

Downhill Mountain Bike Facility Proposal

Bellthorpe Forest Reserve, &

Beerburrum West State Forest

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Executive Summary

The focus of this submission is the provision of a Downhill Mountain Bike (Bicycle) riding facility in the Sunshine Coast Area located in Bellthorpe Forest Reserve and/or Beerburrum West State Forest.

One of the Gap Creek Trails Alliance aims is to find suitable locations for facilities that provide sustainable downhill mountain bike riding opportunities while balancing social and environmental values. The provision of legal facilities offers a better alternative to current illegal and uncontrolled mountain bike activities. The resulting legal uses decrease inappropriate behaviours and displace illegal and inappropriate use. Downhill mountain bike tracks can be designed to provide the experience desired by riders while applying accepted practices that minimise environmental impacts, social conflict and risk of serious injury. Mountain bike trails can benefit everyone. Both the young and old (young at heart) can engage in healthy fun in the forest. The community can gain from increased visitation from outside the region. Land managers can engage a strong, fit group to help manage mountain bike trails in the forest.

An investigation into the opportunities for Queensland Parks and Wildlife Service and Forestry Plantation Queensland to provide a legal downhill style facility is a commendable initiative and goes a long way to providing fair and equitable opportunities for the specific discipline of downhill mountain bike riding.

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1 Background

1.1 Gap Creek Trails Alliance

Gap Creek Trails Alliance (GCTA) was formed in June 2001 to represent mountain bicycle (MTB) riders who enjoyed the tracks in Mt Coot-tha Forest, particularly around Gap Creek Reserve. At the time the Brisbane City Council (BCC) did not officially permit MTB riding.

In exchange for approved access, GCTA committed to organise volunteers to maintain the tracks, to provide training in sustainable track design and to promote responsible riding. Following the International Mountain Bicycling Association (IMBA) model, GCTA has been very successful in working with BCC to achieve these aims.

A similar model has evolved at Daisy Hill, Bunyaville, Nerang and Tewantin State Forests. Queensland Parks and Wildlife Service (QPWS) staff have worked side by side with MTB riders to improve the design and sustainability of MTB single tracks. Consequently there have been several positive outcomes:

- Compliance with the approved track network;
- Improved understanding between QPWS and MTB riders;
- Decrease in environmental impact;
- Increase in standard of track design, construction and maintenance;
- Reduction in illegal track building; and
- Closure of un-sanctioned tracks.

To date, mountain bike projects have concentrated on the provision of cross-country tracks. It has been demonstrated that this style of track and this type of riding can be provided for without compromising the natural value of forests and conservation areas. Downhill mountain bike riding is the extension and application of these sustainable methods to a single use, single direction trail. GCTA's current initiative is to find suitable locations for facilities that provide sustainable downhill mountain bike riding opportunities while balancing social and environmental values.

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1.2 Mountain Bike Riding

The Australian Cycling Federation (ACF) gives the following history and definition of mountain bikes:

Mountain bikes have been a relatively recent development in cycling with the first true multi geared off-road specific bicycles being developed in northern California during the late 1970's and early 1980's. By the mid 1980's there were commercially available mountain bikes appearing in bicycle shops around the world. Mountain bike races almost immediately started up simultaneously in many countries in the mid 1980's. The first MTB World Championships were held at Durango in Colorado USA in 1990. At the first MTB World Championships there were 2 events, being Cross Country (XC) and Down Hill (DH).

Given the very short history of the MTB and MTB racing it can appear to be an anachronism to speak of the modern era of mountain biking however it will be a fact that history will observe in future years that the development of this bicycle and the sport in which it is used has moved further in the 16 years since the first MTB world Championships than any of the other cycling disciplines have moved in the last 100 years. In the 16 years since 1990 MTB XC racing has become an Olympic Sport with MTB XC events contested at the last 3 Olympic Games (1996 – Atlanta, 2000 – Sydney and 2004 – Athens). Since the inaugural MTB World Championships in 1990 where 2 disciplines were contested (XC and DH) there are now annual World Championships in MTB for 5 distinct disciplines. Cross Country events have expanded to 3 distinct types being the Olympic Cross Country (OXC), the Marathon Cross Country (MXC) and the MTB 24 hour event. (Cycling Australia, 2006 www.cycling.org.au)

The first Australian National Titles for mountain biking were held in 1988 with Queensland's first National Downhill Champion Ben Monroe in the Senior Men's Downhill. Ben became Queensland's first unofficial World Title holder when he won the Junior Men's Downhill Title at Mammoth Mountain in California in 1989 one year prior to the International Cycling Union recognising mountain bikes as a cycling discipline in their own right.

