recreation Regional Manager's determination

The District Recreation Officer will notify the applicant after a determination is made.

The District Recreation Officer will inform the applicant in writing regarding:

- whether or not the proposal has received consent
- the rationale for the determination

The District Recreation Officer may also inform the applicant that any trail or recreation facility that is constructed, rehabilitated, or maintained under Section 57:

- is a public facility (no exclusivity of use)
- can not be used for commercial purposes (no mandatory fee for use)
- may be signed as a Recreation site or trail (in accordance with Ministry signing standards).

The Recreation Regional Manager's determination will generally fall into one of four basic categories:

1. Consent

The proposal is given consent and there are no further conditions or requirements that need to be met.

2. Consent with conditions

The proposal is given consent, but there are conditions, warnings or requirements associated with the consent. For example, the applicant is informed that a more thorough status or referral could uncover conflicts that may prevent the project from continuing at that time.

3. Refusal as proposed

The proposal is refused at this time or as it stands, but the applicant is informed that the proposal might be given consent under different circumstances or if it were revised. For example, the proposal is for an area that is currently under a local planning study and should be dealt with by that study or postponed until that study is concluded. Or, for example, the proposal fails to address certain safety or environmental issues, but could be revised and resubmitted.

4. Refusal

The proposal is refused because it is considered to pose, inherently, one or more of the following, as set out in Section 4(3) of the *Recreation Regulation*:

- significant risk to public safety
- unacceptable damage to the environment
- Un-resolvable conflict with other resource values or users.

Response time

The total “response time,” or time between when an applicant mails a written proposal and receives a written response, will be determined by:

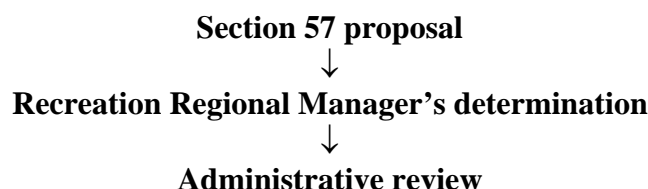
- the mailing time of the proposal to the district recreation office, plus
- the time for the Recreation Regional Manager to make a determination, plus
- the time for the District Recreation Officer to prepare a written response, plus,
- the mailing time of the response to the applicant (one or more days).

Administrative Review and Appeal of a Recreation Regional Manager’s determination

Note: This section only summarizes and sketches, for reference purposes, the review and appeal provisions regarding Section 57 that are provided for under the *Act*. This section is neither a complete or official presentation of this broad and complex subject. For more information on review and appeal, please contact the nearest district recreation office.

Upon receipt of a Recreation Regional Manager’s determination, the applicant may accept the determination and any conditions that may apply. In this case, the applicant may still want to contact the District Recreation Officer to discuss the determination or the proposal in order to clarify the determination or gain information to prepare another proposal.

Alternatively, the applicant or any other person may not accept the determination. In this case, the *Act* and regulations provide for a review and appeal process as follows:





Review by the Forest Appeals Commission

Briefly, this process involves:

Administrative review

The applicant must prepare a written request for an administrative review and submit it to the original determination maker within three weeks after the date the notice of determination was given to the applicant. The Act makes provision for the review official to consider only (a) evidence that was not available at the time of the original determination and (b) the record pertaining to the original determination.

Role of the review official

The review official conducting the review has the same discretion to make a decision that the original decision-maker had at the time of the determination under review.

Review by the Forest Appeals Commission (FAC)

The applicant may appeal an administrative review decision to the FAC.

Role of the FAC:

The FAC may consider the findings of the person who made the determination or decision, and either confirm, vary or rescind the determination or decision, or refer the matter back to the person who made the determination or decision for reconsideration.

Investigation by the Forest Practices Board (FPB)

In addition, a person who does not accept a district manager's determination may make a complaint to the FPB.

The FPB will investigate a public complaint in accordance with the *Act*. The circumstances in which the board may refuse to investigate or stop investigating include:

- the complainant ought to have known about the matter more than a year before the complaint was received by the FPB
- there are other existing laws or administrative remedies which are adequate that complainant has not used
- the complaint is frivolous, vexatious or trivial
- further investigation is not necessary to consider the complaint
- investigation would not benefit the complainant.

