

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [s.22](#)
Subject: 2019 BTRA AR
Date: January 8, 2020 1:14:26 PM
Attachments: [2019 BTRA AR.pdf](#)
[ATT00001.txt](#)

From: [Bradley, Dan FLNR:EX](#)
To: s.22 [FH Forestry; WestHarrisonRes; s.22](#) ; [XT:FraserValley, RegionalDistrict](#)
[ENV:IN; Harrison Yacht Club; s.22](#) [info@hopemountain.org; s.22](#) [Kevan Bernards;](#)
s.22 [info@fvmba.com](#)
Subject: 2019 PAES Form Reminder
Date: December 17, 2019 11:29:00 AM
Attachments: [Partnership Agreement Engagement Summary 2019.docx](#)

Hey all,

This is a reminder to submit your Partnership Agreement Engagement Summaries by Dec 31 2019 as required by your Partnership Agreement. I know the holidays can be a busy time so if you need an extra week or two into the new year that would be fine.

I've added the notes below to explain what RSTBC uses this data for:

- The 1st box on the PAES form ("number of volunteers performing services") is used to calculate Insurance coverage.
- The 2nd box on the PAES form ("number of hours of services") is used internally by RSTBC to calculate the effort that volunteers provide to our program. It is calculated into full time employees (FTE's), and is reported out through the Annual Report.

Thanks to you all for all the hard work you've done through the year and I hope you enjoy the Holidays!



Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5
tel: 778-704-7074

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: 2020 BTC policy
Date: December 11, 2019 8:34:34 AM

Hi Dan,

Hope you're welll!

As the new chair of the coalition I'm hoping we can touch base soon. I'd like to go over where we're at with our current P.A. and begin discussions about what happens in May 2020.

My goal is too keep work loads reasonable for our volunteers while we work towards fulfilling our obligations as trail stewards.

Recently a few things that have come to my attention that I'm hoping to discuss with you as well. There's been some seriously intense email threads circulating over the past few days. I believe that some of content is pushing the limits of what's reasonable to expect from a group of volunteers and could potentially limit future projects on the mountain. I'd like to seek advice from you or Tom on how best to proceed before I address them with the coalition.

The subject is mainly the process of public consultation regarding coalition projects. I'm seeking clarification on the following:

- what are our obligations?
- does our coalition (hiking, Mtb, equestrian, running and motorized) qualify as a fair, legitimate representation of stakeholders?
- is it advisable for our coalition to vet or filter constituent communications with the public or should each group remain free to communicate as their respective boards see fit?
- are there other examples set by other similar organizations that we could review?
- we already organize our OP's according to priority, as a coalition we decided that each constituent is free to pursue their own projects while also contributing to joint ventures. It has been suggested that we not initiate new projects until certain criteria have been met. Is this set in stone or can an organization put forward a proposal that has relevant merits such as better access for first responders and would facilitate ongoing trail maintenance and improvements?
- I was under the impression that our OP's where to provide a clear picture of what each group wanted to achieve?

I'll include a few comments below for context, specifically I'm seeking input on 2. 5. 6. 7. 8. 9. and the included statements.

I have to apologize for the load of questions right off the bat, ideally we wouldn't be starting off a new season like this.

Im hoping we can talk soon.

Thank you for your input,

Sincerely,

Kevan

Ideally, from my vantage point, for any new infrastructure type of proposal to gain maximum traction and have the most chance of being implemented, here's what the sponsoring Constituent might consider wanting to do first:

- 1. seek guidance from the DRO as to the viability of this proposal.**
- 2. work with fellow Constituents to ensure that the necessary infrastructure in fulfilling the Partnership Agreement is already in place: (a) existing trails are catalogued, named, marked and signed; (b) existing trails are categorized by their use and degree of difficulty; (c) dangerous sections on existing trails are addressed and made safer within RSTBC standards; (d) the Trails Etiquette Guide is ratified and published.**
- 3. ensure the proposal passes the test of safety, sustainability, navigation and accessibility within the context of transparency.**
- 4. formulate answers that overcome any anticipated objections and has integrated them into their proposal.**
- 5. be willing to wait for the opportune time to present their proposal to fellow Constituents, ie. once the infrastructure is in place and enough trust is built within the Coalition to give the proposal a better chance of success.**
- 6. have already been in contact with other legitimate stakeholders and has their support in principle.**
- 7. if necessary, develop a mechanism with fellow Constituents to gather feedback from legitimate stakeholders outside of the Coalition.**
- 8. accept that the joint Constituents are stewards of the Mt. Gardner tract of Crown land and therefore must not act in isolation.**
- 9. based on all the feedback collected, be willing to accept a decision that is in harmony with the wishes of the wider community of trail users.**

My recommendation is that the above guidelines should apply to any and every project proposal. Some, like the Navigation project or the Bluewater Bridge project, are so obviously necessary and endorsed by the other stakeholders that most of these guidelines are implicitly endorsed and can be (in fact, have been) skipped. But other proposals, especially those that require a paradigm shift, will require a more rigorous process, following more or all of the above or all of the above guidelines.

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: 2020 BTRA OP/Hazard Tree Removal Invoice
Date: June 16, 2020 11:13:38 AM
Attachments: [2020 BTRA OP budget request.pdf](#)
[ATT00001.htm](#)

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Dan,

Please find attached BTRA's invoice for our 2020 operating plan items as well as the hazard tree removal in February.

Thanks,

Kevan

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: 2020 MtGardner Partnership OP.docx
Date: February 7, 2020 6:46:24 AM
Attachments: [2020 MtGardner Partnership OP.docx](#)
[ATT00001.txt](#)

Hi Dan,

Chuck has informed us that BITS will be dealing with RSTBC directly and so I've included only the BIHORA & BTRA Joint OP here.

Please let me know if you have any questions.

Regards,

Kevan

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: BITS coalition contact
Date: May 8, 2020 10:39:07 AM

Hi Dan,

Here's Jes Slater's contact info:

s.22

Good meeting!

Cheers,

Kevan

Sent from my iPhone

From: Kevan Bernards
To: Bradley, Dan FLNR:EX
Subject: BTC 1st quarter meeting
Date: January 6, 2020 8:57:15 AM

Hi Dan,

Happy new year and I hope you enjoyed the holidays!

I'm putting together the agenda for our coalition's 1st quarterly meeting of 2020. I'm hoping that you and Tom would be able to attend as previously mentioned to discuss;

- the role of the coalition and how we operate,
- PA's and options for renewal after the expiration date in May,
- possibly discuss shared use strategies and how we can work together.
- please let me know if there's anything else you wish to add?

What dates would work best for you? It sounds like the end of January/early February will work best for the coalition (Jan 27-31, Feb 1-7).

A note about our 2020 OP's

-we were not able to fully discuss all items in depth at our coalition AGM in early December (BITS Handloggers trail improvements, BTRA Service Trail proposal, and parking area proposal).

- A meeting date was set for Jan 9 to further discuss these items and hopefully ratify our 2020 OP's. However, Chuck has informed me that the BITS board is not willing to meet then or discuss the proposed agenda items until after they have met (Jan 15th) and that it is their wish to hold the meeting with you and Tom first.

-It was my hope that we could have had this meeting before you and Tom visit so that we can submit our OP's and there would have been more time to discuss the other items while you're both here but it sounds like this won't happen.

This is frustrating since our OPs are due, should we just submit individually as they are or wait another month or so?

I know as a coalition we've had our rough patches this past year but we've also had our successes and I'm willing to keep moving forward in the new year.

Thanks,

Kevan

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#); [Blackbird, Tom G FLNR:EX](#)
Subject: BTC Constitution & Bylaws/next BTC meeting date
Date: January 18, 2020 11:01:51 AM
Attachments: [BTC Constitution & Bylaws.pdf](#)
[ATT00001.txt](#)

Hi Tom & Dan,

Please find attached the requested copy of the Bowen Trails Coalition constitution and bylaws for your review.

Available meeting dates and times for BTC special committee meeting : Jan 27, 28, 29 municipal council chambers 6:15pm-8:30pm. Please let me know which date works best and we'll book it in.

Regards,

Kevan

From: [Bradley, Dan FLNR:EX](#)
To: [Kevan Bernards](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: BTC Constitution Copy
Date: January 17, 2020 1:30:00 PM

Hey Kevan,

Could you email a copy of the BTC Constitution to Tom and I? We both don't have access to our database at the office and I can't track down a copy in my emails.

Thanks!



Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5
tel: 778-704-7074

From: s.22
To: [Bradley, Dan FLNR:EX](#)
Subject: BTC minutes March 2019 - Invitation to view
Date: January 23, 2020 8:43:16 PM

s.22

has invited you to **view** the following document:



BTC minutes March 2019

Open in Docs

This email grants access to this item without logging in. Only forward it to people you trust.

Google Docs: Create and edit documents online.

Google LLC, 1600 Amphitheatre Parkway, Mountain View, CA 94043, USA

You have received this email because someone shared a document with you from

Google Docs.



From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: s 22
Subject: BTRA Partnership Agreement Engagement Summary_2019
Date: December 29, 2019 11:15:17 AM
Attachments: [Partnership Agreement Engagement Summary_2019.pdf](#)
[ATT00001.txt](#)

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: BTRA Trails Strategy
Date: May 20, 2020 1:08:52 PM
Attachments: [Logo2VectorLandscape.pdf](#)
[ATT00001.htm](#)
[BTC Trails Etiquette.docx](#)
[ATT00002.htm](#)
[100308RC5-1b.pdf](#)
[ATT00003.htm](#)
[chapter10.pdf](#)
[ATT00004.htm](#)

Hi Dan,

BTRA has been developing this strategy to help mitigate conflict on the mountain.

This is a rough draft. Is there anything we're missing or should address?

Thanks,

Kevan

Ps we're working on the summary of motorized use on the mountain as well. In speaking to several locals who've moved away, I've learned of a couple other older trails which I found and checked out this past weekend, mapped and included in the inventory Dropbox file as well as an extremely comprehensive study of all Bowen's crown lands for reference. There's still a couple more tracks which I've yet to map but will try to get done soon.

BTRA Trails Strategy

1. Noise

-95db max muffler/spark arrestor (standard acceptable level in other areas of B.C.

-on popular multi-use trails set times for motorized use (evenings are usually less busy, for instance 4pm on...) if user conflict occurs,

-promote less sound is more ground initiative at the club level and in the local riding community by raising awareness and ensuring club member's machines comply with regulations.

-encourage shift to e-machines as technology and availability allow,

1. Safety

- signage clearly showing what types of trail use can be expected on individual trails and difficulty level,
- riders are bound to the rules which already exist for operating an ORV on crown land found in the Off-Road Vehicle (ORV) Act (Safety, insurance, etc),
- Trails Etiquette Guide will provide clear examples of how to interact in a safe manner with other trail users,
- properly maintained trails and clear lines of sight will mitigate hazards,
- identify trails where one way traffic for motorized would improve safety (South Ridge Express trail, downhill only, upper portion of Two Deadends)

1. Environmental

- complete TEST document for new trails within MtGardner recreation polygon,
- research and compile list of sensitive ecosystems and watershed boundaries,

Source material;

bowenisland.civicweb.net/document/21336

- follow advice from RSTBC, follow the guidelines in the trail builders handbook
<http://www.sitesandtrailsbc.ca/documents/manual/chapter10.pdf>

- proper trail design/maintenance (utilize clear span water crossings, trail armouring, proper drainage techniques),



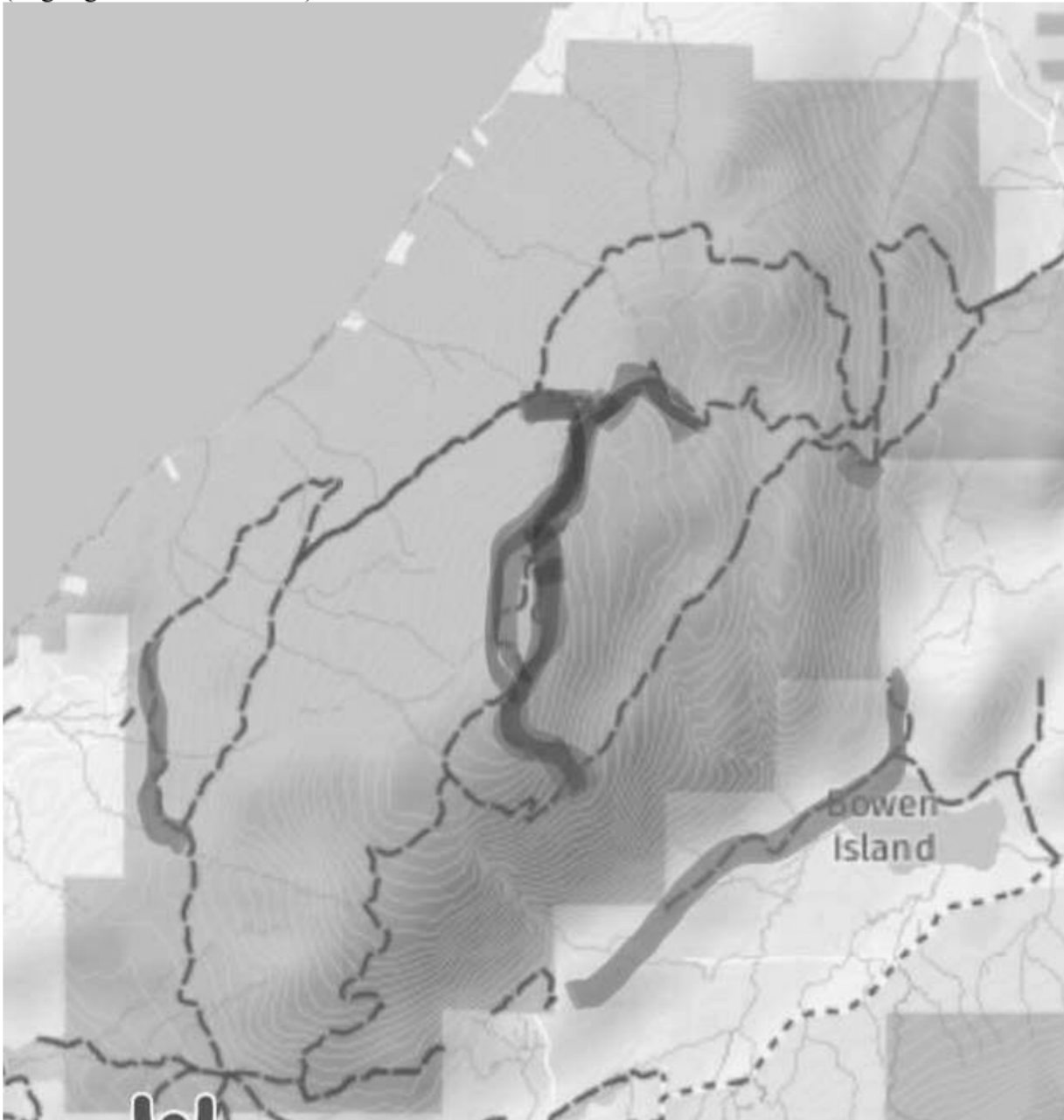
- ensure riders stick to established tracks and trails,
- follow tread lightly protocol Home - Tread Lightly!
- choose routes/reroutes which avoid environmentally sensitive areas (wet areas such as waterways and swamps, mossy bluffs or other areas where sensitive ecosystems or habitats are present, construct bridges or boardwalks over these areas if a reroute is not possible).

1. IDENTIFY TRAILS NOT SUITABLE FOR MOTORIZED USE

-there are trails which are not suitable for motorized use within the Mount Gardner Recreation Polygon. These provide Hikers and other trail users options where they will not encounter motorized users.

- The Summit Trail/loop trail
- Mines Trail
- Handloggers/Summit connector
- South Summit Grind
- Steep Section of Mid-Skid Trail
- Upper Skid Trail

(Highlighted below in blue)



From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: BTRA Trails Strategy
Date: May 20, 2020 1:10:42 PM
Attachments: [chapter10.pdf](#)
[ATT00001.htm](#)

Hi Dan,

BTRA has been developing this strategy to help mitigate conflict on the mountain.

This is a rough draft. Is there anything we're missing or should address?

Thanks,

Kevan

Ps we're working on the summary of motorized use on the mountain as well. In speaking to several locals who've moved away, I've learned of a couple other older trails which I found and checked out this past weekend, mapped and included in the inventory Dropbox file as well as an extremely comprehensive study of all Bowen's crown lands for reference. There's still a couple more tracks which I've yet to map but will try to get done soon.

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-identify trails where one way traffic for motorized would improve safety (South Ridge Express trail, downhill only, upper portion of Two Deadends)

1. Environmental

-complete TEST document for new trails within MtGardner recreation polygon,

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Source material;

bowenisland.civicweb.net/document/21336

-follow advice from RSTBC, follow the guidelines in the trail builders handbook
<http://www.sitesandtrailsbc.ca/documents/manual/chapter10.pdf>

-proper trail design/maintenance (utilize clear span water crossings, trail armouring, proper drainage techniques),



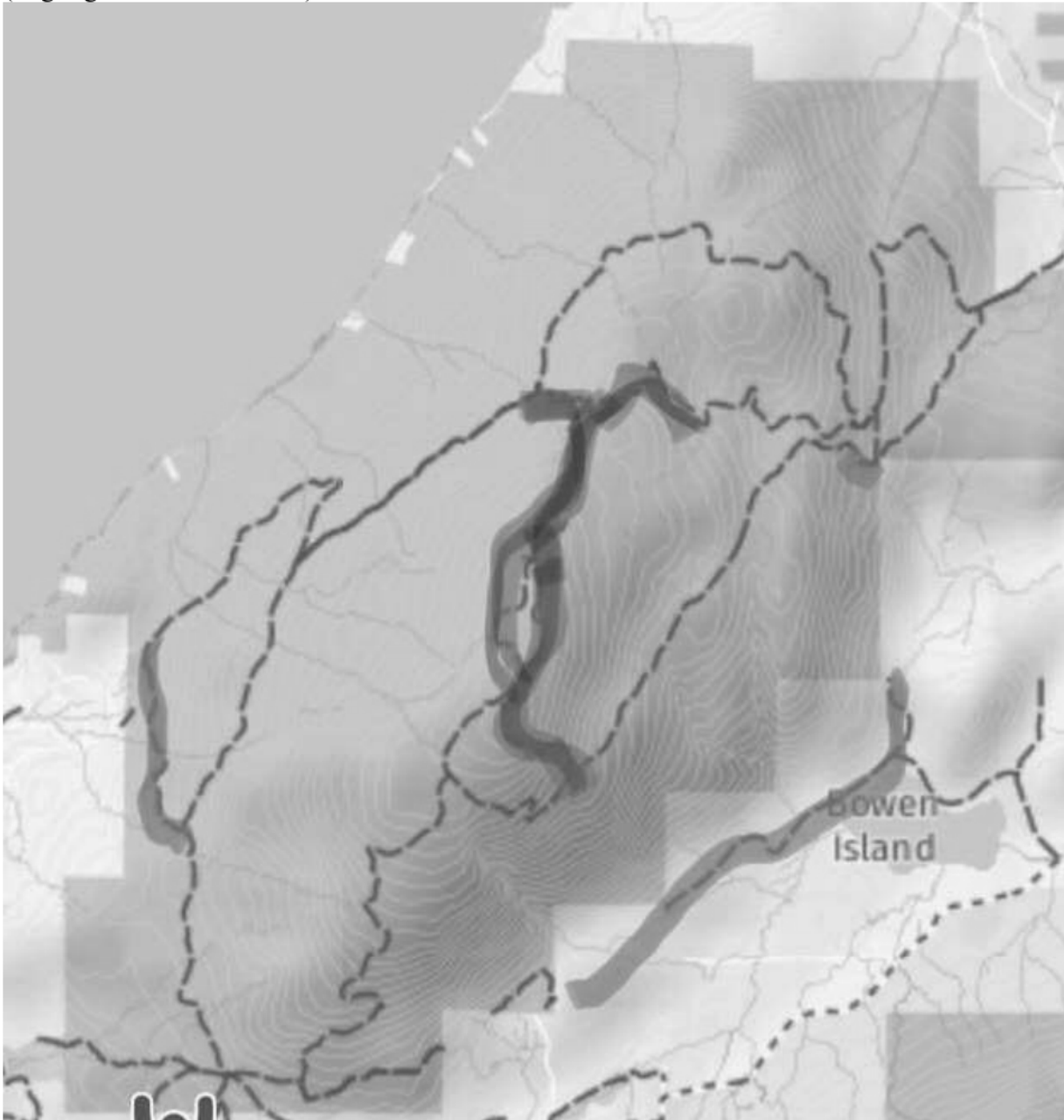
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- Mines Trail
- Handloggers/Summit connector
- South Summit Grind
- Steep Section of Mid-Skid Trail
- Upper Skid Trail

(Highlighted below in blue)



From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: BTRA_PA18DCK-007_Partnership_Agreement_Modification.pdf
Date: May 14, 2020 1:07:53 PM
Attachments: [BTRA_PA18DCK-007_Partnership_Agreement_Modification.pdf](#)
[ATT00001.txt](#)

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: DRAFT V1- New Partnership MOU.docx
Date: May 22, 2020 3:17:15 PM
Attachments: [DRAFT V1- New Partnership MOU.docx](#)
[ATT00001.txt](#)

Hi Dan,

BITS, BIHORA & BTRA met last night via teleconference to go over the new MOU. Here's what we came up with, please let us know if there's any changes we should make.

Have a good weekend!

Thanks,

Kevan

Ps it would be good to touch base next week, will you be available for a phone call?

From: [Kevan Bernards](#)
To: [Blackbird, Tom G FLNR:EX](#)
Cc: [Bradley, Dan FLNR:EX](#); [Anderson, Luc FLNR:EX](#)
Subject: Easy Street/MtGardner/swamp crossing
Date: November 18, 2019 11:06:32 AM
Attachments: [ATT00001.txt](#)

Hi Tom,

During our hike of Easy Street on Bowen last Tuesday (BTC recon hike, Tuesday November 12) we encountered this wet area, it's on the threshold of a seasonal swamp. The existing trail crosses at the narrowest spot (yellow arrow). Dan and I discussed and weren't sure whether a small bridge or built up trail bed with rocks would be suitable? Dan suggested you might be able to weigh in here? We could probably find cedar on site to construct a bridge, not sure what span would be but definitely under 5m.

Location is approximately here:

49 deg 22' 54" N
123 deg 23'16" W

Hope you're well!

Thanks,

Kevan

From: [Bradley, Dan FLNR:EX](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: FW: Mt Gardner Trails Inventory List
Date: March 4, 2020 9:00:22 AM

From: Kevan Bernards s.22
Sent: March 4, 2020 8:18 AM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Subject: Re: Trail Markers

Hi Dan,

BTRA is happy to leave trail use up to Tom, that will surely make things easier for the agreement holders!

BITS has just shared more info with us regarding signage design. Hopefully we'll all be meeting next week to discuss the MOU's and finalize a plan for signage at the major junctions.

I've been working on the Inventory stuff but realized that trails are kmz not kml is this format ok? If not I'll reformat...

Here's the link to the Inventory Doc we've created:

https://docs.google.com/document/d/12jQazomy9uVTX3EY5qwt4B2xBZ_DbreA7x1Ztxojd1w

Do we need to assign trail numbers or anything?

Thanks,

Kevan

Sent from my iPhone

On Mar 2, 2020, at 10:18 AM, Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca> wrote:

That sounds reasonable to me, however, you might want to omit "trail use" as a collaborative project. All other projects have been very successful with BITS but when it comes to determining trail use with motorized recreation seems like it hits a lot of roadblocks. It might be more productive to rely more on DRO determination of trail-use, but totally your call on how you want to approach that.

I haven't heard anything from BITS since we all met last, I'm not sure if their OP etc have been sent to Tom.

KML are great! I have the software to convert spatial data into whatever we need but KMLs seem to be the most versatile. If you send me a link to the google doc I can start putting a draft map together.

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 604-702-5762

-----Original Message-----

From: Kevan Bernards <Kevan.Bernards@gov.bc.ca>
Sent: February 27, 2020 1:51 PM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Subject: Re: Trail Markers

Great!

I'm drafting an email to BITS now to let them know what our plan is. I also want to make it clear to them that ALL agreement holder groups should be involved in the following projects;

- Trails Inventory
- Trail Names
- Trail use
- Trail Etiquette guide
- Navigation & Signage

Is this reasonable?

I see that BITS has announced that they will be undertaking some of these and so far this year they haven't really communicated much with us. I don't think it's fair for them to leave the framework of the coalition and then go ahead solo with these projects.

Working on track info/map for moto trails as well. Is it best to send you KML files? I've also created a Trail Inventory google doc as well as a drop box folder with track info. I'll make sure you're added to both. Also, is there a different preferred format for this

stuff?

Thanks,

Kevan

Sent from my iPhone

On Feb 26, 2020, at 10:03 AM, Bradley, Dan FLNR:EX
<Dan.Bradley@gov.bc.ca> wrote:

Sounds good!

You guys are good to go in regard to installing reflective markers on established moto trails under your Partnership Agreement but I appreciate the heads up!

As a courtesy, I would recommend letting BITS know that you will be installing some markers so there's no confusion on would is adding them to the network.

Also, it would be really great to have a complete map of the moto trails in the Mt Gardner Rec Polygon, I'd like to add some data of trail location and name to the Schedule A of your Partnership Agreement when we renew it.

Sounds great, keep me posted on the new MOU development, if you're looking for any feedback as things develop just let me know,

-----Original Message-----

From: Kevan Bernards [s.22](mailto:Kevan.Bernards@gov.bc.ca)

Sent: February 25, 2020 8:21 AM

To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>

Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

Subject: Trail Markers

Hi Dan,

BTRA members have fabricated about 1000 2"x2" reflective trail markers (same specs as purchased by BITS) and we're ready to start installing them on Handloggers, Canyon Trail and Easy Street as soon as this weekend!

I want to make sure that we've got the approval and authorization to do so before we begin.

Thanks,

Kevan

Ps It looks like BTRA and BIHORA will be meeting next week to form the new MOU (key board members have been away from both groups so there's been a delay in this happening).

Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: ["Phil Osborne"](#)
Cc: [Kevan Bernards](#); [Jes Slater](#); [Kristina Calli](#); [s.22](#)
Subject: FW: Navigation and Signage Plan
Date: June 18, 2020 1:03:00 PM
Attachments: [Navigation & Signage Plan.pdf](#)
[En Route Trail Sign Standards with Notes.pdf](#)
[trail_signs_trailhead.pdf](#)

Hey Phil,

I've pasted an email I sent out to Kevan this week below, and I've attached some notes to the attached En Route sign standards for some extra clarification. The style in the attached "trail_signs_trailhead" is an old design and is **not** required. Tom and I agree that this trail_signs_trailhead sign is too small for a map of the whole network to be legible anyways.

My understanding is the compromise we settled on is to follow the En Route sign standards in regard to **fonts**, **symbols**, and **layout** but non-standard materials can be used such as galvanized metal that has been cut out with CNC or laser etched/engraved. Please note, the required **layout** includes the order in which the signs are placed top to bottom down the post.

The En Route sign standards are designed to be installed as a series of separate metal badges installed down the post. This allows for signs to be easily updated or to allow the omission of difficulty ratings if they are not applicable "eg hiking trails". I've tried to explain this better in my notes but please let me know if I can provide any additional clarification.

The requirement is still to install En Route signage as described at **trailheads** and **major intersections**. For example, if you picture a named trail top to bottom as one line segment, the trailheads and major intersections would be both end points of the line. Any intersections with other trails along that line segment would be considered minor intersections.

The location planning of your signage plan is excellent, this is particularly useful in making sure the arrows are pointing in the correct direction!

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-684-2261

Hey Kevan,

Here is a copy of our current standards for En Route Trail Signage, this is what the DRO is requiring to be installed at trailheads and major intersections.

There is not supposed to be any flexibility in these standards but because there is highly engaged and capable artist community on Bowen the DRO has agreed to 2 potential compromises:

- 1) Use non-standard materials with the attached layout, symbols, and fonts. This could be galvanized steel with the info cut out or laser etched.
- 2) Install the standard signage accompanied by an additional post with whatever non-standard layout and symbols you like.

The attached standards are intended to be printed as separate badges to allow sections of the sign to be omitted if not applicable. For example, the 76mm x 76mm square showing the difficulty rating would not be posted on a hiking trail that has no moto or mountain bike use.

The intention of the GPS Locator section is to be printed out and then marked with permanent marker in the field. I'm not sure if this would be a requirement in all locations but I could follow up with Tom if you'd like.

Also, I've received your invoice and will get that processed as soon as I can,

Let me know if you have any other questions!

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-684-2261

From: Phil Osborne s.22
Sent: June 16, 2020 7:27 PM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Cc: Jessica Slater s.22
Subject: Navigation and Signage Plan

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Dan

Over the weekend I revised our signage plan (focused for now on Skid Trail and the major kiosk entry points) and added some signs following the RSTBC template.

That plan is attached. However, I heard from Jes today, that you may have settled on a compromise with respect to the RSTBC template that would be more in keeping with the style we have adopted.

Let me know if the attached is what you have in mind and I will look for the updated template from Jes so I can modify the entry and major intersection signage.

Thanks and best regards,
Phil

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: Fwd: BTC minutes March 5, 2020
Date: March 6, 2020 1:13:51 PM
Attachments: [Meeting Minutes March 5, 2020.pdf](#)
[ATT00001.htm](#)

Hi Dan,

Here's what we've drafted so far for the new MOU and a bit from our old C&B. Any input/advice from you or Tom would be much appreciated!

Kristina from BIHORA also had a question about how we collect information to the public and present to RSTBC. Next we'll be working on drafting up our communication framework so advice here would be helpful as well.

Thanks,

Kevan

Ps I'll try to get more mapping done over the next few weeks.

Sent from my iPhone

Begin forwarded message:

From: s.22
Date: March 6, 2020 at 8:55:33 AM PST
To: Kevan Bernards^{s.22}
s.22

Subject: BTC minutes March 5, 2020

Hi BIHORA and BTRA,
Please find attached the minutes from the BTC's meeting last night.
The meeting was held to edit the Memorandum of Understanding together, which will be presented to BITS for their decision on whether to re-join the BTC or not.
Kind regards,
s.22

FYI here are the details of our purpose (which I entered at the bottom of the doc - please feel free to edit, maybe it should be shortened?):

Using transparent communication, to promote safety, accessibility,

navigation, and sustainability with respect to maintaining and enhancing existing trails and developing new trails on Bowen Island's Crown lands so that Crown trails users have a positive and enjoyable experience.

Note:

- a. "Transparent communication" includes being thorough and factual in all communication with the Coalition's Constituents, the Crown, and other Crown trails stakeholders to increase awareness and support for the Coalition's aspirations and activities,
- b. "Safety" means the mitigation of injury and distress to Crown trails users by following the Crown's requirements for trail workmanship and volunteer administration,
- c. "Accessibility" includes ease of trailhead access to a diversity of Crown trails users,
- d. "Navigation" includes clear trail designation, visible wayfinding markers, and signage marking trails and trail junctions,
 - (e) "Sustainability" means ensuring that the materials used and the structures built in Crown trails projects are durable, as well as ensuring that all trail work meets the Crown's environmental standards.

From: [Kevan Bernards](#)
To: [Blackbird, Tom G FLNR:EX](#); [Bradley, Dan FLNR:EX](#); [Chuck Venhuizen](#); [Kristina Calli](#); [Karis Clayton](#)
Subject: Jan 28 2020 BTC agenda special meeting
Date: January 28, 2020 8:13:44 AM
Attachments: [Meeting notes.pdf](#)
[ATT00001.txt](#)

Hi Everyone,

Here's the final draft of the agenda, see you all tonight!

Kevan

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: MOU/Mapping/bridge/signage
Date: March 16, 2020 10:00:12 AM

Hi Dan,

s.22

! so when you've got the time I

wanted to touch base regarding;

- MOU did you and Tom have a chance to take a look?
- Moto mapping, many of the tracks which Lisa has recorded are also used by Moto. Should these be submitted but on a moto list?
- Lower Skid Trail Bridge, at either location span is less than 12m, hopefully we could keep the location and land the bridge on a board walk (logs with planks) in the mucky section and use log cribbing instead of concrete to protect the creek and make construction easier? I'll send a drawing tomorrow.
- we may need help from RSTBC regarding signage, wooden ones came in with an estimated \$7,500 price tag and now BITS is looking at embossed aluminum which I feel will probably be just as expensive if not more. Is there a standard design that RSTBC recommends or requires (I've had a look at the rec site infrastructure drawings page which is helpful)? We've been discussing this for almost 2 years! BTRA would like to finish our contribution to the signage through last years ORV funding grant by the deadline this year.
- Handloggers Trail has been marked with blazes (original route only -no reroutes).

Beside mapping is there anything else we should be working on as we near our PA renewal date in May?

Thanks,

Kevan

Sent from my iPhone

From: s.22
To: [Bradley, Dan FLNR:EX](#)
Subject: Meeting notes - Invitation to edit
Date: January 23, 2020 8:41:30 PM

s.22

has invited you to **edit** the following document:



Meeting notes



Hi,

Everyone here's the draft of the agenda for Tuesday's meeting (6:15pm-8:30pm at the Bowen Island Municipal hall). Please fill in the names of any board members who may be attending under "attendees". Agenda items can be added to "new business". I've added several links to other docs for reference, please let me know if you have any issues accessing these. Given recent correspondence regarding the trails we have a lot to discuss. It is my hope that together we can demonstrate to the public that we are responsible trail stewards. I look forward to your contributions and am confident that we'll have a productive meeting.

Regards,

Kevan

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From: [Kevan Bernards](#)
To: [Blackbird, Tom G FLNR:EX](#)
Cc: [Bradley, Dan FLNR:EX](#); [Jessica Harman](#); [Kristina Calli C](#)
Subject: Mount Gardner MOU
Date: June 23, 2020 9:09:42 AM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Tom,

I'm hoping we can set up another teleconference with yourself and Dan possibly in the second week of July (6-10).

The new MOU is all but ready to go but recently some concerns have surfaced related to the municipality's decision to request a ban of recreational motorized use on Mount Gardner and this is throwing up a bit of a roadblock.

We had a very positive outcome after our last meeting on May 28. I'm hoping we can discuss this current situation and any implications it may have on our agreement renewal and reiterate our roles as stewards so that we may continue to focus on the development of the MOU and fulfilling our role as trail stewards.

Sincerely,

Kevan Bernards

BTRA

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: Mount Gardner trails used by dirt bike & atv
Date: April 28, 2020 10:47:41 AM
Attachments: [Multi-use ORV trails MtGardner .pdf](#)
[ATT00001.htm](#)

Hi Dan,

I've been having difficulty exporting tracks directly from my app but I've been able to upload to Dropbox. Please let me know if this works.

Given the nature of comments and items that came up at last night's council meeting regarding ORV use on Mount Gardner our the BTRA board would very much like to get in contact with you or Tom as soon as possible to discuss how to best address these concerns and the future of our PA.

Hope your keeping well during these tough times.

Regards,

Kevan

Link to drop box with tracks is here:

<https://www.dropbox.com/sh/4dk4i6pv0bcuomy/AAC1phL25PSR-886-U6aE0fPa?dl=0>

Here's the list of multi-use trails which are used by motorized groups on Mount Gardner ***to be very clear, use varies on each trail, many are also shared by hikers, mountain bikers and equestrians;**

- Arbutus Ridge Trail (single track, dirt bike)
- Reservoir Trail (two track, atv, dirt bike)
- Canyon Trail (two track, atv, dirt bike)
- Easy Street (single track, dirt bike)
- Handloggers Trail (mix two track and single track, dirt bike, atv)
- Dennis Lynn Trail (single track, dirt bike)

Laura Rd Trail (single track, dirt bike,)

- Lower Skid Trail (single track, dirt bike)
- Malcom Creek Trail (single track, dirt bike)
- Mid Island Trail (mix single track, two track, some sections cross private land)
- Mid Skid Trail (single track, difficult)
- Stone is Circle Trail (single track dirt bike)
- Handloggers/Hikers Trail connector (two track, atv, dirt bike)
- South Ridge Express (single track, dirt bike, down hill only)
 - Lower Tower to Handloggers (single track, dirt bike)
 - The Dirt Bike Trail (partial/proposed single track, dirt bike)
 - Cap Braap Quarry (single track to mix two track, open area in old quarry dirt bike, atv)
 - Two Dead Ends (mix two track, single track, atv, dirt bike)

Here is the PDF with more information on the tracks:

From: [Bradley, Dan FLNR:EX](#)
To: ["Kevan Bernards"; "Phil Osborne"; s.22](#)
Cc: s 22
Subject: Mt Gardner PA Modifications
Date: May 14, 2020 12:18:00 PM
Attachments: [BITS PA18DCK-006 Partnership Agreement Modification.pdf](#)
[BIHORA PA18DCK-008 Partnership Agreement Modification.pdf](#)
[BTRA PA18DCK-007 Partnership Agreement Modification.pdf](#)

Hey All,

I've attached your PA Modifications that extend your current Agreement by 3 months to August 15 2020. I'm assuming we'll sort out the new agreements by then but this gives us a bit of flexibility in the meantime.

Please return a signed copy of your respective PA Modification and you can consider them active.

Hope you are well,



Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: MtGardner Hike/Skid Trail Bridge/Easy Street
Date: October 26, 2019 7:31:05 AM

Hi Dan,

I'm hoping we can touch base early next week to talk about about dates and times for a trail tour over here on the mountain.

Like we discussed during our last conversation, I'm hoping to go over the plan for the Lower Skid Trail Bridge and while you're here hopefully fit in a hike up Easy Street? BITS has expressed continued opposition to the trail being marked and signed so maybe we can talk a little about that as well and what the best way forward is?

Thanks,

Kevan

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: Multi-use ORV trails at the Towers
Date: May 31, 2020 7:44:06 AM
Attachments: [Multi-use ORV trails at the Towers.pdf](#)
[ATT00001.txt](#)

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: New Bowen Trails Partnership MOU
Date: April 30, 2020 1:28:02 PM
Attachments: [New Partnership MOU.pdf](#)
[ATT00001.htm](#)

Hi Dan,

Here's the rough draft of the changes we've made/suggested so far;

Association hereby notifies the British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development (the "Crown") of the following:

(1) **[Association]** has entered into a coalition partnership comprising three (3) Crown Partnership Agreement Holders: Bowen Island Horse Owners and Riders Association, Bowen Island Trail Society and Bowen Trail Riders Association, for the express purpose of maintaining the entering into a Partnership Agreement with the Crown in order to maintain and upgrade Crown trails on Bowen Island according to the Crown's standards.

(2) **[Association]** is in agreement that this partnership of Crown Partnership Agreement Holders is an informal entity known as 'Bowen Trails Coalition' Stewardship Agreement Partnership' (the "Coalition Partnership").

(3) [Association] agrees that the intention of the Partnership is to provide a communication platform between the Constituents, Bowen Islanders, and the Crown using transparent communication, to promote safety, accessibility, navigation, and sustainability with respect to maintaining and enhancing existing trails and developing new trails on Bowen Island's Crown lands so that Crown trails users have a positive and enjoyable experience.

Note:

- a. "Transparent communication" includes being thorough and factual in all communication with the Coalition's Constituents, the Crown, and other Crown trails stakeholders to increase awareness and support for the Coalition's aspirations and activities,
- b. "Safety" means the mitigation of injury and distress to Crown trails users by following the Crown's requirements for trail workmanship and volunteer administration,
- c. "Accessibility" includes ease of trailhead access to a diversity of Crown trails users,
- d. "Navigation" includes clear trail designation, visible wayfinding markers, and unambiguous signage marking trails and trail junctions,
 - e. "Sustainability" means ensuring that the materials used and the structures built in Crown trails projects are durable, as well as ensuring that all trail work meets the Crown's environmental standards.

(3) **[Association]** understands the Crown will circumvent the standard Partnership Agreement

application process by adopting the application for a Partnership Agreement with the Crown which was completed by the Rotary Club of Bowen Island in 2016 and assigning the Coalition Partnership as the signatory in its place. **[Association]** wishes to thank both the Rotary Club and the Crown for their consent to this arrangement.

(4) **[Association]** understands that completion of the Trails Environmental Screening Tool (TEST) document is not a prerequisite for activating the Partnership Agreement with the Crown, since the Rotary Club of Bowen Island's Partnership Agreement application was initiated before the TEST document was created.

(5) **[Association]** will co-operate with each of the other Crown Partnership Agreement Holders to meet the Coalition's obligations to the Crown with respect to its requirements as stipulated in the Partnership Agreement. This will include separate reports and operating plans for each of the Crown Partnership Agreement Holders. Before submission to RSTBC, each group will share their Operating Plan for the new year with the other groups to ensure no gaps or overlaps.

(67) **[Association]** will assign one of its members as a representative of the Coalition Partnership committee, and this person will co-operate with each of the other committee representatives in the facilitation of the Partnership Agreement.

(7) **[Association]** will work with the other Crown Partnership Agreement Holders to develop strategies to ensure effective, transparent communication with key stakeholders of project plans put forth by members of the Partnership.

(8) **[Association]** will take measures to incorporate reasonable feedback received from key stakeholders into the planning of proposed projects. [Kevan to clarify with Tom and Dan what community feedback they want us to provide for each proposal submitted to the DRO - i.e. what is each group responsible for providing, and what is up to the community at large to provide directly to the DRO?].

(9) **[Association]** acknowledges that it may not agree with all projects proposed by the other Crown Partnership Agreement Holders and those that are approved by the DRO, but will work in good faith with the other Crown Partnership Agreement Holders.

(108) **[Association]** reserves the right to determine the number of volunteers, if any, and the amount of funds, if any, that it is able or willing to allocate towards each shared Coalition Partnership project.

(119) **[Association]** accepts the Crown's Commercial & General Liability insurance provisions for Crown trails activities under the Partnership Agreement.

Passed unanimously by the Board of Directors of **[Association]**.

Regards,

Kevan

PDF is original version I believe.

From: s.22
To: [Bradley, Dan FLNR:EX](#)
Subject: Policy Proposals Chuck - Invitation to view
Date: January 23, 2020 8:44:38 PM

s.22

has invited you to **view** the following document:



Policy Proposals Chuck

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From: s.22
To: [Bradley, Dan FLNR:EX](#)
Subject: Proposed BTC Communication Plan v1 - Invitation to edit
Date: January 23, 2020 8:42:04 PM

s.22

has invited you to **edit** the following document:



Proposed BTC Communication Plan v1

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From: [Bradley, Dan FLNR:EX](#)
To: [Kevan Bernards; s.22](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: RE: 2020 MtGardner Partnership OP.docx
Date: February 11, 2020 10:43:00 AM
Attachments: [2020 MtGardner Partnership OP.docx](#)
[ATT00001.txt](#)

Good morning all,

I've reviewed the attached OP with the DRO. The DRO has agreed to provided the requested \$1500 to BIHORA and \$2000 BTRA for the projects proposed in the plan. However, RSTBC will only be able to provide these funds once the new fiscal year starts after April 1 2020. If BIHORA and BTRA submit invoices to me after April 1 I'll be able to get them processed for you.

Kevan, thank you for the email about the danger tree, glad to hear you got it sorted! Please include an additional line item in your invoice to cover the costs of its removal as discussed.

Additionally, I think the Trail etiquette/Fun Ride is a great idea. I find these kinds of events very effective in building relationships between different user groups.

-----Original Message-----

From: Kevan Bernards s.22
Sent: February 7, 2020 6:46 AM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: 2020 MtGardner Partnership OP.docx

Hi Dan,

Chuck has informed us that BITS will be dealing with RSTBC directly and so I've included only the BIHORA & BTRA Joint OP here.

Please let me know if you have any questions.

Regards,

Kevan

From: [Bradley, Dan FLNR:EX](#)
To: [Kevan Bernards](#); [s.22](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: RE: 2020 MtGardner Partnership OP.docx
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From: Kevan Bernards <[s.22](#)>
Sent: February 7, 2020 6:46 AM
To: Bradley, Dan FLNR:EX <[Dan.Bradley@gov.bc.ca](#)>
Cc: Blackbird, Tom G FLNR:EX <[Tom.Blackbird@gov.bc.ca](#)>
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Hi Dan,

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Please let me know if you have any questions.

Regards,

Kevan

From: [Bradley, Dan FLNR:EX](#)
To: ["Jessica Slater"](#)
Subject: RE: Bowen Island Trail Society - proposed MOU for Partnership Agreement
Date: July 7, 2020 8:46:00 AM

Sounds good! Tom should be able to send out a MS Teams invite closer to 10am. He's on the road and we'll be calling in remotely.

Is the plan still to just have yourself, Kevan, and Kristina attending this meeting?



Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5
tel: 778-704-7074

From: Jessica Slater s.22
Sent: July 7, 2020 8:39 AM
To: Phil Osborne s.22
Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>; Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; s.22
s.22

Subject: Re: Bowen Island Trail Society - proposed MOU for Partnership Agreement

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

s.22

Tom- see you at 10. Send the details round?

Jes

On Jul 6, 2020, at 5:30 PM, Phil Osborne s.22

wrote:

Hi Tom

I have attached a letter accompanying a draft proposed Memorandum of Understanding (MOU) regarding Bowen Island Trail Society's (BITS) proposed approach to fulfilling our Partnership Agreement with RSTBC.

My availability is somewhat limited during regular business hours at the moment due to a high workload, but I can make time for a call with

sufficient advance notice. Alternatively, I can ask another BITS board member to stand in for me, provided we have sufficient notice.

We look forward to discussing this with you further.

Regards,
Phil

<BITS re-2020 MOU - Partnership Agreement 6JUL20.pdf>

From: [Bradley, Dan FLNR:EX](#)
To: [Kevan Bernards](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: RE: Coalition OP
Date: February 6, 2020 11:24:00 AM

No Problem Kevan,

It would be fine for BTRA and BIHORA to submit a joint OP. You could invite BITS to join your joint OP but it's fine if they want to submit their own.

Good to hear about the new MOU draft, keep me posted!

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Kevan Bernards s.22
Sent: February 4, 2020 1:33 PM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: Coalition OP

Hey Dan,

Last weeks meeting and events leading up to it threw us off track in terms of submitting our 2020 OP's.

Since BITS has officially left the coalition at the moment how would you like us to file? BTRA and BIHORA have filed out our own joint OP and based on what I saw at the meeting BITS has down the same. Is this acceptable or should we include them for now?

Thanks,

Kevan

Ps were working on redrafting the MOU's and should have something together soon.

Sent from my iPhone

From: Bradley, Dan FLNR:EX
To: "Kevan Bernards"
Cc: Jes Slater; Kristina Calli
Subject: RE: DRAFT V1- New Partnership MOU.docx
Date: May 26, 2020 11:16:00 AM
Attachments: DRAFT V1- New Partnership MOU EDITS.docx
Schedule A-C BTRA.docx

Hey Kevan,

The new MOU looks great, I like the overall direction but I've added a few suggested edits in red to the attached draft. Discuss it amongst yourselves and make any changes you agree on. Want to have a call on Thursday afternoon? Tom should be available as well and feel free to invite the other PA reps.

Additionally, we should consider changing or removing the Shared Use Recognition that was added to Schedule A of all the Partnership Agreements as it still refers to a consensus based model.

Shared Use Recognition:

Bowen Trail Riders Association (BTRA) recognizes Bowen Island Horse Owners and Riders Association and Bowen Island Trail Society as shared users of the Mount Gardner Recreation Site.

BTRA will be responsible for those trails within REC204371 that are principally motorized trails.

A consensus will be established for maintenance and management of the shared trails as outlined in the Memorandum of Understanding (Appendix A – C) and as per the intent of the Bowen Trails Coalition.

I haven't had a chance to take a detailed look at the Trails Strategy you sent in but I'm hoping to read through it this week!

Talk soon,

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Kevan Bernards <Kevan.Bernards@gov.bc.ca>
Sent: May 22, 2020 3:17 PM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Subject: DRAFT V1- New Partnership MOU.docx

Hi Dan,

BITS, BIHORA & BTRA met last night via teleconference to go over the new MOU. Here's what we came up with, please let us know if there's any changes we should make.

Have a good weekend!

Thanks,

Kevan

Ps it would be good to touch base next week, will you be available for a phone call?

From: Anderson, Luc FLNR:EX
To: "Kevan Bernards"; Blackbird, Tom G FLNR:EX
Cc: Bradley, Dan FLNR:EX
Subject: RE: Easy Street/MtGardner/swamp crossing
Date: November 18, 2019 12:14:36 PM

Hi Kevan,

What about using a turnpike, with a smooth pvc to use as cross drainage.

Have a look at the us forest service site for some ideas, I think we also have them in chapter 10

<https://www.fs.fed.us/t-d/pubs/htmlpubs/html07232806/page10.htm>

should be less maintenance and better to ride for moto than a raised structure.

Cheers

Luc

-----Original Message-----

From: Kevan Bernards s.22

Sent: November 18, 2019 11:06 AM

To: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

Cc: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Anderson, Luc FLNR:EX <Luc.Anderson@gov.bc.ca>

Subject: Easy Street/MtGardner/swamp crossing

Hi Tom,

During our hike of Easy Street on Bowen last Tuesday (BTC recon hike, Tuesday November 12) we encountered this wet area, it's on the threshold of a seasonal swamp. The existing trail crosses at the narrowest spot (yellow arrow). Dan and I discussed and weren't sure whether a small bridge or built up trail bed with rocks would be suitable? Dan suggested you might be able to weigh in here? We could probably find cedar on site to construct a bridge, not sure what span would be but definitely under 5m.

Location is approximately here:

49 deg 22' 54" N

123 deg 23' 16" W

Hope you're well!

Thanks,

Kevan

From: [Bradley, Dan FLNR:EX](#)
To: [Kevan Bernards](#)
Subject: RE: Lower Skid Danger Tree
Date: January 31, 2020 8:22:00 AM

Ok that's great!

No need for Tenure applications, your PA authorizes you to fall danger trees as long as the faller has the appropriate level of certification for the work.



Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5
tel: 778-704-7074

From: Kevan Bernards s.22
Sent: January 29, 2020 3:45 PM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Subject: Re: Lower Skid Danger Tree

Hey Dan,

Ok that's perfect we'll cover it on our end until April, thanks! Also since it is a hazard and we only have one certified faller on Bowen do we need to put it out to tenure or can we proceed without doing that?

Thanks

Kevan

Sent from my iPhone

On Jan 29, 2020, at 2:24 PM, Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca> wrote:

Hey Kevan,

Our district is currently over budget so we are unable to provide funding until after April 1 2020. If you are able to secure other sources of funding to remove the danger tree on Lower Skid trail the DRO has agreed to reimburse you after April 1.

<image001.jpg>

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

From: [Bradley, Dan FLNR:EX](#)
To: ["Kevan Bernards"; Kristina Calli C; s.22](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: RE: May 28 Teleconference meeting items
Date: May 27, 2020 3:31:00 PM

Sounds good to me Kevan, Let's have the call at 1:30pm tomorrow if that works.

If Tom is able to join us the call in number should be same as last time, but I confirm tomorrow morning and send the call-in info out to you all.

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Kevan Bernards <s.22
Sent: May 27, 2020 2:45 PM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Kristina Calli C s.22
s.22
Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: May 28 Teleconference meeting items

Hi Everyone,

The following is what BTRA was hoping to discuss tomorrow;

- 1.) New MOU,
- 2.) New Partnership Agreement term/RSTBC likely to renew Mount Gardner Agreement with BTRA considering pending municipal request to ban orv use on MtGardner?
- 3.) Information sharing/communication strategy,
- 4.) Schedule A of agreement, keeping bit about acknowledging shared use but amend the rest of that section to be relevant?
- 5.) in light of recent claims of trail damage on Handloggers and Easy Street should BTRA carry out a study to see if a problem really exists, would RSTBC be willing to help with this? On hikes last year of these trails was any damage noted by RSTBC staff, if yes how to fix?
- 6.) it has been alleged that BTRA doesn't want to engage other stakeholders or might be difficult to work with. Would RSTBC be willing to back up our conduct throughout the last 2 years of the agreement?
- 7.) Muni still under the opinion that there's is only one motorized trail on Bowen, BTRA has worked on 20 trails on

MtGardner and around 30 at the Towers. Tom's amended statement is badly needed right now as there are on island groups who are rallying against motorized use at this time. (We have an inventories of both areas which we'll share).

8.) BTRA will be sending a delegation to council on June 8 to discuss, the work we've done as trail stewards, what we've accomplished with the other stakeholders and our take on some ongoing issues and opinions which have been expressed to council.

9.) BTRA drafting history of ORV use on MtGardner, how specific should this be? Names, dates or more of an outline?

10.) BTRA Trails Strategy, right track or anything to add or address?

11.) Signs at major junctions? Other?

If this is too long let me know which issues everyone wants to discuss tomorrow.

Cheers,

Kevan

Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: ["Jessica Slater"; Kristina C; Kevan Bernards](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: RE: May 28 Teleconference meeting items
Date: May 28, 2020 9:52:00 AM

No problem Jes, there's only a few us on the call s.22
s.22

Talk to you all at 1:30pm, Conference call info below.

1-877-353-9184

Conference ID
s.17

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Jessica Slater s.22
Sent: May 27, 2020 7:43 PM
To: Kristina C s.22
Cc: Kevan Bernards s.22 ; Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: Re: May 28 Teleconference meeting items

s.22

s.22

Is there
some way to record the call by chance? If i miss it? Or maybe just some notes after is easier.

Thanks for coordinating Kevan and Dan.

s.22

> On May 27, 2020, at 4:18 PM, Kristina C s.22 wrote:
>
> 1:30 tomorrow works for me too.
>
> Thanks,
>
> Kristina

>

>> On May 27, 2020, at 3:45 PM, Kevan Bernards s.22 wrote:

>>

>> That works for me, thanks!

>>

>> Sent from my iPhone

>>

>>> On May 27, 2020, at 3:32 PM, Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca> wrote:

>>>

>>> Sounds good to me Kevan, Let's have the call at 1:30pm tomorrow if that works.

>>>

>>> If Tom is able to join us the call in number should be same as last time, but I confirm tomorrow morning and send the call-in info out to you all.

>>>

>>>

>>>

>>>

>>> Dan Bradley

>>> Recreation Technician

>>> Recreation Sites and Trails BC

>>> Ministry of Forests, Lands and Natural Resource Operations

>>> 46360 Airport Road

>>> Chilliwack BC V2P 1A5

>>>

>>> tel: 778-704-7074

>>>

>>>

>>>

>>> -----Original Message-----

>>> From: Kevan Bernards s.22

>>> Sent: May 27, 2020 2:45 PM

>>> To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Kristina Calli C s.22

s.22

>>> Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

>>> Subject: May 28 Teleconference meeting items

>>>

>>> Hi Everyone,

>>>

>>> The following is what BTRA was hoping to discuss tomorrow;

>>>

>>> 1.) New MOU,

>>>

>>> 2.) New Partnership Agreement term/RSTBC likely to renew Mount Gardner Agreement with BTRA considering pending municipal request to ban orv use on MtGardner?

>>>

>>> 3.) Information sharing/communication strategy,

>>>

>>> 4.) Schedule A of agreement, keeping bit about acknowledging shared use but amend the rest of that section to be relevant?

>>>

>>> 5.) in light of recent claims of trail damage on Handloggers and Easy Street should BTRA carry out a study to see if a problem really exists, would RSTBC be willing to help with this? On hikes last year of these trails was any damage noted by RSTBC staff, if yes how to fix?

>>>

>>> 6.) it has been alleged that BTRA doesn't want to engage other stakeholders or might be difficult to work with. Would RSTBC be willing to back up our conduct throughout the last 2 years of the agreement?

>>>

>>> 7.) Muni still under the opinion that there's is only one motorized trail on Bowen, BTRA has worked on 20 trails on MtGardner and around 30 at the Towers. Tom's amended statement is badly needed right now as there are on island groups who are rallying against motorized use at this time. (We have an inventories of both areas which we'll share).

>>>

>>> 8.) BTRA will be sending a delegation to council on June 8 to discuss, the work we've done as trail stewards, what we've accomplished with the other stakeholders and our take on some ongoing issues and opinions which have been expressed to council.

>>>

>>> 9.) BTRA drafting history of ORV use on MtGardner, how specific should this be? Names, dates or more of an outline?

>>>

>>> 10.) BTRA Trails Strategy, right track or anything to add or address?

>>>

>>> 11.) Signs at major junctions? Other?

>>>

>>> If this is too long let me know which issues everyone wants to discuss tomorrow.

>>>

>>> Cheers,

>>>

>>> Kevan

>>>

>>> Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: ["Kevan Bernards"](#)
Subject: RE: Signage for MtGardner junctions
Date: June 16, 2020 1:11:00 PM
Attachments: [En Route Trail Sign COMPLETE.pdf](#)

Hey Kevan,

Here is a copy of our current standards for En Route Trail Signage, this is what the DRO is requiring to be installed at trailheads and major intersections.

There is not supposed to be any flexibility in these standards but because there is highly engaged and capable artist community on Bowen the DRO has agreed to 2 potential compromises:

1) Use non-standard materials with the attached layout, symbols, and fonts. This could be galvanized steel with the info cut out or laser etched.

2) Install the standard signage accompanied by an additional post with whatever non-standard layout and symbols you like.

The attached standards are intended to be printed as separate badges to allow sections of the sign to be omitted if not applicable. For example, the 76mm x 76mm square showing the difficulty rating would not be posted on a hiking trail that has no moto or mountain bike use.

The intention of the GPS Locator section is to be printed out and then marked with permanent marker in the field. I'm not sure if this would be a requirement in all locations but I could follow up with Tom if you'd like.

Also, I've received your invoice and will get that processed as soon as I can,

Let me know if you have any other questions!

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-684-2261

-----Original Message-----

From: Kevan Bernards s.22
Sent: June 11, 2020 10:16 AM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: Signage for MtGardner junctions

Hi Dan,

The agreement holders have been busy since our last teleconference. Almost all the posts are installed along Handloggers and canyon trail. BITS members have helped out on Handloggers as well as getting posts in at several

other junctions on the west side. BTRA just has Easy Street left to mark and install 2 trailhead posts.

We'll be ready for signs soon so I'm wondering about format. I found the attached drawing on a gov site. I've shared the design below with BITS and BIHORA as a possibility.

Is this the approved format that we'd be using at main junctions and is there any flexibility in design or info?

In other news, BTRA's delegation to council on Monday night was unsuccessful in persuading them not to send in their letter requesting a ban of motorized recreational use on the mountain. At least we changed the mind of 1 councillor and perhaps were able to better shed some light in the community about our role as trail stewards.

Had a good teleconference with bcorma BOD last night. Great to get their feedback and hear about the successes in other areas of the province. Its interesting to note that Bowen is in almost the same stage as Vedder Mountain was nearly 10 years ago (I think you've also mentioned this). I think I day trip out there would possibly be beneficial to our agreement holders when it's safe to do so.

Anyhow, that's where we're at over here on Bowen.

Cheers,

Kevan

https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/outdoor-recreation/camping-and-hiking/rec-sites-and-trails/structure-drawings/trail_signs_trailhead.pdf

From: Bradley, Dan FLNR:EX
To: "Kevan Bernards"
Subject: RE: Trail Markers
Date: March 4, 2020 9:09:00 AM

Thanks Kevan!

.KMZ files are totally fine, and the trail name list is very handy as well. I have a bunch of the other trails that Lisa from Outdoor Therapy but these don't include many of the Motorized Trails. Ideally I'd like to make a map showing all the trail segments and their trail names which and can I then present to you guys for comment to ID any missing trails or any incorrect trail names.

Having this map would be a very handy reference for where all the authorized trails are in the network and what their authorized uses area (ie Motorized/non-motorized) for any new volunteers, stakeholders, or RSTBC staff.



Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5
tel: 778-704-7074

From: Kevan Bernards 3.22
Sent: March 4, 2020 8:18 AM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Subject: Re: Trail Markers

Hi Dan,

BTRA is happy to leave trail use up to Tom, that will surely make things easier for the agreement holders!

BITS has just shared more info with us regarding signage design. Hopefully we'll all be meeting next week to discuss the MOU's and finalize a plan for signage at the major junctions.

I've been working on the Inventory stuff but realized that trails are kmz not kml is this format ok? If not I'll reformat...

Here's the link to the Inventory Doc we've created:

https://docs.google.com/document/d/12jQazomy9uVTX3EY5qwt4B2xBZ_DbreA7x1Ztxojd1w

Do we need to assign trail numbers or anything?

Thanks,

Kevan

Sent from my iPhone

On Mar 2, 2020, at 10:18 AM, Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca> wrote:

That sounds reasonable to me, however, you might want to omit "trail use" as a collaborative project. All other projects have been very successful with BITS but when it comes to determining trail use with motorized recreation seems like it hits a lot of roadblocks. It might be more productive to rely more on DRO determination of trail-use, but totally your call on how you want to approach that.

I haven't heard anything from BITS since we all met last, I'm not sure if their OP etc have been sent to Tom.

KML are great! I have the software to convert spatial data into whatever we need but KMLs seem to be the most versatile. If you send me a link to the google doc I can start putting a draft map together.

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 604-702-5762

-----Original Message-----

From: Kevan Bernards s.22

Sent: February 27, 2020 1:51 PM

To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>

Subject: Re: Trail Markers

Great!

I'm drafting an email to BITS now to let them know what our plan is. I also want to

make it clear to them that ALL agreement holder groups should be involved in the following projects;

- Trails Inventory
- Trail Names
- Trail use
- Trail Etiquette guide
- Navigation & Signage

Is this reasonable?

I see that BITS has announced that they will be undertaking some of these and so far this year they haven't really communicated much with us. I don't think it's fair for them to leave the framework of the coalition and then go ahead solo with these projects.

Working on track info/map for moto trails as well. Is it best to send you KML files? I've also created a Trail Inventory google doc as well as a drop box folder with track info. I'll make sure you're added to both. Also, Is there a different preferred format for this stuff?

Thanks,

Kevan

Sent from my iPhone

On Feb 26, 2020, at 10:03 AM, Bradley, Dan FLNR:EX
<Dan.Bradley@gov.bc.ca> wrote:

Sounds good!

You guys are good to go in regard to installing reflective markers on established moto trails under your Partnership Agreement but I appreciate the heads up!

As a courtesy, I would recommend letting BITS know that you will be installing some markers so there's no confusion on would is adding them to the network.

Also, it would be really great to have a complete map of the moto trails in the Mt Gardner Rec Polygon, I'd like to add some data of trail location and name to the Schedule A of your Partnership Agreement when we renew

it.

Sounds great, keep me posted on the new MOU development, if you're looking for any feedback as things develop just let me know,

-----Original Message-----

From: Kevan Bernards <Kevan.Bernards@gov.bc.ca>

Sent: February 25, 2020 8:21 AM

To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>

Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

Subject: Trail Markers

Hi Dan,

BTRA members have fabricated about 1000 2"x2" reflective trail markers (same specs as purchased by BITS) and we're ready to start installing them on Handloggers, Canyon Trail and Easy Street as soon as this weekend!

I want to make sure that we've got the approval and authorization to do so before we begin.

Thanks,

Kevan

Ps It looks like BTRA and BIHORA will be meeting next week to form the new MOU (key board members have been away from both groups so there's been a delay in this happening).

Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: ["Kevan Bernards"](#)
Subject: RE: prototype signage for major junctions from BITS/agreement holder update
Date: May 6, 2020 4:23:00 PM

Hey Kevan,

Are you available for a call with Tom on Friday at 10am?

I think it's easiest to discuss the items below over the phone so I'll try to call you tomorrow but if it doesn't work out we can discuss them on Friday with Tom!

I'll send out the conference # info when I get it from Tom and we can share it with Kristina.

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Kevan Bernards [s.22](#)
Sent: May 5, 2020 10:11 AM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: prototype signage for major junctions from BITS/agreement holder update

Hi Dan,

Good news, it looks like some of the BITS membership still want to work with us and have shared their latest concept in signage.

- The material is aluminum.
- BTRA is in support but with brown background rather than black.
- Would this design meet RSTBC requirements?

Jes Slater will be BITS new coalition contact which should improve communication between our groups. She has been supportive of collaboration in the past and was present at the coalition meeting in January [s.22](#)

So there's a hope that under the new MOU and with a clear understanding of what our roles are with regards to how we function as a coalition that we can continue to work towards our goals as a partnership rather than individual stakeholders.

I've also been in contact with Kristina from BIHORA regarding the April 27 council meeting and municipal decision to pursue the restriction of motorized use on MtGardner. BIHORA supports BTRA, continued motorized access and stewardship as well as a collaborative partnership. She would like to join us on the conference call if possible?

Councillor Allison Morse asked Tom how many motorized trails there were on Bowen, Tom answered that Easy

Street was the only (section 57?) authorized trail. Council took this to mean that Easy Street is the only motorized trail on island, the paper took it that way too and printed a story stating this and that this could mean the end of motorized use on MtGardner. Obviously, there are many other trails which we use and maintain on the mountain and Bowen. BTRA is worried that this could potentially lead to conflict on the trails, is there any way that Tom could clarify his statement in a letter or call to mayor and council and the Undercurrent?

I am looking forward to our discussion re new PA!

Sincerely,

Kevan

President, BTRA

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: Re: Lower Skid Danger Tree
Date: January 29, 2020 3:45:12 PM

Hey Dan,

Ok that's perfect we'll cover it on our end until April, thanks! Also since it is a hazard and we only have one certified faller on Bowen do we need to put it out to tenure or can we proceed without doing that?

Thanks

Kevan

Sent from my iPhone

On Jan 29, 2020, at 2:24 PM, Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca> wrote:

Hey Kevan,

Our district is currently over budget so we are unable to provide funding until after April 1 2020. If you are able to secure other sources of funding to remove the danger tree on Lower Skid trail the DRO has agreed to reimburse you after April 1.

<image001.jpg>

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

11/11/2020

I just wanted to let you know the way I feel about you. What if I was a scientist? I would say you are a scientist.

11/11/2020





CE (continued)

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From: Bruce Bernards <brucebernards@gmail.com>

Fig. 10.

Thanks

1008

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DOI: 10.1002/for

1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 26

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1550-5201/01/0000-0000\$05.00/0

66. The Tax Court

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: Re: Signage for MtGardner junctions
Date: June 16, 2020 1:39:08 PM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Dan,

Thank you, this is very helpful!

Cheers,

Kevan

Sent from my iPhone

> On Jun 16, 2020, at 1:12 PM, Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca> wrote:
>
> Hey Kevan,
>
> Here is a copy of our current standards for En Route Trail Signage, this is what the DRO is requiring to be installed at trailheads and major intersections.
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>
> The intention of the GPS Locator section is to be printed out and then marked with permanent marker in the field. I'm not sure if this would be a requirement in all locations but I could follow up with Tom if you'd like.
>
> Also, I've received your invoice and will get that processed as soon as I can,
>
> Let me know if you have any other questions!
>
>
>
>
> Dan Bradley
> Recreation Technician
> Recreation Sites and Trails BC
> Ministry of Forests, Lands and Natural Resource Operations
> 46360 Airport Road
> Chilliwack BC V2P 1A5
>

> tel: 778-684-2261

>

>

>

> -----Original Message-----

> From: Kevan Bernards <s.22

> Sent: June 11, 2020 10:16 AM

> To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>

> Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

> Subject: Signage for MtGardner junctions

>

> Hi Dan,

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> The agreement holders have been busy since our last teleconference. Almost all the posts are installed along Handloggers and canyon trail. BITS members have helped out on Handloggers as well as getting posts in at several other junctions on the west side. BTRA just has Easy Street left to mark and install 2 trailhead posts.

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>

> Anyhow, that's where we're at over here on Bowen.

>

> Cheers,

>

> Kevan

>

>

> https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/outdoor-recreation/camping-and-hiking/rec-sites-and-trails/structure-drawings/trail_signs_trailhead.pdf

>

>

> <En Route Trail Sign COMPLETE.pdf>

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: Re: Trail Markers
Date: March 4, 2020 8:18:19 AM

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Thanks,

Kevan

Sent from my iPhone

On Mar 2, 2020, at 10:18 AM, Bradley, Dan FLNR:EX
<Dan.Bradley@gov.bc.ca> wrote:

That sounds reasonable to me, however, you might want to omit "trail use" as a collaborative project. All other projects have been very successful with BITS but when it comes to determining trail use with motorized recreation seems like it hits a lot of roadblocks. It might be more productive to rely more on DRO determination of trail-use, but totally your call on how you want to approach that.

I haven't heard anything from BITS since we all met last, I'm not sure if their OP etc have been sent to Tom.

KML are great! I have the software to convert spatial data into whatever we need but KMLs seem to be the most versatile. If you send me a link to the google doc I can start putting a draft map together.

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 604-702-5762

-----Original Message-----

From: Kevan Bernards s.22

Sent: February 27, 2020 1:51 PM

To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>

Subject: Re: Trail Markers

Great!

I'm drafting an email to BITS now to let them know what our plan is. I also want to make it clear to them that ALL agreement holder groups should be involved in the following projects;

- Trails Inventory
- Trail Names
- Trail use
- Trail Etiquette guide
- Navigation & Signage

Is this reasonable?

I see that BITS has announced that they will be undertaking some of these and so far this year they haven't really communicated much with us. I don't think it's fair for them to leave the framework of the coalition and then go ahead solo with these projects.

Working on track info/map for moto trails as well. Is it best to send you KML files? I've also created a Trail Inventory google doc as well as a drop box folder with track info. I'll make sure you're added to both. Also, Is there a different preferred format for this stuff?

Thanks,

Kevan

Sent from my iPhone

On Feb 26, 2020, at 10:03 AM, Bradley, Dan FLNR:EX
<Dan.Bradley@gov.bc.ca> wrote:

Sounds good!

You guys are good to go in regard to installing reflective markers on established moto trails under your Partnership Agreement but I appreciate the heads up!

As a courtesy, I would recommend letting BITS know that you will be installing some markers so there's no confusion on would is adding them to the network.

Also, it would be really great to have a complete map of the moto trails in the Mt Gardner Rec Polygon, I'd like to add some data of trail location and name to the Schedule A of your Partnership Agreement when we renew it.

Sounds great, keep me posted on the new MOU development, if you're looking for any feedback as things develop just let me know,

-----Original Message-----

From: Kevan Bernards ^{s.22}

Sent: February 25, 2020 8:21 AM

To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>

Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

Subject: Trail Markers

Hi Dan,

BTRA members have fabricated about 1000 2"x2" reflective trail markers (same specs as purchased by BITS) and we're ready to start installing them on Handloggers, Canyon Trail and Easy Street as soon as this weekend!

I want to make sure that we've got the approval and authorization to do so before we begin.

Thanks,

Kevan

Ps It looks like BTRA and BIHORA will be meeting next week to form the new MOU (key board members have been away from both groups so there's been a delay in this happening).

Sent from my iPhone

From: s.22
To: [Bradley, Dan FLNR:EX](#)
Subject: s.22 shared "Towers Trail Inventory" with you
Date: May 31, 2020 7:43:15 AM



Hi Dan,

s.22

invited you to edit

the folder "**Towers Trail Inventory**" on Dropbox.

[Go to folder](#)

Enjoy!

The Dropbox team

[Report to Dropbox](#)

© 2020 Dropbox

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: Signage for MtGardner junctions
Date: June 11, 2020 10:16:30 AM
Attachments: [trail_signs_trailhead.pdf](#)
[ATT00001.txt](#)

Hi Dan,

The agreement holders have been busy since our last teleconference. Almost all the posts are installed along Handloggers and canyon trail. BITS members have helped out on Handloggers as well as getting posts in at several other junctions on the west side. BTRA just has Easy Street left to mark and install 2 trailhead posts.

We'll be ready for signs soon so I'm wondering about format. I found the attached drawing on a gov site. I've shared the design below with BITS and BIHORA as a possibility.

Is this the approved format that we'd be using at main junctions and is there any flexibility in design or info?

In other news, BTRA's delegation to council on Monday night was unsuccessful in persuading them not to send in their letter requesting a ban of motorized recreational use on the mountain. At least we changed the mind of 1 councillor and perhaps were able to better shed some light in the community about our role as trail stewards.

Had a good teleconference with bcorma BOD last night. Great to get their feedback and hear about the successes in other areas of the province. Its interesting to note that Bowen is in almost the same stage as Vedder Mountain was nearly 10 years ago (I think you've also mentioned this). I think I day trip out there would possibly be beneficial to our agreement holders when it's safe to do so.

Anyhow, that's where we're at over here on Bowen.

Cheers,

Kevan

https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/outdoor-recreation/camping-and-hiking/rec-sites-and-trails/structure-drawings/trail_signs_trailhead.pdf

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: prototype signage for major junctions from BITS/agreement holder update
Date: May 5, 2020 10:11:15 AM
Attachments: [ATT00001.txt](#)

Hi Dan,

Good news, it looks like some of the BITS membership still want to work with us and have shared their latest concept in signage.

- The material is aluminum.
- BTRA is in support but with brown background rather than black.
- Would this design meet RSTBC requirements?

Jes Slater will be BITS new coalition contact which should improve communication between our groups. She has been supportive of collaboration in the past and was present at the coalition meeting in January and I believe actually listened and understood what you and Tom had to say.

So there's a hope that under the new MOU and with a clear understanding of what our roles are with regards to how we function as a coalition that we can continue to work towards our goals as a partnership rather than individual stakeholders.

I've also been in contact with Kristina from BIHORA regarding the April 27 council meeting and municipal decision to pursue the restriction of motorized use on MtGardner. BIHORA supports BTRA, continued motorized access and stewardship as well as a collaborative partnership. She would like to join us on the conference call if possible?

Councillor Allison Morse asked Tom how many motorized trails there were on Bowen, Tom answered that Easy Street was the only (section 57?) authorized trail. Council took this to mean that Easy Street is the only motorized trail on island, the paper took it that way too and printed a story stating this and that this could mean the end of motorized use on MtGardner. Obviously, there are many other trails which we use and maintain on the mountain and Bowen. BTRA is worried that this could potentially lead to conflict on the trails, is there any way that Tom could clarify his statement in a letter or call to mayor and council and the Undercurrent?

I am looking forward to our discussion re new PA!

Sincerely,

Kevan

President, BTRA

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: 2020 MtGardner Partnership OP.docx
Date: February 7, 2020 6:46:25 AM
Attachments: [2020 MtGardner Partnership OP.docx](#)
[ATT00001.txt](#)

Hi Dan,

Chuck has informed us that BITS will be dealing with RSTBC directly and so I've included only the BIHORA & BTRA Joint OP here.

Please let me know if you have any questions.

Regards,

Kevan

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: BTRA 2019 OP Budget
Date: April 25, 2019 7:41:26 AM
Attachments: [Blank 2.pdf](#)
[ATT00001.txt](#)

From: Kevan Bernards
To: Bradley, Dan FLNR:EX; Anderson, Luc FLNR:EX
Cc: Blackbird, Tom G FLNR:EX
Subject: BTRA spring riding clinic
Date: April 29, 2019 9:17:35 AM

Hi Dan, Luc & Tom,

BTRA would like to notify you that we're planning to host a dirt bike basic skills clinic with Megan Griffiths with support from Traction eRag magazine on Bowen May 27th at the area we call The Towers. We ran a similar clinic last year with great success!
The target number is 10 riders or less so please let me know if we require special permission to proceed.

Dan you mentioned that you and Luc might be interested in attending, if so the link is here:
<https://traction-erag.squarespace.com/>

Unfortunately, bikes are not provided.

GENERAL INFO

- Location is The Towers;
Dropped pin
Near Unnamed Road, Bowen Island, BC V0N 1G2
<https://goo.gl/maps/1KvfgWTVggHDAy8t8>
- Time is 8:00am to 3:45pm on Monday May 27th,
- For Enduro bikes, some dual sport, trials or motocross bikes suitable as well,
- Clinic Content basic skills including; bike set up, body positioning, clutch and brake control, balance drills and small sized log crossing technique will be covered,
- Location the area is a relatively open, flat grassy spot with room for drills, easy to medium difficulty trails in the area for trail ride portion,
- The fee covers Instructors travel, fuel, time and insurance. BTRA is hosting the event but will not be collecting funds.

Please let me know if we need to file any sort of application.

Thank you,

Kevan

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Anderson, Luc FLNR:EX](#); [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: Bluewater Reservoir Trail Bridge
Date: February 6, 2019 7:58:22 AM
Attachments: [ATT00001.txt](#)
[ATT00002.txt](#)
[ATT00003.txt](#)
[ATT00004.txt](#)
[ATT00005.txt](#)
[ATT00006.txt](#)
[attachment 1.pdf](#)
[ATT00007.txt](#)

Hi Gentlemen,

As the Bluewater Reservoir Bridge is our top priority coming into 2019 here's the proposal and a few more details.

Please let me know if you require anymore info or changes to the proposed design. I'll be on holiday from Feb 7-22 and won't be answering my phone but will respond to email.

From: [Blackbird, Tom G FLNR:EX](#)
To: [Bonny Brokenshire](#)
Cc: [Bradley, Dan FLNR:EX](#)
Subject: Bowen Trails Clarification
Date: May 28, 2020 9:57:00 AM

Hello Bonny,

I have asked one of my techs, Dan Bradley to reach out to you in regards to the trail application. I believe this will be ready to go very soon and Dan will be getting that pulled together.

I also wanted to clarify a statement that I made when I spoke to the Mayor and Council and this has been pointed out to me as it was a incorrect statement on my part.

I stated that there was only the 1 trail that was motorized on in the Polygon that RSTBC is dealing with. I misunderstood and thought this question was only in regards to the trails that were creating problems or issues. There are in fact several trails on Bowen that are motorized/shared trails. The number of trails that are utilized by motorized is closer to 12-13 trails. Easy Street is not the only motorized trail. This was my mistake based on all the attention that Easy street has generated leading up to this call. I think it is important that everyone understand that there are a number of motorized trails on Bowen Island that have been there and in use for many years.

There are several letters that have come in regarding this trail and I am well aware of them and will be responding to them in the near future. Right now my focus is getting all our sites ready to be opened on June 1..

Thank you

Tom Blackbird

District recreation Officer

From: [Kevan Bernards](#)
To: [Blackbird, Tom G FLNR:EX](#)
Cc: [Bradley, Dan FLNR:EX](#); [Anderson, Luc FLNR:EX](#)
Subject: Easy Street/MtGardner/swamp crossing
Date: November 18, 2019 11:06:32 AM
Attachments: [ATT00001.txt](#)

Hi Tom,

During our hike of Easy Street on Bowen last Tuesday (BTC recon hike, Tuesday November 12) we encountered this wet area, it's on the threshold of a seasonal swamp. The existing trail crosses at the narrowest spot (yellow arrow). Dan and I discussed and weren't sure whether a small bridge or built up trail bed with rocks would be suitable? Dan suggested you might be able to weigh in here? We could probably find cedar on site to construct a bridge, not sure what span would be but definitely under 5m.

Location is approximately here:

49 deg 22' 54" N
123 deg 23'16" W

Hope you're well!

Thanks,

Kevan

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: Fwd: BTC minutes March 5, 2020
Date: March 6, 2020 1:13:51 PM
Attachments: [Meeting Minutes March 5, 2020.pdf](#)
[ATT00001.htm](#)

Hi Dan,

Here's what we've drafted so far for the new MOU and a bit from our old C&B. Any input/advice from you or Tom would be much appreciated!

Kristina from BIHORA also had a question about how we collect information to the public and present to RSTBC. Next we'll be working on drafting up our communication framework so advice here would be helpful as well.

Thanks,

Kevan

Ps I'll try to get more mapping done over the next few weeks.

Sent from my iPhone

Begin forwarded message:

From: s.22
Date: March 6, 2020 at 8:55:33 AM PST
To: Kevan Bernards , s.22
s.22
Subject: BTC minutes March 5, 2020

Hi BIHORA and BTRA,
Please find attached the minutes from the BTC's meeting last night.
The meeting was held to edit the Memorandum of Understanding together, which will be presented to BITS for their decision on whether to re-join the BTC or not.
Kind regards,
s.22

FYI here are the details of our purpose (which I entered at the bottom of the doc - please feel free to edit, maybe it should be shortened?):

Using transparent communication, to promote safety, accessibility, navigation, and sustainability with respect to maintaining and enhancing existing trails and developing new trails on Bowen Island's Crown lands so that Crown trails users have a positive and enjoyable experience.

Note:

- a.
“Transparent communication” includes being thorough and factual in all communication with the Coalition’s Constituents, the Crown, and other Crown trails stakeholders to increase awareness and support for the Coalition’s aspirations and activities,
- b.
“Safety” means the mitigation of injury and distress to Crown trails users by following the Crown’s requirements for trail workmanship and volunteer administration,
- c.
“Accessibility” includes ease of trailhead access to a diversity of Crown trails users,
- d.
“Navigation” includes clear trail designation, visible wayfinding markers, and signage marking trails and trail junctions,

(e) “Sustainability” means ensuring that the materials used and the structures built in Crown trails projects are durable, as well as ensuring that all trail work meets the Crown's environmental standards.

From: [Kevan Bernards](#)
To: [Blackbird, Tom G FLNR:EX](#); [Bradley, Dan FLNR:EX](#); [Chuck Venhuizen](#); [Kristina Calli](#); s.22
Subject: Jan 28 2020 BTC agenda special meeting
Date: January 28, 2020 8:13:44 AM
Attachments: [Meeting notes.pdf](#)
[ATT00001.txt](#)

Hi Everyone,

Here's the final draft of the agenda, see you all tonight!

Kevan

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#); [Kristina Calli C; s.22](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: May 28 Teleconference meeting items
Date: May 27, 2020 2:45:35 PM

Hi Everyone,

The following is what BTRA was hoping to discuss tomorrow;

- 1.) New MOU,
- 2.) New Partnership Agreement term/RSTBC likely to renew Mount Gardner Agreement with BTRA considering pending municipal request to ban orv use on MtGardner?
- 3.) Information sharing/communication strategy,
- 4.) Schedule A of agreement, keeping bit about acknowledging shared use but amend the rest of that section to be relevant?
- 5.) in light of recent claims of trail damage on Handloggers and Easy Street should BTRA carry out a study to see if a problem really exists, would RSTBC be willing to help with this? On hikes last year of these trails was any damage noted by RSTBC staff, if yes how to fix?
- 6.) it has been alleged that BTRA doesn't want to engage other stakeholders or might be difficult to work with. Would RSTBC be willing to back up our conduct throughout the last 2 years of the agreement?
- 7.) Muni still under the opinion that there's is only one motorized trail on Bowen, BTRA has worked on 20 trails on MtGardner and around 30 at the Towers. Tom's amended statement is badly needed right now as there are on island groups who are rallying against motorized use at this time. (We have an inventories of both areas which we'll share).
- 8.) BTRA will be sending a delegation to council on June 8 to discuss, the work we've done as trail stewards, what we've accomplished with the other stakeholders and our take on some ongoing issues and opinions which have been expressed to council.
- 9.) BTRA drafting history of ORV use on MtGardner, how specific should this be? Names, dates or more of an outline?
- 10.) BTRA Trails Strategy, right track or anything to add or address?
- 11.) Signs at major junctions? Other?

If this is too long let me know which issues everyone wants to discuss tomorrow.

Cheers,

Kevan

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: New Bowen Trails Partnership MOU
Date: April 30, 2020 1:28:02 PM
Attachments: [New Partnership MOU.pdf](#)
[ATT00001.htm](#)

Hi Dan,

Here's the rough draft of the changes we've made/suggested so far;

Association hereby notifies the British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development (the "Crown") of the following:

(1) **[Association]** has entered into a coalition partnership comprising three (3) Crown Partnership Agreement Holders: Bowen Island Horse Owners and Riders Association, Bowen Island Trail Society and Bowen Trail Riders Association, for the express purpose of maintaining the entering into a Partnership Agreement with the Crown in order to maintain and upgrade Crown trails on Bowen Island according to the Crown's standards.

(2) **[Association]** is in agreement that this partnership of Crown Partnership Agreement Holders is an informal entity known as 'Bowen Trails Coalition' Stewardship Agreement Partnership' (the "Coalition Partnership").

(3) [Association] agrees that the intention of the Partnership is to provide a communication platform between the Constituents, Bowen Islanders, and the Crown using transparent communication, to promote safety, accessibility, navigation, and sustainability with respect to maintaining and enhancing existing trails and developing new trails on Bowen Island's Crown lands so that Crown trails users have a positive and enjoyable experience.

Note:

- a. "Transparent communication" includes being thorough and factual in all communication with the Coalition's Constituents, the Crown, and other Crown trails stakeholders to increase awareness and support for the Coalition's aspirations and activities,
- b. "Safety" means the mitigation of injury and distress to Crown trails users by following the Crown's requirements for trail workmanship and volunteer administration,
- c. "Accessibility" includes ease of trailhead access to a diversity of Crown trails users,
- d. "Navigation" includes clear trail designation, visible wayfinding markers, and unambiguous signage marking trails and trail junctions,
 - e. "Sustainability" means ensuring that the materials used and the structures built in Crown trails projects are durable, as well as ensuring that all trail work meets the Crown's environmental standards.

(3) **[Association]** understands the Crown will circumvent the standard Partnership Agreement

application process by adopting the application for a Partnership Agreement with the Crown which was completed by the Rotary Club of Bowen Island in 2016 and assigning the Coalition Partnership as the signatory in its place. **[Association]** wishes to thank both the Rotary Club and the Crown for their consent to this arrangement.

(4) **[Association]** understands that completion of the Trails Environmental Screening Tool (TEST) document is not a prerequisite for activating the Partnership Agreement with the Crown, since the Rotary Club of Bowen Island's Partnership Agreement application was initiated before the TEST document was created.

(5) **[Association]** will co-operate with each of the other Crown Partnership Agreement Holders to meet the Coalition's obligations to the Crown with respect to its requirements as stipulated in the Partnership Agreement. This will include separate reports and operating plans for each of the Crown Partnership Agreement Holders. Before submission to RSTBC, each group will share their Operating Plan for the new year with the other groups to ensure no gaps or overlaps.

(67) **[Association]** will assign one of its members as a representative of the Coalition Partnership committee, and this person will co-operate with each of the other committee representatives in the facilitation of the Partnership Agreement.

(7) **[Association]** will work with the other Crown Partnership Agreement Holders to develop strategies to ensure effective, transparent communication with key stakeholders of project plans put forth by members of the Partnership.

(8) **[Association]** will take measures to incorporate reasonable feedback received from key stakeholders into the planning of proposed projects. [Kevan to clarify with Tom and Dan what community feedback they want us to provide for each proposal submitted to the DRO - i.e. what is each group responsible for providing, and what is up to the community at large to provide directly to the DRO?].

(9) **[Association]** acknowledges that it may not agree with all projects proposed by the other Crown Partnership Agreement Holders and those that are approved by the DRO, but will work in good faith with the other Crown Partnership Agreement Holders.

(108) **[Association]** reserves the right to determine the number of volunteers, if any, and the amount of funds, if any, that it is able or willing to allocate towards each shared Coalition Partnership project.

(119) **[Association]** accepts the Crown's Commercial & General Liability insurance provisions for Crown trails activities under the Partnership Agreement.

Passed unanimously by the Board of Directors of **[Association]**.

Regards,

Kevan

PDF is original version I believe.

From: Anderson, Luc FLNR:EX
To: "Kevan Bernards"; Blackbird, Tom G FLNR:EX
Cc: Bradley, Dan FLNR:EX
Subject: RE: Easy Street/MtGardner/swamp crossing
Date: November 18, 2019 12:14:36 PM

Hi Kevan,

What about using a turnpike, with a smooth pvc to use as cross drainage.

Have a look at the us forest service site for some ideas, I think we also have them in chapter 10

<https://www.fs.fed.us/t-d/pubs/htmlpubs/html07232806/page10.htm>

should be less maintenance and better to ride for moto than a raised structure.

Cheers

Luc

-----Original Message-----

From: Kevan Bernards s.22

Sent: November 18, 2019 11:06 AM

To: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

Cc: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Anderson, Luc FLNR:EX <Luc.Anderson@gov.bc.ca>

Subject: Easy Street/MtGardner/swamp crossing

Hi Tom,

During our hike of Easy Street on Bowen last Tuesday (BTC recon hike, Tuesday November 12) we encountered this wet area, it's on the threshold of a seasonal swamp. The existing trail crosses at the narrowest spot (yellow arrow). Dan and I discussed and weren't sure whether a small bridge or built up trail bed with rocks would be suitable? Dan suggested you might be able to weigh in here? We could probably find cedar on site to construct a bridge, not sure what span would be but definitely under 5m.

Location is approximately here:

49 deg 22' 54" N
123 deg 23' 16" W

Hope you're well!

Thanks,

Kevan

From: [Chuck Venhuizen](#)
To: [Kristina Calli](#); [Kevan Bernards](#)
Cc: [Blackbird, Tom G FLNR:EX](#); [Bradley, Dan FLNR:EX](#)
Subject: RE: Jan 28 2020 PA Holders agenda special meeting
Date: January 28, 2020 9:37:51 AM
Importance: High

Hello Partnership Agreement Holders,
Bowen Island Trail Society's departure from the Bowen trails coalition is official. In our judgement it is therefore incorrect to call our meeting tonight a 'BTC' meeting. We request that instead it be termed a special meeting between the Partnership Agreement Holders and RSTBC. We therefore respectfully ask that the agenda not be construed as a coalition meeting and instead give priority to the following items:

1. (20 min) Trail Society report. Our:

- **Navigation** update (8 min)
- **Year End** Report (2 min)
- **2020 Operation** Plan (3 min)
- **Our withdrawal from Bowen Trails Coalition:** (2 min)
- **Implications of our exit from this coalition:** (2 min)
- **Our Commitment to RSTBC**

2. RSTBC response & direction

Our Trail Society looks forward to fulfilling the terms of our Partnership Agreement on behalf of all non-motorized users within a robust and unencumbered relationship with RSTBC.

Have a good day.

Chuck

s.22

-----Original Message-----

From: "Kevan Bernards"

Sent: Tuesday, January 28, 2020 8:13am

To: "Tom Blackbird" , "Dan Bradley" , "Chuck Venhuizen" , "Kristina Calli" , s.22

s.22

Subject: Jan 28 2020 BTC agenda special meeting

Hi Everyone,

Here's the final draft of the agenda, see you all tonight!

Kevan

Sent from my iPhone

From: [Blackbird, Tom G FLNR:EX](#)
To: [Chuck Venhuizen](#); [Kristina Calli](#); [Kevan Bernards](#)
Cc: [Bradley, Dan FLNR:EX](#)
Subject: RE: Jan 28 2020 PA Holders agenda special meeting
Date: January 28, 2020 10:22:00 AM

Good Morning all,

Seeing that that BITS is officially departing from the coalition, I would suggest that we keep this meeting to a minimum agenda and that only the partners and RST be in attendance.

I would suggest we keep the agenda item 1 with more emphasis on the withdrawal from the coalition.

Thanks in advance and looking forward to a good discussion tonight.

From: Chuck Venhuizen

Sent: January 28, 2020 9:38 AM

To: Kristina Calli ; Kevan Bernards

Cc: Blackbird, Tom G FLNR:EX ; Bradley, Dan FLNR:EX

Subject: RE: Jan 28 2020 PA Holders agenda special meeting

Importance: High

Hello Partnership Agreement Holders,

Bowen Island Trail Society's departure from the Bowen trails coalition is official. In our judgement it is therefore incorrect to call our meeting tonight a 'BTC' meeting. We request that instead it be termed a special meeting between the Partnership Agreement Holders and RSTBC. We therefore respectfully ask that the agenda not be construed as a coalition meeting and instead give priority to the following items:

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2. RSTBC response & direction

Our Trail Society looks forward to fulfilling the terms of our Partnership Agreement on behalf of all non-motorized users within a robust and unencumbered relationship with RSTBC.

Have a good day.

Chuck

s.22

-----Original Message-----

From: "Kevan Bernards" s.22

Sent: Tuesday, January 28, 2020 8:13am

To: "Tom Blackbird" <Tom.Blackbird@gov.bc.ca>, "Dan Bradley"

<dan.bradley@gov.bc.ca>, "Chuck Venhuizen" s.22

, "Kristina Calli"

s.22

Subject: Jan 28 2020 BTC agenda special meeting

Hi Everyone,

Here's the final draft of the agenda, see you all tonight!

Kevan

Sent from my iPhone

From: [Blackbird, Tom G FLNR:EX](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: RE: May 28 Teleconference meeting items
Date: May 28, 2020 9:58:00 AM

Dan,

You call in as the moderator with this number..s.17

I will call in as a participant in case I have to bail early...

-----Original Message-----

From: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>

Sent: May 28, 2020 9:52 AM

To: Jessica Slater s.22

Kristina C s.22

; Kevan Bernards

s.22

Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

Subject: RE: May 28 Teleconference meeting items

No problem Jes, there's only a few us on the call . s.22
s.22

Talk to you all at 1:30pm, Conference call info below.

1-877-353-9184

Conference ID

s.17

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Jessica Slater s.22

Sent: May 27, 2020 7:43 PM

To: Kristina C s.22

Cc: Kevan Bernards s.22

; Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Blackbird,

Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

Subject: Re: May 28 Teleconference meeting items

s.22

s.22

Is there

some way to record the call by chance? If i miss it? Or maybe just some notes after is easier.

Thanks for coordinating Kevan and Dan.

Jes

> On May 27, 2020, at 4:18 PM, Kristina C <s.22

wrote:

>

> 1:30 tomorrow works for me too.

>

> Thanks,

>

> Kristina

>

>> On May 27, 2020, at 3:45 PM, Kevan Bernards <s.22

wrote:

>>

>> That works for me, thanks!

>>

>> Sent from my iPhone

>>

>>>> On May 27, 2020, at 3:32 PM, Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca> wrote:

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>>>>

>>>> Dan Bradley

>>>> Recreation Technician

>>>> Recreation Sites and Trails BC

>>>> Ministry of Forests, Lands and Natural Resource Operations

>>>> 46360 Airport Road

>>>> Chilliwack BC V2P 1A5

>>>>

>>>> tel: 778-704-7074

>>>>

>>>>

>>>>

>>>> -----Original Message-----

>>>> From: Kevan Bernards <s.22

>>>> Sent: May 27, 2020 2:45 PM

>>>> To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Kristina Calli C <s.22

<s.22

>>>> Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

>>>> Subject: May 28 Teleconference meeting items

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>>> Kevan
>>>
>>> Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: [Jessica Slater](#); [Kristina C](#); [Kevan Bernards](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: RE: May 28 Teleconference meeting items
Date: May 28, 2020 9:52:22 AM

No problem Jes, there's only a few us on the call s.22
s.22

Talk to you all at 1:30pm, Conference call info below.

1-877-353-9184

Conference ID
s.17

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Jessica Slater s.22
Sent: May 27, 2020 7:43 PM
To: Kristina C s.22
Cc: Kevan Bernards s.22; Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: Re: May 28 Teleconference meeting items

s.22

s.22

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From: [Blackbird, Tom G FLNR:EX](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: RE: May 28 Teleconference meeting items
Date: May 28, 2020 9:45:00 AM

1-877-353-9184

s.17

-----Original Message-----

From: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Sent: May 28, 2020 9:45 AM
To: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: RE: May 28 Teleconference meeting items

Yes, can you send the conference call # info again?

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Sent: May 28, 2020 9:44 AM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Subject: RE: May 28 Teleconference meeting items

Dan,

Are we set for 1:30 today?

-----Original Message-----

From: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Sent: May 27, 2020 3:32 PM
To: Kevan Bernards s.22 ; Kristina Calli C s.22

s.22

Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: RE: May 28 Teleconference meeting items

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Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: [Blackbird, Tom G FLNR:EX](#)
Subject: RE: May 28 Teleconference meeting items
Date: May 28, 2020 9:44:53 AM

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Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
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Subject: RE: May 28 Teleconference meeting items
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From: [Bradley, Dan FLNR:EX](#)
To: [Blackbird, Tom G FLNR:EX](#)
Subject: RE: May 28 Teleconference meeting items
Date: May 28, 2020 9:59:19 AM

No problem, will do

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Sent: May 28, 2020 9:59 AM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Subject: RE: May 28 Teleconference meeting items

Dan,

You call in as the moderator with this number..s.17

I will call in as a participant in case I have to bail early...

-----Original Message-----

From: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Sent: May 28, 2020 9:52 AM
To: Jessica Slater s.22 ; Kristina C -s.22

>; Kevan Bernards

Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: RE: May 28 Teleconference meeting items

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Sent: May 27, 2020 7:43 PM
To: Kristina C s.22
Cc: Kevan Bernards s.22 ; Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
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s.22

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>>> Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: [Jessica Harman](#); [Kevan Bernards](#); [Kristina Calli C](#); [Blackbird, Tom G FLNR:EX](#)
Cc: [Phil Osborne](#)
Subject: RE: Mount Gardner MOU
Date: June 24, 2020 9:41:03 AM

Looks like Tom and I are free 10am on July 7th , would that work for everyone?



Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5
tel: 778-704-7074

From: Jessica Harman
Sent: June 23, 2020 9:06 PM
To: Kevan Bernards
Cc: Blackbird, Tom G FLNR:EX ; Bradley, Dan FLNR:EX ; Kristina Calli C ; Phil Osborne
Subject: Re: Mount Gardner MOU

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi guys,

I'm afraid the new MOU is not supported by the Bowen Island Trail Society board as we feel it requires further clarification in regards to community consultation among a few other points. I would be pleased to join in a call to discuss the designation of the Gardner trails but am CCing Phil, BITS President as he would be even better suited for the conversation.

Jes

On Tue, 23 Jun 2020 at 09:09, Kevan Bernards <[s.22](#)>

wrote:

Hi Tom,

I'm hoping we can set up another teleconference with yourself and Dan possibly in the second week of July (6-10).

The new MOU is all but ready to go but recently some concerns have surfaced related to the municipality's decision to request a ban of recreational motorized use on Mount Gardner and this is throwing up a bit of a roadblock.

We had a very positive outcome after our last meeting on May 28. I'm hoping we can discuss this current situation and any implications it may have on our agreement renewal and reiterate our roles as stewards so that we may continue to focus on the development of the MOU and fulfilling our role as trail stewards.

Sincerely,

Kevan Bernards

BTRA

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Chuck Venhuizen](#); [Kristina Calli](#)
Cc: [Blackbird, Tom G FLNR:EX](#); [Bradley, Dan FLNR:EX](#); s.22
Subject: Re: BTC is 3
Date: January 26, 2020 12:40:26 PM

Hi All,

Chuck you are mistaken. This will still be a coalition meeting as you will not be officially withdrawing from the coalition until the announcement has been made during the meeting.

In fact, by choosing to exit the coalition, the BITS is therefore choosing to abandon adherence to the coalition constitution and bylaws which would put the society (BITS) in a position of "not in good standing". At that point the coalition will regrettably be left with a vacancy to fill. However this would not mean the termination of the coalition (there is nothing in our constitution and bylaws about this). The constitution and bylaws (section 3.5) do outline a possible situation were a constituent may be "not in good standing" and so therefore I believe indicate a strong case that the coalition can continue function with only 2 constituents until such a time that the vacancy could be filled.

Tom will need to weigh in here and confirm whether they prefer to continue working with a coalition seeking new constituents or as individual partnership agreement holders.

I move that at this point during the meeting it should be decided by members of the coalition in good standing if;

a) the meeting will continue as a coalition meeting (BITS members should then leave at this point and recording duties shall be designated to a current constituent member) or

b) the coalition meeting shall be adjourned and any further discussions shall be regarded as that of an informal meeting of stakeholders without agenda or recorded minutes.

We have all spent a great deal and time, effort and passion on this coalition and partnership. This move by the BITS is indeed regrettable. BTRA does not view the coalition as "an extra layer of bureaucracy" but a worthwhile endeavour and so will remain committed to pursuing this collaborative arrangement.

Sincerely,

Kevan

BTC Chair

Sent from my iPhone

On Jan 26, 2020, at 9:35 AM, Chuck Venhuizen wrote:

Hi Kristina and Kevan,

As I was waking up this morning I realized more clearly than ever that the Bowen Trails Coalition has effectively been neutralized and rendered non-functional, if for no other reason than sections 7.5 to 7.8 of the BTC Constitution which establish the parameters for conducting any business. Specifically, if a quorum of 3 Constituents is not present, then no business can be conducted. Essentially, this means that if either BIHORA, BITS or BTRA were to withdraw from the BTC, it would cease to be operational. Our Trail Society has withdrawn. Therefore, the Coalition is dead. As well, our meeting with Tom and Dan this Tuesday is by definition a meeting between the 3 Partnership Agreement Holders and Tom and Dan, not a BTC meeting. This new development is actually very good news for many compelling reasons, one being that the BTC has been an extra layer of bureaucracy which, now removed, will save all Partnership Agreement Holders much precious time.

In light of the above, I think it would be prudent to order our agenda as follows:

1. (20 min) Trail Society report. Our:

- **Navigation** update (8 min)
- **Year End** Report (2 min)
- **2020 Operation** Plan (3 min)
- **Commitment** to our Partnership Agreement (2 min)
- **Compliance** with RSTBC on halting new trail development while facilitating robust community engagement (2 min)
- **BTC exit & implications**

2. (? min) BTRA report

3. (? Min) BIHORA report

4. RSTBC response & direction

Even though this will not be a BTC meeting, our Trail Society will still record the minutes. Kevan, may I assume that you are still ready to chair this meeting?