Since the advent of the mountain bike it has undergone a technical revolution. The early bikes were very heavy and somewhat unreliable, a level of mechanical adeptness was required to take them on extended journeys. Today the mountain bike, through the application of modern technological refinement is relatively lightweight, reliable and versatile. A modern cross country mountain bike has a wide range of gears to make climbing hills less of a chore, a minimum of front suspension (with both front and rear suspension an increasing trend) giving greater control and comfort off road and usually equipped with powerful disk brakes giving reliable all weather braking control.

With this refinement has come diversity, with bicycles becoming targeted specifically to certain uses. The disciplines of mountain biking now include cross-country, downhill, endurance, trials, four-cross and freeride. The modern downhill mountain bike best exemplifies this diversity. They are designed

to traverse rough and technically challenging terrain providing an intensely thrilling ride, very attractive to the younger demographic of mountain bike riders. The long front and rear suspension, large powerful hydraulic disk brakes and a limited high gear range coupled with a heavier, high strength frame, they require a herculean effort to pedal uphill. Most riders prefer to transport their downhill bikes via car or utility to the top of the hill to enjoy the ride back down.

These diverse disciplines require specific courses with targeted features built in to develop specific skills. The inclusion of riders of a particular discipline is required to create a track that meets their needs.

1.2.1 User preferences

The majority of mountain bike riding is for recreational purposes, as opposed to a competitive motivation. Of this majority, most riders participate in a cross-country type activity. Mountain biking contains a broad spectrum of recreational motivations, in the same manner as traditional pedestrians users. Motivations include riding for fitness, socialising, nature appreciation (birds/animals/landscapes etc), training for competitive events, dog-exercising etc. These motivations are seen as socially acceptable activities for pedestrians and bicycle riding is another mode of expression for the same recreational preferences.

1.2.2 What mountain bikes are not

There have been concerns raised by some traditional users of bushland that mountain bikes cause excessive erosion. This has not been supported by the now numerous studies into the area (see <http://www.imba.com/resources/science/index.html>). The rising trend from these studies is showing that the majority of mountain bike riders have no more impact than traditional pedestrian users and less impact than horse riding or off-road motor vehicles. There is a minority element of mountain bike users that behave badly and do not practice minimum impact codes of conduct but this appears to be consistent with minority human dynamics associated with all users be they bicycle riders, pedestrians or horse riders. Minority behaviours can be positively influenced through the standard mechanisms of education, signage, peer pressure, and enforcement.

Sustainable tracks and trails are defined as trails that cause minimal impact on the local flora and fauna while not requiring excessive maintenance. If trails are built with the specific user profile in mind, built to receive the predicted amount of traffic and receive regular minor maintenance they will be sustainable regardless of whether it is a walking track, horse trail or mountain bike trail.

1.3 Downhill Mountain Biking - Queensland

The era of niche specialisation of mountain biking is relatively new with technology refining bicycles to specific applications. The discipline of downhill is the oldest of these and while the downhill fraternity is maturing the majority of participants are between 15 and 25 years old.

MTB DH (Mountain Bike - Down Hill racing) is an exciting sport that is best described as being a time trial on a purpose built bicycle down a mountain over rough terrain. It involves sprinting, jumping, manoeuvring through trees, over rocks, logs, tree roots, mud, dust, and what ever else nature can throw at you over 4 minutes. It is a sport that evolved around the use of ski resorts during the summer time. In Europe, Canada and the USA, there are many resorts that offer full access during the summer for MTB down hill riders.

(Cycling Australia, 2006 www.cycling.org.au)

1.3.1 Recreation and Facilities Demand

Australia is the number 1 ranked nation in the International Cycling Union (UCI) World Downhill Mountain Bike Series. At the recent 2007 UCI World Championships held in Rotorua New Zealand, Australians dominated with two World Champions, Sam Hill (Senior Men) and Queensland's Tracey Hannah (Junior Women) with a long list in the top ten, many of them also from Queensland. Since the late 90's Australia has had 5 Junior World Champions and 1 Elite World Champion. South East Queensland is home to some of the world's best downhill mountain bike riders with many keen national and intrastate competitors and a large number of recreational downhill riders.