Role of the FPB:

The independent Forest Practices Board investigates third-party complaints on aspects of the *Act* following a regulated process, and will carry out independent audits and special investigations of both licence holders and government agencies.

Enforcement of unauthorized activities

Note: This section only summarizes and sketches, for reference purposes, the enforcement provisions regarding Section 57 that are provided for under the *Act*. This section is neither a complete or official presentation of this broad and complex subject. For more information on enforcement, please contact the nearest district recreation office.

Experience has shown that information, education, and voluntary compliance is the most effective means of managing recreation activities and enforcing recreation management rules and objectives. This can be expected to be the case with Section 57 and its intent to bring about a more planned approach to trail and recreation facility management in British Columbia.

This section deals with regulatory, as opposed to voluntary, enforcement of Section 57 as set out in the *Act* and regulations. It outlines the actions an official may take if he or she believes a person is illegally constructing, rehabilitating, or maintaining a trail or recreation facility on Crown land.

In summary, the actions that may be carried out, either individually or in various combinations, are as follows:

Written warning

If an official believes that a person(s) is contravening Section 57 he or she may inform them through a written notice of the apparent contravention. The notice should contain information pertaining to the alleged contravention, including the name and phone number of the official. Failure to heed the warning may lead to penalties.

Stop work order

If an official believes that a person(s) is contravening Section 57 he or she may order the contravention to stop, or to stop to the extent required for the person(s) to get the required consent. Such a stop work order may or may not name, or apply to, specified persons. The minister may apply to the courts for an order for compliance if the minister considers that a person(s) is not complying with a stop work order.

Violation ticket (specified penalty ticket)

If an official believes that a person(s) is contravening Section 57, a ticket may be issued under the authority of the *Offence Act*. A person may appeal a ticket issued under the *Offence Act*.

Remediation order

A senior official may order a person(s) to remedy a contravention of Section 57 by requiring them to repair any damage caused by the contravention.

Such a remediation order must set out all information required by the *Act* and regulations, including:

- the nature of the contravention
- the nature of the work to be done to remedy the contravention
- the date by which the work must be completed
- the person's right to a review or an appeal
- the right of the government to carry out the work and levy a penalty if the person fails to comply with the order.

Prosecution

If an official believes that a person(s) is contravening Section 57, he or she may prosecute. A person(s) prosecuted by the Crown for contravening Section 57 is subject to a maximum penalty of \$5,000 in fines and six months in jail.

References

Forest and Range Practices Act
Recreation Regulations

Glossary

“determination” means an act, decision, procedure, levy, order, or other determination made under the *Act*, or the regulations by an official or a senior official.

“establishment” means the legal declaration of an area covered by a recreation map notation as a recreation site or trail and the public notification of that declaration via a notice in the *British Columbia Gazette*.

“facility” means any area or portion of a recreation site, recreation trail, or interpretive forest site that serves as or provides for a day use area, boat launch area, trail head, or other similar functions.

“Forest Service map notation” means a Forest Service administrative label on Forest Service maps and records to indicate an interest in an area (in this case an interest in an area for its recreation values).

“minister” means the Minister of Forests. The Minister of Forests may delegate his authority under the *Act* and the *Recreation Regulation*.

“official” means a designated forest official.

“Recreation site” or Recreation trail, means a recreation site or recreation trail:

- designated under the *Forest Act*, or,
- established under Section 6 of the *Forest Practices Code of BC Act* or,
- established under Section 56 of the *Forest and Range Practices Act*.

“standards” are recommended design and construction specifications for recreation structures.



“status" check” means the process of determining rights, titles, or interests in a particular area or parcel of land by searching records, maps, and other documents for jurisdictions, tenures, or expressed interests by other agencies or parties in the area in question. Status checking means “checking the status of” an area with respect to existing reports, titles, or interests.

“structure” means any improvement of a long-term or permanent nature that is fixed to the ground or permanently secured in a fixed location and includes cabins, bridges, litter barrels, shelters, signs, corrals, etc.