Respectfully,

Chuck Venhuizen

BI Trail Society

Partnership Agreement Director

-----Original Message-----

From: "Kevan Bernards"

Sent: Saturday, January 25, 2020 4:53pm

To: "Chuck Venhuizen"

Cc: "Kristina Calli" , "Phil Osborne"

Subject: Re: Trail Society agenda items

Hi all,

This is unfortunate news.

Given this recent disclosure, I'll have to rework the current draft agenda for Tuesday's meeting. I hope to have this done by tomorrow morning.

Sincerely,

Kevan

From: [Kristina C](#)
To: [Kevan Bernards](#)
Cc: [Bradley, Dan FLNR:EX; s.22](#) [Blackbird, Tom G FLNR:EX](#)
Subject: Re: May 28 Teleconference meeting items
Date: May 27, 2020 4:18:52 PM

1:30 tomorrow works for me too.

Thanks,

Kristina

> On May 27, 2020, at 3:45 PM, Kevan Bernards [s.22](#) > wrote:
>
> That works for me, thanks!
>
> Sent from my iPhone
>
>> On May 27, 2020, at 3:32 PM, Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca> wrote:
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>>
>> Dan Bradley
>> Recreation Technician
>> Recreation Sites and Trails BC
>> Ministry of Forests, Lands and Natural Resource Operations
>> 46360 Airport Road
>> Chilliwack BC V2P 1A5
>>
>> tel: 778-704-7074
>>
>>
>>
>> -----Original Message-----
>> From: Kevan Bernards [s.22](#)
>> Sent: May 27, 2020 2:45 PM
>> To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Kristina Calli C [s.22](#) --
[s.22](#)
>> Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
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>> If this is too long let me know which issues everyone wants to discuss tomorrow.
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From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Kristina Calli C; s.22](#) [Blackbird, Tom G FLNR:EX](#)
Subject: Re: May 28 Teleconference meeting items
Date: May 27, 2020 3:45:36 PM

That works for me, thanks!

Sent from my iPhone

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> Kevan

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> Sent from my iPhone

From: [Jessica Slater](#)
To: [Kristina C](#)
Cc: [Kevan Bernards](#); [Bradley, Dan FLNR:EX](#); [Blackbird, Tom G FLNR:EX](#)
Subject: Re: May 28 Teleconference meeting items
Date: May 27, 2020 7:42:37 PM

s.22

s.22

Is there

some way to record the call by chance? If i miss it? Or maybe just some notes after is easier.

Thanks for coordinating Kevan and Dan.

Jes

> On May 27, 2020, at 4:18 PM, Kristina C <s.22> wrote:

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>>>> Ministry of Forests, Lands and Natural Resource Operations

>>>> 46360 Airport Road

>>>> Chilliwack BC V2P 1A5

>>>>

>>>> tel: 778-704-7074

>>>>

>>>>

>>>>

>>>> -----Original Message-----

>>>> From: Kevan Bernards <s.22>

>>>> Sent: May 27, 2020 2:45 PM

>>>> To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Kristina Calli C <s.22>

s.22

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From: [Kristina C](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Jessica Harman](#); [Kevan Bernards](#); [Blackbird, Tom G FLNR:EX](#); [Phil Osborne](#)
Subject: Re: Mount Gardner MOU
Date: June 24, 2020 9:57:36 AM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi All,

Works for me!

Many thanks,

Kristina
BIHORA

On Jun 24, 2020, at 9:41 AM, Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca> wrote:

Looks like Tom and I are free 10am on July 7th, would that work for everyone?

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5
tel: 778-704-7074

From: Jessica Harman s.22
Sent: June 23, 2020 9:06 PM
To: Kevan Bernards s.22
Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>; Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Kristina Calli C s.22 ; Phil Osborne s.22
Subject: Re: Mount Gardner MOU

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Hi guys,

I'm afraid the new MOU is not supported by the Bowen Island Trail Society board as we feel it requires further clarification in regards to community consultation among a few other points. I would be pleased to join in a call to discuss the designation of the Gardner trails but am CCing Phil, BITS President as he would be even better suited for the conversation.

Jes

On Tue, 23 Jun 2020 at 09:09, Kevan Bernards s.22

· wrote:

| Hi Tom,

I'm hoping we can set up another teleconference with yourself and Dan possibly in the second week of July (6-10).

The new MOU is all but ready to go but recently some concerns have surfaced related to the municipality's decision to request a ban of recreational motorized use on Mount Gardner and this is throwing up a bit of a roadblock.

We had a very positive outcome after our last meeting on May 28. I'm hoping we can discuss this current situation and any implications it may have on our agreement renewal and reiterate our roles as stewards so that we may continue to focus on the development of the MOU and fulfilling our role as trail stewards.

Sincerely,

Kevan Bernards

BTRA

Sent from my iPhone

From: [Jessica Harman](#)
To: [Kevan Bernards](#)
Cc: [Blackbird, Tom G FLNR:EX](#); [Bradley, Dan FLNR:EX](#); [Kristina Calli C](#); [Phil Osborne](#)
Subject: Re: Mount Gardner MOU
Date: June 23, 2020 9:16:41 PM

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BTRA

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Kristina C](#)
Cc: [Bradley, Dan FLNR:EX](#); [Jessica Harman](#); [Blackbird, Tom G FLNR:EX](#); [Phil Osborne](#)
Subject: Re: Mount Gardner MOU
Date: June 25, 2020 9:09:19 AM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

That works for me!

Cheers, Kevan

Sent from my iPhone

On Jun 24, 2020, at 9:57 AM, Kristina C wrote:

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BIHORA

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Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: Signage for MtGardner junctions
Date: June 11, 2020 10:16:30 AM
Attachments: [trail_signs_trailhead.pdf](#)
[ATT00001.txt](#)

Hi Dan,

The agreement holders have been busy since our last teleconference. Almost all the posts are installed along Handloggers and canyon trail. BITS members have helped out on Handloggers as well as getting posts in at several other junctions on the west side. BTRA just has Easy Street left to mark and install 2 trailhead posts.

We'll be ready for signs soon so I'm wondering about format. I found the attached drawing on a gov site. I've shared the design below with BITS and BIHORA as a possibility.

Is this the approved format that we'd be using at main junctions and is there any flexibility in design or info?

In other news, BTRA's delegation to council on Monday night was unsuccessful in persuading them not to send in their letter requesting a ban of motorized recreational use on the mountain. At least we changed the mind of 1 councillor and perhaps were able to better shed some light in the community about our role as trail stewards.

Had a good teleconference with bcorma BOD last night. Great to get their feedback and hear about the successes in other areas of the province. Its interesting to note that Bowen is in almost the same stage as Vedder Mountain was nearly 10 years ago (I think you've also mentioned this). I think I day trip out there would possibly be beneficial to our agreement holders when it's safe to do so.

Anyhow, that's where we're at over here on Bowen.

Cheers,

Kevan

https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/outdoor-recreation/camping-and-hiking/rec-sites-and-trails/structure-drawings/trail_signs_trailhead.pdf

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: prototype signage for major junctions from BITS/agreement holder update
Date: May 5, 2020 10:11:15 AM
Attachments: [ATT00001.txt](#)

Hi Dan,

Good news, it looks like some of the BITS membership still want to work with us and have shared their latest concept in signage.

- The material is aluminum.
- BTRA is in support but with brown background rather than black.
- Would this design meet RSTBC requirements?

Jes Slater will be BITS new coalition contact which should improve communication between our groups. She has been supportive of collaboration in the past and was present at the coalition meeting in January and I believe actually listened and understood what you and Tom had to say.

So there's a hope that under the new MOU and with a clear understanding of what our roles are with regards to how we function as a coalition that we can continue to work towards our goals as a partnership rather than individual stakeholders.

I've also been in contact with Kristina from BIHORA regarding the April 27 council meeting and municipal decision to pursue the restriction of motorized use on MtGardner. BIHORA supports BTRA, continued motorized access and stewardship as well as a collaborative partnership. She would like to join us on the conference call if possible?

Councillor Allison Morse asked Tom how many motorized trails there were on Bowen, Tom answered that Easy Street was the only (section 57?) authorized trail. Council took this to mean that Easy Street is the only motorized trail on island, the paper took it that way too and printed a story stating this and that this could mean the end of motorized use on MtGardner. Obviously, there are many other trails which we use and maintain on the mountain and Bowen. BTRA is worried that this could potentially lead to conflict on the trails, is there any way that Tom could clarify his statement in a letter or call to mayor and council and the Undercurrent?

I am looking forward to our discussion re new PA!

Sincerely,

Kevan

President, BTRA

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: s.22
Subject: 2019 BTRA AR
Date: January 8, 2020 1:14:26 PM
Attachments: [2019 BTRA AR.pdf](#)
[ATT00001.txt](#)

Year-End Report for Recreation Sites & Trails BC

Partnership Agreement (PA) Holder:	Bowen Trail Riders Association				
Agreement #:	PA18DCK-007				
Partnership Agreement Signing Date:	2-May-18	P.A. Expiry:	14-May-20		
Period Covered:	January 1, 2019 to December 31, 2019				
Prepared by:	Kevan Bernards, President BTRA				
Contact:	604-314-3696, s.22				

Narrative Summary:

18 Members from BTRA carried out the following activities during the 2019 operating season while fulfilling our duties as trail stewards of the Mount Gardner Recreation Polygon.

Record of Volunteer Activities

Date	Type of Activity	Work Accomplished	# of Vol.	Total Hours	Actual Cost (to date)
Jan 12 - Nov 10	Bluewater Bridge	Replace existing bridge and improve trail.	14	210	\$1500
Feb - Dec	ORV Fund Projects	Trail repairs including rerouting lower section of Easy Street and construction of a small turnpike in a wet area, signage and navigation of Easy Street, Canyon Trail, Handloggers (ongoing).	1	6.5	\$600
April - Nov	BTC Navigation & Signage	Attend meetings and hikes to discuss materials, planning and design options, attend blazing, digging and post installation events.	6	32	
Jan - Dec	General Trail Work	Clearing trails of blowdown, pruning vegetation, groom trails, maintain trail drainage features, explore reroute options, planning etc.	12	142.5	\$50
Jan - Dec	Administrative	Attend BTC meetings, report trail conditions, planning, recon hikes, funding and grant applications.	5	88	

Jan - Dec	Outreach	Provide directions to trail users, discuss MTB inclusion within coalition with several members of the community, discuss staging area proposal, summit trail proposal and general trail work with stakeholders.	2	5.5	
	Totals		18	480.5	\$2150

Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: s.22 : [FH Forestry](#); [WestHarrisonRes](#); s.22 [Ian Koch](#); [XT:FraserValley, RegionalDistrict](#)
[ENV:IN](#); [Harrison Yacht Club](#); s.22 [info@hopemountain.org](#); s.22 [Kevan Bernards](#);
s.22 [info@fvmba.com](#)
Subject: 2019 PAES Form Reminder
Date: December 17, 2019 11:29:00 AM
Attachments: [Partnership Agreement Engagement Summary 2019.docx](#)

Hey all,

This is a reminder to submit your Partnership Agreement Engagement Summaries by Dec 31 2019 as required by your Partnership Agreement. I know the holidays can be a busy time so if you need an extra week or two into the new year that would be fine.

I've added the notes below to explain what RSTBC uses this data for:

- The 1st box on the PAES form ("number of volunteers performing services") is used to calculate Insurance coverage.
- The 2nd box on the PAES form ("number of hours of services") is used internally by RSTBC to calculate the effort that volunteers provide to our program. It is calculated into full time employees (FTE's), and is reported out through the Annual Report.

Thanks to you all for all the hard work you've done through the year and I hope you enjoy the Holidays!



Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5
tel: 778-704-7074

Partnership Agreement Engagement Summary

Name of Agreement Holder _____ Agreement number ____ PA _____ - _____

Date Form Completed _____ For Calendar Year 2019

Submit this form to the ministry contact person no later than 2 weeks after the end of your Operating Season but in any event no later than January 15 of each year of your Partnership Agreement. This form is also required upon expiry or earlier termination of your Agreement.

Information on this form is collected for the purpose of insurance underwriting and for volunteer engagement statistics.

Complete as accurately as possible based on the records you create and retain for your volunteers.

Services are only those Services set out in the Partnership Agreement during the calendar year, and not any of your other activities.

Total number of individuals who performed Services during the calendar year under age 85 and not employees* of your organization.	Total number of hours of Services performed by all the individuals including employees* and individuals over age 85.

I hereby confirm that the information contained in this Engagement Summary is true and correct as of the date this report was prepared.

Signed by an authorized representative of the Agreement Holder _____ Print Name _____

*an employee of your organization is an individual who receives remuneration for providing services set out in the Partnership Agreement and is a Worker as defined by the Workers Compensation Act and would be eligible for compensation benefits from Worksafe BC and therefore ineligible for Accidental Death and Dismemberment coverage provided under the terms of the Agreement.

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: 2020 BTC policy
Date: December 11, 2019 8:34:34 AM

Hi Dan,

Hope you're wellll!

As the new chair of the coalition I'm hoping we can touch base soon. I'd like to go over where we're at with our current P.A. and begin discussions about what happens in May 2020.

My goal is too keep work loads reasonable for our volunteers while we work towards fulfilling our obligations as trail stewards.

Recently a few things that have come to my attention that I'm hoping to discuss with you as well. There's been some seriously intense email threads circulating over the past few days. I believe that some of content is pushing the limits of what's reasonable to expect from a group of volunteers and could potentially limit future projects on the mountain. I'd like to seek advice from you or Tom on how best to proceed before I address them with the coalition.

The subject is mainly the process of public consultation regarding coalition projects. I'm seeking clarification on the following:

- what are our obligations?
- does our coalition (hiking, Mtb, equestrian, running and motorized) qualify as a fair, legitimate representation of stakeholders?
- is it advisable for our coalition to vet or filter constituent communications with the public or should each group remain free to communicate as their respective boards see fit?
- are there other examples set by other similar organizations that we could review?
- we already organize our OP's according to priority, as a coalition we decided that each constituent is free to pursue their own projects while also contributing to joint ventures. It has been suggested that we not initiate new projects until certain criteria have been met. Is this set in stone or can an organization put forward a proposal that has relevant merits such as better access for first responders and would facilitate ongoing trail maintenance and improvements?
- I was under the impression that our OP's where to provide a clear picture of what each group wanted to achieve?

I'll include a few comments below for context, specifically I'm seeking input on 2. 5. 6. 7. 8. 9. and the included statements.

I have to apologize for the load of questions right off the bat, ideally we wouldn't be starting off a new season like this.

Im hoping we can talk soon.

Thank you for your input,

Sincerely,

Kevan

Ideally, from my vantage point, for any new infrastructure type of proposal to gain maximum traction and have the most chance of being implemented, here's what the sponsoring Constituent might consider wanting to do first:

- 1. seek guidance from the DRO as to the viability of this proposal.**
- 2. work with fellow Constituents to ensure that the necessary infrastructure in fulfilling the Partnership Agreement is already in place: (a) existing trails are catalogued, named, marked and signed; (b) existing trails are categorized by their use and degree of difficulty; (c) dangerous sections on existing trails are addressed and made safer within RSTBC standards; (d) the Trails Etiquette Guide is ratified and published.**
- 3. ensure the proposal passes the test of safety, sustainability, navigation and accessibility within the context of transparency.**
- 4. formulate answers that overcome any anticipated objections and has integrated them into their proposal.**
- 5. be willing to wait for the opportune time to present their proposal to fellow Constituents, ie. once the infrastructure is in place and enough trust is built within the Coalition to give the proposal a better chance of success.**
- 6. have already been in contact with other legitimate stakeholders and has their support in principle.**
- 7. if necessary, develop a mechanism with fellow Constituents to gather feedback from legitimate stakeholders outside of the Coalition.**
- 8. accept that the joint Constituents are stewards of the Mt. Gardner tract of Crown land and therefore must not act in isolation.**
- 9. based on all the feedback collected, be willing to accept a decision that is in harmony with the wishes of the wider community of trail users.**

My recommendation is that the above guidelines should apply to any and every project proposal. Some, like the Navigation project or the Bluewater Bridge project, are so obviously necessary and endorsed by the other stakeholders that most of these guidelines are implicitly endorsed and can be (in fact, have been) skipped. But other proposals, especially those that require a paradigm shift, will require a more rigorous process, following more or all of the above or all of the above guidelines.

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: 2020 BTRA OP/Hazard Tree Removal Invoice
Date: June 16, 2020 11:13:38 AM
Attachments: [2020 BTRA OP budget request.pdf](#)
[ATT00001.htm](#)

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Dan,

Please find attached BTRA's invoice for our 2020 operating plan items as well as the hazard tree removal in February.

Thanks,

Kevan

Invoice #2

[illegible]

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: 2020 MtGardner Partnership OP.docx
Date: February 7, 2020 6:46:24 AM
Attachments: [2020 MtGardner Partnership OP.docx](#)
[ATT00001.txt](#)

Hi Dan,

Chuck has informed us that BITS will be dealing with RSTBC directly and so I've included only the BIHORA & BTRA Joint OP here.

Please let me know if you have any questions.

Regards,

Kevan

2020 Mount Gardner Agreement Holder OP (formerly the Coalition)

Bowen Island Horse Owners and Riders Association Operating Plan Key Personnel

P.A. Holder: Bowen Island Horse Owners and Riders Association

P.A. Signing Date: 2-May-18 Agreement #: PA18DCK-008

Period Covered: 1-Jan-20 to 31-Dec-20 P.A. Expiry: 14-May-20

Prepared by: Kristina Calli Contact Info: s.22

Name	Title	Duties & responsibilities
------	-------	---------------------------

- | | | |
|------------------|--|---|
| • Katrina Smith | | BIHORA President. Will the lead on planning and executing the BTC Trail Etiquette Day |
| • Kristina Calli | | BIHORA Trails Committee Leader, BIHORA representative on BTC Committee. Will Write the BC Equestrian Trails Fund Proposal to Horse Council BC, leads this project if it is funded |
| • s.22
BTC | | BIHORA member. Will represent BIHORA and assist with activities as requested by Katrina and Kristina |

Bowen Trail Riders Association Operating Plan Key Personnel

P.A. Holder: Bowen Trail Riders Association

P.A. Signing Date: 2-May-18 Agreement #: PA18DCK-007

Period Covered: 1-Jan-20 to 31-Dec-20 P.A. Expiry: 14-May-20

Prepared by: Kevan Bernards Contact Info: 604-314-3696

s.22

Name	Title	Duties & responsibilities
------	-------	---------------------------

- | | | |
|------------------|----------------------------|---|
| • Kevan Bernards | President | Oversees and manages all BTRA operations |
| • Dave Paulus | Vice-president | Assists President with all BTRA operations |
| • s.22 | Treasurer | Manages funds and reports on financial status |
| • s.22 | Secretary | Records minutes |
| • s.22 | Director, Machine Operator | |

BIHORA OP ITEMS

PROJECT	BIHORA	RSTBC	GRANTS
BTC Trail Etiquette Day - Develop itinerary and activities for a FUN one-day motorized vehicle, biking, hiking and horseback riding trail sharing learning event	\$0	\$500	\$0
Equestrian Trail Development - Apply for funding to Horse Council BC to develop horse-friendly trails and trail access from Hiker's Trail	\$0	\$1,000	\$5,000
Equestrian Trail Safety Evaluation - Continued surveying of trails on Mt Gardner for horse friendly routes, and identifying locations requiring maintenance to enable horse access	\$0	\$0	\$0
Totals	\$0	\$1500	\$5000

BTRA OP ITEMS

PROJECT	BTRA	RSTBC	GRANTS
Replace Lower Skid Trail Bridge	\$0 *2019 budget item	\$0	\$0
Signage & markers on; Easy Street, Handloggers, Canyon Trail	\$0 *2019 budget item	\$0	\$0
Fencing at old Handloggers crossing	\$0 *2019 budget item	\$0	\$0
Fencing at Reservoir	\$0	\$0	\$0

Bridge	*2019 budget item		
General maintenance; Easy Street, Canyon Trail, Handloggers, trails requiring attention	\$500 *improve trail tread, clear blowdown, improve drainage, minor reroutes, materials, machine work and tools	\$1,500	\$1000
Environmental Studies; Complete TEST doc for polygon area? Study for parking area	\$500	\$500	\$500
Totals	\$1000	\$2000	\$1500

COMBINED BUDGET CONTRIBUTIONS - to KB: from grants, fundraising or both?
Both, to provide an idea of how much each group will be contributing.

BIHORA	\$5000
BTRA	\$2500
RSTBC	\$3500 (\$1500 BIHORA, \$2000 BTRA)

Joint Operating Plan Safety Strategies

For all volunteer trails improvement project activity, each Agreement Holder strives to mitigate hazards and mishaps by: (1) providing volunteers with an orientation where clear instructions are articulated, best safety practices are highlighted, the waiver of liability is read aloud, after which each volunteer signs it; (2) ensuring that each volunteer works with at least one other volunteer; (3) ensuring safe access to trails; (4) providing each volunteer with an activity log which includes emergency contact numbers; (5) providing available competency training on chainsaw operation and trail maintenance & building best practices.

Agreement Holders will cooperate with each other to mitigate hazards on the network of Mt. Gardner Trails through regular surveillance of these trails and remediation, as required.

Non Budget Item Goals

*work with agreement holders to develop trails inventory, trail designation and trails etiquette guide.

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: BITS coalition contact
Date: May 8, 2020 10:39:07 AM

Hi Dan,

Here's Jes Slater's contact info:

s.22

Good meeting!

Cheers,

Kevan

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: BTC 1st quarter meeting
Date: January 6, 2020 8:57:15 AM

Hi Dan,

Happy new year and I hope you enjoyed the holidays!

I'm putting together the agenda for our coalition's 1st quarterly meeting of 2020. I'm hoping that you and Tom would be able to attend as previously mentioned to discuss;

- the role of the coalition and how we operate,
- PA's and options for renewal after the expiration date in May,
- possibly discuss shared use strategies and how we can work together.
- please let me know if there's anything else you wish to add?

What dates would work best for you? It sounds like the end of January/early February will work best for the coalition (Jan 27-31, Feb 1-7).

A note about our 2020 OP's

-we were not able to fully discuss all items in depth at our coalition AGM in early December (BITS Handloggers trail improvements, BTRA Service Trail proposal, and parking area proposal).

- A meeting date was set for Jan 9 to further discuss these items and hopefully ratify our 2020 OP's. However, Chuck has informed me that the BITS board is not willing to meet then or discuss the proposed agenda items until after they have met (Jan 15th) and that it is their wish to hold the meeting with you and Tom first.

-It was my hope that we could have had this meeting before you and Tom visit so that we can submit our OP's and there would have been more time to discuss the other items while you're both here but it sounds like this won't happen.

This is frustrating since our OPs are due, should we just submit individually as they are or wait another month or so?

I know as a coalition we've had our rough patches this past year but we've also had our successes and I'm willing to keep moving forward in the new year.

Thanks,

Kevan

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#); [Blackbird, Tom G FLNR:EX](#)
Subject: BTC Constitution & Bylaws/next BTC meeting date
Date: January 18, 2020 11:01:51 AM
Attachments: [BTC Constitution & Bylaws.pdf](#)
[ATT00001.txt](#)

Hi Tom & Dan,

Please find attached the requested copy of the Bowen Trails Coalition constitution and bylaws for your review.

Available meeting dates and times for BTC special committee meeting : Jan 27, 28, 29 municipal council chambers 6:15pm-8:30pm. Please let me know which date works best and we'll book it in.

Regards,

Kevan

BOWEN TRAILS COALITION SOCIETY

SECTION A – DEFINITIONS

1.0 DEFINITIONS

1.1 In this Constitution and Bylaws:

(a) “Act” refers to the Societies Act of British Columbia as amended from time to time; (b)

“Bylaws” refers to these Bylaws as altered from time to time.

(c) “Coalition” refers to Bowen Trails Coalition Society.

(d) “Committee” refers to the directors, one from each Constituent, who meet to plan and co-ordinate Partnership Agreement activities.

(e) “Constituent” refers to a member organization of Bowen Trails Coalition Society.

(f) “Crown” refers to British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development.

(g) “Partnership Agreement” refers to the agreement between Bowen Trails Coalition Society and the Crown.

(h) “Project Manager” refers to a member of a Constituent who has been selected to manage a Crown trails project.

(i) “Volunteer” refers to an individual who is accountable to a Constituent and is donating their time and energy in some way to help facilitate the Partnership Agreement.

Definitions in Act apply

1.2 The definitions in the Act apply to the Constitution and Bylaws.

Conflict with Act or regulations

1.3 If there is a conflict between these Bylaws and the Act or the regulations under the Act, the Act or the regulations, as the case may be, prevail.

SECTION B – CONSTITUTION

2.0 THE COALITION

Name of the Coalition

2.1 The name of the Coalition is: Bowen Trails Coalition Society.

Nature of the Coalition

2.2 The Coalition is a partnership of societies whose sole purpose is to remediate Crown trails on Bowen Island through the Partnership Agreement. The Coalition is not an incorporated entity. Its function is restricted to engaging in and facilitating the Partnership Agreement.

Constituent Founding Members of the Coalition

2.3 The founding Constituent members of the Coalition are: Bowen Island Horse Owners and Riders Association, Bowen Island Trail Society, Bowen Trail Riders Association and Rotary Club of Bowen Island Society.

Aspirations of the Coalition

2.4 Using transparent communication, to promote safety, accessibility, navigation, and sustainability with respect to maintaining and enhancing existing trails and developing new trails on Bowen Island’s Crown lands so that Crown trails users have a positive and enjoyable experience.

Note:

(a) “Transparent communication” includes being thorough and factual in all communication with the Coalition’s Constituents, the Crown, and other Crown trails stakeholders to increase awareness and support for the Coalition’s aspirations and activities,

(b) “Safety” means the mitigation of injury and distress to Crown trails users by following the Crown’s requirements for trail workmanship and volunteer administration,

(c) “Accessibility” includes ease of trailhead access to a diversity of Crown trails users,

(d) “Navigation” includes clear trail designation, visible wayfinding markers, and unambiguous signage marking trails and trail junctions,

(e) “Sustainability” means ensuring that the materials used and the structures built in Crown trails projects are durable, as well as ensuring that all trail work meets the Crown’s environmental standards.

Purposes of the Coalition

- 2.5 (a) To enter into and manage a Partnership Agreement with the Crown in order to enhance, maintain and develop Crown trails on Bowen Island.
(b) To mobilize its volunteers to actively support and engage in the enhancement, maintenance and development of Crown trails on Bowen Island through the Partnership Agreement.
(c) To carry out all activities referred to in 1.4(a) & 1.4(b) with no thought or purpose of financial gain, but solely in accordance with its aspirations and purposes.

Beneficiaries of the Coalition

- 2.6 (a) The Society's activities will be carried out to benefit all users of Bowen Island's Crown trails in accordance with the Coalition's aspirations and purposes.
(b) Paragraphs 3, 4, 5, 6 and 7 of this Constitution are irreversible in accordance with the BC Societies Act.

SECTION C - BYLAWS

3. CONSTITUENT MEMBERS Definition

3.1 A Constituent member is a Society

- (a) Whose purposes include the enhancement, maintenance and development of Crown trails on Bowen Island.
(b) Whose expressed desire is to work collaboratively with each of the other Coalition Constituents to facilitate the Partnership Agreement.
(c) Whose Board has signed a Letter of Understanding to the Crown. (See Schedule 1)

Application for membership

3.2 The Coalition committee may extend an invitation to a registered Society to apply to the committee for membership in the Coalition, and if the applicant has met the qualifying criteria for membership, to be set forth in these Bylaws at a later date, the organization will then become a Constituent member of the Coalition.

Constituent member Duties and Expectations 3.3 Each Constituent member will:

- (a) Uphold the Constitution of the Coalition and comply with these Bylaws.
(b) Adhere to the terms set forth in their Letter of Understanding to the Crown. (c) Adhere to the terms of the Partnership Agreement.
(d) Provide one director to sit on the Coalition committee.
(e) Ensure that its director on the Coalition committee, along with any Project Manager they may provide, do not act unilaterally but accurately represent that Constituent member's position with respect to Crown trails projects within the context of the Partnership Agreement.
(f) Ensure that its director on the Coalition committee makes every effort to achieve decisions through collaboration and consensus at Coalition committee meetings.

Constituent Membership dues

3.3 There are no Constituent membership dues.

Constituent Member not in good standing

3.5 A Constituent member is not in good standing if that Constituent:

- (a) Fails to provide representation at 3 consecutive committee meetings; (b) Fails to adhere to the terms of its Letter of Understanding.
(c) Undergoes dissolution

Restrictions for members not in good standing

3.6 A Constituent member that is not in good standing may not participate in Coalition meetings or Crown trails project activities.

Process to regain "in good standing" status

3.7 A Constituent member that is not in good standing may regain full Constituent rights when that Constituent's Board has provided in writing assurances acceptable to the Coalition that they will remediate within 30 days the cause of becoming "not in good standing". (See 3.5)

Termination of membership if member not in good standing

3.8 A Constituent's membership in the Coalition is terminated if the member is not in good standing for 12 consecutive months.

4. COMMITTEE REPRESENTATIVE

Definition

4.1 A committee representative is an individual who is first and foremost a member of a Constituent. This Constituent member is essentially on loan to serve on the Coalition committee to help plan and co-ordinate activities within the Partnership Agreement.

Number of Representatives on committee

4.2 The Coalition committee must maintain representation of no fewer and no more than 1 individual from each Constituent.

Constituent member may fill casual vacancy on committee

4.3 If a vacancy results from a Constituent's representative being unable to continue to perform their Coalition committee duties, that Constituent will provide an alternate representative to fill the vacancy.

5. COMMITTEE POSITIONS

Election or appointment to committee positions

5.1 Officers must be elected or appointed each year to the following committee positions, and a Constituent representative may only hold one position:

- (a) Chair;
- (b) Vice-Chair; (c) Secretary; (d) Treasurer

Role of Chair 5.2 The Chair

- (a) Takes the lead role in preparing the committee's meeting agenda.
- (b) Guides the committee members in facilitating the Partnership Agreement.

(c) Is the Coalition's primary spokesperson.

Role of Vice-Chair

5.3 The Vice-Chair of the committee is responsible for carrying out the duties of the Chair if the Chair is unable to act or if the Chair deems it necessary to delegate certain tasks to the Vice-Chair.

Role of Secretary

5.4 The Secretary is responsible for doing, or making the necessary arrangements for, the following:

- (a) Issuing notices of annual general meetings and committee meetings;
- (b) Ensuring the maintenance of accurate minutes of annual general meetings and committee meetings;
- (c) Keeping the records of the Society in accordance with the Act;
- (d) Conducting the correspondence of the Board;
- (e) Filing the annual report of the Society and making any other filings with the registrar under the Act.
- (f) Ensuring that all records are kept in compliance with the Partnership Agreement with the Crown.

Absence of secretary from meeting

5.5 In the absence of the Secretary from a meeting, the Board must appoint another individual to act as recording secretary at the meeting.

Role of Treasurer

- 5.6 (a) To monitor and record all revenue and expenses.
- (b) To maintain a bank account.
- (c) To be a signing officer.
- (d) To channel funds from the Crown and Constituents to the Project Manager to sustain their Crown trails project.
- (e) To prepare a simplified annual financial statement.

6.2

A contract or other record to be signed by the Coalition must be signed on behalf of the Coalition

- (a) By the Chair, together with one other representative,

(b) If the Chair is unable to provide a signature, by the Vice-Chair together with one other representative,

(c) If the Chair and Vice-Chair are both unable to provide signatures, by any 2 other representatives.

COMMITTEE MEETINGS

7.

(f) To perform other finance-related duties as directed by the Board.

6. REMUNERATION & SIGNING AUTHORITY

Remuneration

6.1 The Constituent representatives volunteer their time, thus there is no financial remuneration for serving on the Coalition committee or for completing any of its assigned tasks.

Signing Authority

Time and place of committee meetings

7.1 Committee meetings will be held quarterly.

Calling a committee meeting

7.2 A committee meeting may be called by the Chair or by any 2 other representatives.

Notice of committee meeting

7.3 At least 5 days' notice of a committee meeting must be given unless all the directors agree to a shorter notice period.

Notice of business

7.4 A notice of a committee meeting must state the nature of any business to be transacted at the meeting in sufficient detail to permit a member receiving the notice to form a reasoned judgment concerning that business.

Quorum required

7.5 Business, other than the election of the Chair of the meeting and the adjournment or termination of the meeting, must not be transacted at a committee meeting unless a quorum of committee members is present.

Quorum for committee meetings

7.6 The quorum for the transaction of business at a committee meeting is 3 Constituent representatives or 60% of the members, whichever is greater.

Lack of quorum at commencement of meeting

7.7 If, within 30 minutes from the time set for holding a committee meeting, a quorum of members is not present,

(a) In the case of a meeting convened on the requisition of Constituent representatives, the meeting is terminated, and

(b) In any other case, the meeting stands adjourned to a time that is agreeable to the entire committee.

If quorum ceases to be present

7.8 If, at any time during a committee meeting, there ceases to be a quorum of voting Constituent members present, business then in progress must be suspended until there is a quorum present or until the meeting is adjourned or terminated.

Validation of proceedings

7.9 The accidental omission to give notice of a committee meeting to a representative, or the non-receipt of a notice by a representative, invalidates proceedings at the meeting.

Chair of Meetings

7.10 The committee Chair is entitled to preside as the chair of all committee meetings.

(a) If the Chair is unable to preside over a meeting, then the Vice-Chair will preside.

(b) If the Vice-Chair is unable to preside, then one of the other representative s will be appointed to preside over the meeting.

Conduct of committee meetings

7.11 The committee may regulate their meetings and proceedings as they see fit. Ordinary business at a committee meeting

7.12 At a committee meeting, the following business is ordinary business:

(a) Adoption of rules of order;

(b) Consideration of the reports, if any, of the representatives;

(c) Business arising out of a report of the representatives not requiring the passing of a special resolution.

Adjournments by Chair

7.13 If the committee agrees to adjourn a particular meeting with scheduled business that has not been transacted, then that business must be transacted at the following committee meeting.

Order of business at a committee meeting

7.14 The order of business at a committee meeting is as follows:

(a) Appoint an individual to chair the meeting, if necessary;

(b) Determine that there is a quorum;

(c) Approve the agenda;

(d) Approve the minutes from the last committee meeting;

(e) Deal with unfinished business from the last committee meeting;

Decision-making model

7.15 At any meeting, every effort will be made to reach each decision by collaboration and consensus. Before each meeting, the committee representatives will utilize various methods including shared electronic documents to collaborate and comment on preparing the agenda. During a meeting, in the event that consensus has not been reached on a particular agenda item, the Chair will call for further discussion, to a maximum of 30 minutes. If consensus still has not been achieved, the item will be deferred to an internet forum where all directors from each Constituent will be invited to express their positions, and where advice will be sought from the Crown's Recreation Officer. At the following committee meeting, if consensus still has not been achieved, then the item shall be abandoned.

Announcement of result

7.16 The meeting Chair must announce the outcome of each decision once consensus is reached and that outcome must be recorded in the minutes of the meeting.

Matters decided at committee meeting by ordinary resolution

7.17 A matter to be decided at a committee meeting must be decided by ordinary resolution unless the matter is required by the Act or these Bylaws to be decided by special resolution.

8. ANNUAL GENERAL MEETINGS

Time and place of annual general meeting

8.1 The annual general meeting will be held each November.

Notice of business

8.2 A notice of an annual general meeting must state the nature of any business to be transacted at the meeting in sufficient detail to permit a member receiving the notice to form a reasoned judgment concerning that business.

Ordinary business at annual general meeting

8.3 At an annual general meeting, the following business is ordinary business:

(a) Receive reports of Coalition's activities and decisions since the previous annual general meeting;

(b) Consideration and approval for full development of proposals for Crown trails projects for the Annual Operating Plan of the next calendar year.

(c) Review Financial Statement(s)

(d) Announcement of Constituent representatives, one from each Constituent, to form the committee in the next calendar year.

(e) Appointment of committee positions.

(f) Deal with new business, including any matters about which notice has been given to the members in the notice of meeting;

(g) Adjourn the meeting.

Election or appointment of committee positions

8.4 At the annual general meeting, committee positions will be appointed by consensus. Where consensus cannot be achieved, each Constituent will be given one vote. In the event of a tie, a coin toss will determine the outcome.

9. PROJECTS & VOLUNTEERS

Project Selection

9.1 A Crown Trails project must align with the Coalition's Constitution and help achieve its goals to enhance, maintain and develop Crown trails on Bowen Island.

9.2 A Crown trails project idea may originate with either the Coalition committee or a Constituent.

9.3 The members from all the Constituents who are in attendance at the Annual General Meeting will determine the feasibility of each proposed Crown trails project within the Partnership Agreement and select the projects that will be completed the following year.

9.4 At any time during the year a Constituent may present a Crown trails project idea to the Coalition committee, and this project may proceed if the following criteria are met:

(a) It aligns with the Coalition's Constitution.

(b) It has established adequate funding.

(c) The sponsoring Constituent has provided a Project Manager. (d) The Crown has approved this project.

Project Management

9.5 A Crown trails project will be managed by its sponsoring Constituent.

9.6 A Constituent will appoint a Project Manager from its membership to oversee the project.

9.7 The Project Manager will estimate the financial, volunteer and paid professional resources required to complete the project.

9.8 The Project Manager, in co-operation with the sponsoring Constituent, will present to the Coalition committee a Project Plan by January 15th of the year following the annual general meeting.

9.9 The Project Manager will request the necessary funds to complete the project, first from the sponsoring Constituent, and then, if necessary, additional funds from the Coalition committee.

9.10 The Coalition committee will take steps to secure any additional funds required from other Constituents and, if necessary, the Crown to sustain and complete the project.

9.11 The Project Manager will organize volunteer work party events and ensure that all volunteers

(a) Receive appropriate project orientation.

(b) Have signed a waiver of liability in accordance with the Crown's requirements.

(c) Comply with Government regulations pertaining to activities on Crown trails on Bowen Island.

9.12 The Coalition may, from time to time, develop additional project management guidelines to facilitate Crown trails projects.

10. INSURANCE

10.1 The Coalition assumes no liability whatsoever. Each Constituent is responsible for providing insurance coverage which it has determined is sufficient for its Board of directors, and this includes the individual who serves on the Coalition committee.

10.2 The Crown provides the Coalition with insurance coverage it deems sufficient. However, a Constituent may purchase supplementary insurance coverage to satisfy its risk tolerance with respect to its participation within the Coalition on Crown trails projects.

Schedule 1

Bowen Trails Coalition Letter of Understanding

<Constituent> hereby notifies the British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development (the "Crown") of the following:

(1) <Constituent> has entered into a coalition comprising four (4) Constituents: Bowen Island Horse Owners and Riders Association, Bowen Island Trail Society, Bowen Trail Riders Association and Rotary Club of Bowen Island Society, for the express purpose of entering into

a Partnership Agreement with the Crown in order to maintain and upgrade Crown trails on Bowen Island according to the Crown's standards.

(2) <Constituent> is in agreement that this partnership of constituents is an entity registered as 'Bowen Trails Coalition Society' (the "Coalition").

(3) <Constituent> understands the Crown will circumvent the standard Partnership Agreement application process by adopting the application for a Partnership Agreement with the Crown which was completed by the Rotary Club of Bowen Island in 2016 and assigning the Coalition as the signatory in its place. <Constituent> wishes to thank both the Rotary Club and the Crown for their consent to this arrangement.

OR, as applicable -

(3) The Rotary Club of Bowen Island completed a Partnership Agreement with the Crown in 2016 in respect of Trails management on Bowen Island, and hereby assigns all rights and obligations under this Agreement to the Coalition.

(4) <Constituent> understands that completion of the Trails Environmental Screening Tool (TEST) document is not a prerequisite for activating the Partnership Agreement with the Crown, since the Rotary Club of Bowen Island's Partnership Agreement application was initiated before the TEST document was created.

(5) <Constituent> will co-operate with each of the other Constituents to meet the Coalition's obligations to the Crown with respect to its requirements as stipulated in the Partnership Agreement.

(6) <Constituent> agrees to share only the operating costs of the Coalition equally with each of the other Constituent members of the Coalition. These costs include, but are not limited to:

a. cost of registering the name "Bowen Trails Coalition Society".

b. annual finance charges, including banking and accounting fees.

(7) <Constituent> will assign one of its members as a representative of the Coalition committee, and this person will co-operate with each of the other committee representatives in the facilitation of the Partnership Agreement.

(8) <Constituent> reserves the right to determine the number of volunteers, if any, and the amount of funds, if any, that it is able or willing to allocate towards each Coalition project.

(9) <Constituent> accepts the Crown's liability insurance provisions for Crown trails activities under the Partnership Agreement.

Passed unanimously by the Board of Directors of <Constituent>.

<Name>, <Title>

<Name>, <Title>

(Date)

(Date)

Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: [Kevan Bernards](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: BTC Constitution Copy
Date: January 17, 2020 1:30:00 PM

Hey Kevan,

Could you email a copy of the BTC Constitution to Tom and I? We both don't have access to our database at the office and I can't track down a copy in my emails.

Thanks!



Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

From: s.22
To: [Bradley, Dan FLNR:EX](#)
Subject: BTC minutes March 2019 - Invitation to view
Date: January 23, 2020 8:43:16 PM

s.22

has invited you to **view** the following document:



BTC minutes March 2019

Open in Docs

This email grants access to this item without logging in. Only forward it to people you trust.

Google Docs: Create and edit documents online.

Google LLC, 1600 Amphitheatre Parkway, Mountain View, CA 94043, USA

You have received this email because someone shared a document with you from

Google Docs.



From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: s 22
Subject: BTRA Partnership Agreement Engagement Summary_2019
Date: December 29, 2019 11:15:17 AM
Attachments: [Partnership Agreement Engagement Summary_2019.pdf](#)
[ATT00001.txt](#)

Partnership Agreement Engagement Summary

Name of Agreement Holder Bowen Trail Riders Association _____ Agreement number
____ PA_18DCK _____ -007 _____

Date Form Completed ____ Dec_29 _____ For Calendar Year ____ 2019

Submit this form to the ministry contact person no later than 2 weeks after the end of your Operating Season but in any event no later than January 15 of each year of your Partnership Agreement. This form is also required upon expiry or earlier termination of your Agreement.

Information on this form is collected for the purpose of insurance underwriting and for volunteer engagement statistics.

Complete as accurately as possible based on the records you create and retain for your volunteers.

Services are only those Services set out in the Partnership Agreement during the calendar year, and not any of your other activities.

Total number of individuals who performed Services during the calendar year under age 85 and not employees* of your organization.	Total number of hours of Services performed by all the individuals including employees* and individuals over age 85.
18	480.5

I hereby confirm that the information contained in this Engagement
was prepared.

Summary is true and correct as of the date this report

Signed by an authorized representative of the Agreement Holder



_____ Print name Kevan Bernards

*an employee of your organization is an individual who receives remuneration for providing services set out in the Partnership Agreement and is a Worker as defined by the Workers Compensation Act and would be eligible for compensation benefits from Worksafe BC and therefore ineligible for Accidental Death and Dismemberment coverage provided under the terms of the Agreement.

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: BTRA Trails Strategy
Date: May 20, 2020 1:08:52 PM
Attachments: [Logo2VectorLandscape.pdf](#)
[ATT00001.htm](#)
[BTC Trails Etiquette.docx](#)
[ATT00002.htm](#)
[100308RC5-1b.pdf](#)
[ATT00003.htm](#)
[chapter10.pdf](#)
[ATT00004.htm](#)

Hi Dan,

BTRA has been developing this strategy to help mitigate conflict on the mountain.

This is a rough draft. Is there anything we're missing or should address?

Thanks,

Kevan

Ps we're working on the summary of motorized use on the mountain as well. In speaking to several locals who've moved away, I've learned of a couple other older trails which I found and checked out this past weekend, mapped and included in the inventory Dropbox file as well as an extremely comprehensive study of all Bowen's crown lands for reference. There's still a couple more tracks which I've yet to map but will try to get done soon.

BTRA Trails Strategy

1. Noise

- 95db max muffler/spark arrestor (standard acceptable level in other areas of B.C.

- on popular multi-use trails set times for motorized use (evenings are usually less busy, for instance 4pm on...) if user conflict occurs,

- promote less sound is more ground initiative at the club level and in the local riding community by raising awareness and ensuring club member's machines comply with regulations.

- encourage shift to e-machines as technology and availability allow,

1. Safety

- signage clearly showing what types of trail use can be expected on individual trails and difficulty level,
- riders are bound to the rules which already exist for operating an ORV on crown land found in the Off-Road Vehicle (ORV) Act (Safety, insurance, etc),
- Trails Etiquette Guide will provide clear examples of how to interact in a safe manner with other trail users,
- properly maintained trails and clear lines of sight will mitigate hazards,
- identify trails where one way traffic for motorized would improve safety (South Ridge Express trail, downhill only, upper portion of Two Deadends)

1. Environmental

- complete TEST document for new trails within MtGardner recreation polygon,
- research and compile list of sensitive ecosystems and watershed boundaries,

Source material;

bowenisland.civicweb.net/document/21336

- follow advice from RSTBC, follow the guidelines in the trail builders handbook
<http://www.sitesandtrailsbc.ca/documents/manual/chapter10.pdf>

- proper trail design/maintenance (utilize clear span water crossings, trail armouring, proper drainage techniques),



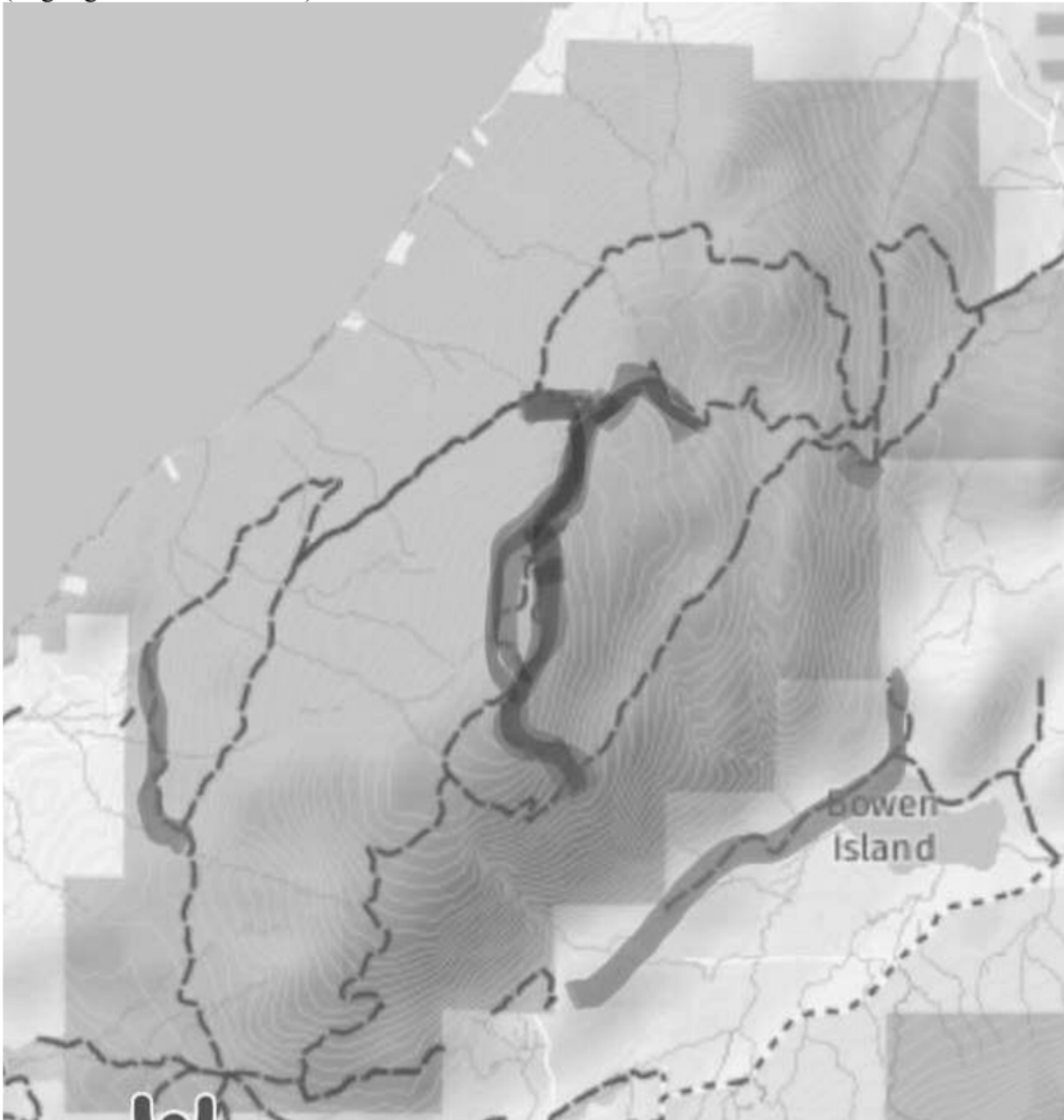
- ensure riders stick to established tracks and trails,
- follow tread lightly protocol Home - Tread Lightly!
- choose routes/reroutes which avoid environmentally sensitive areas (wet areas such as waterways and swamps, mossy bluffs or other areas where sensitive ecosystems or habitats are present, construct bridges or boardwalks over these areas if a reroute is not possible).

1. IDENTIFY TRAILS NOT SUITABLE FOR MOTORIZED USE

-there are trails which are not suitable for motorized use within the Mount Gardner Recreation Polygon. These provide Hikers and other trail users options where they will not encounter motorized users.

- The Summit Trail/loop trail
- Mines Trail
- Handloggers/Summit connector
- South Summit Grind
- Steep Section of Mid-Skid Trail
- Upper Skid Trail

(Highlighted below in blue)





***BOWEN
TRAIL
RIDERS
ASSOCIATION***



BTC MULTI-USE TRAILS ETIQUETTE

RESPECT ALL TRAIL USERS

- All trail users please respect the recreation site and adjoining lands. ORV users please ride quietly when around houses, campgrounds, and other non-riders. Keep the rpm's and speed low and steady. ORV's must have approved spark arrestors, carry third party liability insurance and be registered.
- Keep speed below 20km/h when traveling trails with limited visibility and below 5km/h when traveling within 15m (50') of a non motorized user, watch for kids and animals.
- ORV's, cyclists and equestrians avoid creating excessive dust and noise.
- Do not operate vehicle, horse or bicycle in a careless way that may endanger people or property.
- Always be courteous to other people.
- All trail users please stay on the trail and respect private property.

TRAIL CONDUCT & RIGHT OF WAY

- Be part of the Trails Community; respect the experience of other users if you want them to respect yours.
- ORV's yield the right of way to hikers, bikers, and horses. Except on steep difficult hills where momentum may be difficult to regain and potential trail damage could occur. Pass with extreme care in these circumstances only if trail user has yielded the right of way and it's safe to do so. Communicate with horse rider and confirm that it's ok to pass.

- When passing horses stop your vehicle. Take off your helmet and calmly say hello. All other trail users avoid any sudden movements. Let the horse pass. Or if passing a horseback rider, alert the rider to your presence by calmly calling out you wish to pass.
- ORV operators keep your speed down to avoid making dust when passing other trails users.
- When in a group, make sure you are not blocking the trail for other users.
- People traveling downhill should yield to those traveling uphill.
- Let others know you are approaching them, especially if from behind.
- If people announce themselves from behind you, move over to the right to make sure they have enough room to get by.
- ORV operators, equestrians and cyclists should keep to the right side of the trail to avoid oncoming trail users.
- If you take your dog, make sure you can control them.
- Keep to marked trails and tracks and resist the urge to establish new ones without proper planning and authority.
- Park ORV, bicycle or horse and walk to sensitive, historic, scenic, and cultural areas, do not trample sensitive vegetation.
- Participate in trail maintenance. Give back to your trails.

RESPECT THE ENVIRONMENT

- Respect all wildlife.
- Respect the Environment as a whole. We want the next generation to be able to enjoy it as we do.
- As should everyone, clean up after yourself. Don't litter.
- If you can pack it in, pack it out.
- Clean-up the mess left by others.
- Avoid damage to the environment. Protect both the land and the water.
- Stay on the established trail, no shortcuts and avoid trail braiding and widening.
- Be aware, our wetlands are important and sensitive areas benefit both wildlife and people.
- Use existing bridges and structures to cross streams, or cross at right angles away from spawning areas where the substrate particle size is cobble or larger or bedrock.
- Do not ford a fish bearing stream. Check with local authorities.
- ORV operators do not spin your tires unnecessarily on loose climbs as it dislocates the soil and can cause drainage issues.
- Follow the Environmental Stewardship Guidelines.

PLEASE BE SAFE & RESPONSIBLE

Promote good trail stewardship. Know your limits. ORV operators, cyclists and equestrians ride within your abilities, in a controlled manner using common sense.
Treat others the way you would like to be treated.

Please enjoy the trails!

Adapted from ATVBC trails etiquette guide for the BTC by BTRA.





BOWEN ISLAND

VACANT CROWN LAND PROFILES

Draft for review – May 15, 2008

**Trust Area Services
Islands Trust**

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10.1 Introduction

Ministry of Forests' recreation trails, like recreation sites, are managed for the public. In the province of British Columbia there are many players involved with recreation trails ([Section 1.1](#)). Ministry of Forest (MoF) recreation trails should complement the programs of other agencies and the private sector by providing recreation opportunities that are not available elsewhere.

The overall image created by MoF recreation trails should be one of quality rustic trails in natural settings. Trailheads, and structures (bridges, cabins, signs, etc.) must complement and blend with the natural setting, rather than contrast or dominate it.

This chapter focuses on recreation trail management and defines the Ministry's role in providing part of the spectrum of recreation opportunities for the public. It sets out the management procedures for this very visible and capital-intensive component of the recreation program. An overview of recreation trail management is shown in [Table 1](#). This table identifies the phases associated with recreation trail management and the purpose, outputs and responsibilities of each of those phases.

Table 1: An Overview of Recreation Trail Management

10.2 Trail Planning

Planning, development and maintenance of trails is the responsibility of districts and regions, and takes place within the

context of strategic and operational planning (e.g., higher level plans, district recreation plans).

Subsequent to this overall land and resource management planning process, recreation trails are developed according to the standards and the desired recreation image established in this chapter.

Recreation trail planning consists of the following phases:

- trail concept planning;
- trail establishment; and
- trail assessment.

Comprehensive and detailed planning prevents mistakes, and saves time and money in the long run; therefore, the planning process also extends into trail design, construction and maintenance.

10.2.1 Trail Concept Planning

Trail concept planning is the first phase in the development of a recreation trail. At this stage, broad objectives and the general characteristics of the trail are determined. The concept plan looks to any pertinent plan(s) for direction (especially higher level plans and the district recreation plan).

The concept plan takes many factors into account, including:

- user group requirements;
- ROS class;
- recreation features (including landscape features and existing recreation facilities);
- management requirements; and
- anticipated needs for trail construction and maintenance.

Recreation Opportunity Considerations

Consideration of the setting is important not only in the development of the trail concept plan, but also in the evaluation of the existing trail opportunities. The concept plan should:

- **identify the particular trail development relative to the existing types of trail opportunities present.** For instance, high priority may be placed on developing a cross-country ski trail in a semi-primitive, non-motorized setting if most of the trails in a district are located in semi-primitive motorized or roaded settings with ATV, equestrian and snowmobile use being the dominant trail activities.
- **generally define trail characteristics that reflect the ROS class and the abilities and needs of the anticipated user groups.** For example, it would be inappropriate to consider developing a long and arduous hiking trail in a roaded or rural setting where heavy day use from a broad population base was the primary anticipated user group.
- **sometimes allow for challenging trails in frontcountry areas with roaded or rural ROS designations.** For instance, steep single-track

mountain bike trails for downhill riders may be appropriate between roads providing uphill connections.

The following ROS setting considerations on trail development have been adapted from the *Trails Management Handbook* produced by the US Forest Service. These considerations should be addressed at a broad overview level consistent with the development of a concept plan.

Social Setting	<ul style="list-style-type: none">• Type of use: the mode of travel, mix of user groups and relationship between trail activities, particularly motorized and non-motorized.• Volume of use: anticipated numbers and frequency of encounters between user groups, and the impact of that volume on the physical setting.
Physical Setting	<ul style="list-style-type: none">• Location and overall design of the corridor: the trailhead facilities and associated structures in relation to the ROS class.• Visual management: the viewshed of the trail route and the visual impact of the trail itself on the landscape.
Management Setting	<ul style="list-style-type: none">• Management of trail activities and use relative to any necessary regulatory control, such as signs or barriers (trail location and design may also help to meet these needs).• Trail stewardship: good stewardship as evidenced by good quality construction and maintenance shows management concern and promotes responsible use on the part of the trail user.• Compatibility of other resource management activities (e.g., harvesting) with the intended type of trail use; the following may help to minimize potential conflicts:<ul style="list-style-type: none">» trail location and design;» maintaining visual management practices, including adherence to visual quality objectives; and» timing of either the resource management activity or trail use to avoid peak conflict periods (may involve seasonal trail use restrictions).

10.2.2 Trail Establishment

Trail establishment is the legal process of identifying a trail corridor, establishing a map notation or map reserve over the area, distributing referrals to other agencies, and notifying the public.

Trail establishment procedures are covered in detail in *Higher Level Plans: Policy and Procedures*, a Forest Practices Code publication.

10.2.3 Trail Assessment

A detailed assessment of the trail and the surrounding area is an integral part of the planning process. Examining the natural features of the landscape relative to the expected use can minimize environmental disturbance and, in most cases, enhances user satisfaction. In order to plan in this fashion, the

aesthetic features of the trail area, as well as the physical, biological and landscape features, must be well-understood and documented.

Trail Assessment involves three basic stages:

- Pre-field investigation (incorporating inventory information);
- Trail evaluation; and
- Interpretations of carrying capacity and limitations to trail development.

Each of these stages is discussed below.

i) Pre-field Investigation

Gather as much resource information for the trail and surrounding areas as possible. This includes maps of terrain, soils, vegetation, forest cover, wildlife and aquatics, and information on climate and archaeological or historic sites. Recreation inventories of features and also provide valuable input at this stage.

Preliminary investigation will avoid duplication of effort in the field, will help identify areas of particular concern along the route, and will dictate the type and extent of additional information needed later on. For example:

- terrain maps will identify surficial materials and may indicate hazardous geologic processes, such as avalanche or failing slopes;
- soils maps include information on soil conditions and indicate areas of organic and poorly drained soils, as well as identify slope classes;
- vegetation and forest cover maps may give an indication of understory density and sensitive vegetation areas;
- wildlife maps may indicate areas of potential conflict during the intended season of use, such as caribou calving or grizzly bear feeding areas (knowledgeable experts may need to be consulted); and
- archaeological and historic-use maps may indicate that an impact assessment will be required (knowledgeable experts may need to be consulted).

Wherever possible, use aerial photos and topographic maps as base maps for recording field information, and for the trail layout and design presentation package. Scales of 1:20 000 or less are most appropriate for detailed trail route analysis. If such scales are not available, 1:50 000 scale maps and photos may be enlarged.

The following sources can provide additional information:

- *Maps BC*: Air photos and topographic maps, along with published terrain, soils, vegetation, forest cover, recreation features, aquatic and wildlife maps, and climatic record information;
- *Archaeology Branch*: Archaeological and historic site

information.

Using this information, a preliminary trail route may be plotted onto a base map, tying into recognized points, such as saddles, creek crossings or rock bluffs.

ii) Trail Evaluation

Trail evaluation is an on-the-ground assessment of the area's potential for recreation trail development. The first step in trail evaluation is to determine the preliminary trail route. Procedures for determining the preliminary trail layout in the field are taken from the *Manual for Trail Construction and Maintenance*, produced by the Federation of Mountain Clubs of British Columbia:

Trail Evaluation Procedures

- Take copies of visual and recreation features maps, carrying capacity maps, air photos and topographic base maps to the field. Locate the on-the-ground control points shown on the preliminary route map.
- The intervening sections of the trail should fit between the final chosen control points as well as possible.
- Mark all the trail lines with brightly coloured flagging tape. Place the flagging at close intervals on living trees, preferably around the trunk, tied loosely so that it can be removed and placed elsewhere if a better route is selected.
- Travel the route at least once in both directions at a time of the year when there is no snow on the ground. In areas having a moist or wet climate for at least part of the year, the route should also be examined during the wet season to identify drainage problems that may not be apparent at other times.
- Ideally, three to five people should participate in the preliminary marking and should space themselves out so that each person can be seen and heard by the next. Working together, keep the route as direct as possible. Tape should be placed so that the next two tapes can be seen from any aspect (i.e., those ahead and behind).
- When establishing the route, the designer must constantly consider all pertinent recreational and environmental factors.

Physical and Social Elements

After a preliminary trail route has been identified, the following physical and social elements should be evaluated in the field:

- topography
- soils and drainage
- vegetation
- aspect
- hazards
- natural features
- aesthetics
- access
- potential recreation activities
- ROS classification

- degree of degradation
- limiting factors
- current public use of site/expected use
- water supply/water bodies
- Visual Quality Objectives (VQOs)
- impact on future resource development
- elevation, annual precipitation, biogeoclimatic zones

Another aspect of field investigation for trail development is the evaluation of specific sites along the route that may be used for related activities. These include picnic sites, campsites, toilets, trailheads, viewpoints and interpretation sign areas. Such site considerations are discussed in [Chapter 9](#).

Amount of Time to be Spent	The amount of time spent on each of these steps will depend on the expected use and importance of the trail route to be developed. A high-use trail in a high-profile location will require the most thorough pre-field investigation and on-the-ground evaluation.
----------------------------	---

iii) Interpretation of Carrying Capacity	The amount and type of expected use on a trail will influence the layout and design, as well as construction and maintenance costs.
---	---

Defining Carrying Capacity	Carrying capacity may be defined as <i>the amount of use an area can sustain without undue environmental degradation</i> . It is the physical and biological carrying capacity of the trail as identified by terrain, soils, topography, vegetation, forest cover, wildlife and climatic factors, along with the type and intensity of trail use that determines the overall potential impact on the environment.
----------------------------	---

Recreational use of an area can diminish the quality of both the natural environment and the recreation experience. Concern about overuse causing negative impacts on the ecological and social environments of an area has led managers to try to establish carrying capacities.

Focus is on the Amount of Use	This approach has focused attention on the <u>amount of use</u> and the <u>search for</u> a specific number of people that can be allowed to use an area without causing unacceptable changes to the natural environment or the recreation experience. As the environmental and social conditions along the trail route change, the carrying capacity also changes. Areas along a trail where use is concentrated, such as the trailhead, camping and picnic sites, and interpretive signs, will incur a greater environmental impact than the trail route itself.
--------------------------------------	--

Negative Impacts	Some of the more commonly cited negative impacts on recreation resources include:
-------------------------	---

- the loss of vegetation on trails and campsites;
- camping debris;

- forage impacts from pack animals;
- soil compaction around trees;
- human suppression of fires;
- mining, fishing and hunting; and
- the introduction of non-native species, as well as water and air impacts from both on and off-site human activities.

Other impacts can affect the quality of a recreation experience, such as a preference for solitude while hiking and camping.

Problems with Using Carrying Capacity

Because of these potential impacts, backcountry and wilderness managers have recognized that a key challenge is finding means to effectively protect both physical and social settings.

The carrying capacity of an area can vary depending on the management objectives. An acre of city park can accommodate more people than an acre of wilderness. Secondly, much of the adverse impact of recreational use is not the result of too much use, but rather the kind of use, the behaviour of visitors, and the timing and distribution of use.

The amount of impact caused by a specific number of users can be affected by the activities of the user, the user's level of skill, the pattern of use and other factors. Furthermore, the amount of impact is not always directly related to the amount of use. A little use in a new area may cause a lot of impact, while a lot more use may cause only slightly more impact. Because of these problems, it can be very difficult to identify a specific number as an area's "carrying capacity."

The traditional carrying capacity approach to managing backcountry and wilderness often leads managers to institute a system of use rationing, which is a fairly heavy-handed management tool. The search for a single, magic, carrying capacity number can also misdirect the manager's attention to numbers instead of trying to correct specific problems.

Indications of Excessive Impact

Trail design, construction and maintenance must proceed in consideration of the carrying capacity and anticipated use so as not to exceed the desired level of impact.

Recreational use exceeds this level of impact when:

- environmental alteration occurs to a degree that is unacceptable to management and user requirements;
- an inconvenience or safety hazard exists for the user; and
- an excessive cost is incurred to maintain the quality of the site for a specified use.

Limits of Acceptable Change

The Limits of Acceptable Change (LAC) concept is based on the premise that changes to the ecological and social conditions of an area are going to occur due to both natural and human factors. Acceptance of this premise immediately redefines the traditional question about carrying capacity from "*How much use*

is too much?" to "How much change is acceptable?"

The real concern is the **effects** of use, not how much use is occurring

The goal is to keep the character and rate of change due to human factors within acceptable levels. Or to put it another way, to decide what kind of environmental and social conditions are acceptable, then prescribe actions to protect or achieve those conditions. *"The LAC process recognizes that the real concern is the effects of use, not how much use is occurring."*

LAC Components

The LAC planning system consists of four major components:

1. the specification of acceptable and achievable resource and social conditions;
2. an analysis of the relationship between existing conditions and those judged acceptable;
3. identification of management actions judged to best achieve the desired conditions; and
4. a program of evaluating management effectiveness.

For more detailed information on the current application of LAC, contact recreation staff in the regional offices or Victoria.

Trail Development Questions

The *Trail Manual* produced by the Canadian Parks Service suggests the following questions be asked prior to trail development:

- what is the desired level of use?
- what will be the extent of detrimental impact upon the environment? and
- is this level of impact acceptable?

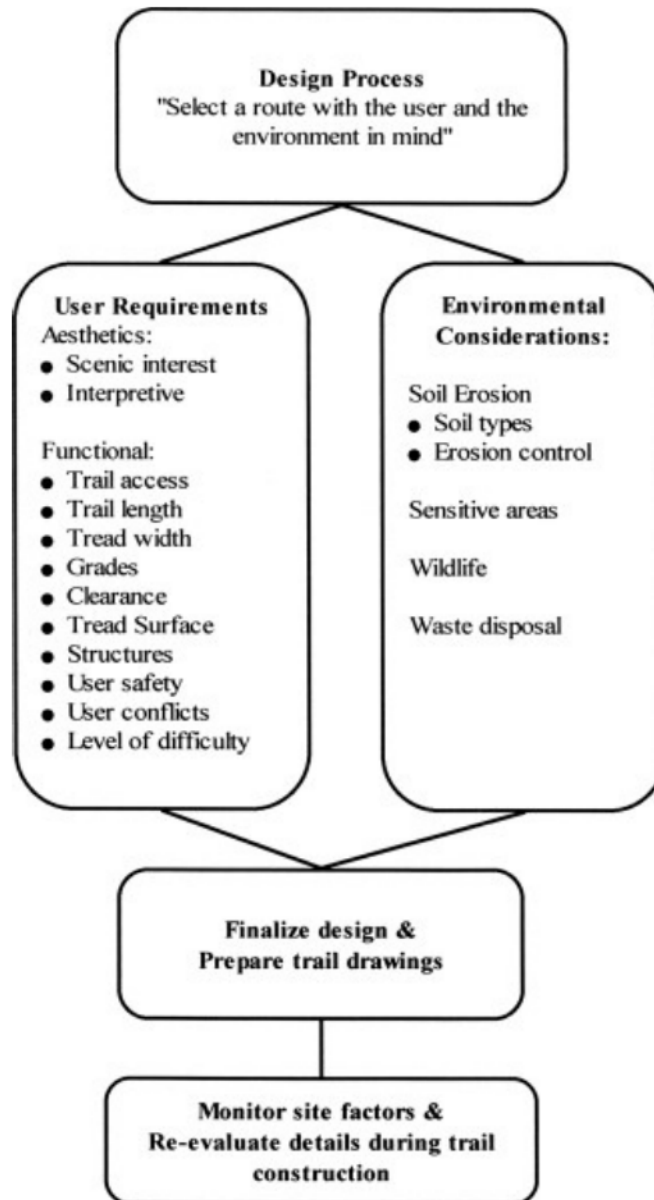
These questions are best answered with thorough knowledge of the environmental conditions along the proposed route. If the level of impact is not acceptable, then alternative solutions include:

- a change in the trail location to a less sensitive area;
- construction measures that minimize degradation, including tread surfacing, drainage control and barriers; or
- changing the type of use (e.g., developing a walking trail rather than an equestrian trail).

10.3 Trail Design

Trail design is the final phase of the trail planning process. Although some design decisions will have been made during the concept planning and assessment phase, the design process pulls together all the requirements into a final, field-checked trail plan that successfully translates the trail concept plan.

Figure 1: Trail Design Process



10.3.1 Principles of Trail Design

Well-designed trails create a harmony between user and location.

While trails may provide access to a destination, they can also provide the trail user with a sense of enjoyment and fulfilment throughout the journey. In many situations, trails are not taken to reach a particular goal; rather it is the joy of using the trail and savouring the trail environment that is the primary recreation experience being provided.

Many day-hikers, for example, fall into this category, seeking a trail which matches their ability level and provides an appropriate balance of effort and reward. The result is a day well spent, and a renewed appreciation of the forests passed

through, views enjoyed and wildlife glimpsed.

This section deals with design guidelines that relate to all types of trail development. The Canadian Parks Service's *Trail Manual* identifies *user requirements* and *environmental protection* as the two major areas of design considerations. The following information has been taken almost entirely from that manual.

Final decisions should be made in the field

Structural items, such as bridges or retaining walls, may need to be designed in the office, and major structures may require advice from engineering staff.

The following, however, should be addressed during field visits:

- clearing, tread widths and types of materials to be used;
- trail length, location, environmental protection measures; and
- number and location of construction requirements, such as switchbacks, boardwalks, bridges, waterbars, and culverts.

10.3.2 User Requirements

Trail location and design, including the structures provided along the route, should meet the needs of the anticipated user group as much as possible.

User requirements include:

- an aesthetic component, which provides a measure of satisfaction through the scenic and interpretive aspects of the trail landscape; and
- a functional component, which provides an ease of movement, sufficient comfort and no worries about the safety aspects of the trail.

These aesthetic and functional requirements must be considered in relation to the interests and abilities of the users.

Construction standards for factors related to trail type will be presented later in this chapter.

Scenic Interest

Aesthetic

Create a variety of views including full vistas, partial openings and closed forest canopies. Use natural openings, such as meadows or marsh edges, for interest and rest areas. Enhance visual interest by providing brief views of a feature, such as a waterfall, before the user is next to it or passes by.

- Align the trail near recreation and interpretive features or wildlife viewing opportunities.
- Design the trail to take advantage of topographic and biological variety; for example, along ridge tops and valley bottoms. Curved sections that fit into existing landforms, such as along ridge crests or the edge of

Interpretive Opportunities	<p>benches, are usually more interesting than long straight sections.</p> <p>Gaining an understanding of the environment of the trail route increases user interest and satisfaction. This should be considered in all trail design and development. However, in the case of interpretive trails, these considerations will largely determine the exact trail route and design in order to facilitate communication with the user through the use of guided tours, interpretive signs, brochures, etc.</p> <p>All trails, wherever possible, should take advantage of views and proximity to natural features, such as waterfalls, outstanding vistas, meadows, large trees, geologic features, etc. Potential overriding considerations, however, such as known bear feeding areas or public safety concerns near cliffs and waterfalls, must also be kept in mind.</p>
----------------------------	--

Trail Access	<p>Functional</p> <p>Trailheads and parking areas are an essential component of trail design. These facilities should reflect the trail design itself, the type of trail activity, the ROS setting and the anticipated user volume.</p> <ul style="list-style-type: none"> • Where several trails begin in the same area, provide a common trailhead as much as possible. • Consider separate trailhead and parking areas for different user requirements, such as hiking and equestrian. • Incorporate snow removal and winter maintenance practices in designing access to winter use trails. • Consider use of non-licensed vehicles, such as trail bikes or snowmobiles, in designing access for motorized trail use (exclude public or private roads that require possession of a licence). • Consider additional parking space for larger vehicles, such as trailers or stock trucks, as well as unloading ramps and the safety of unattended vehicles. <p>In all cases, trailhead and parking areas should be developed using visual management and design practices that minimize their effect on the trail and trail users.</p> <p>For a more detailed description of trailheads and structures, refer to Chapter 9.</p>
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Trail Length	<p>Trail length depends on the type of trail activity, the ability and interest level of the intended users, and the existing terrain conditions of the trail route. Day use bicycle and ski trails will be longer than day use walking trails. Trails for experienced hikers will be longer than those for less experienced hikers.</p>
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Tread Width	<p>The width of the trail tread varies in consideration of the intended trail activity, variable terrain conditions, and whether travel is one-way or two-way.</p> <ul style="list-style-type: none"> • Backcountry (semi-primitive ROS) hiking trails will be narrower than day use (roaded ROS) walking trails
-------------	---

because the volume of use will be less and site modification should be kept to a minimum.

- In rough terrain, tread width may be narrow, requiring single-file use, whereas in gentle open terrain, tread width may be wider, allowing users to travel two or more abreast.

Grades

The slope factors that affect trail difficulty are:

- the degree of slope;
- the length of sustained grade; and
- the proportion of uphill to downhill and level sections along the trail.

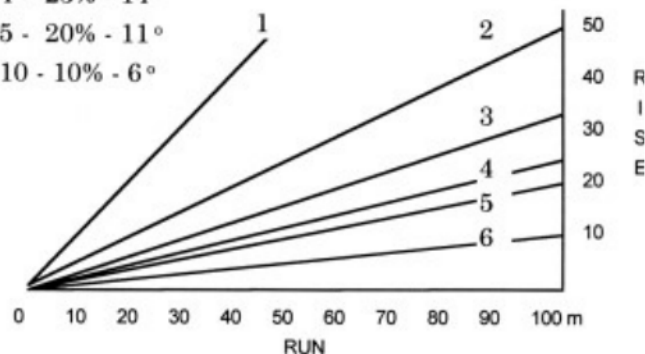
The slope or grade of a particular section of trail is expressed either as a ratio, as a percentage of vertical to horizontal distance (referred to as the rise-to-run), or as degrees of angle. The figure below shows various gradients in terms of ratio, percentage and degrees. On a 1:4 grade, there is a *rise* of 1 to a *run* of 4.

Figure 2 Slope Gradients

Figure 2

Slope Gradients

- 1 1:1 - 100% - 45°
- 2 1:2 - 50% - 27°
- 3 1:3 - 33% - 18°
- 4 1:4 - 25% - 14°
- 5 1:5 - 20% - 11°
- 6 1:10 - 10% - 6°



As in trail length, the type of trail activity, terrain conditions and user ability are the main areas of consideration.

- A variety of gradients, with gentler sections between steep climbs, is preferable to long, sustained grades.
- Switchbacks, steps or ladders may be considered for small sections of very steep slopes.
- For most trail uses, a 20% maximum grade over a maximum distance of 30 metre is desirable. However, if only a few steep areas occur along the entire length of the trail, a greater maximum grade would be acceptable. In general, a slope of 10% is desirable for those trails that steadily gain vertically over a long distance.

Right-of-way Clearing

The width of vegetation clearing should only extend far

enough to provide safe and unimpaired movement along the trail. Unnecessary clearing reduces the aesthetic value of a trail (see [section 10.4.2](#) for further details).

- Branches, shrubs and small trees should normally be removed from the right-of-way.
- If tread surfacing is not used, the existing cover of small plants, turf or surface material should remain intact to help prevent erosion and to keep a natural appearance.
- Trails should be routed around large trees and shrubs or plants of interest.

Trail Tread Surface

The trail tread may consist of existing surface materials, or it may be constructed from materials added to the trail bed once the leaf litter and surface soil have been removed.

Several types of surfacing materials may be used (*for a detailed discussion of various tread surfaces, see [section 10.4.2](#)*). The selection depends on user requirements, aesthetic and ecological compatibility, and the costs of construction. Wood chips or gravel may be used for a hiking trail, but special needs trails may require compacted crushed stone. The type of surfacing used should blend into the landscape and reflect the setting. Generally, use of indigenous materials causes less ecological concern and is less costly.

Given suitable soil conditions, foot trails can be resurfaced with only a minimum of material.

- Light gravel (25 mm thick) rolled or tamped into the trail surface should give adequate durability.
- Sandy soils may require mixing with a small portion of clay or limestone dust to bind the soil particles.

Less suitable soil conditions, anticipated heavy use trails, or special needs trails require more substantial surfacing.

- Wet soils require a barrier between the soil and the surfacing material so that the surfacing is not compressed and lost into the soil.
- Fir or spruce branches may be used in areas that are not too muddy.
- Synthetic fabrics that allow passage of water and yet separate the surfacing material may also be used, but these are costly.
- On very wet muddy areas, a layer of logs may be required.

Structures

Structures commonly used along trails include bridges, boardwalks, steps, signs and barriers. Their design must take into consideration trail activity, user volume and safety, terrain conditions and setting, and the aesthetic experience being provided.

Structures must be appropriate for the experience being provided. For example, a well-constructed bridge with handrails and steps may be inappropriate in a backcountry setting where trail users are experienced and expecting a primitive setting. Similarly, a single log bridge in an area used by families may not

be suitable.

Detailed drawings of standard structures are shown throughout the rest of this chapter.

Bridges & Boardwalks

Bridge location and design should take into consideration stream flow characteristics, bank and stream bed erosion potential, fish habitat, peak run-off periods, snow loads and ice conditions. Adequate clearance must be provided on navigable watercourses to allow for boats.

The functional requirements of the trail will determine a bridge's structural strength, width, need for railings, and the type of construction material used for decking. Bridges on equestrian trails or in areas of moose wetland habitat should be strong enough to support large animals.

Steps

Steps are used on short, steep trail sections, particularly in high-use locations, to ensure user safety and help prevent erosion. On trails where a wide range of users is expected, step design should take into consideration comfort and safety factors. A series of short flights of 14 steps or less with ample landings in between is preferable to a single, long flight.

Barriers

Barriers may be necessary in trail design if the trail location itself does not provide adequate safety from hazardous situations, such as cliff edges or rapids. Barriers may also be necessary to protect sensitive areas from traffic or to prevent inappropriate use (e.g., vehicle access to non-motorized trails or mountain bike use on hiker-only trails).

Railings and walls form barriers that vary in height depending on their purpose. Stiles and dodgeways form barriers that may be used to block motorcycle access to foot trails. Bollards placed across the entrance to bicycle paths will block access by cars and trucks. As with most other structures, barriers may be constructed of logs, timbers, stones or boulders, depending on the availability of materials. Ditches across a trail may also be used to control access.

User Safety

User safety considerations include hazardous terrain features (such as cliffs, danger trees, avalanche zones or swift rivers) and hazardous wildlife areas (such as known bear feeding areas). Safety precautions should suit intended user ability and attitudes, as well as the environment. Overly protective trails with excessive railings and barriers downgrade the user experience and the natural character of the landscape.

Trailhead information signs or brochures outlining potential hazards and necessary precautions are essential and, in some instances, may reduce the need for safety structures on trails. Where serious hazards exist during certain seasons, such as grizzly activity or avalanching, trails may be closed for a period, or users directed to alternate trails.

Trails should avoid known areas of bear habitat (e.g., soapberry or equisetum communities, avalanche slopes, or fish spawning areas) and should be designed so that surprise encounters are

unlikely. Avoid noisy waterways or sharp bends in densely vegetated areas. Assessment by a professional biologist is recommended in areas frequented by grizzly bears.

User Conflicts

Wherever possible, single-use trails are the best choice for both trail builders and trail users. Design and construction can be focussed on particular requirements, and one user's experience will not be adversely affected by the presence of another.

Hikers, mountain bikers, and horse riders often find themselves sharing trails. On Forest Service trails, self-regulation (assisted by signing and user education) is the practical option to strict enforcement. A user Code of Ethics designed for cyclists, pedestrians and equestrians has been developed by the Outdoor Recreation Council of BC.

Level of Difficulty

Level of difficulty is a subjective rating based on many variables, including the fitness and attitude of trail users. It is also a very useful consideration when planning a trail for a particular user group.

A level of difficulty rating will primarily reflect trail grade and distance; but a trail rated as "moderate" by a group of day hikers carrying only lunches may be a strenuous trail for backpackers with full loads.

Recreation trail planners will need to consider such variables and be flexible with design standards in order to create intended recreation opportunities. Level of difficulty is based on the hardest element of a trail; i.e., a moderate trail with a single difficult section would be rated "difficult."

10.3.3 Environmental Considerations

Trails that adversely impact their environment will not only have a low aesthetic value for their users, but also a high maintenance cost to the supporting agency. Trails, therefore, should be designed with consideration both for their environment and for their users.

- Where trails cannot be located away from sensitive soils or poorly-drained areas, provide for boardwalks, tread surfacing or trail drainage.
- Trail clearing should be skilfully done and not be excessive. Users will not enjoy travelling a cleared swath when all they require is reasonable passage through an interesting forest area.
- In areas of heavier use, or in sensitive areas, toilets must be provided.
- Trail routing, signing and appropriate facilities can help direct users to areas hardened to withstand the impacts, and away from areas that will show the impacts of accumulated use, such as lake shores and alpine meadows.

Soil Erosion

Erosion is a natural process in which soils are worn away by the action of wind, water, glaciers and other natural phenomena. On trails, this natural process is agitated by soil compaction and the almost constant churning agitation of hiking traffic. Mountain bikes and horses especially cut into soft and wet trails, greatly

increasing the erosion process.

Soil erosion is one of the most frequent types of environmental disturbance on trails. It affects the longevity and usefulness of trails, increases maintenance costs, detracts from visual quality, degrades plant and animal habitat, and may affect safety.

Effects of erosion include:

- loss of surface materials;
- root exposure, resulting in physiological stress to plants and, in the case of trees, susceptibility to windfall;
- stream sedimentation, resulting in damage to spawning beds, increased turbidity, and adverse effects on flow regime and stream flora and fauna;
- contamination of water supplies; and
- failing slope through slides and slumping.

Soil erosion is likely to occur on trails where surface runoff is not properly controlled, where trail grades are too steep, and where surface water is not diverted off the trail.

Soil Types

Some soil types are more susceptible than others to erosion.

Fine-textured soils:

- dry out slowly after rains;
- become muddy with trampling in wet conditions;
- are susceptible to compaction and subsequent surface water ponding in level areas; and
- are susceptible to erosion, depending on slope and moisture conditions.

Coarse-textured soils:

- dry out quickly after rains; and
- have poor nutrient availability, making vegetation regeneration difficult.

Shallow soils are:

- susceptible to erosion, particularly on slopes.

Table 2
Summary of soil indicators for evaluation of a proposed trail installation

Conditions	Conditions Posing Slight Limitations	Conditions Posing Moderate Limitations	Conditions Posing Severe Limitations
Soil	Depth to seasonal	Depth to	Depth to

Wetness	high water table more than one metre; well-drained to moderately well-drained	seasonal high water table 0.3 to 1 metre; excessively drained	seasonal high water table less than 0.3 metres
Soil Texture	Particle mixture of sand, clay and silt; gravel is 20-50% of content	High sand content; gravel content is 20-50% of content	High clay content; no gravel
Soil Structure			Hardpan is less than 0.3 metres from soil surface; peaty, mucky soils
Soil Depth to Bedrock	> 1 metre	0.5-1.0 metres	< 0.5 metres
Slope	0 - 0.5% (< 1:20)	5 - 20%	> 20% (> 1:5)

Erosion Control

The design process can incorporate recommendations to minimize soil erosion. Details of the prescriptions, and where they occur, are described in the final trail plan.

Locate trails in areas least sensitive to erosion. If this is not possible, minimize erosion by using appropriate construction measures.

Ensure proper control of drainage water on slopes by:

- avoiding steep sections susceptible to water runoff;
- orienting trails across slopes on the diagonal, or use switchbacks to climb steep slopes;
- incorporating natural grade dips into the trail surface so that drainage is diverted at frequent intervals;
- using steps or ladders on steep slopes, making sure drainage water is diverted from the top of steps; and
- sloping the cross-section of the trail tread approximately 2%, or 4 cm per 1 metre of tread width to redirect water.

Drainage Across a Trail

Depending on the level of surface runoff, trails can be designed to help water flow off the surface and/or be intercepted and channeled away.

When surface runoff is low, it can run directly across the trail surface (figure 3). When surface runoff is high, the tread cross-section should be crowned, with a ditch on the uphill side to lead water to grade dips, culverts or waterbars (figure 4).

Figure 3: Drainage across a trail (low runoff)

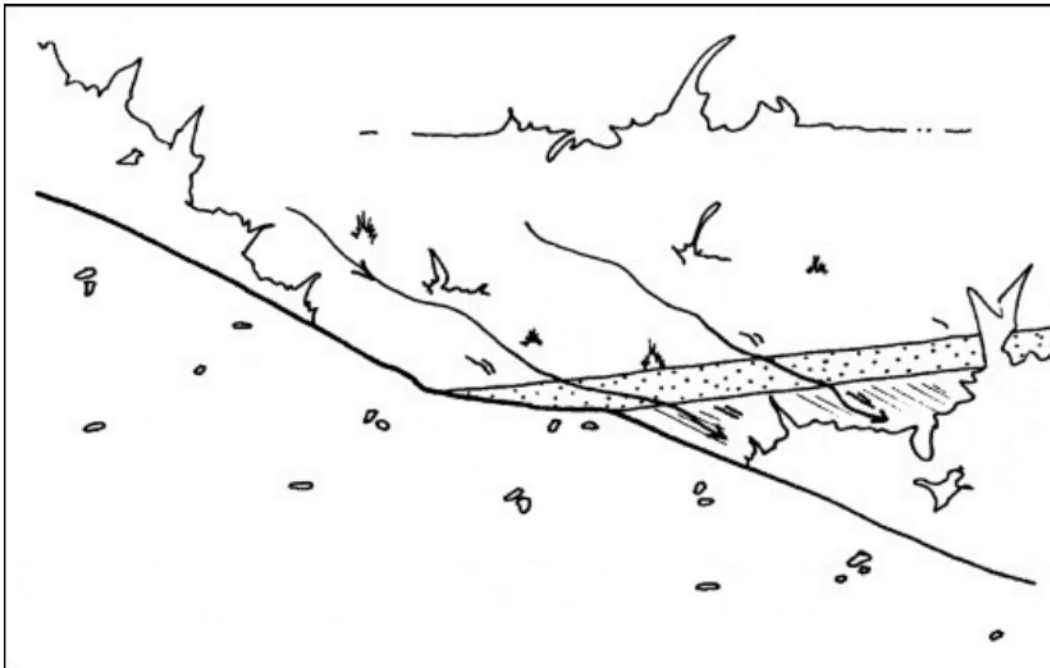
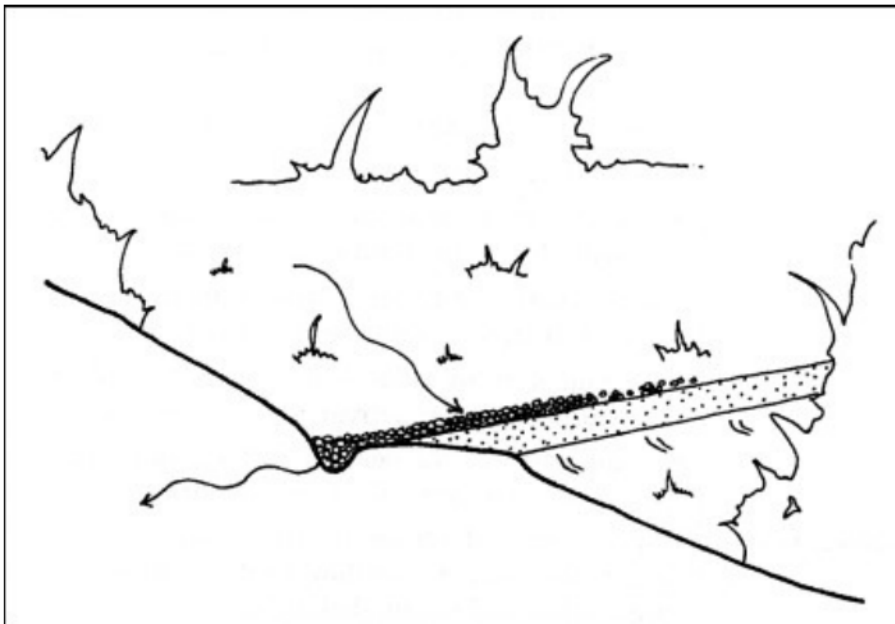


Figure 4: Drainage intercepted (high runoff)



Waterbars

Waterbars (or cross drains) intercept water running down the trail tread and direct it off the trail. When cross-sloping the trail tread and grade dips are not adequate to control runoff, waterbars can be an effective solution. Trail design plans will indicate sections requiring waterbars and the maximum space between them.

Figure 5: Placement of waterbars

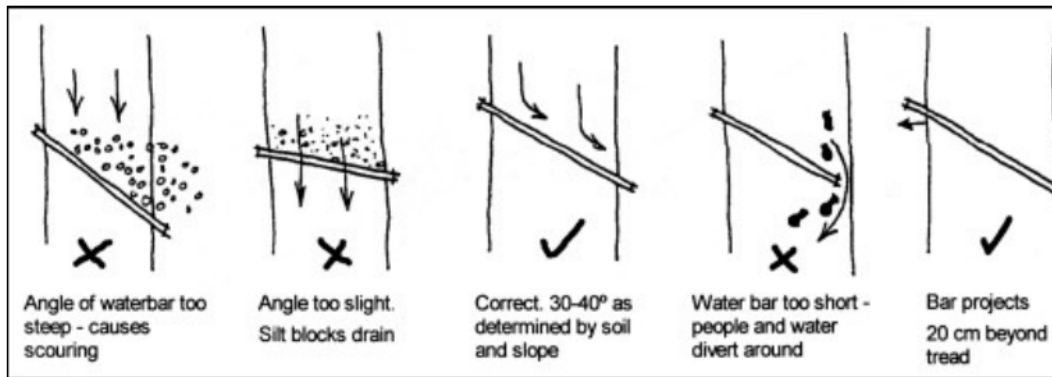
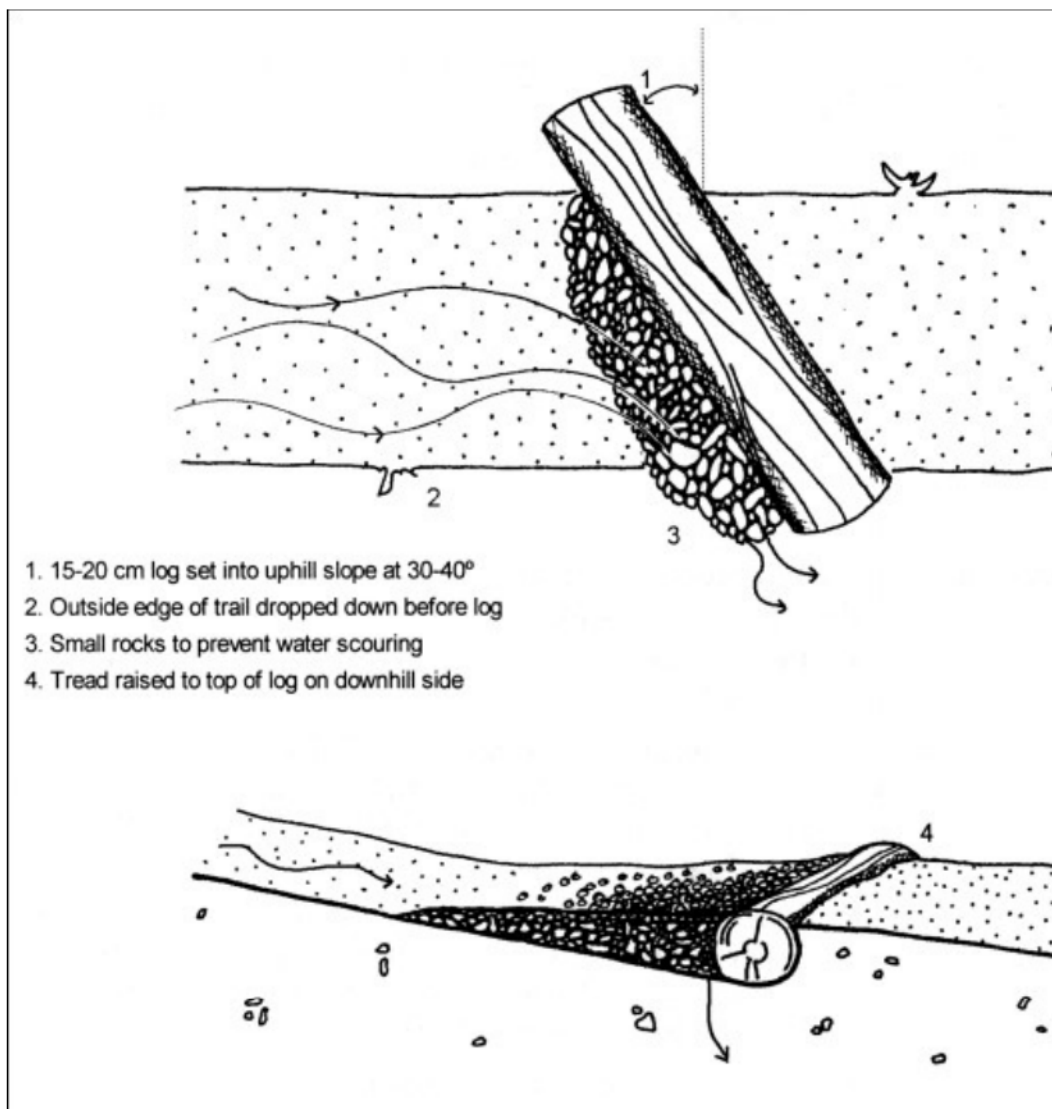


Figure 6: Log waterbar



Waterbars may also be constructed of stones 15 cm or greater in diameter and placed across the trail in the same position as

the log waterbar illustrated.

The following table gives recommendations for the frequency of cross drains on different surficial materials and on different slopes.

**Table 3: Waterbar frequency table
Recommended spacing of cross drains and
water bars (meters)**

Grade in %	2	4	6	8	10	12	15
Loam	100 m	50 m	30 m	25 m	15 m		
Sandy clay	150 m	100 m	75 m	50 m	30 m	15 m	
Clay		150 m	100 m	75 m	50 m	30 m	25 m
Gravel or rounded rock			250 m	150 m	100 m	75 m	50 m
Shale or angular rock			275 m	200 m	125 m	100 m	75 m

Siting of Culverts and Bridges

Ensure proper siting and design of culverts and bridges through the following:

- provide for adequate drainage flow. Bridge specifications depend on peak flows and flood cycles;
- locate bridge crossings to minimize disturbance to stream beds and banks. Those sections of the waterway that are straight, and where bank conditions are stable, are best for crossing;
- use bridges rather than culverts to cross large streams. Culverts may alter flow, cause downstream erosion or silting, and disturb fish habitat. If a fish-bearing stream is involved, the Forest Practices Code must be followed; and
- If culverts are used on small drainage ways, they should be of an adequate size and set at a level that will not interfere with drainage. Rocks should be set around the ends of the culvert to stabilize the fill material and hide the ends of the pipes. Surfacing over the pipes should be a minimum of 10 cm.

Trail Shortcutting and Side-Trampling

These poor user practices promote soil erosion. They occur when users wander off the trail or make shortcuts that cause vegetation and soil trampling. Users take shortcuts where the trail is unsafe or an easier route is visible. Muddy conditions, erosion and deadfalls also force users off the trail tread.

The design process can incorporate recommendations to minimize shortcutting and side-trampling:

- widen trails at feature points, view sites or interpretive displays where use is expected to be heavier;
- define trail edges clearly by using logs or rocks;
- raise the trail tread by using log stringers, tread surfacing or boardwalks;
- use landforms or vegetation to block potential shortcuts;

- move the trail location to the shortcut route if it is superior to the original route;
- close-off potential shortcuts by placing rocks, branches, fallen trees or new plantings to obstruct access;
- use signs requesting that users stay on the trail, or
- minimize the use of switchbacks in trail construction; the use of alternate routes or using steps or ladders may be possible. Shortcutting is not as common in areas of dense vegetation.

Special Areas with Sensitive Features

Special areas with sensitive features include any locations where the presence of humans, or the disturbances associated with building a trail, could impact negatively on the special features. Such features include archaeological sites, areas where rare plants are growing, bird nesting sites and wildlife habitat (see below).

Most wet areas, such as lakeshores, bogs and marshes, are particularly sensitive to being disturbed. If any such area cannot be avoided, and is not critical habitat, it can be crossed using a raised trail bed supported by stringers filled with woodchips. Boardwalks can be constructed across standing water and areas of wet organic soils.

If there are fragile plant communities next to the trail, define the trail edges using rocks or logs.

Wildlife

Areas with identifiable wildlife hazards or potential wildlife conflicts should be identified early in the trail design process - and avoided.

Wildlife hazards occur in those areas where the animals themselves may cause hazards to users, such as areas of bear or rattlesnake concentrations.

Wildlife conflicts can occur in areas such as:

- important waterfowl or marine bird nesting, staging or wintering areas;
- big game rutting, birthing, wintering, migrating or mineral lick areas (may also pose a hazard to the user);
- important fish spawning or rearing habitat, which may be damaged by the removal of trees or shrubs along a river where a trail is proposed; and
- habitat of special importance to rare or endangered species.

Waste Disposal

Disposal of all waste matter is an important consideration in trail design. Litter along the route, garbage associated with overnight camping, and horse and human excrement not only detract from the quality of the trail corridor, but are a health and safety concern. Broken glass, cans, bottle caps and plastic bags are also hazardous to wildlife. Bears that become habituated to human food become a problem.

The design process can incorporate the following recommendations to minimize waste disposal problems:

- an effective management practice is to educate users and implement a "pack-in-pack-out" policy;
- where horse traffic is expected to be heavy, other types of trail use during the same season should be avoided; and
- if designated campsites are located along trail routes, site design considerations must be applied to the use of toilets.

10.3.4 Design Considerations

The following two figures show both poor and good trail design.

In addition, a trail system should use different layouts to satisfy a diversity of recreational needs. Careful design will provide trails for different users with differing expectations.