There is a chronic under supply of legal venues for this recreational activity which is demonstrated through the many illegal and un-authorised venues as well as limited number private, race only venues. The only legal venue in Southern Queensland is located in Toowoomba at Jubilee Park. The only other legal venues in Queensland are in Townsville and Cairns. Riders are mostly using un-sanctioned tracks on private or government land. The activity is largely un-managed with under resourced and overworked land managers unable to enforce prohibition of the activity. The regional provision of legal facilities will enable land managers to pro-actively manage the activity and offer opportunities to positively engage the downhill riding community.

1.3.2 Current Downhill Mountain Biking Initiatives in Queensland

The discipline of downhill mountain bike racing has a long history in Queensland with the oldest legal downhill track located at the Smithfield Conservation Park, in Cairns. Smithfield was the site of the 1996 UCI Downhill World Championships. Currently, QPWS and the Cairns Mountain Bike Club are negotiating an *Authority to Occupy* under Section 34 of the *Nature Conservation Act 1992*. This historic agreement will recognise that the Cairns MTB Club manages the downhill, cross-country and mountain cross tracks in Smithfield for recreational riding and racing.

In 2005, Toowoomba City Council approved the construction of a downhill track in Jubilee Park, from the top of the escarpment to the bottom, ending near the town of Withcott. Members of the Toowoomba MTB Club designed and constructed the track under the supervision of the ranger in charge and the Project Officer for Sport and Recreation.

In 2006, Townsville City Council has permitted the construction of a downhill track by the Townsville Rockwheelers in bushland on the road reserve of Mt Stuart Road. An experienced local MTB track designer has produced a sustainable track over one kilometre long, which is fun yet low risk.

These are the only legal venues in Queensland for mountain bike riders to legitimately undertake this activity, ably demonstrating the gross lack of facilities.

The provision of legal facilities will offer a better alternative to the current illegal and uncontrolled mountain bike activities, resulting also in a decrease in other inappropriate behaviour.

2 Downhill Facility Design

What is a downhill mountain bike track and what do downhill mountain bike riders want?

Downhill riding is all about rhythm and flow. As they descend the trail, downhillers go as fast as possible by finding the best lines and riding smoothly. Advanced riders tend to ride faster lines - those that require a higher level of strength, agility, and reaction.

(International Mountain Bike Association, Fifteen Tips for Building Excellent Downhill Trails, IMBA.com)

2.1 Downhill Track Requirements and Features

Due to the style and preferences of downhill riders there are only a limited number of sites where all the prerequisites occur. In trying to satisfy this recreational demand it is important to take all of these elements into account in any design. For example an access road is one of the most critical elements. It's a sure way to stifle an otherwise brilliant facility if all the other elements are provided and then riders are asked to push their bikes back to the top of the hill.

2.1.1 Location

The location of a downhill track requires several features:

- Continuous elevation drop, minimum 100m over a distance of 1km (10% overall average gradient), however the more vertical drop and distance the better!
- Preference for interesting topographic with geological and natural features i.e. the presence of rock, undulating land and fallen timber
- Vehicle access from the bottom to the top of the track with a minimum requirement being a dry weather dirt road however all weather two-wheel drive access is preferred

2.1.2 Features

A downhill trail is intended to challenge the technical skills of the rider. The obstacles and features are normally referred to as Technical Trail Features (TTF's). IMBA defines a TTF as "*challenging elements to trails that will provide exhilarating experiences for mountain bikers who want to push themselves to new limits.*" (IMBA, *Trail Solutions*, P21, 2004)

A list of technical features for a downhill trail includes but are not limited to:

- Drop-offs
- Berms
- Rock gardens (also Rock armour)
- Jumps

The type and application of TTF's is really only limited by the imagination of the trail designers and

builders. Indeed a great part of the enjoyment for participants is deciding exactly what can be conquered while riding a bicycle and exactly how fast one can go doing this. (See http://www.imba.com/resources/trail_building/downhill_tips.html for more specifics on features.)

2.1.3 Environmental constraints

The practice of implementing sustainable trail design needs to take into account the local environment and it's significance in the landscape. The following need to be determined and considered as part of the design process:

- Regionally significant ecosystems
- Impact on significant fauna species
- Soil type
- Rainfall
- Track drainage
- Sustainable track gradient, alignment and construction.

2.1.4 Safety considerations

The implementation of Australian Standard Risk Management Procedures is recommended* to fulfil the duty of care requirements for land managers. It is worth noting that the Civil Liability Act of 2003 has significantly reduced duty of care issues regarding civil liability through the designation of obvious risk recreational activities. Mountain bike riding is listed as an obvious risk activity, effectively negating a large proportion of potential management issues. Therefore the onus is on managing only those risks that are not foreseeable as part of a mountain bike experience or could have been identified through a risk assessment as not part of a mountain bike experience. A sample risk assessment has been included in Appendix 2.