Figure 7: Poor trail design

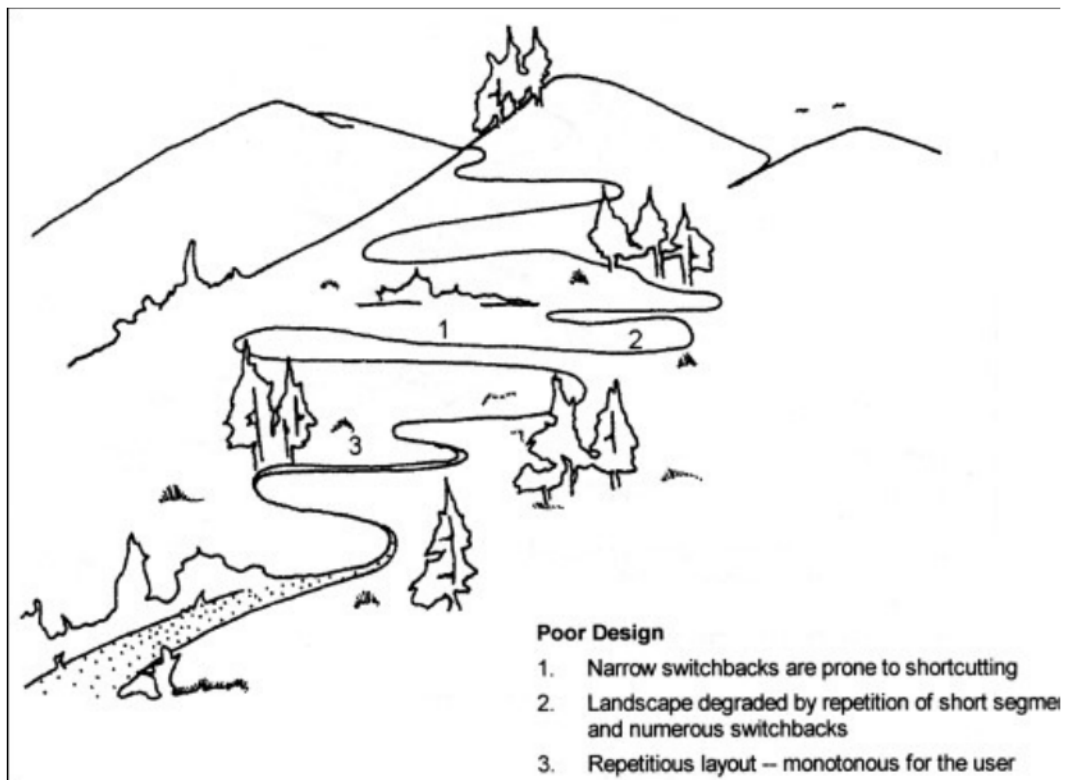


Figure 8: Good trail design

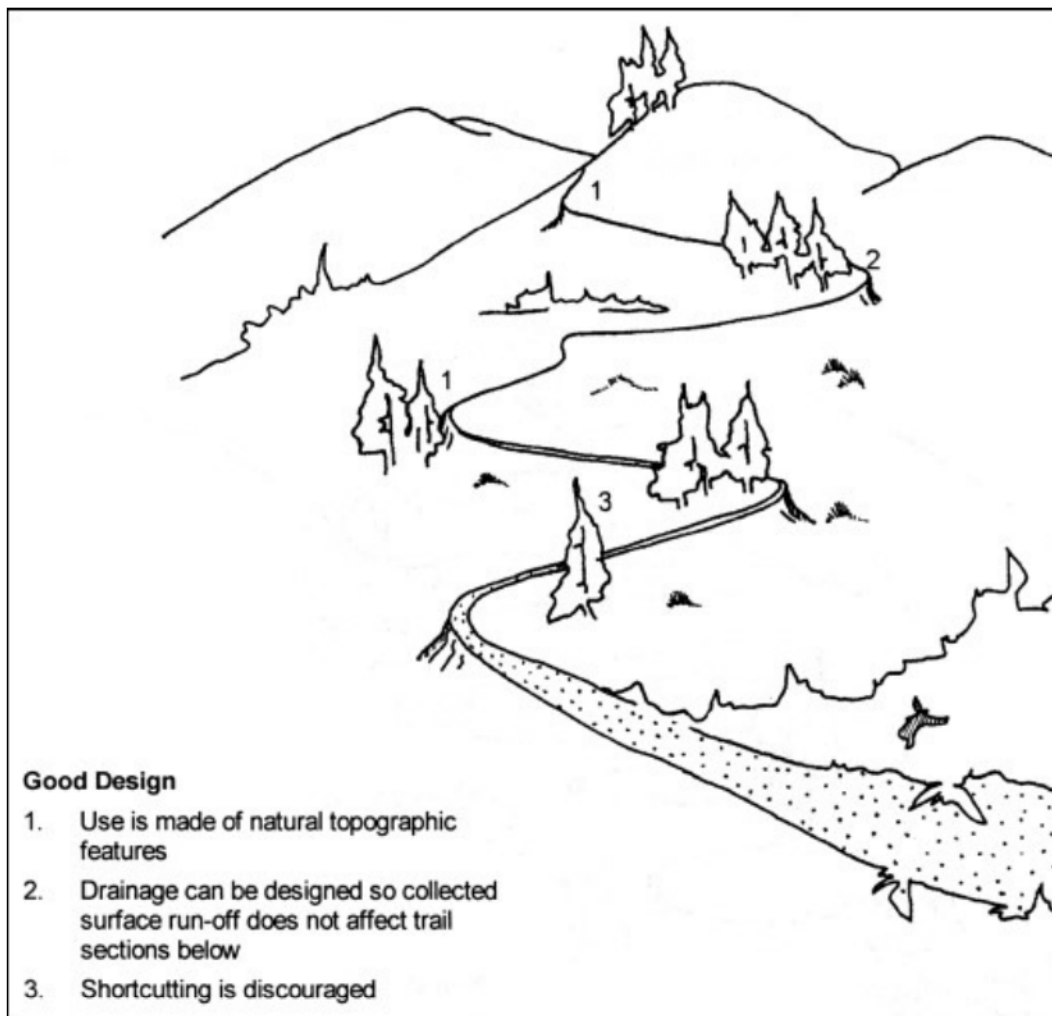
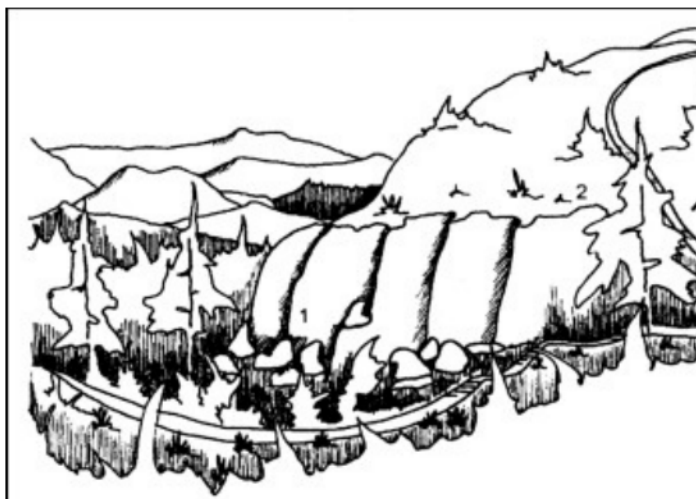


Figure 9: Taking advantage of topography



10.3.5 Guidelines for Specific Trail Classes

The BC Forest Service develops and maintains recreation trails according to the particular experience being provided for the user.

In 1997, the Forest Service adopted the trail classification system being used by BC Parks at the time. This offered several advantages:

- consistent standards and classifications across the province can lead to better cost estimates and maintenance plans;
- trail crews (often employed under contract) could become familiar with trail requirements anywhere in the province, whether in provincial forests or in Provincial Parks. Anticipated results include greater efficiencies and more consistent workmanship; and
- users can gain a better understanding of the kind of experience they could expect, based on the trail type.

Compatibility of use

If trails are to have more than one use, then the trail conditions must meet the requirements of all the expected uses. The compatibility of multiple-use trails must be considered:

- in most cases, motorized and non-motorized use on the same trail is not recommended;
- depending on the volume and season of use, hiking and equestrian use on the same trail may not be compatible;
- bicycle use on interpretive trails or heavily used hiking trails should also be avoided; and
- given favourable terrain conditions and features, many trails may be used in both summer and winter seasons.

TRAIL CLASSIFICATION

Activities

Trails are classified according to the recreation activity they will be used for:

Non-motorized

Foot
Horse
Bicycle
Ski
Interpretive
Barrier Free

Motorized

Snowmobile
Motorbike
All Terrain Vehicle
Four Wheel Drive

Trail Types

The trail standard types range from Type I to Type V:

- type I trails have the highest standards, allowing for the maximum number of users. They have the highest construction and maintenance costs, and will likely have the highest environmental impact; and
- types III, IV, or V have the lowest standard and allow for the least number of users. Construction costs are lower and they are likely to have the lowest environmental impact.

Non-motorized Trail Type Summary

The following guidelines describe the standards used by the BC Forest Service for trail types I to V for non-motorized users, and for level-of-difficulty for motorized users.

ROS Class	Type I	Type II	Type III	Type IV	1
Rural					
Roaded					
Semi-primitive					
Primitive					

Standard	Type I	Type II	Type III	Type IV	1
Highest standard	→				L
Maximum users	→				L
Highest impact	→				L
Highest cost	→				L
Highest maintenance	→				L

Trail Activity	Type I	Type II	Type III	Type IV	1
Hiking	✓	✓	✓	✓	
Bicycle	✗	✓	✓	✓	
Equestrian	✗	✓	✓	✗	
XC Ski	✗	✓	✓	✗	
Ski Touring	✗	✗	✗	✓	
Special Use	✓	✓	✗	✗	

✓ Usually provided by Forest Service

✗ Not usually provided

Foot Trails

Foot trails generally require less development than other types of trails and offer the user a closer association with the natural environment. If uses other than hiking are to occur, then the requirements for the alternate uses must also be accommodated.

Foot Trail Guidelines

Foot Trail Guidelines

Trail Types	Uses	Tread Width	Grade
Type I	<ul style="list-style-type: none"> High standard, short walks 5-30 minute duration 	2.0 m	≤ 8% Average ≤ 5%
Type II	<ul style="list-style-type: none"> Steady two-way traffic Walking trails 	1.25 m	≤ 10% Average

	<ul style="list-style-type: none"> Minutes to 2 hours duration 	5 - 8 %	
Type III	<ul style="list-style-type: none"> 1 - 6 km Single file, hiking trails 1-7 hour day use, overnight and multi-day 	0.75 m	<= 10-12%
Type IV	<ul style="list-style-type: none"> 3-20 km or more Backcountry hiking trails Multi-day Light use 	0.50 m	N/A
Type V	<ul style="list-style-type: none"> Backcountry routes over difficult terrain Overnight to multi-day 	N/A	N/A
Type I Foot Trails	Type I trails are typically used in day-use areas, to access vistas and viewpoints located a short distance from vehicle access, and in the vicinity of campgrounds. The high-use nature of these locations usually requires structures, such as toilets. They may also be used as ski trails in winter if the criteria for those trails are met.		
Type II Foot Trails	Type II trails are commonly used in conjunction with day-use areas, viewpoints, campgrounds, interpretive areas, or as access to back country trails. Many such trails serve dual functions in that they access specific points of interest that may have moderately high use, and provide access to back country trails that have much lower levels of use. Type II trails may also be used as ski touring trails in winter if the appropriate criteria are met.		
Type III Foot Trails	While Type I and Type II trails best fit the category of walking trails, Type III trails serve as hiking trails, for people travelling single file. Type III trail lengths may be 3-20 km or more. Support structures, such as developed campsites and pit toilets, may also be appropriate depending on the length and use of the trail.		
Type IV Foot Trails	Type IV trails are planned as lightly used wilderness hiking trails, for overnight or multi-day duration. Tread widths are only 0.50 metres, and grades are constructed as appropriate to the terrain being accessed. Type IV trails would not normally have support structures, such as developed campsites, but may have pit toilets as required.		
Type V Foot Trails	Type V trails are usually wilderness hiking <i>routes</i> and specific trail development is avoided. Wilderness hiking routes are typically used for overnight or multi-day trips, and may cross very difficult terrain. Signing, campsites, or other structures are not generally developed, although restrictions may be imposed on camping locations for environmental reasons.		
Trail Design Considerations	The length and layout of foot trails is an important consideration, and should be consistent with the type of use the trail will receive.		

The width of necessary clearing and trail tread should match the trail type. Type I trails are the widest, with surfaced treads and Type IV trails are the narrowest with no special tread surface treatment. The clearing width may need to be modified if trails are used as ski touring routes.

Trail structures are designed in accordance with trail types and usage level. Type I trails may need engineered bridges, while Type IV trails may not use bridges at all or use simple two-log crossings.

Suitable campsites and waste facilities should be constructed on Type III trails, while Type IV trails have minimum structure development. Any type of development should be entirely avoided on Type V routes.

Bicycle Trails

Bicycle trails may include both mountain bicycle and road bicycle routes. Casual cyclists have different needs from those pursuing the activity as a challenging recreational sport.

Trails that were previously used only by hikers or horses, are now in demand by mountain bikers. This has led to impacts on other users, the environment, and trail maintenance. Appropriate trail planning and maintenance principles help manage the effects of mountain biking. Trail types for bicycles include both mountain and road bicycles, with Types III and IV suited for mountain bike use only.

Bicycle Trail Guidelines

Trail Types	Uses	Tread Width	Grade
Type I	<ul style="list-style-type: none">Two-way trafficSmooth all weather ridingRoad and mountain bikes	2.5 m	Average 5-8% Max. 10%
Type II	<ul style="list-style-type: none">Two-way trafficOne-way trafficRoad and mountain bikes	2.0 m	Max. 10-15%
Type III	<ul style="list-style-type: none">One-way traffic, easy to difficultMountain bikes 10-20 km	0.5-0.7 m	Easy: 10% over 30m Difficult: 22% over 45 m
Type IV	<ul style="list-style-type: none">Mountain bikesDifficultOne-way traffic30-80 km	0.3-0.5 m	Sustained 15% 25% over 90 m

Type I Bicycle Trails

Type I bicycle trails are typically two-way bicycle paths for smooth, all-weather riding, surfaced with asphalt or chip seal mixes. They are designed for both road and mountain bikes, and are suitable for all types of users. Type I trails may also serve as

	groomed cross-country ski trails if the appropriate criteria are met.
Type II Bicycle Trails	Type II trails are also surfaced two-way bicycle paths, but with narrower widths, steeper grades, and compacted gravel surfaces rather than pavement. Existing old road or railway beds may also be used. Type II trails are suitable for both road or mountain bikes, and suitable for most users.
Type III Bicycle Trails	Type III trails are accessible only to mountain bicycles, and are generally unsurfaced one-way trails. Trail obstacles up to 10 cm high may remain if appropriate. Type III trails may be suitable for ski touring in the winter season.
Type IV Bicycle Trails	Type IV trails are accessible only to mountain bicycles, and are generally unsurfaced, longer, steeper and more difficult than Type III trails. Trail obstacles up to 10 cm high may remain if appropriate. Type IV trails may also be suitable for ski touring in the winter season.
Width	<p>A bicycle's handlebars are approximately 60 cm wide and 75 - 100 cm above the ground. The elbows of a cyclist may extend beyond the width of the handlebars. For this reason, a 3 metre right-of-way clearing width is used for two-way surfaced bicycle trails.</p> <p>A minimum of 2 m cleared width for one-way bicycle trails is used in day-use areas or campgrounds, and a clearing width of 1 - 2 metres is used for the more challenging Type III and IV trails.</p>
Height	A clearing height of 3.5 metres is used on all types of bicycle trails.
Layout and Alignment	<p>Where cycle traffic is to share a right-of-way with automobiles and other motorized vehicles, pavement markings should be used to show boundaries for both cyclists and motorists.</p> <p>Long-distance trails may incorporate minor or unused roads, easements along highways, power lines, railways and abandoned railway grades.</p> <p>Curvilinear alignments with varying types of curves create a more interesting trail and may help to avoid cutting large trees. Sharp curves should be avoided at the bottom of long or steep slopes to prevent cyclists losing control. Straight "run out" sections prior to sharp curves help to reduce speed. Visibility on slopes should be clear to reduce chances of collision.</p>
Structures	
Bridges	Bridges should have non-skid surfaces. Junctions between the trail surfaces and the bridge should be level. Bridges with railings should be 60 cm wider than the trail tread to allow for the overhang of handlebars. In heavy use areas, an extra 60 cm will allow cyclists to stop on bridges without blocking traffic.

Bridges without railings should have wheel stops installed. Wheel stops should be a maximum 15 cm to avoid hitting bike pedals. Bridges should not be located at the end of long or steep grades.

Steps

Steps should be considered for heavy use bicycle trails where grades exceed 10%. Narrow paths or ramps should be built on either side of the steps for users to wheel their bicycles as they walk up or down. Landings should be provided on long climbs. Use of steps requires adequate warning signs and clear visibility, especially from the top approach.

Horse Trails

Horse trails may consist of day-use bridle paths or long-distance routes used by pack and saddle stock. Trails must be designed to consider the environment and the safety of both the rider and the horses. Access to drinking water should be provided at least every 15 km.

Horse Trail Guidelines

Trail Types	Uses	Tread Width	Grade
Type I	<ul style="list-style-type: none">Day use only	0.5-1.5 m: depending on conditions	Average 0-10% Max. 15%
Type II	<ul style="list-style-type: none">1-15 kmDay use or overnight	Same as above	Same as above
Type III	<ul style="list-style-type: none">5-30 kmLow use30-50 kmMulti-day	Same as above	Same as above

Type I Horse Trails

Type I horse trails should be considered as high-use trails, particularly near campgrounds, major trail heads, or other intensive recreation areas. They may provide for short exploratory rides, and are designed to accommodate a steady flow of two-way horse traffic during peak use periods.

Type I horse trails are generally intended for day-use only. They utilize a gentle uniform gradient and a well-compacted surface, with crushed gravel or stone surfacing unless local soils are suitable for high-use levels and are well-drained.

Type II Horse Trails

Type II trails may constitute trunk components of more extensive trail systems. Existing soils are used for trail surfacing, except where surfacing is required to cross wet or fine-textured soil areas. Type II trails are not normally designed to accommodate winter use, except as snowmobile routes.

Type III Horse Trails

Type III horse trails are intended for low use, multi-day duration trips. Beyond their trunk components, they are generally constructed to low standards and may access wilderness zones.

Length	Type I, day-use trails commonly range from 5 to 15 km depending on the terrain and user ability. Additional loop or spur trails may increase the distance and provide a range of terrain conditions. Long-distance Type III trails may cover several hundred kilometres. Campsite intervals may range from 16 to 25 km.
Right-of-way Clearing	Vegetation should be cleared to a height of 3 m above the tread surface, and the minimum width clearance should be 2.5metres.
Tread Surfacing	The surface of horse trails should be fairly even, and rocks or roots that cannot be covered should be removed. Additional surfacing materials will be required in areas of sensitive soils or intensive use. Wood shreds are more suitable than chips. Gravel or crushed stone mixed with the existing soils is also suitable. On intensely used bridle paths in rural settings, crushed stone provides the best surface material.
Structures	<p>Fords are preferable to bridges for stream crossing, provided the velocity and depth of the water is acceptable during the normal use seasons. Water depths of not more than 60 cm are safest. Trails should be routed to cross acceptable natural fords. Ford construction requires a minimum 1 metre wide base from which large rocks have been removed and the stream bottom levelled to make a relatively smooth crossing.</p> <p>If bridges are used over streams or wet areas, they must be able to support the maximum number of loaded horses that may occupy the bridge at one time. Footing should be secure, and if logs are used, they should be flattened on the top. Each log must be secured so that it does not move.</p> <p>Culverts should be covered with a thick layer of surfacing so that hollow sounds are not made when horses are crossing. Corduroy should also be covered with soil or surfacing material to create an even tread.</p> <p>On steep side slopes, rocks or logs may be placed along the outer edge of the tread to prevent sloughing of the trail edge.</p>
Additional Considerations	<p>Horses can cause severe damage to trails in wet areas. Once a trail becomes muddy, further damage occurs as horses detour to the sides of the trail. When possible, routes should be located in areas of stable soils. Trails on side slopes require adequate drainage. Trails in wet areas should be re-routed, bridged or filled.</p> <p>Plant distribution and succession along trails and in grazing areas is disturbed by browsing and trampling. Imported feeds cause foreign plant species to be introduced. Grazing along trails and at campsites should be avoided. Corrals should be provided at campsites and feed should be packed in.</p> <p>The volume of horse use should be monitored so as not to exceed the carrying capacity of the trail. Access to sensitive areas should be prohibited to horse traffic. If foot trails provide access for riders, tethering places should be available at the entrance to the foot trail. Trails may be closed to horse traffic</p>

during spring runoff, after heavy rains or when maintenance is required.

For detailed information on overnight camping, day-use and trailhead facilities associated with horse trails, see [Chapter 9](#).

Ski Trails

The category of "ski trails" includes ski touring, cross-country skiing, and racing trails. Guidelines for ski trails are extensive because climate, exposure, safety and maintenance factors must be considered. The *Cross Country Ski Trail and Facility Development: Construction and Maintenance Manual* prepared by Cross Country B.C. is an excellent source of information and should be consulted in addition to the information outlined in this section.

Ski trail design has evolved into a sophisticated art in recent years, with the increasing popularity of cross-country skiing. Trail planning, design, construction, and maintenance requirements differ from hiking and other summer use trails, although some trail types are suitable for all-season use.

The four trail types within the category of "Ski Trails" may each be divided into *Easiest*, *More Difficult* and *Most Difficult* (or Novice, Intermediate and Expert).

Ski Trail Guidelines

Trail Types Uses	Tread Width	Grade
Type I <ul style="list-style-type: none"> • Suitable for cross-country racing • Easiest • 3-5 km 	<ul style="list-style-type: none"> • Double track • Groomed • Wide curves 	See section on grades below
Type II <ul style="list-style-type: none"> • Day use • More difficult • 5-20 km 	<ul style="list-style-type: none"> • Double or single track • May be groomed • Sharper curves 	See section on grades below
Type III <ul style="list-style-type: none"> • Day use or overnight • May use existing hiking trail where suitable 	<ul style="list-style-type: none"> • Single track • Not groomed • Sharp curves 	See section on grades below
Type IV <ul style="list-style-type: none"> • Ski-touring route • Often undefined route 	<ul style="list-style-type: none"> • Wilderness conditions 	See section on grades below
Type I: High Standard Ski Trail Type I cross-country ski trails include those short and easy trails with good access that receive high use from all levels of skiers. As an optimum, grooming would be done after each major snow fall and a variety of routes would be provided with different		

distances.

In areas with high public support and adequate funding, these trails may be built to cross-country ski racing standards.

Cross-country Ski Racing Trail

Cross-country ski racing trails should conform to *Cross Country Canada (CCC)* regulations on length, grade and width specifications. As indicated, trails may be graded as *Easiest*, *More Difficult* and *Most Difficult* depending on terrain and trail topography.

Type II: Cross-Country Skiing Trail	Type II trails are developed for day-use skiing. They should conform to minimum widths and grades. Optimally, a variety of routes would be provided with different degrees of difficulty and distances, so that a variety of skiing levels and abilities can enjoy the trail system.
Type III: Packed Ski Trail	Type III ski trails are developed for cross-country skiing on a day-use or overnight basis. They are designed and intended for moderate to light use, usually on a one-way loop. Existing summer hiking trails where grades, trail width, and elevation gain or loss is reasonable may be suited for this purpose. Cross-country ski trails are generally not groomed or track-set, but rely on skiers to set tracks.
Type IV: Ski Touring Route	The wilderness skier is a route finder, often using map and compass and not following specific trails. Ski touring routes consist generally of a system of routes over an area undefined by trail markings or grooming.
Climate and Exposure	Trails should be located in areas where snow cover is consistent for several months. A snow depth of 60 cm will adequately cover rocks and logs. Steep, open, south-facing aspects are the first to lose their snow. Open north-facing aspects are more exposed to prevailing winds. Trail location should consider the lee side of hills, wind-sheltered valleys and tree shelter for skier comfort and to reduce drifting and wind-packing.
Length	<p>The total trail length will depend on the number of loops within the trail system. The length of the loops is determined by full or partial day-use and by the ability of the skier. Parks Canada defines the following skier categories:</p> <ul style="list-style-type: none">• slow tourer 4 - 5 km/h• average tourer 5 - 6.5 km/h• fast tourer 8 - 9.5 km/h• racers 9.5 - 13 km/h <p>Overnight trails should provide accommodation at intervals that can be readily travelled in one day. The lengths of these intervals will depend on terrain conditions and skier ability. For</p>

average tourers, intervals of 15 to 20 km may be used.

Grades

Grades on ski trails are one of the factors used to categorize trails into the various levels of difficulty. The three categories of trails include:

Easiest: The maximum grade on downhill runs should not exceed 10%. Slope surfaces should be smooth and curves wide and gentle. Several short slopes are preferable to fewer long slopes because speeds do not become too great and climbing is easier. Descents with steep side-slopes are difficult for novice skiers and should be avoided.

More Difficult: Maximum grades for downhill slopes should not exceed 25%. Curves may be sharp, but ample room should be available for skiers who overshoot them. Downhill sections should not be long enough to let skiers accelerate beyond controllable speed. Up to one-third of the trail may be uphill with some steep but short climbs.

Most Difficult: Maximum downhill grades should not exceed 40%. More curves and rougher surfaces are acceptable. However, long runs on such sections should have more gentle grades. Adequate run-out distance should be provided at the bottom of steep or long slopes. Up to one-half of the trail may be uphill.

On all trails where curves occur on long slopes, the preceding sections should be levelled out or run slightly uphill to allow skiers to reduce speed. Sharp curves should be tilted to the inside. Intersections with other trails or roads should not occur at the bottom of downhill runs.

Right-of-way clearing

Clearing widths for single-lane trails range from 1.5 to 2.5 metres, with the narrower width being used on minor trails only. Two tracks require 3 to 4 metres. Three tracks require 5 metres or more.

Sufficient clearance should be allowed on slopes so that skiers can herring bone or side-step up. This will also provide some safety if skiers fall and will provide room for uphill skiers to step out of the way of downhill skiers. On slopes exceeding 10%, a 3 metre minimum width is recommended.

The clearing height should be 2.5 metres plus the expected maximum snow depth.

Structures and Facilities

Bridges installed on cross-country ski trails increase the season of use. Small streams that freeze solid may not require bridging. Bridge design should be wide enough for tracks and poles, and should be strong enough to support grooming equipment, if necessary. If bridges are high, railings will be required. Engineered bridges may be needed for long spans.

Cabins and Shelters

Cabins may be considered on cross-country ski trails to provide shelter from the weather. Shelters and toilets should be located at main trail junctions or other areas where they can be used by

the maximum number of people.

Signing and Safety Considerations

Signing is an important safety factor in cross-country ski trails. All trails should be signed according to the internationally recognized signs and symbols for cross-country ski trails. For information on cross-country ski trail signs, consult the *Cross-Country Ski Trails and Facility Development: Construction and Maintenance Manual*, Cross Country B.C. and [Appendix 6](#) of this manual.

All trails should be marked at trailheads and junctions to indicate the difficulty level. Trails should also be identified along their routes by names or marker symbols so that skiers do not become lost. Information on trail lengths, layout and cabin/structure locations should be available at the trailhead. Trail markers must be designed to be visible in poor weather and must be placed where they will not be buried by snow.

Safety considerations

Trail locations should avoid avalanche areas and hazardous lake and stream crossings. A minimum of 15 cm hard blue ice is necessary for safe crossing on lakes or streams. Trail location should also avoid dense tree canopies, particularly in tall, old-growth stands. The canopy intercepts much of the snowfall and when temperatures rise, large chunks of snow, ice and possibly branches may fall onto the trail.

Snowshoe Trails

Snowshoe trails are designed using the same criteria as easy hiking trails (Type I and II) or packed ski trails (Type III). Backcountry hiking trails (Type III) that have moderate grades may be designated as snowshoe routes. Sustained steep grades should be avoided.

Short trail loops, not exceeding 2-3 km, may be provided in day-use areas. Snowshoe routes are not compatible with groomed cross-country ski routes.

Special Use Trails

Special use trails generally include the following:

- multi-use trails;
- interpretive and wildlife viewing trails;
- barrier free trails; and
- portage trails.

Multi-use Trails

Recreation activities on trails change over time. Each type of trail has specific standards, but some of the standards are suitable for different activities at different times of the year. For example, Type I and II cross-country ski trails may be suitable for Type I or II bicycle trails. Problems arise when trail standards and user expectations are not compatible.

Considerations for multi-use trails

General considerations for multi-use trails include:

- potential conflicts may be reduced by providing separate routes in critical areas. In a backcountry environment where a hiking trail is also used as a horse trail, separate campsites may be provided with detour routes for the alternate user. In addition, detour routes around fragile areas or excess adverse grades are appropriate;
- foot/horse or bicycle/foot combinations in hazardous areas, such as cliff edge routes or steep exposed ravines, should be avoided, as should blind curves on multi-use trails. Curves and hazardous sections should be widened;
- avoid hiker/horse trail combinations near hiker water supplies, such as creek crossings or campsites. Ensure horse crossings are well downstream of hiker crossings; and
- avoid joint ski/snowmobile use, as these two are generally incompatible. Where access routes are limited, use is light, and trails are wide, joint use may be made if ski tracks are set well to one side. Topographic or vegetation buffers between ski and snowmobile trails helps to reduce noise and exhaust fume impact on skiers.

Interpretive and Wildlife Viewing Trails

The purpose of MoF forest interpretation is *to encourage mutual understanding between the Forest Service and the public regarding forest stewardship to enable the Forest Service to act in the public's interests.*

Interpretive trails should be developed according to interpretive planning principles, and only after an interpretive plan has been prepared for an area, and appropriate themes and messages identified (see the *Forest Interpretation Draft Policy* as well as *Developing Your Wildlife Viewing Site*). Use by bicycles, horses or motorized vehicles should be avoided.

Many interpretive trails are located close to populated areas. Since heavy use and a wide range of user ability are expected, trail design standards must be high in terms of ease, comfort and safety of use. Some interpretive trails may be considered for special needs users and will require wheelchair access.

Location

Interpretive trails may be offered in a wide range and scale of forest settings, from the interpretation of the small pond environment to the interpretation of clearcut logging.

The most interesting interpretive information describes the relationships between the various environmental, cultural and social elements, rather than merely identifying them.

Layout

The most successful trails are designed with a theme focus that allows users frequent stopping space to absorb the interpretive information. The quality of the trail experience depends on how skilfully the route is arranged to provide this sequence of viewing positions.

Loop forms are the most suitable, with spurs and satellite loops providing additional variety. Trail sections with curves and twists

increase visitor curiosity and interest, and provide more surprises than long straight sections.

Grades

The most desirable grades for interpretive trails are less than 5%. Sustained grades more than 10% should be avoided, with a maximum grade for short pitches of no more than 15% for a 30 metre maximum. Where wheelchair access is planned, trail grades should not exceed 5%.

Surface and Width

Tread surface and width should be consistent with the terrain and type of use. 1 to 2 metres is a standard width for interpretive trails. Trails are usually widened at signed locations or separate viewing areas. Trails surfaced with wood chips or wood shreds have little impact on the environment, are quiet to walk on, and have a natural appearance.

Barrier-free Trails

Barrier-free trails, sometimes called *special needs trails* are:

- essentially an adaptation of the standards where access by disabled visitors is planned;
- designed to accommodate users who may be aged, visually impaired, deaf, confined to a wheelchair, requiring crutches or a cane, or who have respiratory ailments;
- generally constructed to the appropriate foot trail standards, but length, grades, structures, and tread surfaces are modified as required; and
- designed and maintained to the highest standards for ease of use, comfort and safety.

Grades

Trail grades of 0 - 3% are preferred, and should not exceed a maximum sustained grade of 5%. Level resting areas approximately 2 metres long should be provided at the end of each length of slope, as well as level areas at all turning points on slopes. Slopes exceeding 5% are considered ramps, and on some interpretive trails should have handrails.

Structures

Where handrails are provided, the top rail should be handy for a person walking (90 cm from the ground), and the lower rail situated for persons in wheelchairs and for children (75 cm from the ground). Rails should be strong enough to support the weight of two or three persons. Handrails help persons in wheelchairs reduce speed coming down slopes.

Maximum grade can be increased to 15% for short distances if two handrails are provided 85 cm apart and 75 cm high. The surface of handrails must be smooth so persons do not scrape their hands (e.g., no projecting bolts or nailheads)

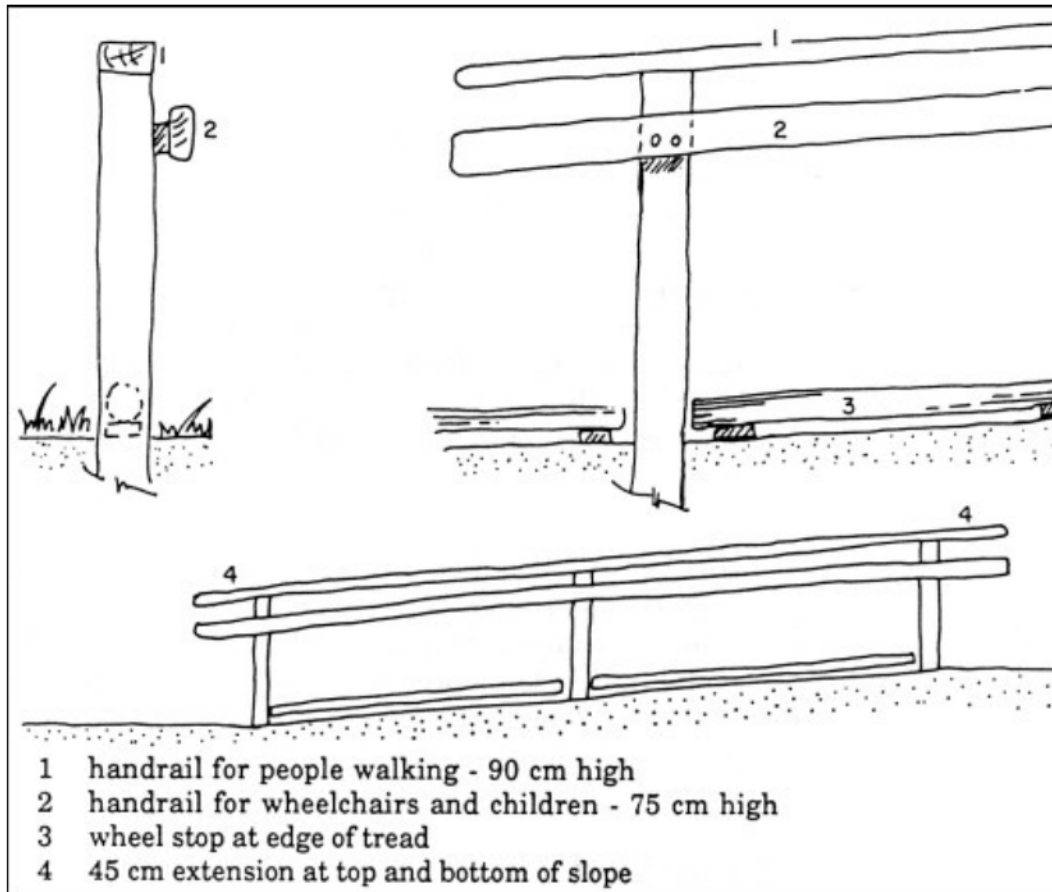
Bridges

Bridges, boardwalks and steps should be wide enough for easy passing and should provide secure footing under wet conditions. The surfaces should be constructed using non-skid material, with the boards laid parallel to the direction of the trail. Parallel decking has fewer cracks and edges and is easier for users with canes or crutches. Steep or long steps should have handrails that extend 60 cm past the top and bottom of steps. If these extensions are horizontal, they will alert blind users to the start

and end of steps.

Bridges where wheelchairs are used should have a smooth transition from the trail surface to the bridge surface. Where handrails are not used, edge railings that extend beyond the ends of the bridge should be installed for wheelchair safety and as a guide for blind people. Consult engineering staff when constructing special needs trails.

Figure 10: Handrails on special needs trails - slopes exceeding 5%



Surface and Width

For wheelchair use on moderately used trails, trails should be 1.2 metres wide for one-way traffic and 2 metres wide for two-way traffic. For minor foot trails, trail widths of 60 - 150 cm are appropriate. For trails where wheelchair use is planned, suitable surfaces should be used, such as asphalt, chip seal asphalt, or boardwalk.

Portage Trails

High-use portage trails should be constructed to Type II foot trail standards, and back country portage trails to Type III or IV foot trail standards. Portage trails should be designed and maintained for ease in carrying or hauling canoes or other craft.

Portage sites must have safe and smooth landings, preferably with sandy or rounded gravel shoreline material, and on rivers,

landing sites should not have upstream or downstream boulders, log jams or other obstructions.

Portage trails should be cleared 1.5 metres wide for portaging canoes and wider if small motorboats or rafts will be used on the route. Sharp corners should be avoided; they prevent easy walking and turning with a standard length canoe. All stumps should be cut flush with the ground and protruding branches flush with tree trunks. Canoe rests, where a canoe can be braced at an angle by single portagers may be provided.

Grades

Portage grade should be consistent with the type of use. On heavily used portages, canoes may be dragged over the route on wheels. Grades less than 8-10% maximum should be used on these routes. On more remote wilderness portages, where canoes will likely be carried, grades should be as level as possible and not exceeding 15-20% over short distances.

Motorized Trails

All the guidelines for motorized trails are adapted from the US Forest Service *Trails Management Handbook*. For details on overnight camping, day-use and trailheads associated with motorized trails, see [Chapter 9](#). Refer to [Appendix 2](#) for information on standard FS structures.

ATV trails

Obstacles and frequent short turns should be avoided on novice trails. Wide-radius climbing turns are preferable to switchbacks. Switchbacks on steep slopes should only be used for difficult trails.

Wet sections and small logs may be used as obstacles on intermediate and difficult trails. Shallow, short, wet crossings 15 cm deep may be used occasionally on novice trails.

ATV trails should be restricted to one-way traffic. If two-way traffic is expected, turnouts will be required.

All-Terrain Vehicle Trail Guidelines

Snowmobile Trails

A multiple loop layout is most suitable for day and partial-day use. Due to the speed of snowmobiles, fairly extensive trail systems may be developed from 24 - 180 km.

If snowmobile routes cross highways, roads or railway lines, the crossings must be coordinated with the appropriate agency. Trail crossing and junctions should be at right angles and should be well-signed from both routes. Level grades are necessary on crossing approaches to permit riders better speed control. No more than two trails should intersect at any one junction.

Potential hazards must be carefully evaluated prior to route development. Snow depth, avalanche potential, light conditions, the possibility of night use, and the presence of cliffs, gates, fences or water crossings all affect route selection.

Snowmobile Trail Guidelines

Grades

Variety in vertical alignment adds interest to the trail; however, it must be used in proper combination with horizontal alignment

to control speed for user safety. If suitable terrain is not available, the 25% grade limit may be exceeded for short distances provided that:

- approaches to the steep portions are horizontally straight, and have gradual grade transitions; and
- the resulting grades do not compromise safety or the enjoyment related to ease of operation.

Four-wheel Drive Trails

These trails generally utilize existing routes that have been constructed for other purposes, such as mining or timber harvesting. Existing routes considered for four-wheel-drive use should meet the requirements for the particular category of trail required.

The degree of trail difficulty changes according to the size of the vehicle. The intermediate level of difficulty for a short wheel base vehicle will be the maximum level of difficulty for a long wheel base vehicle. Having several tight turns requiring five lock-to-lock turns at the beginning of the trail is one method of controlling the class of vehicle using the trail. The rest of the trail should have less tight turns. Two-way traffic should be avoided on four-wheel drive trails.

Four-Wheel Drive Trail Guidelines

10.3.6 Final Design Plan

The final trail design plan translates the concept plan and trail evaluation information into final drawings, construction methods and specifications, cost estimates, and scheduling procedures.

The production of a trail design plan is necessary in order to:

- ensure that the concept plan has been accurately translated into the trail proposal;
- provide a means of communicating what is required to the construction supervisor, Forest Service personnel and public user groups;
- facilitate the final approval of the project; and
- provide a record of the trail development for future operations and maintenance needs.

Final location of the trail should be traversed (preferably using a GPS) to determine the location for referral, clearance and establishment. Construction should not proceed until the trail has been properly established or approved (*Forest Practices Code Act*, Sec. 7 and Sec. 102).

Trail Drawings

The final location of the trail should be shown on the prepared base map of the trail area. Specific recreation and landscape features associated with the trail may be presented on the same map.

The specific location of all the construction requirements, such as bridges, grade dips, right-of-way clearing and switchbacks, should also be shown. The locations of these items may be presented as straight-line diagrams or as log records. They may also be shown on the trail route base map, providing the details can be shown at the base map scale. The following table is an example of a construction log report adapted from the US Forest

Construction Log: Barclay Lake Trail

<i>km + m</i>	<i>Work Item</i>	<i>Remarks</i>
00	begin project	
0.40 - 0.80	remove outslope	
1.50	sand and gravel	
2.8 - 3.10	install log rounds	
4.00	grade dip	

Trail drawings should also include a map of the trail route showing any limitations to trail use or carrying capacity considerations. This will facilitate future design or construction changes.

Construction Specifications Construction specifications should provide all the details of the work required, including

- written descriptions and standard drawings showing dimensions, sizes and configuration of the various construction requirements;
- grade, trail width and right-of-way clearing specifications; and
- estimates of the quantities of each type of trail work. For example, one switchback, 2 m of 30 cm aluminium culvert, seven waterbars, four dangerous trees and snags, and 5 km of clearing. These are essential in developing cost estimates for trail development.

Cost Estimates**10.4 Trail Construction**

After the trail planning and design process has been completed, and project funds have been allocated, construction or reconstruction of the trail can proceed.

The trail construction phase of development should reflect the same degree of thought and consideration as the planning and design phases. Construction practices must meet the specifications and guidelines of the design package.

Well constructed trails ensure user safety and environmental protection and, ideally, should blend into the surrounding landscape. Depending on the complexity of the terrain and user intensity, it will cost less over the long term to construct and maintain trails that are well designed and well constructed.

Trail construction may be undertaken by Forest Service work crews, volunteer user groups or contract crews. All of these options require supervision of a qualified trail construction coordinator. Good supervision involves coordinating the construction and conducting regular inspections to ensure specifications are followed accurately and to maintain quality control. Log records, including contract and/or material payments, must be kept up-to-date and maintained throughout the construction process.

Principles

All trail construction involves basic procedures related to

staking, trail tread construction, clearing, debris removal and building of required structures.

The trail construction process comprises three main elements:

- preparation for trail construction;
- trail construction procedures; and
- trail drainage.

The last two elements are usually taking place at the same time, but since trail drainage is so critical to building a trail that will last and be easy to maintain, it is given a distinct focus.

10.4.1 Preparation for Trail Construction

Preparation for trail construction is based on:

- existing plans (e.g., sub-regional, LRMPs or district recreation plans);
- a clear understanding of the trail Type (I-IV); and
- whether materials are supplied or to be found on site.

Type I and II trails will be in front country and high-use areas where aesthetics and user impacts require the use of prepared building materials, such as dimensional lumber and gravel, and the likely use of machinery.

Type III and IV trails generally have lower levels of use and attracts more experienced users in a back country setting and, therefore, they:

- have an aesthetic value associated with natural materials;
- need trail crews able to make on-site decisions about construction techniques and use of on-site materials; and
- need to blend into the natural setting, except where required for safety or structural integrity.

Specifying Construction Techniques

Trail crews working in back country areas should:

- avoid overbuilding;
- seek to minimize changes to the existing conditions;
- use design details that are simple, functional and complement the natural setting;
- try to avoid stairs and steps built into the trail tread (creates high maintenance commitments, can be difficult to negotiate, and can cause erosion problems);
- use low-level bridges in wilderness zones without handrails; and
- make natural trail markers and signs.

Design and construction details contribute significantly to the cost and effort required for long-term maintenance and as a

Safety

general rule:

- drainage dips require less maintenance than culverts; land
- the cost of routing trails around areas that would require significant structures may be recovered through maintenance savings.

It is important to conduct a job/project safety analysis prior to starting trail construction. Part of the construction planning process includes consideration of:

- regulations and policies regarding personal protective equipment;
- equipment operation safety; and
- regulations pertaining to first-aid equipment and attendants (usually based on number of workers and distance from medical facilities).

Standard safety requirements must be adhered to. For both safety and efficiency, it is often most effective for people to:

- work in small groups; and
- spread out along the marked route.

If everyone works in the same spot, the increased greater congestion can lead to lower efficiency and, more importantly, a far higher risk of injury.

Selecting Construction Materials

Construction materials used for trails are selected on the basis of:

- cost, availability, ease of use, appearance, strength and durability;
- trail type; and
- transportation of materials to the site, minimizing damage to the trail, and maximizing quality of construction.

Native materials, usually wood or rock, are either cut or dug near the trail, but out of sight. This is one of the primary criterion when choosing native materials - that they be unnoticed and subtle.

Wood Materials

Trees should be:

- cut to appropriate length, limbed, and peeled uphill and out of sight of the trail; or
- prepared at the trail and debris removed, if peeled logs are too slippery.

Pressure-treated wood may be suitable, if:

- resources for transportation are available (taking into consideration the long-term, increased maintenance

costs of untreated wood)); and

- not permanently immersed in streams or rivers where toxins can leach into the waters.

Rock Materials

When using rock:

- rock debris not used in trail construction should be removed out of sight of the trail;
- holes left by removal of rock should be filled with dirt, dead brush and other forest litter; and
- avoid cutting bedrock near the trail, so as not to leave a visible scar.

Soil for Fill

When using soil for fill:

- borrow pits can be near the trail, but out of direct view;
- pits should be filled with debris and hidden; and
- it is best to gather materials in several locations to reduce feeder trail damage.

Selecting Trees for Durability

Although choice of tree type may be limited, it is important that the most durable material be selected even when found at a considerable distance from the trail. Some tree species are classed as "naturally durable" as they possess substances produced within the tree that are harmful or toxic to fungi, the organisms responsible for wood decay.

The following chart describes the natural durability and ease of preservation of the most common species in this province.

<i>Species</i>	<i>Natural Durability</i>					<i>Ease of Preservation</i>		
	>25 yrs	>15 yrs	>10 yrs	>5 yrs	<5 yrs	very diff.	Diff.	Mod.
Alder								
Birch								
Cedar, Red								
Douglas fir								
Balsam fir								
Grand fir								
Hemlock								
Maple								
Lodgepole pine								
Spruce								
Willow								
Yew								

Preventing Decay

The fungi responsible for wood decay require moisture:

- Freshly felled timber can contain as much weight of water as wood substance - 100% moisture content.
- Timber with a moisture content below 20% will not decay.
- Once timber is dried to below 20% moisture content, it will not exceed this level simply by exposure to damp air.
- Timber can be protected from increasing its moisture content by the application of water resistant coatings,

Selecting and Preparing Equipment

such as exterior stains. Only a high quality coating with a long working life should be considered because regular maintenance of the coating itself can become costly.

- Timber in contact with the ground is most at risk.
- Pressure-treated wood is particularly recommended for use in high traffic areas.

Equipment resources for any trail construction or modification project must be assembled prior to starting work.

- Type I and II trails - small size mobile construction equipment, such as bobcats, backhoes, small graders and gravel-spreading or asphalt-paving equipment.
- Type III and IV trails - hand tools and small hand-held power tools are the only equipment that can be effectively transported to the site.

Commonly preferred tools for the following jobs include:

- *Clearing a right-of-way through trees and brush:* bow saws, loppers and hand pruners for small cuts, a chain saw for larger cuts, and long-handled axes for general work including bark peeling.
- *Trail grubbing:* mattocks and picks (sometimes combined as pick mattocks) and rakes for finishing.
- *Rock work:* long pry bars; come-a-longs for moving large rocks or heavy logs.
- *Dirt moving:* long-handled, pointed shovels.
- *Log work:* splitting wedges, sledge hammers and peneves.

10.4.2 Trail Construction Procedures

Staking the Route

Staking the trail route from start to finish is the first basic step in trail construction. Stakes should be placed:

- along the entire route before clearing and construction;
- on both sides of the trail showing differences in trail width (only the centre line needs to be staked for minimum standard trails); and
- to define the trail bed to be cleared or excavated (important on curves).

Some trail sections may require design changes depending on site-specific field conditions.

Only the centre line needs to be staked for minimum standard trails.

Identifying the Drainage Requirements

The three golden rules of trail maintenance are:

- (1) drainage;
- (2) drainage; and

(3) drainage.

Even the smallest amount of water going the wrong way at the wrong place can, over time, erode an otherwise well built trail.

Ensuring trails are not damaged by rainfall and surface run-off is perhaps the most difficult and expensive component of trail construction and maintenance. Not all drainage problems can be avoided by careful trail routing, and special techniques may be needed to channel surface water and maintain the trail tread.

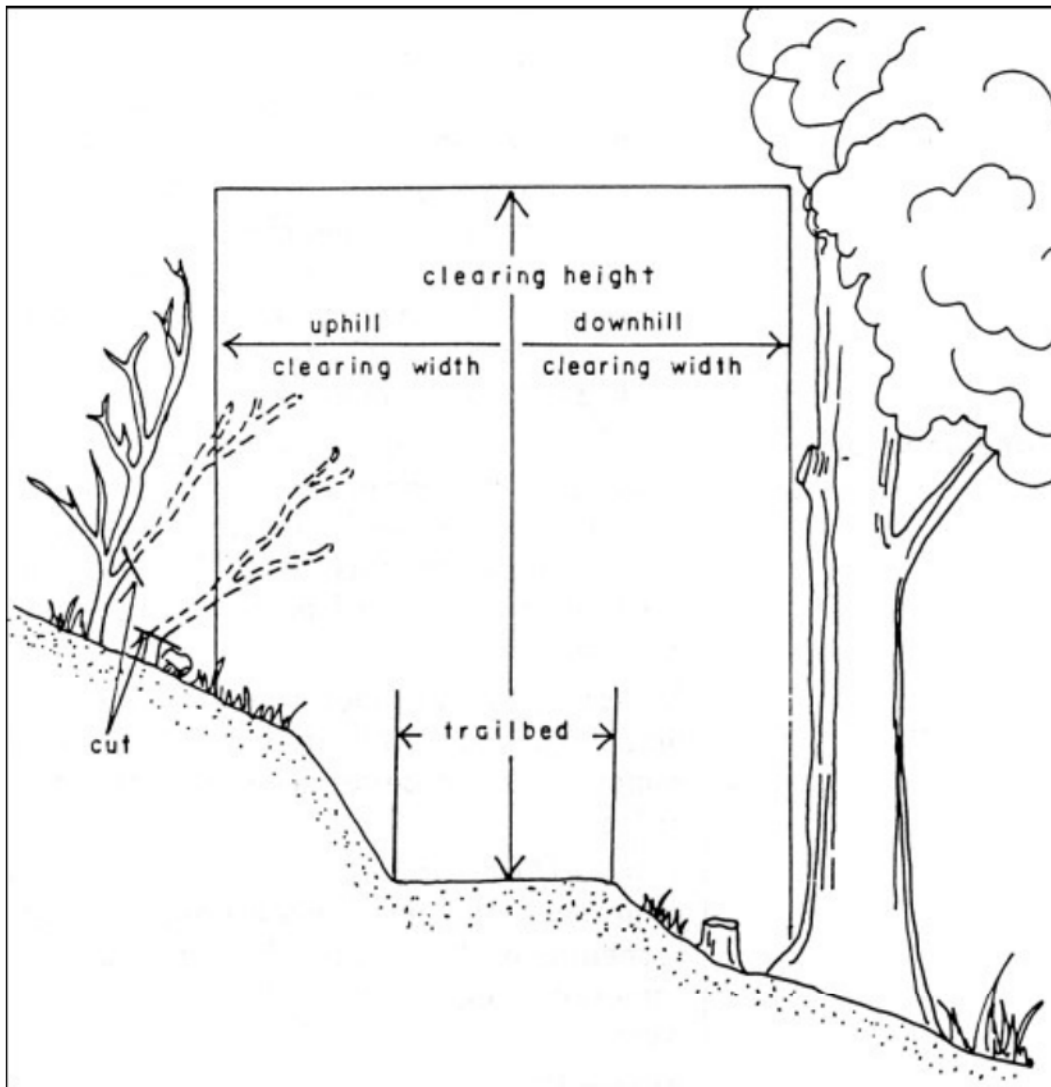
The best way to prevent drainage problems is to identify problem areas *before* the trail is constructed, and to incorporate drainage requirements into the tread construction. Regardless of the type of trail, surface water must not be allowed to run along, or collect on, the tread surface for long periods.

For details on constructing drainage, see [Section 10.4.3](#).

Clearing the Route

With care, it should be possible to avoid large or feature trees when routing trails. Do not cut trees unnecessarily.

Figure 11: Clearing the trail



- If a short treetop has to be removed, it is generally better to remove the whole tree, since removal of the terminal bud will aggravate lateral growth into the trail and leave an unsightly tree.
- Cutting all lateral branches on the trail side of a tree is the second best option, better than cutting off the top of the tree.
- Vegetation is cleared to provide safe and unimpaired movement along the trail. Adjacent shrubs and small trees that will quickly grow back into the right-of-way are removed, as are branches that will obstruct travel.
- The clearing limits will vary depending on the use of the trail. Branches are normally cleared to a height of 2.5 metres on hiking and bicycling trails, and higher for winter use or equestrian trails.
- Stumps are cut flush with the ground and branches flush with tree trunks.
- Rocks should be left in place unless they are numerous enough to be a hazard to trail users or, in the case of

higher standard trails, to construction equipment.

- On bicycle trails and ski trails, all large rocks and obstructions are removed. Small exposed roots are cut back to the trail edge to prevent growth through the trail surface. However, significant cutting of large tree roots should be avoided where it might result in a windfall hazard due to removal of stabilizing root systems.

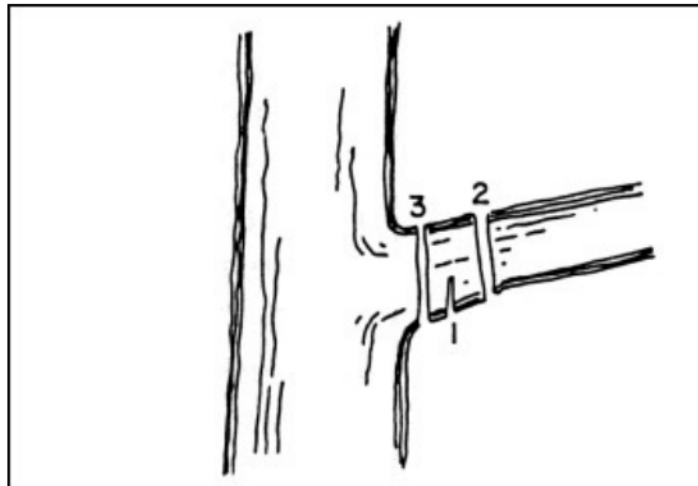
Special Situations

Alpine trails - Judgement and temperance should be used when clearing trails near or above treeline, where the climate is severe and the growth rates are very slow. Trees a metre tall can be sixty or seventy-years-old. Small trees and shrubs at treeline grow in interdependent communities called Krummholz.

Krummholz. The joined roots and branches of these trees help protect the patch of krummholz against wind and cold, so removal of one tree can jeopardize the other trees in the patch.

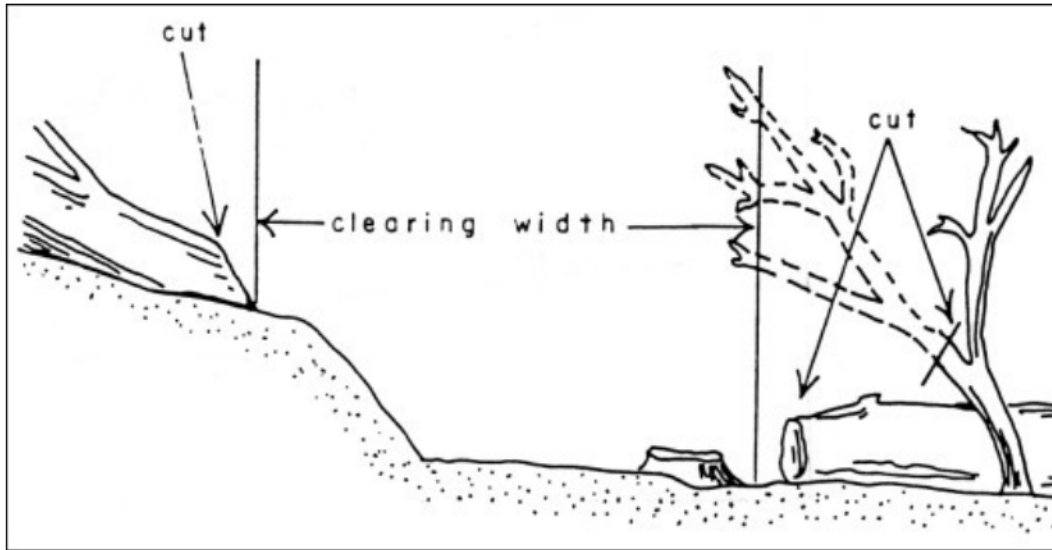
Timber Harvesting - Trails in the working forest are sometimes cut across by a logging operation. Clean up and reopening of the trail involves locating and flagging the trail, then removing all slash and debris.

Figure 12: Removal of large branches



- Large branches should be removed by sawing in three places to prevent tearing the bark.
- Brush over 30 cm high and 1.5 cm in diameter that extends into the clearing limits should be cut flush with the main stem at a branch fork or at ground level.
- Windfall that interferes with the trailbed should be removed or wide sections cut through the trunk. If the tree or snag is too heavy to move, a section that is tread-width plus 30 cm on each side should be cut and removed.
- On sideslope trails, the upper cut should be 30 cm back from the top of the embankment.

Figure 13: Windfall clearing



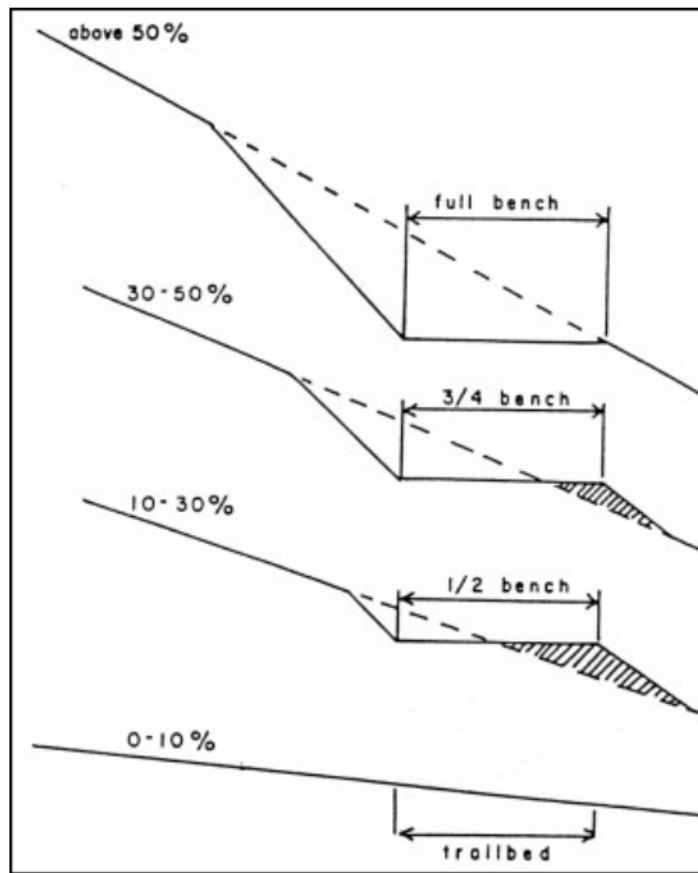
Constructing the Trail Tread Before full excavation and construction take place, a narrow work path is cleared and excavated from the outside stake toward the centreline. This path establishes the grade and excavation line for the rest of the trail bed. If alterations are needed, less time is wasted and less damage done than if the entire trail had to be graded.

No grading is required on level or nearly level terrain.

Side Slopes

On side slopes, trail bed construction depends on the degree of slope.

Figure 14: Trail bed construction on different sideslope grades

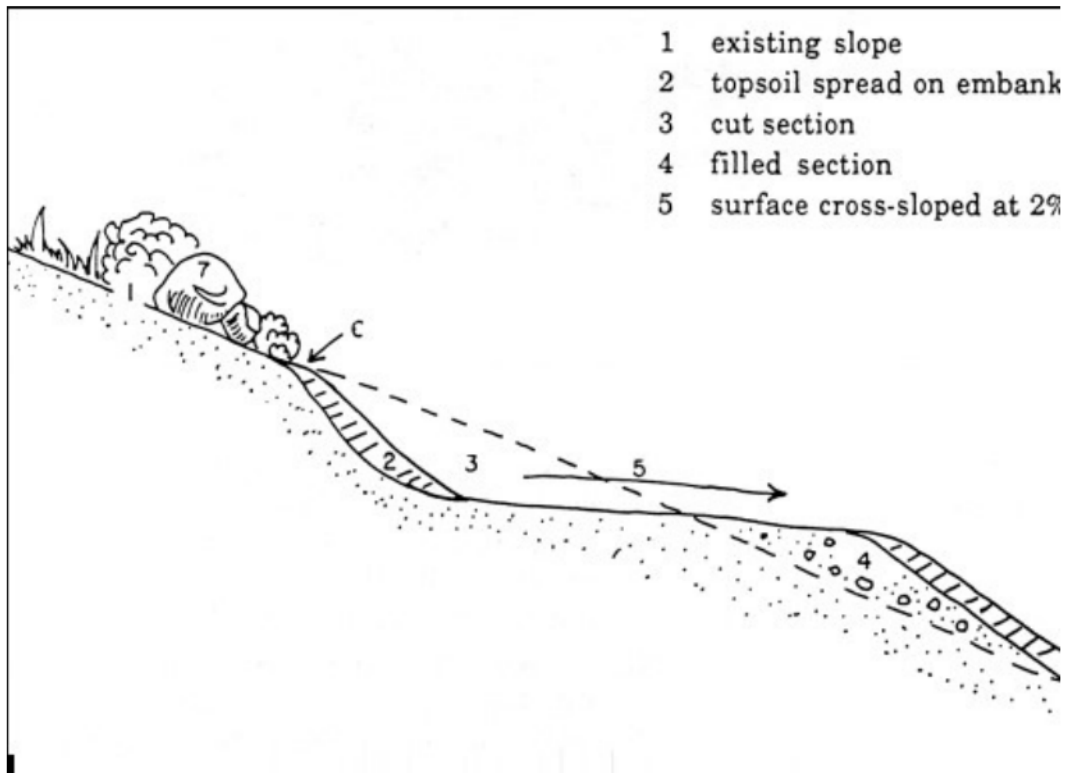


The following considerations apply to trail bed construction on side slopes:

- Leaf litter and surface soil material should be removed from the cut and fill areas, and saved for later use.
- The ideal angle of the cut and fill slopes should be less than a 1:1 slope.
- To encourage vegetation regeneration, topsoil and organic material should be spread on large embankments susceptible to erosion. On steep embankments, netting material, such as jute mesh held in place with stakes, may be required to hold the topsoil and mulch in place.
- Proper rounding at the top of the embankment shoulders is necessary to prevent soil from sliding onto the trail. Boulders, logs and other debris that may fall onto the trail should be removed. Exposed roots should be cleanly trimmed flush with the soil surface.
- The bed of the trail tread should be pitched approximately 1.5 cm per 30 cm toward the outside edge to allow for drainage off the trail.

The following figure shows an ideal trail section with banks and trail surfaces properly sloped and corners of cut and fill embankments properly rounded.

Figure 15: Trailbed construction on a sideslope

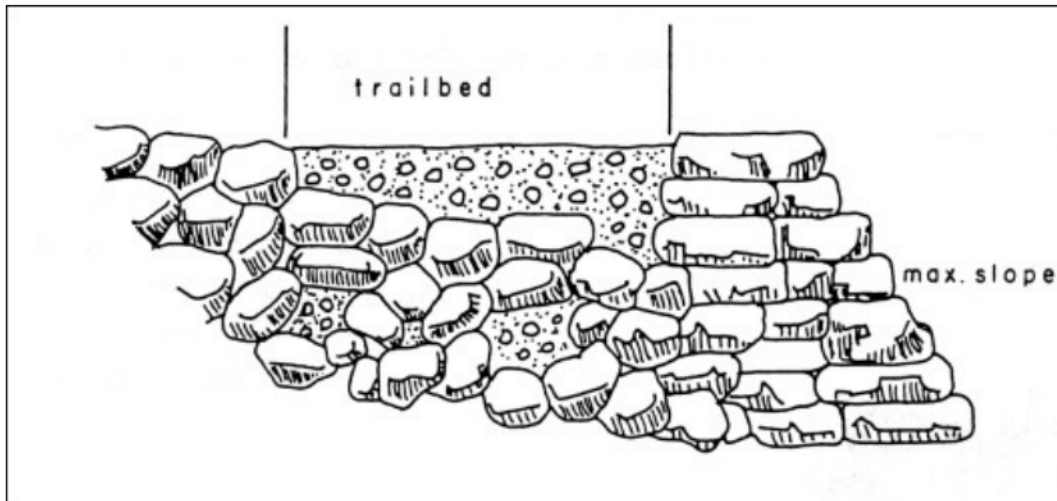


Steep slopes

For narrow wilderness trails on steep slopes, a log may be wedged parallel to the outer edge of the trail against two standing trees. The gap between the log and the slope is filled with small branches, rocks and earth to achieve a shelf for the trail.

On talus or rubble sections where little or no soil is present, the outside trail bench should be made with hand-placed stones, 50% of which are 30 cubic cm or greater.

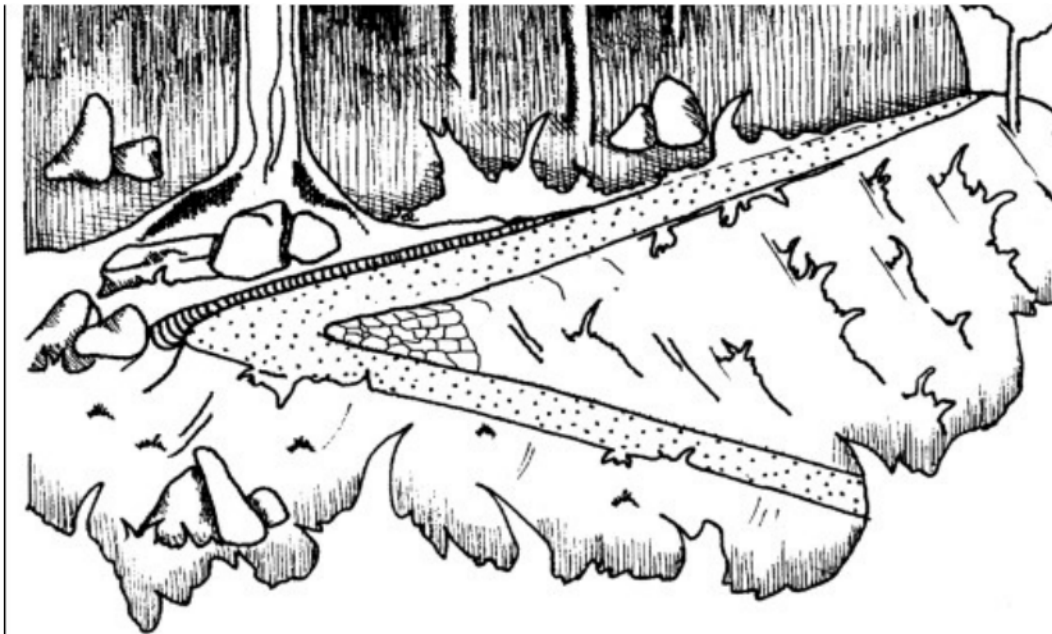
Figure 16: Trail bench construction in talus and rubble

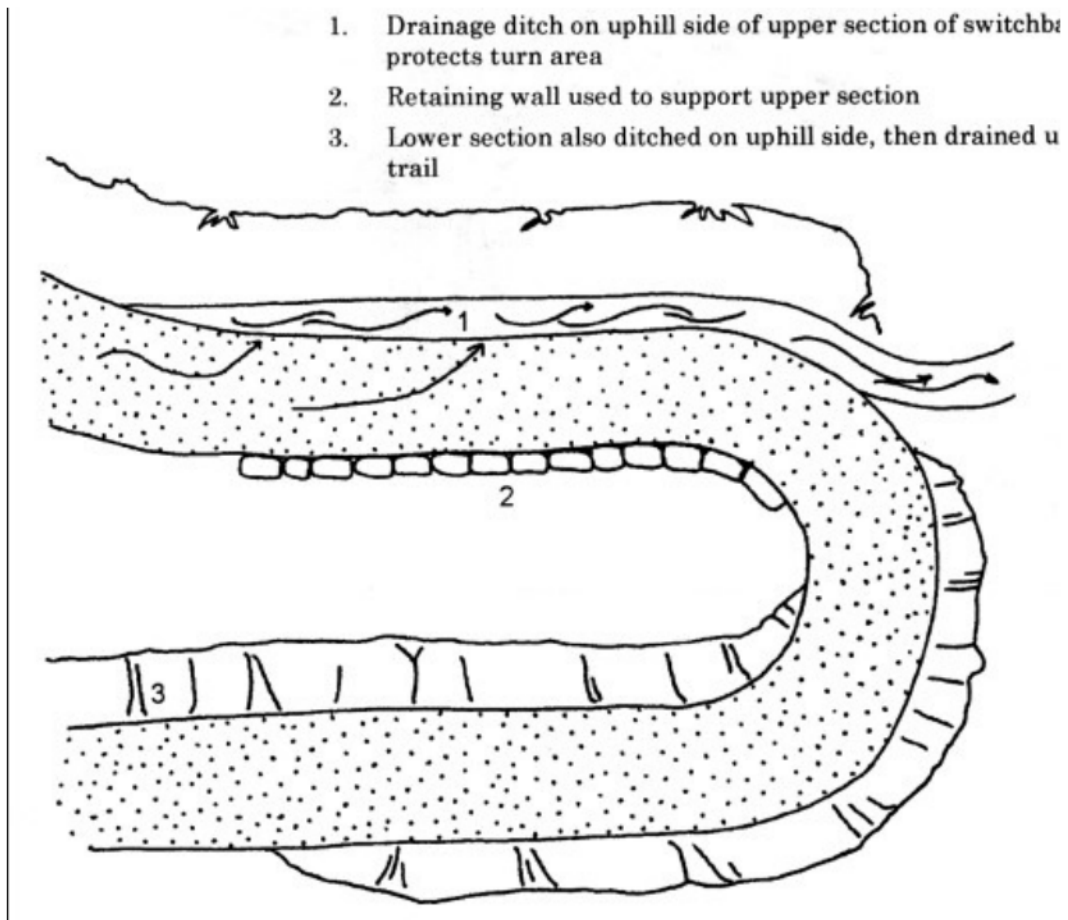


Trail bench construction

- *Trail bench construction in talus and rubble.* The outside bench should be built from rock other than those forming the inside bench. All voids in and under the trail bed surface should be filled with rock and mineral soil deep enough to provide a firm tread.
- *Switchbacks.* Constructing a switchback properly takes careful planning. It is particularly important to steepen the trail grade immediately before and after the turn so that the turn itself has a reduced grade.

Figure 17: Switchback details





Building Retaining Walls

Retaining walls help retain slopes, prevent erosion, and protect trails and users from falling debris. Retaining walls are usually built from logs and earth. The type of retaining wall constructed usually depends on the strength required and the type of materials available.

The following figures show retaining walls built from three different types of materials: log, timber and dry stone/rubble.

Figure 18: Log retaining wall

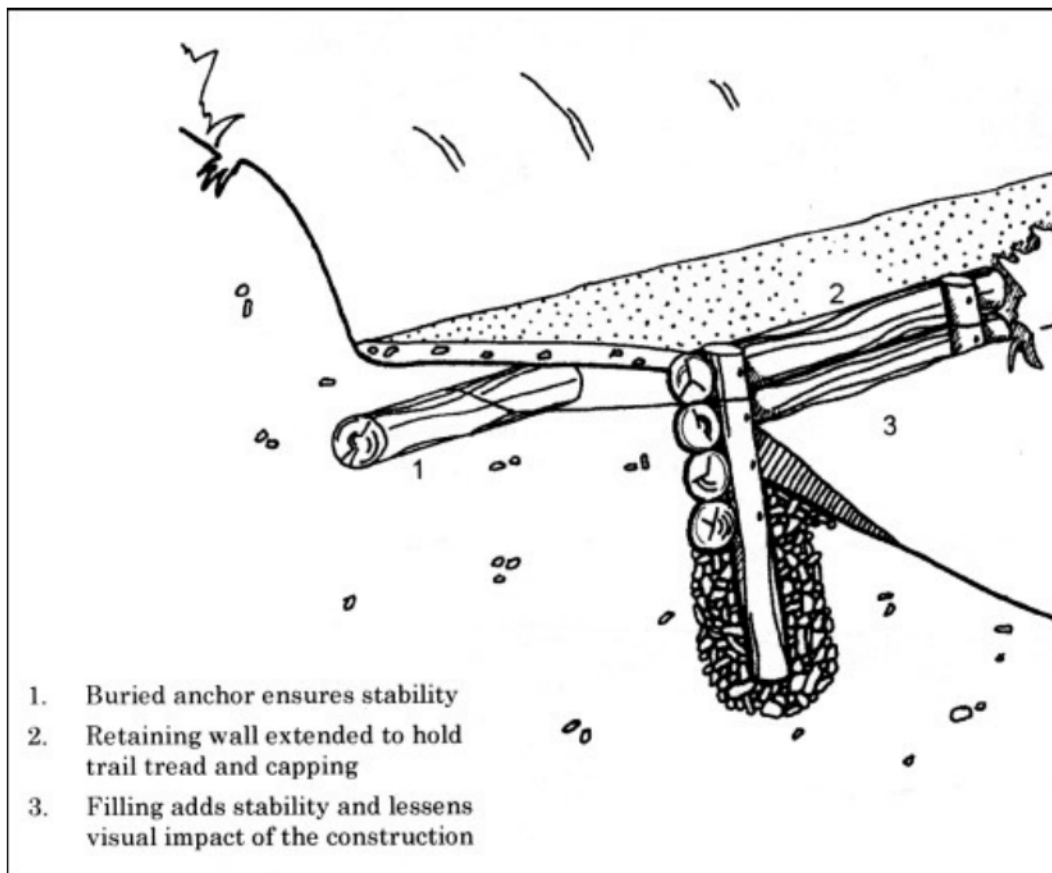


Figure 19: Timber retaining wall

1. Buried cross beams ensure stability
2. Gravel backfill drains water to lessen pressure on retaining wall
3. Timbers lean into slope and are pinned, for stability

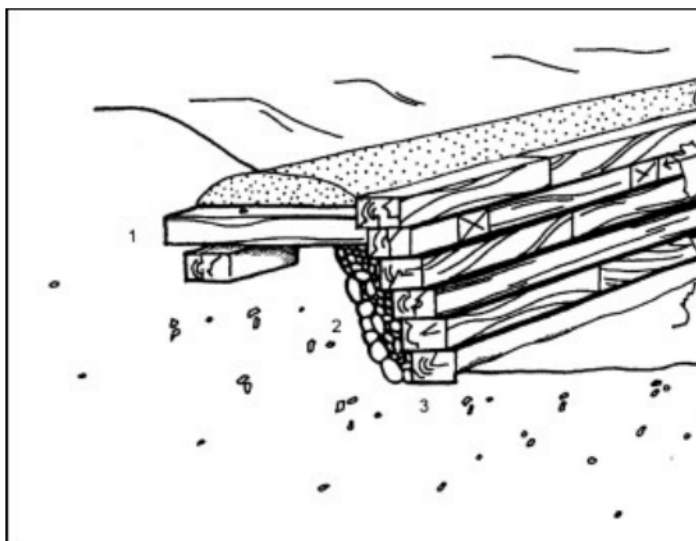
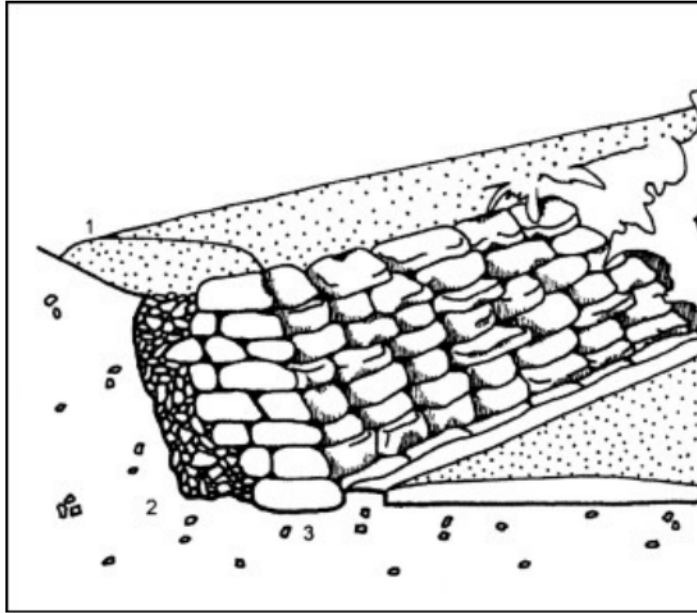


Figure 20: Dry stone retaining wall

1. Retaining walls are often used to support upper section of a switchback
2. Gravel backfill helps

drainage

3. Ditch at base of wall helps protect lower section of trail from run-off



Preparation of the Tread Surface

On level or nearly level areas where soil conditions are suitable for trail use, the leaf litter and surface soil should be left in place.

In situations where surfacing material is required, the leaf litter and surface soil material should be removed from the tread area. This material should be used on the edges of the trail along the embankments to encourage vegetation regeneration.

Roots:

- Small roots should be cut back to the trail edge to prevent sucker growth through the trail surface.
- Large tree roots should not be cut if it would result in windfall.
- Cuts should be made cleanly, flush with or just below the ground surface.

Subsoil should be compacted to provide a firm base for the surfacing. Where compaction of fill materials is not possible, additional material should be applied once natural settling has occurred.

Tread Surfacing

The best tread surface is generally obtained by planning the trail route over the most suitable soils. Requirements for importing surfacing materials can be minimized or eliminated by locating trails on well-drained, coarse-textured soil. **Avoid clay, organic soils or pure sand soils.**

The types of materials used for trail tread surfaces are described below.

Native Soil Materials

An existing cover of native sod will remain intact after light pedestrian use, but heavy use will result in a mineral soil tread.

Native sod should be removed only if the soils are coarse.

Some excavation of the trail bed may be required before a new surface is applied if the original surface is made up of fine soil. After excavation, crushed gravel or a similar local material rolled or tamped down to compact can then be applied. Mixing clay or fine limestone with sandy tread soils will bind soil particles and provide a firm walking or riding surface.

Wood and Bark Chips

Wood chips and bark blend in well with natural surroundings and are quite comfortable to walk on. However, wood chips have several disadvantages:

- not usually firm enough for bicycles or special needs trails;
- scatter easily;
- do not compact well;
- may become slippery when wet; and
- not suitable for sloping trails.

Wood and bark shreds:

- require less maintenance and compact better for easier walking; and
- should be suitable for the trail tread, e.g., hemlock, spruce, pine, or fir chips.

Not suitable:

- wood shavings and sawdust for cycling trails or trails intended for wheel chair use; and
- cedar wood chips should never be used because they produce toxic leachate that could poison local streams.

Crushed Stone

Crushed stone or gravel provides:

- a smooth, durable, firm surface suitable for trails with heavy use; and
- easier repairs than asphalt surface, without patches.

Round gravel does not bind well and should not be used for trail surfaces.

Clay/gravel mixtures provide a trail surface similar to asphalt or concrete in consistency, and have the advantage of not spreading out beyond the trail boundaries.

Screened or 'pit-run' gravel (an inexpensive grade of screened gravel) provides a good surface material and is relatively inexpensive if found locally.

For optimum trail surfaces, three-quarter-inch minus or half-inch minus crushed angular stone or gravel, mixed with sand and clay, is best (sometimes referred to as "road gravel").

Crushed Limestone	Crushed limestone is a similar surface to most types of gravel. Limestone is generally rolled to provide a smooth surface suitable for most uses, but must be graded regularly to maintain an even grade.
Asphalt Surfaces	Trails surfaced with asphalt mix over a compacted sub-base are suitable for Type I foot and bicycle trails. Although development costs are high, maintenance costs are much lower than trails with other types of surfaces.
Soil Cement	Soil cement is a mixture of several centimetres of local material, preferably gravel, with cement and water. This type of material produces a hard, durable trail surface, suitable for very heavily used trails. When the surface is crowned, this surface will shed water and is resistant to erosion.
Shale and Granite	<p>Fine, compacted shale is similar, but superior, to compacted gravel when used as a trail tread. Coarse shale is crushed before applying. When this material is used on a crowned trail surface and compacted, it will form a durable surface that sheds water.</p> <p>Decomposing granite can provide a smooth, compacted finish; however, trail beds using this type of material can become muddy in some areas after a heavy rainfall. Some types of granite are better suited for trails than others. Materials should be tested before they are used for a large project.</p>
Geotextile Barrier	<p>In fine or wet soils, you may find a barrier between the granular surface material and the native mineral soil helpful.</p> <p>A geotextile (or geofabric) material (also referred to as a soil separation blanket):</p> <ul style="list-style-type: none"> • is a non-woven polyester cloth; • is a semi-permeable membrane used to separate gravel surfacing or fill from the soft soil below; • allows free movement of water; • inhibits the downward movement of gravel into boggy soil; and • allows hard setting gravel to be laid directly over the fabrics on soft clay and even peat soils, if adequate drainage provided. <p>Geotextiles can be:</p> <ul style="list-style-type: none"> • overlain with aggregate and surfaced with fines; and • set into a shallow excavation (usually 150 mm) and built up with aggregate and fines. <p>In both of these methods, it is important to anchor the edges of the geotextile to prevent it from shifting and disturbing the firmed-up surface:</p> <ol style="list-style-type: none"> 1. Raise the sides of the laid geotextile material over a sill.

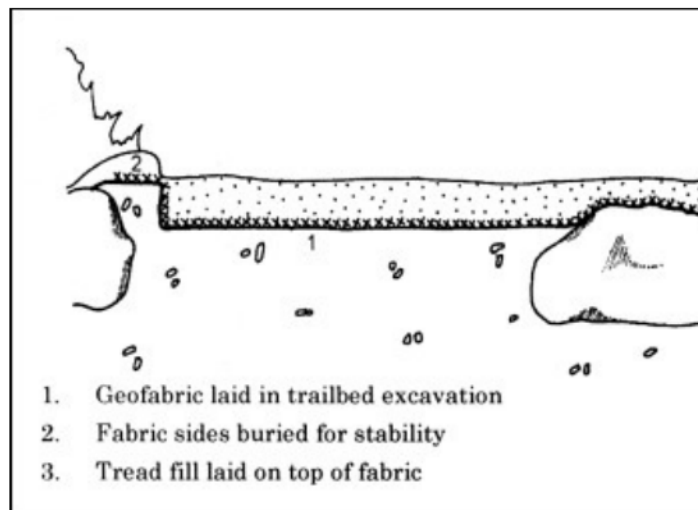
2. Secure with excavated material. This "wrap" prevents the fill from spreading.

Peat soils must be sufficiently stable (non-springy) to support the gravel surface. Any movement in the peat soil formation will crack the upper gravel seal.

A thick surface layer of well-graded gravel, when laid on geotextile material and provided with adequate drainage, should tend to set firm. Treadways should have waterbars installed to prevent erosion of the fill material.

Geotextiles should only be used on minor to moderate slopes of maximum 10° (17%).

Geotextile barrier



10.4.3 Trail Drainage

Effective drainage is essential to promoting trail safety and stability, and minimizing maintenance costs.

The list below gives examples of some drainage features used to promote drainage on trails. Simple drainage designs are the easiest to apply and maintain. The first five types of drainage on this list are the most frequently used.

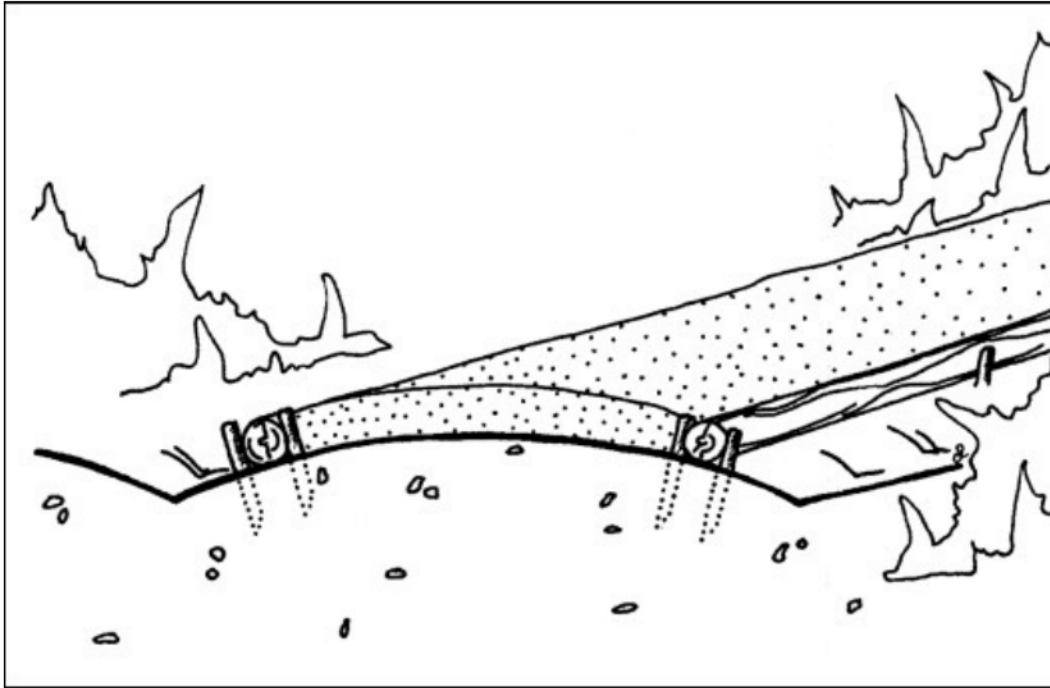
- Trail crowns and cross slopes
- Drainage ditches
- Culverts
- Drainage depressions and dips
- Cross drains and waterbars
- Drainage turnpikes
- Switchback drainage

Trail Crown and Cross Slope Crowning is the sloping of a trail from the centre towards its outside edges in order to promote drainage of surface water. Crowns are suitable over level ground or where drainage ditches

exist on both sides of the trail.

Cross sloping (sloping the trail towards the downhill edge) is used where drainage on the uphill side is not practical.

Figure 21: Trail crown



Trail Drainage Ditches

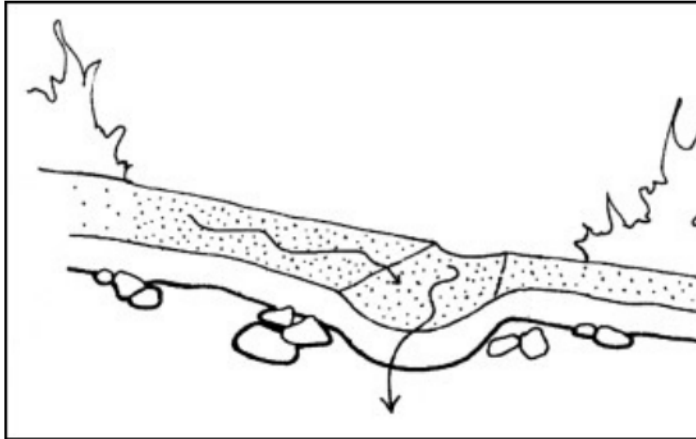
In areas where there is no ground cover or sod, ditches are dug parallel to the trail to discharge water to natural low areas and water courses, or across the trail downslope through culverts or waterbars.

In areas where there is sod, remove sod layers before excavating the ditch. After excavating, line the ditch with sod.

Drainage Depressions and Dips

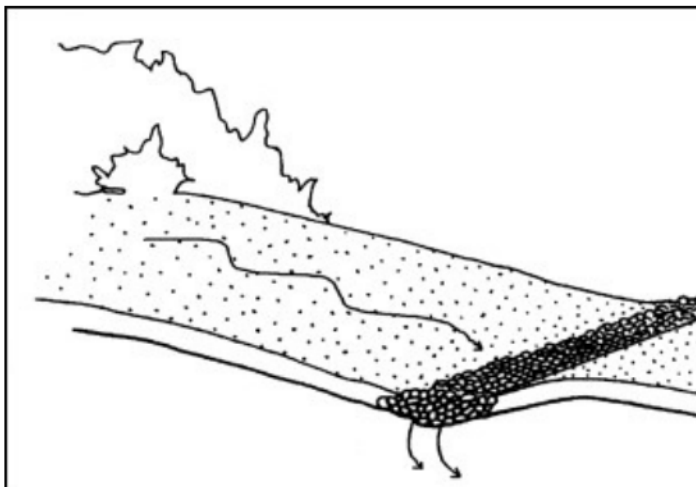
Of all the different drainage methods, drainage depressions and dips are the easiest to build, the least expensive, and the most unobtrusive. Wherever water collects naturally, drainage depressions should be built during initial trail construction or during maintenance.

Figure 22: Typical drainage depression



Drainage dips divert run-off from the trail tread to a side ditch or drainage ditch, or a natural low area. Placing gravel in a dip minimizes erosion.

Figure 23: Drainage dip



Cross Drains and Waterbars Cross drains are used to intercept water on slopes or in shallow ditches and shed it to the lower side of the trail. Cross drains usually include a log, square cut timbers, or local rocks to support both sides of a drainage channel of coarse gravel.

After excavating a trench at an angle across the trail tread, logs or rocks, depending on what is available, are placed in the trench. The cross drains reinforce the correct angle and slope to flush fine sediment. Cross drains made with logs should not be built on bicycle trails, as they may be slippery.

Waterbars are used to divert water off the trail tread. Two types of water bar construction are shown here, log and rock waterbars.

Figure 24: Log waterbar

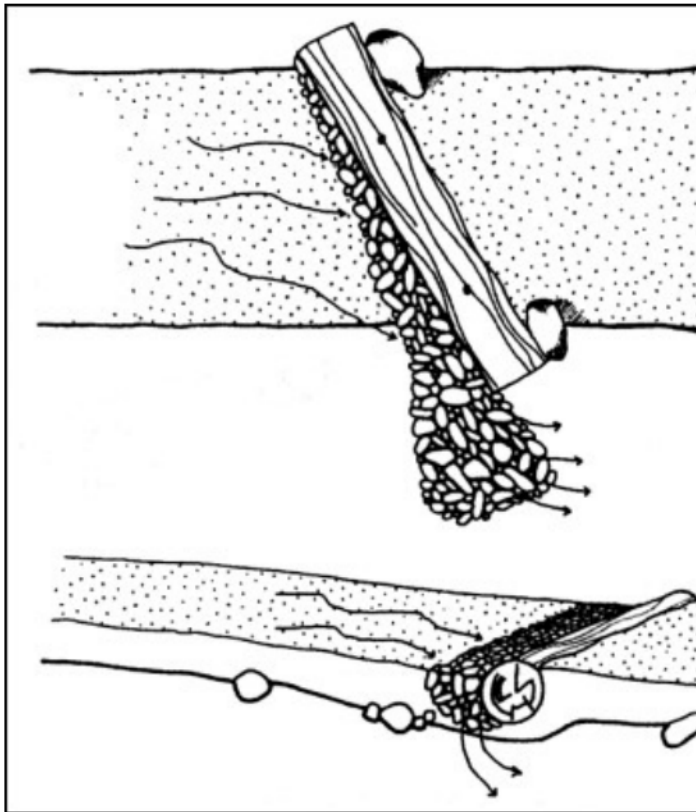
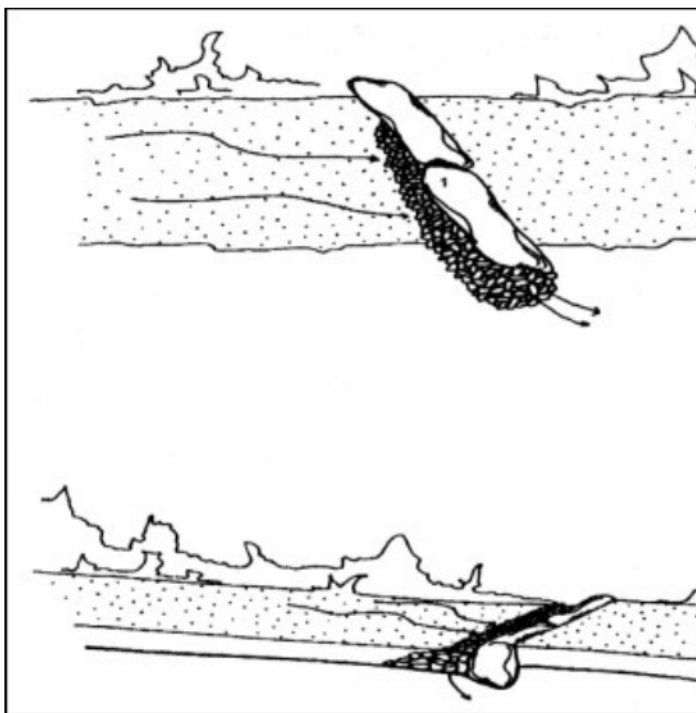


Figure 25: Rock waterbar

Overlap rocks to make an effective diversion.



Culverts

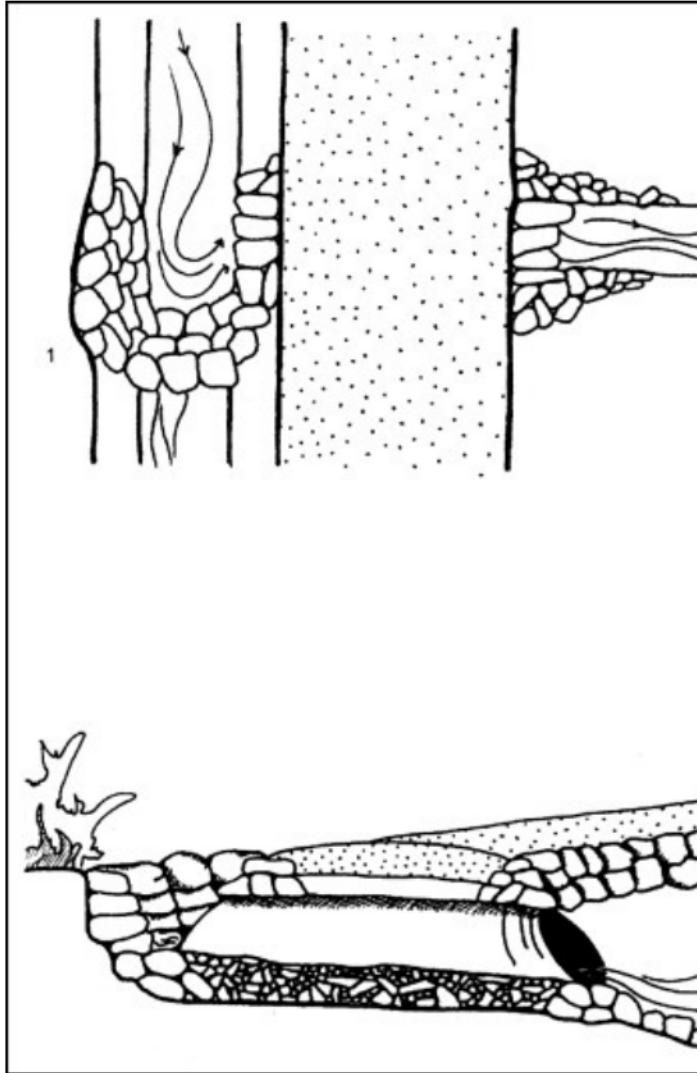
Plastic (PVC) or metal culverts are used on small drainage channels where drainage dips or other structures are not adequate. The type of culvert depends on the seasonal high water levels.

- Large rocks placed around the ends of culverts stabilize the fill material and hide the ends of the culvert pipes.
- Cutting the pipe ends at a 45 degree angle reduces the visual impact of the culvert.
- The area around the culvert is generally backfilled and compacted.
- Granular surfacing over the pipe provides the tread.

Constructing rock culverts with local materials can be an alternative to metal or plastic culverts. However, this type of drainage channel is not appropriate for barrier-free trails, bicycle trails, or high standard foot trails.

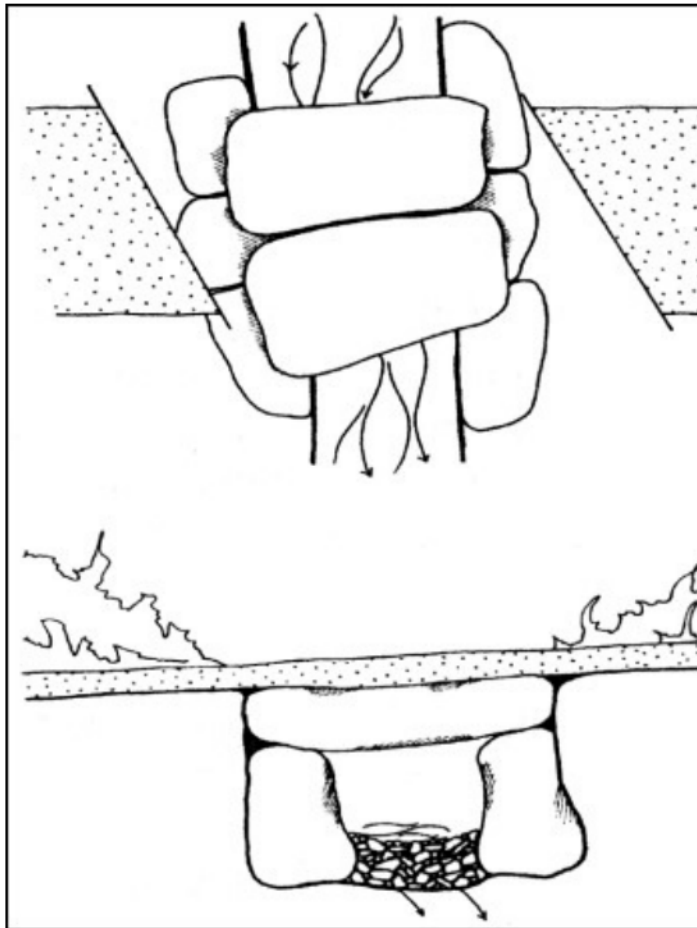
Figure 26: Typical culvert with ditch

1. Water is diverted from the ditch into the culvert



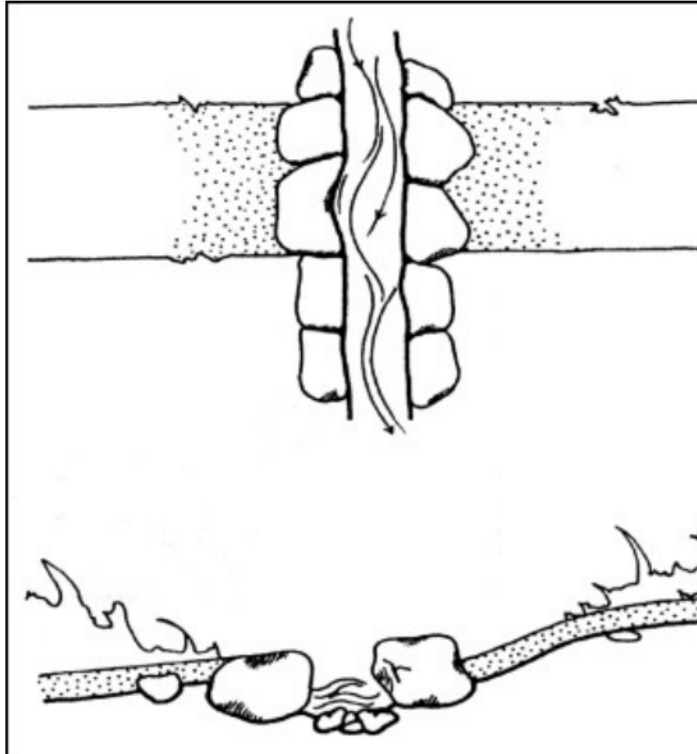
The rock culvert is one that can be built on trails in back country areas.

Figure 27: Rock culvert



Open rock culvert. This type of culvert works in a similar way as a waterbar, and can be used on trails in back country areas.

Figure 28: Open rock culvert



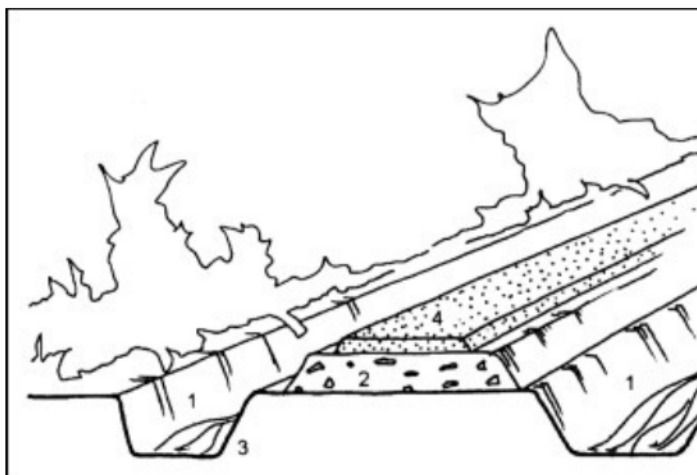
Drainage Turnpike

A turnpike routes water away from the trail on both sides of a raised trail bed. Stakes or rocks should be placed at intervals to retain logs supporting the raised trail tread.

This type of drainage is expensive to construct and maintain, but may be needed where the terrain does not allow for any simpler methods.

Figure 29: Turnpike

1. Material removed from ditches on both sides
2. Removed material is piled between ditches to build up trail base
3. All cut edges are sloped for stability
4. Gravel capping: 60 cm wide



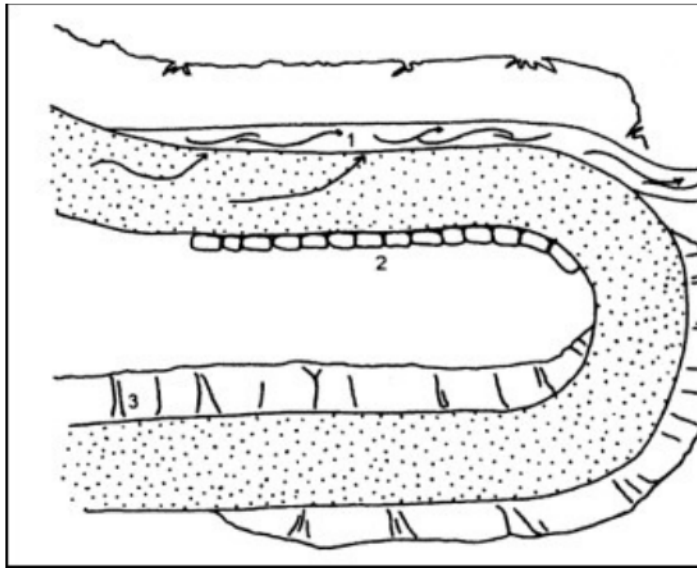
Switchback Drainage

Proper drainage at the top of a switchback is essential. Water must be collected and diverted, and the trail tread sloped correctly, or the corners and lower sections of the switchback

will erode.

Figure 30: Switchback drainage details

1. Drainage ditch on uphill side of upper section of switchback protects turn area
2. Retaining wall used to support upper section
3. Lower section also ditched on uphill side, then drained under the trail



Debris Removal

Removing construction debris from the trail area reduces the fire hazard and enhances the natural appearance of a trail.

To ensure the cut ends of trees are not visible to trail users, small trees should be dragged butt end first away from the trail. Small branches and saplings are cut up and scattered, usually a minimum of three metres from the trail.

Cut trees may be used to construct bridges, steps, corduroy surfaces, or for trail tread edges.

By placing vegetation debris along the ground rather than in piles, it will decompose faster. This will help avoid the problem of vegetation debris clogging natural drainage courses.

10.4.4 Trail Bridging

Wherever trails cross rivers, streams, bogs, marshes or sensitive plant habitat, such as an alpine meadow, some form of trail bridging is required in order to protect the trail user and the environment.

Bridging features can range from simple stepping stones, boardwalks and timber bridges with decking, to more elaborate engineered structures.

The type of bridging selected will depend primarily on whether the trail is crossing land or open water, as well as:

- the type of trail being served, (Type I - V);
- the needs and limitations of trail users (hikers/equestrians/ cyclists);
- the anticipated level of traffic;

- the sensitivity of the surface material/plants, or the breadth and depth of the watercourse, being crossed; and
- seasonal variations or local conditions.

For many trails in provincial forests, trail builders will use building materials found along or near the site.

With these materials, it is particularly important that effective construction techniques are employed that:

- can withstand the effects of weather and wet environments;
- can withstand the impact of boots, hooves and wheels; and
- provide safe public use.

Bridging Wet or Sensitive Areas

Where trails cross wetland areas:

- bridging must allow for adequate drainage channels and be able to withstand water level fluctuations;
- the bridging surface should preferably be above maximum water level, or should be constructed to withstand flood conditions; and
- the trail surface should not be submerged for any portion of the trail use season.

Log Rounds and Stepping Stones (Only suitable for hikers)

These two options use materials generally found onsite. If carefully placed, an aesthetically pleasing effect can be achieved. Rounds can be set in a line, alternated to match walking steps, or set side-by-side to form a walkway.

Log rounds should:

- be made of cedar if possible (or pressure treated, or painted with a stable, non-toxic preservative);
- be rough cut with a minimum diameter of 300 mm;
- have the bark removed;
- be set to a minimum depth of 500 mm; and
- be bedded-in firmly to promote stability and reduce cracking.

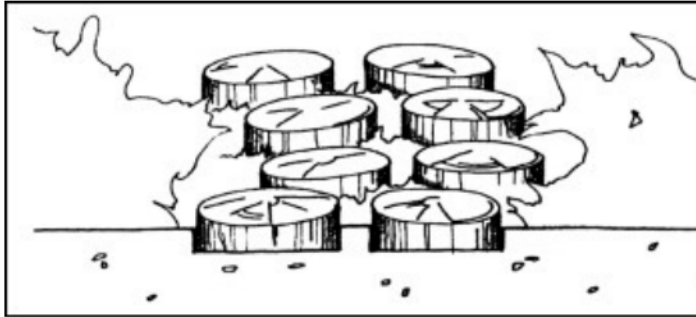
To reduce slipperiness of log rounds:

- a slightly sloping surface cut will help drainage;
- shallow chain saw cuts can be added; or
- chicken wire can be stapled to the surface.

Figure 31: Log rounds

- Tops of log rounds are sloped to drain and prevent rotting
- Chicken wire on surface prevents slipping
- Wide rounds are most stable

- Cedar rounds are most durable



Stepping stones can provide a long-lasting aesthetic solution to crossing wet areas. Any size and shape of rock can be used, as long as one surface is relatively flat. Larger stones are less prone to dangerous shifting under a hiker's weight.

Stepping stones should be stable and not protrude too high above the ground surface or people are apt to avoid them.

Figure 32: Stepping stones

- Stepping stones can be used across marshy areas or running water
- At streams, tops of stepping stones must be above the highest flood level



Rock Treadway

A rock treadway is simply a more extensive use of rock than stepping stones. Small rocks are used to infill the space between larger stones, creating a relatively flat surface. Small rocks will sink into the surface if used alone.

In some high use locations, it may be appropriate to firm up the treadway with a grout of soil cement, a mixture of parent material (preferably gravel), cement and water. Local gravel set into the surface of the soil cement will restore an aesthetic appearance. When a rock treadway is made impervious to rainwater, surface slope and drainage ditches may have to be incorporated.

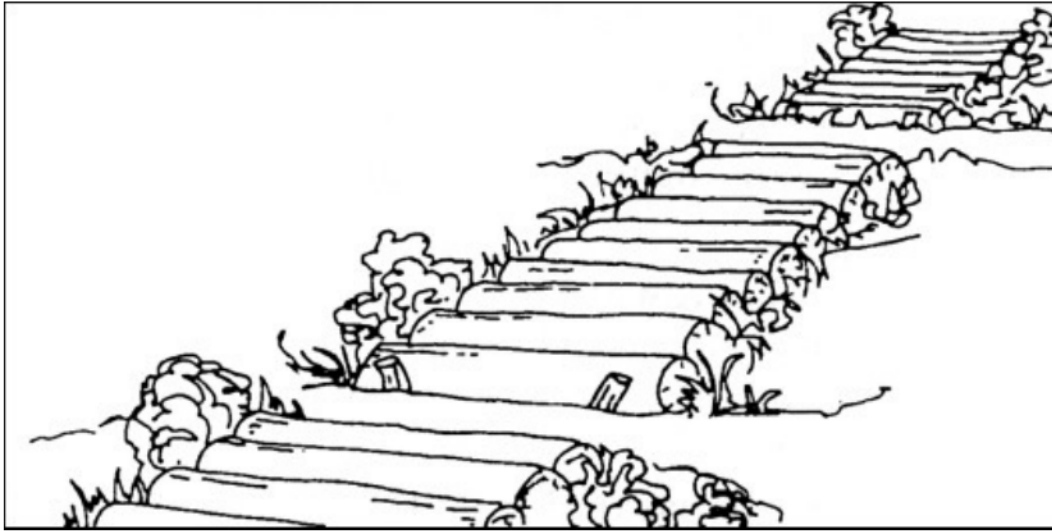
Corduoy Trails

A corduroy trail has a walking surface composed of cut logs resting directly on the ground.

This technique is quick and crude, and requires few construction skills. *However, it uses a lot of wood and is quite limited in its effectiveness.* On flat, wet ground, in areas with only moderate use, corduroy provides hikers with a dry crossing. However, wet ground is usually unstable, and unless very well secured, cordwood pieces tend to become canted to one end. Peeled logs are slippery when wet and this invites the creation of an easier path to the side, often resulting in environmental damage.

Construction: Peeled logs are placed directly on the ground in approximately 2.5 to 3 metre sections and secured with stakes at either end. Spaces of at least 350 mm are left between sections for drainage channels.

Figure 33: Corduroy showing spacing for drainage channels



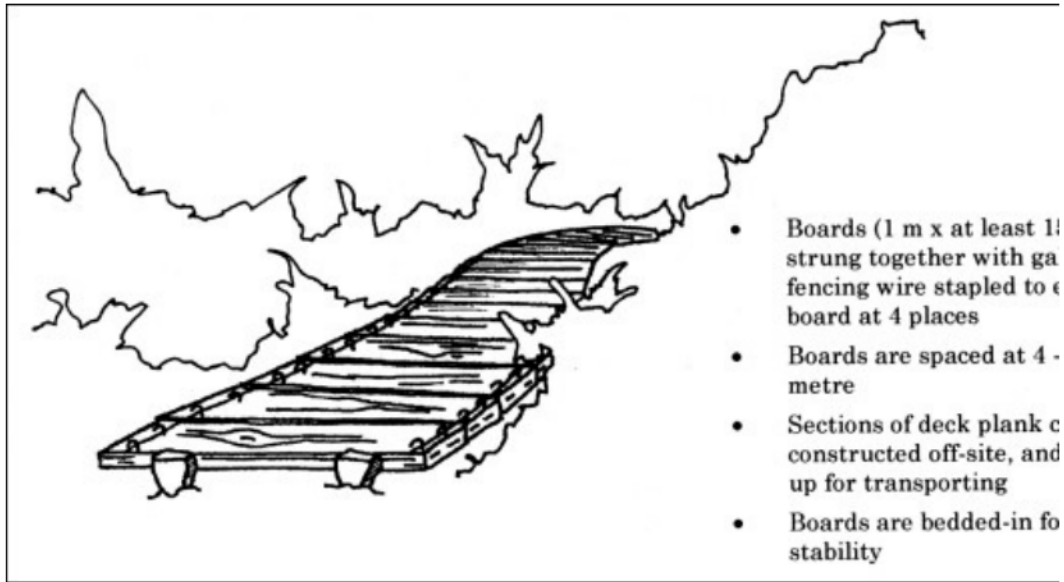
Flexible Plank Decking

This form of bridging is used in areas of *shifting sand* to help control erosion.

Treated planks lie on the ground, partially supported by a cable. The cable's primary function is not weight-bearing, but to prevent the planks from drifting.

- In one method, a lateral hole is drilled through each end of the plank and the planks are then strung together with cable.
- An alternative method has the cable running through staples on the plank surface.

Figure 34: Flexible plank decking



Trail bridging over shallow water

Trail bridging over shallow water is more elaborate and costly to build. Raised plank bridging, known as boardwalk, may be constructed, or for deeper water, decking may be secured to styrofoam floats which are well-anchored to bottom materials.

Boardwalks

A boardwalk is constructed in sensitive areas where crossing is otherwise very difficult or could result in unacceptable environmental impact. Boardwalks should be:

- separated from the underlying surface either by resting on sills and stringers or by elevation on posts;
- considered in high-use areas or where access for persons with disability is desired;
- used for nature interpretation to allow close access to features; and
- used to provide clean, dry footing across muddy areas.

A boardwalk is an expensive and obtrusive element in the landscape, and should be used selectively. The need for a boardwalk should be avoided, wherever possible, by aligning the trail on well-drained soils or by utilizing drainage and on-grade trail construction techniques. In areas with low use, a width of 500 mm rather than standard 750-1000 mm will reduce costs.

The benefits of properly constructed boardwalks include:

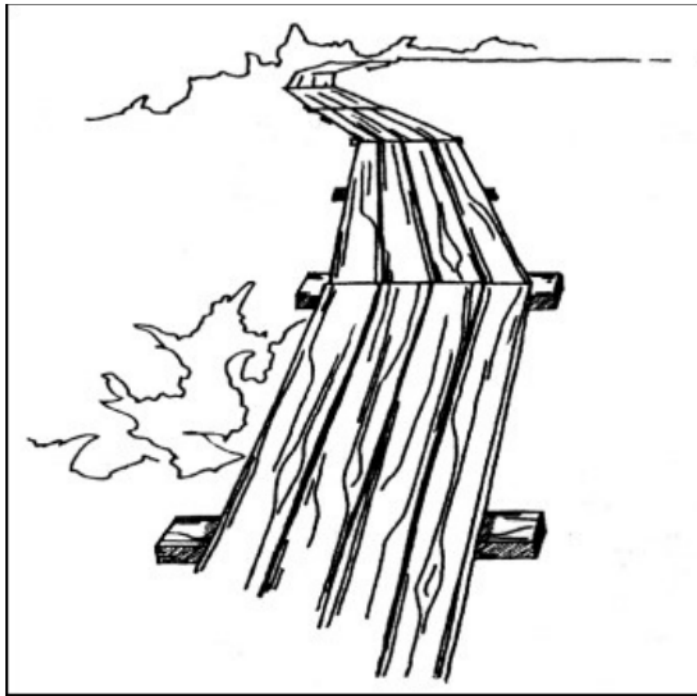
- low maintenance and relatively low impact;
- minimum impact across sensitive alpine bogs, swamps or around lake shores prone to flooding; and
- no drainage of a sensitive area.

Posts should be driven into the ground with a sledge hammer to reduce interference, **not** dug in.

On flat country, the visual impact of boardwalks can be reduced by incorporating gentle curves compatible with the visual surroundings. Boardwalks made of cedar will bleach to an acceptable natural toning in most weather conditions.

Boardwalks should be located close to the ground to allow grasses and small shrubs to grow back around the structure and between the deck boards. Walkers' feet will tend to trim off the growth at board height.

Figure 35: A curved boardwalk reduces visual impact



Construction of boardwalks should include:

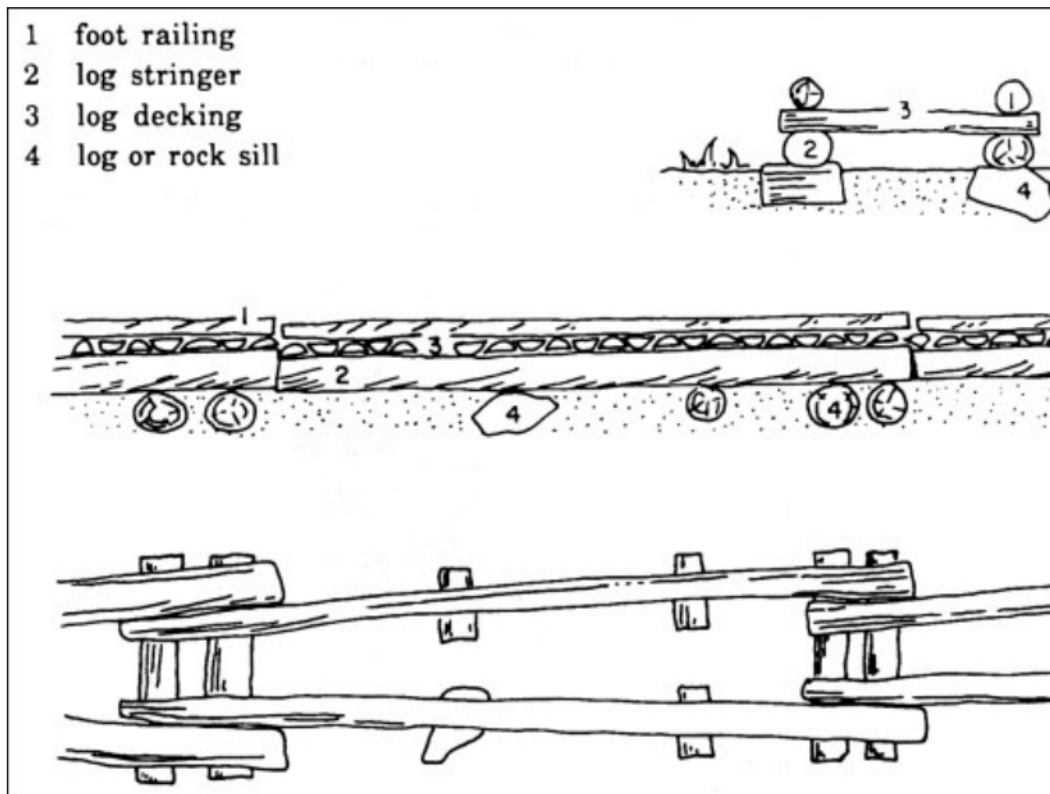
- a ramp for smooth access or, alternatively, steps at either end;
- non-slip ramps for barrier-free access (dirt or grip-surfaced wood);
- stepped sections for changes in elevation (boardwalks have to be horizontal);
- concrete footings in high use areas for stability and longevity; and
- log decking laid at a right angles for easier walking or plank decking (rough-sawn and laid with 10 to 20 mm spacing).

a) Log or plank decking on stringers

In this method, either logs or planks are laid perpendicular to the length of the trail. This requires the use of a log or rock sill placed underneath the stringers to which the decking is applied.

There are many styles of boardwalks:

Figure 36: Cross-section, elevation and plan view of log decking on stringers



When log decking is used, the logs are split and laid down in an alternating fashion, first with the rounded side down, then up. If planks are used, the foot railing shown in the above drawing is not necessary.

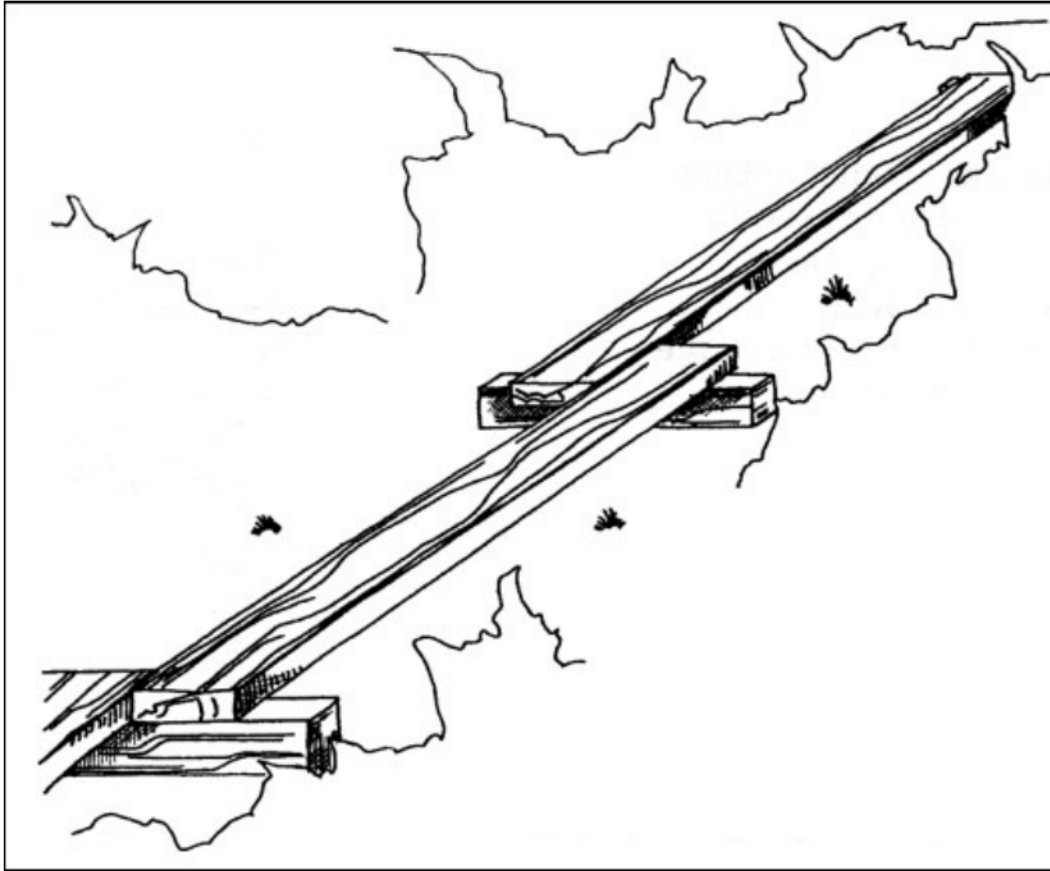
b) Plank decking on sills.

In this method of bridging, the decking is laid parallel to the length of the trail on log sills. Sills should be spaced so that the degree of flex in the decking is minimal.

The use of raised single or double planks is an effective way of traversing soft, wet areas. Hardwood planks are strung across swampy ground on support logs laid on the ground across the trail. Two adjoining plank ends rest beside each other on one log to conserve material.

This simple, inexpensive, narrow pathway is *only suitable for remote areas with low use*. Users need to briefly step off the walkway to pass.

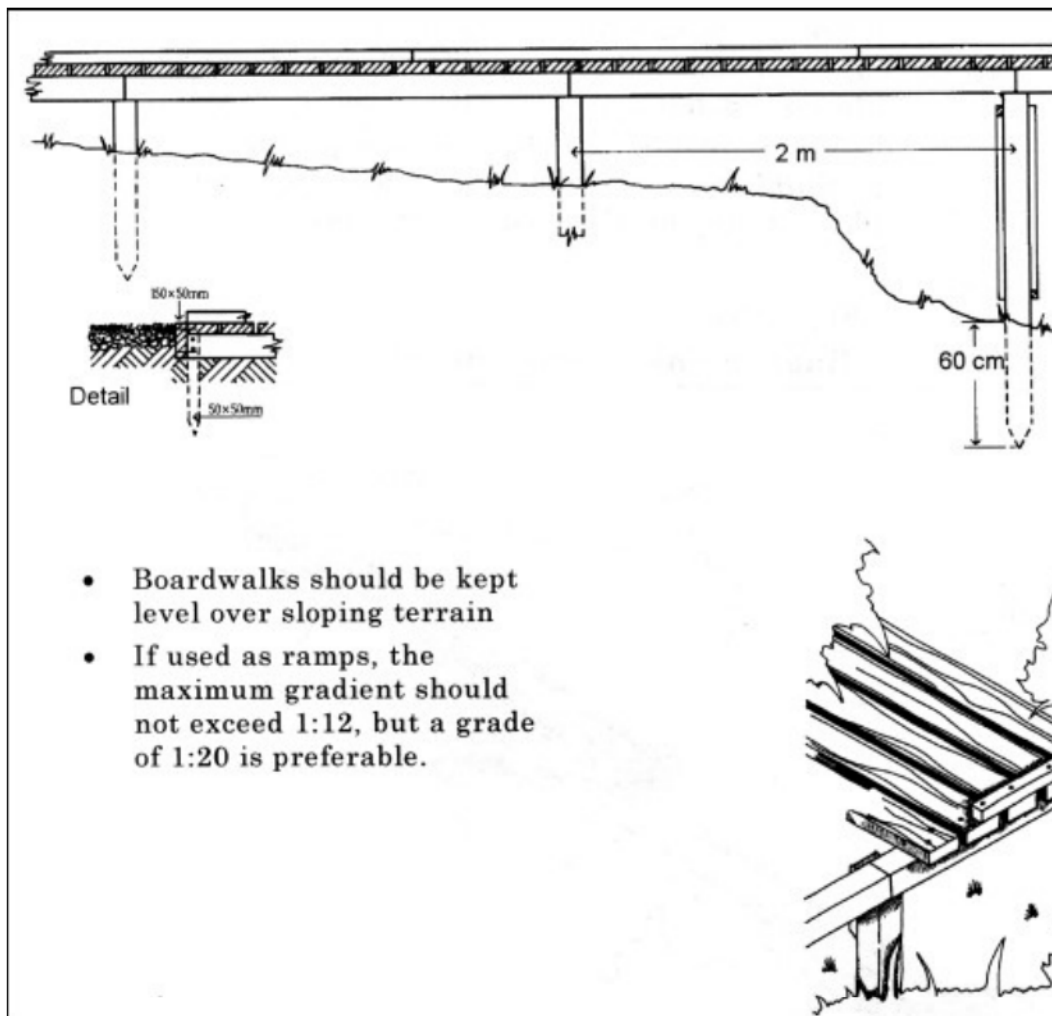
Figure 37: Single plank decking on sills



c) Post supported boardwalk

This is a strong design suited to high-use areas. With ground contact limited to the small area of the vertical posts, there is minimal impact on the environment.

Figure 38: Post supported boardwalk

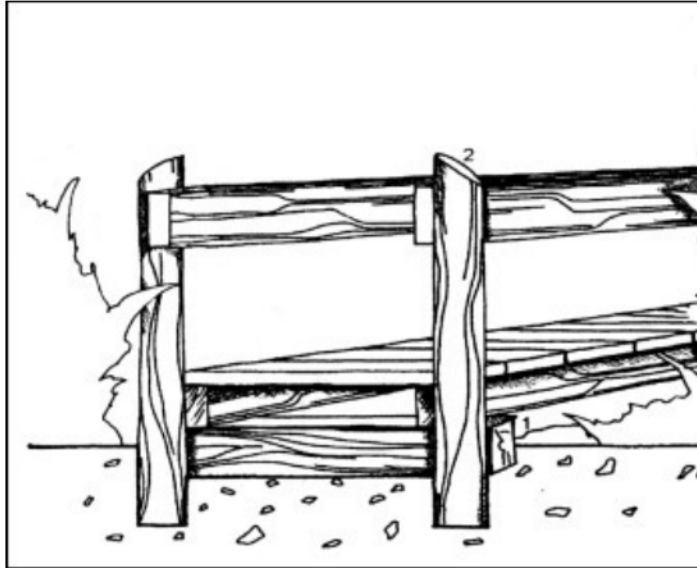


d) Post and sill with handrail

This design provides trail users with a high degree of security. It is suited to high use areas and locations with bicycle traffic. The boardwalk site should be easily accessed in order to carry in the dimensional lumber required. There will be some damage to vegetation where the sill rests on the ground.

Figure 39: Post and sill boardwalk with handrail

1. Sill supports stringers clear of ground.
2. Post tops sloped to prevent rotting from rainwater.

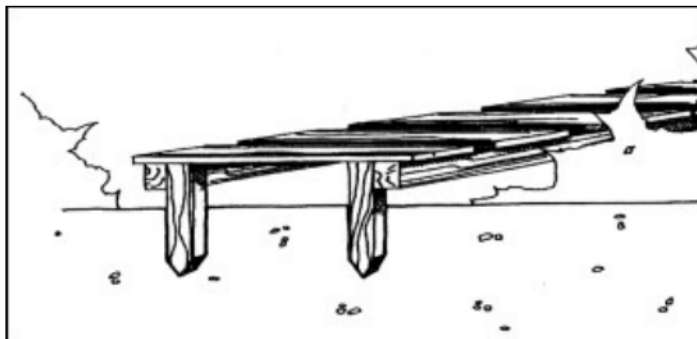


e) Standard duckboard

Duckboard is small-width boardwalk that is often prefabricated and flown or carried to the construction site. Because of its light weight, some 12-15 three-metre lengths can be lifted per helicopter sling load.

This design is best suited to low/moderate use trails for hikers only. Duckboard requires posts to support it and a certain amount of soil strength to hold the posts.

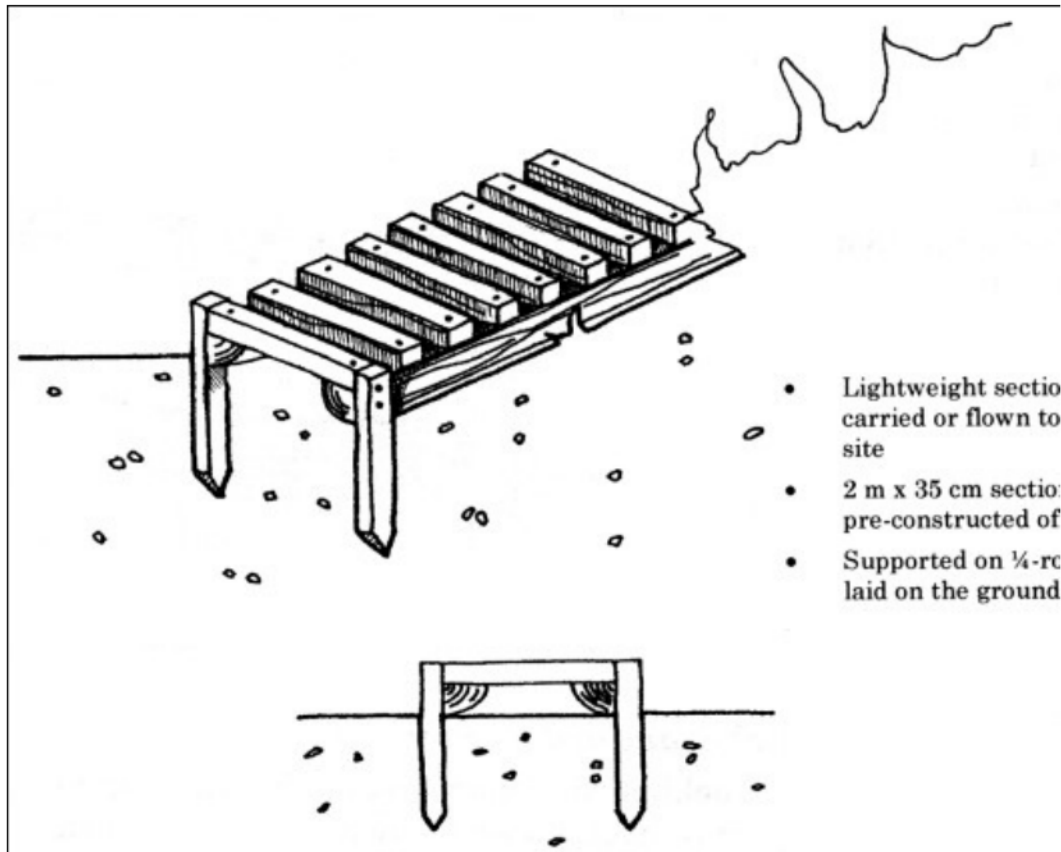
Figure 40: Standard duckboard



f) Duckboard with stringer

A duckboard with a stringer provides it with more "float," which is important in soft surface areas. The stringer shown is a quarter-round post. Stringers rest directly on the ground and will damage any vegetation underneath.

Figure 41: Duckboard with Stringer



Bridging Open Water

Bridges may be used to cross rivers, streams, wetlands or areas of shallow water. Bridge location and design should take into consideration:

- stream flow characteristics;
- peak run-off periods;
- bank and stream bed erosion potential;
- fish habitat;
- snow loads and ice conditions;
- adequate clearance on navigable watercourses to allow for boats; and
- proper alignment and orientation to the trail tread.

Specifications for a bridge should include structural strength, width, need for railings, and the type of construction material used for decking.

Handrails should be used on all bridges where the decking is more than 1.2 metres (4 ft.) above the water, or where bridges cross fast-moving water. For Type IV and V trails, a handrail may be optional.

On semi-primitive hiking trails, bridges may consist of two logs placed side-by-side with their tops flattened for easier walking. Suspension bridges, rafts and bosun chair type crossings add a challenging element to water crossing for experienced hikers,

but are not appropriate for trails used by the general public.

Bridges on equestrian trails or in areas of moose wetland habitat should be strong enough to support large animals.

Trails designed for barrier-free access or mountain bike use should consider any specific requirements for bridge access, width, surfacing and handrail height.

Fords and Stepping Stones

Shallow fords can be an attractive feature on equestrian and mountain biking trails. From a management point of view, a ford is a low-cost and maintenance-free option. Hikers in remote back country areas, especially on Type IV and V trails, accept stream fording as a reasonable proposition.

The best location to cross rivers and streams should be carefully investigated:

- Find a wide, shallow section of river.
- Depth during the use season should be < 60 cm.
- Avoid uneven stream beds and fast-flowing water.
- Move rocks to create an even stream bed if necessary.
- Position stepping stones across small streams to aid hikers and mountain bikers.
- Consider possible erosion at entry and exit points.
- Mark the trail clearly on both banks. For Type I-III trails, provide warning signs on both banks.

Above all, user safety must be closely considered.

For faster flowing streams or rough crossings on Type I-III trails, a bridge should be constructed. On Type IV and V trails, users should be informed **at the trailhead** about the river crossing, and any need for ropes and/or special expertise.

Simple Log Bridges

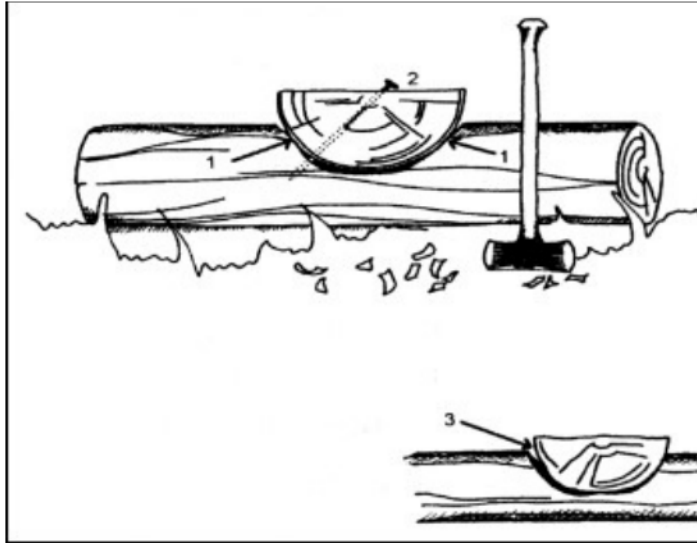
Single log or two-log bridges may be used where the crossing is relatively free of hazards and use is low. The following should be considered when building simple log bridges:

- record spring high water marks;
- build at least 0.5 m above the high water mark;
- start in late summer or fall when the stream banks are dry and stable;
- use peeled logs that are straight and uniform in diameter, and with the least of number of branches;
- use one stringer more than 0.3 metres (12") in diameter at its thinner end or two stringers side by side;
- place trunk stems in opposite directions for maximum strength and more consistent width on two log bridges;
- limit bridge spans according to the size of the log - the log should span the water course and extend at least 1 metre over each bank;

- use diagonal cross cuts 5 mm deep over the flat surface of the log to prevent slipping;
- line banks of the stream or water course with larger rocks to help prevent scouring and disturbance of the bridge;
- install handrails on lengthy or dangerous crossings; and
- cut notches in the sill log so that the sides rather than the bottoms of the stringers are touching (prevents rocking of the stringers sideways - see diagram).

Figure 42: Notching log stringers

1. Notch to provide two points of contact on side of stringer and prevent rocking.
2. Stringer pinned into place.
3. Gap to one side - this will rock.



Additional pointers

For bicycle safety, bridge decking should be laid perpendicular to the trail direction.

In high-use areas, or for wide spans, metal I-beams can be used instead of wood stringers. The top surface of the I-beam should be faced with lumber (bolted on) in order to nail down the decking. Use of an I-beam provides a long-term solution to stringers being weakening from moisture (e.g., near waterfalls).

Figure 43: Single-log bridge with handrail

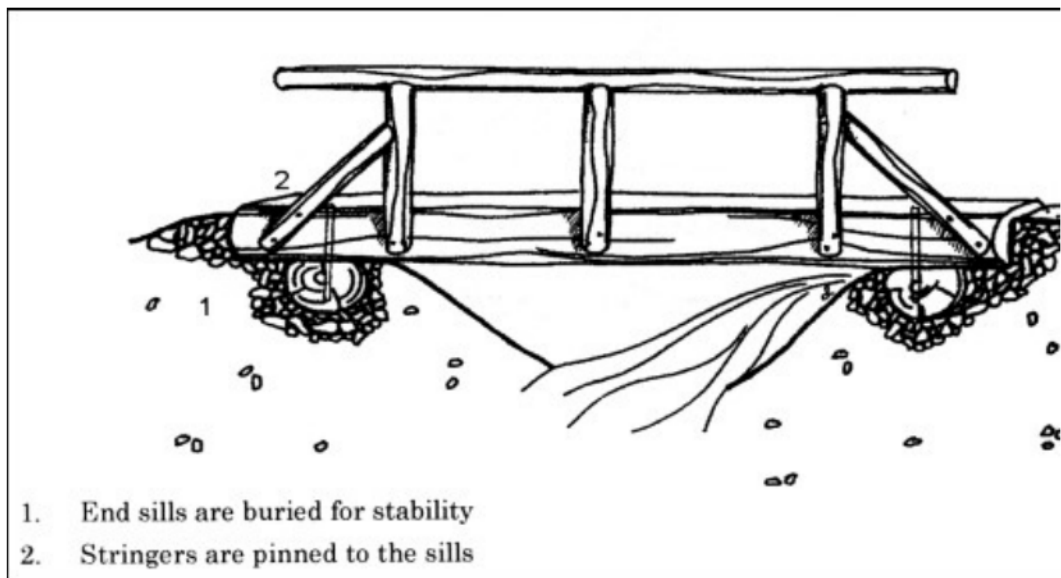


Figure 44: Simple two-log bridge

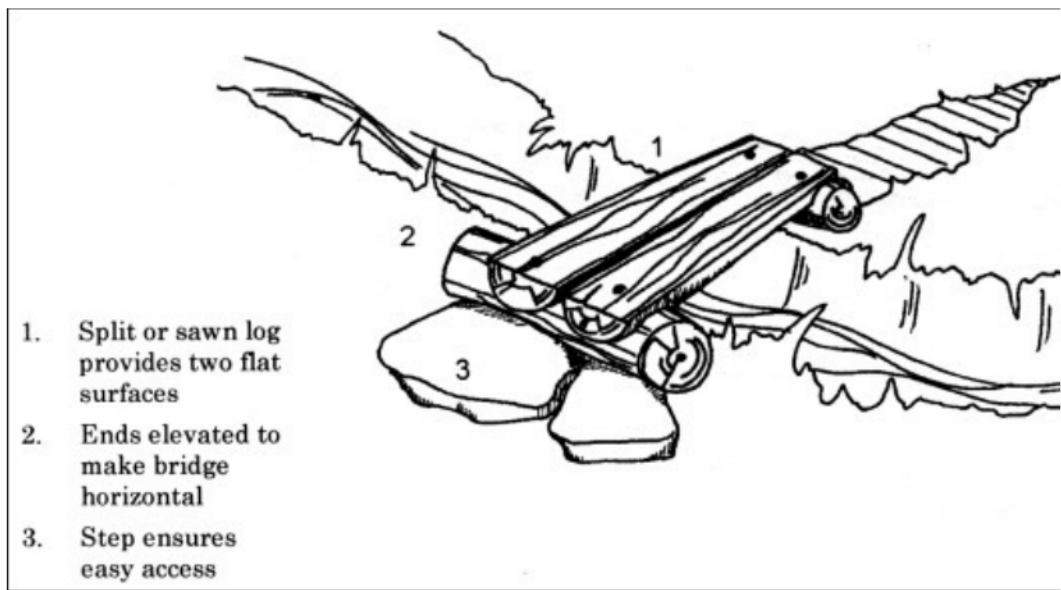


Figure 45: Three-stringer bridge

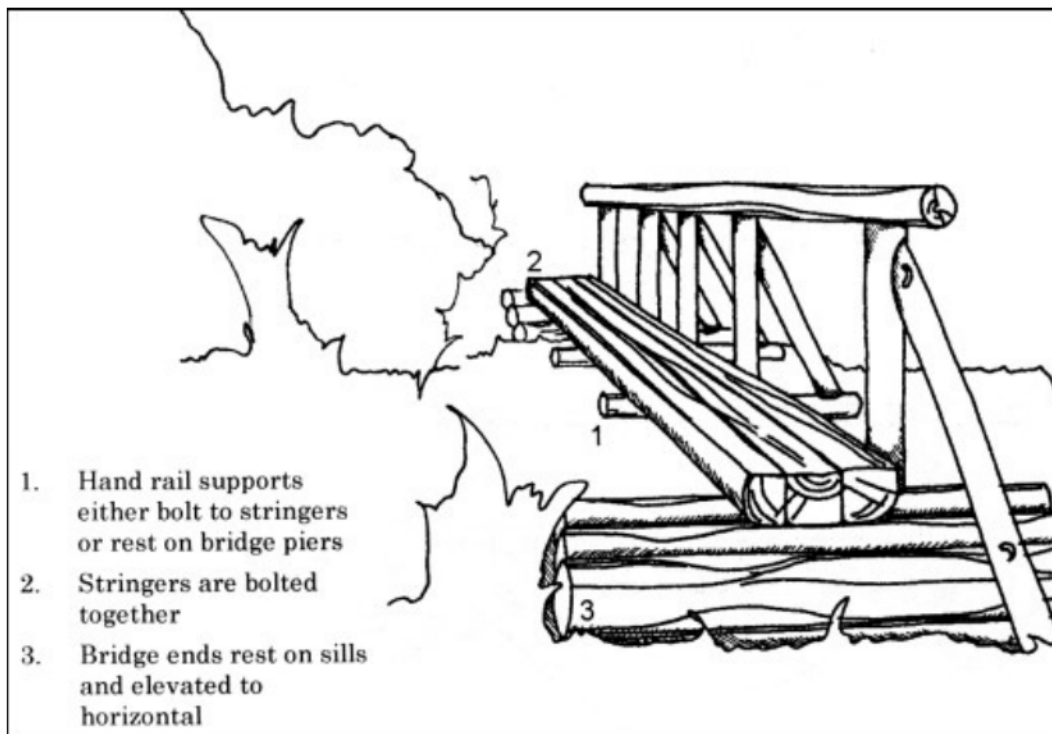
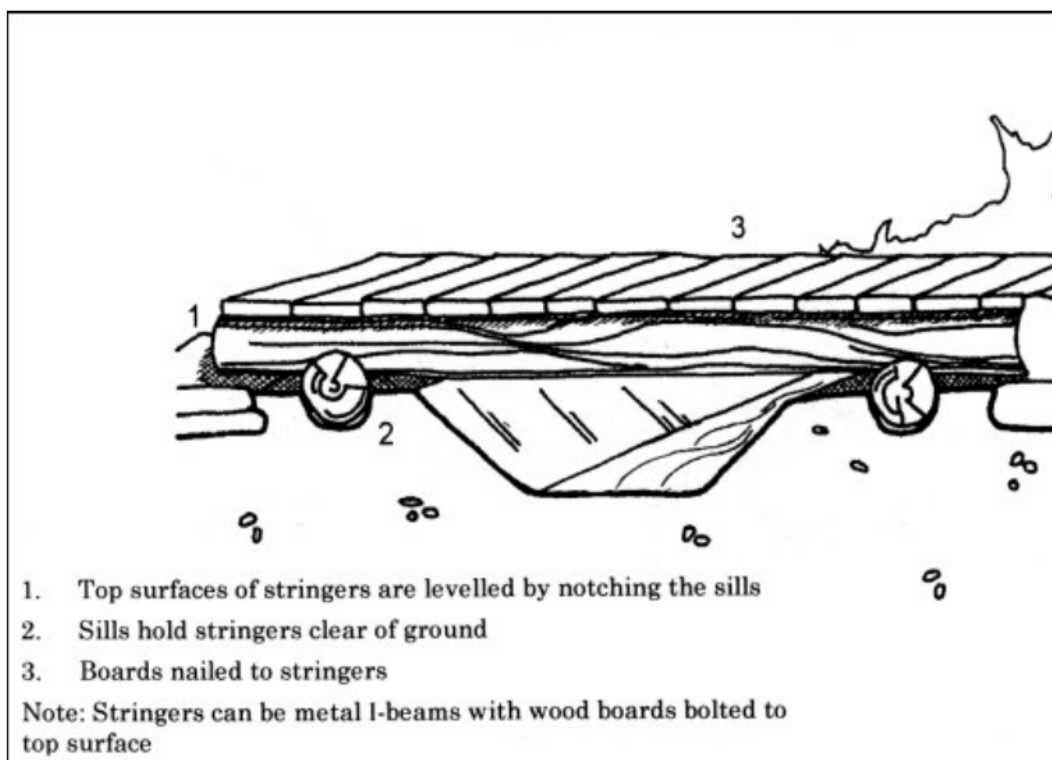


Figure 46: Log bridge with timber decking



Stringer dimensions

The span diameter table provides recommended minimum

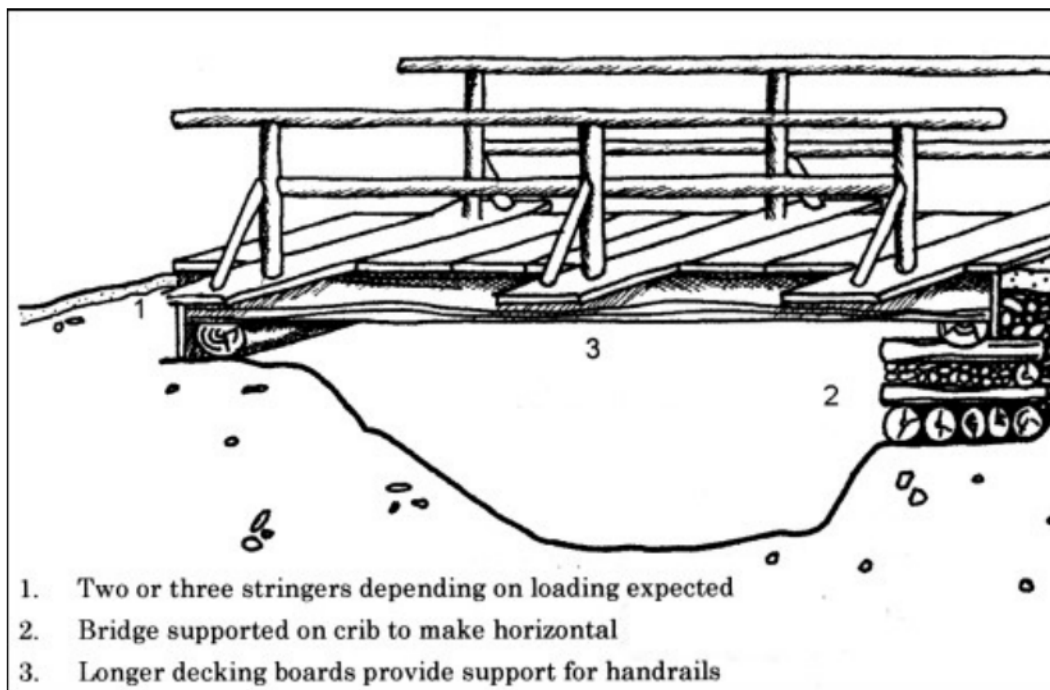
diameters for various bridge spans (based on a two-stringer bridge). Three stringers should be considered in heavy snow country.

Span Diameter Table*

Clear Span (metres)	Douglas-fir Timber (cm) Width x Depth	Peeled Log Diameter (cm)		
		Fir	Spruce	Cedar
0 - 4.5	15.5 x 20.5	22	24	26
4.8 - 6	20.5 x 26	27	29	31
6.3 - 7.5	20.5 x 31	31	34	36
7.8 - 9	31 x 31	36	38	41
9.3 - 10.5	31 x 36	40	43	46
10.8 - 12	36 x 41	43	49	51
12.3 - 13.5	41 x 41	47	52	56
13.8 - 15	41 x 46	51	57	61

* Dimensions provided by Nelson Forest Region

Figure 47: Bridge with decking and handrails



Engineered Bridges

For an added margin of safety, custom bridges can be designed for a particular purpose or location, and usually involve using materials and components that exceed the load requirements of the structure. There are many interesting and functional designs for engineered bridges that can be put together with simple tools in a back country setting. A professional engineer should be consulted.

10.4.5 Trail Steps and Ladders

Steps

Steps are used on short, steep trail sections to ensure user safety and to help prevent erosion. A series of short flights of 14 steps or less, with ample landings in between, is preferable to a single long flight. Handrails should be installed on at least one side where flights are steep or long.

Acceptable stair proportions must be used in step construction. The recommended formula is:

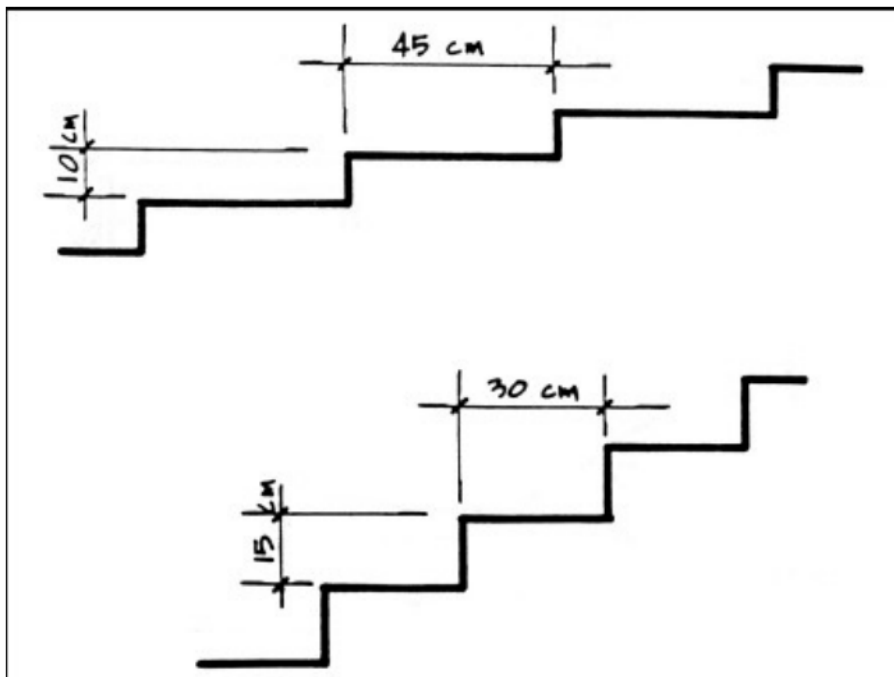
$$\text{Height (cm)} \times \text{tread depth (cm)} = 450.$$

For example:

- 1) 10 cm rise requires a 45 cm tread depth.
- 2) 15 cm rise requires a 30 cm tread depth.

Tread depth should not be less than 30 cm.

Figure 48: Rise to run diagram



Consider safety

Riser heights of more than 20 cm (8 in.) are tiring for ascending hikers and difficult for children and elderly walkers. Such a rise is even more difficult for descending hikers, and may be dangerous for people who are tired.

On steep ascents, steps are critical for preventing soil erosion and stabilizing slopes. The basic purpose of steps is to scale a steep vertical rise on the trail while permitting lower grades between flights. While this helps hikers, it also slows water and retains soil.

When building steps, either of wood or rock, it is best to:

- work from the bottom up to determine the best placement of steps and optimal stabilization;
- drain steps to the side to prevent premature wood deterioration and to retain fill material; and
- curve steps to follow the outside of a slope for drainage.

Wider steps appear to be less steep than narrow steps.

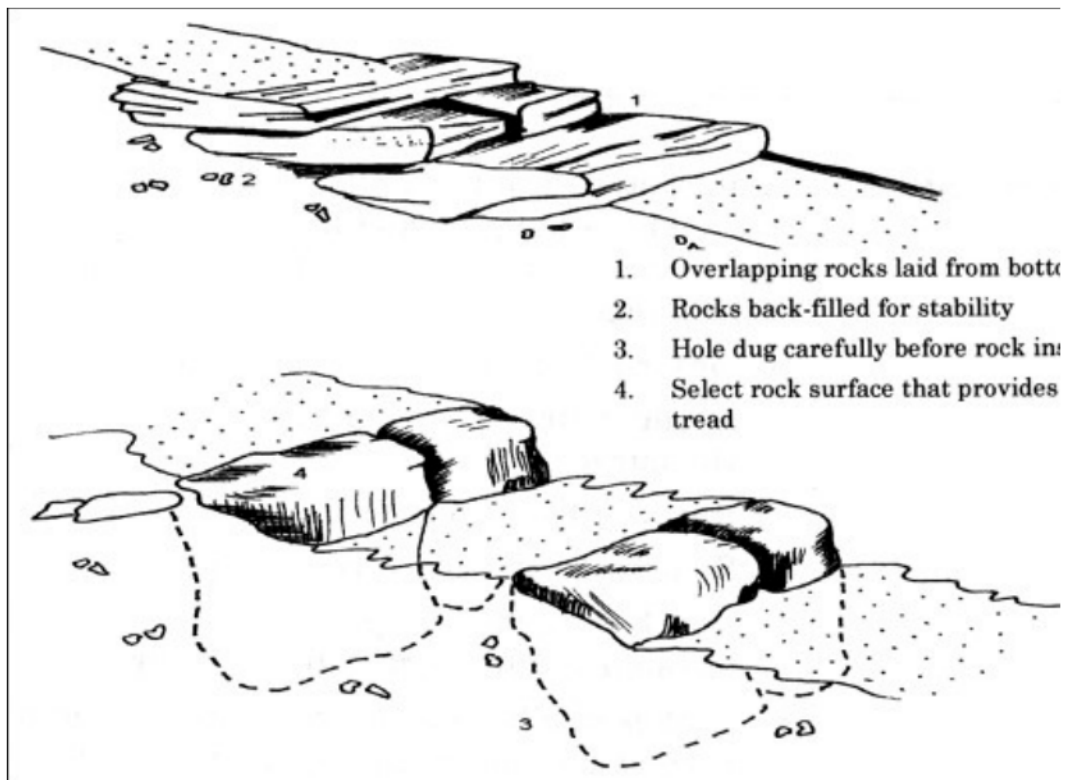
Boulder Steps

Boulder steps are far more desirable than log steps since they last longer and are more aesthetically pleasing. Over time, they will begin to look as if they were naturally in the trail, especially if they are placed carefully.

There are two basic designs for boulder steps:

- riser boulders set into the slope and backfilled; and
- overlapping tread boulders supported by smaller rocks and fill (see figure below).

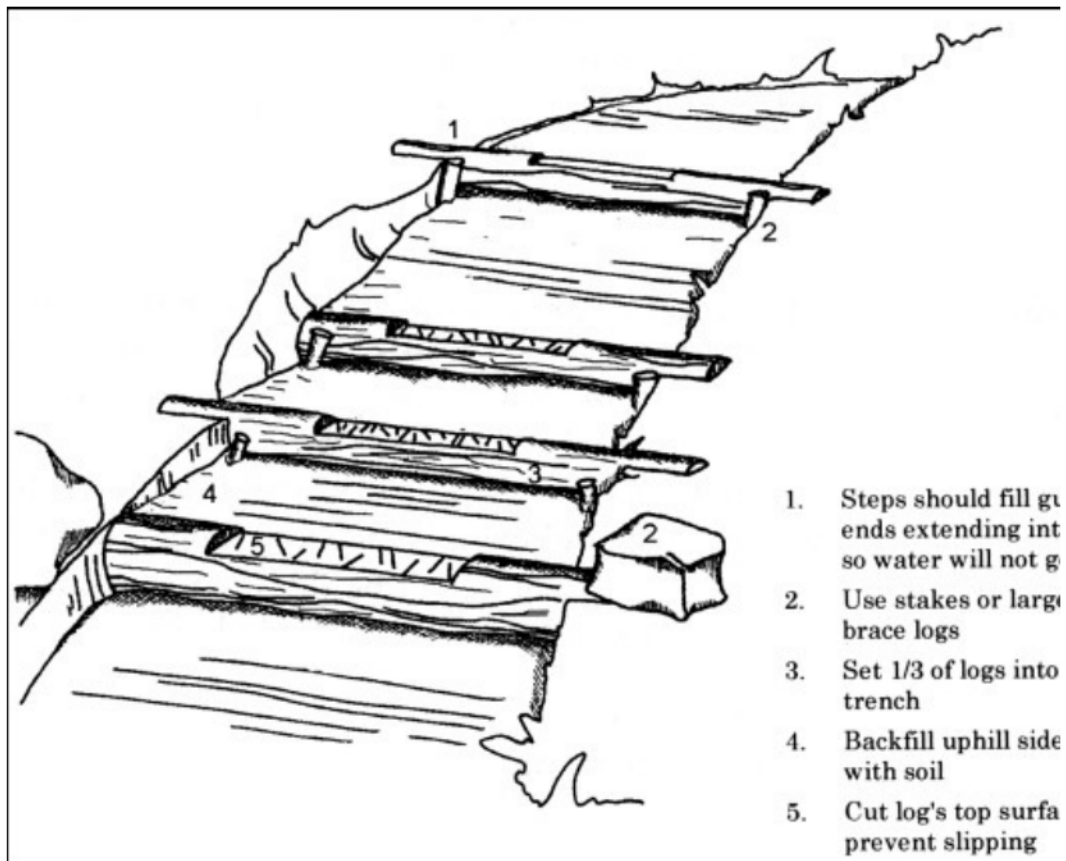
Figure 49: Boulder steps



Log Steps and Stairs

Log or timber steps set into the ground are simple to build and are less expensive than steps supported by stringers. Either full or half logs may be used in construction.

Figure 50: Log steps



Timber Steps and Stairs

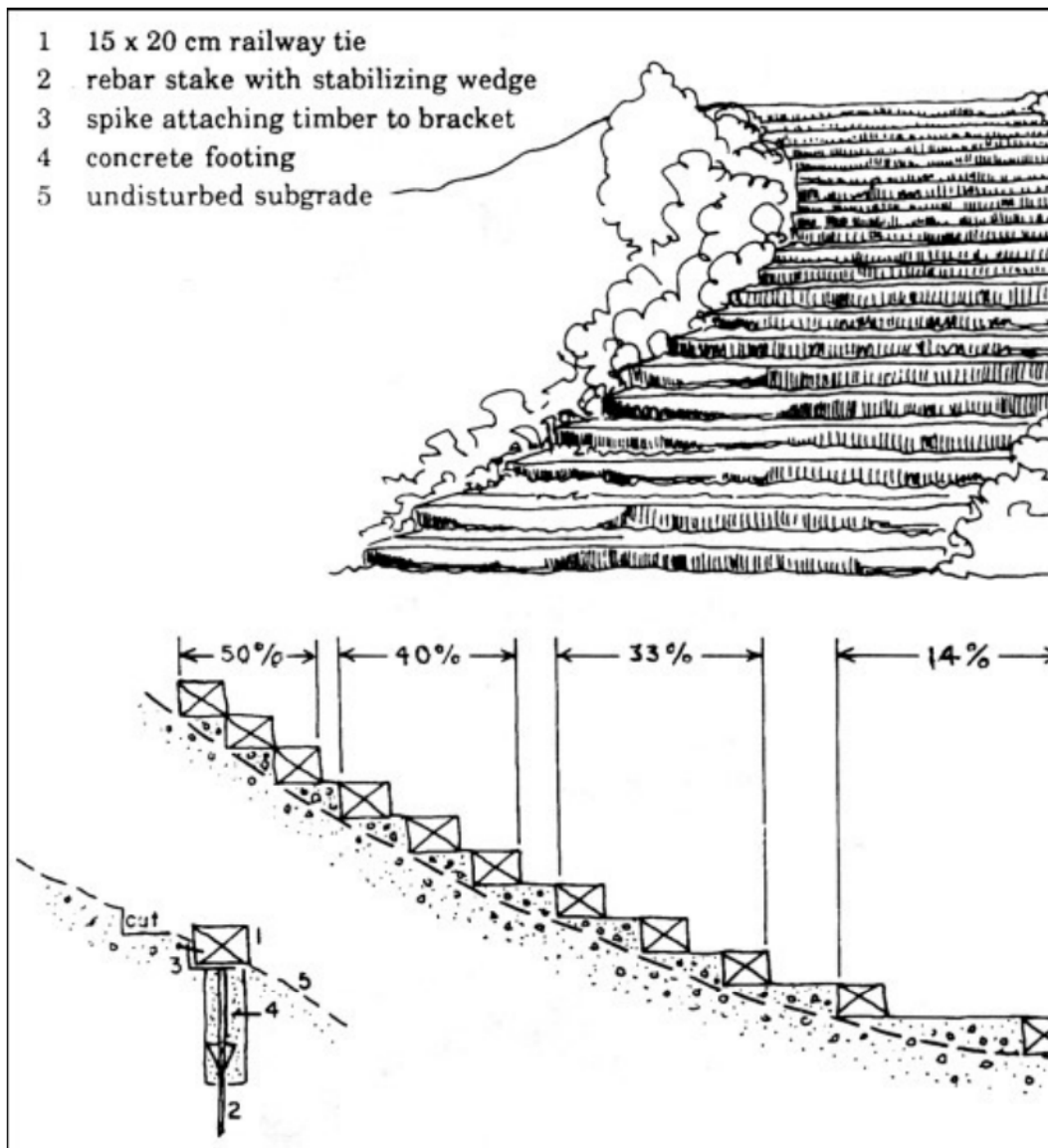
Timber steps are normally considered for intense use trails where long-term stability is desired. They should follow the contour of the land to minimize site disturbance.

In constructing curved timber steps:

- A line is drawn (using lime) on the ground to show the curve.
- Railway ties (15 cm x 20 cm) are used for the steps.
- Spacing varies according to the slope.
- Brackets for the steps are welded to a 90 cm section of rebar having a stabilizing wedge.
- Stakes can be set into concrete to help preserve the correct horizontal and vertical alignment.
- Plantings may be used to soften the edge of the steps.

Refer to the slope diagram in this section to calculate the number of steps relative to the percent slope.

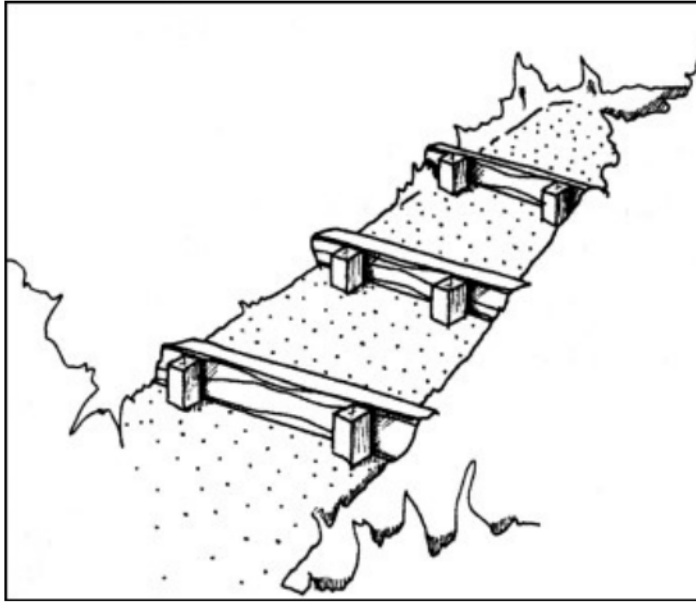
Figure 51: Curved timber steps



Ramped Steps

Ramped steps are used where it is necessary to level out gentle slopes. Timber or log risers may be used. On timbers, brackets welded to steel stakes may be preferable to a stake-only anchor.

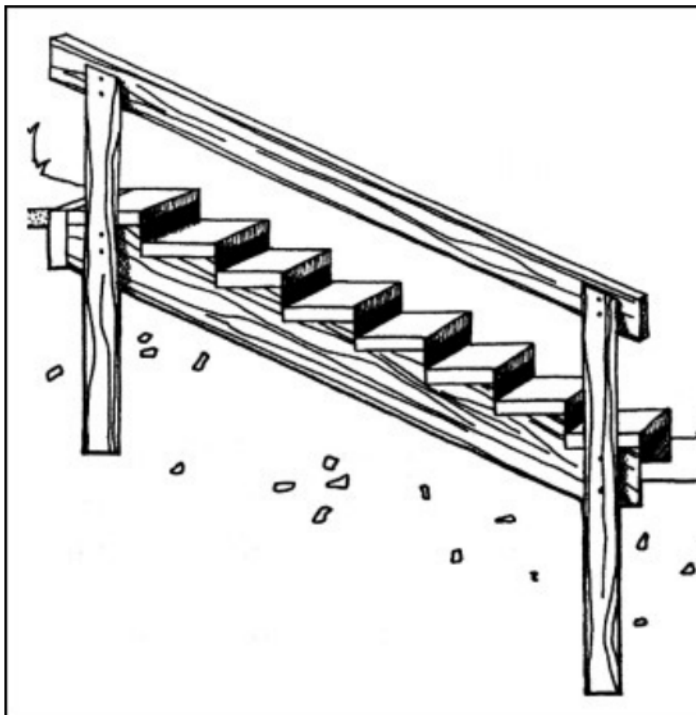
Figure 52: Ramped steps



Plank steps on stringers

Steps on stringers are used in high-use areas or where rocky materials or surface roots make it difficult to set steps into the ground.

Figure 53: Plank steps



Ladders

Ladders may be used on back country trails for more agile hikers where grades exceed a 1:1 slope. They are readily constructed

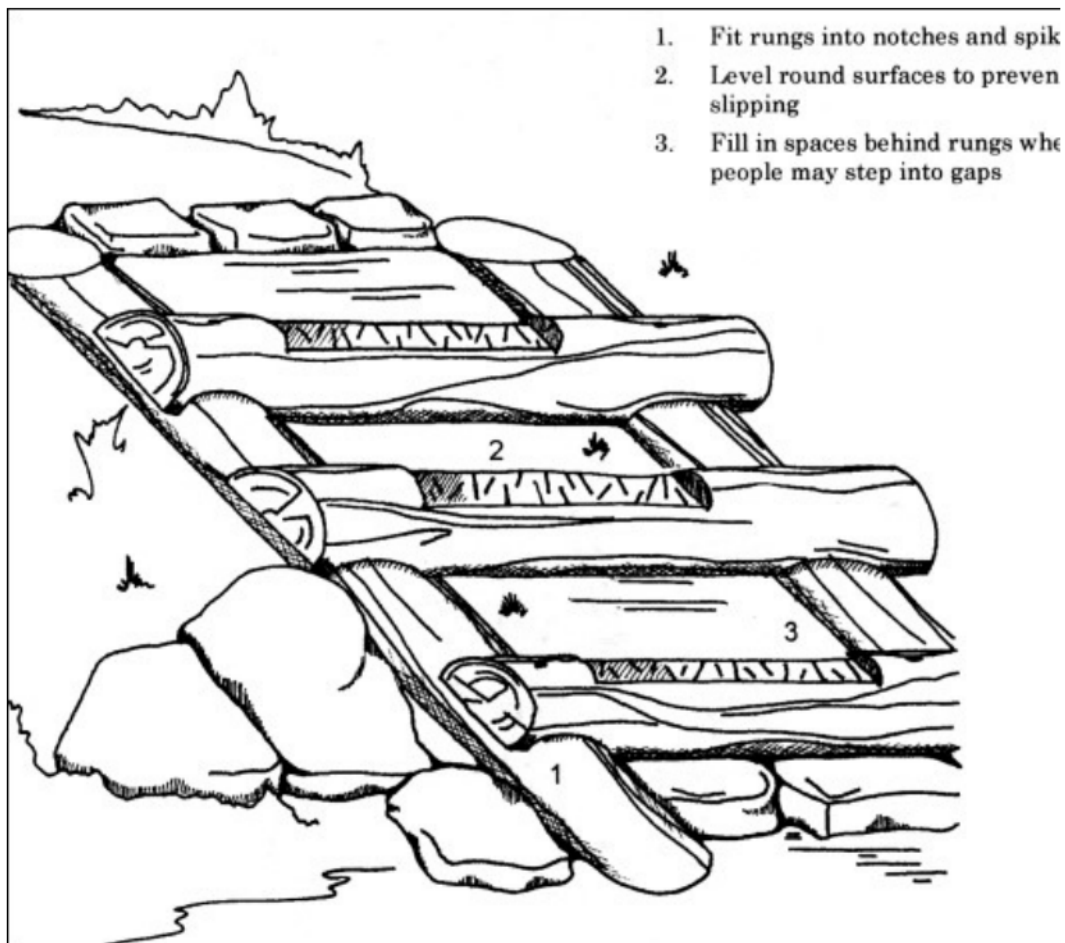
from on-site materials, and may be used for short, steep ascents or directly on the ground on less steep slopes, with the rungs acting as steps.

Crib Ladder

This technique is useful where a very steep slope, or one with rock or roots near the surface, makes it difficult to secure regular steps.

It consists of a log ladder laid into or up against the slope. Each step is backfilled with gravel or rock scree. There should be no space behind the rungs for people to step into. Tops of the rungs should be flattened with an axe. There are many possible variations of this technique, using 300 mm (12 in.) spikes to fasten the logs together.

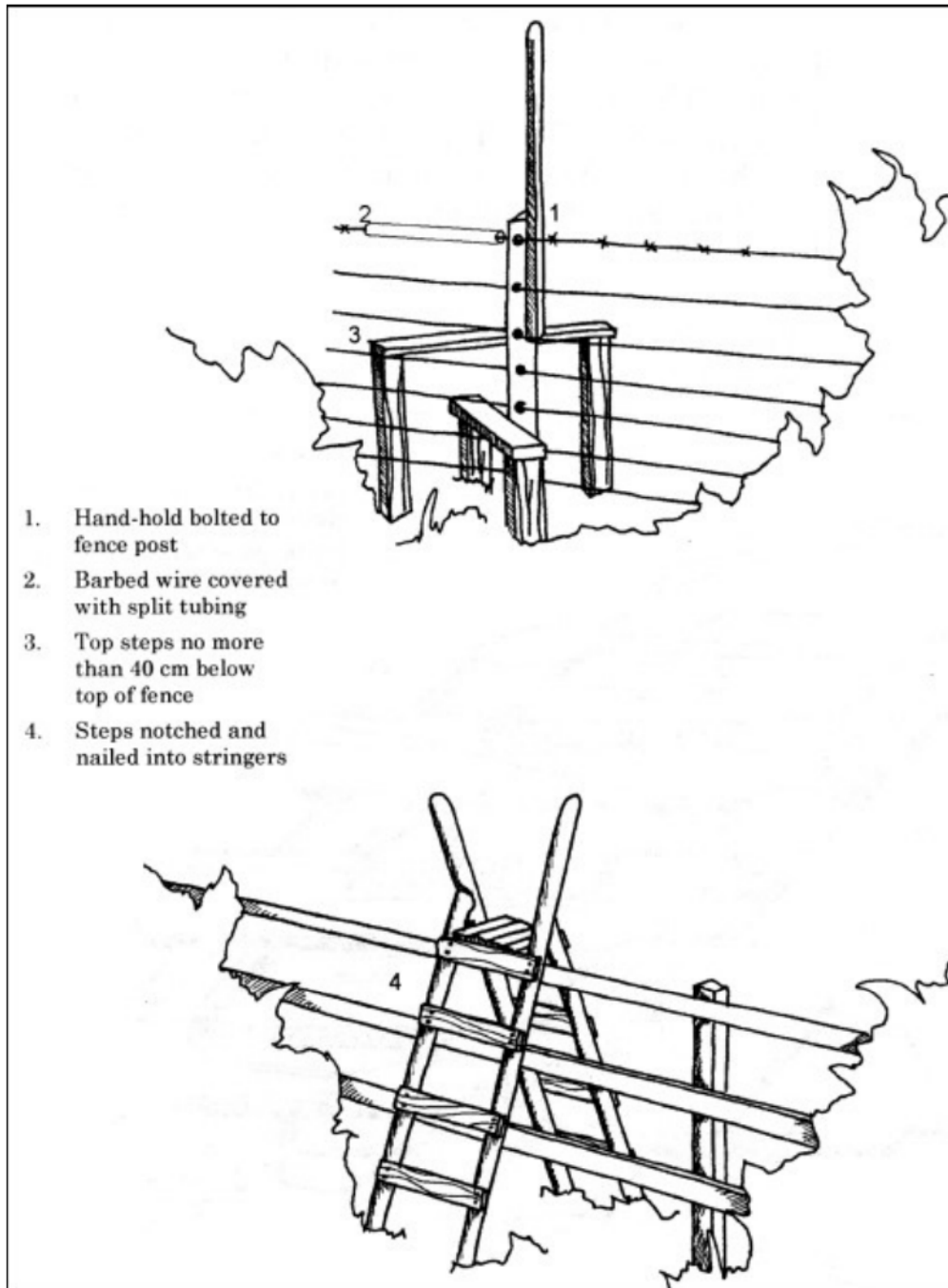
Figure 54: Crib ladder



Stiles

Stiles can be used to provide hikers with a means of crossing public lands that have been fenced, without having to install gates (preferred by ranchers). In some cases, they may also be used as a method of controlling access and for allowing pedestrians only (e.g., to prevent motorized or bicycle access).

Figure 55: Stiles



10.5 Trail Monitoring And Maintenance Program

A monitoring and maintenance program helps ensure the safety of the trail user and the preservation of the trail environment.

Trail maintenance responsibilities begin as soon as a trail

is completed and open for public use.

Trail monitoring and maintenance should reflect the level of use and the classification of each trail.

Objectives

Trail maintenance is carried out to:

- provide user safety;
- protect the environment;
- provide user access and convenience; and
- protect investments.

Trail Maintenance Priorities

1. Safety considerations should always be the first priority. Unsafe conditions should be corrected or normal use restricted.
2. Environmental and trail damage should be corrected and actions taken to prevent further damage.
3. User convenience should be considered.

10.5.1 Trail Condition Log

The basis for a well-managed monitoring and maintenance program is an inventory of trails and related facilities, or a trail log developed during condition surveys and inspections. A trail log, or initial inventory, identifies and documents the physical conditions of a trail, including all structures.

The log should provide sufficient detail to allow for appropriate maintenance decisions. Information should be:

- recorded by location;
- based on accurate measurement of the trail or from the original Construction Log; and
- marked on a detailed trail map.

The trail log, or inventory, should provide information about physical characteristics and features, including:

- | | |
|--|---|
| <input type="checkbox"/> trail classification | <input type="checkbox"/> length |
| <input type="checkbox"/> grade | <input type="checkbox"/> boardwalks |
| <input type="checkbox"/> tread width | <input type="checkbox"/> water bars/drainage measures |
| <input type="checkbox"/> surfacing | <input type="checkbox"/> bridges |
| <input type="checkbox"/> switchbacks | <input type="checkbox"/> culverts |
| <input type="checkbox"/> stairs | <input type="checkbox"/> signs |
| <input type="checkbox"/> stream fords | <input type="checkbox"/> campgrounds or huts |
| <input type="checkbox"/> safety concerns (cliffs, canyons, trails crossing tidal zones) | |
| <input type="checkbox"/> significant features (bogs, caves, archaeological sites, wildlife trees) | |
| <input type="checkbox"/> seasonal conditions (flooding during spring months or heavy rains, subject to late spring avalanches) | |

10.5.2 Maintenance Levels

The maintenance level assigned to a trail will depend on a number of factors, including:

- classification of the trail (Type I- IV);
- management objectives;
- volume and type of users;
- environmental impact;
- trail deterioration;
- purpose of the trail;
- existing trail standards;
- trail investment; and
- availability of funds.

In general, high-use and high-standard trails will receive a higher level of maintenance. This also implies a quicker response to trail deterioration.

In general, the following rules-of-thumb should be considered for summer and winter maintenance of trails.

Heavy use summer trails should be:

- repaired in the spring before the beginning of the heavy use season; and
- maintained at least once a month during the season.

Winter ski trails should be:

- maintained after significant snowfalls, or as trail conditions deteriorate due to usage and environmental factors.

10.5.3 Trail Monitoring Condition Survey

A condition survey identifies and documents the physical condition of a trail and lists the deficiencies that require maintenance efforts. Often the initial condition survey is completed at the same time as the trail inventory.

A standardized checklist, such as the one on the following page, should be compiled to give a clear and concise record of trail conditions and required maintenance procedures. Specific maintenance requirements should also be indicated on a trail map of sufficient scale (1:50 000 minimum).

The person responsible for the trail condition survey must be knowledgeable about the entire maintenance process. Any damage or deterioration that will require further work should be noted. This information, coupled with facility standards, yields manpower, equipment, material costs and work scheduling.

For lower use trails, the yearly condition survey could be

undertaken at the same time the first trail crews clear out windfalls at the beginning of the season.

A Forest Service inspection form is available for recreation trails (FS 1047) to assist staff and contractors in inspection and monitoring.

Information on Trail Conditions and Safety

It is important that information about trail conditions be made available to users as soon as possible. This is particularly important during the early part of the season in the case of summer trails, since users will want to know when the high alpine passes are free of snow, or whether bridges have been washed out.

Such information is invaluable to users who are choosing potential routes, and may well reduce the risk of injury to the public.

Note: Locations should be indicated on the trail map

Trail Maintenance Checklist HAZARDS

Potential safety hazards should be addressed immediately. If a situation is unsafe, a notice should be posted or the trail closed until the hazard has been repaired. The public should be informed accordingly at the trail head and appropriate information offices.

- ☐ River/creek crossings
- ☐ Slides/washouts
- ☐ Hazard trees

VEGETATION MAINTENANCE

- ☐ Windfall removal
- ☐ Brush clearing, including removal of hazardous branches
- ☐ Hazard tree removal
- ☐ Slope revegetation
- ☐ Viewpoint maintenance
- ☐ Close off unwanted trails and shortcuts, and restore vegetation

DRAINAGE MAINTENANCE

Cleaning and repairing structures:

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> Culverts | <input type="checkbox"/> Cross drains |
| <input type="checkbox"/> Waterbars | <input type="checkbox"/> Grade dips |
| <input type="checkbox"/> Drainage ditches | |

STRUCTURE MAINTENANCE

- | | |
|---|---|
| <input type="checkbox"/> Bridge repair | <input type="checkbox"/> Cribbing & retaining wall repair |
| <input type="checkbox"/> Steps and stair repair | <input type="checkbox"/> Barrier and handrail repair |
| <input type="checkbox"/> Boardwalk repair | <input type="checkbox"/> Deck board replacement |
| <input type="checkbox"/> Shelter repair | |

TREAD MAINTENANCE

- ☐ Draining/hardening of mud holes and boggy areas
- ☐ Washout repair
- ☐ Slump repair
- ☐ Grubbing rocks, roots, stumps
- ☐ Turnpike section repair
- ☐ Surface repair and removal of loose rocks
- ☐ Surface replenishment (similar or minimal maintenance material)

INSTALLING ADDITIONAL DRAINAGE STRUCTURES

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> Waterbars | <input type="checkbox"/> Cross drains |
| <input type="checkbox"/> Culverts | <input type="checkbox"/> Grade dips |
| <input type="checkbox"/> Drainage ditches | |

SIGN MAINTENANCE

- | | |
|--|---|
| <input type="checkbox"/> Sign repair | <input type="checkbox"/> Sign replacement |
| <input type="checkbox"/> Cairn repair | <input type="checkbox"/> Barricade or closure device repair |
| <input type="checkbox"/> Trail marker replacement or additions | |

Condition Indicators

It is easy for a trail maintenance program to become strictly reactive to immediate problems. Long-term indicators are

therefore useful for capturing trends in trail deterioration.

For example:

- trail braiding in wet alpine areas can easily lead to multiple trails across an area; and
- depth of a trail tread can increase unnoticed over several years until spring runoff channelling into the trail causes washouts or soil slumps.

These types of problems harm the environment and are also expensive to repair.

A good program monitors long-term indicators along each trail, using notes and/or photos over time. Indicators can include:

- depth of trail tread;
- trail width;
- area of soil compaction;
- development of side trails; and
- number of muddy sections per kilometre.

This should be done in conjunction with the Limits of Acceptable Change (LAC) process, wherever LAC is part of the management approach.

Unauthorized trail construction or maintenance

Section 102, Forest Practices Code

The Forest Practices Code requires that individuals or groups planning to construct, rehabilitate or maintain a trail or recreation facility must prepare a proposal and submit it to the district manager of the appropriate forest district. District manager consent is required before any work can begin. (For more information refer to Section 102 of the Forest Practices Code and the *Trails and Recreation Facilities Guidebook*, 1995, Ministry of Forests & BC Environment.)

Inspection and maintenance

Risk Management

Routine trail and recreation facility inspection and maintenance is critical to both establishing a reasonable standard of care and in fulfilling government's mandate to maintain safe, sanitary, socially acceptable and environmentally sound conditions. A risk management program with an assessment process, including well-maintained records for inspections and follow-up repairs, is critical to proving, in the case of litigation, that a standard of care existed and was adhered to.

Safety hazards must be dealt with immediately - either through repair or through closure of the trail.

Signs

When it comes to cautionary signs, a balance must be struck between the safety of the users and the naturalness of the site. Generally, any known hazard on actively managed trails, which could result in personal injury, should be signed. Wording and images for any sign must be approved by the trail manager to

ensure information is accurate and consistent. In some cases, legal advice may be required.

The question of what is "reasonable" changes with the dominant user. On trails that are easily accessible to an urban population, trail managers may need to caution visitors against hazards that are more obvious than those on remote trails visited mainly by experienced back country users.

Trail Closures

In some instances, where there is a high risk of incidents on a trail, managers may choose to close the trail. Whether permanent or temporary, notices must clearly set out the nature of the closure. This may well reduce the risk of injury to the public.

When closure is in effect, the land is considered unmanaged for recreation use and the trail manager is not perceived as having "invited" the public to a risky spot. Consequently, liability is reduced.

Section 105 of Forest Practices Code may be used to issue written orders to close or restrict use of an area or a trail (see *Appendix Section 105 Recreation Orders*).

10.5.4 Summer Use Trail Maintenance

Required Maintenance Activities BEFORE Heavy Use Season

The following maintenance activities are normally required on trails before the heavy summer use season begins.

Clear windfalls, dangerous trees, and slides

These clearing repairs are made for user safety reasons and to prevent detouring off developed trails.

- Any slide debris or slumping of mud or soil onto the trail forces users to the outside edge, which is often on fill and the weakest part of the trail. Once the slide debris is removed, repair the trail tread to the original specifications.
- If a tree has fallen over a trail and cannot be easily removed, cut a gap to allow passage. In the case of wilderness or primitive routes, consider leaving the tree if it does not represent a major impediment, but chop a step into it if necessary.

Drainage repair

No factor in trail maintenance is more important than PROPER DRAINAGE.

Maintenance inspections should look for **existing and potential** drainage problems. Often minor, temporary works done early in the season can prevent major washouts from occurring later. Permanent follow-up work should be done as soon as possible. Potential problem areas should either be treated, or monitored to gauge the rate of trail deterioration.

- **Repair erosion-damaged elements promptly to prevent further damage.** Check for effects of erosion after spring run-off.

Remove new plant growth	<ul style="list-style-type: none"> • Repair any wash-outs. • Check and repair waterbars, ditches, culverts and dips, and construct additional drainage features if needed. • Trail brushing should be done annually, and is best done in the spring and early summer when new growth is soft. • Selectively clear new or existing vegetation for viewpoints or vistas where appropriate - if this is not done for significant vista areas, spur trails will develop as users seek out the views.
Level or restore the trail tread	<p>Remove loose rocks and debris from the tread surface.</p> <ul style="list-style-type: none"> • This is done, as necessary, to restore the tread to its original grades and slopes for safety and effective drainage. • Use local materials to fill ruts, low spots or holes. Imported materials may be needed to correct soggy or muddy sections. Re-surface and fill approaches at the ends of bridges, boardwalks or corduroy sections. <p>This work should be performed after spring runoff and after severe storms during the summer season.</p>
Check and repair all structures	<ul style="list-style-type: none"> • Check for signs of rot and decay, and remove debris from around bridge supports. Secure loose side rails or curb logs and re-spike all loose decking. Ensure any structural repairs and replacements meet the original construction requirements. • Remove loose rocks from stream fords to help ensure a safe crossing. <p>Again, this should be done prior to the heavy-use season.</p>
Check, repair, or replace signs and markers	<ul style="list-style-type: none"> • Remove any vegetation that obscures signs. • Provide additional signs or trail markers where there is any confusion about trail route. • Paint sign posts, rails, etc. as required. • Re-grade the trail head parking lot, if necessary. <p>Required Maintenance Activities DURING Heavy Use Season</p> <p><i>These may be weekly or monthly tasks, as use and conditions warrant.</i></p>
Check parking lot	
Maintain trailhead structures	<p>This includes servicing such items as toilets and waste containers.</p> <p>Restock information supplies - where trailhead kiosks are stocked with route or safety brochures, these should be restocked as required.</p> <p>Remove windfall or other debris on the trail.</p> <p>Other conditions - correct other hazardous conditions or problems as the need arises.</p>
Drainage repair	Once again, no factor in trail maintenance is more

important than PROPER DRAINAGE.

**Labour and equipment
needs for maintenance**

- Monitor and repair any erosion damage promptly to prevent further damage. Potential problem areas should either be treated, or monitored to gauge the rate of trail deterioration.
- Permanent follow-up work should be done on any temporary repairs as soon as possible.
- Check and repair waterbars, ditches, culverts and dips, and construct additional drainage features if needed.

The most commonly required tools for trail maintenance (two-person crews) include:

- pointed shovel;
- double-bit axe;
- bow saw (and/or chain saw);
- brush axe;
- pruning shears;
- trenching tool;
- pruning saw;
- hammer; and
- brush mower

10.5.5 Cross-country Ski Trail Maintenance

Pre-season maintenance is best carried out prior to the first snow. Clearing should remove twigs and branches at ground level so that protruding material will not injure falling skiers. Mowed trails tend to hold more snow than unmowed trails.

Ski season maintenance focuses on the snow cover. For more detailed information on snow packing, track setting and snow grooming procedures consult the *Cross-country Ski Trail and Facility Development: Construction and Maintenance Manual* prepared by Cross-Country B.C., Canadian Ski Association.

Trails located in woods or at the base of slopes will require minimum grooming, whereas trails in open, windswept areas become icy and will require frequent grooming. The main requirement of any well laid out trail will be the setting of new tracks after a heavy snowfall. Light snowfalls will not obliterate the old track. The simplest way to reset a trail is to ski it. A good track should provide a smooth level base that is sound and continuous, and is 2 to 5 cm deep.

For intensely used areas, a track vehicle may be required to compact new snow and set tracks. Compaction helps to extend the use season since compacted snow is slower to melt in the spring thaw. If tracks become badly iced from frozen rain or freeze-thaw cycles, a track cutter may be used to help improve them. A lighted track for night use may be considered for intensely used trails in rural settings.

Where tracksetting is required because of the level or kind of use, the ministry will cooperate with other agencies, public groups and the private sector to ensure that tracksetting

services are provided, at no fee, on a cost recovery basis.

In addition, it may be appropriate for user fees to be charged for those trails where tracks are set. Such fees will be established through cooperative agreements with other agencies or through management agreements with private groups set on a cost-recovery basis, and collected by the agency that sets the tracks.

A major maintenance concern on ski trails is prohibiting ATV and snowmobile use. ATVs and snowmobiles obliterate ski tracks, create "moguls" that are difficult to ski across, roughen the trail surface, and cause trails to become overly compacted and icy, which are hazardous to users. Walkers and snowshoe users to a much less degree also break up parallel ski grooves. If walkers or snowshoe users are expected on ski trails, signs should remind them to stay to the side of the ski tracks.

10.5.6 Trail Rehabilitation

Rehabilitation may be necessary when trails have been neglected for several seasons, or when trail development objectives change due to changes in ROS settings, management objectives or user requirements.

In determining the requirements of the proposed trail rehabilitation, it will be necessary to:

- define the development objectives;
- review the design process beginning at the concept planning stage, and establish the needs of the rehabilitation project; and
- evaluate trail location, length, layout, tread conditions, grades, alignments and structures to establish where alterations are required.

The time and cost requirements of a rehabilitation project will vary depending on the degree of deterioration or the degree of change in the trail management objectives.

10.5.7 Cooperative Projects

Cooperative trail development and maintenance

Cooperative trail development and maintenance projects can benefit the public and the Forest Service not only in the short term (i.e., development cost savings), but also in the long term. Cooperative projects provide user groups with opportunities to become directly involved and see integrated and multiple resource use in action. Such projects can also provide a group with a sense of stewardship for an area.

Although cooperative projects can take considerable time and effort to initiate, they often result in less damage to the trail and associated structures, and greater public understanding of the Forest Service mandate.

Trail signage should acknowledge the cooperation of a group, but should not dominate the trail or potentially alienate other users.

Cooperative groups should be registered societies so that many

members can contribute and have sustained long-term input.

An agreement between the Forest Service and a user group should:

- be clearly set out in writing;
- include what is expected of both parties; and
- include any conditions that would nullify the agreement.

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[RECREATION SITES & TRAILS HOME PAGE](#)

LAST REVISED: 01/2001

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: BTRA Trails Strategy
Date: May 20, 2020 1:10:42 PM
Attachments: [chapter10.pdf](#)
[ATT00001.htm](#)

Hi Dan,

BTRA has been developing this strategy to help mitigate conflict on the mountain.

This is a rough draft. Is there anything we're missing or should address?

Thanks,

Kevan

Ps we're working on the summary of motorized use on the mountain as well. In speaking to several locals who've moved away, I've learned of a couple other older trails which I found and checked out this past weekend, mapped and included in the inventory Dropbox file as well as an extremely comprehensive study of all Bowen's crown lands for reference. There's still a couple more tracks which I've yet to map but will try to get done soon.

BTRA Trails Strategy

1. Noise

-95db max muffler/spark arrestor (standard acceptable level in other areas of B.C.

-on popular multi-use trails set times for motorized use (evenings are usually less busy, for instance 4pm on...) if user conflict occurs,

-promote less sound is more ground initiative at the club level and in the local riding community by raising awareness and ensuring club member's machines comply with regulations.

-encourage shift to e-machines as technology and availability allow,

1. Safety

-signage clearly showing what types of trail use can be expected on individual trails and difficulty level,

-riders are bound to the rules which already exist for operating an ORV on crown land found in the Off-Road Vehicle (ORV) Act (Safety, insurance, etc),

-Trails Etiquette Guide will provide clear examples of how to interact in a safe manner with other trail users,

-properly maintained trails and clear lines of sight will mitigate hazards,

-identify trails where one way traffic for motorized would improve safety (South Ridge Express trail, downhill only, upper portion of Two Deadends)

1. Environmental

-complete TEST document for new trails within MtGardner recreation polygon,

-research and compile list of sensitive ecosystems and watershed boundaries,

Source material;

bowenisland.civicweb.net/document/21336

-follow advice from RSTBC, follow the guidelines in the trail builders handbook
<http://www.sitesandtrailsbc.ca/documents/manual/chapter10.pdf>

-proper trail design/maintenance (utilize clear span water crossings, trail armouring, proper drainage techniques),



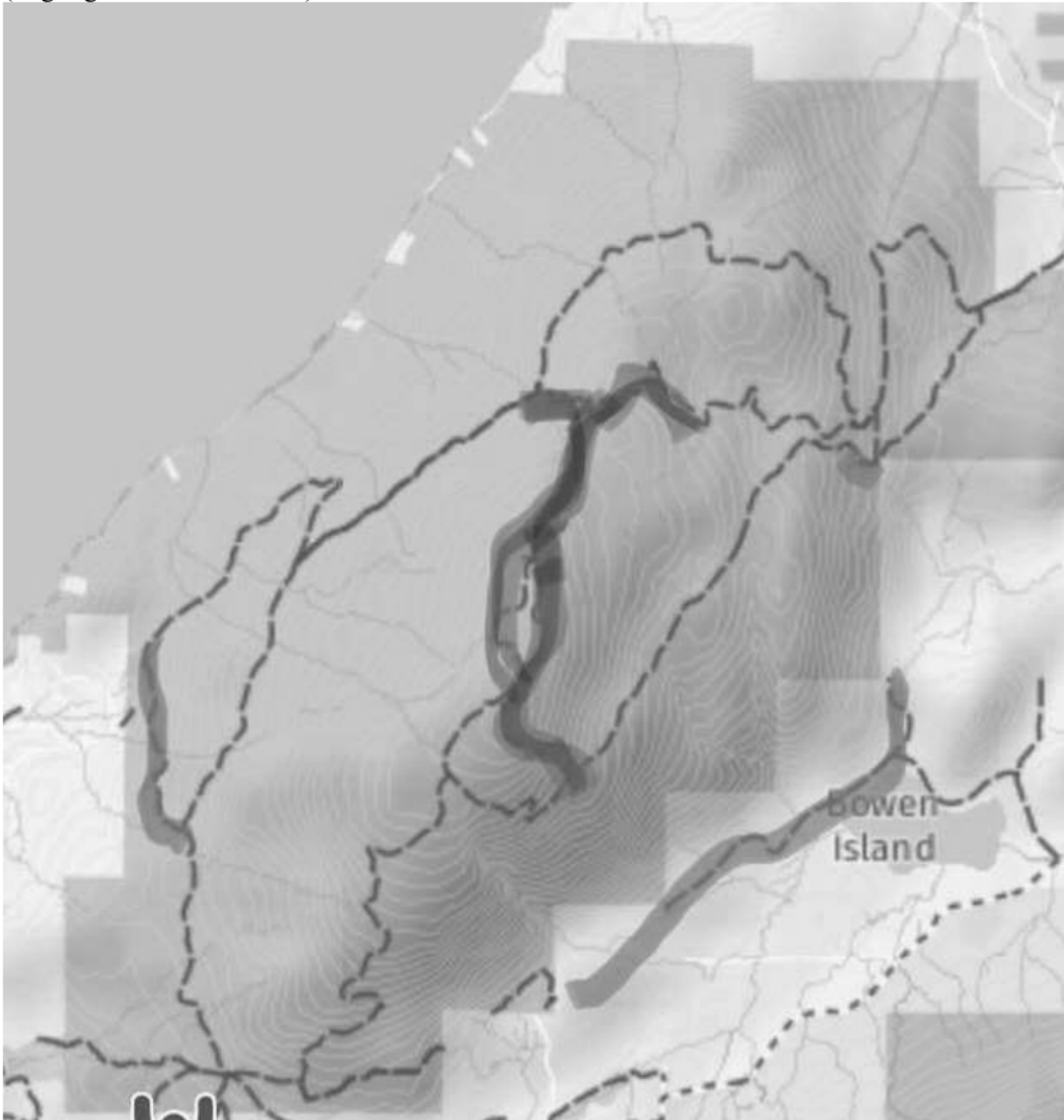
- ensure riders stick to established tracks and trails,
- follow tread lightly protocol Home - Tread Lightly!
- choose routes/reroutes which avoid environmentally sensitive areas (wet areas such as waterways and swamps, mossy bluffs or other areas where sensitive ecosystems or habitats are present, construct bridges or boardwalks over these areas if a reroute is not possible).

1. IDENTIFY TRAILS NOT SUITABLE FOR MOTORIZED USE

-there are trails which are not suitable for motorized use within the Mount Gardner Recreation Polygon. These provide Hikers and other trail users options where they will not encounter motorized users.

- The Summit Trail/loop trail
- Mines Trail
- Handloggers/Summit connector
- South Summit Grind
- Steep Section of Mid-Skid Trail
- Upper Skid Trail

(Highlighted below in blue)



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10.1 Introduction

Ministry of Forests' recreation trails, like recreation sites, are managed for the public. In the province of British Columbia there are many players involved with recreation trails ([Section 1.1](#)). Ministry of Forest (MoF) recreation trails should complement the programs of other agencies and the private sector by providing recreation opportunities that are not available elsewhere.

The overall image created by MoF recreation trails should be one of quality rustic trails in natural settings. Trailheads, and structures (bridges, cabins, signs, etc.) must complement and blend with the natural setting, rather than contrast or dominate it.

This chapter focuses on recreation trail management and defines the Ministry's role in providing part of the spectrum of recreation opportunities for the public. It sets out the management procedures for this very visible and capital-intensive component of the recreation program. An overview of recreation trail management is shown in [Table 1](#). This table identifies the phases associated with recreation trail management and the purpose, outputs and responsibilities of each of those phases.

Table 1: An Overview of Recreation Trail Management

10.2 Trail Planning

Planning, development and maintenance of trails is the responsibility of districts and regions, and takes place within the

context of strategic and operational planning (e.g., higher level plans, district recreation plans).

Subsequent to this overall land and resource management planning process, recreation trails are developed according to the standards and the desired recreation image established in this chapter.

Recreation trail planning consists of the following phases:

- trail concept planning;
- trail establishment; and
- trail assessment.

Comprehensive and detailed planning prevents mistakes, and saves time and money in the long run; therefore, the planning process also extends into trail design, construction and maintenance.

10.2.1 Trail Concept Planning

Trail concept planning is the first phase in the development of a recreation trail. At this stage, broad objectives and the general characteristics of the trail are determined. The concept plan looks to any pertinent plan(s) for direction (especially higher level plans and the district recreation plan).

The concept plan takes many factors into account, including:

- user group requirements;
- ROS class;
- recreation features (including landscape features and existing recreation facilities);
- management requirements; and
- anticipated needs for trail construction and maintenance.

Recreation Opportunity Considerations

Consideration of the setting is important not only in the development of the trail concept plan, but also in the evaluation of the existing trail opportunities. The concept plan should:

- **identify the particular trail development relative to the existing types of trail opportunities present.** For instance, high priority may be placed on developing a cross-country ski trail in a semi-primitive, non-motorized setting if most of the trails in a district are located in semi-primitive motorized or roaded settings with ATV, equestrian and snowmobile use being the dominant trail activities.
- **generally define trail characteristics that reflect the ROS class and the abilities and needs of the anticipated user groups.** For example, it would be inappropriate to consider developing a long and arduous hiking trail in a roaded or rural setting where heavy day use from a broad population base was the primary anticipated user group.
- **sometimes allow for challenging trails in frontcountry areas with roaded or rural ROS designations.** For instance, steep single-track

mountain bike trails for downhill riders may be appropriate between roads providing uphill connections.

The following ROS setting considerations on trail development have been adapted from the *Trails Management Handbook* produced by the US Forest Service. These considerations should be addressed at a broad overview level consistent with the development of a concept plan.

Social Setting	<ul style="list-style-type: none">• Type of use: the mode of travel, mix of user groups and relationship between trail activities, particularly motorized and non-motorized.• Volume of use: anticipated numbers and frequency of encounters between user groups, and the impact of that volume on the physical setting.
Physical Setting	<ul style="list-style-type: none">• Location and overall design of the corridor: the trailhead facilities and associated structures in relation to the ROS class.• Visual management: the viewshed of the trail route and the visual impact of the trail itself on the landscape.
Management Setting	<ul style="list-style-type: none">• Management of trail activities and use relative to any necessary regulatory control, such as signs or barriers (trail location and design may also help to meet these needs).• Trail stewardship: good stewardship as evidenced by good quality construction and maintenance shows management concern and promotes responsible use on the part of the trail user.• Compatibility of other resource management activities (e.g., harvesting) with the intended type of trail use; the following may help to minimize potential conflicts:<ul style="list-style-type: none">» trail location and design;» maintaining visual management practices, including adherence to visual quality objectives; and» timing of either the resource management activity or trail use to avoid peak conflict periods (may involve seasonal trail use restrictions).

10.2.2 Trail Establishment

Trail establishment is the legal process of identifying a trail corridor, establishing a map notation or map reserve over the area, distributing referrals to other agencies, and notifying the public.

Trail establishment procedures are covered in detail in *Higher Level Plans: Policy and Procedures*, a Forest Practices Code publication.

10.2.3 Trail Assessment

A detailed assessment of the trail and the surrounding area is an integral part of the planning process. Examining the natural features of the landscape relative to the expected use can minimize environmental disturbance and, in most cases, enhances user satisfaction. In order to plan in this fashion, the

aesthetic features of the trail area, as well as the physical, biological and landscape features, must be well-understood and documented.

Trail Assessment involves three basic stages:

- Pre-field investigation (incorporating inventory information);
- Trail evaluation; and
- Interpretations of carrying capacity and limitations to trail development.

Each of these stages is discussed below.

i) Pre-field Investigation

Gather as much resource information for the trail and surrounding areas as possible. This includes maps of terrain, soils, vegetation, forest cover, wildlife and aquatics, and information on climate and archaeological or historic sites. Recreation inventories of features and also provide valuable input at this stage.

Preliminary investigation will avoid duplication of effort in the field, will help identify areas of particular concern along the route, and will dictate the type and extent of additional information needed later on. For example:

- terrain maps will identify surficial materials and may indicate hazardous geologic processes, such as avalanche or failing slopes;
- soils maps include information on soil conditions and indicate areas of organic and poorly drained soils, as well as identify slope classes;
- vegetation and forest cover maps may give an indication of understory density and sensitive vegetation areas;
- wildlife maps may indicate areas of potential conflict during the intended season of use, such as caribou calving or grizzly bear feeding areas (knowledgeable experts may need to be consulted); and
- archaeological and historic-use maps may indicate that an impact assessment will be required (knowledgeable experts may need to be consulted).

Wherever possible, use aerial photos and topographic maps as base maps for recording field information, and for the trail layout and design presentation package. Scales of 1:20 000 or less are most appropriate for detailed trail route analysis. If such scales are not available, 1:50 000 scale maps and photos may be enlarged.

The following sources can provide additional information:

- *Maps BC*: Air photos and topographic maps, along with published terrain, soils, vegetation, forest cover, recreation features, aquatic and wildlife maps, and climatic record information;
- *Archaeology Branch*: Archaeological and historic site

information.

Using this information, a preliminary trail route may be plotted onto a base map, tying into recognized points, such as saddles, creek crossings or rock bluffs.

ii) Trail Evaluation

Trail evaluation is an on-the-ground assessment of the area's potential for recreation trail development. The first step in trail evaluation is to determine the preliminary trail route. Procedures for determining the preliminary trail layout in the field are taken from the *Manual for Trail Construction and Maintenance*, produced by the Federation of Mountain Clubs of British Columbia:

Trail Evaluation Procedures

- Take copies of visual and recreation features maps, carrying capacity maps, air photos and topographic base maps to the field. Locate the on-the-ground control points shown on the preliminary route map.
- The intervening sections of the trail should fit between the final chosen control points as well as possible.
- Mark all the trail lines with brightly coloured flagging tape. Place the flagging at close intervals on living trees, preferably around the trunk, tied loosely so that it can be removed and placed elsewhere if a better route is selected.
- Travel the route at least once in both directions at a time of the year when there is no snow on the ground. In areas having a moist or wet climate for at least part of the year, the route should also be examined during the wet season to identify drainage problems that may not be apparent at other times.
- Ideally, three to five people should participate in the preliminary marking and should space themselves out so that each person can be seen and heard by the next. Working together, keep the route as direct as possible. Tape should be placed so that the next two tapes can be seen from any aspect (i.e., those ahead and behind).
- When establishing the route, the designer must constantly consider all pertinent recreational and environmental factors.

Physical and Social Elements

After a preliminary trail route has been identified, the following physical and social elements should be evaluated in the field:

- topography
- soils and drainage
- vegetation
- aspect
- hazards
- natural features
- aesthetics
- access
- potential recreation activities
- ROS classification

- degree of degradation
- limiting factors
- current public use of site/expected use
- water supply/water bodies
- Visual Quality Objectives (VQOs)
- impact on future resource development
- elevation, annual precipitation, biogeoclimatic zones

Another aspect of field investigation for trail development is the evaluation of specific sites along the route that may be used for related activities. These include picnic sites, campsites, toilets, trailheads, viewpoints and interpretation sign areas. Such site considerations are discussed in [Chapter 9](#).