*

It should be noted that this does not constitute professional advice on risk management and GCTA recommend that you conduct your own investigation into these matters using the information provided as a potential starting point and guide only.

GCTA recommend that the following initiatives be considered in any risk assessment:

- Grading of trails under the International Mountain Bike Association Trail Grading system
- Technical Trail Features should be designed for high skill with low consequence
- Technical Trail Features should be clearly signed with easier alternative routes
- Single use for mountain bikes only
- Single direction descent only
- Ease of access to a road for medical evacuation
- Sufficient capacity for parking at the facility
- Appropriate infrastructure for motor vehicle safety.

2.1.5 Social Impact

The impact on nearby residents and landowners is an important consideration in the location and operation of mountain bike facility. The following are listed as criteria that need assessment as part of the design process:

- Appropriate buffer distance from residential development
- Low traffic access road
- Minimise potential conflicts with existing legitimate users i.e. choose a forest that is not already busy with walkers, horse riders or tourists.

2.2 Downhill Trail Design and Construction

Historically 1 or 2 riders design tracks and a team of friends or club members attend building sessions to complete construction. Often the organisers or original builders conduct maintenance days to improve poor sections. Due to the unauthorised and illegal nature of existing venues, often poorly thought out and conflicting construction and maintenance occurs.

The formalisation of a legitimate group of volunteers or a club to oversee the construction and maintenance in cooperation with the QPWS staff in the Maleny office is the preferred option for this facility. The IMBA Trail Care model has been implemented successfully in a number of local contexts most notably by the Toowoomba City Council at their downhill facility at Jubilee Park. The preferential mechanism for the operation of the trail care group is collaborative design with QPWS staff and pre-approval for the alignment prior to construction and inspection upon completion. The use of many small stages in construction will enable QPWS staff a greater level of control over the final product ensuring that the requirements of QPWS are being balanced with the preferences of downhill riders. Trail Care volunteers using mostly hand tools would provide the labour required to construct the track.

The downhill track beside Delicia Road, Mapleton is a nearby typical example of a downhill track. It should be noted that this track was constructed without knowledge of the IMBA principles of sustainable trails. Another local example of a downhill track has recently been constructed on private land on the Maleny – Kenilworth Road. Several events have been held there by the Bushrangers MTB Club, sanctioned by Mountain Bike Australia, the peak mountain bike representative body. Being on privately owned land this track is only open when a sanctioned event is held. A typically South East Queensland regional event will attract 150 - 200 entrants.

Downhill mountain bike (MTB) tracks can be designed to provide the experience desired by riders while applying accepted practices that minimise environmental impacts, social conflict and risk of serious injury.

3 Social, Economic, Environmental and Management Benefits

3.1 Social Benefits

As an activity which is healthy, fun and attractive to young people, mountain biking is an effective way to combat the obesity and diabetes epidemic. Recreation trends are now showing that those who take up an active and health life style in their youth follow through to lead active and health later lives.

Downhill mountain biking builds:

- Independence and self-reliance
- Strength and physical skills
- Fit and healthy kids and adults
- Group cohesion and individual identity

3.2 Economic Benefits

The Forestry Commission in the UK, with the assistance of government funding, has spent millions of pounds on trails in Scotland, Wales and England. The provision of facilities has resulted in a huge economic return. Mountain biking contributes significantly to the GDP of Wales due to overnight stays and visitor spending by local and international tourists to small towns. The Forestry Commission benefits directly from car parking fees and customer spending at visitor centres.

(See www.forestry.gov.uk/england-cycling for more details)

3.3 Environmental Benefits

The provision of facilities on a regional scale will provide legal alternatives to unauthorised and uncontrolled construction in natural areas across South East Queensland yielding a net environmental benefit. Properly designed, constructed and managed downhill trails minimise impact on the environment.

3.4 Management Benefits

The provision of legal mountain bike venues has the potential to alleviate the impact through inappropriate uses such as four wheel drives and motorbikes. For example the Redland Shire Council has documented a marked decrease in 4WD and motorbike use in a conservation reserve popular with MTB riders. The casual surveillance provided by MTB riders has also discouraged other illegal and undesirable activities. Anecdotal evidence from the MTB park in Hobart also suggests that motor bikers may respect the facility as specifically for MTB only riding.