Amount of Time to be Spent	The amount of time spent on each of these steps will depend on the expected use and importance of the trail route to be developed. A high-use trail in a high-profile location will require the most thorough pre-field investigation and on-the-ground evaluation.
iii) Interpretation of Carrying Capacity	The amount and type of expected use on a trail will influence the layout and design, as well as construction and maintenance costs.
Defining Carrying Capacity	<p>Carrying capacity may be defined as <i>the amount of use an area can sustain without undue environmental degradation</i>. It is the physical and biological carrying capacity of the trail as identified by terrain, soils, topography, vegetation, forest cover, wildlife and climatic factors, along with the type and intensity of trail use that determines the overall potential impact on the environment.</p> <p>Recreational use of an area can diminish the quality of both the natural environment and the recreation experience. Concern about overuse causing negative impacts on the ecological and social environments of an area has led managers to try to establish carrying capacities.</p>
Focus is on the Amount of Use	This approach has focused attention on the <u>amount of use</u> and the <u>search for</u> a specific number of people that can be allowed to use an area without causing unacceptable changes to the natural environment or the recreation experience. As the environmental and social conditions along the trail route change, the carrying capacity also changes. Areas along a trail where use is concentrated, such as the trailhead, camping and picnic sites, and interpretive signs, will incur a greater environmental impact than the trail route itself.
Negative Impacts	<p>Some of the more commonly cited negative impacts on recreation resources include:</p> <ul style="list-style-type: none"> • the loss of vegetation on trails and campsites; • camping debris;

- forage impacts from pack animals;
- soil compaction around trees;
- human suppression of fires;
- mining, fishing and hunting; and
- the introduction of non-native species, as well as water and air impacts from both on and off-site human activities.

Other impacts can affect the quality of a recreation experience, such as a preference for solitude while hiking and camping.

Problems with Using Carrying Capacity

Because of these potential impacts, backcountry and wilderness managers have recognized that a key challenge is finding means to effectively protect both physical and social settings.

The carrying capacity of an area can vary depending on the management objectives. An acre of city park can accommodate more people than an acre of wilderness. Secondly, much of the adverse impact of recreational use is not the result of too much use, but rather the kind of use, the behaviour of visitors, and the timing and distribution of use.

The amount of impact caused by a specific number of users can be affected by the activities of the user, the user's level of skill, the pattern of use and other factors. Furthermore, the amount of impact is not always directly related to the amount of use. A little use in a new area may cause a lot of impact, while a lot more use may cause only slightly more impact. Because of these problems, it can be very difficult to identify a specific number as an area's "carrying capacity."

The traditional carrying capacity approach to managing backcountry and wilderness often leads managers to institute a system of use rationing, which is a fairly heavy-handed management tool. The search for a single, magic, carrying capacity number can also misdirect the manager's attention to numbers instead of trying to correct specific problems.

Indications of Excessive Impact

Trail design, construction and maintenance must proceed in consideration of the carrying capacity and anticipated use so as not to exceed the desired level of impact.

Recreational use exceeds this level of impact when:

- environmental alteration occurs to a degree that is unacceptable to management and user requirements;
- an inconvenience or safety hazard exists for the user; and
- an excessive cost is incurred to maintain the quality of the site for a specified use.

Limits of Acceptable Change

The Limits of Acceptable Change (LAC) concept is based on the premise that changes to the ecological and social conditions of an area are going to occur due to both natural and human factors. Acceptance of this premise immediately redefines the traditional question about carrying capacity from "*How much use*

is too much?" to "How much change is acceptable?"

The real concern is the **effects** of use, not how much use is occurring

The goal is to keep the character and rate of change due to human factors within acceptable levels. Or to put it another way, to decide what kind of environmental and social conditions are acceptable, then prescribe actions to protect or achieve those conditions. *"The LAC process recognizes that the real concern is the effects of use, not how much use is occurring."*

LAC Components

The LAC planning system consists of four major components:

1. the specification of acceptable and achievable resource and social conditions;
2. an analysis of the relationship between existing conditions and those judged acceptable;
3. identification of management actions judged to best achieve the desired conditions; and
4. a program of evaluating management effectiveness.

For more detailed information on the current application of LAC, contact recreation staff in the regional offices or Victoria.

Trail Development Questions

The *Trail Manual* produced by the Canadian Parks Service suggests the following questions be asked prior to trail development:

- what is the desired level of use?
- what will be the extent of detrimental impact upon the environment? and
- is this level of impact acceptable?

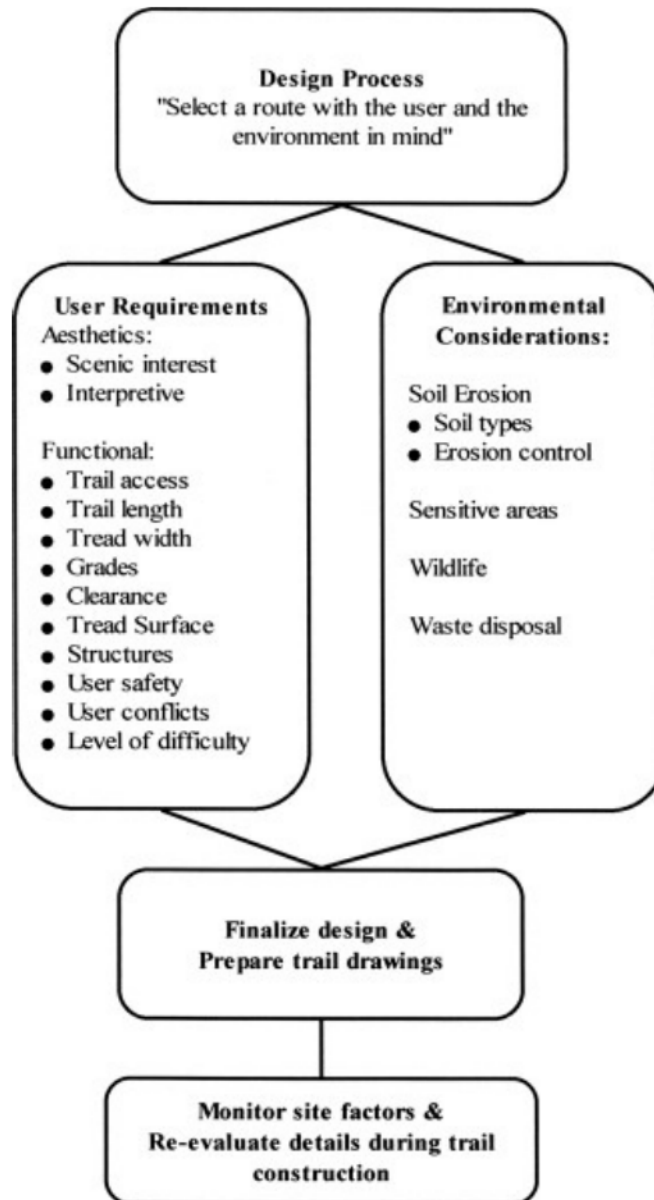
These questions are best answered with thorough knowledge of the environmental conditions along the proposed route. If the level of impact is not acceptable, then alternative solutions include:

- a change in the trail location to a less sensitive area;
- construction measures that minimize degradation, including tread surfacing, drainage control and barriers; or
- changing the type of use (e.g., developing a walking trail rather than an equestrian trail).

10.3 Trail Design

Trail design is the final phase of the trail planning process. Although some design decisions will have been made during the concept planning and assessment phase, the design process pulls together all the requirements into a final, field-checked trail plan that successfully translates the trail concept plan.

Figure 1: Trail Design Process



10.3.1 Principles of Trail Design

Well-designed trails create a harmony between user and location.

While trails may provide access to a destination, they can also provide the trail user with a sense of enjoyment and fulfilment throughout the journey. In many situations, trails are not taken to reach a particular goal; rather it is the joy of using the trail and savouring the trail environment that is the primary recreation experience being provided.

Many day-hikers, for example, fall into this category, seeking a trail which matches their ability level and provides an appropriate balance of effort and reward. The result is a day well spent, and a renewed appreciation of the forests passed

through, views enjoyed and wildlife glimpsed.

This section deals with design guidelines that relate to all types of trail development. The Canadian Parks Service's *Trail Manual* identifies *user requirements* and *environmental protection* as the two major areas of design considerations. The following information has been taken almost entirely from that manual.

Final decisions should be made in the field

Structural items, such as bridges or retaining walls, may need to be designed in the office, and major structures may require advice from engineering staff.

The following, however, should be addressed during field visits:

- clearing, tread widths and types of materials to be used;
- trail length, location, environmental protection measures; and
- number and location of construction requirements, such as switchbacks, boardwalks, bridges, waterbars, and culverts.

10.3.2 User Requirements

Trail location and design, including the structures provided along the route, should meet the needs of the anticipated user group as much as possible.

User requirements include:

- an aesthetic component, which provides a measure of satisfaction through the scenic and interpretive aspects of the trail landscape; and
- a functional component, which provides an ease of movement, sufficient comfort and no worries about the safety aspects of the trail.

These aesthetic and functional requirements must be considered in relation to the interests and abilities of the users.

Construction standards for factors related to trail type will be presented later in this chapter.

Scenic Interest

Aesthetic

Create a variety of views including full vistas, partial openings and closed forest canopies. Use natural openings, such as meadows or marsh edges, for interest and rest areas. Enhance visual interest by providing brief views of a feature, such as a waterfall, before the user is next to it or passes by.

- Align the trail near recreation and interpretive features or wildlife viewing opportunities.
- Design the trail to take advantage of topographic and biological variety; for example, along ridge tops and valley bottoms. Curved sections that fit into existing landforms, such as along ridge crests or the edge of

Interpretive Opportunities	<p>benches, are usually more interesting than long straight sections.</p> <p>Gaining an understanding of the environment of the trail route increases user interest and satisfaction. This should be considered in all trail design and development. However, in the case of interpretive trails, these considerations will largely determine the exact trail route and design in order to facilitate communication with the user through the use of guided tours, interpretive signs, brochures, etc.</p> <p>All trails, wherever possible, should take advantage of views and proximity to natural features, such as waterfalls, outstanding vistas, meadows, large trees, geologic features, etc. Potential overriding considerations, however, such as known bear feeding areas or public safety concerns near cliffs and waterfalls, must also be kept in mind.</p>
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Trail Access	<p>Functional</p> <p>Trailheads and parking areas are an essential component of trail design. These facilities should reflect the trail design itself, the type of trail activity, the ROS setting and the anticipated user volume.</p> <ul style="list-style-type: none"> • Where several trails begin in the same area, provide a common trailhead as much as possible. • Consider separate trailhead and parking areas for different user requirements, such as hiking and equestrian. • Incorporate snow removal and winter maintenance practices in designing access to winter use trails. • Consider use of non-licensed vehicles, such as trail bikes or snowmobiles, in designing access for motorized trail use (exclude public or private roads that require possession of a licence). • Consider additional parking space for larger vehicles, such as trailers or stock trucks, as well as unloading ramps and the safety of unattended vehicles. <p>In all cases, trailhead and parking areas should be developed using visual management and design practices that minimize their effect on the trail and trail users.</p> <p>For a more detailed description of trailheads and structures, refer to Chapter 9.</p>
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Trail Length	<p>Trail length depends on the type of trail activity, the ability and interest level of the intended users, and the existing terrain conditions of the trail route. Day use bicycle and ski trails will be longer than day use walking trails. Trails for experienced hikers will be longer than those for less experienced hikers.</p>
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Tread Width	<p>The width of the trail tread varies in consideration of the intended trail activity, variable terrain conditions, and whether travel is one-way or two-way.</p> <ul style="list-style-type: none"> • Backcountry (semi-primitive ROS) hiking trails will be narrower than day use (roaded ROS) walking trails
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because the volume of use will be less and site modification should be kept to a minimum.

- In rough terrain, tread width may be narrow, requiring single-file use, whereas in gentle open terrain, tread width may be wider, allowing users to travel two or more abreast.

Grades

The slope factors that affect trail difficulty are:

- the degree of slope;
- the length of sustained grade; and
- the proportion of uphill to downhill and level sections along the trail.

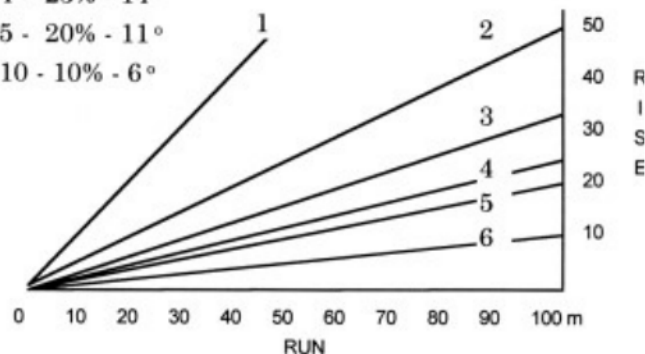
The slope or grade of a particular section of trail is expressed either as a ratio, as a percentage of vertical to horizontal distance (referred to as the rise-to-run), or as degrees of angle. The figure below shows various gradients in terms of ratio, percentage and degrees. On a 1:4 grade, there is a *rise* of 1 to a *run* of 4.

Figure 2 Slope Gradients

Figure 2

Slope Gradients

- 1 1:1 - 100% - 45°
- 2 1:2 - 50% - 27°
- 3 1:3 - 33% - 18°
- 4 1:4 - 25% - 14°
- 5 1:5 - 20% - 11°
- 6 1:10 - 10% - 6°



As in trail length, the type of trail activity, terrain conditions and user ability are the main areas of consideration.

- A variety of gradients, with gentler sections between steep climbs, is preferable to long, sustained grades.
- Switchbacks, steps or ladders may be considered for small sections of very steep slopes.
- For most trail uses, a 20% maximum grade over a maximum distance of 30 metre is desirable. However, if only a few steep areas occur along the entire length of the trail, a greater maximum grade would be acceptable. In general, a slope of 10% is desirable for those trails that steadily gain vertically over a long distance.

Right-of-way Clearing

The width of vegetation clearing should only extend far

enough to provide safe and unimpaired movement along the trail. Unnecessary clearing reduces the aesthetic value of a trail (see [section 10.4.2](#) for further details).

- Branches, shrubs and small trees should normally be removed from the right-of-way.
- If tread surfacing is not used, the existing cover of small plants, turf or surface material should remain intact to help prevent erosion and to keep a natural appearance.
- Trails should be routed around large trees and shrubs or plants of interest.

Trail Tread Surface

The trail tread may consist of existing surface materials, or it may be constructed from materials added to the trail bed once the leaf litter and surface soil have been removed.

Several types of surfacing materials may be used (*for a detailed discussion of various tread surfaces, see [section 10.4.2](#)*). The selection depends on user requirements, aesthetic and ecological compatibility, and the costs of construction. Wood chips or gravel may be used for a hiking trail, but special needs trails may require compacted crushed stone. The type of surfacing used should blend into the landscape and reflect the setting. Generally, use of indigenous materials causes less ecological concern and is less costly.

Given suitable soil conditions, foot trails can be resurfaced with only a minimum of material.

- Light gravel (25 mm thick) rolled or tamped into the trail surface should give adequate durability.
- Sandy soils may require mixing with a small portion of clay or limestone dust to bind the soil particles.

Less suitable soil conditions, anticipated heavy use trails, or special needs trails require more substantial surfacing.

- Wet soils require a barrier between the soil and the surfacing material so that the surfacing is not compressed and lost into the soil.
- Fir or spruce branches may be used in areas that are not too muddy.
- Synthetic fabrics that allow passage of water and yet separate the surfacing material may also be used, but these are costly.
- On very wet muddy areas, a layer of logs may be required.

Structures

Structures commonly used along trails include bridges, boardwalks, steps, signs and barriers. Their design must take into consideration trail activity, user volume and safety, terrain conditions and setting, and the aesthetic experience being provided.

Structures must be appropriate for the experience being provided. For example, a well-constructed bridge with handrails and steps may be inappropriate in a backcountry setting where trail users are experienced and expecting a primitive setting. Similarly, a single log bridge in an area used by families may not

be suitable.

Detailed drawings of standard structures are shown throughout the rest of this chapter.

Bridges & Boardwalks

Bridge location and design should take into consideration stream flow characteristics, bank and stream bed erosion potential, fish habitat, peak run-off periods, snow loads and ice conditions. Adequate clearance must be provided on navigable watercourses to allow for boats.

The functional requirements of the trail will determine a bridge's structural strength, width, need for railings, and the type of construction material used for decking. Bridges on equestrian trails or in areas of moose wetland habitat should be strong enough to support large animals.

Steps

Steps are used on short, steep trail sections, particularly in high-use locations, to ensure user safety and help prevent erosion. On trails where a wide range of users is expected, step design should take into consideration comfort and safety factors. A series of short flights of 14 steps or less with ample landings in between is preferable to a single, long flight.

Barriers

Barriers may be necessary in trail design if the trail location itself does not provide adequate safety from hazardous situations, such as cliff edges or rapids. Barriers may also be necessary to protect sensitive areas from traffic or to prevent inappropriate use (e.g., vehicle access to non-motorized trails or mountain bike use on hiker-only trails).

Railings and walls form barriers that vary in height depending on their purpose. Stiles and dodgeways form barriers that may be used to block motorcycle access to foot trails. Bollards placed across the entrance to bicycle paths will block access by cars and trucks. As with most other structures, barriers may be constructed of logs, timbers, stones or boulders, depending on the availability of materials. Ditches across a trail may also be used to control access.

User Safety

User safety considerations include hazardous terrain features (such as cliffs, danger trees, avalanche zones or swift rivers) and hazardous wildlife areas (such as known bear feeding areas). Safety precautions should suit intended user ability and attitudes, as well as the environment. Overly protective trails with excessive railings and barriers downgrade the user experience and the natural character of the landscape.

Trailhead information signs or brochures outlining potential hazards and necessary precautions are essential and, in some instances, may reduce the need for safety structures on trails. Where serious hazards exist during certain seasons, such as grizzly activity or avalanching, trails may be closed for a period, or users directed to alternate trails.

Trails should avoid known areas of bear habitat (e.g., soapberry or equisetum communities, avalanche slopes, or fish spawning areas) and should be designed so that surprise encounters are

unlikely. Avoid noisy waterways or sharp bends in densely vegetated areas. Assessment by a professional biologist is recommended in areas frequented by grizzly bears.

User Conflicts

Wherever possible, single-use trails are the best choice for both trail builders and trail users. Design and construction can be focussed on particular requirements, and one user's experience will not be adversely affected by the presence of another.

Hikers, mountain bikers, and horse riders often find themselves sharing trails. On Forest Service trails, self-regulation (assisted by signing and user education) is the practical option to strict enforcement. A user Code of Ethics designed for cyclists, pedestrians and equestrians has been developed by the Outdoor Recreation Council of BC.

Level of Difficulty

Level of difficulty is a subjective rating based on many variables, including the fitness and attitude of trail users. It is also a very useful consideration when planning a trail for a particular user group.

A level of difficulty rating will primarily reflect trail grade and distance; but a trail rated as "moderate" by a group of day hikers carrying only lunches may be a strenuous trail for backpackers with full loads.

Recreation trail planners will need to consider such variables and be flexible with design standards in order to create intended recreation opportunities. Level of difficulty is based on the hardest element of a trail; i.e., a moderate trail with a single difficult section would be rated "difficult."

10.3.3 Environmental Considerations

Trails that adversely impact their environment will not only have a low aesthetic value for their users, but also a high maintenance cost to the supporting agency. Trails, therefore, should be designed with consideration both for their environment and for their users.

- Where trails cannot be located away from sensitive soils or poorly-drained areas, provide for boardwalks, tread surfacing or trail drainage.
- Trail clearing should be skilfully done and not be excessive. Users will not enjoy travelling a cleared swath when all they require is reasonable passage through an interesting forest area.
- In areas of heavier use, or in sensitive areas, toilets must be provided.
- Trail routing, signing and appropriate facilities can help direct users to areas hardened to withstand the impacts, and away from areas that will show the impacts of accumulated use, such as lake shores and alpine meadows.

Soil Erosion

Erosion is a natural process in which soils are worn away by the action of wind, water, glaciers and other natural phenomena. On trails, this natural process is agitated by soil compaction and the almost constant churning agitation of hiking traffic. Mountain bikes and horses especially cut into soft and wet trails, greatly

increasing the erosion process.

Soil erosion is one of the most frequent types of environmental disturbance on trails. It affects the longevity and usefulness of trails, increases maintenance costs, detracts from visual quality, degrades plant and animal habitat, and may affect safety.

Effects of erosion include:

- loss of surface materials;
- root exposure, resulting in physiological stress to plants and, in the case of trees, susceptibility to windfall;
- stream sedimentation, resulting in damage to spawning beds, increased turbidity, and adverse effects on flow regime and stream flora and fauna;
- contamination of water supplies; and
- failing slope through slides and slumping.

Soil erosion is likely to occur on trails where surface runoff is not properly controlled, where trail grades are too steep, and where surface water is not diverted off the trail.

Soil Types

Some soil types are more susceptible than others to erosion.

Fine-textured soils:

- dry out slowly after rains;
- become muddy with trampling in wet conditions;
- are susceptible to compaction and subsequent surface water ponding in level areas; and
- are susceptible to erosion, depending on slope and moisture conditions.

Coarse-textured soils:

- dry out quickly after rains; and
- have poor nutrient availability, making vegetation regeneration difficult.

Shallow soils are:

- susceptible to erosion, particularly on slopes.

Table 2
Summary of soil indicators for evaluation of a proposed trail installation

Conditions	Conditions Posing Slight Limitations	Conditions Posing Moderate Limitations	Conditions Posing Severe Limitations
Soil	Depth to seasonal	Depth to	Depth to

Wetness	high water table more than one metre; well-drained to moderately well-drained	seasonal high water table 0.3 to 1 metre; excessively drained	seasonal high water table less than 0.3 metres
Soil Texture	Particle mixture of sand, clay and silt; gravel is 20-50% of content	High sand content; gravel content is 20-50% of content	High clay content; no gravel
Soil Structure			Hardpan is less than 0.3 metres from soil surface; peaty, mucky soils
Soil Depth to Bedrock	> 1 metre	0.5-1.0 metres	< 0.5 metres
Slope	0 - 0.5% (< 1:20)	5 - 20%	> 20% (> 1:5)

Erosion Control

The design process can incorporate recommendations to minimize soil erosion. Details of the prescriptions, and where they occur, are described in the final trail plan.

Locate trails in areas least sensitive to erosion. If this is not possible, minimize erosion by using appropriate construction measures.

Ensure proper control of drainage water on slopes by:

- avoiding steep sections susceptible to water runoff;
- orienting trails across slopes on the diagonal, or use switchbacks to climb steep slopes;
- incorporating natural grade dips into the trail surface so that drainage is diverted at frequent intervals;
- using steps or ladders on steep slopes, making sure drainage water is diverted from the top of steps; and
- sloping the cross-section of the trail tread approximately 2%, or 4 cm per 1 metre of tread width to redirect water.

Drainage Across a Trail

Depending on the level of surface runoff, trails can be designed to help water flow off the surface and/or be intercepted and channeled away.

When surface runoff is low, it can run directly across the trail surface (figure 3). When surface runoff is high, the tread cross-section should be crowned, with a ditch on the uphill side to lead water to grade dips, culverts or waterbars (figure 4).

Figure 3: Drainage across a trail (low runoff)

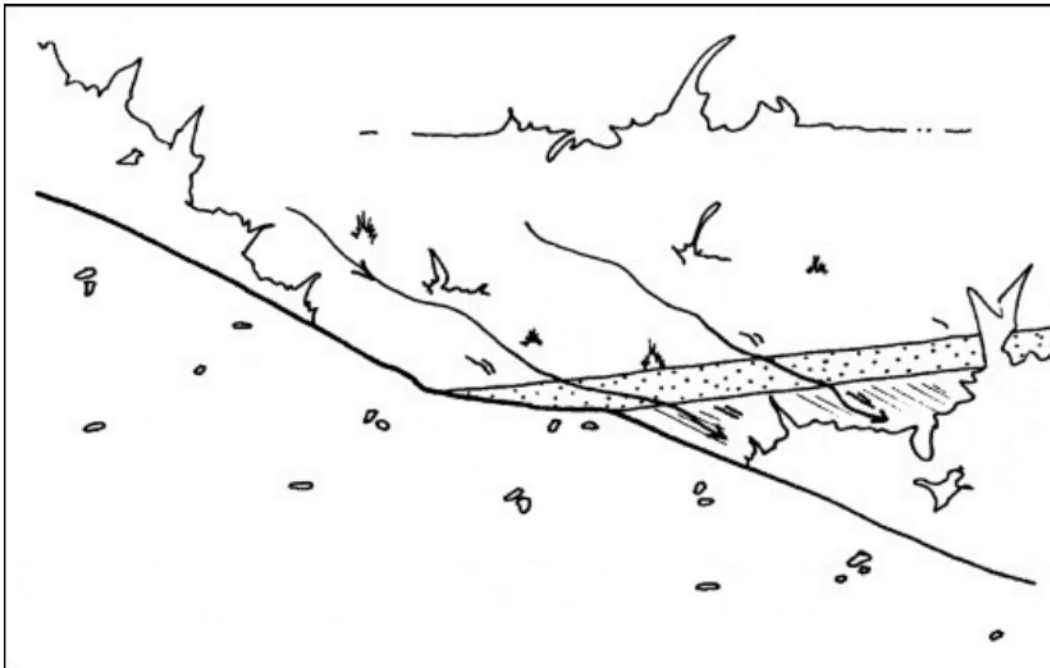
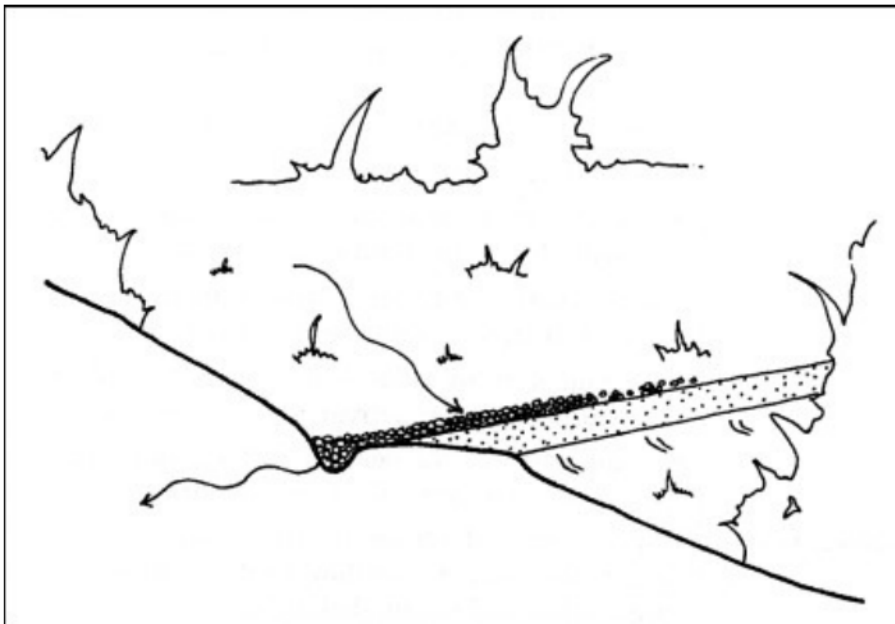


Figure 4: Drainage intercepted (high runoff)



Waterbars

Waterbars (or cross drains) intercept water running down the trail tread and direct it off the trail. When cross-sloping the trail tread and grade dips are not adequate to control runoff, waterbars can be an effective solution. Trail design plans will indicate sections requiring waterbars and the maximum space between them.

Figure 5: Placement of waterbars

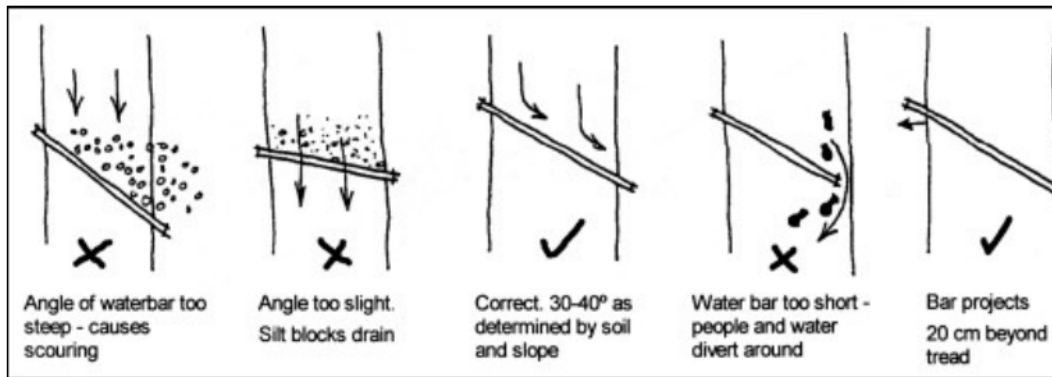
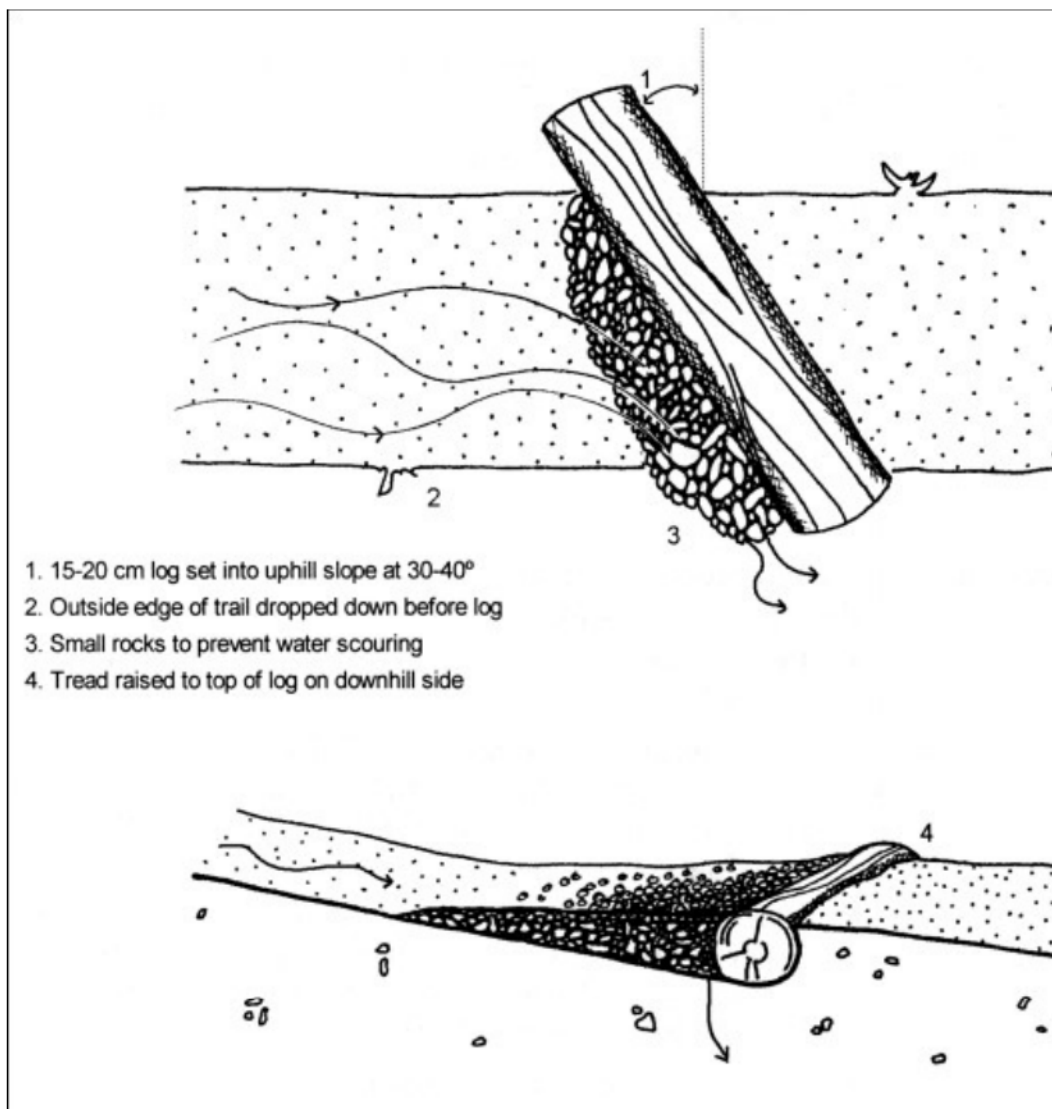


Figure 6: Log waterbar



Waterbars may also be constructed of stones 15 cm or greater in diameter and placed across the trail in the same position as

the log waterbar illustrated.

The following table gives recommendations for the frequency of cross drains on different surficial materials and on different slopes.

**Table 3: Waterbar frequency table
Recommended spacing of cross drains and
water bars (meters)**

Grade in %	2	4	6	8	10	12	15
Loam	100 m	50 m	30 m	25 m	15 m		
Sandy clay	150 m	100 m	75 m	50 m	30 m	15 m	
Clay		150 m	100 m	75 m	50 m	30 m	25 m
Gravel or rounded rock			250 m	150 m	100 m	75 m	50 m
Shale or angular rock			275 m	200 m	125 m	100 m	75 m

Siting of Culverts and Bridges

Ensure proper siting and design of culverts and bridges through the following:

- provide for adequate drainage flow. Bridge specifications depend on peak flows and flood cycles;
- locate bridge crossings to minimize disturbance to stream beds and banks. Those sections of the waterway that are straight, and where bank conditions are stable, are best for crossing;
- use bridges rather than culverts to cross large streams. Culverts may alter flow, cause downstream erosion or silting, and disturb fish habitat. If a fish-bearing stream is involved, the Forest Practices Code must be followed; and
- If culverts are used on small drainage ways, they should be of an adequate size and set at a level that will not interfere with drainage. Rocks should be set around the ends of the culvert to stabilize the fill material and hide the ends of the pipes. Surfacing over the pipes should be a minimum of 10 cm.

Trail Shortcutting and Side-Trampling

These poor user practices promote soil erosion. They occur when users wander off the trail or make shortcuts that cause vegetation and soil trampling. Users take shortcuts where the trail is unsafe or an easier route is visible. Muddy conditions, erosion and deadfalls also force users off the trail tread.

The design process can incorporate recommendations to minimize shortcutting and side-trampling:

- widen trails at feature points, view sites or interpretive displays where use is expected to be heavier;
- define trail edges clearly by using logs or rocks;
- raise the trail tread by using log stringers, tread surfacing or boardwalks;
- use landforms or vegetation to block potential shortcuts;

- move the trail location to the shortcut route if it is superior to the original route;
- close-off potential shortcuts by placing rocks, branches, fallen trees or new plantings to obstruct access;
- use signs requesting that users stay on the trail, or
- minimize the use of switchbacks in trail construction; the use of alternate routes or using steps or ladders may be possible. Shortcutting is not as common in areas of dense vegetation.

Special Areas with Sensitive Features

Special areas with sensitive features include any locations where the presence of humans, or the disturbances associated with building a trail, could impact negatively on the special features. Such features include archaeological sites, areas where rare plants are growing, bird nesting sites and wildlife habitat (see below).

Most wet areas, such as lakeshores, bogs and marshes, are particularly sensitive to being disturbed. If any such area cannot be avoided, and is not critical habitat, it can be crossed using a raised trail bed supported by stringers filled with woodchips. Boardwalks can be constructed across standing water and areas of wet organic soils.

If there are fragile plant communities next to the trail, define the trail edges using rocks or logs.

Wildlife

Areas with identifiable wildlife hazards or potential wildlife conflicts should be identified early in the trail design process - and avoided.

Wildlife hazards occur in those areas where the animals themselves may cause hazards to users, such as areas of bear or rattlesnake concentrations.

Wildlife conflicts can occur in areas such as:

- important waterfowl or marine bird nesting, staging or wintering areas;
- big game rutting, birthing, wintering, migrating or mineral lick areas (may also pose a hazard to the user);
- important fish spawning or rearing habitat, which may be damaged by the removal of trees or shrubs along a river where a trail is proposed; and
- habitat of special importance to rare or endangered species.

Waste Disposal

Disposal of all waste matter is an important consideration in trail design. Litter along the route, garbage associated with overnight camping, and horse and human excrement not only detract from the quality of the trail corridor, but are a health and safety concern. Broken glass, cans, bottle caps and plastic bags are also hazardous to wildlife. Bears that become habituated to human food become a problem.

The design process can incorporate the following recommendations to minimize waste disposal problems:

- an effective management practice is to educate users and implement a "pack-in-pack-out" policy;
- where horse traffic is expected to be heavy, other types of trail use during the same season should be avoided; and
- if designated campsites are located along trail routes, site design considerations must be applied to the use of toilets.

10.3.4 Design Considerations

The following two figures show both poor and good trail design.

In addition, a trail system should use different layouts to satisfy a diversity of recreational needs. Careful design will provide trails for different users with differing expectations.

Figure 7: Poor trail design

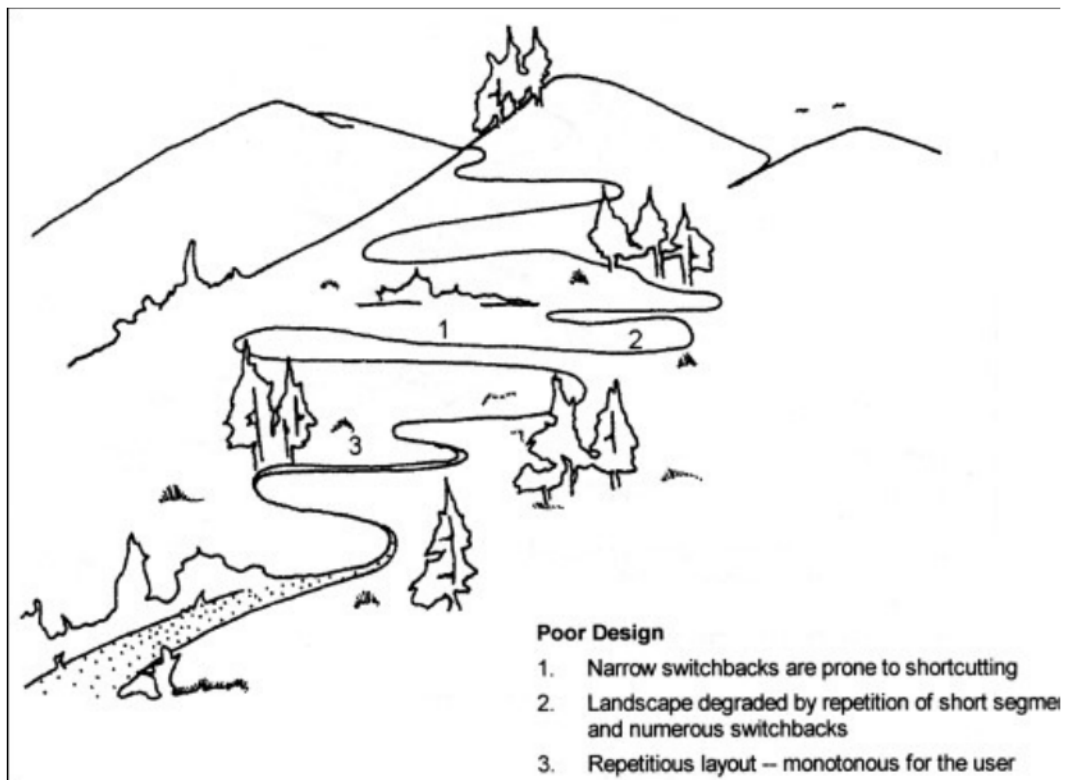


Figure 8: Good trail design

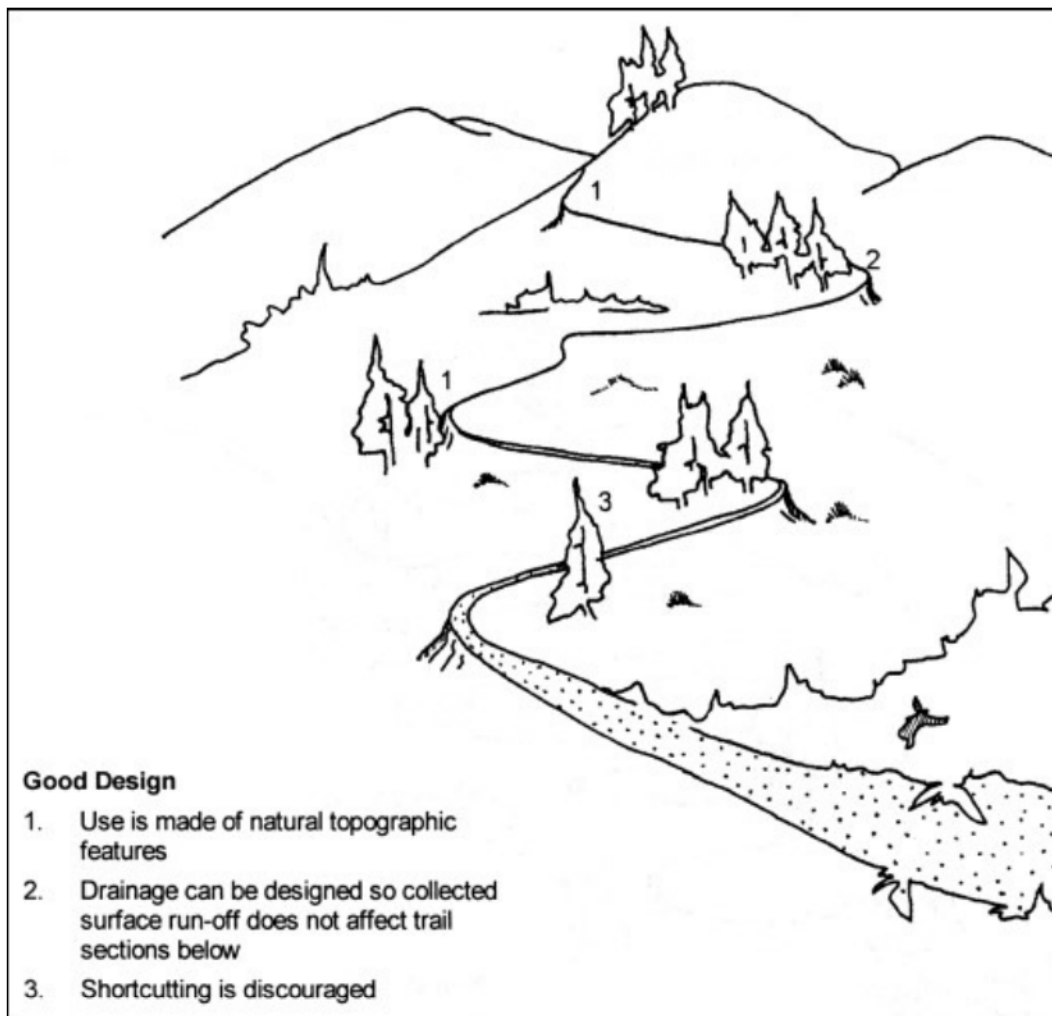
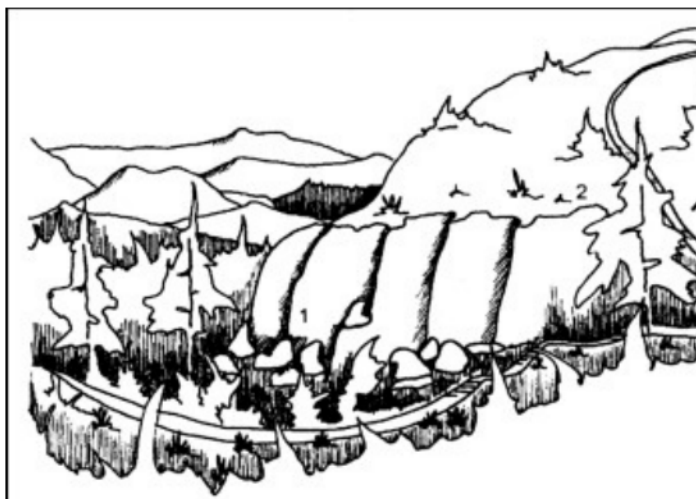


Figure 9: Taking advantage of topography



10.3.5 Guidelines for Specific Trail Classes

The BC Forest Service develops and maintains recreation trails according to the particular experience being provided for the user.

In 1997, the Forest Service adopted the trail classification system being used by BC Parks at the time. This offered several advantages:

- Compatibility of use
- consistent standards and classifications across the province can lead to better cost estimates and maintenance plans;
 - trail crews (often employed under contract) could become familiar with trail requirements anywhere in the province, whether in provincial forests or in Provincial Parks. Anticipated results include greater efficiencies and more consistent workmanship; and
 - users can gain a better understanding of the kind of experience they could expect, based on the trail type.
- If trails are to have more than one use, then the trail conditions must meet the requirements of all the expected uses. The compatibility of multiple-use trails must be considered:
- in most cases, motorized and non-motorized use on the same trail is not recommended;
 - depending on the volume and season of use, hiking and equestrian use on the same trail may not be compatible;
 - bicycle use on interpretive trails or heavily used hiking trails should also be avoided; and
 - given favourable terrain conditions and features, many trails may be used in both summer and winter seasons.

TRAIL CLASSIFICATION

Activities

Trails are classified according to the recreation activity they will be used for:

Non-motorized

Foot
Horse
Bicycle
Ski
Interpretive
Barrier Free

Motorized

Snowmobile
Motorbike
All Terrain Vehicle
Four Wheel Drive

Trail Types

The trail standard types range from Type I to Type V:

- type I trails have the highest standards, allowing for the maximum number of users. They have the highest construction and maintenance costs, and will likely have the highest environmental impact; and
- types III, IV, or V have the lowest standard and allow for the least number of users. Construction costs are lower and they are likely to have the lowest environmental impact.

Non-motorized Trail Type Summary

The following guidelines describe the standards used by the BC Forest Service for trail types I to V for non-motorized users, and for level-of-difficulty for motorized users.

ROS Class	Type I	Type II	Type III	Type IV	1
Rural					
Roaded					
Semi-primitive					
Primitive					

Standard	Type I	Type II	Type III	Type IV	1
Highest standard	→				L
Maximum users	→				L
Highest impact	→				L
Highest cost	→				L
Highest maintenance	→				L

Trail Activity	Type I	Type II	Type III	Type IV	1
Hiking	✓	✓	✓	✓	
Bicycle	✗	✓	✓	✓	
Equestrian	✗	✓	✓	✗	
XC Ski	✗	✓	✓	✗	
Ski Touring	✗	✗	✗	✓	
Special Use	✓	✓	✗	✗	

✓ Usually provided by Forest Service

✗ Not usually provided

Foot Trails

Foot trails generally require less development than other types of trails and offer the user a closer association with the natural environment. If uses other than hiking are to occur, then the requirements for the alternate uses must also be accommodated.

Foot Trail Guidelines

Foot Trail Guidelines

Trail Types	Uses	Tread Width	Grade
Type I	<ul style="list-style-type: none"> High standard, short walks 5-30 minute duration 	2.0 m	≤ 8% Average ≤ 5%
Type II	<ul style="list-style-type: none"> Steady two-way traffic Walking trails 	1.25 m	≤ 10% Average

	<ul style="list-style-type: none"> Minutes to 2 hours duration 	5 - 8 %	
Type III	<ul style="list-style-type: none"> 1 - 6 km Single file, hiking trails 1-7 hour day use, overnight and multi-day 	0.75 m	<= 10-12%
Type IV	<ul style="list-style-type: none"> 3-20 km or more Backcountry hiking trails Multi-day Light use 	0.50 m	N/A
Type V	<ul style="list-style-type: none"> Backcountry routes over difficult terrain Overnight to multi-day 	N/A	N/A
Type I Foot Trails	Type I trails are typically used in day-use areas, to access vistas and viewpoints located a short distance from vehicle access, and in the vicinity of campgrounds. The high-use nature of these locations usually requires structures, such as toilets. They may also be used as ski trails in winter if the criteria for those trails are met.		
Type II Foot Trails	Type II trails are commonly used in conjunction with day-use areas, viewpoints, campgrounds, interpretive areas, or as access to back country trails. Many such trails serve dual functions in that they access specific points of interest that may have moderately high use, and provide access to back country trails that have much lower levels of use. Type II trails may also be used as ski touring trails in winter if the appropriate criteria are met.		
Type III Foot Trails	While Type I and Type II trails best fit the category of walking trails, Type III trails serve as hiking trails, for people travelling single file. Type III trail lengths may be 3-20 km or more. Support structures, such as developed campsites and pit toilets, may also be appropriate depending on the length and use of the trail.		
Type IV Foot Trails	Type IV trails are planned as lightly used wilderness hiking trails, for overnight or multi-day duration. Tread widths are only 0.50 metres, and grades are constructed as appropriate to the terrain being accessed. Type IV trails would not normally have support structures, such as developed campsites, but may have pit toilets as required.		
Type V Foot Trails	Type V trails are usually wilderness hiking <i>routes</i> and specific trail development is avoided. Wilderness hiking routes are typically used for overnight or multi-day trips, and may cross very difficult terrain. Signing, campsites, or other structures are not generally developed, although restrictions may be imposed on camping locations for environmental reasons.		
Trail Design Considerations	The length and layout of foot trails is an important consideration, and should be consistent with the type of use the trail will receive.		

The width of necessary clearing and trail tread should match the trail type. Type I trails are the widest, with surfaced treads and Type IV trails are the narrowest with no special tread surface treatment. The clearing width may need to be modified if trails are used as ski touring routes.

Trail structures are designed in accordance with trail types and usage level. Type I trails may need engineered bridges, while Type IV trails may not use bridges at all or use simple two-log crossings.

Suitable campsites and waste facilities should be constructed on Type III trails, while Type IV trails have minimum structure development. Any type of development should be entirely avoided on Type V routes.

Bicycle Trails

Bicycle trails may include both mountain bicycle and road bicycle routes. Casual cyclists have different needs from those pursuing the activity as a challenging recreational sport.

Trails that were previously used only by hikers or horses, are now in demand by mountain bikers. This has led to impacts on other users, the environment, and trail maintenance. Appropriate trail planning and maintenance principles help manage the effects of mountain biking. Trail types for bicycles include both mountain and road bicycles, with Types III and IV suited for mountain bike use only.

Bicycle Trail Guidelines

Trail Types	Uses	Tread Width	Grade
Type I	<ul style="list-style-type: none"> Two-way traffic Smooth all weather riding Road and mountain bikes 	2.5 m	Average 5-8% Max. 10%
Type II	<ul style="list-style-type: none"> Two-way traffic One-way traffic Road and mountain bikes 	2.0 m	Max. 10-15%
Type III	<ul style="list-style-type: none"> One-way traffic, easy to difficult Mountain bikes 10-20 km 	0.5-0.7 m	Easy: 10% over 30m Difficult: 22% over 45 m
Type IV	<ul style="list-style-type: none"> Mountain bikes Difficult One-way traffic 30-80 km 	0.3-0.5 m	Sustained 15% 25% over 90 m

Type I Bicycle Trails

Type I bicycle trails are typically two-way bicycle paths for smooth, all-weather riding, surfaced with asphalt or chip seal mixes. They are designed for both road and mountain bikes, and are suitable for all types of users. Type I trails may also serve as

	groomed cross-country ski trails if the appropriate criteria are met.
Type II Bicycle Trails	Type II trails are also surfaced two-way bicycle paths, but with narrower widths, steeper grades, and compacted gravel surfaces rather than pavement. Existing old road or railway beds may also be used. Type II trails are suitable for both road or mountain bikes, and suitable for most users.
Type III Bicycle Trails	Type III trails are accessible only to mountain bicycles, and are generally unsurfaced one-way trails. Trail obstacles up to 10 cm high may remain if appropriate. Type III trails may be suitable for ski touring in the winter season.
Type IV Bicycle Trails	Type IV trails are accessible only to mountain bicycles, and are generally unsurfaced, longer, steeper and more difficult than Type III trails. Trail obstacles up to 10 cm high may remain if appropriate. Type IV trails may also be suitable for ski touring in the winter season.
Width	<p>A bicycle's handlebars are approximately 60 cm wide and 75 - 100 cm above the ground. The elbows of a cyclist may extend beyond the width of the handlebars. For this reason, a 3 metre right-of-way clearing width is used for two-way surfaced bicycle trails.</p> <p>A minimum of 2 m cleared width for one-way bicycle trails is used in day-use areas or campgrounds, and a clearing width of 1 - 2 metres is used for the more challenging Type III and IV trails.</p>
Height	A clearing height of 3.5 metres is used on all types of bicycle trails.
Layout and Alignment	<p>Where cycle traffic is to share a right-of-way with automobiles and other motorized vehicles, pavement markings should be used to show boundaries for both cyclists and motorists.</p> <p>Long-distance trails may incorporate minor or unused roads, easements along highways, power lines, railways and abandoned railway grades.</p> <p>Curvilinear alignments with varying types of curves create a more interesting trail and may help to avoid cutting large trees. Sharp curves should be avoided at the bottom of long or steep slopes to prevent cyclists losing control. Straight "run out" sections prior to sharp curves help to reduce speed. Visibility on slopes should be clear to reduce chances of collision.</p>
Structures	
Bridges	Bridges should have non-skid surfaces. Junctions between the trail surfaces and the bridge should be level. Bridges with railings should be 60 cm wider than the trail tread to allow for the overhang of handlebars. In heavy use areas, an extra 60 cm will allow cyclists to stop on bridges without blocking traffic.

Bridges without railings should have wheel stops installed. Wheel stops should be a maximum 15 cm to avoid hitting bike pedals. Bridges should not be located at the end of long or steep grades.

Steps

Steps should be considered for heavy use bicycle trails where grades exceed 10%. Narrow paths or ramps should be built on either side of the steps for users to wheel their bicycles as they walk up or down. Landings should be provided on long climbs. Use of steps requires adequate warning signs and clear visibility, especially from the top approach.

Horse Trails

Horse trails may consist of day-use bridle paths or long-distance routes used by pack and saddle stock. Trails must be designed to consider the environment and the safety of both the rider and the horses. Access to drinking water should be provided at least every 15 km.

Horse Trail Guidelines

Trail Types	Uses	Tread Width	Grade
Type I	<ul style="list-style-type: none"> Day use only 1-15 km 	0.5-1.5 m: depending on conditions	Average 0-10% Max. 15%
Type II	<ul style="list-style-type: none"> Day use or overnight 5-30 km 	Same as above	Same as above
Type III	<ul style="list-style-type: none"> Low use 30-50 km Multi-day 	Same as above	Same as above
Type I Horse Trails	<p>Type I horse trails should be considered as high-use trails, particularly near campgrounds, major trail heads, or other intensive recreation areas. They may provide for short exploratory rides, and are designed to accommodate a steady flow of two-way horse traffic during peak use periods.</p> <p>Type I horse trails are generally intended for day-use only. They utilize a gentle uniform gradient and a well-compacted surface, with crushed gravel or stone surfacing unless local soils are suitable for high-use levels and are well-drained.</p>		
Type II Horse Trails	<p>Type II trails may constitute trunk components of more extensive trail systems. Existing soils are used for trail surfacing, except where surfacing is required to cross wet or fine-textured soil areas. Type II trails are not normally designed to accommodate winter use, except as snowmobile routes.</p>		
Type III Horse Trails	<p>Type III horse trails are intended for low use, multi-day duration trips. Beyond their trunk components, they are generally constructed to low standards and may access wilderness zones.</p>		

Length	Type I, day-use trails commonly range from 5 to 15 km depending on the terrain and user ability. Additional loop or spur trails may increase the distance and provide a range of terrain conditions. Long-distance Type III trails may cover several hundred kilometres. Campsite intervals may range from 16 to 25 km.
Right-of-way Clearing	Vegetation should be cleared to a height of 3 m above the tread surface, and the minimum width clearance should be 2.5metres.
Tread Surfacing	The surface of horse trails should be fairly even, and rocks or roots that cannot be covered should be removed. Additional surfacing materials will be required in areas of sensitive soils or intensive use. Wood shreds are more suitable than chips. Gravel or crushed stone mixed with the existing soils is also suitable. On intensely used bridle paths in rural settings, crushed stone provides the best surface material.
Structures	<p>Fords are preferable to bridges for stream crossing, provided the velocity and depth of the water is acceptable during the normal use seasons. Water depths of not more than 60 cm are safest. Trails should be routed to cross acceptable natural fords. Ford construction requires a minimum 1 metre wide base from which large rocks have been removed and the stream bottom levelled to make a relatively smooth crossing.</p> <p>If bridges are used over streams or wet areas, they must be able to support the maximum number of loaded horses that may occupy the bridge at one time. Footing should be secure, and if logs are used, they should be flattened on the top. Each log must be secured so that it does not move.</p> <p>Culverts should be covered with a thick layer of surfacing so that hollow sounds are not made when horses are crossing. Corduroy should also be covered with soil or surfacing material to create an even tread.</p> <p>On steep side slopes, rocks or logs may be placed along the outer edge of the tread to prevent sloughing of the trail edge.</p>
Additional Considerations	<p>Horses can cause severe damage to trails in wet areas. Once a trail becomes muddy, further damage occurs as horses detour to the sides of the trail. When possible, routes should be located in areas of stable soils. Trails on side slopes require adequate drainage. Trails in wet areas should be re-routed, bridged or filled.</p> <p>Plant distribution and succession along trails and in grazing areas is disturbed by browsing and trampling. Imported feeds cause foreign plant species to be introduced. Grazing along trails and at campsites should be avoided. Corrals should be provided at campsites and feed should be packed in.</p> <p>The volume of horse use should be monitored so as not to exceed the carrying capacity of the trail. Access to sensitive areas should be prohibited to horse traffic. If foot trails provide access for riders, tethering places should be available at the entrance to the foot trail. Trails may be closed to horse traffic</p>

during spring runoff, after heavy rains or when maintenance is required.

For detailed information on overnight camping, day-use and trailhead facilities associated with horse trails, see [Chapter 9](#).

Ski Trails

The category of "ski trails" includes ski touring, cross-country skiing, and racing trails. Guidelines for ski trails are extensive because climate, exposure, safety and maintenance factors must be considered. The *Cross Country Ski Trail and Facility Development: Construction and Maintenance Manual* prepared by Cross Country B.C. is an excellent source of information and should be consulted in addition to the information outlined in this section.

Ski trail design has evolved into a sophisticated art in recent years, with the increasing popularity of cross-country skiing. Trail planning, design, construction, and maintenance requirements differ from hiking and other summer use trails, although some trail types are suitable for all-season use.

The four trail types within the category of "Ski Trails" may each be divided into *Easiest*, *More Difficult* and *Most Difficult* (or Novice, Intermediate and Expert).

Ski Trail Guidelines

Trail Types Uses	Tread Width	Grade
Type I <ul style="list-style-type: none"> • Suitable for cross-country racing • Easiest • 3-5 km 	<ul style="list-style-type: none"> • Double track • Groomed • Wide curves 	See section on grades below
Type II <ul style="list-style-type: none"> • Day use • More difficult • 5-20 km 	<ul style="list-style-type: none"> • Double or single track • May be groomed • Sharper curves 	See section on grades below
Type III <ul style="list-style-type: none"> • Day use or overnight • May use existing hiking trail where suitable 	<ul style="list-style-type: none"> • Single track • Not groomed • Sharp curves 	See section on grades below
Type IV <ul style="list-style-type: none"> • Ski-touring route • Often undefined route 	<ul style="list-style-type: none"> • Wilderness conditions 	See section on grades below
Type I: High Standard Ski Trail Type I cross-country ski trails include those short and easy trails with good access that receive high use from all levels of skiers. As an optimum, grooming would be done after each major snow fall and a variety of routes would be provided with different		

distances.

In areas with high public support and adequate funding, these trails may be built to cross-country ski racing standards.

Cross-country Ski Racing Trail

Cross-country ski racing trails should conform to *Cross Country Canada (CCC)* regulations on length, grade and width specifications. As indicated, trails may be graded as *Easiest*, *More Difficult* and *Most Difficult* depending on terrain and trail topography.

Type II: Cross-Country Skiing Trail	Type II trails are developed for day-use skiing. They should conform to minimum widths and grades. Optimally, a variety of routes would be provided with different degrees of difficulty and distances, so that a variety of skiing levels and abilities can enjoy the trail system.
Type III: Packed Ski Trail	Type III ski trails are developed for cross-country skiing on a day-use or overnight basis. They are designed and intended for moderate to light use, usually on a one-way loop. Existing summer hiking trails where grades, trail width, and elevation gain or loss is reasonable may be suited for this purpose. Cross-country ski trails are generally not groomed or track-set, but rely on skiers to set tracks.
Type IV: Ski Touring Route	The wilderness skier is a route finder, often using map and compass and not following specific trails. Ski touring routes consist generally of a system of routes over an area undefined by trail markings or grooming.
Climate and Exposure	Trails should be located in areas where snow cover is consistent for several months. A snow depth of 60 cm will adequately cover rocks and logs. Steep, open, south-facing aspects are the first to lose their snow. Open north-facing aspects are more exposed to prevailing winds. Trail location should consider the lee side of hills, wind-sheltered valleys and tree shelter for skier comfort and to reduce drifting and wind-packing.
Length	<p>The total trail length will depend on the number of loops within the trail system. The length of the loops is determined by full or partial day-use and by the ability of the skier. Parks Canada defines the following skier categories:</p> <ul style="list-style-type: none">• slow tourer 4 - 5 km/h• average tourer 5 - 6.5 km/h• fast tourer 8 - 9.5 km/h• racers 9.5 - 13 km/h <p>Overnight trails should provide accommodation at intervals that can be readily travelled in one day. The lengths of these intervals will depend on terrain conditions and skier ability. For</p>

average tourers, intervals of 15 to 20 km may be used.

Grades

Grades on ski trails are one of the factors used to categorize trails into the various levels of difficulty. The three categories of trails include:

Easiest: The maximum grade on downhill runs should not exceed 10%. Slope surfaces should be smooth and curves wide and gentle. Several short slopes are preferable to fewer long slopes because speeds do not become too great and climbing is easier. Descents with steep side-slopes are difficult for novice skiers and should be avoided.

More Difficult: Maximum grades for downhill slopes should not exceed 25%. Curves may be sharp, but ample room should be available for skiers who overshoot them. Downhill sections should not be long enough to let skiers accelerate beyond controllable speed. Up to one-third of the trail may be uphill with some steep but short climbs.

Most Difficult: Maximum downhill grades should not exceed 40%. More curves and rougher surfaces are acceptable. However, long runs on such sections should have more gentle grades. Adequate run-out distance should be provided at the bottom of steep or long slopes. Up to one-half of the trail may be uphill.

On all trails where curves occur on long slopes, the preceding sections should be levelled out or run slightly uphill to allow skiers to reduce speed. Sharp curves should be tilted to the inside. Intersections with other trails or roads should not occur at the bottom of downhill runs.

Right-of-way clearing

Clearing widths for single-lane trails range from 1.5 to 2.5 metres, with the narrower width being used on minor trails only. Two tracks require 3 to 4 metres. Three tracks require 5 metres or more.

Sufficient clearance should be allowed on slopes so that skiers can herring bone or side-step up. This will also provide some safety if skiers fall and will provide room for uphill skiers to step out of the way of downhill skiers. On slopes exceeding 10%, a 3 metre minimum width is recommended.

The clearing height should be 2.5 metres plus the expected maximum snow depth.

Structures and Facilities

Bridges installed on cross-country ski trails increase the season of use. Small streams that freeze solid may not require bridging. Bridge design should be wide enough for tracks and poles, and should be strong enough to support grooming equipment, if necessary. If bridges are high, railings will be required. Engineered bridges may be needed for long spans.

Cabins and Shelters

Cabins may be considered on cross-country ski trails to provide shelter from the weather. Shelters and toilets should be located at main trail junctions or other areas where they can be used by

the maximum number of people.

Signing and Safety Considerations

Signing is an important safety factor in cross-country ski trails. All trails should be signed according to the internationally recognized signs and symbols for cross-country ski trails. For information on cross-country ski trail signs, consult the *Cross-Country Ski Trails and Facility Development: Construction and Maintenance Manual*, Cross Country B.C. and [Appendix 6](#) of this manual.

All trails should be marked at trailheads and junctions to indicate the difficulty level. Trails should also be identified along their routes by names or marker symbols so that skiers do not become lost. Information on trail lengths, layout and cabin/structure locations should be available at the trailhead. Trail markers must be designed to be visible in poor weather and must be placed where they will not be buried by snow.

Safety considerations

Trail locations should avoid avalanche areas and hazardous lake and stream crossings. A minimum of 15 cm hard blue ice is necessary for safe crossing on lakes or streams. Trail location should also avoid dense tree canopies, particularly in tall, old-growth stands. The canopy intercepts much of the snowfall and when temperatures rise, large chunks of snow, ice and possibly branches may fall onto the trail.

Snowshoe Trails

Snowshoe trails are designed using the same criteria as easy hiking trails (Type I and II) or packed ski trails (Type III). Backcountry hiking trails (Type III) that have moderate grades may be designated as snowshoe routes. Sustained steep grades should be avoided.

Short trail loops, not exceeding 2-3 km, may be provided in day-use areas. Snowshoe routes are not compatible with groomed cross-country ski routes.

Special Use Trails

Special use trails generally include the following:

- multi-use trails;
- interpretive and wildlife viewing trails;
- barrier free trails; and
- portage trails.

Multi-use Trails

Recreation activities on trails change over time. Each type of trail has specific standards, but some of the standards are suitable for different activities at different times of the year. For example, Type I and II cross-country ski trails may be suitable for Type I or II bicycle trails. Problems arise when trail standards and user expectations are not compatible.

Considerations for multi-use trails

General considerations for multi-use trails include:

- potential conflicts may be reduced by providing separate routes in critical areas. In a backcountry environment where a hiking trail is also used as a horse trail, separate campsites may be provided with detour routes for the alternate user. In addition, detour routes around fragile areas or excess adverse grades are appropriate;
- foot/horse or bicycle/foot combinations in hazardous areas, such as cliff edge routes or steep exposed ravines, should be avoided, as should blind curves on multi-use trails. Curves and hazardous sections should be widened;
- avoid hiker/horse trail combinations near hiker water supplies, such as creek crossings or campsites. Ensure horse crossings are well downstream of hiker crossings; and
- avoid joint ski/snowmobile use, as these two are generally incompatible. Where access routes are limited, use is light, and trails are wide, joint use may be made if ski tracks are set well to one side. Topographic or vegetation buffers between ski and snowmobile trails helps to reduce noise and exhaust fume impact on skiers.

Interpretive and Wildlife Viewing Trails

The purpose of MoF forest interpretation is *to encourage mutual understanding between the Forest Service and the public regarding forest stewardship to enable the Forest Service to act in the public's interests.*

Interpretive trails should be developed according to interpretive planning principles, and only after an interpretive plan has been prepared for an area, and appropriate themes and messages identified (see the *Forest Interpretation Draft Policy* as well as *Developing Your Wildlife Viewing Site*). Use by bicycles, horses or motorized vehicles should be avoided.

Many interpretive trails are located close to populated areas. Since heavy use and a wide range of user ability are expected, trail design standards must be high in terms of ease, comfort and safety of use. Some interpretive trails may be considered for special needs users and will require wheelchair access.

Location

Interpretive trails may be offered in a wide range and scale of forest settings, from the interpretation of the small pond environment to the interpretation of clearcut logging.

The most interesting interpretive information describes the relationships between the various environmental, cultural and social elements, rather than merely identifying them.

Layout

The most successful trails are designed with a theme focus that allows users frequent stopping space to absorb the interpretive information. The quality of the trail experience depends on how skilfully the route is arranged to provide this sequence of viewing positions.

Loop forms are the most suitable, with spurs and satellite loops providing additional variety. Trail sections with curves and twists

increase visitor curiosity and interest, and provide more surprises than long straight sections.

Grades

The most desirable grades for interpretive trails are less than 5%. Sustained grades more than 10% should be avoided, with a maximum grade for short pitches of no more than 15% for a 30 metre maximum. Where wheelchair access is planned, trail grades should not exceed 5%.

Surface and Width

Tread surface and width should be consistent with the terrain and type of use. 1 to 2 metres is a standard width for interpretive trails. Trails are usually widened at signed locations or separate viewing areas. Trails surfaced with wood chips or wood shreds have little impact on the environment, are quiet to walk on, and have a natural appearance.

Barrier-free Trails

Barrier-free trails, sometimes called *special needs trails* are:

- essentially an adaptation of the standards where access by disabled visitors is planned;
- designed to accommodate users who may be aged, visually impaired, deaf, confined to a wheelchair, requiring crutches or a cane, or who have respiratory ailments;
- generally constructed to the appropriate foot trail standards, but length, grades, structures, and tread surfaces are modified as required; and
- designed and maintained to the highest standards for ease of use, comfort and safety.

Grades

Trail grades of 0 - 3% are preferred, and should not exceed a maximum sustained grade of 5%. Level resting areas approximately 2 metres long should be provided at the end of each length of slope, as well as level areas at all turning points on slopes. Slopes exceeding 5% are considered ramps, and on some interpretive trails should have handrails.

Structures

Where handrails are provided, the top rail should be handy for a person walking (90 cm from the ground), and the lower rail situated for persons in wheelchairs and for children (75 cm from the ground). Rails should be strong enough to support the weight of two or three persons. Handrails help persons in wheelchairs reduce speed coming down slopes.

Maximum grade can be increased to 15% for short distances if two handrails are provided 85 cm apart and 75 cm high. The surface of handrails must be smooth so persons do not scrape their hands (e.g., no projecting bolts or nailheads)

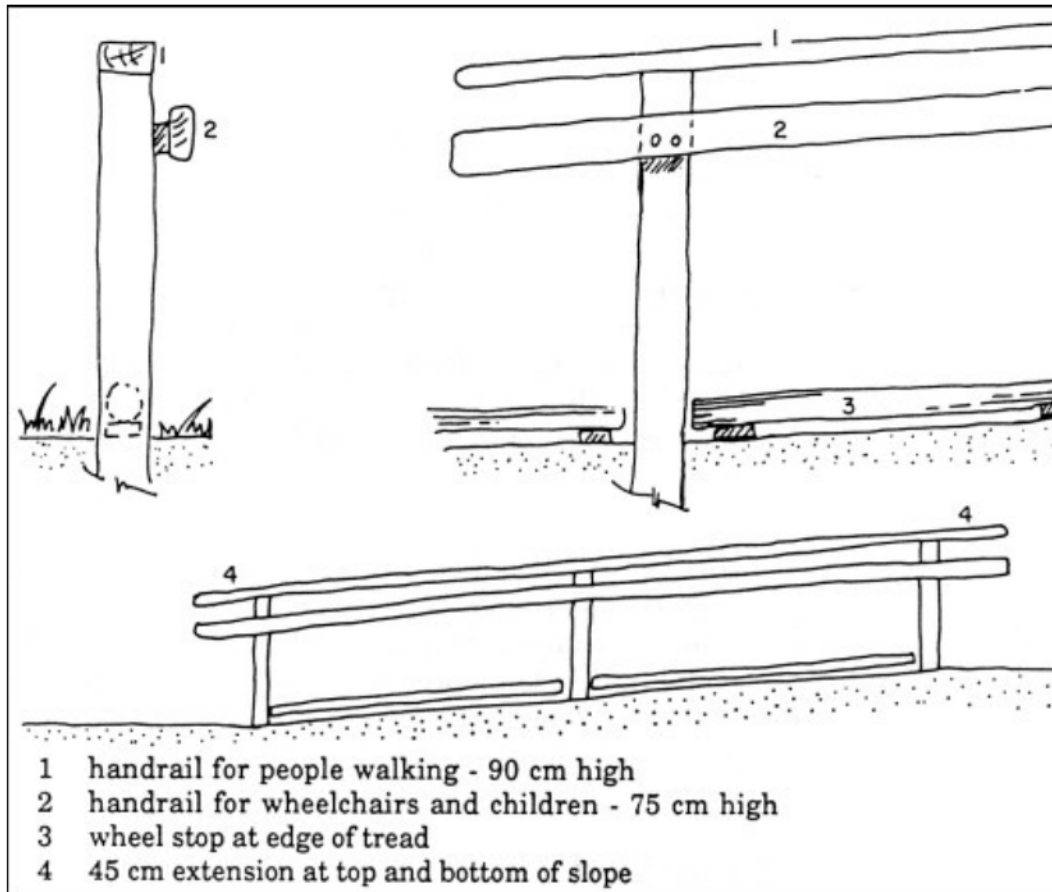
Bridges

Bridges, boardwalks and steps should be wide enough for easy passing and should provide secure footing under wet conditions. The surfaces should be constructed using non-skid material, with the boards laid parallel to the direction of the trail. Parallel decking has fewer cracks and edges and is easier for users with canes or crutches. Steep or long steps should have handrails that extend 60 cm past the top and bottom of steps. If these extensions are horizontal, they will alert blind users to the start

and end of steps.

Bridges where wheelchairs are used should have a smooth transition from the trail surface to the bridge surface. Where handrails are not used, edge railings that extend beyond the ends of the bridge should be installed for wheelchair safety and as a guide for blind people. Consult engineering staff when constructing special needs trails.

Figure 10: Handrails on special needs trails - slopes exceeding 5%



Surface and Width

For wheelchair use on moderately used trails, trails should be 1.2 metres wide for one-way traffic and 2 metres wide for two-way traffic. For minor foot trails, trail widths of 60 - 150 cm are appropriate. For trails where wheelchair use is planned, suitable surfaces should be used, such as asphalt, chip seal asphalt, or boardwalk.

Portage Trails

High-use portage trails should be constructed to Type II foot trail standards, and back country portage trails to Type III or IV foot trail standards. Portage trails should be designed and maintained for ease in carrying or hauling canoes or other craft.

Portage sites must have safe and smooth landings, preferably with sandy or rounded gravel shoreline material, and on rivers,

landing sites should not have upstream or downstream boulders, log jams or other obstructions.

Portage trails should be cleared 1.5 metres wide for portaging canoes and wider if small motorboats or rafts will be used on the route. Sharp corners should be avoided; they prevent easy walking and turning with a standard length canoe. All stumps should be cut flush with the ground and protruding branches flush with tree trunks. Canoe rests, where a canoe can be braced at an angle by single portagers may be provided.

Grades

Portage grade should be consistent with the type of use. On heavily used portages, canoes may be dragged over the route on wheels. Grades less than 8-10% maximum should be used on these routes. On more remote wilderness portages, where canoes will likely be carried, grades should be as level as possible and not exceeding 15-20% over short distances.

Motorized Trails

All the guidelines for motorized trails are adapted from the US Forest Service *Trails Management Handbook*. For details on overnight camping, day-use and trailheads associated with motorized trails, see [Chapter 9](#). Refer to [Appendix 2](#) for information on standard FS structures.

ATV trails

Obstacles and frequent short turns should be avoided on novice trails. Wide-radius climbing turns are preferable to switchbacks. Switchbacks on steep slopes should only be used for difficult trails.

Wet sections and small logs may be used as obstacles on intermediate and difficult trails. Shallow, short, wet crossings 15 cm deep may be used occasionally on novice trails.

ATV trails should be restricted to one-way traffic. If two-way traffic is expected, turnouts will be required.

All-Terrain Vehicle Trail Guidelines

Snowmobile Trails

A multiple loop layout is most suitable for day and partial-day use. Due to the speed of snowmobiles, fairly extensive trail systems may be developed from 24 - 180 km.

If snowmobile routes cross highways, roads or railway lines, the crossings must be coordinated with the appropriate agency. Trail crossing and junctions should be at right angles and should be well-signed from both routes. Level grades are necessary on crossing approaches to permit riders better speed control. No more than two trails should intersect at any one junction.

Potential hazards must be carefully evaluated prior to route development. Snow depth, avalanche potential, light conditions, the possibility of night use, and the presence of cliffs, gates, fences or water crossings all affect route selection.

Snowmobile Trail Guidelines

Grades

Variety in vertical alignment adds interest to the trail; however, it must be used in proper combination with horizontal alignment

to control speed for user safety. If suitable terrain is not available, the 25% grade limit may be exceeded for short distances provided that:

- approaches to the steep portions are horizontally straight, and have gradual grade transitions; and
- the resulting grades do not compromise safety or the enjoyment related to ease of operation.

Four-wheel Drive Trails

These trails generally utilize existing routes that have been constructed for other purposes, such as mining or timber harvesting. Existing routes considered for four-wheel-drive use should meet the requirements for the particular category of trail required.

The degree of trail difficulty changes according to the size of the vehicle. The intermediate level of difficulty for a short wheel base vehicle will be the maximum level of difficulty for a long wheel base vehicle. Having several tight turns requiring five lock-to-lock turns at the beginning of the trail is one method of controlling the class of vehicle using the trail. The rest of the trail should have less tight turns. Two-way traffic should be avoided on four-wheel drive trails.

Four-Wheel Drive Trail Guidelines

10.3.6 Final Design Plan

The final trail design plan translates the concept plan and trail evaluation information into final drawings, construction methods and specifications, cost estimates, and scheduling procedures.

The production of a trail design plan is necessary in order to:

- ensure that the concept plan has been accurately translated into the trail proposal;
- provide a means of communicating what is required to the construction supervisor, Forest Service personnel and public user groups;
- facilitate the final approval of the project; and
- provide a record of the trail development for future operations and maintenance needs.

Final location of the trail should be traversed (preferably using a GPS) to determine the location for referral, clearance and establishment. Construction should not proceed until the trail has been properly established or approved (*Forest Practices Code Act*, Sec. 7 and Sec. 102).

Trail Drawings

The final location of the trail should be shown on the prepared base map of the trail area. Specific recreation and landscape features associated with the trail may be presented on the same map.

The specific location of all the construction requirements, such as bridges, grade dips, right-of-way clearing and switchbacks, should also be shown. The locations of these items may be presented as straight-line diagrams or as log records. They may also be shown on the trail route base map, providing the details can be shown at the base map scale. The following table is an example of a construction log report adapted from the US Forest

Construction Log: Barclay Lake Trail

<i>km + m</i>	<i>Work Item</i>	<i>Remarks</i>
00	begin project	
0.40 - 0.80	remove outslope	
1.50	sand and gravel	
2.8 - 3.10	install log rounds	
4.00	grade dip	

Trail drawings should also include a map of the trail route showing any limitations to trail use or carrying capacity considerations. This will facilitate future design or construction changes.

Construction Specifications Construction specifications should provide all the details of the work required, including

- written descriptions and standard drawings showing dimensions, sizes and configuration of the various construction requirements;
- grade, trail width and right-of-way clearing specifications; and
- estimates of the quantities of each type of trail work. For example, one switchback, 2 m of 30 cm aluminium culvert, seven waterbars, four dangerous trees and snags, and 5 km of clearing. These are essential in developing cost estimates for trail development.

Cost Estimates**10.4 Trail Construction**

After the trail planning and design process has been completed, and project funds have been allocated, construction or reconstruction of the trail can proceed.

The trail construction phase of development should reflect the same degree of thought and consideration as the planning and design phases. Construction practices must meet the specifications and guidelines of the design package.

Well constructed trails ensure user safety and environmental protection and, ideally, should blend into the surrounding landscape. Depending on the complexity of the terrain and user intensity, it will cost less over the long term to construct and maintain trails that are well designed and well constructed.

Trail construction may be undertaken by Forest Service work crews, volunteer user groups or contract crews. All of these options require supervision of a qualified trail construction coordinator. Good supervision involves coordinating the construction and conducting regular inspections to ensure specifications are followed accurately and to maintain quality control. Log records, including contract and/or material payments, must be kept up-to-date and maintained throughout the construction process.

Principles

All trail construction involves basic procedures related to

staking, trail tread construction, clearing, debris removal and building of required structures.

The trail construction process comprises three main elements:

- preparation for trail construction;
- trail construction procedures; and
- trail drainage.

The last two elements are usually taking place at the same time, but since trail drainage is so critical to building a trail that will last and be easy to maintain, it is given a distinct focus.

10.4.1 Preparation for Trail Construction

Preparation for trail construction is based on:

- existing plans (e.g., sub-regional, LRMPs or district recreation plans);
- a clear understanding of the trail Type (I-IV); and
- whether materials are supplied or to be found on site.

Type I and II trails will be in front country and high-use areas where aesthetics and user impacts require the use of prepared building materials, such as dimensional lumber and gravel, and the likely use of machinery.

Type III and IV trails generally have lower levels of use and attracts more experienced users in a back country setting and, therefore, they:

- have an aesthetic value associated with natural materials;
- need trail crews able to make on-site decisions about construction techniques and use of on-site materials; and
- need to blend into the natural setting, except where required for safety or structural integrity.

Specifying Construction Techniques

Trail crews working in back country areas should:

- avoid overbuilding;
- seek to minimize changes to the existing conditions;
- use design details that are simple, functional and complement the natural setting;
- try to avoid stairs and steps built into the trail tread (creates high maintenance commitments, can be difficult to negotiate, and can cause erosion problems);
- use low-level bridges in wilderness zones without handrails; and
- make natural trail markers and signs.

Design and construction details contribute significantly to the cost and effort required for long-term maintenance and as a

Safety

general rule:

- drainage dips require less maintenance than culverts; land
- the cost of routing trails around areas that would require significant structures may be recovered through maintenance savings.

It is important to conduct a job/project safety analysis prior to starting trail construction. Part of the construction planning process includes consideration of:

- regulations and policies regarding personal protective equipment;
- equipment operation safety; and
- regulations pertaining to first-aid equipment and attendants (usually based on number of workers and distance from medical facilities).

Standard safety requirements must be adhered to. For both safety and efficiency, it is often most effective for people to:

- work in small groups; and
- spread out along the marked route.

If everyone works in the same spot, the increased greater congestion can lead to lower efficiency and, more importantly, a far higher risk of injury.

Selecting Construction Materials

Construction materials used for trails are selected on the basis of:

- cost, availability, ease of use, appearance, strength and durability;
- trail type; and
- transportation of materials to the site, minimizing damage to the trail, and maximizing quality of construction.

Native materials, usually wood or rock, are either cut or dug near the trail, but out of sight. This is one of the primary criterion when choosing native materials - that they be unnoticed and subtle.

Wood Materials

Trees should be:

- cut to appropriate length, limbed, and peeled uphill and out of sight of the trail; or
- prepared at the trail and debris removed, if peeled logs are too slippery.

Pressure-treated wood may be suitable, if:

- resources for transportation are available (taking into consideration the long-term, increased maintenance

costs of untreated wood)); and

- not permanently immersed in streams or rivers where toxins can leach into the waters.

Rock Materials

When using rock:

- rock debris not used in trail construction should be removed out of sight of the trail;
- holes left by removal of rock should be filled with dirt, dead brush and other forest litter; and
- avoid cutting bedrock near the trail, so as not to leave a visible scar.

Soil for Fill

When using soil for fill:

- borrow pits can be near the trail, but out of direct view;
- pits should be filled with debris and hidden; and
- it is best to gather materials in several locations to reduce feeder trail damage.

Selecting Trees for Durability

Although choice of tree type may be limited, it is important that the most durable material be selected even when found at a considerable distance from the trail. Some tree species are classed as "naturally durable" as they possess substances produced within the tree that are harmful or toxic to fungi, the organisms responsible for wood decay.

The following chart describes the natural durability and ease of preservation of the most common species in this province.

<i>Species</i>	<i>Natural Durability</i>					<i>Ease of Preservation</i>		
	>25 yrs	>15 yrs	>10 yrs	>5 yrs	<5 yrs	very diff.	Diff.	Mod.
Alder								
Birch								
Cedar, Red								
Douglas fir								
Balsam fir								
Grand fir								
Hemlock								
Maple								
Lodgepole pine								
Spruce								
Willow								
Yew								

Preventing Decay

The fungi responsible for wood decay require moisture:

- Freshly felled timber can contain as much weight of water as wood substance - 100% moisture content.
- Timber with a moisture content below 20% will not decay.
- Once timber is dried to below 20% moisture content, it will not exceed this level simply by exposure to damp air.
- Timber can be protected from increasing its moisture content by the application of water resistant coatings,

Selecting and Preparing Equipment

such as exterior stains. Only a high quality coating with a long working life should be considered because regular maintenance of the coating itself can become costly.

- Timber in contact with the ground is most at risk.
- Pressure-treated wood is particularly recommended for use in high traffic areas.

Equipment resources for any trail construction or modification project must be assembled prior to starting work.

- Type I and II trails - small size mobile construction equipment, such as bobcats, backhoes, small graders and gravel-spreading or asphalt-paving equipment.
- Type III and IV trails - hand tools and small hand-held power tools are the only equipment that can be effectively transported to the site.

Commonly preferred tools for the following jobs include:

- *Clearing a right-of-way through trees and brush:* bow saws, loppers and hand pruners for small cuts, a chain saw for larger cuts, and long-handled axes for general work including bark peeling.
- *Trail grubbing:* mattocks and picks (sometimes combined as pick mattocks) and rakes for finishing.
- *Rock work:* long pry bars; come-a-longs for moving large rocks or heavy logs.
- *Dirt moving:* long-handled, pointed shovels.
- *Log work:* splitting wedges, sledge hammers and preeves.

10.4.2 Trail Construction Procedures

Staking the Route

Staking the trail route from start to finish is the first basic step in trail construction. Stakes should be placed:

- along the entire route before clearing and construction;
- on both sides of the trail showing differences in trail width (only the centre line needs to be staked for minimum standard trails); and
- to define the trail bed to be cleared or excavated (important on curves).

Some trail sections may require design changes depending on site-specific field conditions.

Only the centre line needs to be staked for minimum standard trails.

Identifying the Drainage Requirements

The three golden rules of trail maintenance are:

- (1) drainage;
- (2) drainage; and

(3) drainage.

Even the smallest amount of water going the wrong way at the wrong place can, over time, erode an otherwise well built trail.

Ensuring trails are not damaged by rainfall and surface run-off is perhaps the most difficult and expensive component of trail construction and maintenance. Not all drainage problems can be avoided by careful trail routing, and special techniques may be needed to channel surface water and maintain the trail tread.

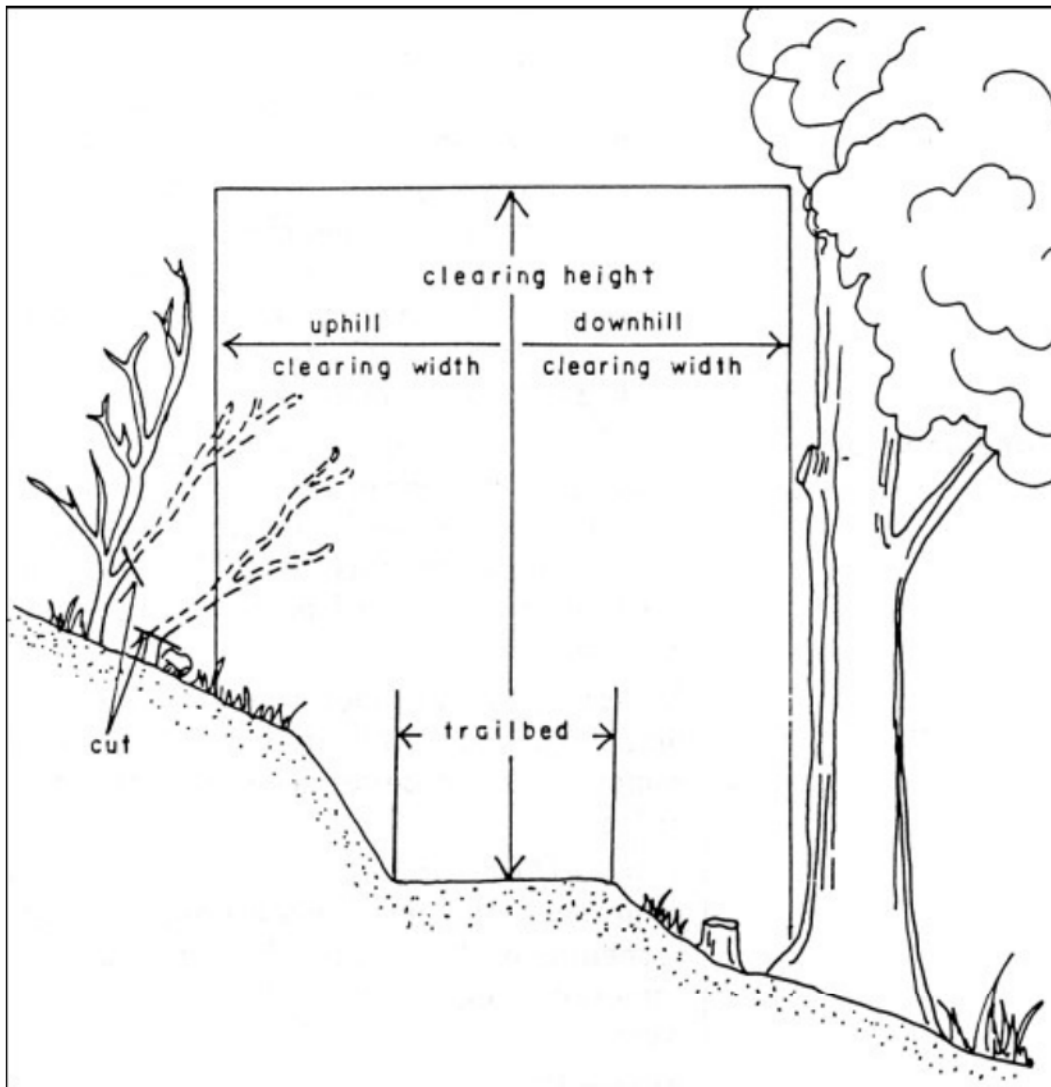
The best way to prevent drainage problems is to identify problem areas *before* the trail is constructed, and to incorporate drainage requirements into the tread construction. Regardless of the type of trail, surface water must not be allowed to run along, or collect on, the tread surface for long periods.

For details on constructing drainage, see [Section 10.4.3](#).

Clearing the Route

With care, it should be possible to avoid large or feature trees when routing trails. Do not cut trees unnecessarily.

Figure 11: Clearing the trail



- If a short treetop has to be removed, it is generally better to remove the whole tree, since removal of the terminal bud will aggravate lateral growth into the trail and leave an unsightly tree.
- Cutting all lateral branches on the trail side of a tree is the second best option, better than cutting off the top of the tree.
- Vegetation is cleared to provide safe and unimpaired movement along the trail. Adjacent shrubs and small trees that will quickly grow back into the right-of-way are removed, as are branches that will obstruct travel.
- The clearing limits will vary depending on the use of the trail. Branches are normally cleared to a height of 2.5 metres on hiking and bicycling trails, and higher for winter use or equestrian trails.
- Stumps are cut flush with the ground and branches flush with tree trunks.
- Rocks should be left in place unless they are numerous enough to be a hazard to trail users or, in the case of

higher standard trails, to construction equipment.

- On bicycle trails and ski trails, all large rocks and obstructions are removed. Small exposed roots are cut back to the trail edge to prevent growth through the trail surface. However, significant cutting of large tree roots should be avoided where it might result in a windfall hazard due to removal of stabilizing root systems.

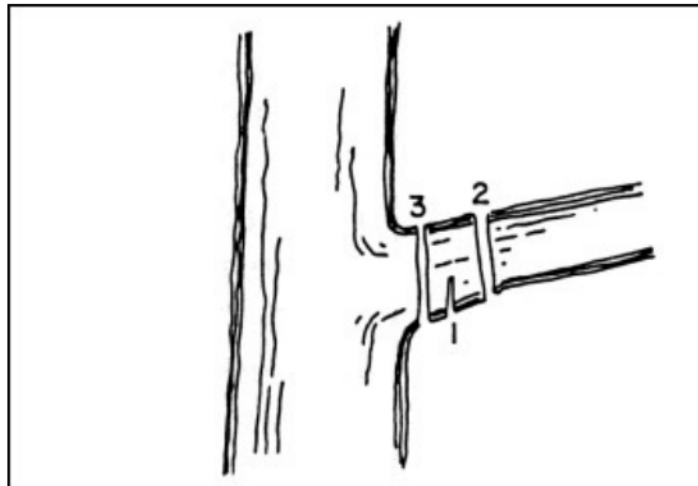
Special Situations

Alpine trails - Judgement and temperance should be used when clearing trails near or above treeline, where the climate is severe and the growth rates are very slow. Trees a metre tall can be sixty or seventy-years-old. Small trees and shrubs at treeline grow in interdependent communities called Krummholz.

Krummholz. The joined roots and branches of these trees help protect the patch of krummholz against wind and cold, so removal of one tree can jeopardize the other trees in the patch.

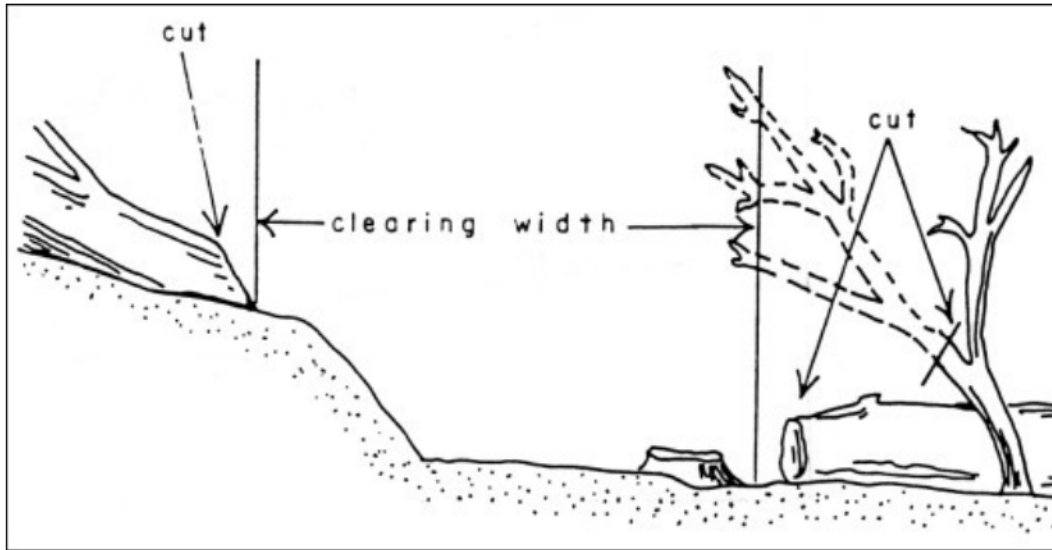
Timber Harvesting - Trails in the working forest are sometimes cut across by a logging operation. Clean up and reopening of the trail involves locating and flagging the trail, then removing all slash and debris.

Figure 12: Removal of large branches



- Large branches should be removed by sawing in three places to prevent tearing the bark.
- Brush over 30 cm high and 1.5 cm in diameter that extends into the clearing limits should be cut flush with the main stem at a branch fork or at ground level.
- Windfall that interferes with the trailbed should be removed or wide sections cut through the trunk. If the tree or snag is too heavy to move, a section that is tread-width plus 30 cm on each side should be cut and removed.
- On sideslope trails, the upper cut should be 30 cm back from the top of the embankment.

Figure 13: Windfall clearing



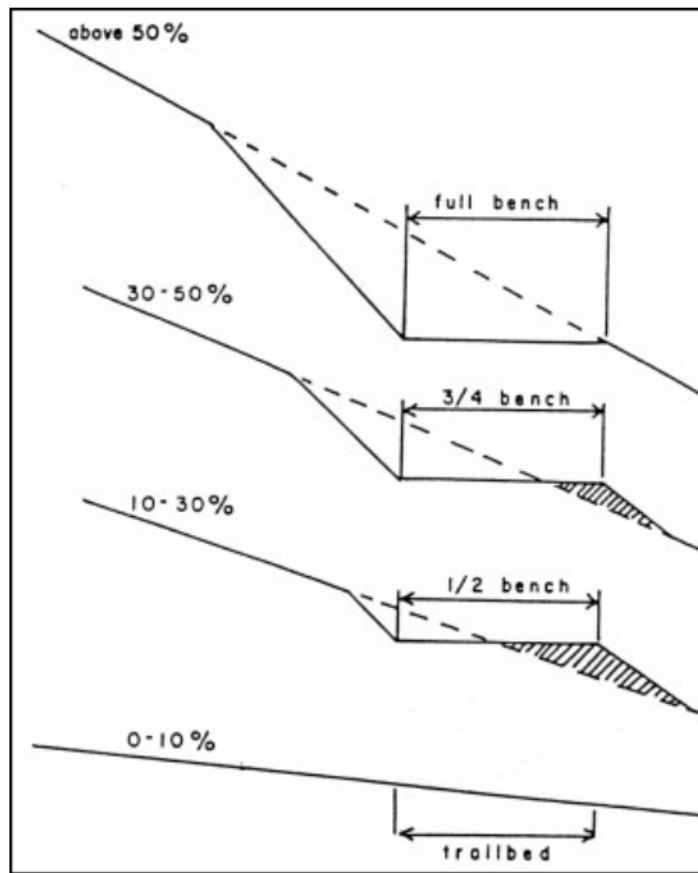
Constructing the Trail Tread Before full excavation and construction take place, a narrow work path is cleared and excavated from the outside stake toward the centreline. This path establishes the grade and excavation line for the rest of the trail bed. If alterations are needed, less time is wasted and less damage done than if the entire trail had to be graded.

No grading is required on level or nearly level terrain.

Side Slopes

On side slopes, trail bed construction depends on the degree of slope.

Figure 14: Trail bed construction on different sideslope grades

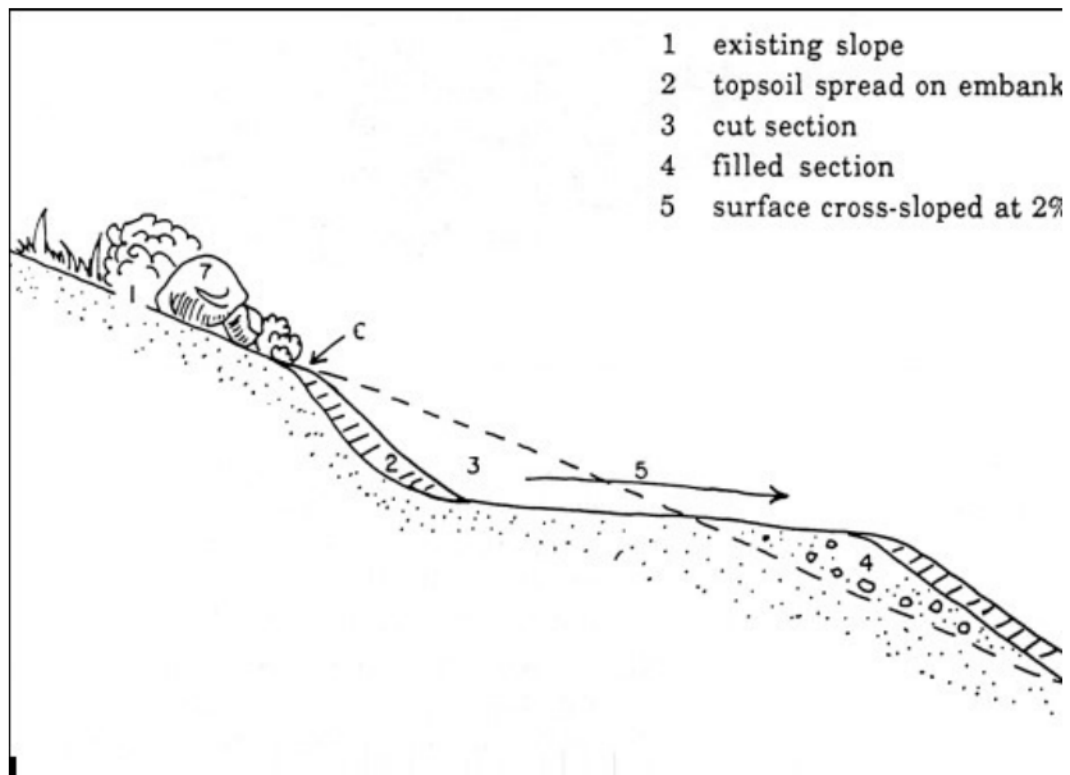


The following considerations apply to trail bed construction on side slopes:

- Leaf litter and surface soil material should be removed from the cut and fill areas, and saved for later use.
- The ideal angle of the cut and fill slopes should be less than a 1:1 slope.
- To encourage vegetation regeneration, topsoil and organic material should be spread on large embankments susceptible to erosion. On steep embankments, netting material, such as jute mesh held in place with stakes, may be required to hold the topsoil and mulch in place.
- Proper rounding at the top of the embankment shoulders is necessary to prevent soil from sliding onto the trail. Boulders, logs and other debris that may fall onto the trail should be removed. Exposed roots should be cleanly trimmed flush with the soil surface.
- The bed of the trail tread should be pitched approximately 1.5 cm per 30 cm toward the outside edge to allow for drainage off the trail.

The following figure shows an ideal trail section with banks and trail surfaces properly sloped and corners of cut and fill embankments properly rounded.