Mountain bike specific tracks are designed to suit bicycles of a certain length, weight and design speed. These do not suit motor bikes which are longer, heavier, faster and ride best uphill. Downhill MTB tracks do not fulfil these recreational preferences.

Trails can benefit everyone. Riders, young and old (young at heart), can engage in healthy fun in the forest. The community can gain from increased visitation from outside the region. Land managers can engage a strong, fit group to help manage mountain bike trails in the forest.

4 Proposal for a Downhill Track in Bellthorpe Forest Reserve

Location: Adjacent to Stony Creek Road within Bellthorpe Forest Reserve managed by QPWS (see Figure1).

Description: A downhill track is possible just to the west of this road, as marked on the map. The area fulfils all the requirements as listed above. An ideal ridge runs parallel to Stony Creek Road from the southern entry point in to the forest up to the 510m elevation point. The distance by road is approximately 1.3km.

There appears to be an old access road on this ridge, which is the approximate location of the downhill track. However, the downhill track would have a more sustainable alignment, travelling across the fall line with frequent uphill turns to shed water off the track.

Elevation Change: Approximately 160m.

Distance: Approximately 1.8km.

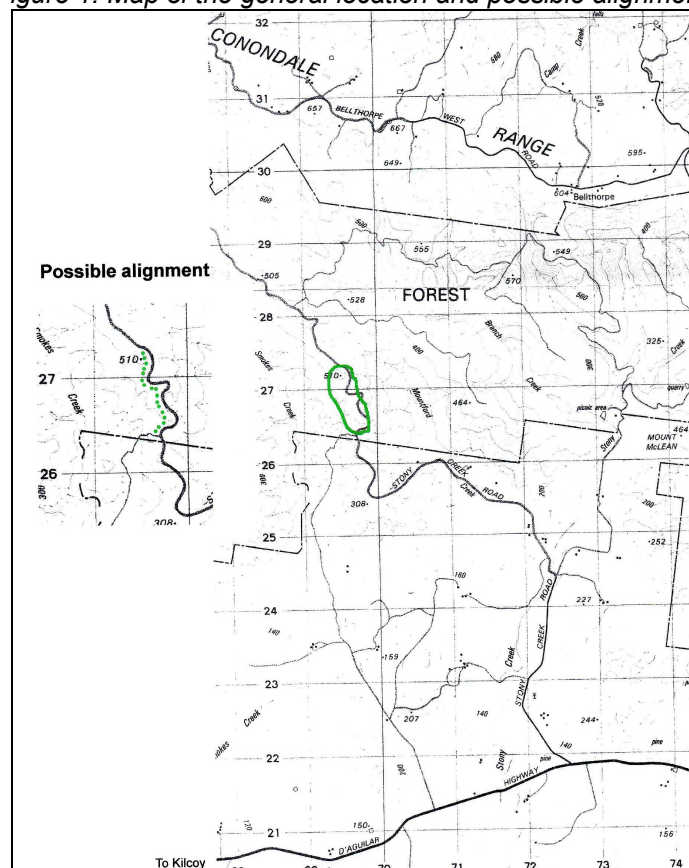
Features: Native forest, fallen timber, rocky outcrops.

Access: Stony Creek Road is always within 250m of the proposed track.

Constraints: Possible significant native fauna or flora species. Increased road traffic on Stony Creek Road will impact upon 2WD and 4WD tourists, and any local traffic.

Note: Further detailed investigation of the general area may yield better options.

Figure 1. Map of the general location and possible alignment.



5 Proposal for a Downhill Track in Beerburrum West State Forest

Location: Adjacent to Raaen Road, within Beerburrum West State Forest managed by Forestry Plantations Queensland (see Figure 2).

Description: Starting in the native forest that forms a buffer between the pine plantations, the track could run down a ridge to the forestry road below or the track could follow beside Raaen Road, ending on the same forestry road.

Elevation Change: Approximately 100m.

Distance: Approximately 1km.

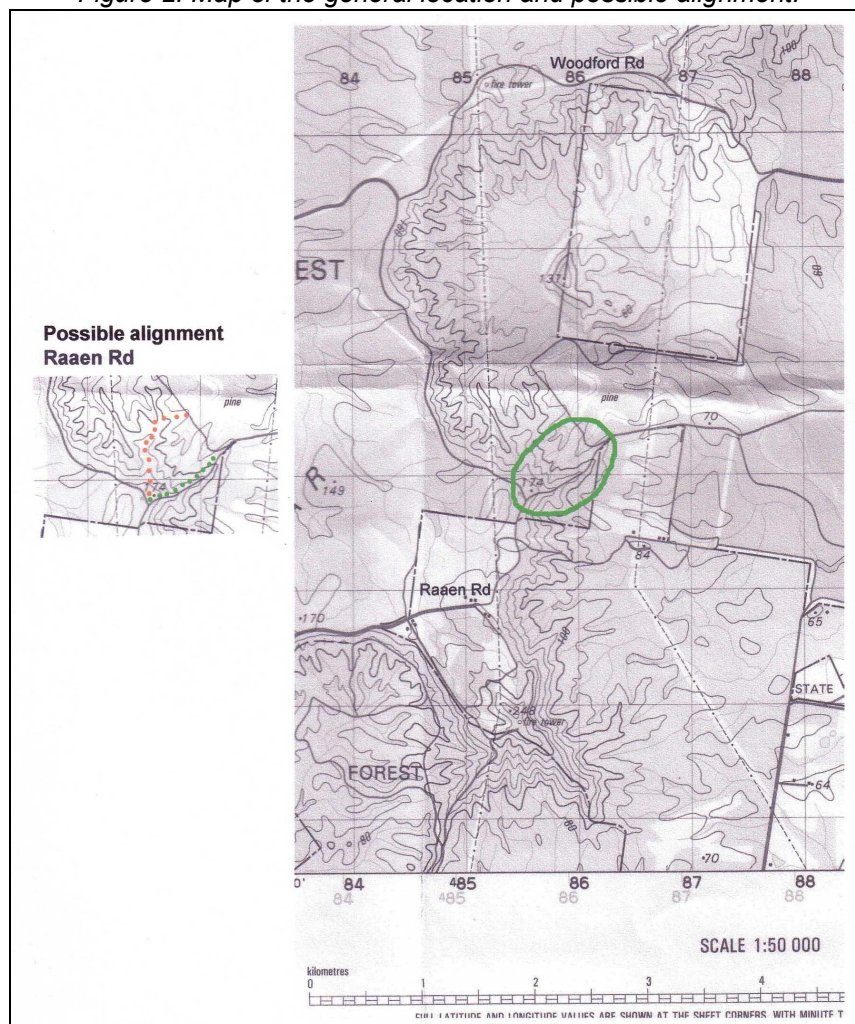
Features: Native forest, undulating terrain.

Access: Raaen Road and forest trails.

Constraints: Protection of native vegetation and minimisation of erosion. Possible conflicts between trail bikes, four wheel drivers and cyclists.

Note: Further detailed investigation of the general area may yield better options.

Figure 2. Map of the general location and possible alignment.



6 Acknowledgments

Gap Creek Trails Alliance is grateful for the opportunity to present this proposal. Mountain bike riding is a legitimate use of QPWS forests and other EPA land, such as Forestry Plantations Queensland estate. Cross-country style tracks have been provided for at Tewantin, Daisy Hill and Bunyaville State Forests. An investigation into the opportunities for QPWS and FPQ to provide a legal downhill style facility is a commendable initiative and goes a long way to providing fair and equitable opportunities for the specific discipline of downhill mountain bike riding.

7 Appendix 1 Online References

7.1 IMBA.com

- Land Manager's Mountain Bike Management Toolkit (www.imba.com/resources/managers/index.html)
- IMBA Fifteen Tips for Building Excellent Downhill Trails (www.imba.com/resources/trail_building/downhill_tips.html)

7.2 MTBA Resources

- Trail Access (www.mtba.asn.au)
- Club Resources
Cairns MTB Club (www.cairnsmtb.com)
Townsville Rockwheelers Mt Stuart Downhill Mountain Bike Track Management Plan (www.imba.com/resources/bike_management/townsville_plan_05.doc)

7.3 Queensland Outdoor Recreation Federation (QORF)

- Mountain Biking resources (www.qorf.org.au/01_cms/details.asp?ID=725)
- Queensland Mountain Bike Forum (www.outdoorsqueensland.com.au/01_cms/details.asp?ID=726)

7.4 UK Forestry Commission

Active Woods – Naturally Good for You

- 2,600km of way marked trails for cycling, including downhill, in England. (www.forestry.gov.uk/england-cycling)
- Eight locations with MTB specifically trails in Scotland. Website shows trail grading, code for safety and trail rules, and detailed riding tips. (www.forestry.gov.uk/forestry/INFD-6MQD2A)
- Ten destinations for MTB riding including downhill, in Wales. (www.forestry.gov.uk/forestry/infd-6r1fd3)