Figure 15: Trailbed construction on a sideslope

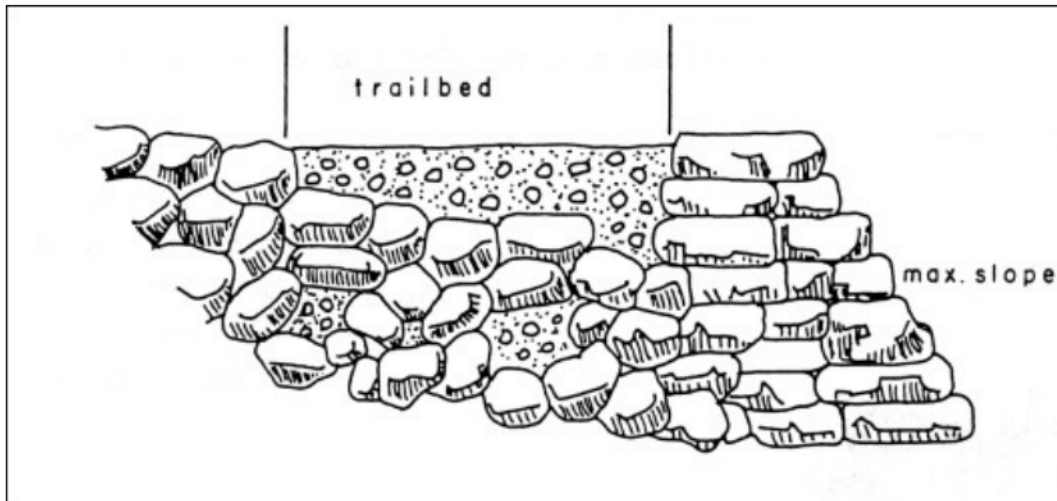


Steep slopes

For narrow wilderness trails on steep slopes, a log may be wedged parallel to the outer edge of the trail against two standing trees. The gap between the log and the slope is filled with small branches, rocks and earth to achieve a shelf for the trail.

On talus or rubble sections where little or no soil is present, the outside trail bench should be made with hand-placed stones, 50% of which are 30 cubic cm or greater.

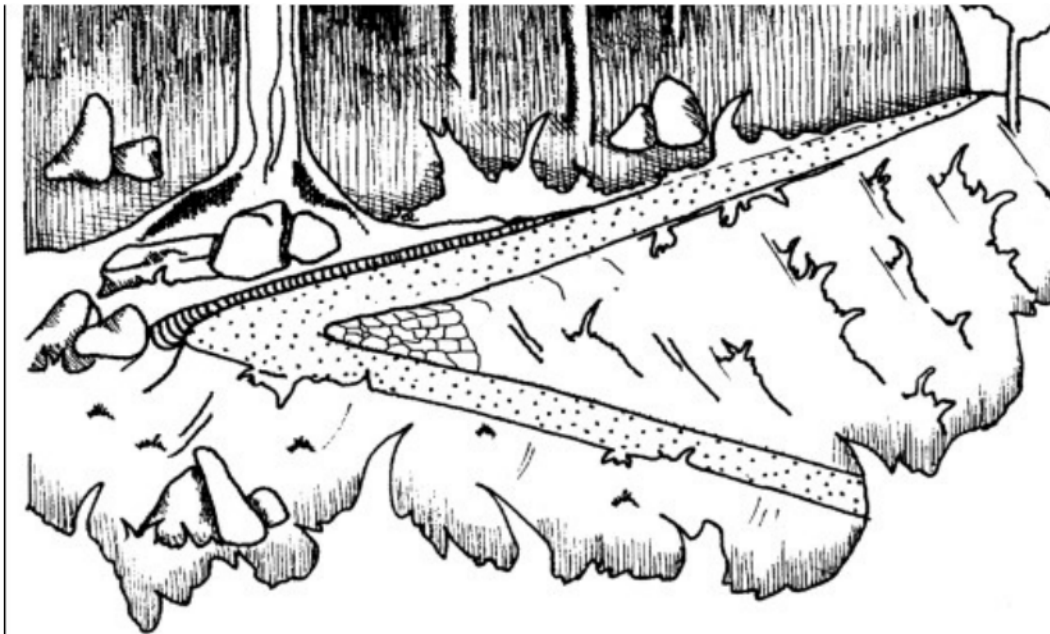
Figure 16: Trail bench construction in talus and rubble

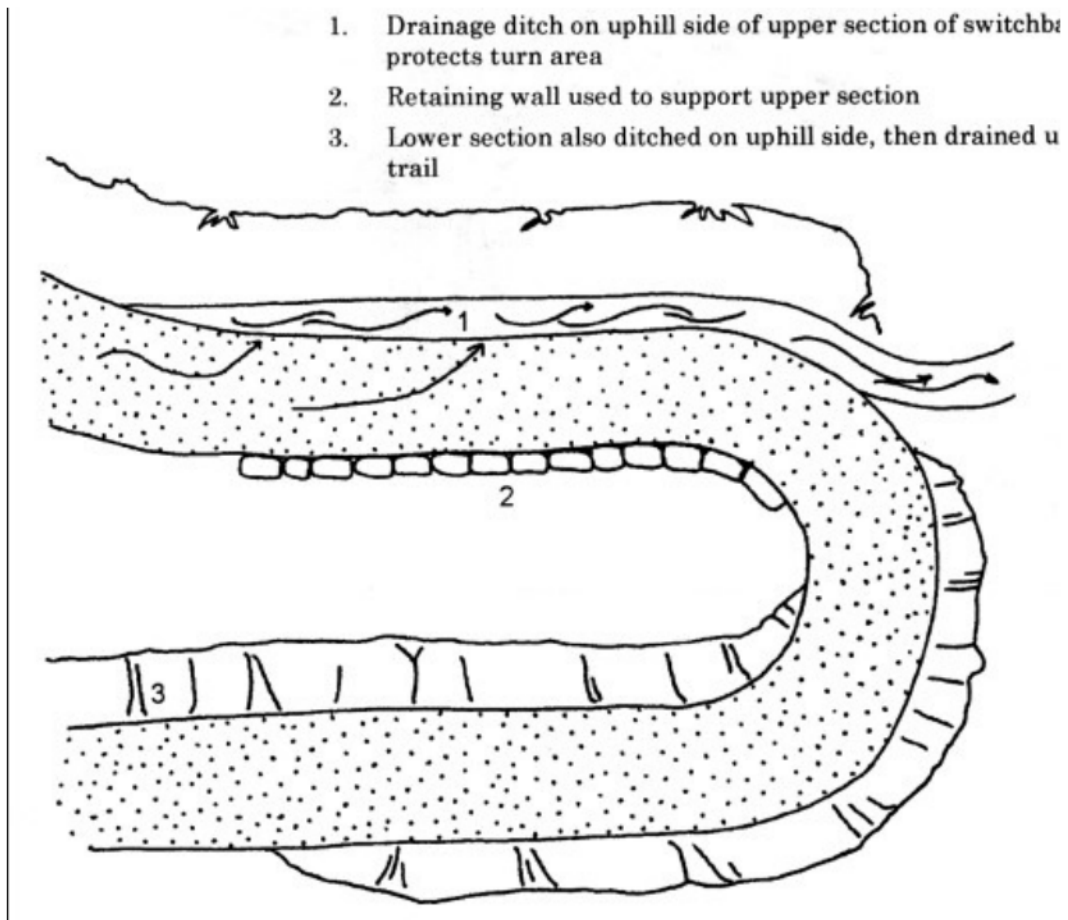


Trail bench construction

- *Trail bench construction in talus and rubble.* The outside bench should be built from rock other than those forming the inside bench. All voids in and under the trail bed surface should be filled with rock and mineral soil deep enough to provide a firm tread.
- *Switchbacks.* Constructing a switchback properly takes careful planning. It is particularly important to steepen the trail grade immediately before and after the turn so that the turn itself has a reduced grade.

Figure 17: Switchback details





Building Retaining Walls

Retaining walls help retain slopes, prevent erosion, and protect trails and users from falling debris. Retaining walls are usually built from logs and earth. The type of retaining wall constructed usually depends on the strength required and the type of materials available.

The following figures show retaining walls built from three different types of materials: log, timber and dry stone/rubble.

Figure 18: Log retaining wall

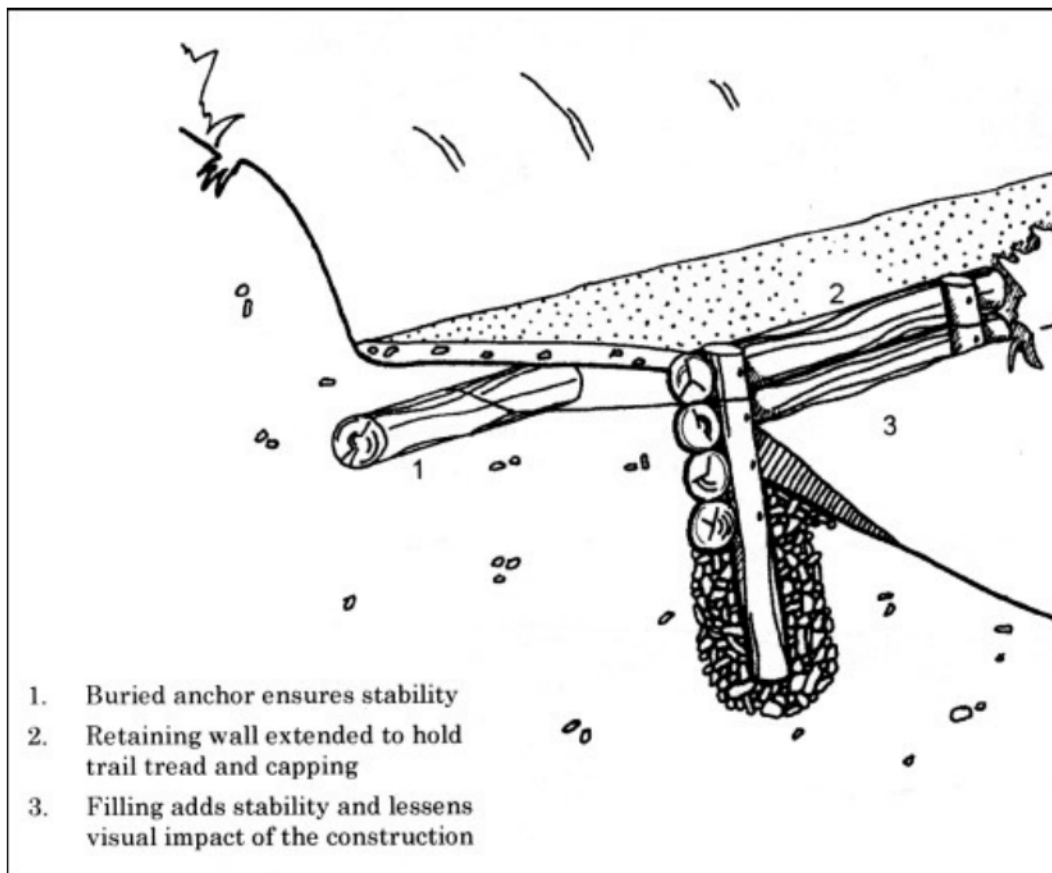


Figure 19: Timber retaining wall

1. Buried cross beams ensure stability
2. Gravel backfill drains water to lessen pressure on retaining wall
3. Timbers lean into slope and are pinned, for stability

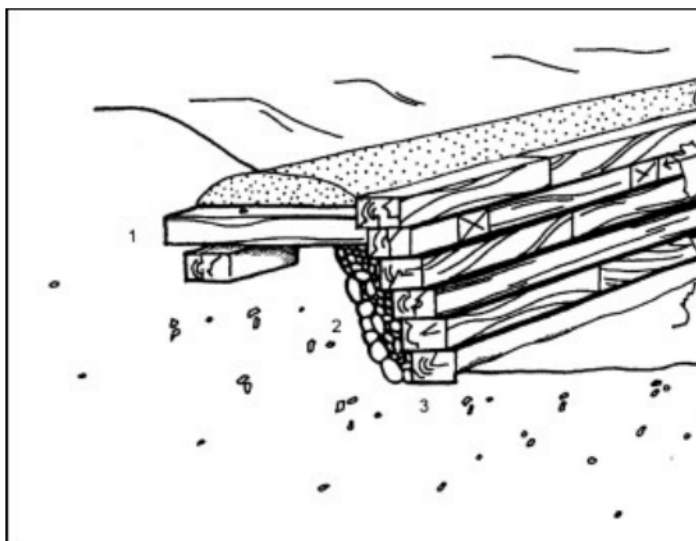
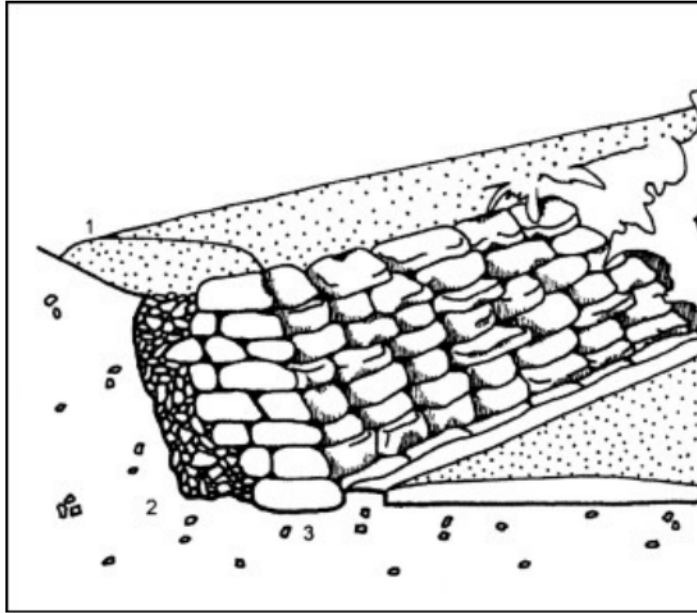


Figure 20: Dry stone retaining wall

1. Retaining walls are often used to support upper section of a switchback
2. Gravel backfill helps

drainage

3. Ditch at base of wall helps protect lower section of trail from run-off



Preparation of the Tread Surface

On level or nearly level areas where soil conditions are suitable for trail use, the leaf litter and surface soil should be left in place.

In situations where surfacing material is required, the leaf litter and surface soil material should be removed from the tread area. This material should be used on the edges of the trail along the embankments to encourage vegetation regeneration.

Roots:

- Small roots should be cut back to the trail edge to prevent sucker growth through the trail surface.
- Large tree roots should not be cut if it would result in windfall.
- Cuts should be made cleanly, flush with or just below the ground surface.

Subsoil should be compacted to provide a firm base for the surfacing. Where compaction of fill materials is not possible, additional material should be applied once natural settling has occurred.

Tread Surfacing

The best tread surface is generally obtained by planning the trail route over the most suitable soils. Requirements for importing surfacing materials can be minimized or eliminated by locating trails on well-drained, coarse-textured soil. **Avoid clay, organic soils or pure sand soils.**

The types of materials used for trail tread surfaces are described below.

Native Soil Materials

An existing cover of native sod will remain intact after light pedestrian use, but heavy use will result in a mineral soil tread.

Native sod should be removed only if the soils are coarse.

Some excavation of the trail bed may be required before a new surface is applied if the original surface is made up of fine soil. After excavation, crushed gravel or a similar local material rolled or tamped down to compact can then be applied. Mixing clay or fine limestone with sandy tread soils will bind soil particles and provide a firm walking or riding surface.

Wood and Bark Chips

Wood chips and bark blend in well with natural surroundings and are quite comfortable to walk on. However, wood chips have several disadvantages:

- not usually firm enough for bicycles or special needs trails;
- scatter easily;
- do not compact well;
- may become slippery when wet; and
- not suitable for sloping trails.

Wood and bark shreds:

- require less maintenance and compact better for easier walking; and
- should be suitable for the trail tread, e.g., hemlock, spruce, pine, or fir chips.

Not suitable:

- wood shavings and sawdust for cycling trails or trails intended for wheel chair use; and
- cedar wood chips should never be used because they produce toxic leachate that could poison local streams.

Crushed Stone

Crushed stone or gravel provides:

- a smooth, durable, firm surface suitable for trails with heavy use; and
- easier repairs than asphalt surface, without patches.

Round gravel does not bind well and should not be used for trail surfaces.

Clay/gravel mixtures provide a trail surface similar to asphalt or concrete in consistency, and have the advantage of not spreading out beyond the trail boundaries.

Screened or 'pit-run' gravel (an inexpensive grade of screened gravel) provides a good surface material and is relatively inexpensive if found locally.

For optimum trail surfaces, three-quarter-inch minus or half-inch minus crushed angular stone or gravel, mixed with sand and clay, is best (sometimes referred to as "road gravel").

Crushed Limestone	Crushed limestone is a similar surface to most types of gravel. Limestone is generally rolled to provide a smooth surface suitable for most uses, but must be graded regularly to maintain an even grade.
Asphalt Surfaces	Trails surfaced with asphalt mix over a compacted sub-base are suitable for Type I foot and bicycle trails. Although development costs are high, maintenance costs are much lower than trails with other types of surfaces.
Soil Cement	Soil cement is a mixture of several centimetres of local material, preferably gravel, with cement and water. This type of material produces a hard, durable trail surface, suitable for very heavily used trails. When the surface is crowned, this surface will shed water and is resistant to erosion.
Shale and Granite	<p>Fine, compacted shale is similar, but superior, to compacted gravel when used as a trail tread. Coarse shale is crushed before applying. When this material is used on a crowned trail surface and compacted, it will form a durable surface that sheds water.</p> <p>Decomposing granite can provide a smooth, compacted finish; however, trail beds using this type of material can become muddy in some areas after a heavy rainfall. Some types of granite are better suited for trails than others. Materials should be tested before they are used for a large project.</p>
Geotextile Barrier	<p>In fine or wet soils, you may find a barrier between the granular surface material and the native mineral soil helpful.</p> <p>A geotextile (or geofabric) material (also referred to as a soil separation blanket):</p> <ul style="list-style-type: none"> • is a non-woven polyester cloth; • is a semi-permeable membrane used to separate gravel surfacing or fill from the soft soil below; • allows free movement of water; • inhibits the downward movement of gravel into boggy soil; and • allows hard setting gravel to be laid directly over the fabrics on soft clay and even peat soils, if adequate drainage provided. <p>Geotextiles can be:</p> <ul style="list-style-type: none"> • overlain with aggregate and surfaced with fines; and • set into a shallow excavation (usually 150 mm) and built up with aggregate and fines. <p>In both of these methods, it is important to anchor the edges of the geotextile to prevent it from shifting and disturbing the firmed-up surface:</p> <ol style="list-style-type: none"> 1. Raise the sides of the laid geotextile material over a sill.

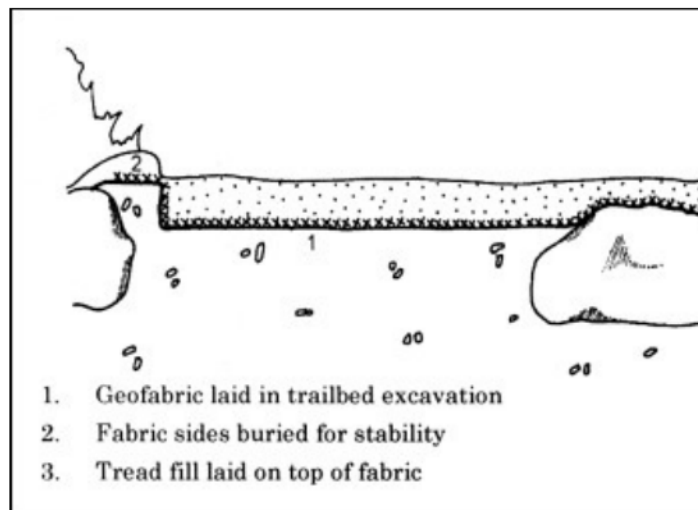
2. Secure with excavated material. This "wrap" prevents the fill from spreading.

Peat soils must be sufficiently stable (non-springy) to support the gravel surface. Any movement in the peat soil formation will crack the upper gravel seal.

A thick surface layer of well-graded gravel, when laid on geotextile material and provided with adequate drainage, should tend to set firm. Treadways should have waterbars installed to prevent erosion of the fill material.

Geotextiles should only be used on minor to moderate slopes of maximum 10° (17%).

Geotextile barrier



10.4.3 Trail Drainage

Effective drainage is essential to promoting trail safety and stability, and minimizing maintenance costs.

The list below gives examples of some drainage features used to promote drainage on trails. Simple drainage designs are the easiest to apply and maintain. The first five types of drainage on this list are the most frequently used.

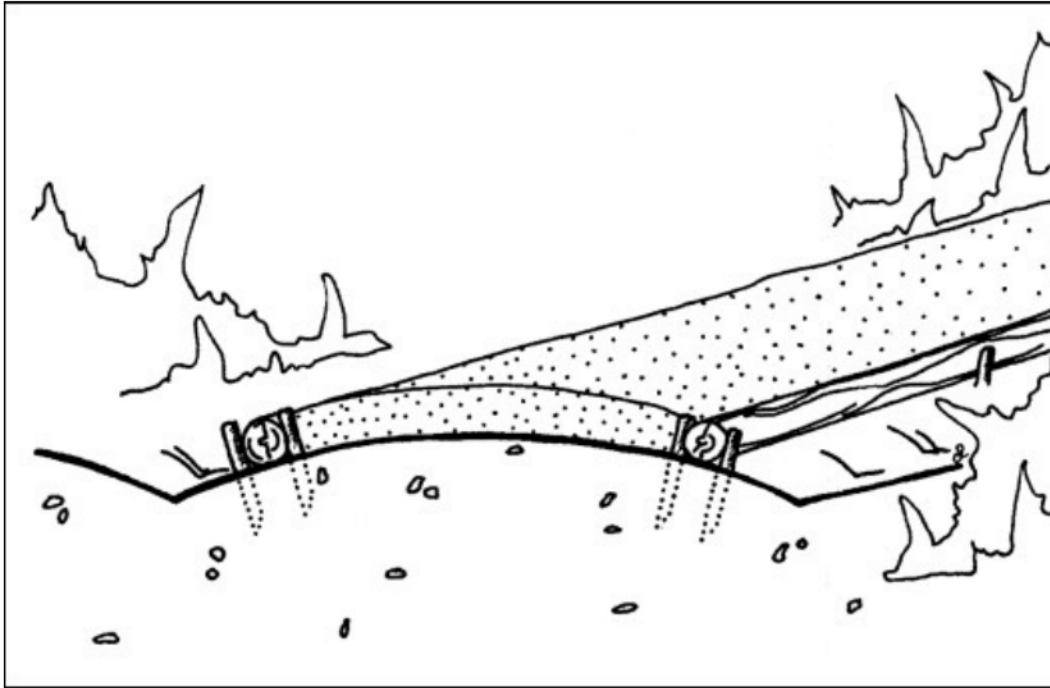
- Trail crowns and cross slopes
- Drainage ditches
- Culverts
- Drainage depressions and dips
- Cross drains and waterbars
- Drainage turnpikes
- Switchback drainage

Trail Crown and Cross Slope Crowning is the sloping of a trail from the centre towards its outside edges in order to promote drainage of surface water. Crowns are suitable over level ground or where drainage ditches

exist on both sides of the trail.

Cross sloping (sloping the trail towards the downhill edge) is used where drainage on the uphill side is not practical.

Figure 21: Trail crown



Trail Drainage Ditches

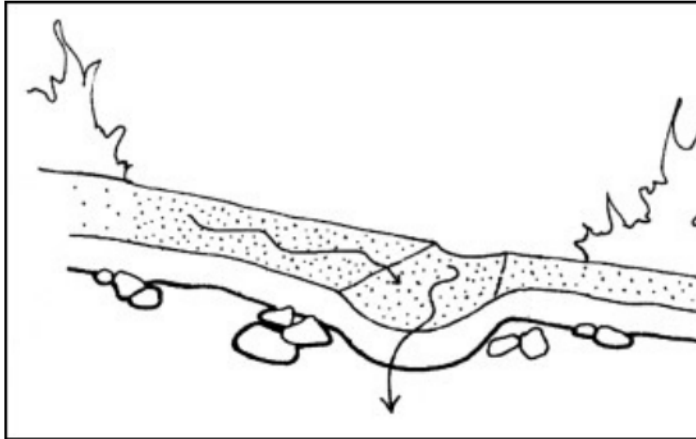
In areas where there is no ground cover or sod, ditches are dug parallel to the trail to discharge water to natural low areas and water courses, or across the trail downslope through culverts or waterbars.

In areas where there is sod, remove sod layers before excavating the ditch. After excavating, line the ditch with sod.

Drainage Depressions and Dips

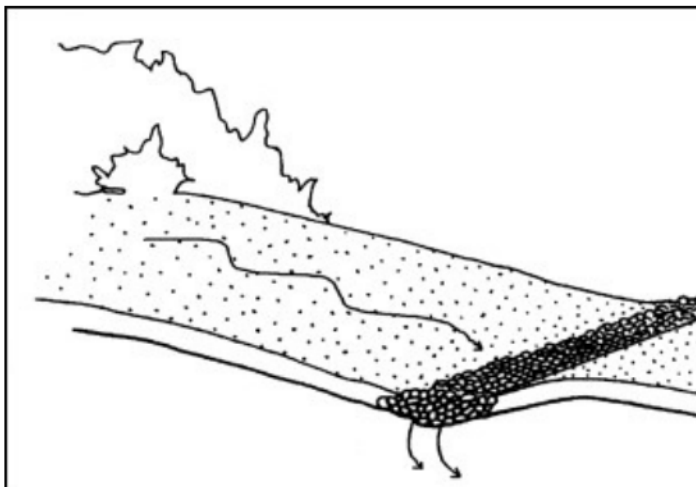
Of all the different drainage methods, drainage depressions and dips are the easiest to build, the least expensive, and the most unobtrusive. Wherever water collects naturally, drainage depressions should be built during initial trail construction or during maintenance.

Figure 22: Typical drainage depression



Drainage dips divert run-off from the trail tread to a side ditch or drainage ditch, or a natural low area. Placing gravel in a dip minimizes erosion.

Figure 23: Drainage dip



Cross Drains and Waterbars Cross drains are used to intercept water on slopes or in shallow ditches and shed it to the lower side of the trail. Cross drains usually include a log, square cut timbers, or local rocks to support both sides of a drainage channel of coarse gravel.

After excavating a trench at an angle across the trail tread, logs or rocks, depending on what is available, are placed in the trench. The cross drains reinforce the correct angle and slope to flush fine sediment. Cross drains made with logs should not be built on bicycle trails, as they may be slippery.

Waterbars are used to divert water off the trail tread. Two types of water bar construction are shown here, log and rock waterbars.

Figure 24: Log waterbar

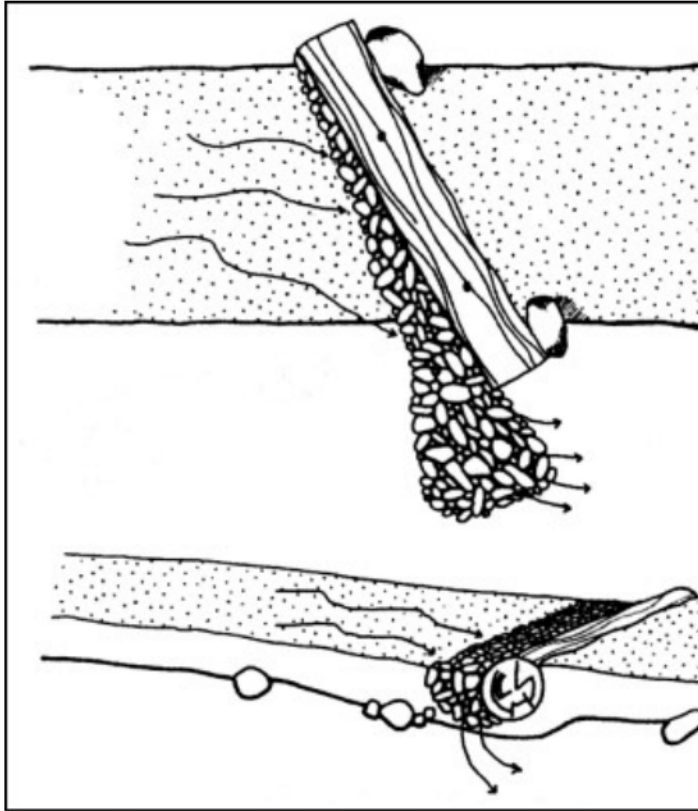
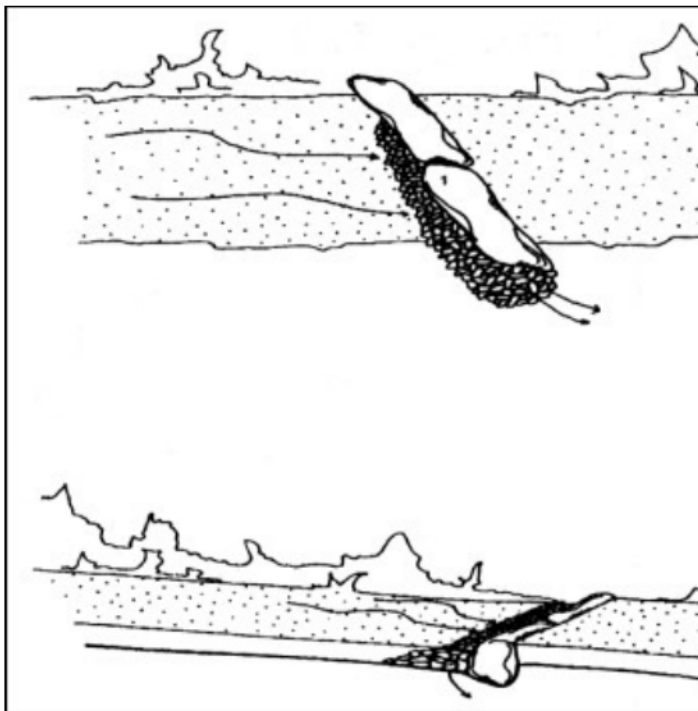


Figure 25: Rock waterbar

Overlap rocks to make an effective diversion.



Culverts

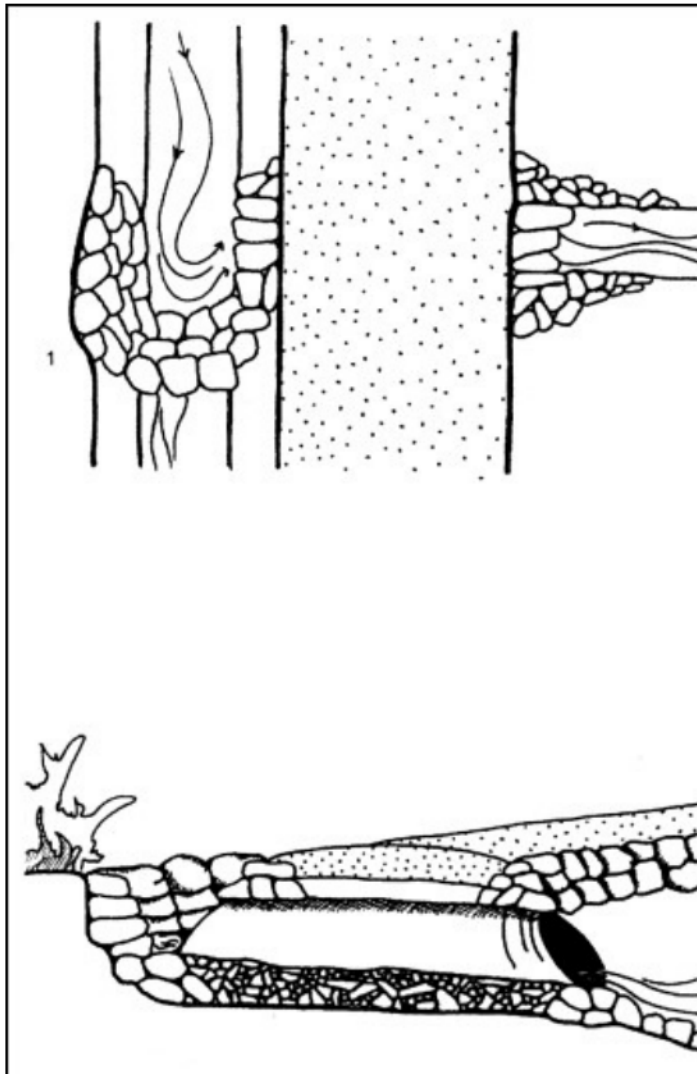
Plastic (PVC) or metal culverts are used on small drainage channels where drainage dips or other structures are not adequate. The type of culvert depends on the seasonal high water levels.

- Large rocks placed around the ends of culverts stabilize the fill material and hide the ends of the culvert pipes.
- Cutting the pipe ends at a 45 degree angle reduces the visual impact of the culvert.
- The area around the culvert is generally backfilled and compacted.
- Granular surfacing over the pipe provides the tread.

Constructing rock culverts with local materials can be an alternative to metal or plastic culverts. However, this type of drainage channel is not appropriate for barrier-free trails, bicycle trails, or high standard foot trails.

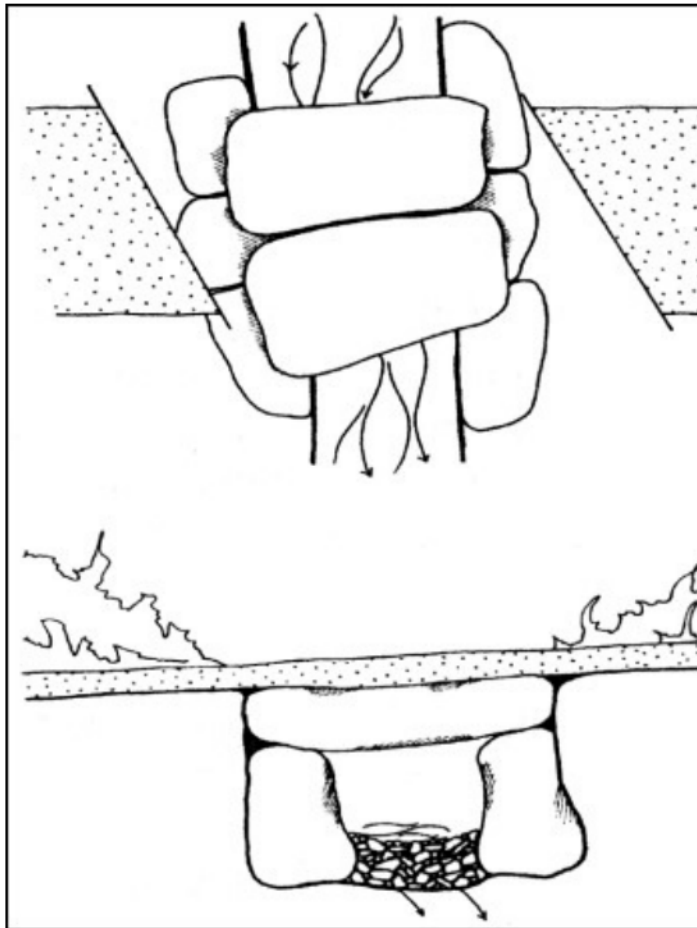
Figure 26: Typical culvert with ditch

1. Water is diverted from the ditch into the culvert



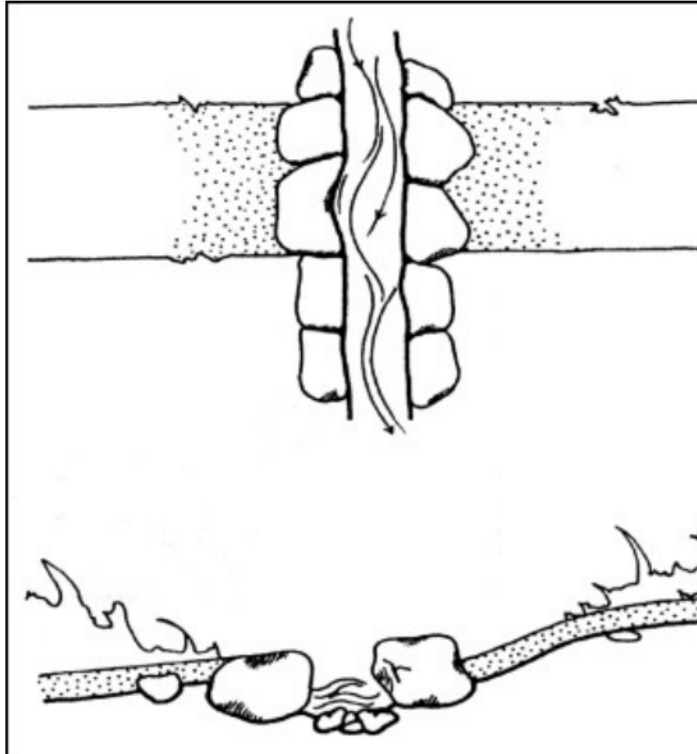
The rock culvert is one that can be built on trails in back country areas.

Figure 27: Rock culvert



Open rock culvert. This type of culvert works in a similar way as a waterbar, and can be used on trails in back country areas.

Figure 28: Open rock culvert



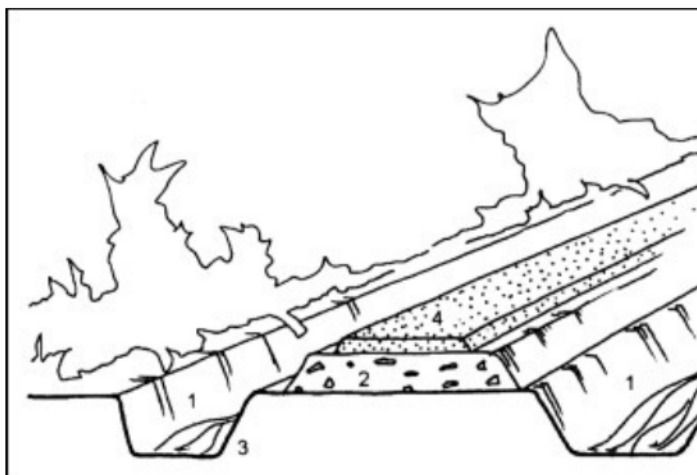
Drainage Turnpike

A turnpike routes water away from the trail on both sides of a raised trail bed. Stakes or rocks should be placed at intervals to retain logs supporting the raised trail tread.

This type of drainage is expensive to construct and maintain, but may be needed where the terrain does not allow for any simpler methods.

Figure 29: Turnpike

1. Material removed from ditches on both sides
2. Removed material is piled between ditches to build up trail base
3. All cut edges are sloped for stability
4. Gravel capping: 60 cm wide



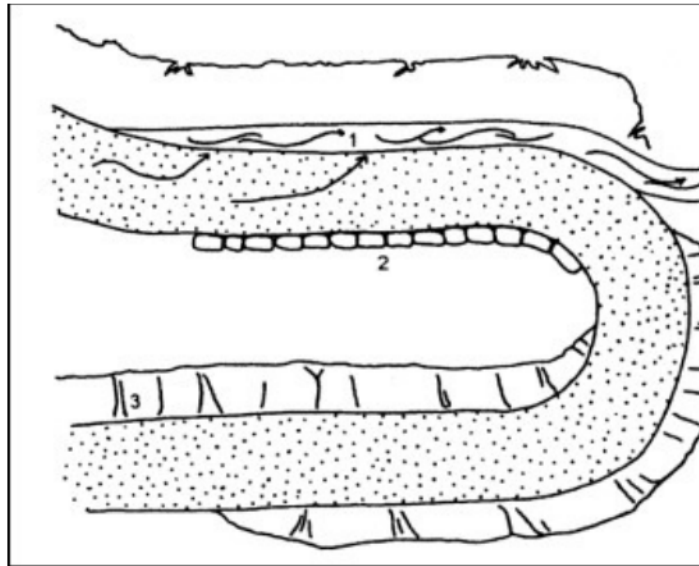
Switchback Drainage

Proper drainage at the top of a switchback is essential. Water must be collected and diverted, and the trail tread sloped correctly, or the corners and lower sections of the switchback

will erode.

Figure 30: Switchback drainage details

1. Drainage ditch on uphill side of upper section of switchback protects turn area
2. Retaining wall used to support upper section
3. Lower section also ditched on uphill side, then drained under the trail



Debris Removal

Removing construction debris from the trail area reduces the fire hazard and enhances the natural appearance of a trail.

To ensure the cut ends of trees are not visible to trail users, small trees should be dragged butt end first away from the trail. Small branches and saplings are cut up and scattered, usually a minimum of three metres from the trail.

Cut trees may be used to construct bridges, steps, corduroy surfaces, or for trail tread edges.

By placing vegetation debris along the ground rather than in piles, it will decompose faster. This will help avoid the problem of vegetation debris clogging natural drainage courses.

10.4.4 Trail Bridging

Wherever trails cross rivers, streams, bogs, marshes or sensitive plant habitat, such as an alpine meadow, some form of trail bridging is required in order to protect the trail user and the environment.

Bridging features can range from simple stepping stones, boardwalks and timber bridges with decking, to more elaborate engineered structures.

The type of bridging selected will depend primarily on whether the trail is crossing land or open water, as well as:

- the type of trail being served, (Type I - V);
- the needs and limitations of trail users (hikers/equestrians/ cyclists);
- the anticipated level of traffic;

- the sensitivity of the surface material/plants, or the breadth and depth of the watercourse, being crossed; and
- seasonal variations or local conditions.

For many trails in provincial forests, trail builders will use building materials found along or near the site.

With these materials, it is particularly important that effective construction techniques are employed that:

- can withstand the effects of weather and wet environments;
- can withstand the impact of boots, hooves and wheels; and
- provide safe public use.

Bridging Wet or Sensitive Areas

Where trails cross wetland areas:

- bridging must allow for adequate drainage channels and be able to withstand water level fluctuations;
- the bridging surface should preferably be above maximum water level, or should be constructed to withstand flood conditions; and
- the trail surface should not be submerged for any portion of the trail use season.

Log Rounds and Stepping Stones (Only suitable for hikers)

These two options use materials generally found onsite. If carefully placed, an aesthetically pleasing effect can be achieved. Rounds can be set in a line, alternated to match walking steps, or set side-by-side to form a walkway.

Log rounds should:

- be made of cedar if possible (or pressure treated, or painted with a stable, non-toxic preservative);
- be rough cut with a minimum diameter of 300 mm;
- have the bark removed;
- be set to a minimum depth of 500 mm; and
- be bedded-in firmly to promote stability and reduce cracking.

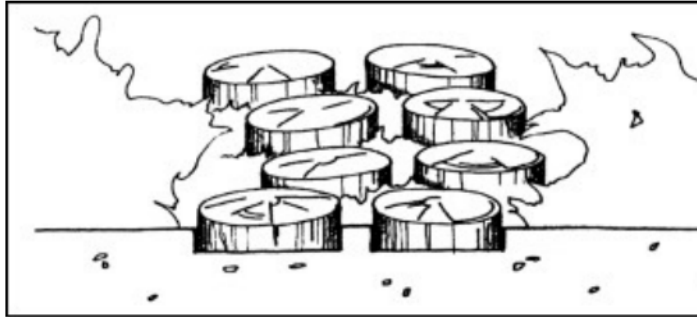
To reduce slipperiness of log rounds:

- a slightly sloping surface cut will help drainage;
- shallow chain saw cuts can be added; or
- chicken wire can be stapled to the surface.

Figure 31: Log rounds

- Tops of log rounds are sloped to drain and prevent rotting
- Chicken wire on surface prevents slipping
- Wide rounds are most stable

- Cedar rounds are most durable

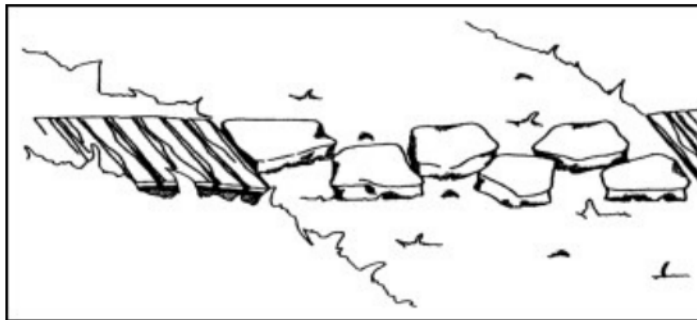


Stepping stones can provide a long-lasting aesthetic solution to crossing wet areas. Any size and shape of rock can be used, as long as one surface is relatively flat. Larger stones are less prone to dangerous shifting under a hiker's weight.

Stepping stones should be stable and not protrude too high above the ground surface or people are apt to avoid them.

Figure 32: Stepping stones

- Stepping stones can be used across marshy areas or running water
- At streams, tops of stepping stones must be above the highest flood level



Rock Treadway

A rock treadway is simply a more extensive use of rock than stepping stones. Small rocks are used to infill the space between larger stones, creating a relatively flat surface. Small rocks will sink into the surface if used alone.

In some high use locations, it may be appropriate to firm up the treadway with a grout of soil cement, a mixture of parent material (preferably gravel), cement and water. Local gravel set into the surface of the soil cement will restore an aesthetic appearance. When a rock treadway is made impervious to rainwater, surface slope and drainage ditches may have to be incorporated.

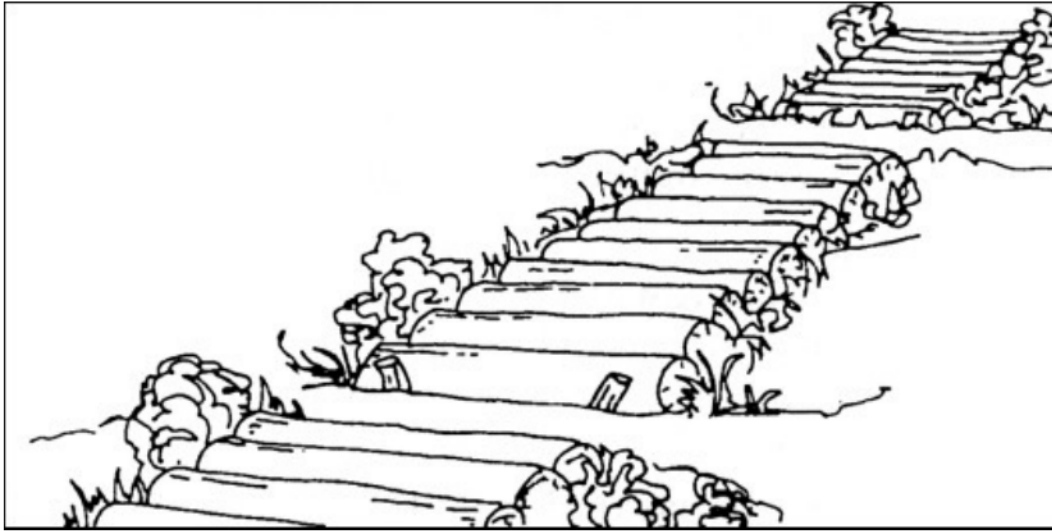
Corduoy Trails

A corduroy trail has a walking surface composed of cut logs resting directly on the ground.

This technique is quick and crude, and requires few construction skills. *However, it uses a lot of wood and is quite limited in its effectiveness.* On flat, wet ground, in areas with only moderate use, corduroy provides hikers with a dry crossing. However, wet ground is usually unstable, and unless very well secured, cordwood pieces tend to become canted to one end. Peeled logs are slippery when wet and this invites the creation of an easier path to the side, often resulting in environmental damage.

Construction: Peeled logs are placed directly on the ground in approximately 2.5 to 3 metre sections and secured with stakes at either end. Spaces of at least 350 mm are left between sections for drainage channels.

Figure 33: Corduroy showing spacing for drainage channels



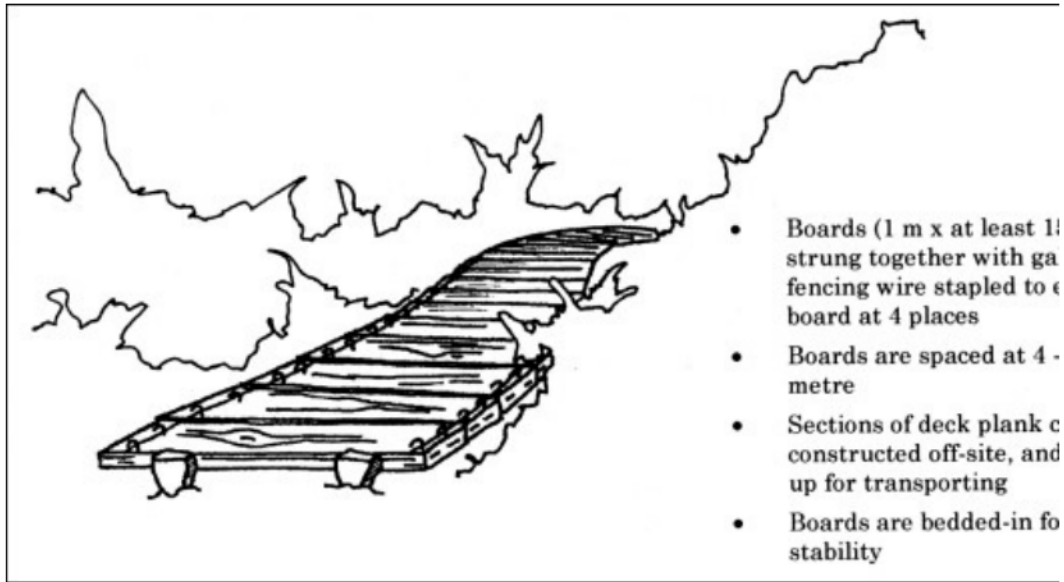
Flexible Plank Decking

This form of bridging is used in areas of *shifting sand* to help control erosion.

Treated planks lie on the ground, partially supported by a cable. The cable's primary function is not weight-bearing, but to prevent the planks from drifting.

- In one method, a lateral hole is drilled through each end of the plank and the planks are then strung together with cable.
- An alternative method has the cable running through staples on the plank surface.

Figure 34: Flexible plank decking



Trail bridging over shallow water

Trail bridging over shallow water is more elaborate and costly to build. Raised plank bridging, known as boardwalk, may be constructed, or for deeper water, decking may be secured to styrofoam floats which are well-anchored to bottom materials.

Boardwalks

A boardwalk is constructed in sensitive areas where crossing is otherwise very difficult or could result in unacceptable environmental impact. Boardwalks should be:

- separated from the underlying surface either by resting on sills and stringers or by elevation on posts;
- considered in high-use areas or where access for persons with disability is desired;
- used for nature interpretation to allow close access to features; and
- used to provide clean, dry footing across muddy areas.

A boardwalk is an expensive and obtrusive element in the landscape, and should be used selectively. The need for a boardwalk should be avoided, wherever possible, by aligning the trail on well-drained soils or by utilizing drainage and on-grade trail construction techniques. In areas with low use, a width of 500 mm rather than standard 750-1000 mm will reduce costs.

The benefits of properly constructed boardwalks include:

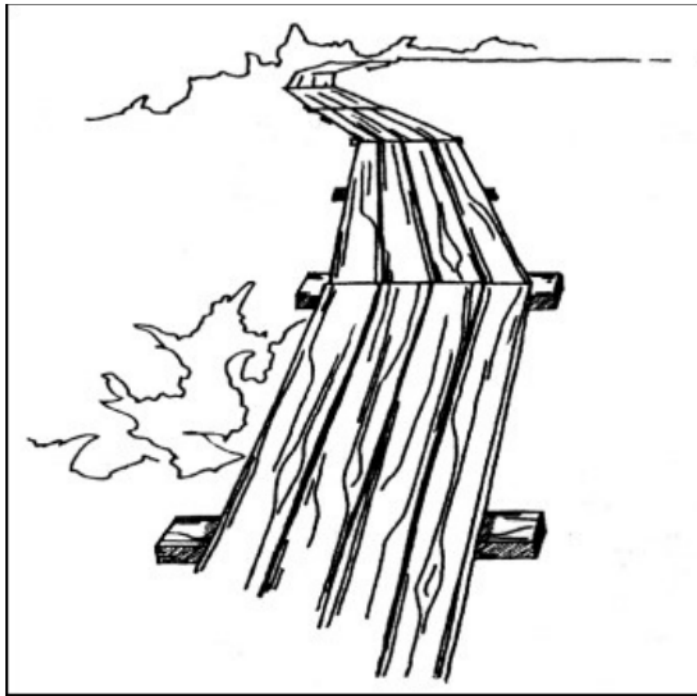
- low maintenance and relatively low impact;
- minimum impact across sensitive alpine bogs, swamps or around lake shores prone to flooding; and
- no drainage of a sensitive area.

Posts should be driven into the ground with a sledge hammer to reduce interference, **not** dug in.

On flat country, the visual impact of boardwalks can be reduced by incorporating gentle curves compatible with the visual surroundings. Boardwalks made of cedar will bleach to an acceptable natural toning in most weather conditions.

Boardwalks should be located close to the ground to allow grasses and small shrubs to grow back around the structure and between the deck boards. Walkers' feet will tend to trim off the growth at board height.

Figure 35: A curved boardwalk reduces visual impact



Construction of boardwalks should include:

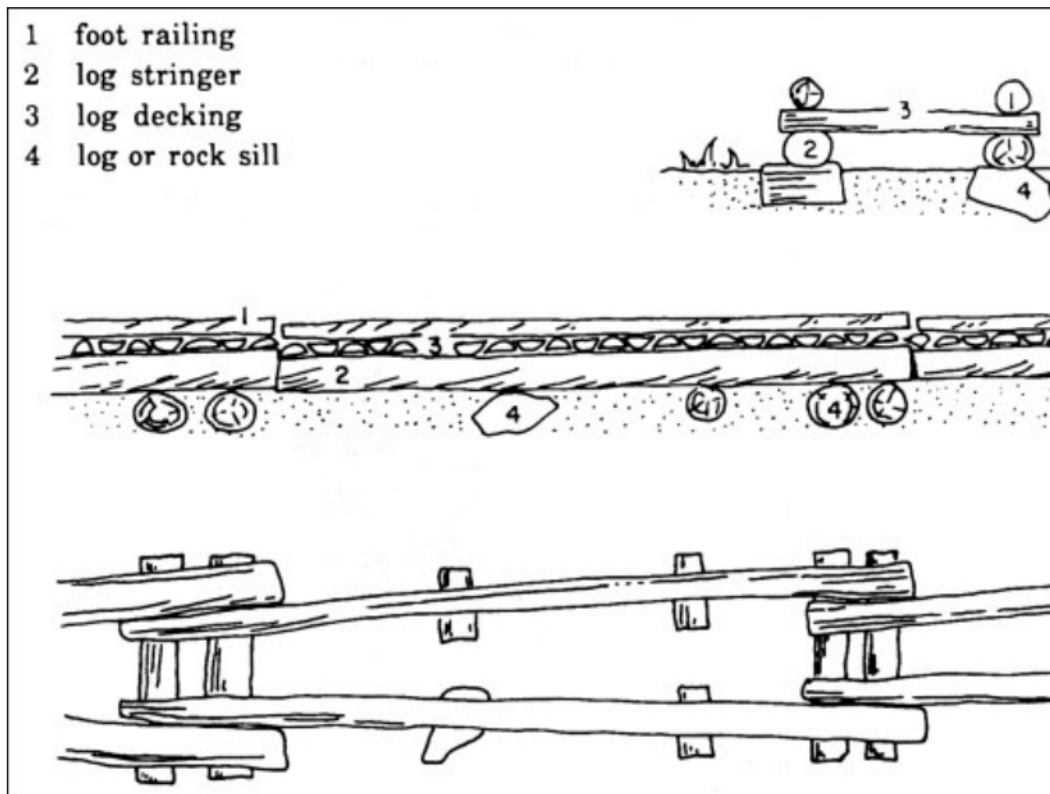
- a ramp for smooth access or, alternatively, steps at either end;
- non-slip ramps for barrier-free access (dirt or grip-surfaced wood);
- stepped sections for changes in elevation (boardwalks have to be horizontal);
- concrete footings in high use areas for stability and longevity; and
- log decking laid at a right angles for easier walking or plank decking (rough-sawn and laid with 10 to 20 mm spacing).

a) Log or plank decking on stringers

In this method, either logs or planks are laid perpendicular to the length of the trail. This requires the use of a log or rock sill placed underneath the stringers to which the decking is applied.

There are many styles of boardwalks:

Figure 36: Cross-section, elevation and plan view of log decking on stringers



When log decking is used, the logs are split and laid down in an alternating fashion, first with the rounded side down, then up. If planks are used, the foot railing shown in the above drawing is not necessary.

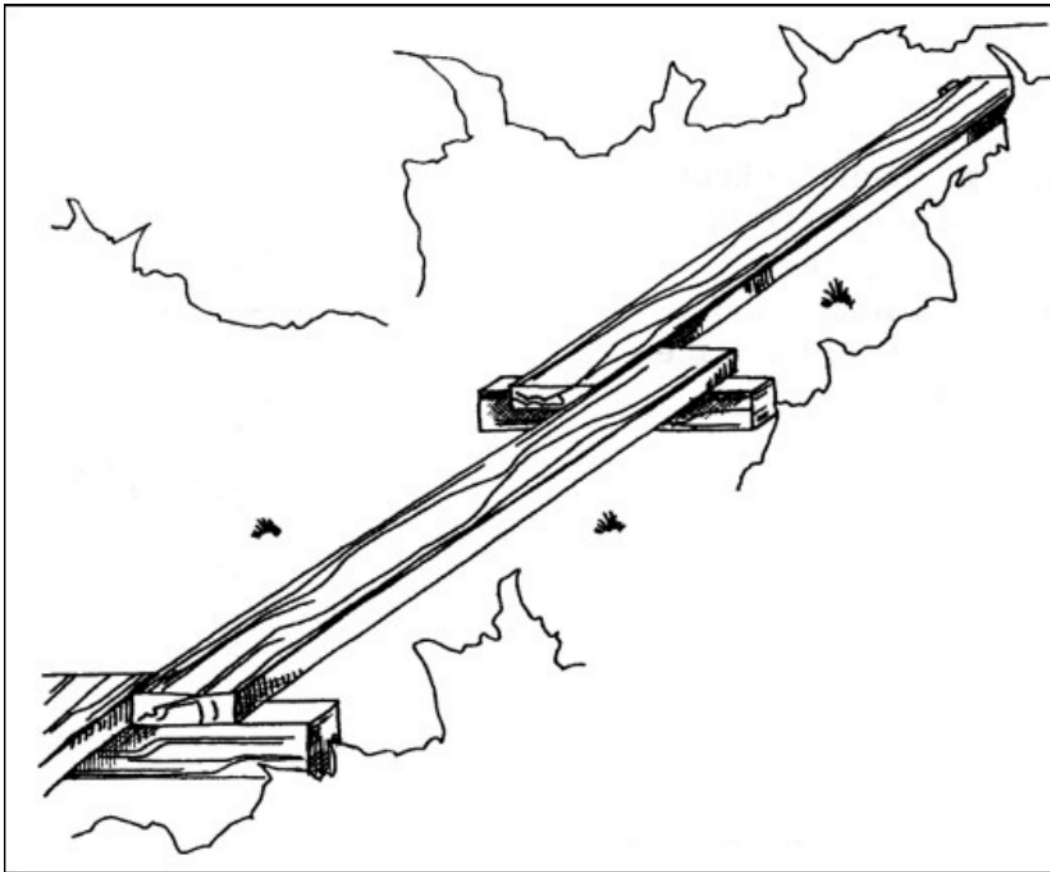
b) Plank decking on sills.

In this method of bridging, the decking is laid parallel to the length of the trail on log sills. Sills should be spaced so that the degree of flex in the decking is minimal.

The use of raised single or double planks is an effective way of traversing soft, wet areas. Hardwood planks are strung across swampy ground on support logs laid on the ground across the trail. Two adjoining plank ends rest beside each other on one log to conserve material.

This simple, inexpensive, narrow pathway is *only suitable for remote areas with low use*. Users need to briefly step off the walkway to pass.

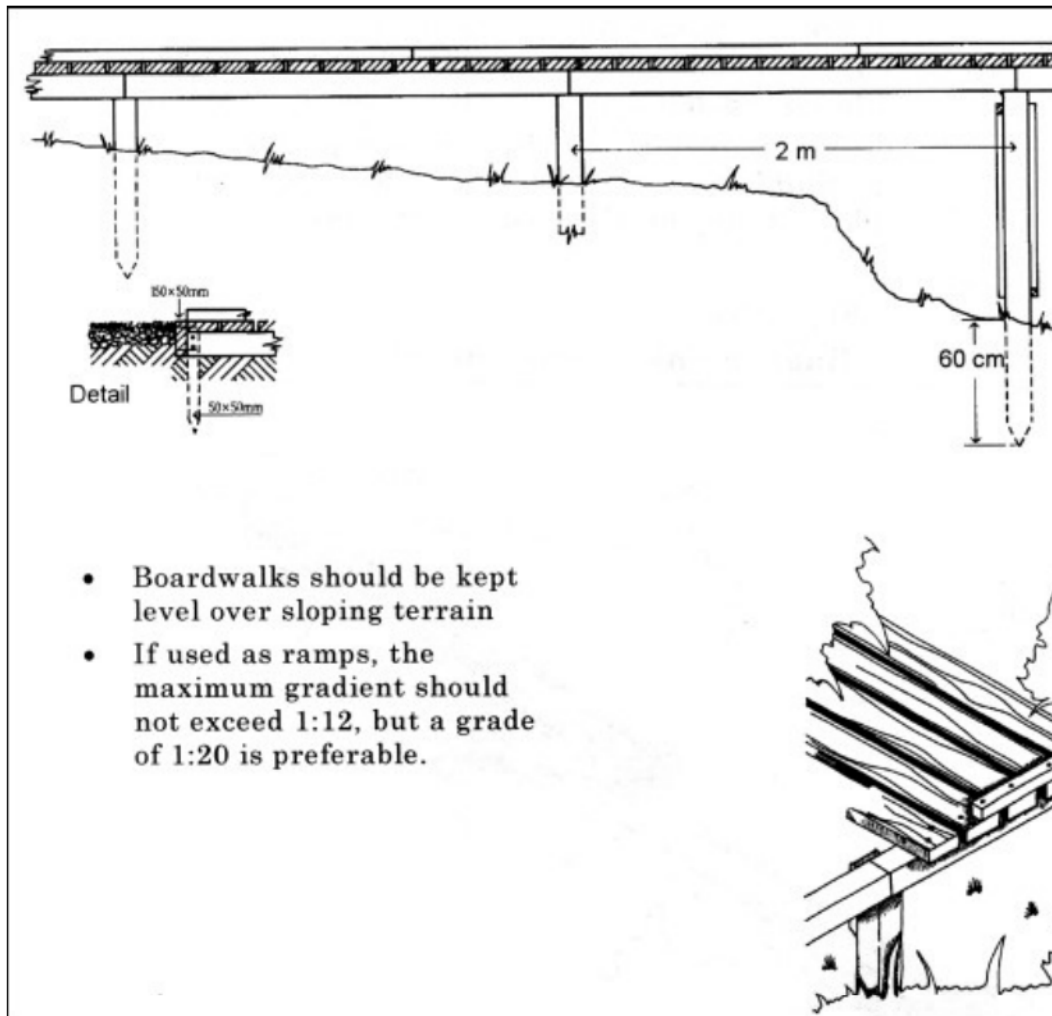
Figure 37: Single plank decking on sills



c) Post supported boardwalk

This is a strong design suited to high-use areas. With ground contact limited to the small area of the vertical posts, there is minimal impact on the environment.

Figure 38: Post supported boardwalk

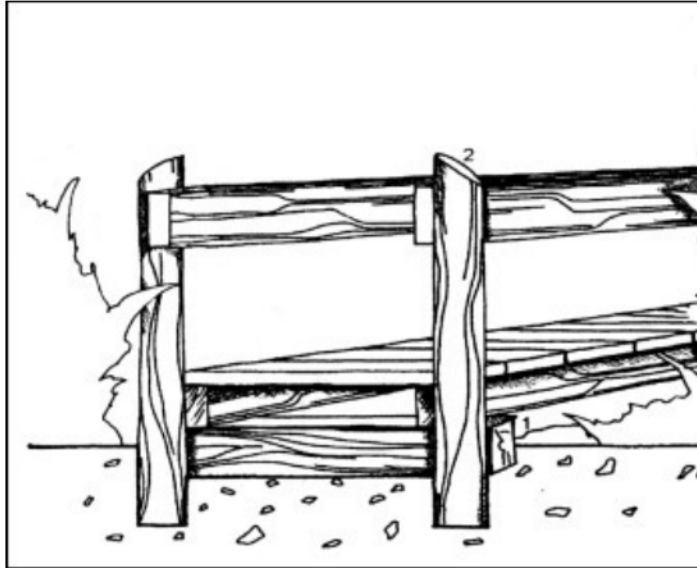


d) Post and sill with handrail

This design provides trail users with a high degree of security. It is suited to high use areas and locations with bicycle traffic. The boardwalk site should be easily accessed in order to carry in the dimensional lumber required. There will be some damage to vegetation where the sill rests on the ground.

Figure 39: Post and sill boardwalk with handrail

1. Sill supports stringers clear of ground.
2. Post tops sloped to prevent rotting from rainwater.

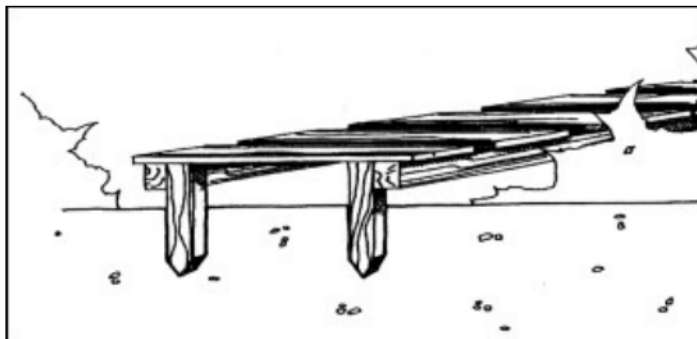


e) Standard duckboard

Duckboard is small-width boardwalk that is often prefabricated and flown or carried to the construction site. Because of its light weight, some 12-15 three-metre lengths can be lifted per helicopter sling load.

This design is best suited to low/moderate use trails for hikers only. Duckboard requires posts to support it and a certain amount of soil strength to hold the posts.

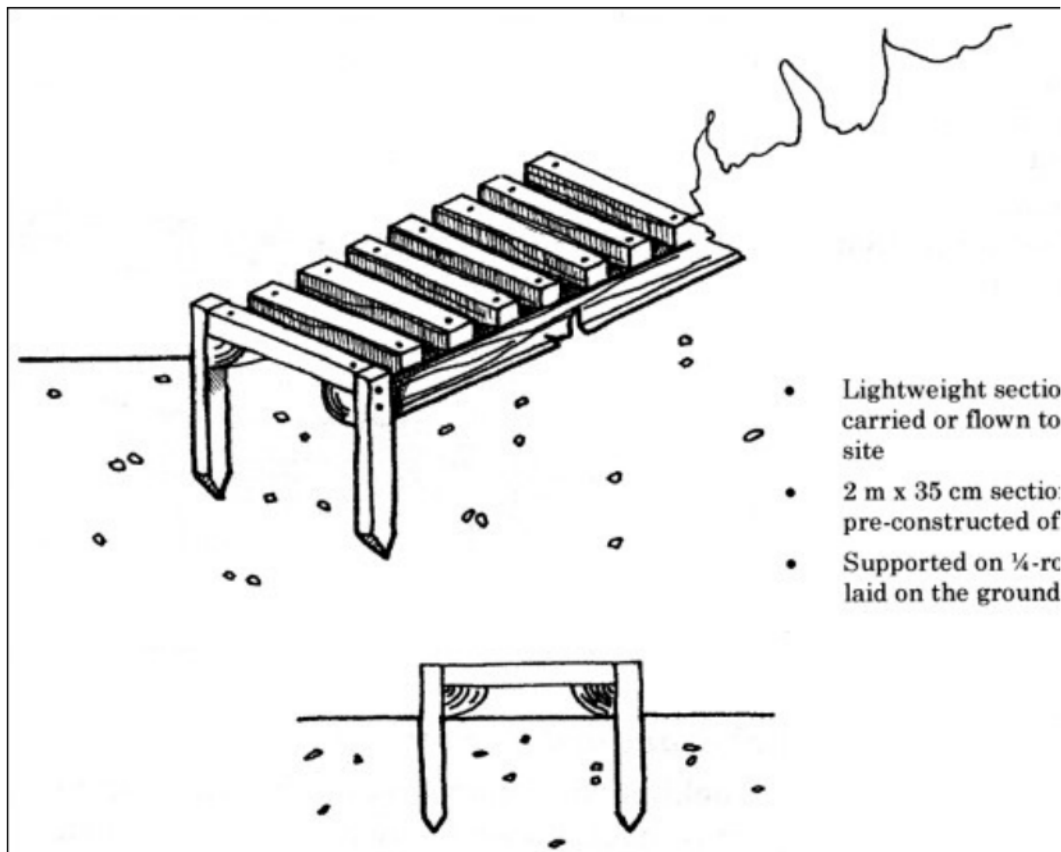
Figure 40: Standard duckboard



f) Duckboard with stringer

A duckboard with a stringer provides it with more "float," which is important in soft surface areas. The stringer shown is a quarter-round post. Stringers rest directly on the ground and will damage any vegetation underneath.

Figure 41: Duckboard with Stringer



Bridging Open Water

Bridges may be used to cross rivers, streams, wetlands or areas of shallow water. Bridge location and design should take into consideration:

- stream flow characteristics;
- peak run-off periods;
- bank and stream bed erosion potential;
- fish habitat;
- snow loads and ice conditions;
- adequate clearance on navigable watercourses to allow for boats; and
- proper alignment and orientation to the trail tread.

Specifications for a bridge should include structural strength, width, need for railings, and the type of construction material used for decking.

Handrails should be used on all bridges where the decking is more than 1.2 metres (4 ft.) above the water, or where bridges cross fast-moving water. For Type IV and V trails, a handrail may be optional.

On semi-primitive hiking trails, bridges may consist of two logs placed side-by-side with their tops flattened for easier walking. Suspension bridges, rafts and bosun chair type crossings add a challenging element to water crossing for experienced hikers,

but are not appropriate for trails used by the general public.

Bridges on equestrian trails or in areas of moose wetland habitat should be strong enough to support large animals.

Trails designed for barrier-free access or mountain bike use should consider any specific requirements for bridge access, width, surfacing and handrail height.

Fords and Stepping Stones

Shallow fords can be an attractive feature on equestrian and mountain biking trails. From a management point of view, a ford is a low-cost and maintenance-free option. Hikers in remote back country areas, especially on Type IV and V trails, accept stream fording as a reasonable proposition.

The best location to cross rivers and streams should be carefully investigated:

- Find a wide, shallow section of river.
- Depth during the use season should be < 60 cm.
- Avoid uneven stream beds and fast-flowing water.
- Move rocks to create an even stream bed if necessary.
- Position stepping stones across small streams to aid hikers and mountain bikers.
- Consider possible erosion at entry and exit points.
- Mark the trail clearly on both banks. For Type I-III trails, provide warning signs on both banks.

Above all, user safety must be closely considered.

For faster flowing streams or rough crossings on Type I-III trails, a bridge should be constructed. On Type IV and V trails, users should be informed **at the trailhead** about the river crossing, and any need for ropes and/or special expertise.

Simple Log Bridges

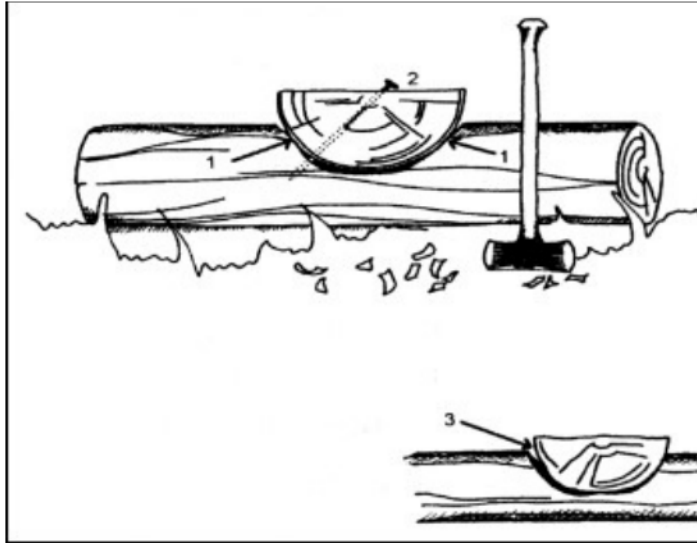
Single log or two-log bridges may be used where the crossing is relatively free of hazards and use is low. The following should be considered when building simple log bridges:

- record spring high water marks;
- build at least 0.5 m above the high water mark;
- start in late summer or fall when the stream banks are dry and stable;
- use peeled logs that are straight and uniform in diameter, and with the least of number of branches;
- use one stringer more than 0.3 metres (12") in diameter at its thinner end or two stringers side by side;
- place trunk stems in opposite directions for maximum strength and more consistent width on two log bridges;
- limit bridge spans according to the size of the log - the log should span the water course and extend at least 1 metre over each bank;

- use diagonal cross cuts 5 mm deep over the flat surface of the log to prevent slipping;
- line banks of the stream or water course with larger rocks to help prevent scouring and disturbance of the bridge;
- install handrails on lengthy or dangerous crossings; and
- cut notches in the sill log so that the sides rather than the bottoms of the stringers are touching (prevents rocking of the stringers sideways - see diagram).

Figure 42: Notching log stringers

1. Notch to provide two points of contact on side of stringer and prevent rocking.
2. Stringer pinned into place.
3. Gap to one side - this will rock.



Additional pointers

For bicycle safety, bridge decking should be laid perpendicular to the trail direction.

In high-use areas, or for wide spans, metal I-beams can be used instead of wood stringers. The top surface of the I-beam should be faced with lumber (bolted on) in order to nail down the decking. Use of an I-beam provides a long-term solution to stringers being weakening from moisture (e.g., near waterfalls).

Figure 43: Single-log bridge with handrail

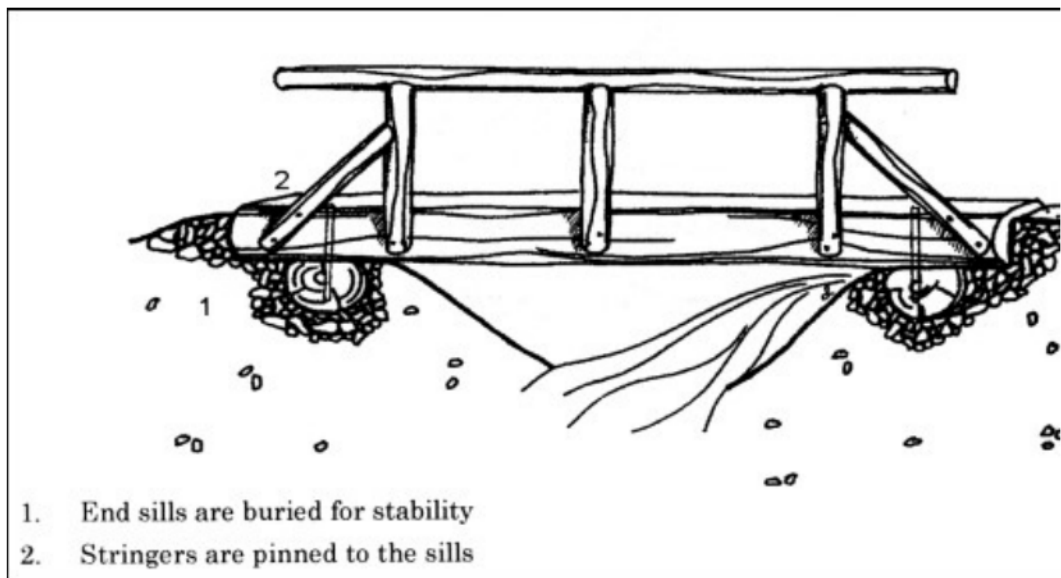


Figure 44: Simple two-log bridge

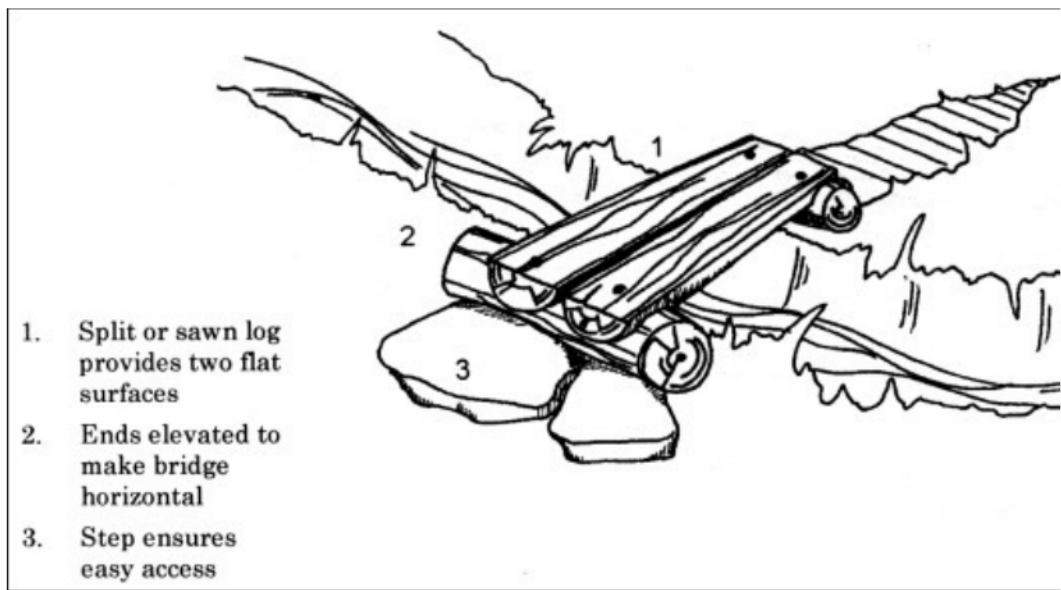


Figure 45: Three-stringer bridge

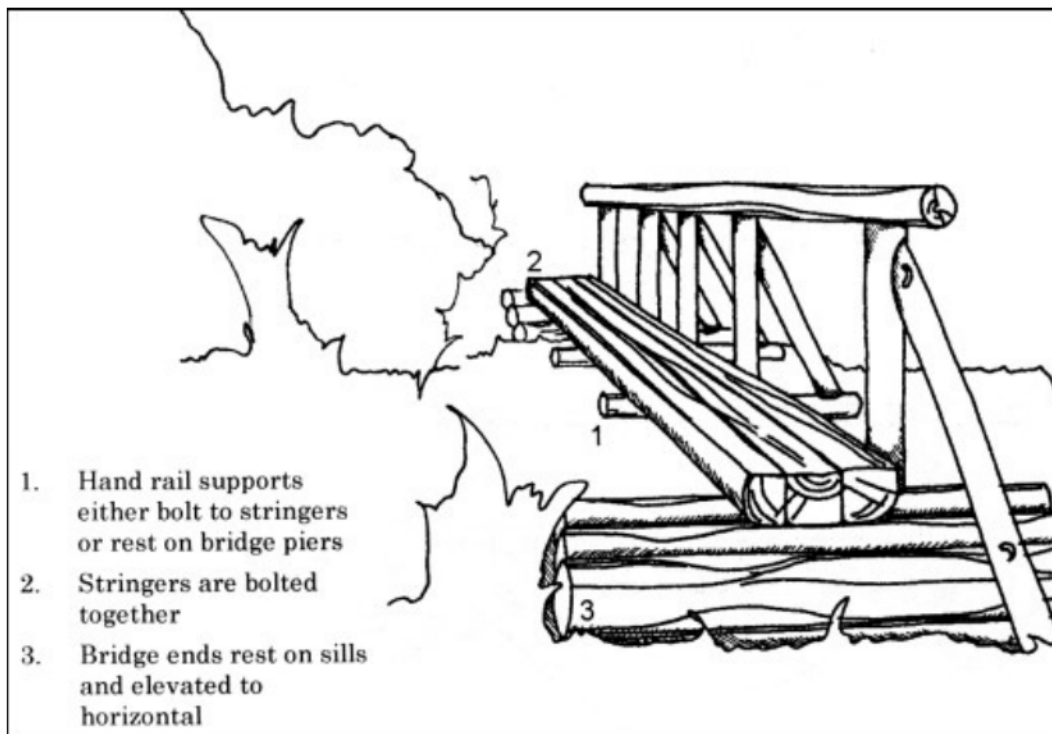
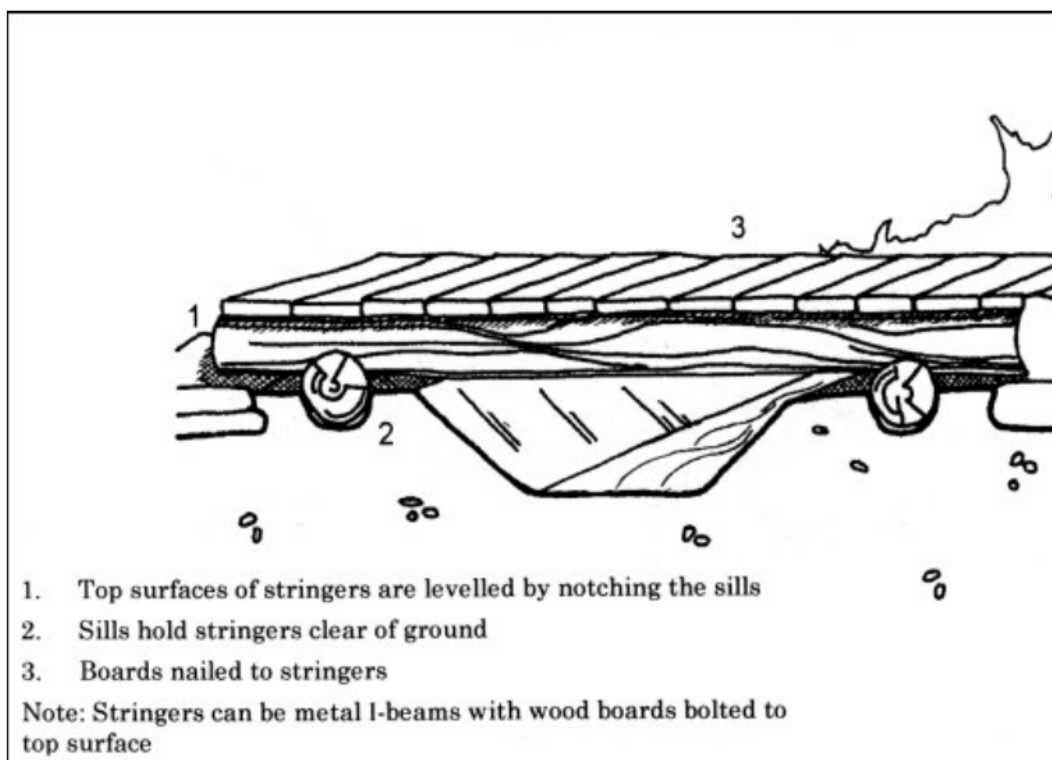


Figure 46: Log bridge with timber decking



Stringer dimensions

The span diameter table provides recommended minimum

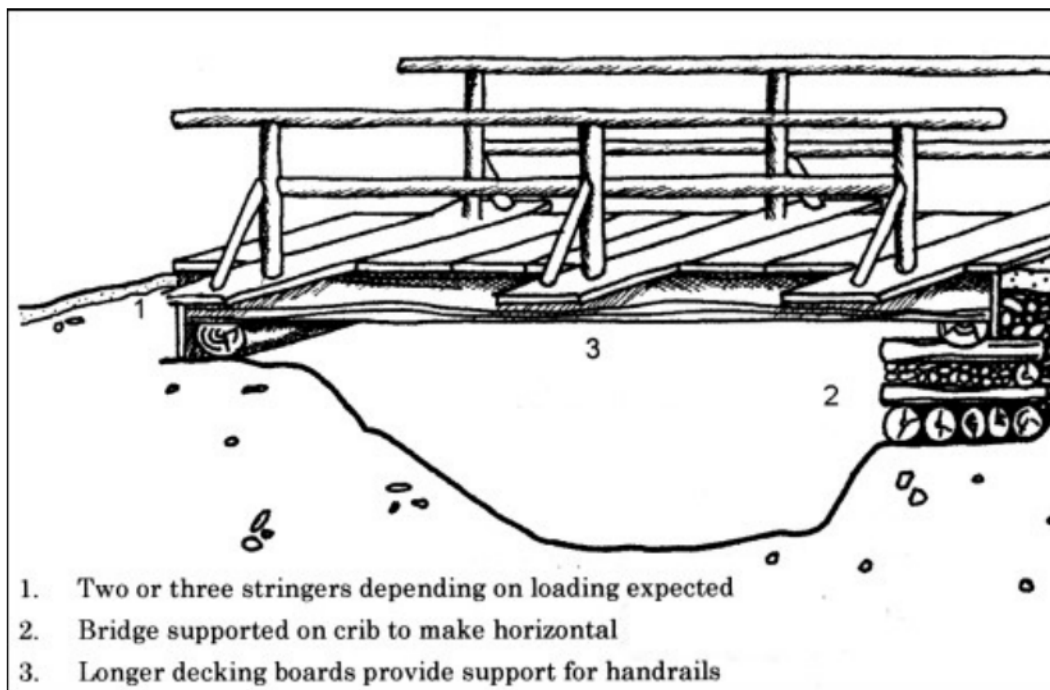
diameters for various bridge spans (based on a two-stringer bridge). Three stringers should be considered in heavy snow country.

Span Diameter Table*

Clear Span (metres)	Douglas-fir Timber (cm) Width x Depth	Peeled Log Diameter (cm)		
		Fir	Spruce	Cedar
0 - 4.5	15.5 x 20.5	22	24	26
4.8 - 6	20.5 x 26	27	29	31
6.3 - 7.5	20.5 x 31	31	34	36
7.8 - 9	31 x 31	36	38	41
9.3 - 10.5	31 x 36	40	43	46
10.8 - 12	36 x 41	43	49	51
12.3 - 13.5	41 x 41	47	52	56
13.8 - 15	41 x 46	51	57	61

* Dimensions provided by Nelson Forest Region

Figure 47: Bridge with decking and handrails



Engineered Bridges

For an added margin of safety, custom bridges can be designed for a particular purpose or location, and usually involve using materials and components that exceed the load requirements of the structure. There are many interesting and functional designs for engineered bridges that can be put together with simple tools in a back country setting. A professional engineer should be consulted.

10.4.5 Trail Steps and Ladders

Steps

Steps are used on short, steep trail sections to ensure user safety and to help prevent erosion. A series of short flights of 14 steps or less, with ample landings in between, is preferable to a single long flight. Handrails should be installed on at least one side where flights are steep or long.

Acceptable stair proportions must be used in step construction. The recommended formula is:

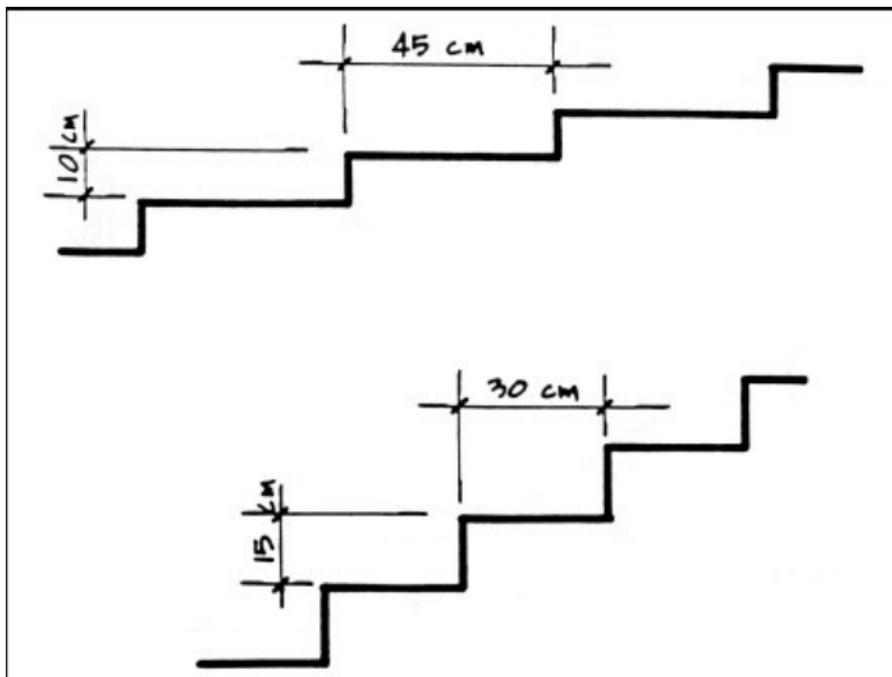
$$\text{Height (cm)} \times \text{tread depth (cm)} = 450.$$

For example:

- 1) 10 cm rise requires a 45 cm tread depth.
- 2) 15 cm rise requires a 30 cm tread depth.

Tread depth should not be less than 30 cm.

Figure 48: Rise to run diagram



Consider safety

Riser heights of more than 20 cm (8 in.) are tiring for ascending hikers and difficult for children and elderly walkers. Such a rise is even more difficult for descending hikers, and may be dangerous for people who are tired.

On steep ascents, steps are critical for preventing soil erosion and stabilizing slopes. The basic purpose of steps is to scale a steep vertical rise on the trail while permitting lower grades between flights. While this helps hikers, it also slows water and retains soil.

When building steps, either of wood or rock, it is best to:

- work from the bottom up to determine the best placement of steps and optimal stabilization;
- drain steps to the side to prevent premature wood deterioration and to retain fill material; and
- curve steps to follow the outside of a slope for drainage.

Wider steps appear to be less steep than narrow steps.

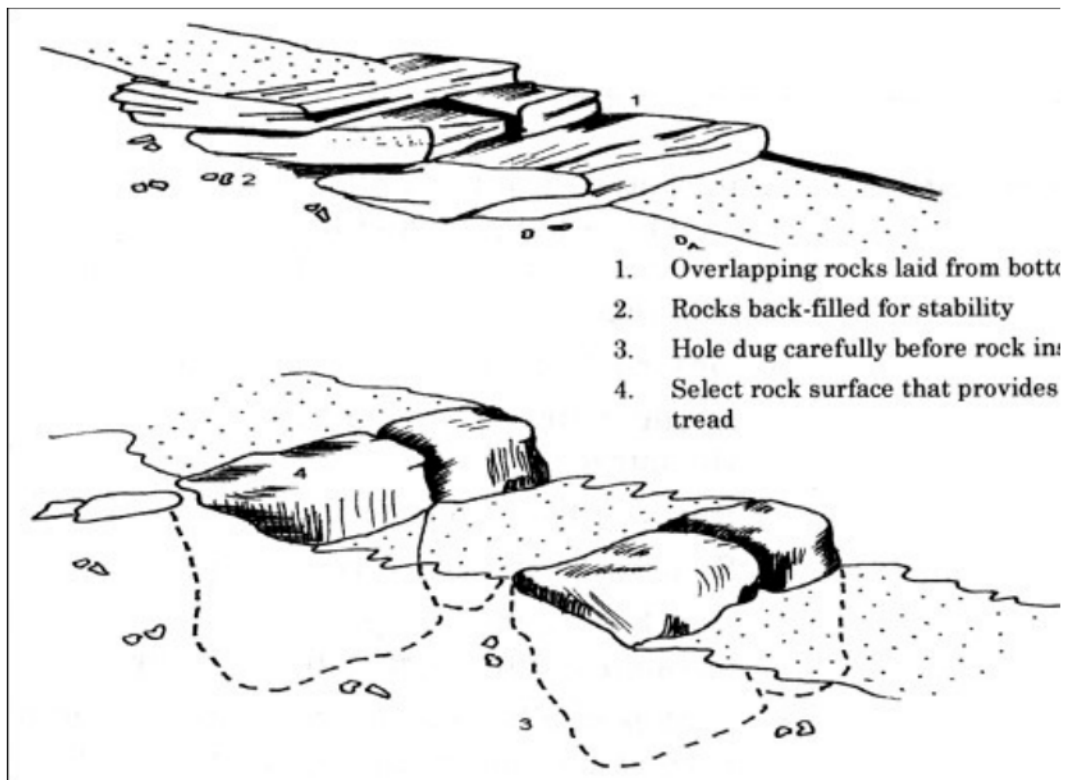
Boulder Steps

Boulder steps are far more desirable than log steps since they last longer and are more aesthetically pleasing. Over time, they will begin to look as if they were naturally in the trail, especially if they are placed carefully.

There are two basic designs for boulder steps:

- riser boulders set into the slope and backfilled; and
- overlapping tread boulders supported by smaller rocks and fill (see figure below).

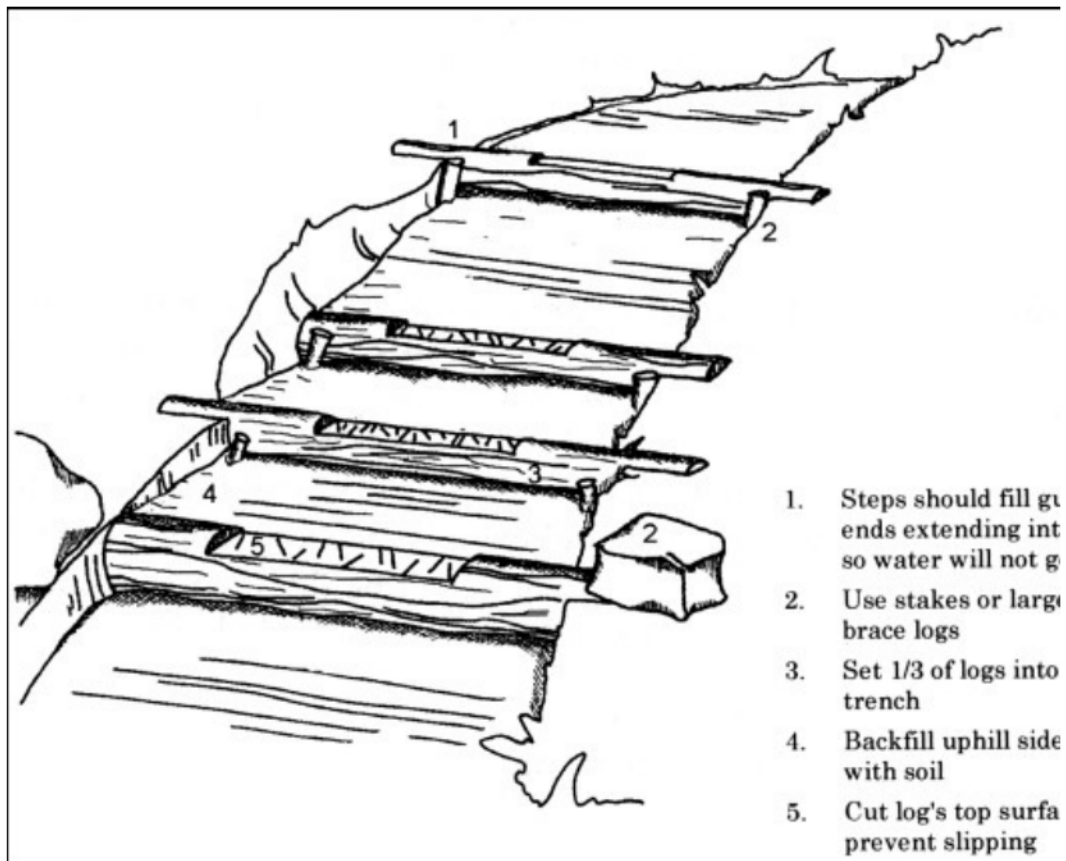
Figure 49: Boulder steps



Log Steps and Stairs

Log or timber steps set into the ground are simple to build and are less expensive than steps supported by stringers. Either full or half logs may be used in construction.

Figure 50: Log steps



Timber Steps and Stairs

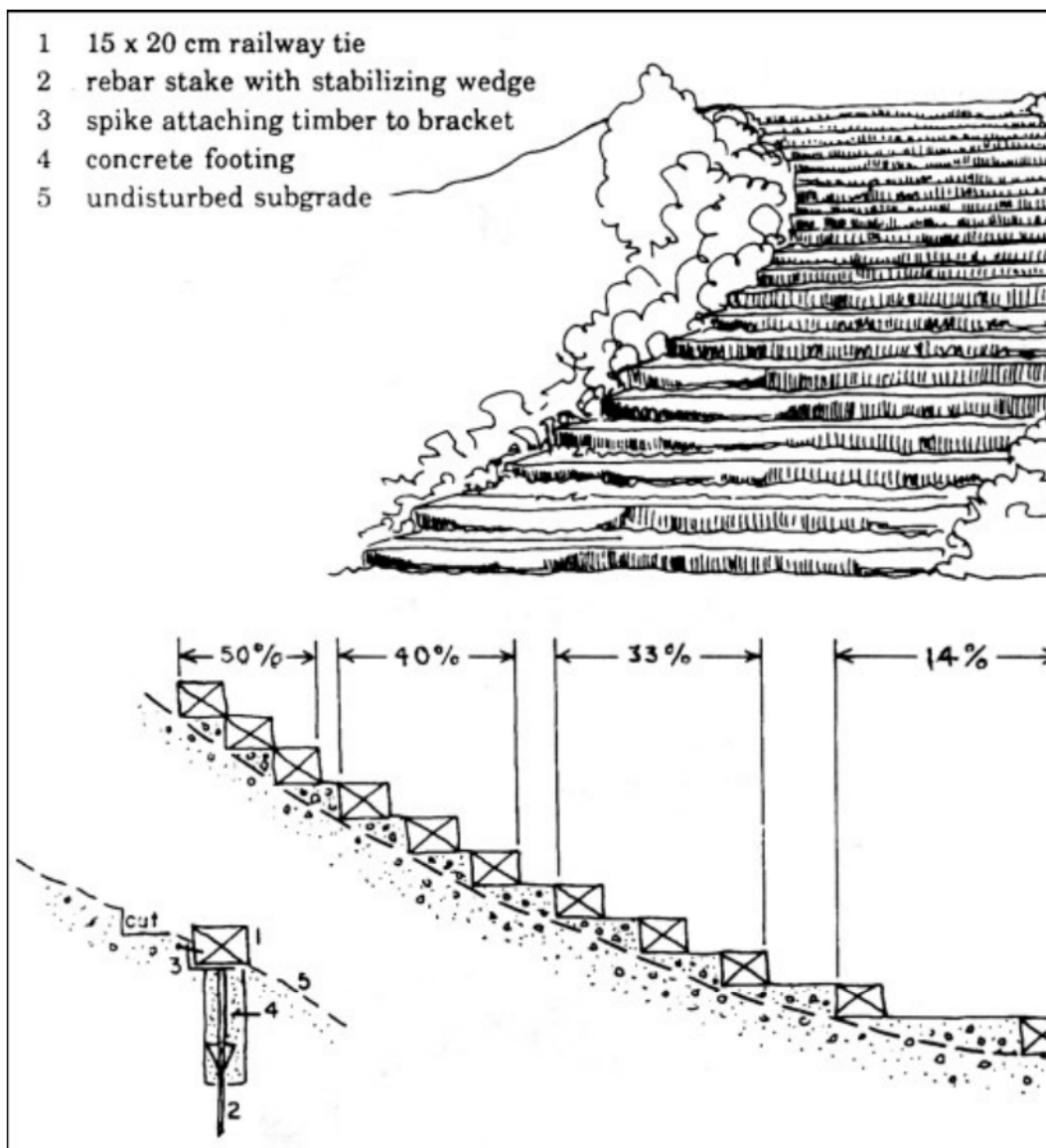
Timber steps are normally considered for intense use trails where long-term stability is desired. They should follow the contour of the land to minimize site disturbance.

In constructing curved timber steps:

- A line is drawn (using lime) on the ground to show the curve.
- Railway ties (15 cm x 20 cm) are used for the steps.
- Spacing varies according to the slope.
- Brackets for the steps are welded to a 90 cm section of rebar having a stabilizing wedge.
- Stakes can be set into concrete to help preserve the correct horizontal and vertical alignment.
- Plantings may be used to soften the edge of the steps.

Refer to the slope diagram in this section to calculate the number of steps relative to the percent slope.

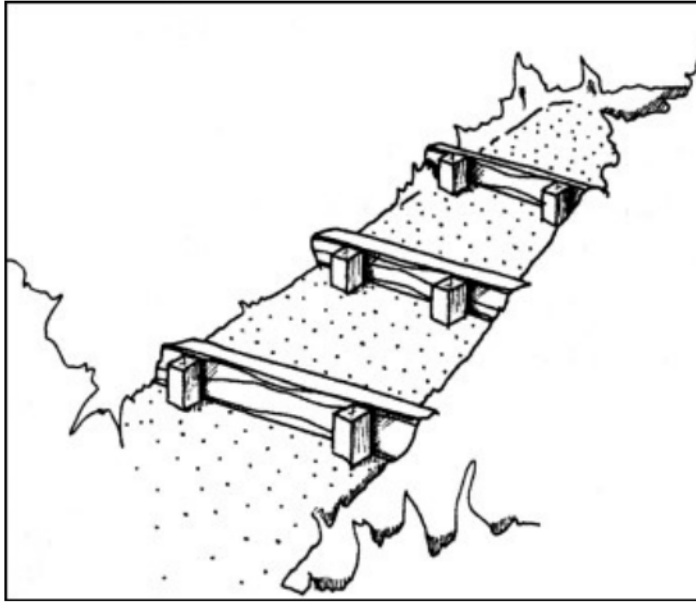
Figure 51: Curved timber steps



Ramped Steps

Ramped steps are used where it is necessary to level out gentle slopes. Timber or log risers may be used. On timbers, brackets welded to steel stakes may be preferable to a stake-only anchor.

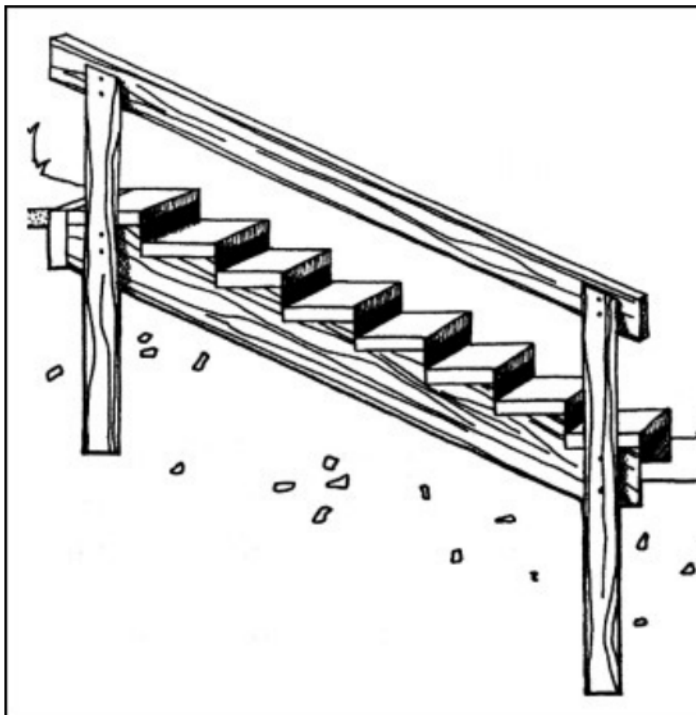
Figure 52: Ramped steps



Plank steps on stringers

Steps on stringers are used in high-use areas or where rocky materials or surface roots make it difficult to set steps into the ground.

Figure 53: Plank steps



Ladders

Ladders may be used on back country trails for more agile hikers where grades exceed a 1:1 slope. They are readily constructed

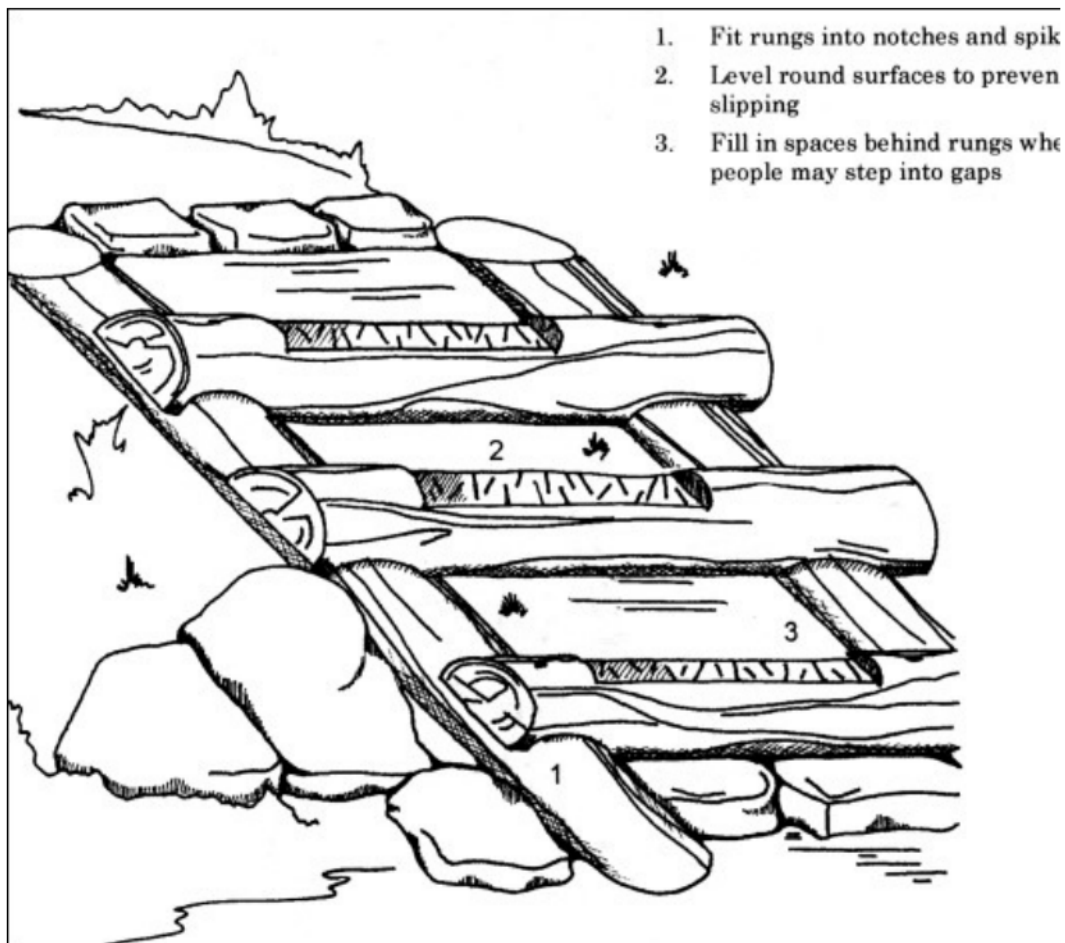
from on-site materials, and may be used for short, steep ascents or directly on the ground on less steep slopes, with the rungs acting as steps.

Crib Ladder

This technique is useful where a very steep slope, or one with rock or roots near the surface, makes it difficult to secure regular steps.

It consists of a log ladder laid into or up against the slope. Each step is backfilled with gravel or rock scree. There should be no space behind the rungs for people to step into. Tops of the rungs should be flattened with an axe. There are many possible variations of this technique, using 300 mm (12 in.) spikes to fasten the logs together.

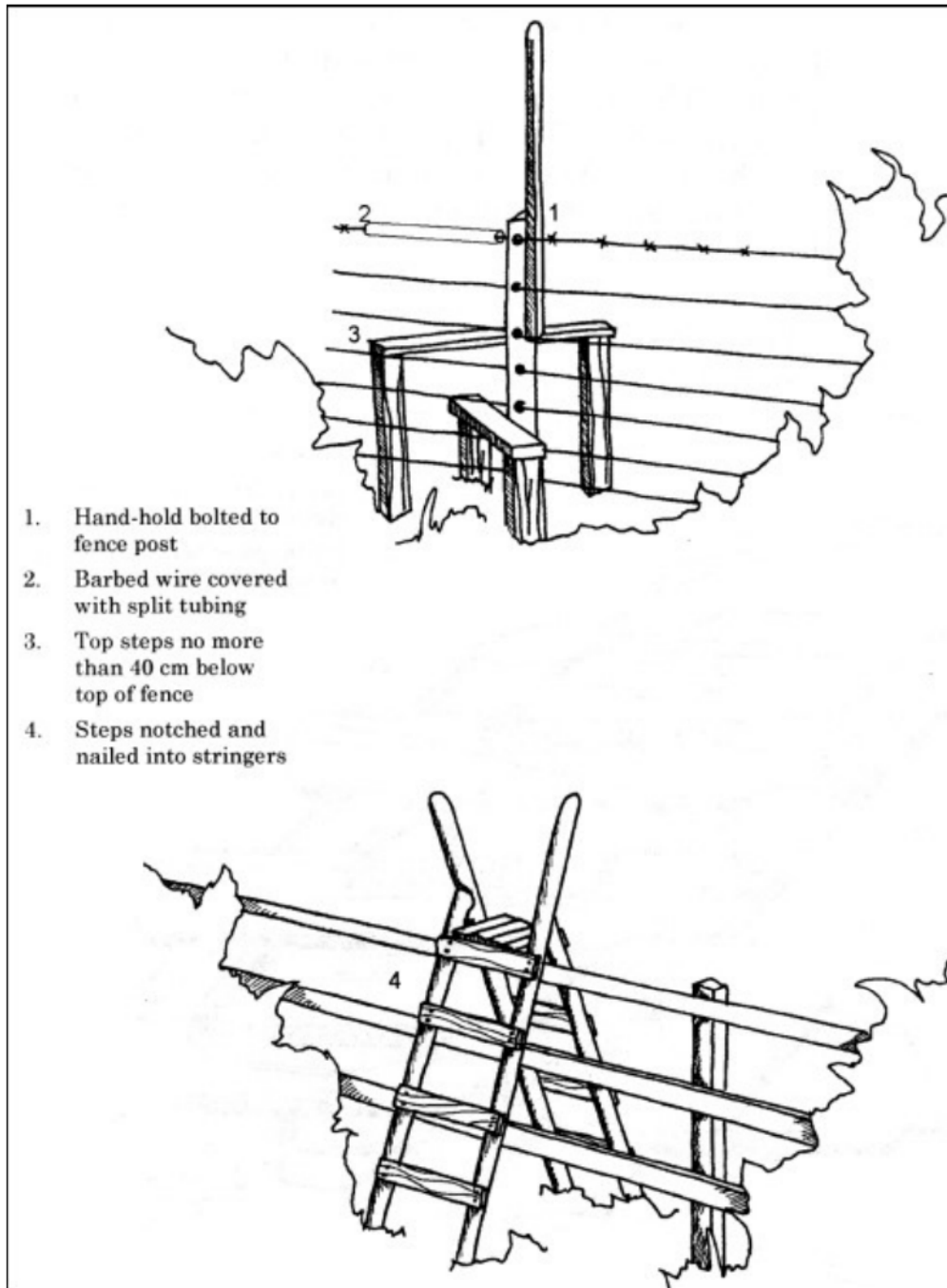
Figure 54: Crib ladder



Stiles

Stiles can be used to provide hikers with a means of crossing public lands that have been fenced, without having to install gates (preferred by ranchers). In some cases, they may also be used as a method of controlling access and for allowing pedestrians only (e.g., to prevent motorized or bicycle access).

Figure 55: Stiles



10.5 Trail Monitoring And Maintenance Program

A monitoring and maintenance program helps ensure the safety of the trail user and the preservation of the trail environment.

Trail maintenance responsibilities begin as soon as a trail

is completed and open for public use.

Trail monitoring and maintenance should reflect the level of use and the classification of each trail.

Objectives

Trail maintenance is carried out to:

- provide user safety;
- protect the environment;
- provide user access and convenience; and
- protect investments.

Trail Maintenance Priorities

1. Safety considerations should always be the first priority. Unsafe conditions should be corrected or normal use restricted.
2. Environmental and trail damage should be corrected and actions taken to prevent further damage.
3. User convenience should be considered.

10.5.1 Trail Condition Log

The basis for a well-managed monitoring and maintenance program is an inventory of trails and related facilities, or a trail log developed during condition surveys and inspections. A trail log, or initial inventory, identifies and documents the physical conditions of a trail, including all structures.

The log should provide sufficient detail to allow for appropriate maintenance decisions. Information should be:

- recorded by location;
- based on accurate measurement of the trail or from the original Construction Log; and
- marked on a detailed trail map.

The trail log, or inventory, should provide information about physical characteristics and features, including:

- | | |
|--|---|
| <input type="checkbox"/> trail classification | <input type="checkbox"/> length |
| <input type="checkbox"/> grade | <input type="checkbox"/> boardwalks |
| <input type="checkbox"/> tread width | <input type="checkbox"/> water bars/drainage measures |
| <input type="checkbox"/> surfacing | <input type="checkbox"/> bridges |
| <input type="checkbox"/> switchbacks | <input type="checkbox"/> culverts |
| <input type="checkbox"/> stairs | <input type="checkbox"/> signs |
| <input type="checkbox"/> stream fords | <input type="checkbox"/> campgrounds or huts |
| <input type="checkbox"/> safety concerns (cliffs, canyons, trails crossing tidal zones) | |
| <input type="checkbox"/> significant features (bogs, caves, archaeological sites, wildlife trees) | |
| <input type="checkbox"/> seasonal conditions (flooding during spring months or heavy rains, subject to late spring avalanches) | |

10.5.2 Maintenance Levels

The maintenance level assigned to a trail will depend on a number of factors, including:

- classification of the trail (Type I- IV);
- management objectives;
- volume and type of users;
- environmental impact;
- trail deterioration;
- purpose of the trail;
- existing trail standards;
- trail investment; and
- availability of funds.

In general, high-use and high-standard trails will receive a higher level of maintenance. This also implies a quicker response to trail deterioration.

In general, the following rules-of-thumb should be considered for summer and winter maintenance of trails.

Heavy use summer trails should be:

- repaired in the spring before the beginning of the heavy use season; and
- maintained at least once a month during the season.

Winter ski trails should be:

- maintained after significant snowfalls, or as trail conditions deteriorate due to usage and environmental factors.

10.5.3 Trail Monitoring Condition Survey

A condition survey identifies and documents the physical condition of a trail and lists the deficiencies that require maintenance efforts. Often the initial condition survey is completed at the same time as the trail inventory.

A standardized checklist, such as the one on the following page, should be compiled to give a clear and concise record of trail conditions and required maintenance procedures. Specific maintenance requirements should also be indicated on a trail map of sufficient scale (1:50 000 minimum).

The person responsible for the trail condition survey must be knowledgeable about the entire maintenance process. Any damage or deterioration that will require further work should be noted. This information, coupled with facility standards, yields manpower, equipment, material costs and work scheduling.

For lower use trails, the yearly condition survey could be

undertaken at the same time the first trail crews clear out windfalls at the beginning of the season.

A Forest Service inspection form is available for recreation trails (FS 1047) to assist staff and contractors in inspection and monitoring.

Information on Trail Conditions and Safety

It is important that information about trail conditions be made available to users as soon as possible. This is particularly important during the early part of the season in the case of summer trails, since users will want to know when the high alpine passes are free of snow, or whether bridges have been washed out.

Such information is invaluable to users who are choosing potential routes, and may well reduce the risk of injury to the public.

Note: Locations should be indicated on the trail map

Trail Maintenance Checklist HAZARDS

Potential safety hazards should be addressed immediately. If a situation is unsafe, a notice should be posted or the trail closed until the hazard has been repaired. The public should be informed accordingly at the trail head and appropriate information offices.

- ☐ River/creek crossings
- ☐ Slides/washouts
- ☐ Hazard trees

VEGETATION MAINTENANCE

- ☐ Windfall removal
- ☐ Brush clearing, including removal of hazardous branches
- ☐ Hazard tree removal
- ☐ Slope revegetation
- ☐ Viewpoint maintenance
- ☐ Close off unwanted trails and shortcuts, and restore vegetation

DRAINAGE MAINTENANCE

Cleaning and repairing structures:

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> Culverts | <input type="checkbox"/> Cross drains |
| <input type="checkbox"/> Waterbars | <input type="checkbox"/> Grade dips |
| <input type="checkbox"/> Drainage ditches | |

STRUCTURE MAINTENANCE

- | | |
|---|---|
| <input type="checkbox"/> Bridge repair | <input type="checkbox"/> Cribbing & retaining wall repair |
| <input type="checkbox"/> Steps and stair repair | <input type="checkbox"/> Barrier and handrail repair |
| <input type="checkbox"/> Boardwalk repair | <input type="checkbox"/> Deck board replacement |
| <input type="checkbox"/> Shelter repair | |

TREAD MAINTENANCE

- ☐ Draining/hardening of mud holes and boggy areas
- ☐ Washout repair
- ☐ Slump repair
- ☐ Grubbing rocks, roots, stumps
- ☐ Turnpike section repair
- ☐ Surface repair and removal of loose rocks
- ☐ Surface replenishment (similar or minimal maintenance material)

INSTALLING ADDITIONAL DRAINAGE STRUCTURES

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> Waterbars | <input type="checkbox"/> Cross drains |
| <input type="checkbox"/> Culverts | <input type="checkbox"/> Grade dips |
| <input type="checkbox"/> Drainage ditches | |

SIGN MAINTENANCE

- | | |
|--|---|
| <input type="checkbox"/> Sign repair | <input type="checkbox"/> Sign replacement |
| <input type="checkbox"/> Cairn repair | <input type="checkbox"/> Barricade or closure device repair |
| <input type="checkbox"/> Trail marker replacement or additions | |

Condition Indicators

It is easy for a trail maintenance program to become strictly reactive to immediate problems. Long-term indicators are

therefore useful for capturing trends in trail deterioration.

For example:

- trail braiding in wet alpine areas can easily lead to multiple trails across an area; and
- depth of a trail tread can increase unnoticed over several years until spring runoff channelling into the trail causes washouts or soil slumps.

These types of problems harm the environment and are also expensive to repair.

A good program monitors long-term indicators along each trail, using notes and/or photos over time. Indicators can include:

- depth of trail tread;
- trail width;
- area of soil compaction;
- development of side trails; and
- number of muddy sections per kilometre.

This should be done in conjunction with the Limits of Acceptable Change (LAC) process, wherever LAC is part of the management approach.

Unauthorized trail construction or maintenance

Section 102, Forest Practices Code

The Forest Practices Code requires that individuals or groups planning to construct, rehabilitate or maintain a trail or recreation facility must prepare a proposal and submit it to the district manager of the appropriate forest district. District manager consent is required before any work can begin. (For more information refer to Section 102 of the Forest Practices Code and the *Trails and Recreation Facilities Guidebook*, 1995, Ministry of Forests & BC Environment.)

Inspection and maintenance

Risk Management

Routine trail and recreation facility inspection and maintenance is critical to both establishing a reasonable standard of care and in fulfilling government's mandate to maintain safe, sanitary, socially acceptable and environmentally sound conditions. A risk management program with an assessment process, including well-maintained records for inspections and follow-up repairs, is critical to proving, in the case of litigation, that a standard of care existed and was adhered to.

Safety hazards must be dealt with immediately - either through repair or through closure of the trail.

Signs

When it comes to cautionary signs, a balance must be struck between the safety of the users and the naturalness of the site. Generally, any known hazard on actively managed trails, which could result in personal injury, should be signed. Wording and images for any sign must be approved by the trail manager to

ensure information is accurate and consistent. In some cases, legal advice may be required.

The question of what is "reasonable" changes with the dominant user. On trails that are easily accessible to an urban population, trail managers may need to caution visitors against hazards that are more obvious than those on remote trails visited mainly by experienced back country users.

Trail Closures

In some instances, where there is a high risk of incidents on a trail, managers may choose to close the trail. Whether permanent or temporary, notices must clearly set out the nature of the closure. This may well reduce the risk of injury to the public.

When closure is in effect, the land is considered unmanaged for recreation use and the trail manager is not perceived as having "invited" the public to a risky spot. Consequently, liability is reduced.

Section 105 of Forest Practices Code may be used to issue written orders to close or restrict use of an area or a trail (see *Appendix Section 105 Recreation Orders*).

10.5.4 Summer Use Trail Maintenance

Required Maintenance Activities BEFORE Heavy Use Season

The following maintenance activities are normally required on trails before the heavy summer use season begins.

Clear windfalls, dangerous trees, and slides

These clearing repairs are made for user safety reasons and to prevent detouring off developed trails.

- Any slide debris or slumping of mud or soil onto the trail forces users to the outside edge, which is often on fill and the weakest part of the trail. Once the slide debris is removed, repair the trail tread to the original specifications.
- If a tree has fallen over a trail and cannot be easily removed, cut a gap to allow passage. In the case of wilderness or primitive routes, consider leaving the tree if it does not represent a major impediment, but chop a step into it if necessary.

Drainage repair

No factor in trail maintenance is more important than PROPER DRAINAGE.

Maintenance inspections should look for **existing and potential** drainage problems. Often minor, temporary works done early in the season can prevent major washouts from occurring later. Permanent follow-up work should be done as soon as possible. Potential problem areas should either be treated, or monitored to gauge the rate of trail deterioration.

- **Repair erosion-damaged elements promptly to prevent further damage.** Check for effects of erosion after spring run-off.

Remove new plant growth	<ul style="list-style-type: none"> • Repair any wash-outs. • Check and repair waterbars, ditches, culverts and dips, and construct additional drainage features if needed. • Trail brushing should be done annually, and is best done in the spring and early summer when new growth is soft. • Selectively clear new or existing vegetation for viewpoints or vistas where appropriate - if this is not done for significant vista areas, spur trails will develop as users seek out the views.
Level or restore the trail tread	<p>Remove loose rocks and debris from the tread surface.</p> <ul style="list-style-type: none"> • This is done, as necessary, to restore the tread to its original grades and slopes for safety and effective drainage. • Use local materials to fill ruts, low spots or holes. Imported materials may be needed to correct soggy or muddy sections. Re-surface and fill approaches at the ends of bridges, boardwalks or corduroy sections. <p>This work should be performed after spring runoff and after severe storms during the summer season.</p>
Check and repair all structures	<ul style="list-style-type: none"> • Check for signs of rot and decay, and remove debris from around bridge supports. Secure loose side rails or curb logs and re-spike all loose decking. Ensure any structural repairs and replacements meet the original construction requirements. • Remove loose rocks from stream fords to help ensure a safe crossing. <p>Again, this should be done prior to the heavy-use season.</p>
Check, repair, or replace signs and markers	<ul style="list-style-type: none"> • Remove any vegetation that obscures signs. • Provide additional signs or trail markers where there is any confusion about trail route. • Paint sign posts, rails, etc. as required. • Re-grade the trail head parking lot, if necessary. <p>Required Maintenance Activities DURING Heavy Use Season</p> <p><i>These may be weekly or monthly tasks, as use and conditions warrant.</i></p>
Check parking lot	
Maintain trailhead structures	<p>This includes servicing such items as toilets and waste containers.</p> <p>Restock information supplies - where trailhead kiosks are stocked with route or safety brochures, these should be restocked as required.</p> <p>Remove windfall or other debris on the trail.</p> <p>Other conditions - correct other hazardous conditions or problems as the need arises.</p>
Drainage repair	Once again, no factor in trail maintenance is more

important than PROPER DRAINAGE.

**Labour and equipment
needs for maintenance**

- Monitor and repair any erosion damage promptly to prevent further damage. Potential problem areas should either be treated, or monitored to gauge the rate of trail deterioration.
- Permanent follow-up work should be done on any temporary repairs as soon as possible.
- Check and repair waterbars, ditches, culverts and dips, and construct additional drainage features if needed.

The most commonly required tools for trail maintenance (two-person crews) include:

- pointed shovel;
- double-bit axe;
- bow saw (and/or chain saw);
- brush axe;
- pruning shears;
- trenching tool;
- pruning saw;
- hammer; and
- brush mower

10.5.5 Cross-country Ski Trail Maintenance

Pre-season maintenance is best carried out prior to the first snow. Clearing should remove twigs and branches at ground level so that protruding material will not injure falling skiers. Mowed trails tend to hold more snow than unmowed trails.

Ski season maintenance focuses on the snow cover. For more detailed information on snow packing, track setting and snow grooming procedures consult the *Cross-country Ski Trail and Facility Development: Construction and Maintenance Manual* prepared by Cross-Country B.C., Canadian Ski Association.

Trails located in woods or at the base of slopes will require minimum grooming, whereas trails in open, windswept areas become icy and will require frequent grooming. The main requirement of any well laid out trail will be the setting of new tracks after a heavy snowfall. Light snowfalls will not obliterate the old track. The simplest way to reset a trail is to ski it. A good track should provide a smooth level base that is sound and continuous, and is 2 to 5 cm deep.

For intensely used areas, a track vehicle may be required to compact new snow and set tracks. Compaction helps to extend the use season since compacted snow is slower to melt in the spring thaw. If tracks become badly iced from frozen rain or freeze-thaw cycles, a track cutter may be used to help improve them. A lighted track for night use may be considered for intensely used trails in rural settings.

Where tracksetting is required because of the level or kind of use, the ministry will cooperate with other agencies, public groups and the private sector to ensure that tracksetting

services are provided, at no fee, on a cost recovery basis.

In addition, it may be appropriate for user fees to be charged for those trails where tracks are set. Such fees will be established through cooperative agreements with other agencies or through management agreements with private groups set on a cost-recovery basis, and collected by the agency that sets the tracks.

A major maintenance concern on ski trails is prohibiting ATV and snowmobile use. ATVs and snowmobiles obliterate ski tracks, create "moguls" that are difficult to ski across, roughen the trail surface, and cause trails to become overly compacted and icy, which are hazardous to users. Walkers and snowshoe users to a much less degree also break up parallel ski grooves. If walkers or snowshoe users are expected on ski trails, signs should remind them to stay to the side of the ski tracks.

10.5.6 Trail Rehabilitation

Rehabilitation may be necessary when trails have been neglected for several seasons, or when trail development objectives change due to changes in ROS settings, management objectives or user requirements.

In determining the requirements of the proposed trail rehabilitation, it will be necessary to:

- define the development objectives;
- review the design process beginning at the concept planning stage, and establish the needs of the rehabilitation project; and
- evaluate trail location, length, layout, tread conditions, grades, alignments and structures to establish where alterations are required.

The time and cost requirements of a rehabilitation project will vary depending on the degree of deterioration or the degree of change in the trail management objectives.

10.5.7 Cooperative Projects

Cooperative trail development and maintenance

Cooperative trail development and maintenance projects can benefit the public and the Forest Service not only in the short term (i.e., development cost savings), but also in the long term. Cooperative projects provide user groups with opportunities to become directly involved and see integrated and multiple resource use in action. Such projects can also provide a group with a sense of stewardship for an area.

Although cooperative projects can take considerable time and effort to initiate, they often result in less damage to the trail and associated structures, and greater public understanding of the Forest Service mandate.

Trail signage should acknowledge the cooperation of a group, but should not dominate the trail or potentially alienate other users.

Cooperative groups should be registered societies so that many

members can contribute and have sustained long-term input.

An agreement between the Forest Service and a user group should:

- be clearly set out in writing;
- include what is expected of both parties; and
- include any conditions that would nullify the agreement.

10.6 References

Cited References

A code of ethics for the enjoyment of outdoor British Columbia, (brochure), Outdoor Recreation Council of BC.

Cross-Country Ski Trail and Facility Development: Construction and Maintenance Manual. Cross-Country B.C., Canadian Ski Association. 1987.

Developing Your Wildlife-Viewing Site, Maps Alberta, Province of Alberta.

Forest Act, Province of B.C.

Forest Practices Code of British Columbia Act and Regulations, Province of B.C.

Manual for Trail Construction and Maintenance, Altman, R., H. Habgood and J. Braa, 1986, Federation of Mountain Clubs of British Columbia.

Offence Act, Province of B.C.

Parks Canada Trail Manual, Minister of Supply and Services, Heritage Canada.

Resource Planning Manual, Ministry of Forests

Standard Specifications for Construction of Trails, US Forest Service, 1984. Washington, D.C.

Trails Management Handbook, US Forest Service. 1987. Washington, D.C.

Trails and Recreation Facilities Guidebook, 1995, Ministry of Forests & BC Environment

Supplementary References

Black, J. and V. Hignett. 1982. *Outdoor Recreation Classification for British Columbia*, APD Technical Paper 8, Assessment and Planning Division, Ministry of Environment, Province of B.C.

Cole, B.L. 1977. *Field Guide for Routine Recreation Trail Maintenance*, Department of Natural Resources, State of Washington

Knopp, T. and J. Maloney. 1973. *Ski Touring Trail Planner*, North

[CONTENTS](#) | [PREVIOUS](#) | [NEXT](#) | [TOP](#)
[RECREATION SITES & TRAILS HOME PAGE](#)

LAST REVISED: 01/2001

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: BTRA_PA18DCK-007_Partnership_Agreement_Modification.pdf
Date: May 14, 2020 1:07:53 PM
Attachments: [BTRA_PA18DCK-007_Partnership_Agreement_Modification.pdf](#)
[ATT00001.txt](#)



Partnership Agreement Modification

Partnership Agreement No.: PA18DCK-007

Agreement Modification No.: PA18DCK-007-01

THIS AMENDMENT AGREEMENT IS DATED FOR REFERENCE May 14, 2020 and is made under the *Forest and Range Practices Act*

BETWEEN:

AND:

HER MAJESTY THE QUEEN IN RIGHT
OF THE PROVINCE OF BRITISH
COLUMBIA, represented by the Minister
responsible for the *Forest and Range
Practices Act* (the "**Province**") at the
following address:

Bowen Trail Riders Association

(the "**Partner**") at the following address:

542 Hilltop Place, Bowen Island, BC, V0N 1G2
s.22

46360 Airport Road

Chilliwack BC V2P 1A5

Telephone: (604) 702-5700

WHEREAS:

- A. The Province entered into Partnership Agreement No. **PA18DCK-007** dated for reference **May 2 2018 (the "Agreement")** with the Agreement Holder;
- B. The Parties have agreed to modify the Agreement in the manner as set out below (this "**Amendment Agreement**").

THIS AMENDMENT AGREEMENT WITNESSES THAT the Parties agree as follows:

1) The Agreement is modified by:

*a) (e.g. modification of Article 2.01, for an extension of term not more than 3 months in duration; culminating in the agreement expiring on **2020-08-15**.*

2) Except as modified by this Amendment Agreement, the Agreement is ratified and confirmed.

3) This Amendment Agreement and the Agreement shall be read and construed together.

4) Time continues to be of the essence of the Agreement and is of the essence of this Amendment Agreement.

5) This Amendment Agreement endures to the benefit of and is binding upon the Parties and their respective successors and permitted assigns.

IN WITNESS WHEREOF the parties have executed this Agreement

SIGNED and DELIVERED on behalf of the **Province** by a duly authorized representative of the Province.

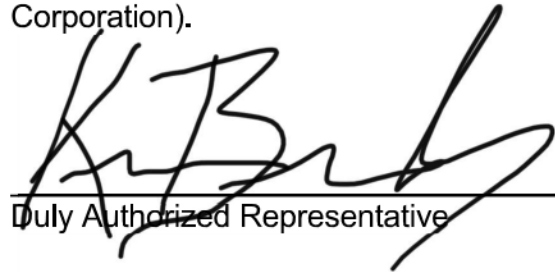


Duly Authorized Representative
(District Recreation Officer)

2020-05-14

Date

SIGNED and DELIVERED on behalf of the Agreement Holder (or by an authorized signatory of the Agreement Holder if a Corporation).



Duly Authorized Representative

May 14 2020

Date

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: DRAFT V1- New Partnership MOU.docx
Date: May 22, 2020 3:17:15 PM
Attachments: [DRAFT V1- New Partnership MOU.docx](#)
[ATT00001.txt](#)

Hi Dan,

BITS, BIHORA & BTRA met last night via teleconference to go over the new MOU. Here's what we came up with, please let us know if there's any changes we should make.

Have a good weekend!

Thanks,

Kevan

Ps it would be good to touch base next week, will you be available for a phone call?

Memorandum of Understanding: **[Association]**

[Association] hereby notifies the British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development (the "Crown") of the following:

(1) **[Association]** has entered into a partnership comprising three (3) Crown Partnership Agreement Holders (the "Constituents"): Bowen Island Horse Owners and Riders Association, Bowen Island Trail Society and Bowen Trail Riders Association, for the express purpose of maintaining a Partnership Agreement with the Crown in order to maintain and upgrade trails according to the Crown's standards within the Mount Gardner Polygon on Bowen Island.

(2) **[Association]** is in agreement that this partnership of Constituents is an informal entity known as 'Mount Gardner Partnership' (the "Partnership").

(3) **[Association]** agrees that the intention of the Partnership is to provide a communication platform between the Constituents, stakeholders and the Crown using transparent communication, to promote safety, accessibility, navigation, and sustainability with respect to maintaining and enhancing existing trails and developing new trails within the Mount Gardner Polygon on Bowen Island so that Crown trail users have a safe and enjoyable experience.

Note:

- a. "Transparent communication" includes being thorough and factual in all communication with the Constituents, the Crown, and other trail stakeholders to increase awareness for the Partnership's aspirations and activities,
- b. "Safety" means the mitigation of injury and distress to trail users by following the Crown's requirements for trail workmanship and volunteer administration,
- c. "Accessibility" includes ease of trailhead access to trail users,
- d. "Navigation" includes clear trail designation and visible wayfinding markers e.
"Sustainability" means ensuring that all trail work meets the Crown's environmental standards and the materials used and the structures built are durable and meet Crown standards.

(4) **[Association]** understands that completion of the Trails Environmental Screening Tool (TEST) document may not be a prerequisite for activating the Partnership Agreement with the Crown, since the Rotary Club of Bowen Island's Partnership Agreement application (which enabled this Partnership) was initiated before the TEST document was created.

(5) **[Association]** will assign one member as a representative of the Partnership Committee. Each representative will openly communicate about their progress or changes in their Operating Plans, and answer honestly any questions brought forward from other committee representatives at quarterly Partnership Committee meetings.

(6) **[Association]** will provide independent Operating Plans and reports to the Crown for their ambitions and progress. Before submission to the Crown, each constituent will share their Operating Plan for the new year with the other Constituents to assess if there are gaps or overlaps and collaborate when similarities arise.

(7) **[Association]** acknowledges that it may not approve of all projects proposed by Constituents, nor those that are approved by the Crown, but will work in good faith with the Partnership. The Crown is the final decision maker for all projects brought forth by individual Constituents in their Operating Plans.

(8) **[Association]** will work the Constituents to develop a Stakeholder Engagement and Communication strategy to ensure effective, transparent communication with Key Stakeholders.

Memorandum of Understanding: **[Association]**

(9) **[Association]** reserves the right to determine the number of volunteers, if any, and the amount of funds, if any, that it is able or willing to allocate towards their own or shared Partnership projects.

(10) **[Association]** accepts the Crown's Commercial & General Liability insurance provisions for Crown trails activities under the Partnership Agreement.

Passed unanimously by the Board of Directors of **[Association]**.

<Name>, <Title>

(Date)

Acknowledged and accepted by the Board of **[Association]**.

<Name>, <Title>

(Date)

Acknowledged and accepted by the Board of **[Association]**.

<Name>, <Title>

(Date)

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Blackbird, Tom G FLNR:EX](#)
Cc: [Bradley, Dan FLNR:EX](#); [Anderson, Luc FLNR:EX](#)
Subject: Easy Street/MtGardner/swamp crossing
Date: November 18, 2019 11:06:32 AM
Attachments: [ATT00001.txt](#)

Hi Tom,

During our hike of Easy Street on Bowen last Tuesday (BTC recon hike, Tuesday November 12) we encountered this wet area, it's on the threshold of a seasonal swamp. The existing trail crosses at the narrowest spot (yellow arrow). Dan and I discussed and weren't sure whether a small bridge or built up trail bed with rocks would be suitable? Dan suggested you might be able to weigh in here? We could probably find cedar on site to construct a bridge, not sure what span would be but definitely under 5m.

Location is approximately here:

49 deg 22' 54" N
123 deg 23'16" W

Hope you're well!

Thanks,

Kevan

Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: FW: Mt Gardner Trails Inventory List
Date: March 4, 2020 9:00:22 AM

From: Kevan Bernards s.22
Sent: March 4, 2020 8:18 AM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Subject: Re: Trail Markers

Hi Dan,

BTRA is happy to leave trail use up to Tom, that will surely make things easier for the agreement holders!

BITS has just shared more info with us regarding signage design. Hopefully we'll all be meeting next week to discuss the MOU's and finalize a plan for signage at the major junctions.

I've been working on the Inventory stuff but realized that trails are kmz not kml is this format ok? If not I'll reformat...

Here's the link to the Inventory Doc we've created:

https://docs.google.com/document/d/12jQazomy9uVTX3EY5qwt4B2xBZ_DbreA7x1Ztxojd1w

Do we need to assign trail numbers or anything?

Thanks,

Kevan

Sent from my iPhone

On Mar 2, 2020, at 10:18 AM, Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca> wrote:

That sounds reasonable to me, however, you might want to omit "trail use" as a collaborative project. All other projects have been very successful with BITS but when it comes to determining trail use with motorized recreation seems like it hits a lot of roadblocks. It might be more productive to rely more on DRO determination of trail-use, but totally your call on how you want to approach that.

I haven't heard anything from BITS since we all met last, I'm not sure if their OP etc have been sent to Tom.

KML are great! I have the software to convert spatial data into whatever we need but KMLs seem to be the most versatile. If you send me a link to the google doc I can start putting a draft map together.

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 604-702-5762

-----Original Message-----

From: Kevan Bernards s.22
Sent: February 27, 2020 1:51 PM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Subject: Re: Trail Markers

Great!

I'm drafting an email to BITS now to let them know what our plan is. I also want to make it clear to them that ALL agreement holder groups should be involved in the following projects;

- Trails Inventory
- Trail Names
- Trail use
- Trail Etiquette guide
- Navigation & Signage

Is this reasonable?

I see that BITS has announced that they will be undertaking some of these and so far this year they haven't really communicated much with us. I don't think it's fair for them to leave the framework of the coalition and then go ahead solo with these projects.

Working on track info/map for moto trails as well. Is it best to send you KML files? I've also created a Trail Inventory google doc as well as a drop box folder with track info. I'll make sure you're added to both. Also, is there a different preferred format for this

stuff?

Thanks,

Kevan

Sent from my iPhone

On Feb 26, 2020, at 10:03 AM, Bradley, Dan FLNR:EX
<Dan.Bradley@gov.bc.ca> wrote:

Sounds good!

You guys are good to go in regard to installing reflective markers on established moto trails under your Partnership Agreement but I appreciate the heads up!

As a courtesy, I would recommend letting BITS know that you will be installing some markers so there's no confusion on would is adding them to the network.

Also, it would be really great to have a complete map of the moto trails in the Mt Gardner Rec Polygon, I'd like to add some data of trail location and name to the Schedule A of your Partnership Agreement when we renew it.

Sounds great, keep me posted on the new MOU development, if you're looking for any feedback as things develop just let me know,

-----Original Message-----

From: Kevan Bernards [s.22](mailto:Kevan.Bernards@gov.bc.ca)

Sent: February 25, 2020 8:21 AM

To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>

Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

Subject: Trail Markers

Hi Dan,

BTRA members have fabricated about 1000 2"x2" reflective trail markers (same specs as purchased by BITS) and we're ready to start installing them on Handloggers, Canyon Trail and Easy Street as soon as this weekend!

I want to make sure that we've got the approval and authorization to do so before we begin.

Thanks,

Kevan

Ps It looks like BTRA and BIHORA will be meeting next week to form the new MOU (key board members have been away from both groups so there's been a delay in this happening).

Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: ["Phil Osborne"](#)
Cc: [Kevan Bernards](#); [Jes Slater](#); [Kristina Calli](#); s.22
Subject: FW: Navigation and Signage Plan
Date: June 18, 2020 1:03:00 PM
Attachments: [Navigation & Signage Plan.pdf](#)
[En Route Trail Sign Standards with Notes.pdf](#)
[trail_signs_trailhead.pdf](#)

Hey Phil,

I've pasted an email I sent out to Kevan this week below, and I've attached some notes to the attached En Route sign standards for some extra clarification. The style in the attached "trail_signs_trailhead" is an old design and is **not** required. Tom and I agree that this trail_signs_trailhead sign is too small for a map of the whole network to be legible anyways.

My understanding is the compromise we settled on is to follow the En Route sign standards in regard to **fonts**, **symbols**, and **layout** but non-standard materials can be used such as galvanized metal that has been cut out with CNC or laser etched/engraved. Please note, the required **layout** includes the order in which the signs are placed top to bottom down the post.

The En Route sign standards are designed to be installed as a series of separate metal badges installed down the post. This allows for signs to be easily updated or to allow the omission of difficulty ratings if they are not applicable "eg hiking trails". I've tried to explain this better in my notes but please let me know if I can provide any additional clarification.

The requirement is still to install En Route signage as described at **trailheads** and **major intersections**. For example, if you picture a named trail top to bottom as one line segment, the trailheads and major intersections would be both end points of the line. Any intersections with other trails along that line segment would be considered minor intersections.

The location planning of your signage plan is excellent, this is particularly useful in making sure the arrows are pointing in the correct direction!

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-684-2261

Hey Kevan,

Here is a copy of our current standards for En Route Trail Signage, this is what the DRO is requiring to be installed at trailheads and major intersections.

There is not supposed to be any flexibility in these standards but because there is highly engaged and capable artist community on Bowen the DRO has agreed to 2 potential compromises:

- 1) Use non-standard materials with the attached layout, symbols, and fonts. This could be galvanized steel with the info cut out or laser etched.
- 2) Install the standard signage accompanied by an additional post with whatever non-standard layout and symbols you like.

The attached standards are intended to be printed as separate badges to allow sections of the sign to be omitted if not applicable. For example, the 76mm x 76mm square showing the difficulty rating would not be posted on a hiking trail that has no moto or mountain bike use.

The intention of the GPS Locator section is to be printed out and then marked with permanent marker in the field. I'm not sure if this would be a requirement in all locations but I could follow up with Tom if you'd like.

Also, I've received your invoice and will get that processed as soon as I can,

Let me know if you have any other questions!

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-684-2261

From: Phil Osborne s.22
Sent: June 16, 2020 7:27 PM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Cc: Jessica Slater s.22
Subject: Navigation and Signage Plan

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Dan

Over the weekend I revised our signage plan (focused for now on Skid Trail and the major kiosk entry points) and added some signs following the RSTBC template.

That plan is attached. However, I heard from Jes today, that you may have settled on a compromise with respect to the RSTBC template that would be more in keeping with the style we have adopted.

Let me know if the attached is what you have in mind and I will look for the updated template from Jes so I can modify the entry and major intersection signage.

Thanks and best regards,
Phil

Skid Trail Navigation



- Version 1 – Phil (
- Revision 1 – Phil (November 15, 2019)
- Revision 2 – Phil (February 29, 2020)
- Revision 3 – Rachel, Phil (March 22, 2020)
- Revision 4 – Phil (June 6, 2012)

TEMPLATES

TEMPLATE

TRAILHEADS AND ENDPOINTS

TRAILHEAD SIGN

Black lettering impact 70 point character spacing 0% condensed horizontally 65%

Trail Area Location Map

White lettering Franklin Gothic Medium 14 point character spacing 0% line spacing 108% character height

White lettering Franklin Gothic Medium 18 point character spacing 0%

White lettering Franklin Gothic Medium 16 point character spacing 0%

Yellow lettering impact 50 point character spacing minus 10%

White lettering Franklin Gothic Medium 12.5 point character spacing 0%

User Groups Clubs/Partners/Sponsors Province of BC

100 mm
Wooden Post

TRAIL SIGNS - TRAILHEAD

Size 140mm x 370mm

Background Colour Green: CMYK (100-0-100-0)

Mounting

- wood post measuring 100mm x 100mm
- pre-treated or western red cedar
- top of post 1.0m above ground

Font Type/Size

Large Fonts - IMPACT
Small Fonts - Franklin Gothic Medium

Icons

Difficulty Rating Symbol
User Groups
Clubs/Partners/Sponsors
Province of BC

Font Colour

Yellow Text: CMYK (0-13-100-0)
White Text: CMYK (0-0-0-0)

SIGN COLOURS - Reflective paints

BLACK - C0, M0, Y0, K100	GREEN - C100, M0, Y100, K0
WHITE - C0, M0, Y0, K0	YELLOW - C0, M13, Y100, K0
RED - C0, M100, Y100, K0	ORANGE - C0, M50, Y100, K0

Standard TRAIL SIGNS - TRAILHEAD		
File No.	Sheet Date: 10/08	
Approved By: <i>WJ Marshall</i>	Revision No.	Date: 11/08
Date:	Revision No.	Date:
Ministry of Tourism, Sport and the Arts		Drawing Scale: 1 - 2.5 Sheet Size: 8.5" X 11"
		Drawing No.: RST 481-TS-TH

RST 481-TS-TH - Rev. 11/08

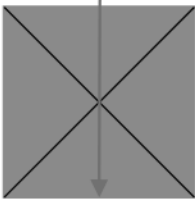
TEMPLATE

Junction ID

J1
Hikers Trail Rd &
Lower Skid Trail
Scale 1:2

Side 1
Side of post with badge

JUNCTION
SCHEMATIC



Skid Trail

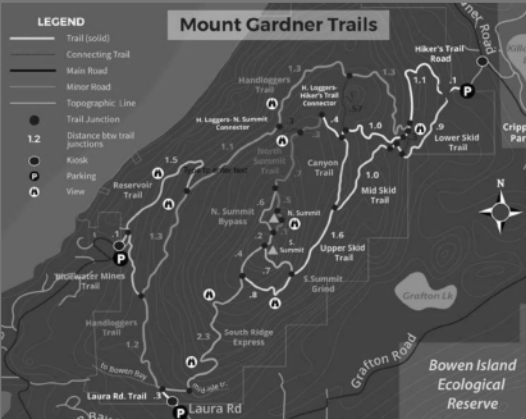
Primary Trail

Hiker's Trail

Secondary Trail

To gate

Skid Trail



Skid Trail

This trail leading to the summit of Mount Gardner contains some moderately steep sections. Please proceed with caution. Expect trail to be more difficult in wet conditions.

Technical Difficulty



Moderate



USE AT OWN RISK



Recreation Sites
and Trails BC



6" WIDE
CEDAR POST

TEMPLATE

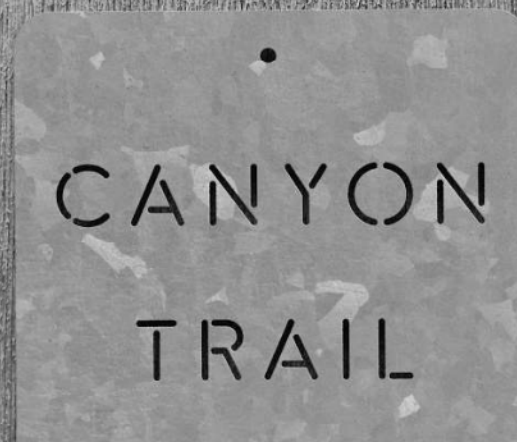
EN ROUTE & MINOR TRAIL INTERSECTIONS

5.
MID SKID TRAIL,
UPPER SKID
TRAIL &
CANYON TRAIL
FONT: STENCIL
CREEK ROUGH
70

FINISH:
GALVANIZED

MATERIAL:
STEEL

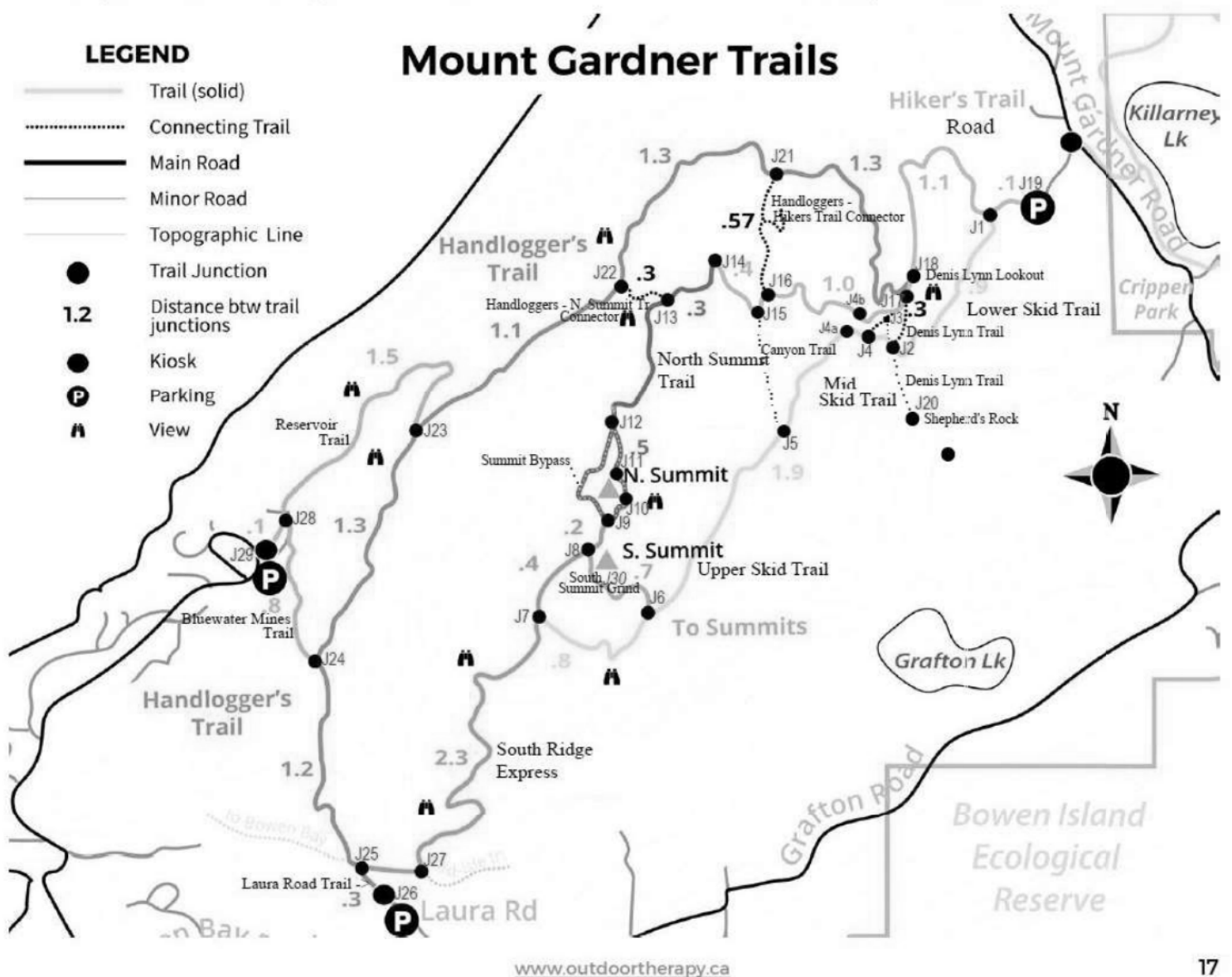
PROCESS:
PIERCED THRU
WATERJET OR
LASER



BASE MAP - JUNCTIONS AND TRAIL NAMES

The Complete Guide to Hiking Mount Gardner

Overview Map - All Trails - PRINTER FRIENDLY



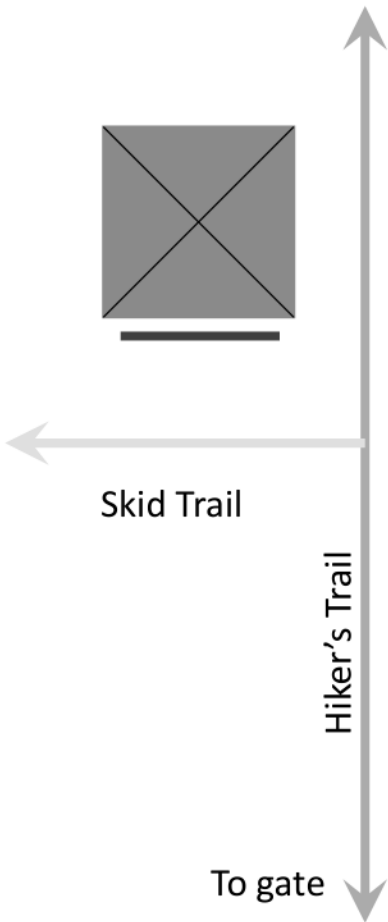
Mt. Gardner Trail Junctions/Sign Post Locations (see page 1)

J1 - Hikers Trail Rd/Lower Skid Trail
J2 - Lower Skid Trail to Denis Lynn Trail
J3 - Lower Skid Trail/Denis Lynn Trail
J4 - Denis Lynn Trail/Mid Skid Trail
J4a - Mid Skid Trail/Upper Skid Trail/Canyon Trail
J4b - Upper Skid Trail/South Summit Grind
J5 - Mid Skid Trail/Upper Skid Trail/Canyon Trail
J6 - Upper Skid Trail/South Summit Grind
J7 - Upper Skid Trail/South Ridge Express
J8 - South Ridge Express/South Summit Grind
J9 - South Ridge Express/ *Summit Bypass*
J10 - South Ridge Express/North Summit
J11 - North Summit Trail/North Summit
J12 - North Summit/Summit Bypass
J13 - North Summit/Handloggers-N.Summit Connector
J14 - North Summit/Hikers Trail Rd
J15 - Hikers Tr. Rd/Canyon Trail
J16 - Hikers Tr. Rd/Handloggers-Hikers Tr. Connector
J17 - Hikers Tr. Rd/Denis Lynn Trail
J18 - Hikers Tr. Rd/Handloggers Tr.
J19 - Hikers Tr. Rd/Gate
J20 - Denis Lynn Trail/Shepherd's Rock
J21 - Handloggers/Handloggers-Hikers Tr. Connector
J22 - Handloggers/N. Summit-Handloggers Connector
J23 - Handloggers/Reservoir Trail
J24 - Handloggers/Bluewater Mines Trail
J25 - Handloggers/South Ridge Express/Laura Rd Trails
J26 - Laura Rd Trail Head
J27 - South Ridge Express/Mid-Island Trail
J28 - Bluewater Mines/Reservoir Trail
J29 - Reservoir Trail Head
J30 - *South Summit Peak*
J31 -
J32 -
J33 -

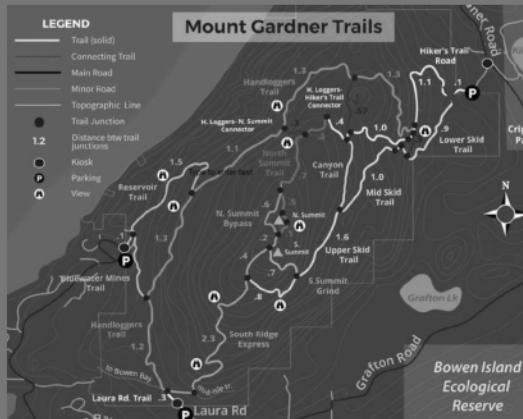
1. Hikers Trail and Start of Lower Skid Trail

J1
Hikers Trail &
Lower Skid Trail
Scale 1:2

Side 1



Skid Trail



Skid Trail

This trail leading to the summit of Mount Gardner contains some moderately steep sections. Please proceed with caution. Expect trail to be more difficult in wet conditions.

Technical Difficulty



Moderate



USE AT OWN RISK



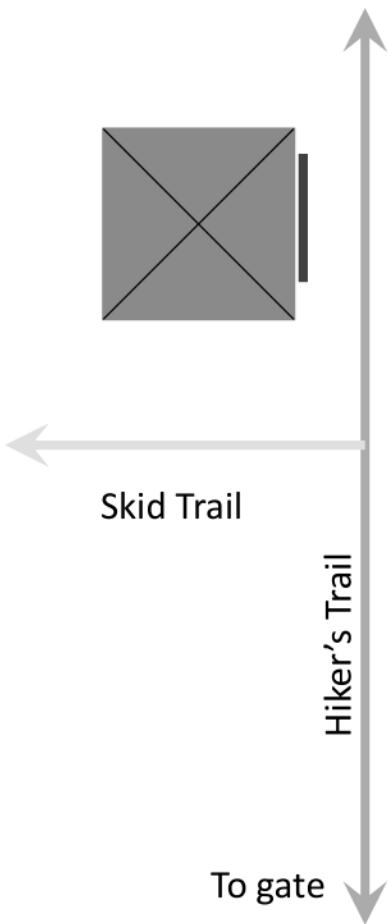
Recreation Sites
and Trails BC



J1
Hikers Trail Rd &
Lower Skid Trail

Scale 1:2

Side 2



Hikers Trail

N Summit Trail

Hikers Trail

N Summit Trail

These trails ascend to the North Summit of Mount Gardner. The final section of North Summit Trail is steep and hazardous. Please proceed with caution.

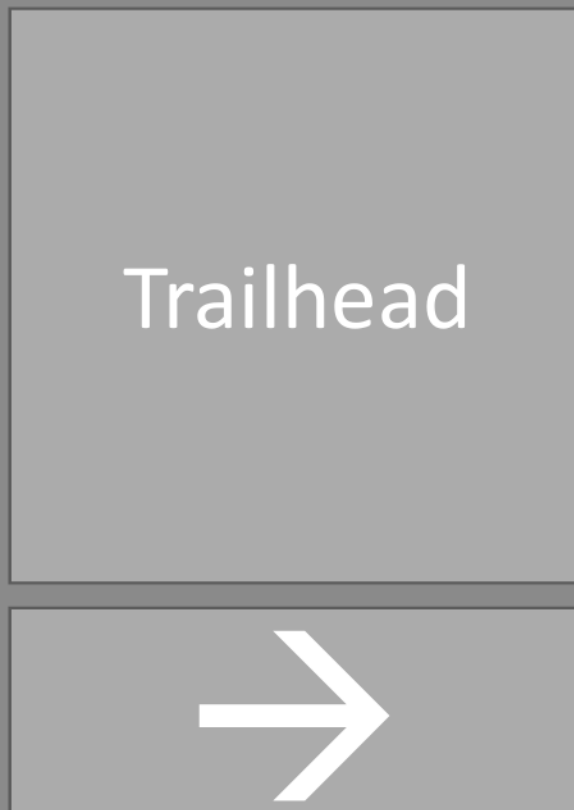
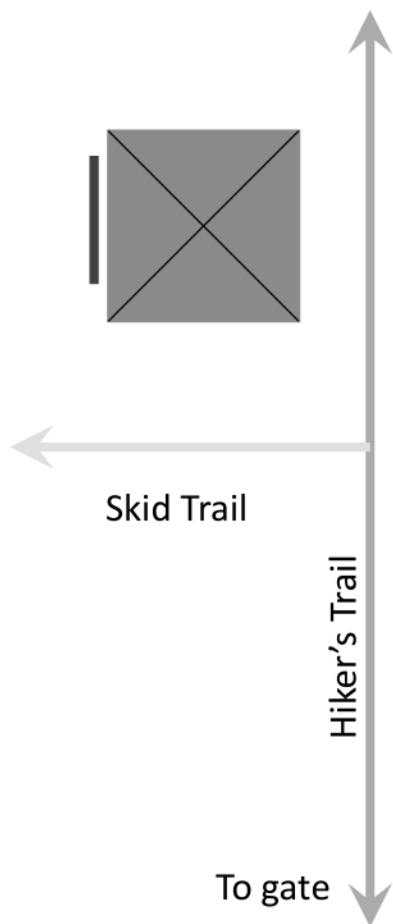
Technical Difficulty

Moderate to Difficult

USE AT OWN RISK

J1
Hikers Trail Rd &
Lower Skid Trail
Scale 1:2

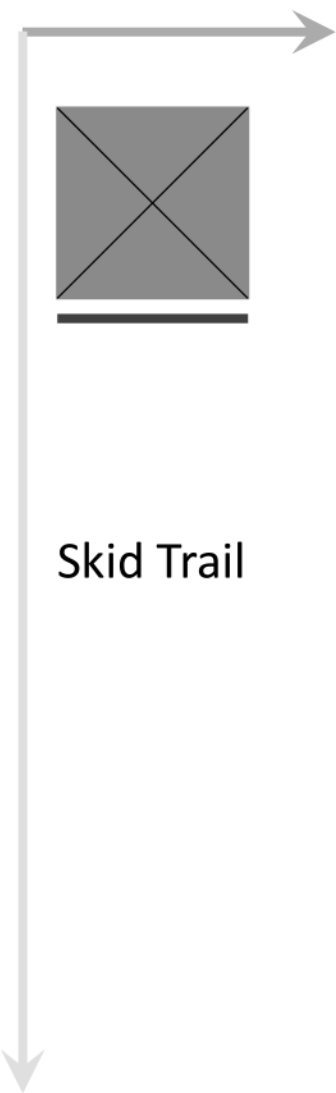
Side 4



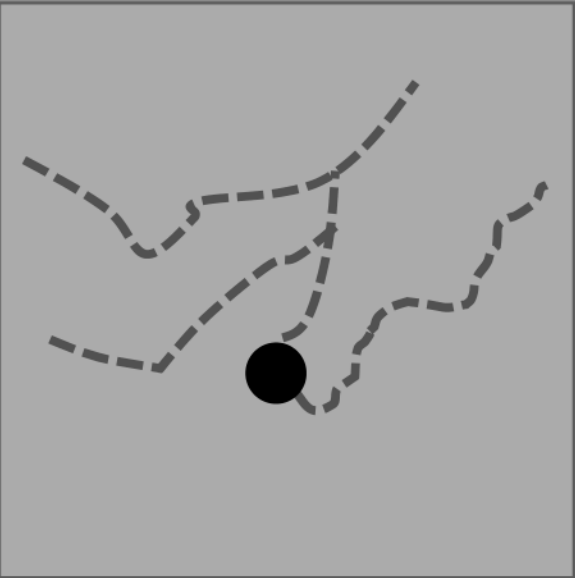
2. Lower Skid Trail to Denis Lynn Trail

J2
Lower Skid Trail to
Denis Lynn Trail
Scale 1:2

Side 1

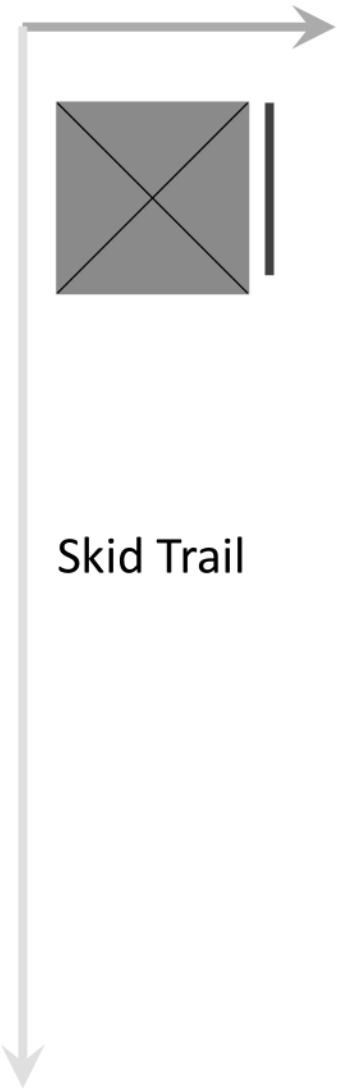


Mid Skid
Trail



J2
Lower Skid Trail to
Denis Lynn Trail
Scale 1:2

Side 2

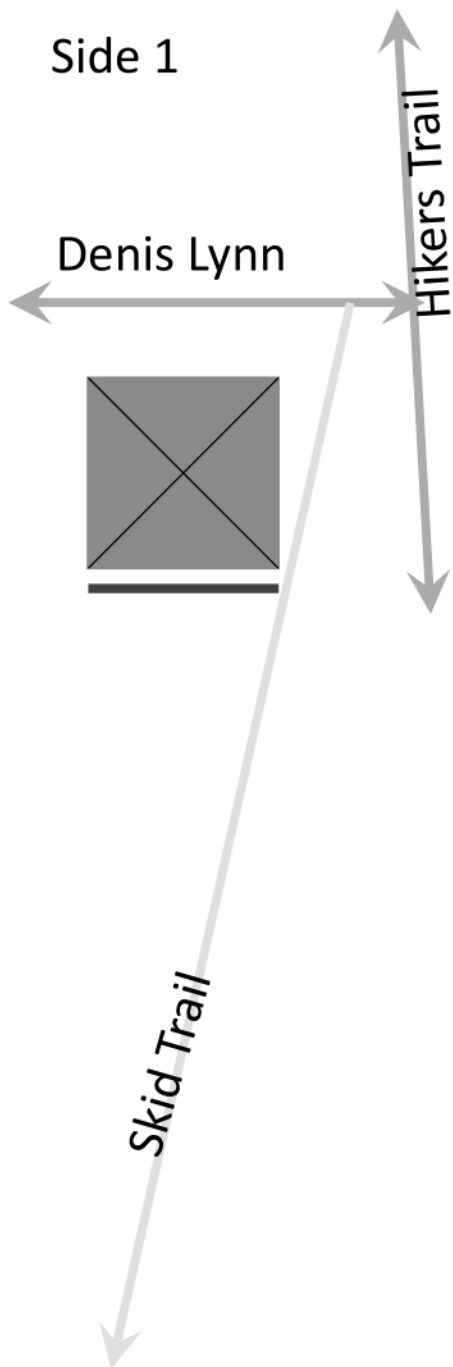


Skid Trail

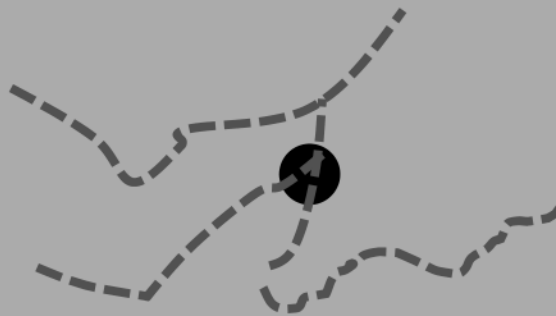
3 Lower Skid Trail & Denis Lynn Trail Junction

J3
Lower Skid Trail &
Denis Lynn Trail
Junction
Scale 1:2

Side 1



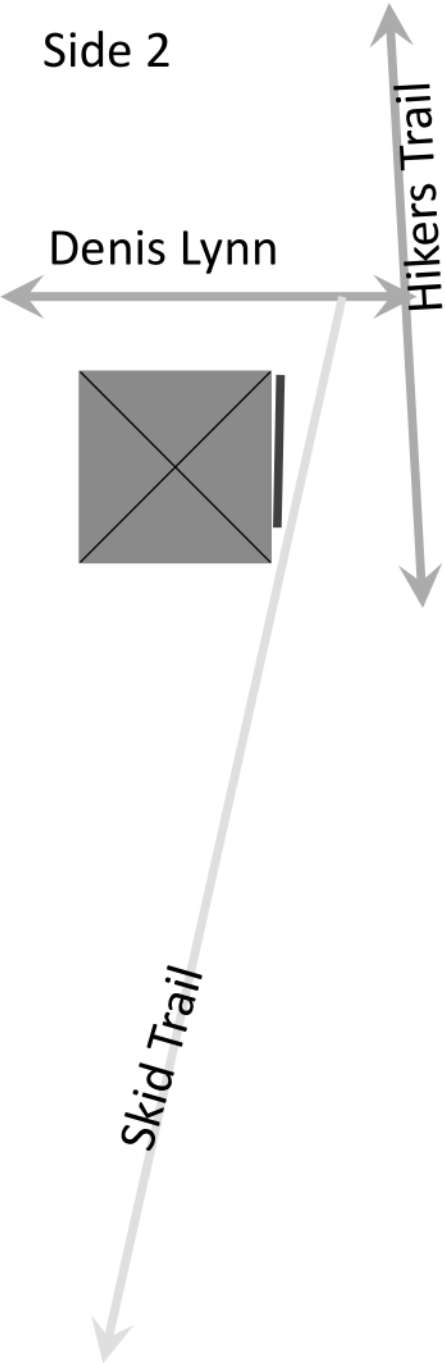
Mid Skid
Trail



Recreation Sites
and Trails BC

J3
Lower Skid Trail &
Denis Lynn Trail
Junction
Scale 1:2

Side 2



Mid Skid
Trail

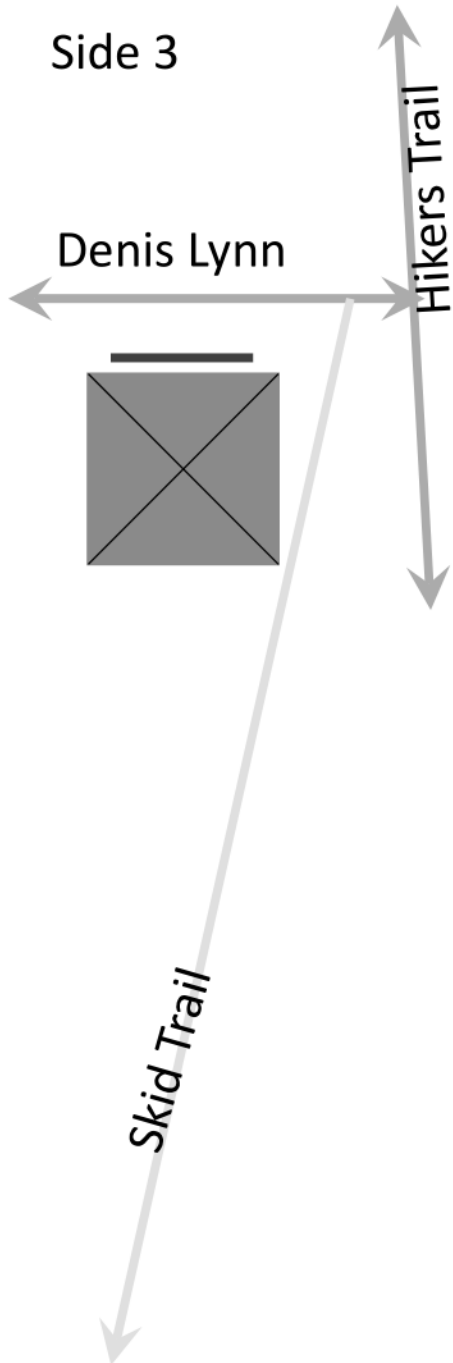


Lower Skid
Trail



J3
Lower Skid Trail &
Denis Lynn Trail
Junction
Scale 1:2

Side 3

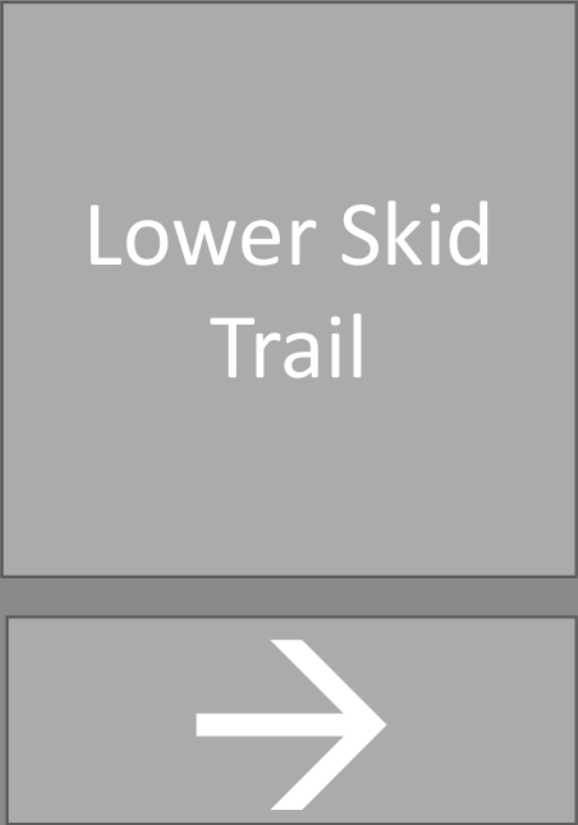
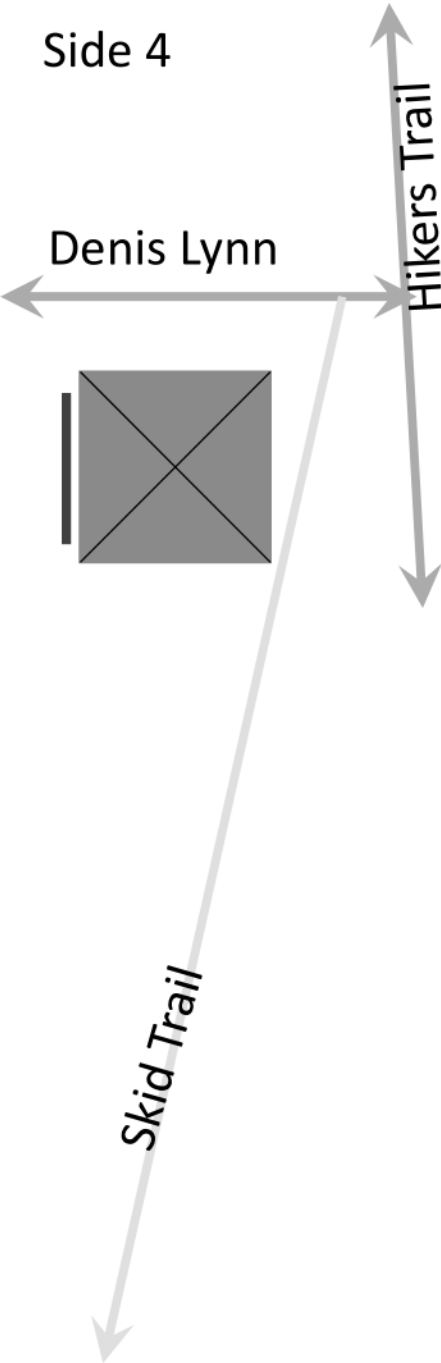


Mid Skid &
Dennis Lynn
Trails



J3
Lower Skid Trail &
Denis Lynn Trail
Junction
Scale 1:2

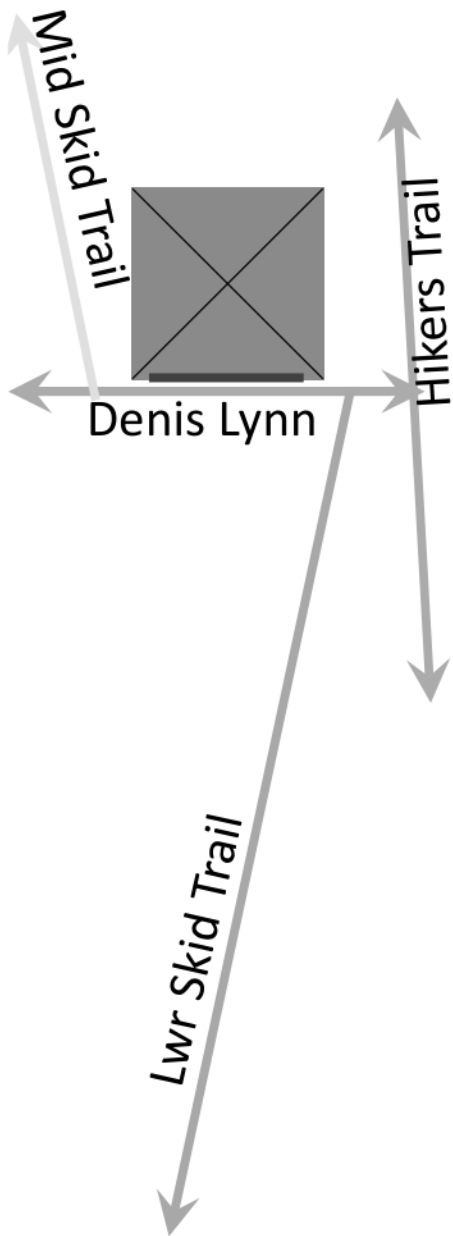
Side 4



4 Mid Skid Trail & Denis Lynn Trail Junction

J4
Mid Skid Trail &
Denis Lynn Trail
Junction
Scale 1:2

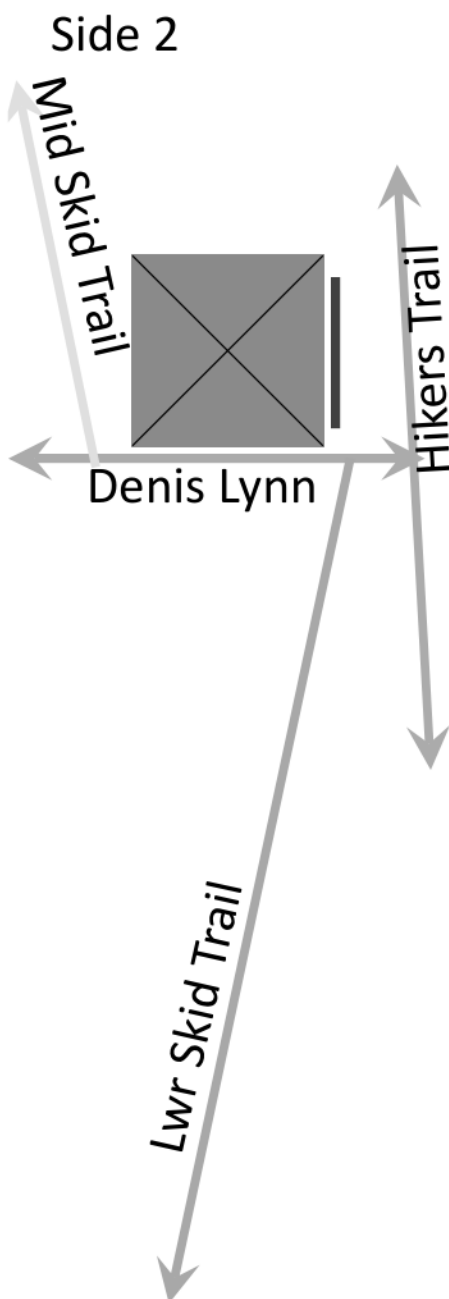
Side 1



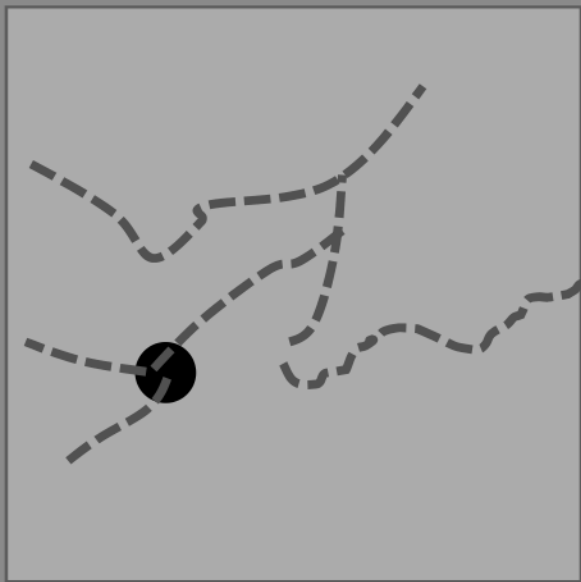
Denis Lynn
Trail



J4
Mid Skid Trail &
Denis Lynn Trail
Junction
Scale 1:2

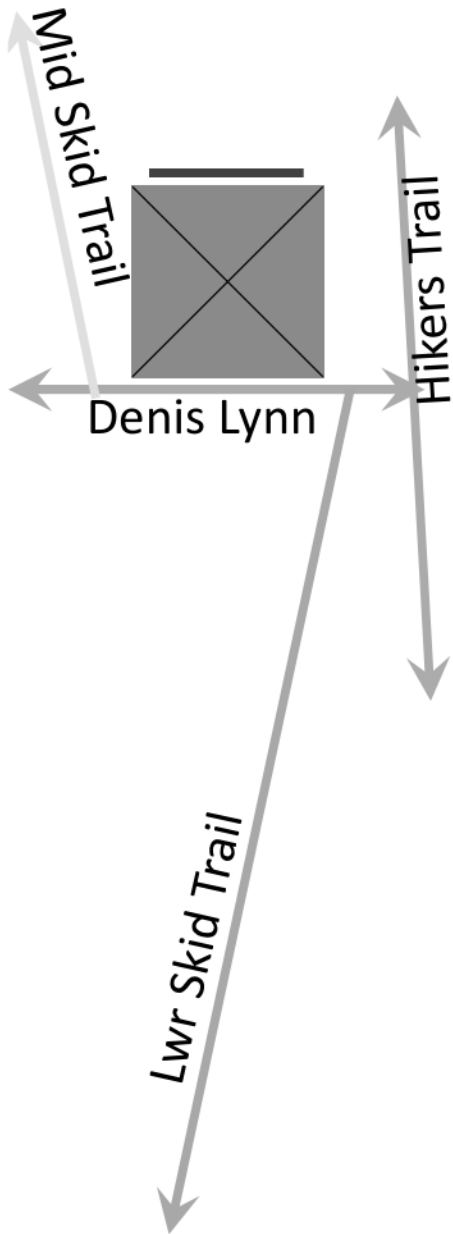


Mid Skid Trail to Summit



J4
Mid Skid Trail &
Denis Lynn Trail
Junction
Scale 1:2

Side 3



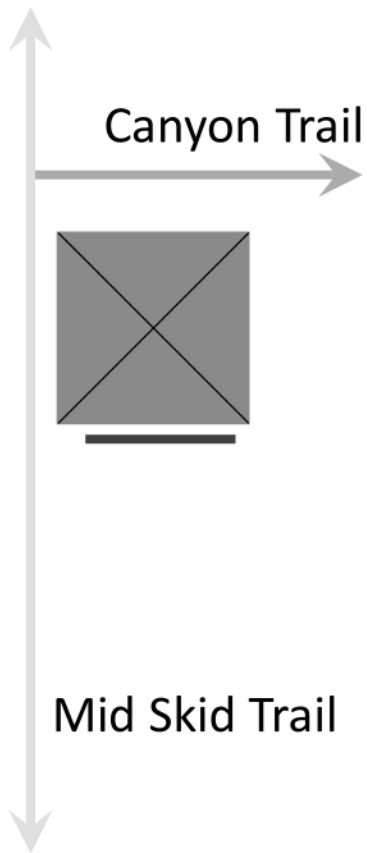
To Hikers
Trail &
Lower Skid
Trail



5. Mid Skid Trail – Upper Skid Trail and Canyon Trail

J5
Mid Skid Trail -
Upper Skid Trail
& Canyon Trail
Scale 1:2

Side 1



Upper Skid
Trail to
Summit

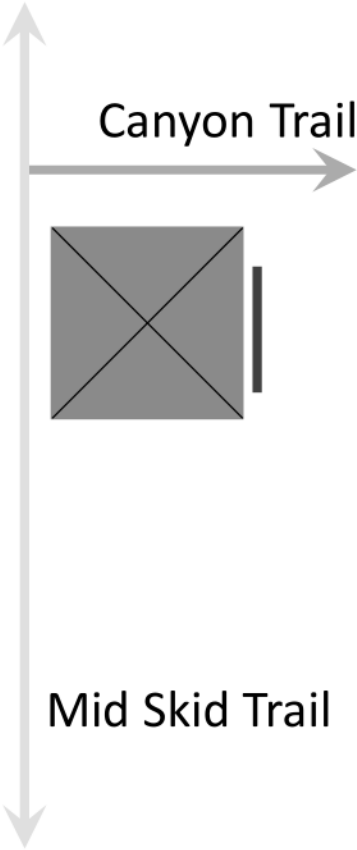


Canyon Trail
to
Hikers Trail



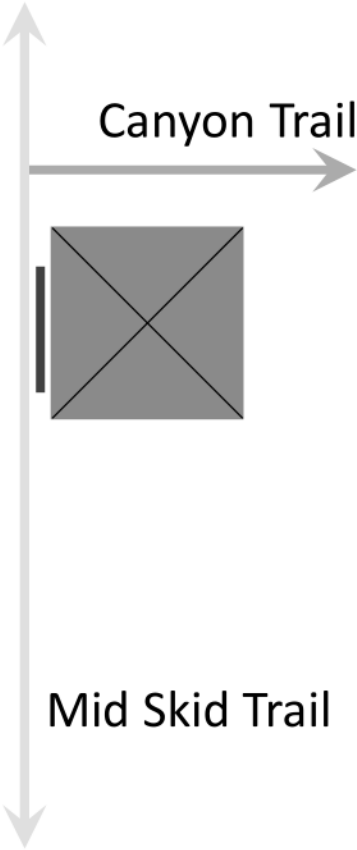
J5
Mid Skid Trail -
Upper Skid Trail
& Canyon Trail
Scale 1:2

Side 2



J5
Mid Skid Trail -
Upper Skid Trail
& Canyon Trail
Scale 1:2

Side 4



Mid Skid
Trail

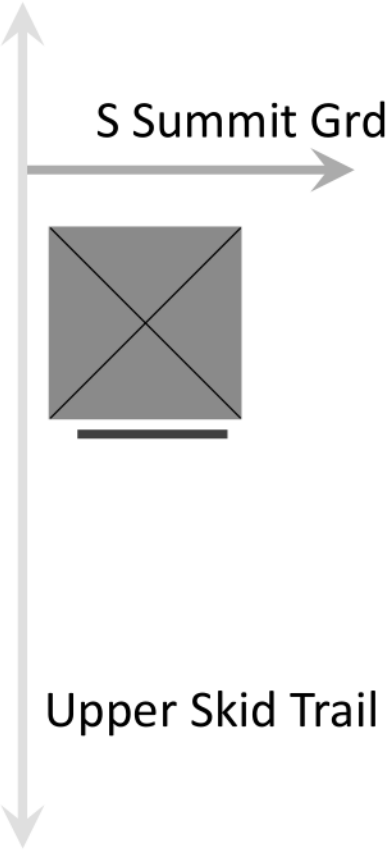


6. S Summit Grind with Skid Trail to Summit 3.0 km

- THIS POST IS POSITIONED POORLY. IT IS VERY ROCKY, SO I'M NOT SURE IF RE-POSITION IS POSSIBLE

J6
S Summit Grind
with Skid Trail
Scale 1:2

Side 1

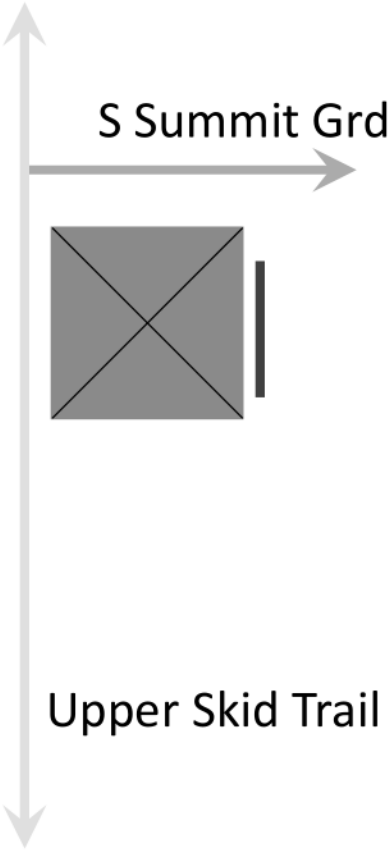


South
Summit
Grind



J6
S Summit Grind
with Skid Trail
Scale 1:2

Side 2

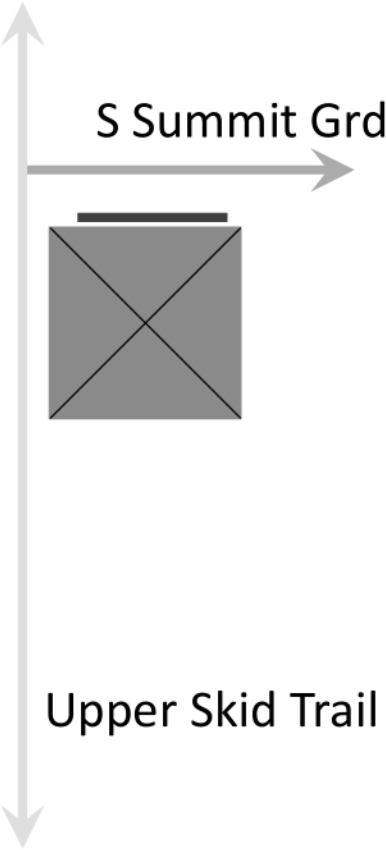


Skid Trail
to
Trailhead

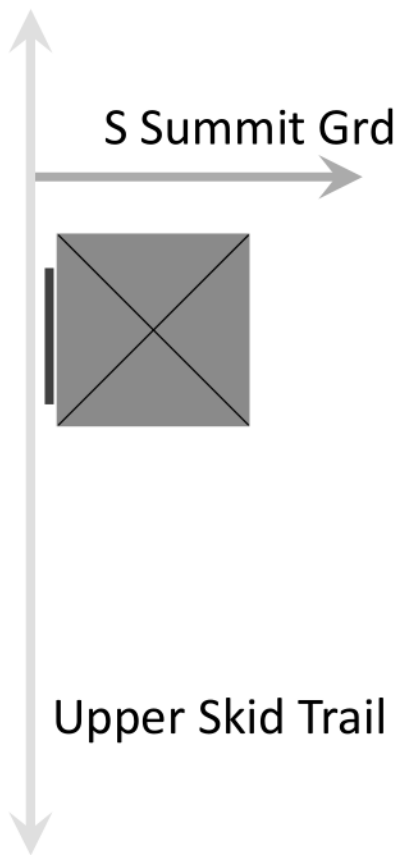


J6
S Summit Grind
with Skid Trail
Scale 1:2

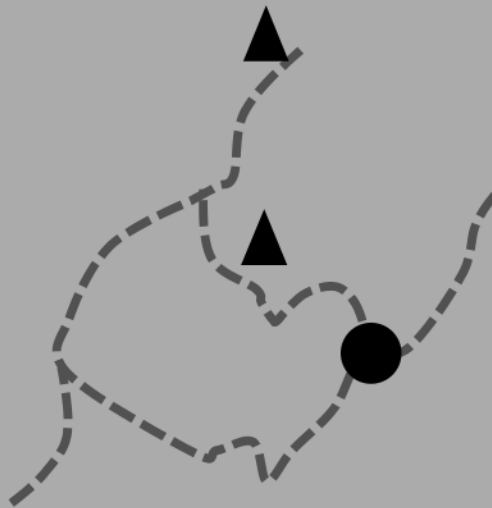
Side 3



Side 4



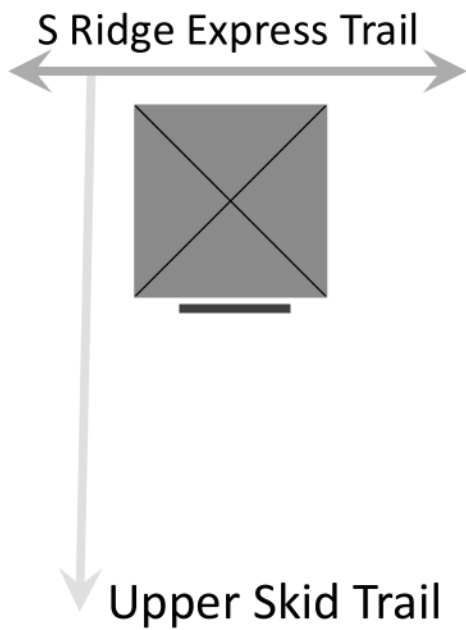
Upper Skid Trail Summit Route

Recreation Sites
and Trails BC

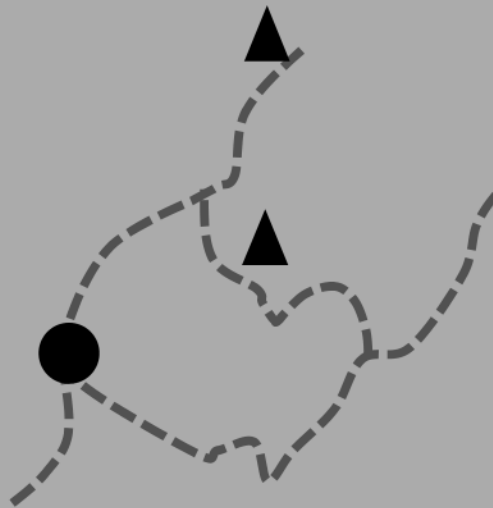
7. Upper Skid Trail & South Ridge Express 3.8

J7
Upper Skid Trail &
South Ridge Express
Scale 1:2

Side 1



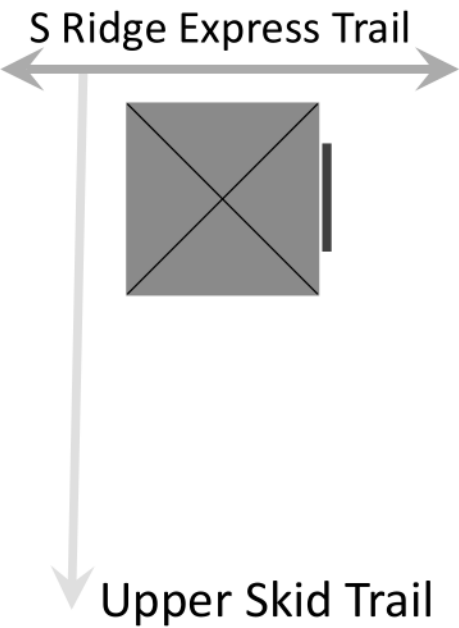
South Ridge Express to Summit



Recreation Sites
and Trails BC

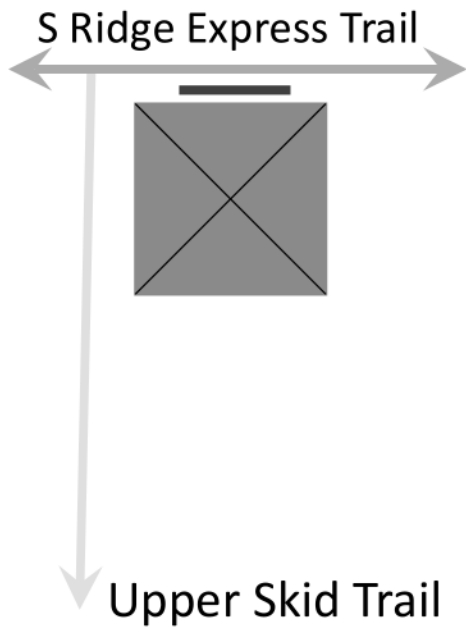
J7
Upper Skid Trail &
South Ridge Express
Scale 1:2

Side 2



J7
Upper Skid Trail &
South Ridge Express
Scale 1:2

Side 3



South Ridge
Express to
Laura Road
Trailhead

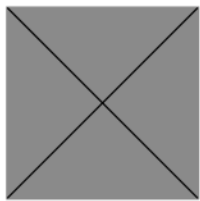


J7

Upper Skid Trail &
South Ridge Express
Scale 1:2

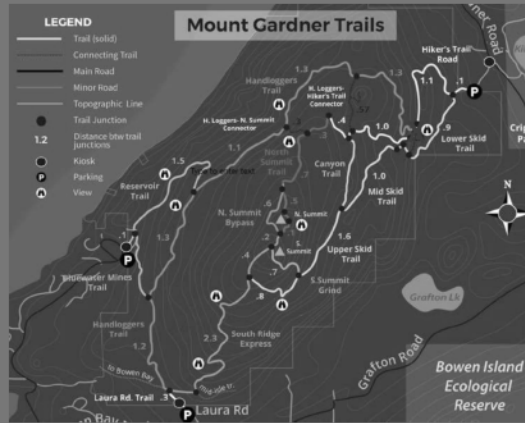
Side 4

S Ridge Express Trail



Upper Skid Trail

Skid Trail



Skid Trail to Hikers Trailhead

This trail descends to the Hikers Trailhead contains some moderately steep sections. Please proceed with caution.
Expect trail to be more difficult in wet conditions.