8 APPENDIX 2 SAMPLE RISK ASSESSMENT

LIKELIHOOD	CONSEQUENCE				
	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic
A. Almost certain	HIGH	HIGH	EXTREME	EXTREME	EXTREME
B. Likely	MODERATE	HIGH	HIGH	EXTREME	EXTREME
C. Possible	LOW	MODERATE	MODERATE	EXTREME	EXTREME
D. Unlikely	LOW	LOW	MODERATE	HIGH	EXTREME
E. Rare	LOW	LOW	MODERATE	MODERATE	HIGH

Legend – Likelihood
A. Almost Certain: Is expected to occur in most circumstances
B. Likely: Will probably occur in most circumstances
C. Possible: Might occur at some time
D. Unlikely: Could occur at some time
E. Rare: May occur only in exceptional circumstances

Hazard Identified	Causes/ Consequences	Risk Rating	Control Measures
<p>8.2 Road Accident</p> <ul style="list-style-type: none"> Between cyclist and a vehicle Between vehicles using the road 	<p>Where the road is a public road, normal risks apply. Current road use is relatively low. There will be an increase in vehicle and cyclist's movements associated with the track.</p>	<p>Rare / Moderate E/3 Moderate Acceptable Risk</p>	<ul style="list-style-type: none"> Signage to be erected at the track access points at the top and bottom alerting motorists of the activity. A suitable "Off road" car parking area at the top and bottom of the track to be provided. Track route to be separated from the roadway by adequate distance.

Hazard Identified	Causes/ Consequences	Risk Rating	Control Measures
<p>8.3 Cyclist falling whilst using track.</p> <ul style="list-style-type: none"> Single accident 	<p>User colliding with and/or falling onto natural feature(s) such as sharp or hard rocks, low hanging branches, tree trunks, etc</p> <p>User colliding with / falling onto remnant infrastructure (eg an old fence)</p> <p>Any of which could result in:</p> <ul style="list-style-type: none"> user sustaining an injury that could be minor (e.g. minor cuts, abrasions, bruising) or need immediate medical attention. damage to property, bike or infrastructure. <p>Likelihood of occurrence is influenced by:</p> <ul style="list-style-type: none"> Technical skill level of cyclist. Weather conditions (eg track surface loose / slippery due to rain) Mechanical condition & intended capability of bike. <p>Potential extent of injury is influenced by:</p> <ul style="list-style-type: none"> Presence of safety wear / equipment on rider 	<p>Minor fall, requires first aid B/1 Moderate ACCEPTABLE Risk</p> <p>Mod fall, sprains, strains, concussion C/2 Low ACCEPTABLE Risk</p> <p>Major fall, neck injury, death E/4 Moderate ACCEPTABLE Risk</p>	<p>Install signage at the track access points that:</p> <ul style="list-style-type: none"> Advises users of the level of skill required to negotiate the track. Advises users of their responsibility to be aware of the possible risks Advises users to wear adequate protective equipment (eg helmet, shoes etc) Provides emergency contact details (ambulance fire police) Advises users of the presence of other users on the track. Advises users of management contact details. <p>Track design and construction:</p> <ul style="list-style-type: none"> Track to be designed and constructed to IMBA Standards. Risk of collision with natural obstacles and remnant infrastructure reduced by track route selection. Loose /slippery surfaces to be avoided or improved as part of track construction. Fall zones to be cleared of hazards/debris.

Hazard Identified	Causes/ Consequences	Risk Rating	Control Measures
<p>8.4 Cyclist falling whilst using track.</p> <ul style="list-style-type: none"> • Collision between 2 cyclists • Collision between pedestrian and cyclist • Collision between motorbike and cyclist 	<p>User colliding with another user and/or falling onto natural feature(s)</p> <p>User colliding with a pedestrian</p> <p>Any of which could result in:</p> <ul style="list-style-type: none"> • user sustaining an injury that could be minor (e.g. minor cuts, abrasions, bruising) or need immediate medical attention. • damage to property, bike or infrastructure. <p>Likelihood of occurrence is influenced by:</p> <ul style="list-style-type: none"> • Technical skill level of cyclist. • Weather conditions (eg track surface slippery due to rain) • Mechanical condition & intended capability of bike. • Potential for bush walkers to use the track, • Potential for motor cycles/4WD to use the track. <p>Potential extent of injury is influenced by:</p> <ul style="list-style-type: none"> • Presence of safety wear / equipment on rider 	<p>Minor fall, requires first aid D/1 Low ACCEPTABLE risk</p> <p>Mod fall, sprains, strains, concussion D/2 Low ACCEPTABLE risk</p> <p>Major fall, neck injury, death E/4 Moderate ACCEPTABLE risk</p>	<p>Install signage at the track access points that:</p> <ul style="list-style-type: none"> • Advises users that the track is to be ridden in one direction only (i.e. downhill). • Advises users that the track is for single file only • Advises other possible users (pedestrians/motorbike/ 4WD) that the track is for non-motorised use only (mountain bike use only). <p>Track design and construction:</p> <ul style="list-style-type: none"> • Track to be designed and constructed to IMBA Standards • Risk of collision (passing) reduced by track being constructed for single file only. • Track entries to be narrow to prevent motorbike and 4WD access • Track features to deter motorbike access (such as tight corner radii.

Hazard Identified	Causes/ Consequences	Risk Rating	Control Measures
<p>8.5 Risk of object(s) falling on park user</p> <p>Primarily related to natural occurrences:</p>	<p>Falling tree-limbs / rocks / debris</p> <p>User being hit / crushed by falling tree limbs / rocks / debris</p> <p>Any of which could result in:</p> <ul style="list-style-type: none"> • user sustaining an injury that could be minor (e.g. minor cuts, abrasions, bruising) or need immediate medical attention. • damage to property, bike or infrastructure 	<p>Rare event E/4 Moderate ACCEPTABLE risk</p>	<p>Very unlikely that the track would be used on days of extreme weather (such as during a cyclone) that would cause such an occurrence.</p> <p>Inspect track after severe weather for damage to infrastructure and rectify as necessary.</p>

Hazard Identified	Causes/ Consequences	Risk Rating	Control Measures
<p>8.6 Risk of blocked track</p> <p>Primarily related to conditions after a natural occurrence</p>	<p>Tree limb(s) falling on trail(s), rocks or debris spread over track after natural event such as cyclone or fire that could cause user(s) to crash / fall (see risk 2)</p>	<p>Possible event C/3 Moderate ACCEPTABLE risk</p>	<p>Inspect track after severe weather for dead or damaged overhanging limbs, loose or weakened upper slopes and the like and rectify as necessary.</p> <p>Clear track of loose debris and the like as necessary.</p> <p>Provide signage that encourages users to monitor the track for fallen branches (and other impassable obstacles) and remove if possible to do so safely or otherwise contact management (provide management contact details).</p>

Hazard Identified	Causes/ Consequences	Risk Rating	Control Measures
<p>8.7 User (s) engaging in any activity that causes damage to the natural values of the immediate area around the track.</p>	<p>User(s) building / creating additional tracks and/or changing the track route,</p> <p>User(s) walking / riding off the track,</p> <p>User(s) introducing weeds into the area or spreading weeds in the area,</p> <p>User(s) deliberately harming natural assets in any way,</p> <p>User (s) causing fire</p>	<p>Possible event C/2 Moderate ACCEPTABLE risk</p>	<p>Track route to be selected such that it is the best option and follows natural desire lines so as to minimise the desire of users to ride or walk off-trail & / or create unauthorized tracks. Possible alternatives to be identified and “blocked off” as part of construction.</p> <p>Introduction of weeds is unlikely as access to the track is via sealed roads. Spread of weeds along the track is unlikely as the area is reasonably weed free. Implement weed removal as part of construction activities.</p> <p>By means of signage educate users about the following issues:</p> <ul style="list-style-type: none"> • The environmental problems associated with unauthorized trail building, • Principles of sustainable trail development and the IMBA Trails Standards, • Biodiversity and why it is important • Environmental weeds and their management • Invite and encourage users to become involved in trail maintenance and management

Hazard Identified	Causes/ Consequences	Risk Rating	Control Measures
<p>8.8 Risk of fire</p>	<p>Fire by natural causes, User(s) accidentally starting fires, User (s) deliberately starting fires, Any of which could result in:</p> <ul style="list-style-type: none"> • Damage to natural assets (eg vegetation, soil, fauna etc.) • Damage to infrastructure 	<p>Possible event C/2 Moderate ACCEPTABLE risk</p>	<p>Fire occurs either from natural causes, accidentally or deliberately lit. Additional use in the area will increase the likelihood of fire. The sealed road and the regularly maintained firebreaks contain any fire from spreading. The track will also provide an additional firebreak to reduce the spread of fires.</p>