Technical Difficulty



Moderate



USE AT OWN RISK



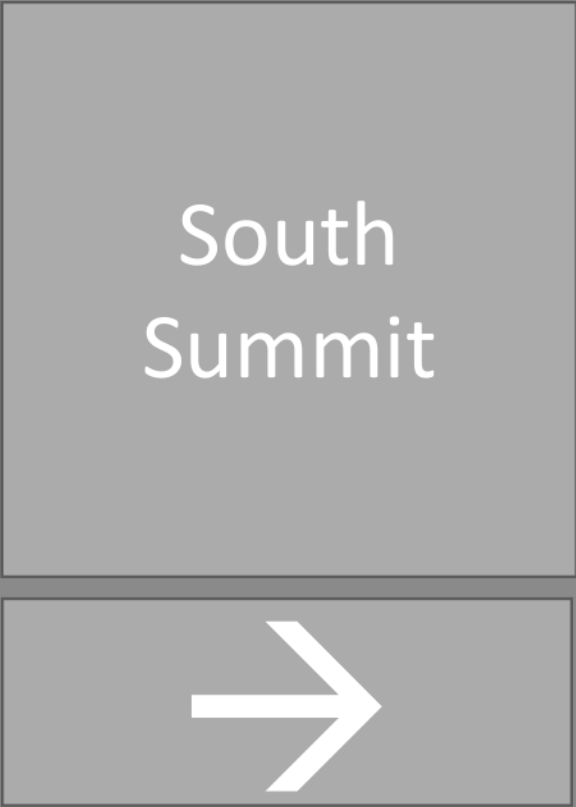
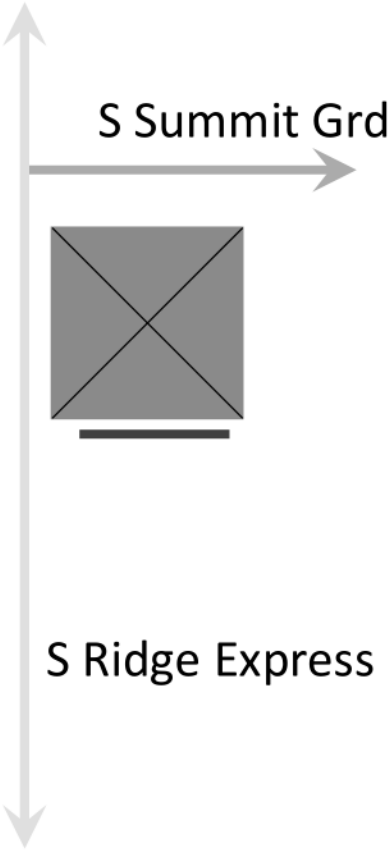
Recreation Sites
and Trails BC



8. South Ridge Express to South Summit Grind Junction

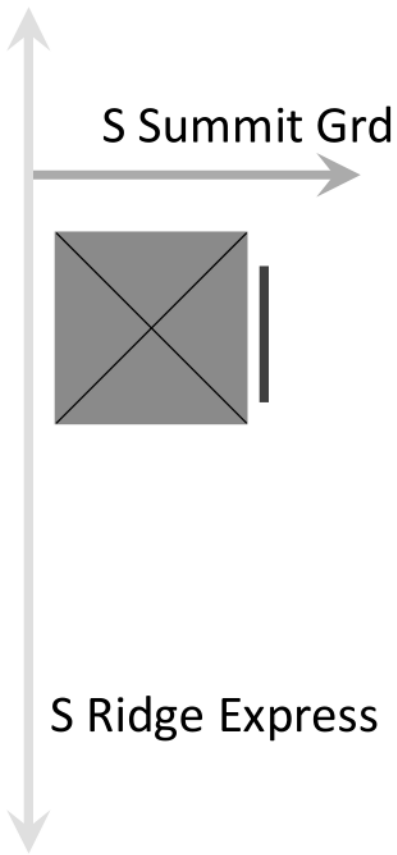
J8
South Ridge Express
to South Summit
Grind Junction
Scale 1:2

Side 1



J8
South Ridge Express
to South Summit
Grind Junction
Scale 1:2

Side 2

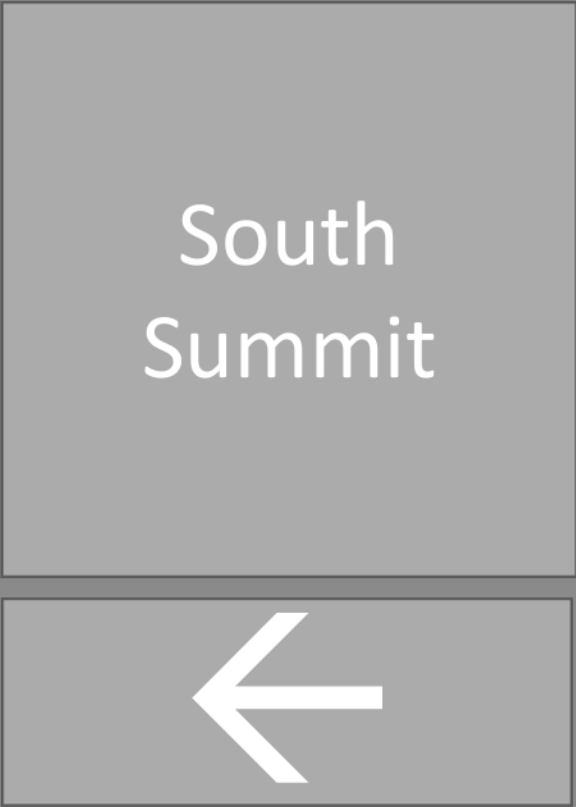
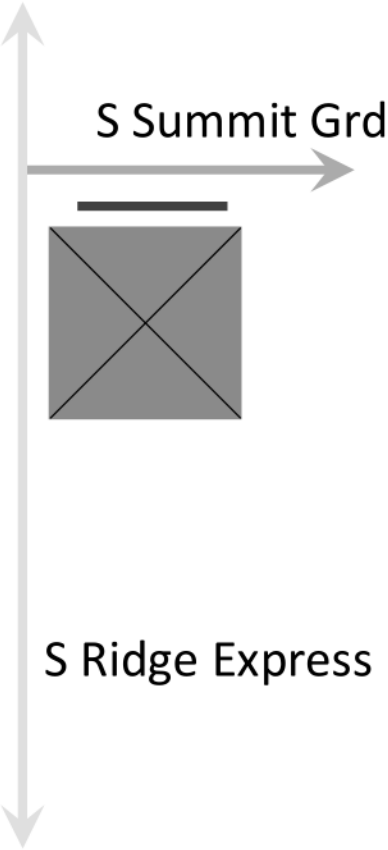


To Skid Trail
& Laura
Road
Trailheads



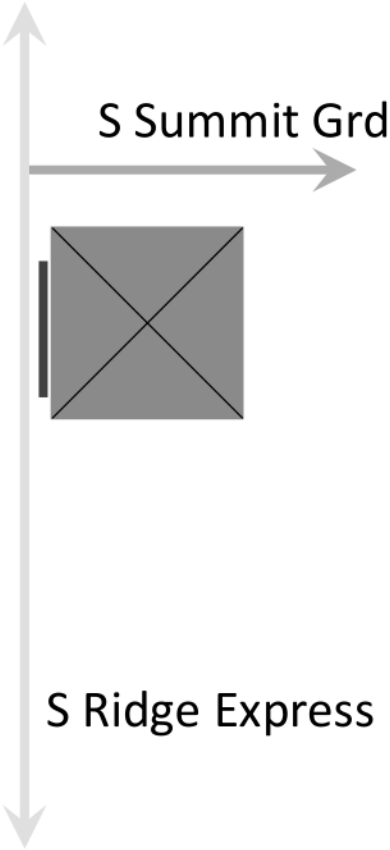
J8
South Ridge Express
to South Summit
Grind Junction
Scale 1:2

Side 3

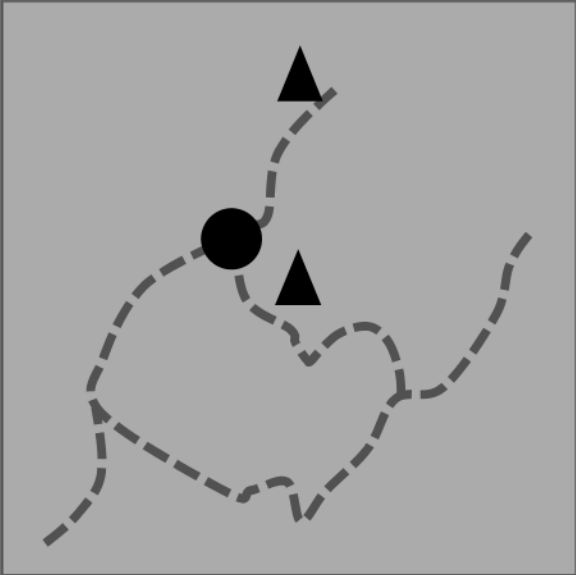


J8
South Ridge Express
to South Summit
Grind Junction
Scale 1:2

Side 4



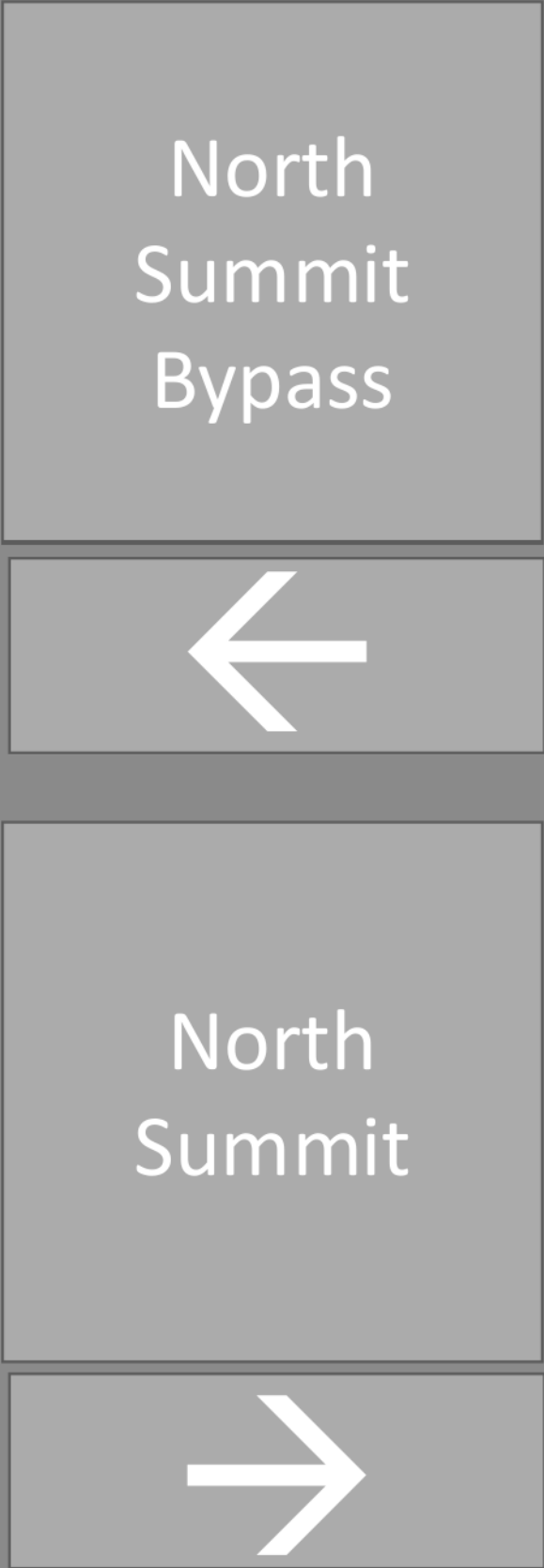
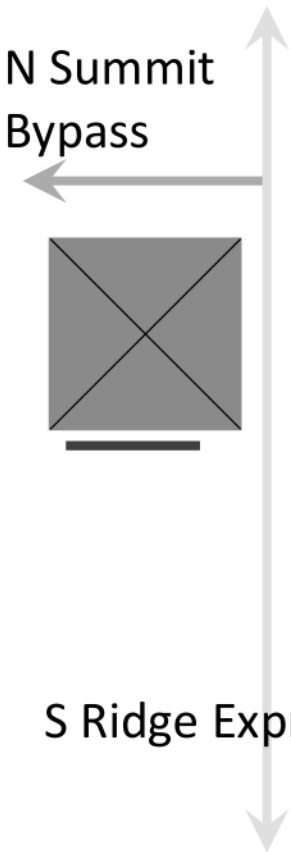
North
Summit



9. South Ridge Express & N Summit Bypass

J9
South Ridge Express
& N Summit Bypass
Scale 1:2

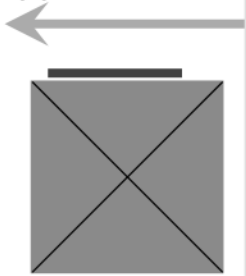
Side 1



J9
South Ridge Express
& N Summit Bypass
Scale 1:2

Side 3

N Summit
Bypass



S Ridge Express



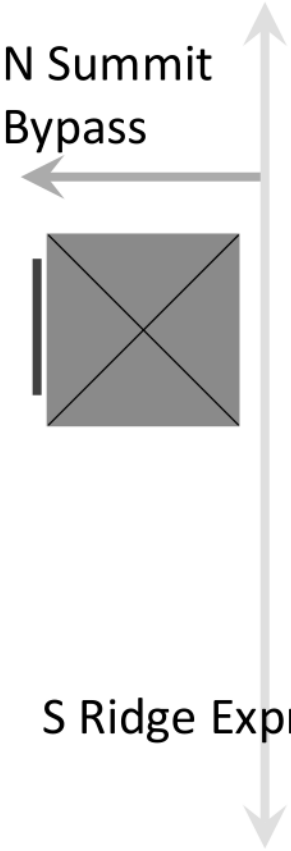
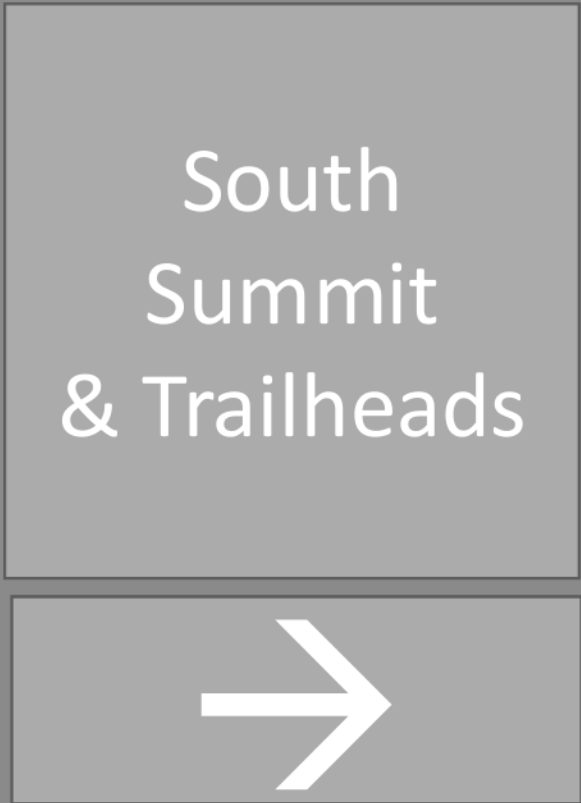
North
Summit
Bypass



Recreation Sites
and Trails BC

J9
South Ridge Express
& N Summit Bypass
Scale 1:2

Side 4

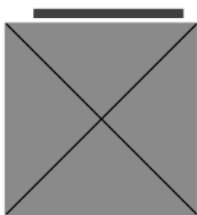


Junction 10. North Summit – entry to South Ridge Express descent to Laura Road Trailhead

J10
North Summit
Start of
South Ridge Express
to Laura Road
Scale 1:2

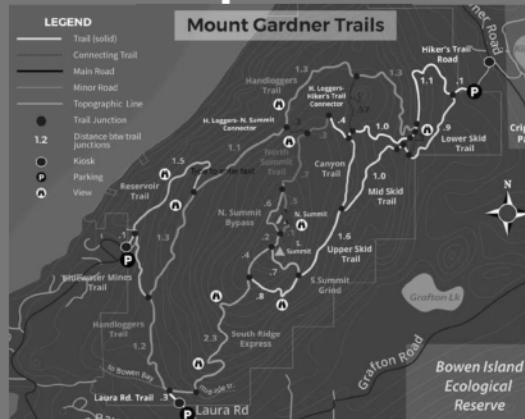
Side 3

N Summit



S Ridge Express

South Ridge Express



South Ridge Express

This trail descends to Laura Road Trail head and contains some moderately steep sections. Please proceed with caution. Expect trail to be more difficult when conditions are wet.

Technical Difficulty



Moderate



USE AT OWN RISK



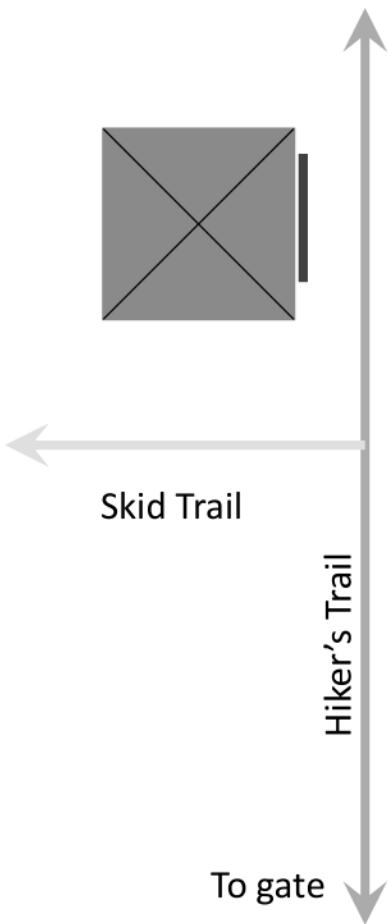
Recreation Sites
and Trails BC

Junction 11. North Summit – entry to North Summit Trail with
Hikers Trail to Trailhead

J11
Hikers Trail Rd &
Lower Skid Trail

Scale 1:2

Side 2



N Summit Trail Hikers Trail

LEGEND

- Trail (solid)
- Connecting Trail
- Main Road
- Minor Road
- Topographic Line
- Trail Junction
- Distance bet trail junctions
- Kiosk
- Parking
- View

Mount Gardner Trails

N Summit Trail
Hikers Trail

These trails descend to Hikers Trailhead at Mount Gardner Road. The upper section of North Summit Trail is steep and hazardous. Please proceed with caution.

Technical Difficulty

Difficult to Moderate

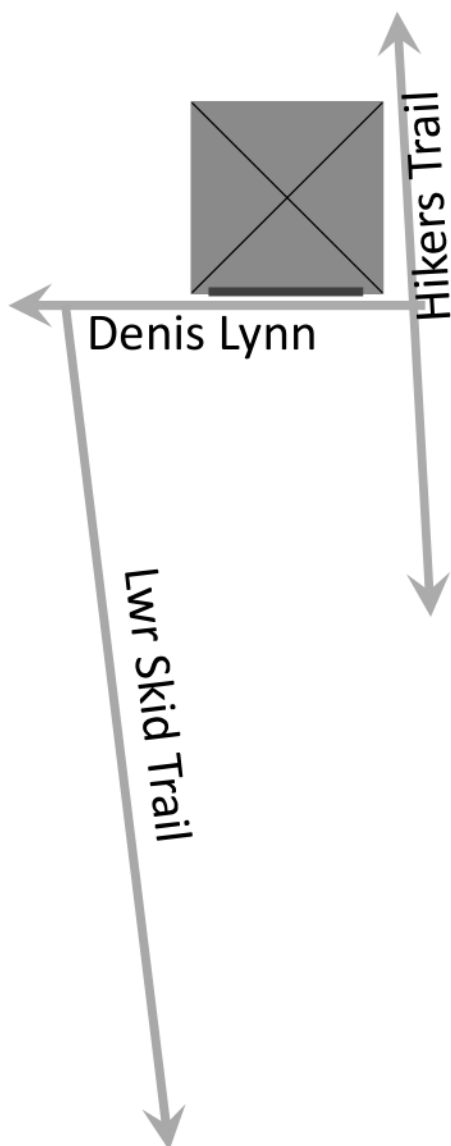
USE AT OWN RISK

BRITISH COLUMBIA Recreation Sites and Trails BC

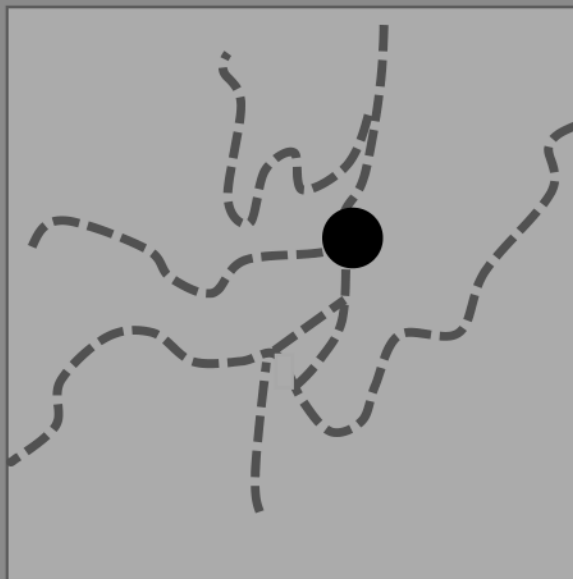
15. Hikers Road & Skid Trail / Dennis Lynn (Above Handloggers Trail)

J15
Hikers Trail & Skid
Trail / Denis Lynn
Trail
Junction
Scale 1:2

Side 1



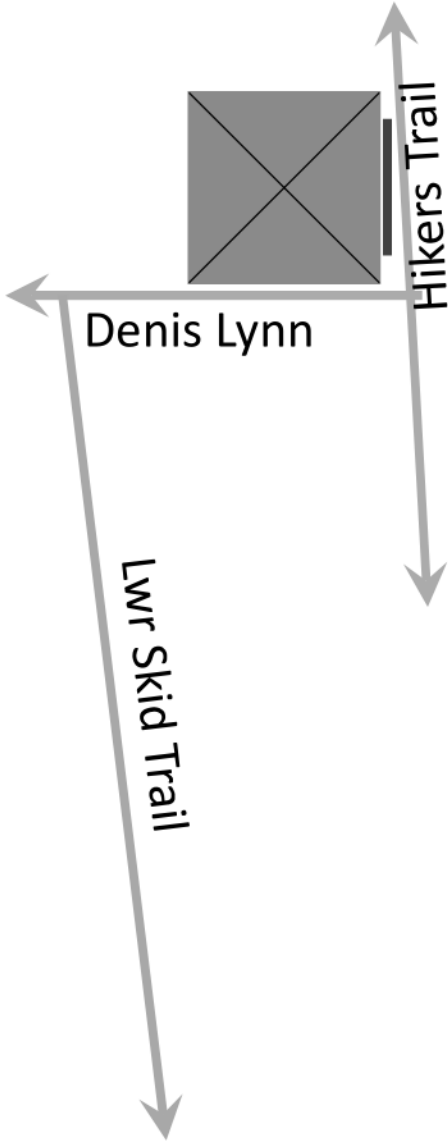
Denis Lynn Trail to Skid Trail



Recreation Sites
and Trails BC

J15
Hikers Trail & Skid
Trail / Denis Lynn
Trail
Junction
Scale 1:2

Side 2

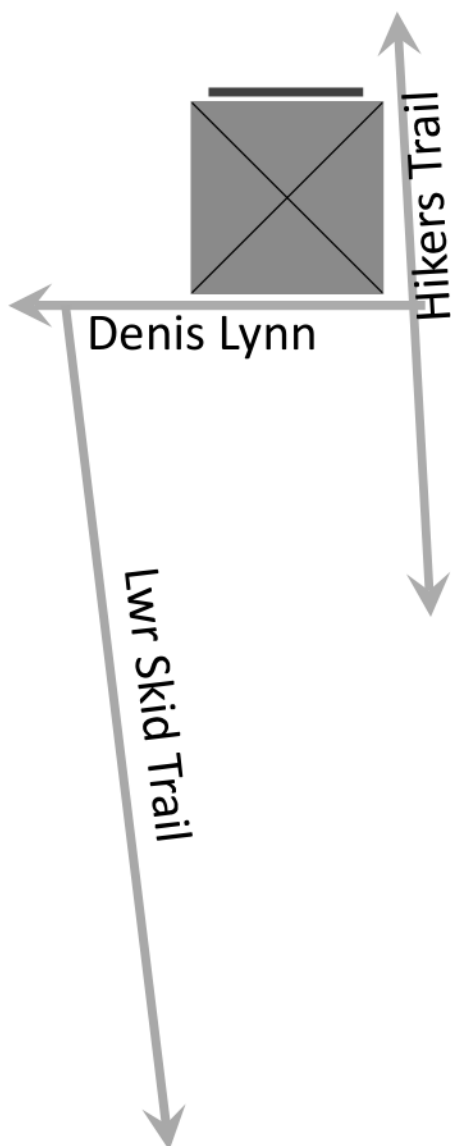


Hikers
Trail (alt
Summit
route)



J15
Hikers Trail & Skid
Trail / Denis Lynn
Trail
Junction
Scale 1:2

Side 3

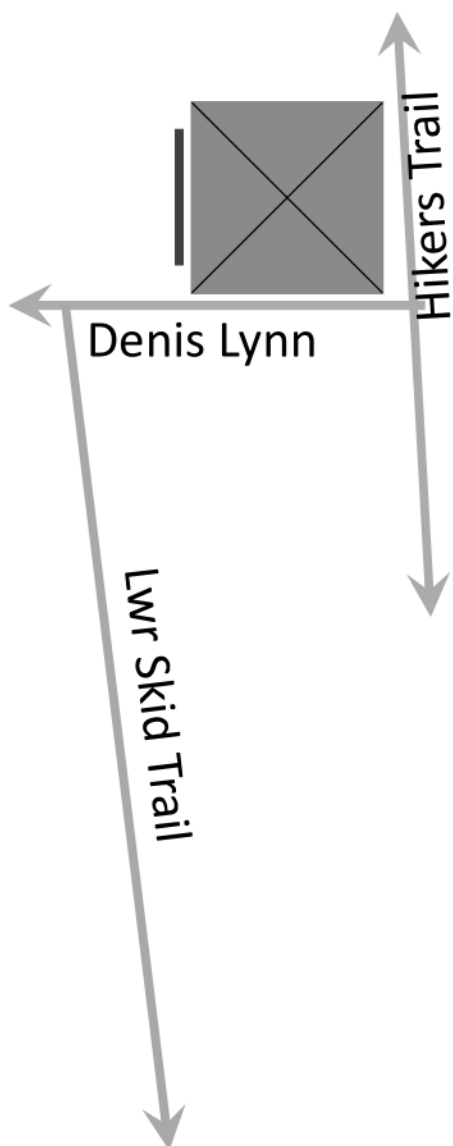


Denis Lynn
Trail to
Skid Trail

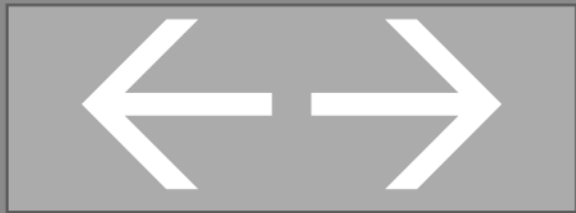


J15
Hikers Trail & Skid
Trail / Denis Lynn
Trail
Junction
Scale 1:2

Side 4



Hikers
Trail

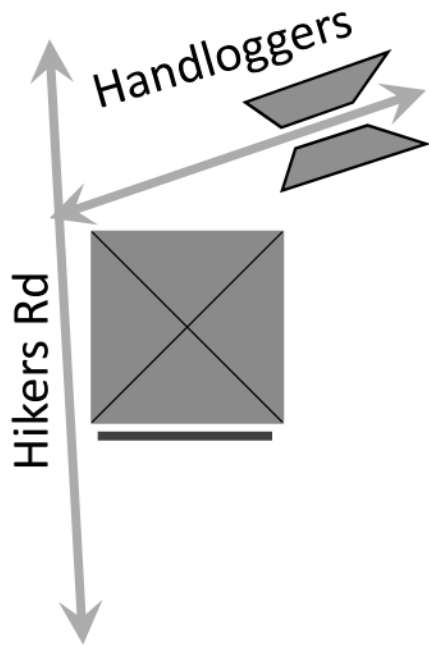


Handloggers
Trail

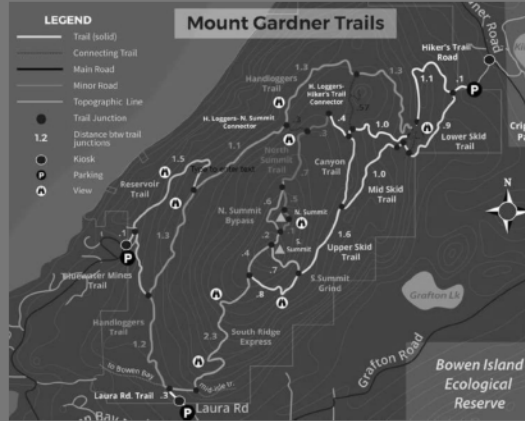


18. Hikers Road & Handloggers Trail

J18
Handloggers Trail
Scale 1:2



Handloggers Trail



Handloggers Trail

This trail contains some moderately steep sections of loose cobble. Please proceed with caution. Expect trail to be more difficult when conditions are wet.

Technical Difficulty



Moderate



USE AT OWN RISK

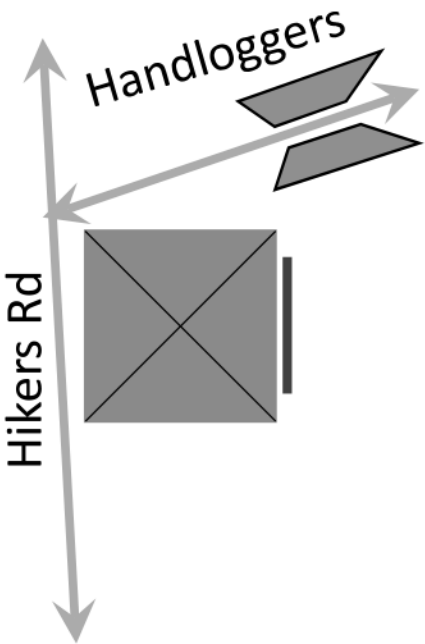


Recreation Sites
and Trails BC



J18
Hikers Trail &
Handloggers
Trail
Junction
Scale 1:2

Side 2

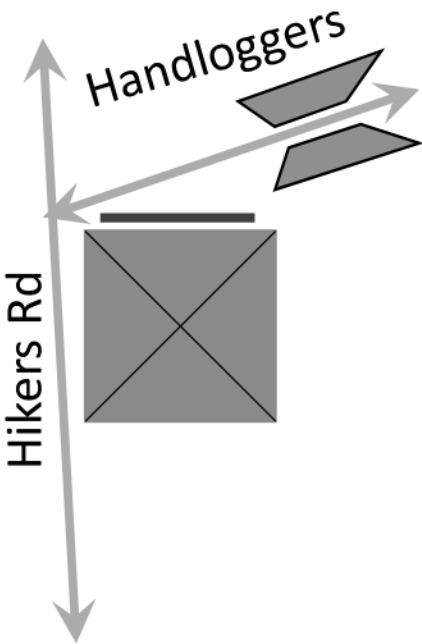


Hikers
Trail to Skid
Trail



J18
Hikers Trail &
Handloggers
Trail
Junction
Scale 1:2

Side 3

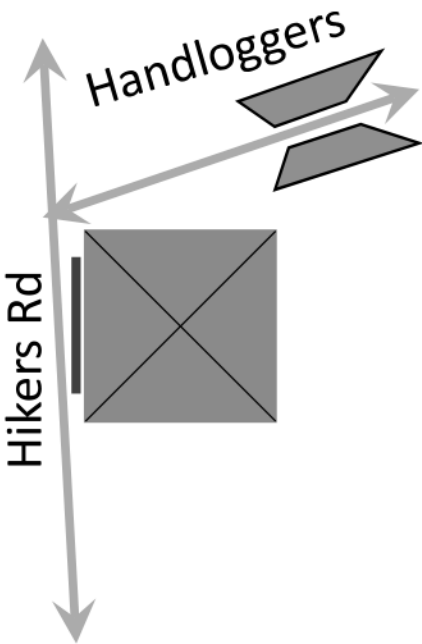


Handloggers
Trail

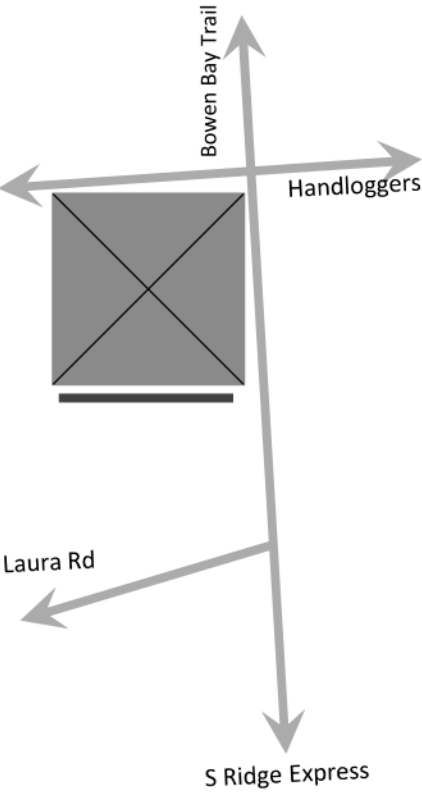


J15
Hikers Trail &
Handloggers
Trail
Junction
Scale 1:2

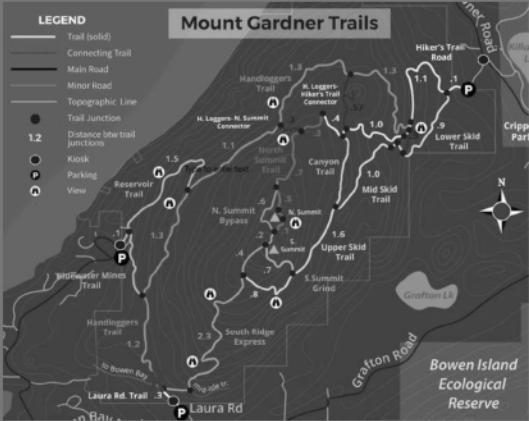
Side 4



J25
Handloggers Trail
& Bowen Bay Trail
Scale 1:2



Handloggers Trail



Handloggers Trail

This trail ascends through some moderately steep sections of loose cobble. Please proceed with caution. Expect trail to be more difficult when conditions are wet.

Technical Difficulty



Moderate

USE AT OWN RISK



Recreation Sites
and Trails BC

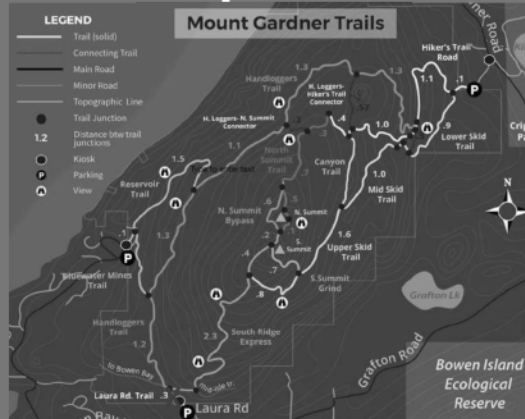


J26
Laura Road Trailhead
Start of
South Ridge Express

Scale 1:2

Side 1

South Ridge Express



South Ridge Express

This trail ascends to the Summit of Mount Gardner and contains some moderately steep sections. Please proceed with caution. Expect trail to be more difficult when conditions are wet.

Technical Difficulty



Moderate

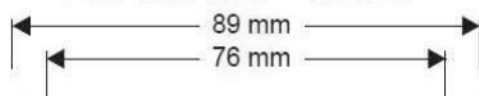


USE AT OWN RISK

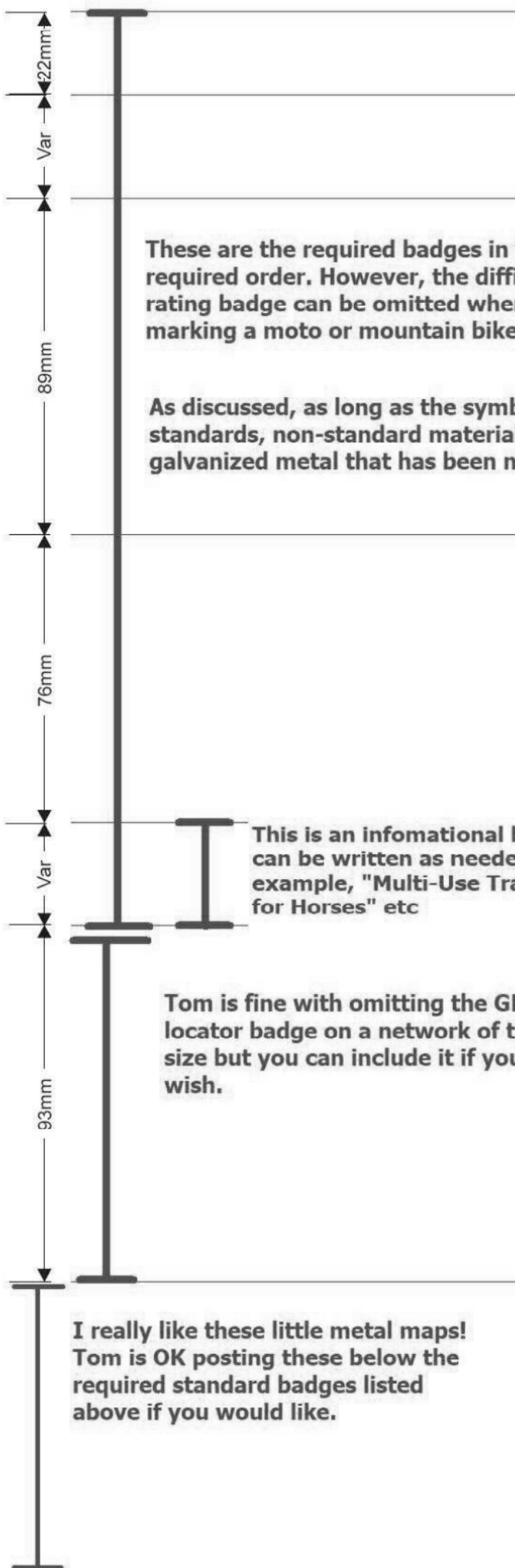
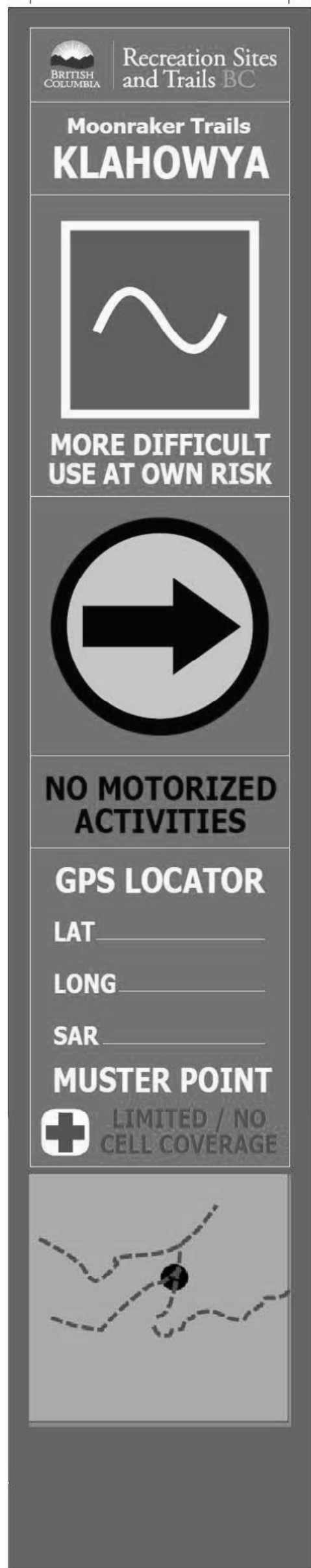


Recreation Sites
and Trails BC

EN ROUTE SIGN



top of post 1 metre above ground



These are the required badges in the required order. However, the difficulty rating badge can be omitted when not marking a moto or mountain bike trail.

As discussed, as long as the symbols and fonts follow the standards, non-standard materials can be used such as galvanized metal that has been milled or laser engraved.

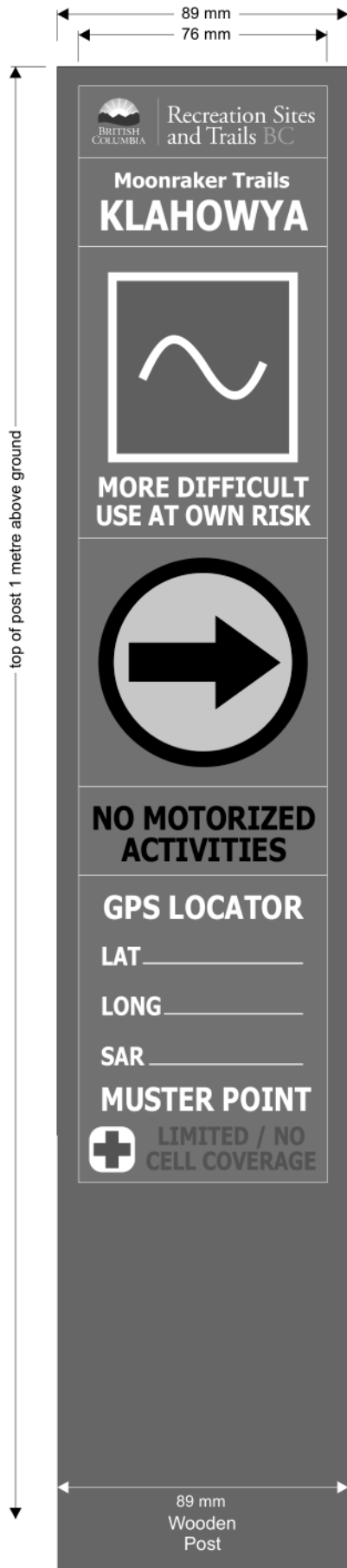
This is an informational badge that can be written as needed. For example, "Multi-Use Trail", "Watch for Horses" etc

Tom is fine with omitting the GPS locator badge on a network of this size but you can include it if you wish.

I really like these little metal maps! Tom is OK posting these below the required standard badges listed above if you would like.

Additional badges can be listed below, this can include standard symbols for allowed activities, hiking, moto, horses, etc Or can include club logos or anything else you get approved by the DRO

EN ROUTE SIGN



Recreation Sites and Trails BC Logo 76w x 22h mm
Icons 68w mm x 14.5h mm centred

TRAIL NAME 76w x various height mm
White lettering or green flood on white substrate Tahoma Bold 18 & 32 point
character spacing 0% line spacing 85% character height

DIFFICULTY RATING 76w x 89h mm
White lettering or green flood on white substrate Tahoma Bold 24 point
character spacing 0% line spacing 85% character height

Icon: White square 58mm
Blue square 52mm

Other examples of directional arrows may be found on pg. 3 of 4

DIRECTIONAL ARROW 76w x 76h mm

Icon: White circle 64mm outside
White circle 54mm inside

Other examples of directional arrows may be found on pg. 3 of 4

TRAIL RESTRICTIONS; use page 4 "Not Permitted" ICONS for more specific activities.
Black lettering or green flood on white substrate Tahoma Bold 28 point
character spacing 0% line spacing 85% character height

GPS LOCATOR 76w x 76h mm
White lettering or green flood on white substrate
Header & Footer - Tahoma Bold 28 point
LAT, LONG, SAR - Tahoma Bold 22 point
CALL 911 - Tahoma Bold u&l case 22 point
character spacing 0%

SIGN COLOURS

- Reflective paints

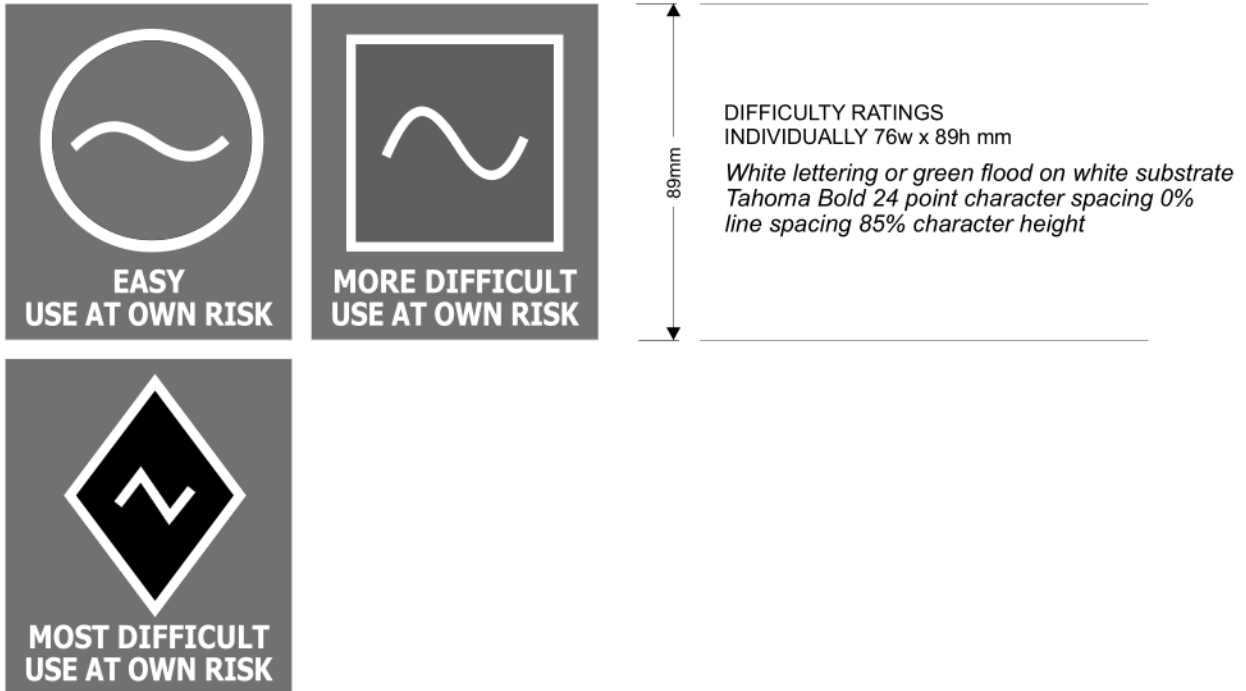
BLACK - C0, M0, Y0, K100
WHITE - C0, M0, Y0, K0
RED - C0, M100, Y100, K0
GREEN - C100, M0, Y100, K0
YELLOW - C0, M13, Y100, K0
BLUE - C100, M50, Y0, K0

MOUNTING

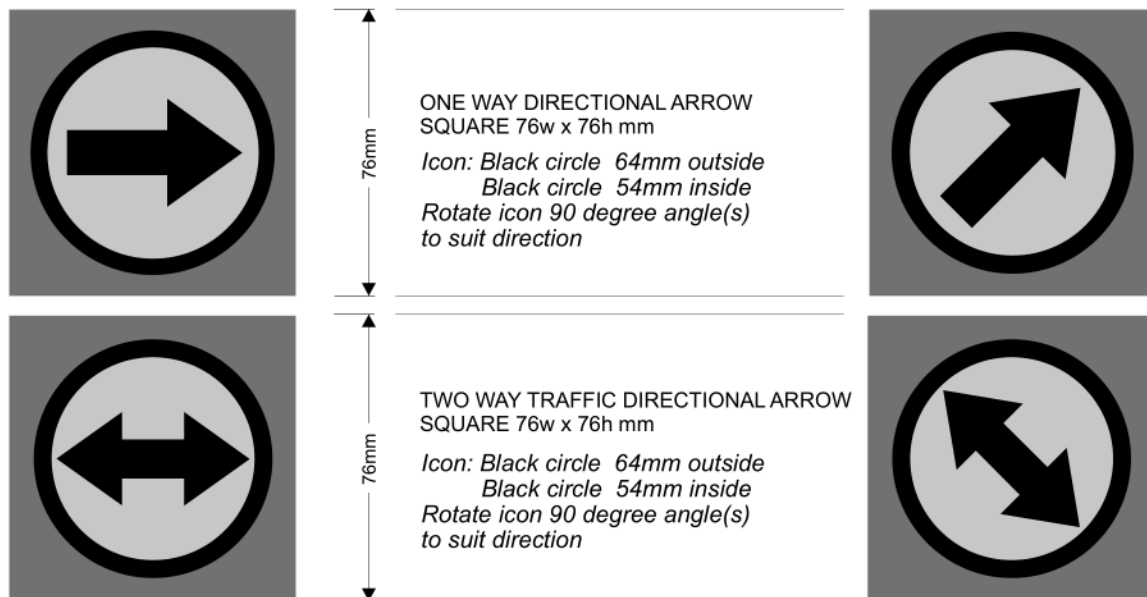
signage printed on 76mm (3")wide
.055 Duraflex Plastic (sticker/decal)
bond to Polyplate or Aluminum
mounted to wood post measuring
89mm x 89mm (4x4 post)
pre-treated or western red cedar
or Fiberglass Dual-Flex Marker
top of post 1.0m above ground

Standard TRAIL SIGNS - EN ROUTE - pg. 2 of 4			
File No:	En Route Trail Sign.pdf	Draft Date:	10/08
Revision No:	001	Date:	09/12
Revision No:	002	Date:	09/13
Revision No:	003	Date:	02/18
Recreation Sites and Trails BC		Drawing Scale:	1 : 2
		Sheet Size:	8.5" X 11"
		Drawing No:	RST 481-TS-ER

DIFFICULTY RATING - OTHER EXAMPLES OF DIFFICULTY RATINGS (Where Applicable to Trail Activity)



DIRECTIONAL ARROWS - OTHER EXAMPLES OF DIRECTIONAL ARROWS



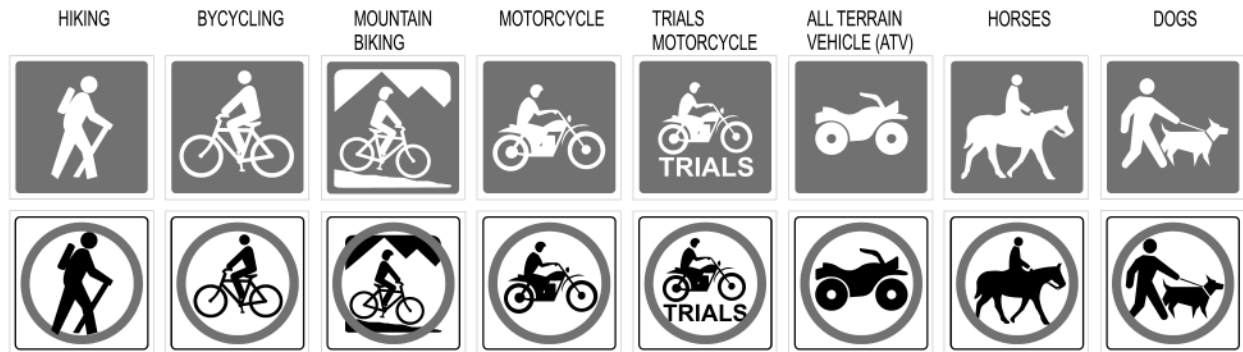
SIGN COLOURS
- Reflective paints

BLACK - C0, M0, Y0, K100
WHITE - C0, M0, Y0, K0
RED - C0, M100, Y100, K0
GREEN - C100, M0, Y100, K0
YELLOW - C0, M13, Y100, K0
BLUE - C100, M50, Y0, K0

Standard TRAIL SIGNS - EN ROUTE - pg. 3 of 4			
File No:	En Route Trail Sign.pdf	Draft Date:	10/08
Revision No:	001	Date:	09/12
Revision No:	002	Date:	09/13
Revision No:	003	Date:	02/18
		Drawing Scale:	1 : 2
		Sheet Size:	8.5" X 11"
		Drawing No:	RST 481-TS-ER

TRAIL ACTIVITIES - OTHER EXAMPLES OF TRAIL ACTIVITIES THAT ARE PERMITTED OR NOT PERMITTED

Trail Activity Stickers/Decals 38h mm x 38w mm spaced accordingly Icons print size at 35h mm x 35w mm centred giving a 1.5mm white surround



PERMITTED
NOT PERMITTED




PERMITTED
NOT PERMITTED

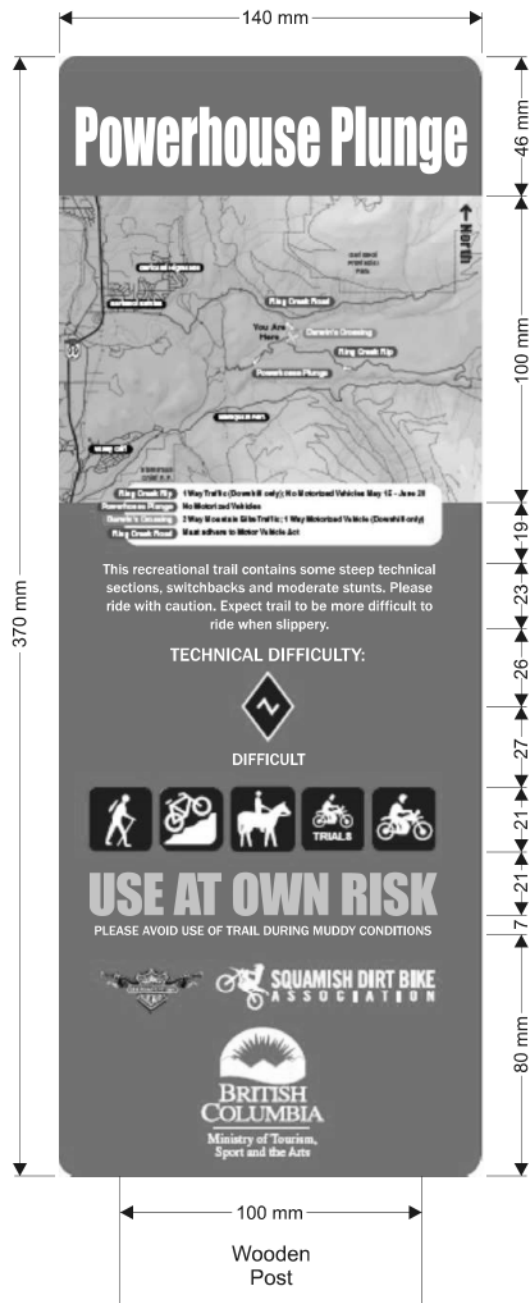


SIGN COLOURS - Reflective paints

BLACK - C0, M0, Y0, K100
WHITE - C0, M0, Y0, K0
RED - C0, M100, Y100, K0
GREEN - C100, M0, Y100, K0
YELLOW - C0, M13, Y100, K0
BLUE - C100, M50, Y0, K0

Standard		TRAIL SIGNS - EN ROUTE - pg. 4 of 4			
File No:		En Route Trail Sign.pdf		Draft Date: 10/08	
Revision No:	001	Date:	09/12	Revision No:	004 Date: 05/18
Revision No:	002	Date:	09/13	Revision No:	Date:
Revision No:	003	Date:	02/18	Revision No:	Date:
 Recreation Sites and Trails BC				Drawing Scale: 1 : 2 Sheet Size: 8.5" X 11"	
				Drawing No: RST 481-TS-ER	

TRAILHEAD SIGN



Black lettering Impact 70 point
character spacing 0%
condensed horizontally 65%

Trail Area Location Map

White lettering
Franklin Gothic Medium 14 point
character spacing 0%
line spacing 108% character height

White lettering
Franklin Gothic Medium 18 point
character spacing 0%

White lettering
Franklin Gothic Medium 16 point
character spacing 0%

Yellow lettering Impact 50 point
character spacing minus 10%

White lettering
Franklin Gothic Medium 12.5 point
character spacing 0%

User Groups
Clubs/Partners/Sponsors
Province of BC

Size	140mm x 370mm
Background Colour	Green: CMYK (100-0-100-0)
Mounting	- wood post measuring 100mm x 100mm - pre-treated or western red cedar - top of post 1.0m above ground
Font Type/Size	Large Fonts - IMPACT Small Fonts - Franklin Gothic Medium
Icons	Difficulty Rating Symbol User Groups Clubs/Partners/Sponsors Province of BC
Font Colour	Yellow Text: CMYK (0-13-100-0) White Text: CMYK (0-0-0-0)

SIGN COLOURS - Reflective paints

BLACK - C0, M0, Y0, K100	GREEN - C100, M0, Y100, K0
WHITE - C0, M0, Y0, K0	YELLOW - C0, M13, Y100, K0
RED - C0, M100, Y100, K0	ORANGE - C0, M50, Y100, K0

Standard TRAIL SIGNS - TRAILHEAD	
File No:	Draft Date: 10/08
Approved By: <i>WJ Marshall</i>	Revision No: Date: 11/08
Date:	Revision No: Date:
	Revision No: Date:
	Drawing Scale: 1 - 2.5 Sheet Size: 8.5" X 11"
	Drawing No: RST 481-TS-TH

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: Fwd: BTC minutes March 5, 2020
Date: March 6, 2020 1:13:51 PM
Attachments: [Meeting Minutes March 5, 2020.pdf](#)
[ATT00001.htm](#)

Hi Dan,

Here's what we've drafted so far for the new MOU and a bit from our old C&B. Any input/advice from you or Tom would be much appreciated!

Kristina from BIHORA also had a question about how we collect information to the public and present to RSTBC. Next we'll be working on drafting up our communication framework so advice here would be helpful as well.

Thanks,

Kevan

Ps I'll try to get more mapping done over the next few weeks.

Sent from my iPhone

Begin forwarded message:

From: s.22
Date: March 6, 2020 at 8:55:33 AM PST
To: Kevan Bernards^{s.22}
s.22

s.22
s.22 >, Katrina Smith

Subject: BTC minutes March 5, 2020

Hi BIHORA and BTRA,
Please find attached the minutes from the BTC's meeting last night.
The meeting was held to edit the Memorandum of Understanding together, which will be presented to BITS for their decision on whether to re-join the BTC or not.
Kind regards,
s.22

FYI here are the details of our purpose (which I entered at the bottom of the doc - please feel free to edit, maybe it should be shortened?):

Using transparent communication, to promote safety, accessibility,

navigation, and sustainability with respect to maintaining and enhancing existing trails and developing new trails on Bowen Island's Crown lands so that Crown trails users have a positive and enjoyable experience.

Note:

- a. "Transparent communication" includes being thorough and factual in all communication with the Coalition's Constituents, the Crown, and other Crown trails stakeholders to increase awareness and support for the Coalition's aspirations and activities,
- b. "Safety" means the mitigation of injury and distress to Crown trails users by following the Crown's requirements for trail workmanship and volunteer administration,
- c. "Accessibility" includes ease of trailhead access to a diversity of Crown trails users,
- d. "Navigation" includes clear trail designation, visible wayfinding markers, and signage marking trails and trail junctions,
 - (e) "Sustainability" means ensuring that the materials used and the structures built in Crown trails projects are durable, as well as ensuring that all trail work meets the Crown's environmental standards.

Bowen Trails Coalition

Meeting Minutes

March 5, 2020

I. Call to order

Kevan Bernards called to order the regular meeting of the Bowen Trails Coalition at 6:30 on March 5, 2020 at BICS non-fiction room.

II. Roll call

The following persons were present:

- BIHORA: Kristina Calli, ^{s.22}
- BTRA: Kevan Bernards, ^{s.22}

III. New business

a) Review memorandum of Understanding and edit for presentation to BITS:

- P1 replace “coalition partnership” with “stewardship agreement”, replace “entering into a” with “maintaining the”
- P2 replace “Bowen Trails Coalition Partnership” with updated name if necessary
- P3 remove entire paragraph
- P4 **ACTION:** Kevan to confirm that this is correct with Tom Blackbird
- P5 change “with the exception of a shared Operating Plan for activities for activities that are shared between two or more of the Crown Partnership Agreement Holders” to “and each year, before submission to RSTBC, each group will share their Operating Plan with the other groups to ensure no gaps or overlaps”
- P6 add “All board members from Constituent groups are welcome attend all **Bowen Trails Coalition (or new name)** meetings.”

- P8 ACTION: Kevan will clarify with Tom what is required, and what they would like communication-wise
 - Include our purpose which is “A communication platform between the Constituents, Bowen Islanders, and the Crown using transparent communication, to promote safety, accessibility, navigation, and sustainability with respect to maintaining and enhancing existing trails and developing new trails on Bowen Island’s Crown lands so that Crown trails users have a positive and enjoyable experience.”
- a) ACTION: New name to be “Bowen Trail Stewards” or “Bowen Trail Stewards Agreement” if we cannot proceed with “Bowen Trails Coalition” – still to be determined

IV. Adjournment

Kevan Bernards adjourned the meeting at 7:40.

Minutes submitted by:^{s.22}

From: [Kevan Bernards](#)
To: [Blackbird, Tom G FLNR:EX](#); [Bradley, Dan FLNR:EX](#); [Chuck Venhuizen](#); [Kristina Calli](#); s.22
Subject: Jan 28 2020 BTC agenda special meeting
Date: January 28, 2020 8:13:44 AM
Attachments: [Meeting notes.pdf](#)
[ATT00001.txt](#)

Hi Everyone,

Here's the final draft of the agenda, see you all tonight!

Kevan

BTC special meeting (draft agenda)

Tuesday January 28 /6:15pm-8:30pm Bowen Island Municipal Chambers

Attendees

RSTBC - Tom Blackbird District Recreation Officer, Dan Bradley Recreation Technician,

BIHORA -Kristina Calli BTC Vice-Chair, Katrina Smith BIHORA President, s.22

BITS -Chuck Venheizun BTC Secretary, Jes Slater,

BTRA-Kevan Bernards BTC Chair, Dave Paulus, s.22

6:15pm-6:25pm Social (Food & Beverage by BIHORA)

6:25pm-6:30pm Introduction of attendees

Agenda

6:30-6:50 Last Meeting Follow-up

1. Approve Agenda
2. Approval of minutes from dec 2 2019 BTC AGM
3. Action Items from last meeting; a) Chuck has shared Year end Template (AR), all groups filed? b) BITS -Handloggers Trail Improvements, set time/date for hike , c)BTRA will be withdrawing parking proposal from OP, -d) BTRA Announcement regarding withdrawal of Service Trail Proposal from 2020 OP e)Jan 9th BTC meeting postponed,

*Kevan item 3 b) (it would be helpful to see a proposal on paper as well).

6:50-8:30 New Business

4. RSTBC items-
5. BITS- report B.I. Trail Society report: (20 min)
6. Navigation update (8 min)
7. Year End Report (2 min)
8. 2020 Operation Plan (3 min)
9. Commitment to our Partnership Agreement (2 min)
10. Compliance with RSTBC on halting new trail development while facilitating robust community engagement (2 min)
11. Withdrawal from Bowen Trails Coalition, effective immediately (RSTBC already advised) (3 min) *Comments from RSTBC- BIHORA, BTRA, *after this announcement and comments have been made it should be decided by constituent members in good standing

with input from Tom whether; a) the meeting will continue as a coalition meeting (BITS members should then leave at this point and recording duties shall be designated to a current constituent member) or b) the coalition meeting shall be adjourned and any further discussions shall be regarded as that of an informal meeting of stakeholders without agenda or recorded minutes.

12. Pending Agenda Items

13. PA renewal discussion (current agreements expire May of this year),
14. RSTBC guidance on the following;
15. a)-Does the coalition represent a relevant group of stakeholders on Bowen? If not, who should we reach out to and how do we proceed?
16. b)-Public consult/communication and what is expected of the coalition?, examples from other similar groups, process?
17. c)-recent letters to government regarding motorized use on MtGardner, the coalition etc,
18. Review BIHORA proposed communication plan Trails Inventory update, how to best share tracks/organize doc?
19. f)danger tree removal on lower skid trail
20. ?

Notes

- For reference, Meeting minutes from Tom and Dan's last visit (March 25, 2019 items Bowen Trails Coalition),
https://docs.google.com/document/d/12ts1MVpx_sfSnQPv7098IyqWajK8tlttuJKt5UFUDsY
- BIHORA proposed communication plan
<https://docs.google.com/document/d/1sDo0CWbfcj4hED-bK4EMUeCbxuveWbo83fSVBnCri0Q>,
-

Action Items

- 1.

Next Meeting Agenda

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: MOU/Mapping/bridge/signage
Date: March 16, 2020 10:00:12 AM

Hi Dan,

s.22

so when you've got the time I

wanted to touch base regarding;

- MOU did you and Tom have a chance to take a look?
- Moto mapping, many of the tracks which Lisa has recorded are also used by Moto. Should these be submitted but on a moto list?
- Lower Skid Trail Bridge, at either location span is less than 12m, hopefully we could keep the location and land the bridge on a board walk (logs with planks) in the mucky section and use log cribbing instead of concrete to protect the creek and make construction easier? I'll send a drawing tomorrow.
- we may need help from RSTBC regarding signage, wooden ones came in with an estimated \$7,500 price tag and now BITS is looking at embossed aluminum which I feel will probably be just as expensive if not more. Is there a standard design that RSTBC recommends or requires (I've had a look at the rec site infrastructure drawings page which is helpful)? We've been discussing this for almost 2 years! BTRA would like to finish our contribution to the signage through last years ORV funding grant by the deadline this year.
- Handloggers Trail has been marked with blazes (original route only -no reroutes).

Beside mapping is there anything else we should be working on as we near our PA renewal date in May?

Thanks,

Kevan

Sent from my iPhone

From: s.22
To: [Bradley, Dan FLNR:EX](#)
Subject: Meeting notes - Invitation to edit
Date: January 23, 2020 8:41:30 PM

s.22

has invited you to **edit** the following document:



Meeting notes



Hi,

Everyone here's the draft of the agenda for Tuesday's meeting (6:15pm-8:30pm at the Bowen Island Municipal hall). Please fill in the names of any board members who may be attending under "attendees". Agenda items can be added to "new business". I've added several links to other docs for reference, please let me know if you have any issues accessing these. Given recent correspondence regarding the trails we have a lot to discuss. It is my hope that together we can demonstrate to the public that we are responsible trail stewards. I look forward to your contributions and am confident that we'll have a productive meeting.

Regards,

Kevan

[Open in Docs](#)

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Google Docs: Create and edit documents online.

Google LLC, 1600 Amphitheatre Parkway, Mountain View, CA 94043, USA

You have received this email because someone shared a document with you from Google Docs.



From: [Kevan Bernards](#)
To: [Blackbird, Tom G FLNR:EX](#)
Cc: [Bradley, Dan FLNR:EX](#); [Jessica Harman](#); [Kristina Calli C](#)
Subject: Mount Gardner MOU
Date: June 23, 2020 9:09:42 AM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Tom,

I'm hoping we can set up another teleconference with yourself and Dan possibly in the second week of July (6-10).

The new MOU is all but ready to go but recently some concerns have surfaced related to the municipality's decision to request a ban of recreational motorized use on Mount Gardner and this is throwing up a bit of a roadblock.

We had a very positive outcome after our last meeting on May 28. I'm hoping we can discuss this current situation and any implications it may have on our agreement renewal and reiterate our roles as stewards so that we may continue to focus on the development of the MOU and fulfilling our role as trail stewards.

Sincerely,

Kevan Bernards

BTRA

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: Mount Gardner trails used by dirt bike & atv
Date: April 28, 2020 10:47:41 AM
Attachments: [Multi-use ORV trails MtGardner .pdf](#)
[ATT00001.htm](#)

Hi Dan,

I've been having difficulty exporting tracks directly from my app but I've been able to upload to Dropbox. Please let me know if this works.

Given the nature of comments and items that came up at last night's council meeting regarding ORV use on Mount Gardner our the BTRA board would very much like to get in contact with you or Tom as soon as possible to discuss how to best address these concerns and the future of our PA.

Hope your keeping well during these tough times.

Regards,

Kevan

Link to drop box with tracks is here:

<https://www.dropbox.com/sh/4dk4i6pv0bcuomy/AAC1phL25PSR-886-U6aE0fPa?dl=0>

Here's the list of multi-use trails which are used by motorized groups on Mount Gardner ***to be very clear, use varies on each trail, many are also shared by hikers, mountain bikers and equestrians;**

- Arbutus Ridge Trail (single track, dirt bike)
- Reservoir Trail (two track, atv, dirt bike)
- Canyon Trail (two track, atv, dirt bike)
- Easy Street (single track, dirt bike)
- Handloggers Trail (mix two track and single track, dirt bike, atv)
- Dennis Lynn Trail (single track, dirt bike)

Laura Rd Trail (single track, dirt bike,)

- Lower Skid Trail (single track, dirt bike)
- Malcom Creek Trail (single track, dirt bike)
- Mid Island Trail (mix single track, two track, some sections cross private land)
- Mid Skid Trail (single track, difficult)
- Stone is Circle Trail (single track dirt bike)
- Handloggers/Hikers Trail connector (two track, atv, dirt bike)
- South Ridge Express (single track, dirt bike, down hill only)
 - Lower Tower to Handloggers (single track, dirt bike)
 - The Dirt Bike Trail (partial/proposed single track, dirt bike)
 - Cap Braap Quarry (single track to mix two track, open area in old quarry dirt bike, atv)
 - Two Dead Ends (mix two track, single track, atv, dirt bike)

Here is the PDF with more information on the tracks:

Multi-use trails on Mount Gardner Used by ORV's

Trail number	Single Track Trails	Two Track Trails	Orv Use	KM	Status	Rating
1	Arbutus Ridge		Dirt Bike	0.8km	UCH (User Created Historic)	Moderate
2		Reservoir Trail	ATV Dirt Bike	1.36km	UCH	Moderate
3		Canyon Trail	ATV Dirt Bike	1km	UCH/old logging road	Moderate
4	Easy Street		Dirt Bike	1.31km	UCH	Extremely Difficult
5		Handloggers	ATV Dirt Bike	6.15km	UCH/old logging/mining road	Moderate/Difficult
6	Dennis Lynn		Dirt Bike	0.5km	UCH	Difficult
7	Laura Road Trail		Dirt Bike	0.2km	UCH	Easy
8	Lower Skid Trail		Dirt Bike	0.8km	UCH	Moderate
9	Mid-Skid Trail		Dirt Bike	1.3km	UCH	Difficult
10	Malkin Creek Trail		Dirt Bike	0.8km	UCH	Moderate
11	Mid-Island Trail	Mid-Island Trail	ATV Dirt Bike	2.9km	UCH/old logging road/sections cross private land	Moderate
12	Stone Circle Trail		Dirt Bike	0.5km	UCH	Moderate
13		Handloggers to Hikers Trail Connector	ATV Dirt Bike	0.3km	UCH/old logging road	Easy
14	South Ridge Express (Formerly Laura Rd Trail)		Dirt Bike (down hill only)	2.3km	UCH	Extremely Difficult
15	LT to HL		Dirt Bike	1.03km	UCH	Difficult
16	DBT		Dirt Bike	0.77km	UCH/partial old logging road	Difficult
17	Cap Braap Quarry	Cap Braap Quarry	ATV Dirt Bike	0.91km	UCH/partial old logging road	Moderate/difficult
18	Two Dead Ends	Two Dead Ends	ATV Dirt Bike	1.33km	UCH/old logging road	Easy/moderate/difficult
19		Hikers Trail Service Road	ATV Dirt Bike	2.7km	NSR (Non Status Road)	Easy

Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: ["Kevan Bernards"; "Phil Osborne"; s.22](#)
Cc: [s.22](#)
Subject: Mt Gardner PA Modifications
Date: May 14, 2020 12:18:00 PM
Attachments: [BITS PA18DCK-006 Partnership Agreement Modification.pdf](#)
[BIHORA PA18DCK-008 Partnership Agreement Modification.pdf](#)
[BTRA PA18DCK-007 Partnership Agreement Modification.pdf](#)

Hey All,

I've attached your PA Modifications that extend your current Agreement by 3 months to August 15 2020. I'm assuming we'll sort out the new agreements by then but this gives us a bit of flexibility in the meantime.

Please return a signed copy of your respective PA Modification and you can consider them active.

Hope you are well,



Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074



Partnership Agreement Modification

Partnership Agreement No.: PA18DCK-006

Agreement Modification No.: PA18DCK-006-01

THIS AMENDMENT AGREEMENT IS DATED FOR REFERENCE May 14, 2020 and is made under the *Forest and Range Practices Act*

BETWEEN:

AND:

HER MAJESTY THE QUEEN IN RIGHT
OF THE PROVINCE OF BRITISH
COLUMBIA, represented by the Minister
responsible for the *Forest and Range
Practices Act* (the "**Province**") at the
following address:

Bowen Island Trail Society

(the "**Partner**") at the following address:

**938 Spyglass Road
Bowen Island, BC V0N 1G2
s.22**

46360 Airport Road

Chilliwack BC V2P 1A5

Telephone: (604) 702-5700

WHEREAS:

- A. The Province entered into Partnership Agreement No. **PA18DCK-006** dated for reference **May 2 2018 (the "Agreement")** with the Agreement Holder;
- B. The Parties have agreed to modify the Agreement in the manner as set out below (this "**Amendment Agreement**").

THIS AMENDMENT AGREEMENT WITNESSES THAT the Parties agree as follows:

1) The Agreement is modified by:

*a) (e.g. modification of Article 2.01, for an extension of term not more than **3** months in duration; culminating in the agreement expiring on **2020-08-15**.*

2) Except as modified by this Amendment Agreement, the Agreement is ratified and confirmed.

3) This Amendment Agreement and the Agreement shall be read and construed together.

4) Time continues to be of the essence of the Agreement and is of the essence of this Amendment Agreement.

5) This Amendment Agreement endures to the benefit of and is binding upon the Parties and their respective successors and permitted assigns.

IN WITNESS WHEREOF the parties have executed this Agreement

SIGNED and **DELIVERED** on behalf of the **Province** by a duly authorized representative of the Province.



Duly Authorized Representative
(District Recreation Officer)

2020-05-14

Date

SIGNED and **DELIVERED** on behalf of the Agreement Holder (or by an authorized signatory of the Agreement Holder if a Corporation).

Duly Authorized Representative

Date



Partnership Agreement Modification

Partnership Agreement No.: PA18DCK-008

Agreement Modification No.: PA18DCK-008-01

THIS AMENDMENT AGREEMENT IS DATED FOR REFERENCE May 14, 2020 and is made under the *Forest and Range Practices Act*

BETWEEN:

AND:

HER MAJESTY THE QUEEN IN RIGHT
OF THE PROVINCE OF BRITISH
COLUMBIA, represented by the Minister
responsible for the *Forest and Range
Practices Act* (the "**Province**") at the
following address:

46360 Airport Road

Chilliwack BC V2P 1A5

Telephone: (604) 702-5700

**Bowen Island Horse Owners and Riders
Association**

(the "**Partner**") at the following address:

**639 Taylor Road
Bowen Island, BC V0N 1G1**

s.22

WHEREAS:

- A. The Province entered into Partnership Agreement No. **PA18DCK-008** dated for reference **May 2 2018 (the "Agreement")** with the Agreement Holder;
- B. The Parties have agreed to modify the Agreement in the manner as set out below (this "**Amendment Agreement**").

THIS AMENDMENT AGREEMENT WITNESSES THAT the Parties agree as follows:

1) The Agreement is modified by:

*a) (e.g. modification of Article 2.01, for an extension of term not more than **3** months in duration; culminating in the agreement expiring on **2020-08-15**.*

2) Except as modified by this Amendment Agreement, the Agreement is ratified and confirmed.

3) This Amendment Agreement and the Agreement shall be read and construed together.

4) Time continues to be of the essence of the Agreement and is of the essence of this Amendment Agreement.

5) This Amendment Agreement endures to the benefit of and is binding upon the Parties and their respective successors and permitted assigns.

IN WITNESS WHEREOF the parties have executed this Agreement

SIGNED and **DELIVERED** on behalf of the **Province** by a duly authorized representative of the Province.



Duly Authorized Representative
(District Recreation Officer)

2020-05-14

Date

SIGNED and **DELIVERED** on behalf of the Agreement Holder (or by an authorized signatory of the Agreement Holder if a Corporation).

Duly Authorized Representative

Date



Partnership Agreement Modification

Partnership Agreement No.: PA18DCK-007

Agreement Modification No.: PA18DCK-007-01

THIS AMENDMENT AGREEMENT IS DATED FOR REFERENCE May 14, 2020 and is made under the *Forest and Range Practices Act*

BETWEEN:

AND:

HER MAJESTY THE QUEEN IN RIGHT
OF THE PROVINCE OF BRITISH
COLUMBIA, represented by the Minister
responsible for the *Forest and Range
Practices Act* (the "**Province**") at the
following address:

Bowen Trail Riders Association

(the "**Partner**") at the following address:

542 Hilltop Place, Bowen Island, BC, V0N 1G2
s.22

46360 Airport Road

Chilliwack BC V2P 1A5

Telephone: (604) 702-5700

WHEREAS:

- A. The Province entered into Partnership Agreement No. **PA18DCK-007** dated for reference **May 2 2018 (the "Agreement")** with the Agreement Holder;
- B. The Parties have agreed to modify the Agreement in the manner as set out below (this "**Amendment Agreement**").

THIS AMENDMENT AGREEMENT WITNESSES THAT the Parties agree as follows:

1) The Agreement is modified by:

*a) (e.g. modification of Article 2.01, for an extension of term not more than **3** months in duration; culminating in the agreement expiring on **2020-08-15**.*

2) Except as modified by this Amendment Agreement, the Agreement is ratified and confirmed.

3) This Amendment Agreement and the Agreement shall be read and construed together.

4) Time continues to be of the essence of the Agreement and is of the essence of this Amendment Agreement.

5) This Amendment Agreement endures to the benefit of and is binding upon the Parties and their respective successors and permitted assigns.

IN WITNESS WHEREOF the parties have executed this Agreement

SIGNED and **DELIVERED** on behalf of the **Province** by a duly authorized representative of the Province.



Duly Authorized Representative
(District Recreation Officer)

2020-05-14

Date

SIGNED and **DELIVERED** on behalf of the Agreement Holder (or by an authorized signatory of the Agreement Holder if a Corporation).

Duly Authorized Representative

Date

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: MtGardner Hike/Skid Trail Bridge/Easy Street
Date: October 26, 2019 7:31:05 AM

Hi Dan,

I'm hoping we can touch base early next week to talk about about dates and times for a trail tour over here on the mountain.

Like we discussed during our last conversation, I'm hoping to go over the plan for the Lower Skid Trail Bridge and while you're here hopefully fit in a hike up Easy Street? BITS has expressed continued opposition to the trail being marked and signed so maybe we can talk a little about that as well and what the best way forward is?

Thanks,

Kevan

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: Multi-use ORV trails at the Towers
Date: May 31, 2020 7:44:06 AM
Attachments: [Multi-use ORV trails at the Towers.pdf](#)
[ATT00001.txt](#)

Microwave Towers trails used by ORV's

Trail number	Single track	Two track	Orv use	Km	Status	Rating
20		Main Trail	4x4, ATV, dirt bike	1.22	Old logging road (OLR)	Moderate
21		Truck Loop	4x4, ATV, dirt bike	0.69	OLR	Moderate
22		Circus	4x4, ATV, dirt bike	0.14	OLR	Moderate
23		New Old Trail	4x4, ATV, dirt bike	0.92	OLR	Moderate
24		Crusher Loop	4x4, ATV, dirt bike	1	OLR	Moderate
25		Con Rod	4x4, ATV, dirt bike	0.12	OLR	Moderate
26		Hobbies Trail	4x4, ATV, dirt bike	0.67	OLR	Easy
27		N.N.O. Trail	4x4, ATV, dirt bike	0.44	OLR	Difficult
28		Top End	4x4, ATV, dirt bike	0.21	OLR	Moderate
29		W.Poacher	4x4, ATV, dirt bike	0.17	OLR	Difficult
30		Harescrambler	4x4, ATV, dirt bike	0.23	OLR	Difficult
31		Trump Tower	ATV, dirt bike	0.15	OLR	moderate
32		Hillbilly Hillclimb	4x4, ATV, dirt bike	0.35	OLR	Moderate
33		Ornery Hill	ATV, dirt bike	0.20	OLR	Difficult
34		Isuzu Bypass	ATV, dirt bike	0.10	OLR	Difficult
35		Bierveew	ATV, dirt bike	0.20	OLR/UCH	Difficult
36	8mil		Dirt bike	0.27	UCH	Difficult
37	A Game		Dirt bike	0.45	UCH	Difficult
38	Bonsai		Dirt bike	0.15	UCH	Moderate
39	Deerbone		Dirt bike	0.91	UCH	Difficult
40	Unnecessary Hill		Dirt bike	0.10	UCH	Extreme
41	Goat Trainer		Dirt bike	0.18	UCH	Difficult
42	Fast & Flowy Trail		Dirt bike	0.89	UCH	Difficult
43	Shotgun Trail		Dirt bike	1.10	OLR/UCH	Extreme
44		Plan B	ATV, Dirt bike	0.33	OLR/UCH	Difficult
45	Greenbean		Dirt bike	0.35	UCH	Difficult
46	Oh Boy		Dirt bike	0.72	OLR/UCH	Difficult
47	Oh Deer		Dirt bike	0.31	OLR/UCH	Difficult
48	Shriner		Dirt bike	0.90	OLR/UCH	Difficult
49	Towers Turn Track		Dirt bike	0.16	UCH	Moderate
50	Trial & Air		Dirt bike	0.48	UCH	Extreme

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: New Bowen Trails Partnership MOU
Date: April 30, 2020 1:28:02 PM
Attachments: [New Partnership MOU.pdf](#)
[ATT00001.htm](#)

Hi Dan,

Here's the rough draft of the changes we've made/suggested so far;

Association hereby notifies the British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development (the "Crown") of the following:

(1) **[Association]** has entered into a coalition partnership comprising three (3) Crown Partnership Agreement Holders: Bowen Island Horse Owners and Riders Association, Bowen Island Trail Society and Bowen Trail Riders Association, for the express purpose of maintaining the entering into a Partnership Agreement with the Crown in order to maintain and upgrade Crown trails on Bowen Island according to the Crown's standards.

(2) **[Association]** is in agreement that this partnership of Crown Partnership Agreement Holders is an informal entity known as 'Bowen Trails Coalition' Stewardship Agreement Partnership' (the "Coalition Partnership").

(3) [Association] agrees that the intention of the Partnership is to provide a communication platform between the Constituents, Bowen Islanders, and the Crown using transparent communication, to promote safety, accessibility, navigation, and sustainability with respect to maintaining and enhancing existing trails and developing new trails on Bowen Island's Crown lands so that Crown trails users have a positive and enjoyable experience.

Note:

- a. "Transparent communication" includes being thorough and factual in all communication with the Coalition's Constituents, the Crown, and other Crown trails stakeholders to increase awareness and support for the Coalition's aspirations and activities,
- b. "Safety" means the mitigation of injury and distress to Crown trails users by following the Crown's requirements for trail workmanship and volunteer administration,
- c. "Accessibility" includes ease of trailhead access to a diversity of Crown trails users,
- d. "Navigation" includes clear trail designation, visible wayfinding markers, and unambiguous signage marking trails and trail junctions,
 - e. "Sustainability" means ensuring that the materials used and the structures built in Crown trails projects are durable, as well as ensuring that all trail work meets the Crown's environmental standards.

(3) **[Association]** understands the Crown will circumvent the standard Partnership Agreement

application process by adopting the application for a Partnership Agreement with the Crown which was completed by the Rotary Club of Bowen Island in 2016 and assigning the Coalition Partnership as the signatory in its place. **[Association]** wishes to thank both the Rotary Club and the Crown for their consent to this arrangement.

(4) **[Association]** understands that completion of the Trails Environmental Screening Tool (TEST) document is not a prerequisite for activating the Partnership Agreement with the Crown, since the Rotary Club of Bowen Island's Partnership Agreement application was initiated before the TEST document was created.

(5) **[Association]** will co-operate with each of the other Crown Partnership Agreement Holders to meet the Coalition's obligations to the Crown with respect to its requirements as stipulated in the Partnership Agreement. This will include separate reports and operating plans for each of the Crown Partnership Agreement Holders. Before submission to RSTBC, each group will share their Operating Plan for the new year with the other groups to ensure no gaps or overlaps.

(67) **[Association]** will assign one of its members as a representative of the Coalition Partnership committee, and this person will co-operate with each of the other committee representatives in the facilitation of the Partnership Agreement.

(7) **[Association]** will work with the other Crown Partnership Agreement Holders to develop strategies to ensure effective, transparent communication with key stakeholders of project plans put forth by members of the Partnership.

(8) **[Association]** will take measures to incorporate reasonable feedback received from key stakeholders into the planning of proposed projects. [Kevan to clarify with Tom and Dan what community feedback they want us to provide for each proposal submitted to the DRO - i.e. what is each group responsible for providing, and what is up to the community at large to provide directly to the DRO?].

(9) **[Association]** acknowledges that it may not agree with all projects proposed by the other Crown Partnership Agreement Holders and those that are approved by the DRO, but will work in good faith with the other Crown Partnership Agreement Holders.

(108) **[Association]** reserves the right to determine the number of volunteers, if any, and the amount of funds, if any, that it is able or willing to allocate towards each shared Coalition Partnership project.

(119) **[Association]** accepts the Crown's Commercial & General Liability insurance provisions for Crown trails activities under the Partnership Agreement.

Passed unanimously by the Board of Directors of **[Association]**.

Regards,

Kevan

PDF is original version I believe.

Memorandum of Understanding: **[Association]**

[Association] hereby notifies the British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development (the "Crown") of the following:

- (1) **[Association]** has entered into a coalition comprising three (3) Crown Partnership Agreement Holders: Bowen Island Horse Owners and Riders Association, Bowen Island Trail Society and Bowen Trail Riders Association, for the express purpose of entering into a Partnership Agreement with the Crown in order to maintain and upgrade Crown trails on Bowen Island according to the Crown's standards.
- (2) **[Association]** is in agreement that this partnership of Crown Partnership Agreement Holders is an informal entity known as 'Bowen Trails Coalition' (the "Coalition").
- (3) **[Association]** understands the Crown will circumvent the standard Partnership Agreement application process by adopting the application for a Partnership Agreement with the Crown which was completed by the Rotary Club of Bowen Island in 2016 and assigning the Coalition as the signatory in its place. **[Association]** wishes to thank both the Rotary Club and the Crown for their consent to this arrangement.
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- (5) **[Association]** will co-operate with each of the other Crown Partnership Agreement Holders to meet the Coalition's obligations to the Crown with respect to its requirements as stipulated in the Partnership Agreement.
- (7) **[Association]** will assign one of its members as a representative of the Coalition committee, and this person will co-operate with each of the other committee representatives in the facilitation of the Partnership Agreement.
- (8) **[Association]** reserves the right to determine the number of volunteers, if any, and the amount of funds, if any, that it is able or willing to allocate towards each Coalition project.
- (9) **[Association]** accepts the Crown's Commercial & General Liability insurance provisions for Crown trails activities under the Partnership Agreement.

Passed unanimously by the Board of Directors of **[Association]**.

<hr/>	<hr/>
<Name>, <Title>	(Date)

Acknowledged and accepted by the Board of **[Association]**.

<hr/>	<hr/>
<Name>, <Title>	(Date)

Acknowledged and accepted by the Board of **[Association]**.

<hr/>	<hr/>
<Name>, <Title>	(Date)

Sent from my iPhone

From: s.22
To: [Bradley, Dan FLNR:EX](#)
Subject: Policy Proposals Chuck - Invitation to view
Date: January 23, 2020 8:44:38 PM

s.22

has invited you to **view** the following document:



Policy Proposals Chuck

Open in Docs

This email grants access to this item without logging in. Only forward it to people you trust.

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Google LLC, 1600 Amphitheatre Parkway, Mountain View, CA 94043, USA

You have received this email because someone shared a document with you from Google Docs.



From: s.22
To: [Bradley, Dan FLNR:EX](#)
Subject: Proposed BTC Communication Plan v1 - Invitation to edit
Date: January 23, 2020 8:42:04 PM

s.22

has invited you to **edit** the following document:



Proposed BTC Communication Plan v1

[Open in Docs](#)

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Google LLC, 1600 Amphitheatre Parkway, Mountain View, CA 94043, USA

You have received this email because someone shared a document with you from Google Docs.



From: [Bradley, Dan FLNR:EX](#)
To: [Kevan Bernards; s.22](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: RE: 2020 MtGardner Partnership OP.docx
Date: February 11, 2020 10:43:00 AM
Attachments: [2020 MtGardner Partnership OP.docx](#)
[ATT00001.txt](#)

Good morning all,

I've reviewed the attached OP with the DRO. The DRO has agreed to provided the requested \$1500 to BIHORA and \$2000 BTRA for the projects proposed in the plan. However, RSTBC will only be able to provide these funds once the new fiscal year starts after April 1 2020. If BIHORA and BTRA submit invoices to me after April 1 I'll be able to get them processed for you.

Kevan, thank you for the email about the danger tree, glad to hear you got it sorted! Please include an additional line item in your invoice to cover the costs of its removal as discussed.

Additionally, I think the Trail etiquette/Fun Ride is a great idea. I find these kinds of events very effective in building relationships between different user groups.

-----Original Message-----

From: Kevan Bernards s.22
Sent: February 7, 2020 6:46 AM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: 2020 MtGardner Partnership OP.docx

Hi Dan,

Chuck has informed us that BITS will be dealing with RSTBC directly and so I've included only the BIHORA & BTRA Joint OP here.

Please let me know if you have any questions.

Regards,

Kevan

2020 Mount Gardner Agreement Holder OP (formerly the Coalition)

Bowen Island Horse Owners and Riders Association Operating Plan Key Personnel

P.A. Holder: Bowen Island Horse Owners and Riders Association

P.A. Signing Date: 2-May-18 Agreement #: PA18DCK-008

Period Covered: 1-Jan-20 to 31-Dec-20 P.A. Expiry: 14-May-20

Prepared by: Kristina Calli Contact Info: s.22

Name Title Duties & responsibilities

- Katrina Smith BIHORA President. Will the lead on planning and executing the BTC Trail Etiquette Day
- Kristina Calli BIHORA Trails Committee Leader, BIHORA representative on BTC Committee. Will Write the BC Equestrian Trails Fund Proposal to Horse Council BC, leads this project if it is funded
- s.22 BTC BIHORA member. Will represent BIHORA and assist with activities as requested by Katrina and Kristina

Bowen Trail Riders Association Operating Plan Key Personnel

P.A. Holder: Bowen Trail Riders Association

P.A. Signing Date: 2-May-18 Agreement #: PA18DCK-007

Period Covered: 1-Jan-20 to 31-Dec-20 P.A. Expiry: 14-May-20

Prepared by: Kevan Bernards Contact Info: 604-314-3696

s.22

Name Title Duties & responsibilities

- Kevan Bernards President Oversees and manages all BTRA operations
- Dave Paulus Vice-president Assists President with all BTRA operations
- s.22 Treasurer Manages funds and reports on financial status
- s.22 Secretary Records minutes
- s.22 Director, Machine Operator

BIHORA OP ITEMS

PROJECT	BIHORA	RSTBC	GRANTS
BTC Trail Etiquette Day - Develop itinerary and activities for a FUN one-day motorized vehicle, biking, hiking and horseback riding trail sharing learning event	\$0	\$500	\$0
Equestrian Trail Development - Apply for funding to Horse Council BC to develop horse-friendly trails and trail access from Hiker's Trail	\$0	\$1,000	\$5,000
Equestrian Trail Safety Evaluation - Continued surveying of trails on Mt Gardner for horse friendly routes, and identifying locations requiring maintenance to enable horse access	\$0	\$0	\$0
Totals	\$0	\$1500	\$5000

BTRA OP ITEMS

PROJECT	BTRA	RSTBC	GRANTS
Replace Lower Skid Trail Bridge	\$0 *2019 budget item	\$0	\$0
Signage & markers on; Easy Street, Handloggers, Canyon Trail	\$0 *2019 budget item	\$0	\$0
Fencing at old Handloggers crossing	\$0 *2019 budget item	\$0	\$0
Fencing at Reservoir	\$0	\$0	\$0

Bridge	*2019 budget item		
General maintenance; Easy Street, Canyon Trail, Handloggers, trails requiring attention	\$500 *improve trail tread, clear blowdown, improve drainage, minor reroutes, materials, machine work and tools	\$1,500	\$1000
Environmental Studies; Complete TEST doc for polygon area? Study for parking area	\$500	\$500	\$500
Totals	\$1000	\$2000	\$1500

COMBINED BUDGET CONTRIBUTIONS - to KB: from grants, fundraising or both?
Both, to provide an idea of how much each group will be contributing.

BIHORA	\$5000
BTRA	\$2500
RSTBC	\$3500 (\$1500 BIHORA, \$2000 BTRA)

Joint Operating Plan Safety Strategies

For all volunteer trails improvement project activity, each Agreement Holder strives to mitigate hazards and mishaps by: (1) providing volunteers with an orientation where clear instructions are articulated, best safety practices are highlighted, the waiver of liability is read aloud, after which each volunteer signs it; (2) ensuring that each volunteer works with at least one other volunteer; (3) ensuring safe access to trails; (4) providing each volunteer with an activity log which includes emergency contact numbers; (5) providing available competency training on chainsaw operation and trail maintenance & building best practices.

Agreement Holders will cooperate with each other to mitigate hazards on the network of Mt. Gardner Trails through regular surveillance of these trails and remediation, as required.

Non Budget Item Goals

*work with agreement holders to develop trails inventory, trail designation and trails etiquette guide.

Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: [Kevan Bernards](#); [Katrina Smith](#); [s.22](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: RE: 2020 MtGardner Partnership OP.docx
Date: February 11, 2020 10:43:00 AM
Attachments: [2020 MtGardner Partnership OP.docx](#)
[ATT00001.txt](#)

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Additionally, I think the Trail etiquette/Fun Ride is a great idea. I find these kinds of events very effective in building relationships between different user groups.

-----Original Message-----

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Sent: February 7, 2020 6:46 AM
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Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
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Prepared by: Kristina Calli Contact Info: s.22

778-899-0078

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- s.22 BTC BIHORA member. Will represent BIHORA and assist with activities as requested by Katrina and Kristina

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P.A. Holder: Bowen Trail Riders Association

P.A. Signing Date: 2-May-18 Agreement #: PA18DCK-007

Period Covered: 1-Jan-20 to 31-Dec-20 P.A. Expiry: 14-May-20

Prepared by: Kevan Bernards

Contact Info: 604-314-3696

s.22

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Totals	\$0	\$1500	\$5000

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Bridge	*2019 budget item		
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Non Budget Item Goals

*work with agreement holders to develop trails inventory, trail designation and trails etiquette guide.

Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: ["Jessica Slater"](#)
Subject: RE: Bowen Island Trail Society - proposed MOU for Partnership Agreement
Date: July 7, 2020 8:46:00 AM

Sounds good! Tom should be able to send out a MS Teams invite closer to 10am. He's on the road and we'll be calling in remotely.

Is the plan still to just have yourself, Kevan, and Kristina attending this meeting?



Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5
tel: 778-704-7074

From: Jessica Slater s.22
Sent: July 7, 2020 8:39 AM
To: Phil Osborne s.22
Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>; Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; s.22
Chuck Venhuizen
s.22

Subject: Re: Bowen Island Trail Society - proposed MOU for Partnership Agreement

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

I'm avail s.22 today!
Tom- see you at 10. Send the details round?

Jes

On Jul 6, 2020, at 5:30 PM, Phil Osborne s.22 wrote:

Hi Tom
I have attached a letter accompanying a draft proposed Memorandum of Understanding (MOU) regarding Bowen Island Trail Society's (BITS) proposed approach to fulfilling our Partnership Agreement with RSTBC.

My availability is somewhat limited during regular business hours at the moment due to a high workload, but I can make time for a call with

sufficient advance notice. Alternatively, I can ask another BITS board member to stand in for me, provided we have sufficient notice.

We look forward to discussing this with you further.

Regards,
Phil

<BITS re-2020 MOU - Partnership Agreement 6JUL20.pdf>

From: [Bradley, Dan FLNR:EX](#)
To: [Kevan Bernards](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: RE: Coalition OP
Date: February 6, 2020 11:24:00 AM

No Problem Kevan,

It would be fine for BTRA and BIHORA to submit a joint OP. You could invite BITS to join your joint OP but it's fine if they want to submit their own.

Good to hear about the new MOU draft, keep me posted!

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Kevan Bernards [s.22](#)
Sent: February 4, 2020 1:33 PM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: Coalition OP

Hey Dan,

Last weeks meeting and events leading up to it threw us off track in terms of submitting our 2020 OP's.

Since BITS has officially left the coalition at the moment how would you like us to file? BTRA and BIHORA have filed out our own joint OP and based on what I saw at the meeting BITS has down the same. Is this acceptable or should we include them for now?

Thanks,

Kevan

Ps were working on redrafting the MOU's and should have something together soon.

Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: ["Kevan Bernards"](#)
Cc: [Jes Slater](#); [Kristina Calli](#)
Subject: RE: DRAFT V1- New Partnership MOU.docx
Date: May 26, 2020 11:16:00 AM
Attachments: [DRAFT V1- New Partnership MOU EDITS.docx](#)
[Schedule A-C BTRA.docx](#)

Hey Kevan,

The new MOU looks great, I like the overall direction but I've added a few suggested edits in red to the attached draft. Discuss it amongst yourselves and make any changes you agree on. Want to have a call on Thursday afternoon? Tom should be available as well and feel free to invite the other PA reps.

Additionally, we should consider changing or removing the Shared Use Recognition that was added to Schedule A of all the Partnership Agreements as it still refers to a consensus based model.

Shared Use Recognition:

Bowen Trail Riders Association (BTRA) recognizes Bowen Island Horse Owners and Riders Association and Bowen Island Trail Society as shared users of the Mount Gardner Recreation Site.

BTRA will be responsible for those trails within REC204371 that are principally motorized trails.

A consensus will be established for maintenance and management of the shared trails as outlined in the Memorandum of Understanding (Appendix A – C) and as per the intent of the Bowen Trails Coalition.

I haven't had a chance to take a detailed look at the Trails Strategy you sent in but I'm hoping to read through it this week!

Talk soon,

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Kevan Bernards <Kevan.Bernards@gov.bc.ca>
Sent: May 22, 2020 3:17 PM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Subject: DRAFT V1- New Partnership MOU.docx

Hi Dan,

BITS, BIHORA & BTRA met last night via teleconference to go over the new MOU. Here's what we came up with, please let us know if there's any changes we should make.

Have a good weekend!

Thanks,

Kevan

Ps it would be good to touch base next week, will you be available for a phone call?

Memorandum of Understanding: **[Association]**

[Association] hereby notifies the British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development (the "Crown") of the following:

(1) **[Association]** has entered into a partnership comprising three (3) Crown Partnership Agreement Holders (the "Constituents"): Bowen Island Horse Owners and Riders Association, Bowen Island Trail Society and Bowen Trail Riders Association, for the express purpose of maintaining a Partnership Agreement with the Crown in order to maintain and upgrade trails according to the Crown's standards within the Mount Gardner Polygon on Bowen Island.

Consider changing "a partnership" to whatever is consistent with what you decide to call this group of constituents in the rest of this document

(2) **[Association]** is in agreement that this partnership of Constituents is an informal entity known as 'Mount Gardner Partnership' (the "Partnership"). Consider changing to "Mount Gardner Partnership Agreement Holders" (Agreement Holders). This is more in line with the language we use in RSTBC. "the Partnership" is a little ambiguous and could be confused with an individual Partnership Agreement.

(3) **[Association]** agrees that the intention of the Partnership is to provide a communication platform between the Constituents, stakeholders and the Crown using transparent communication, to promote safety, accessibility, navigation, and sustainability with respect to maintaining and enhancing existing trails and developing new trails within the Mount Gardner Polygon on Bowen Island so that Crown trail users have a safe and enjoyable experience.

Consider -> **[Association]** agrees that Mount Gardner Partnership Agreement Holders will use transparent communication between the Constituents, stakeholders, and the Crown. This is intended to promote safety, accessibility, navigation, and sustainability with respect to maintaining and enhancing existing trails and developing new trails within the Mount Gardner Polygon on Bowen Island so that Crown trail users have a safe and enjoyable experience.

Note:

- a. "Transparent communication" includes being thorough and factual in all communication with the Constituents, the Crown, and other trail stakeholders to increase awareness for the Partnership's aspirations and activities,
- b. "Safety" means the mitigation of injury and distress to trail users by following the Crown's requirements for trail workmanship and volunteer administration,
- c. "Accessibility" includes ease of trailhead access to trail users,
- d. "Navigation" includes clear trail designation and visible wayfinding markers e. "Sustainability" means ensuring that all trail work meets the Crown's environmental standards and the materials used and the structures built are durable and meet Crown standards.

(4) **[Association]** understands that completion of the Trails Environmental Screening Tool (TEST) document may not be a prerequisite for activating the Partnership Agreement with the Crown, since the Rotary Club of Bowen Island's Partnership Agreement application (which enabled this Partnership) was initiated before the TEST document was created.

Memorandum of Understanding: **[Association]**

(5) **[Association]** will assign one member as a representative of the Partnership Committee. Each representative will openly communicate about their progress or changes in their Operating Plans, and answer honestly any questions brought forward from other committee representatives at quarterly Partnership Committee meetings.

"Partnership Committee" may be a good option to refer to the "Mount Gardner Partnership Agreement Holders". The key here is to too be as consistent as possible in regard to who you are referring too. Any inconsistencies can cause confusion for a person reading the document for the first time.

However, identifying your selves as a Committee could lead to being perceived as a formal body which may not be your intention.

(6) **[Association]** will provide independent Operating Plans and reports to the Crown for their ambitions and progress. Before submission to the Crown, each constituent will share their Operating Plan for the new year with the other Constituents to assess if there are gaps or overlaps and collaborate when similarities arise. Consider adding -> Approval of Operation Plans by the Crown does not grant authorization for all projects proposed in the Operating Plan. Any projects that exceed the authorizations included of a Partnership Agreement still require written authorization from the Crown.

(7) **[Association]** acknowledges that it may not approve of all projects proposed by Constituents, nor those that are approved by the Crown, but will work in good faith with the Partnership. The Crown is the final decision maker for all projects brought forth by individual Constituents in their Operating Plans. Consider removing the red text above. Having "good faith" leaves things too open to interpretation. Eg, if one association considers another association to be acting in bad faith does this void the MOU? I think this MOU overall outlines good faith practices overall so adding it here is unnecessary.

(8) **[Association]** will work with the Constituents to develop a Stakeholder Engagement and Communication strategy to ensure effective, transparent communication with Key Stakeholders. I added "with", assuming it was typo

(9) **[Association]** reserves the right to determine the number of volunteers, if any, and the amount of funds, if any, that it is able or willing to allocate towards their own or shared Partnership projects.

(10) **[Association]** accepts the Crown's Commercial & General Liability insurance provisions for Crown trails activities under the Partnership Agreement.

Passed unanimously by the Board of Directors of **[Association]**.

<Name>, <Title>

(Date)

Acknowledged and accepted by the Board of **[Association]**.

<Name>, <Title>

(Date)

Acknowledged and accepted by the Board of **[Association]**.

<Name>, <Title>

(Date)



Recreation Sites
and Trails BC

Schedule A

Agreement Area

Attachment to the Agreement with Bowen Trail Riders Association for Partnership Agreement No. PA18DCK-007.

Recreation Project No.(s) included in this Agreement:

Mount Gardner - REC204371

Agreement Area Description:

The Agreement Area is described below and outlined on maps included in the Schedule.

Shared Use Recognition:

Bowen Trail Riders Association (BTRA) recognizes Bowen Island Horse Owners and Riders Association and Bowen Island Trail Society as shared users of the Mount Gardner Recreation Site.

BTRA will be responsible for those trails within REC204371 that are principally motorized trails.

A consensus will be established for maintenance and management of the shared trails as outlined in the Memorandum of Understanding (Appendix A – C) and as per the intent of the Bowen Trails Coalition.



Recreation Sites
and Trails BC

Schedule B

Services & Special Provisions

Attachment to the Agreement with Bowen Trail Riders Association for Partnership Agreement No. PA18DCK-007.

1. Purpose & Operating Season

This Agreement is issued to the Agreement Holder for management and maintenance of trails in accordance with Schedule F.

The Operating Season for this Agreement is year round.

2. Agreement Holder Designated Representative

The Agreement Holder designates the following representative to be responsible for liaising between the Province and the Agreement Holder:

Name: Kevan Bernards

Address: 542 Hilltop Place, Bowen Island, BC, V0N 1G2

Telephone: 604-314-3696

Email: s.22

3. Province Designated Representative(s):

The Province designates the following representative to be responsible for liaising between the Province and the Agreement Holder:

Name: Tom Blackbird

Title: District Recreation Officer

Address: 46360 Airport Road, Chilliwack, BC, V2P 1A5

Telephone: 604-702-5736

Email: Tom.Blackbird@gov.bc.ca

4. Services

In accordance with this Agreement, and as more specifically set out in schedules attached to this Agreement, the Agreement Holder will perform the Services set out below in the Agreement Area. The Agreement Holder must obtain the written approval of the Province (which approval will not be unreasonably withheld) for any modifications to the Services or to the current approved Annual Operating Plan.

Ecological restoration, research and conservation projects

- Use hand tools to remove invasive plants and conduct restoration projects.
- Observe, measure and record ecological information.
- Use hand tools to plant trees and shrubs in approved locations.

- Use of power tools for approved construction related to research/monitoring (e.g. install fencing, build observation platform);
- Collect and remove garbage by hand.

Trail & Facility Work

- Install approved signage and trail markers.
- Use hand tools to maintain, construct and restore trails, facilities and/or campgrounds (e.g. rake, shovel, hammer, etc.).
- Use power tools to maintain, construct and restore trails facilities and/or campgrounds;
- Fall trees;*
- Use machinery to construct, maintain or restore trails, facilities and/or campgrounds.
- Maintain, construct / install or restore docks and mooring buoys.
- Groom trails and set tracks;
- Maintain, construct and restore approved mountain bike trails that conform to the Whistler Trail Standards, excluding Expert Unlimited trails, which are not permitted on Crown land.
- Travel using motorized and non-motorized means to monitor, **plan, construct, restore** and maintain trails and to transport materials.
- Plough access roads to trails, facilities and/or campgrounds.
- Observe and take photographs to report back to staff on trail, facility, general conditions.

* Authorization from the District Manager is required to fall trees on Crown Land.

Public Services/Outreach

- Deliver educational workshops and seminars, which may include guided walks or interpretive tours.
- Monitor visitor use (counting visitors and recording their activities).
- Public outreach including providing general information to visitors.
- Host non-competitive public events in recreation facilities.
- Record photographs and/or videos
- Park and recreation facility Condition Reporting
- Monitor snow depth and conditions;
- Observe and take photographs to report back to staff on trail, facility, general conditions.

5. Record Keeping

The Agreement Holder will keep accurate records of all of its personnel (employees and volunteers) including name, address, date of birth, qualifications, the dates the person started and stopped performing work for the Agreement Holder and, as a condition of insurance, keep records of the specific dates that each individual performed Services under this Agreement.

A formalized volunteer agreement is recommended between the Agreement Holder and any individual volunteers that are not employees or members of the Agreement Holder organization. The agreement should set out the roles and responsibilities of each party, describe the approved activities, and record the training, certification or training requirements of the individual.

Any of the records required to be kept under this section may be audited by the Province per section 6.02 of the Partnership Agreement or by an insurer providing insurance arranged by the Province under this Agreement.

6. Certification, Training and Qualifications

The minimum licensing, certification, training and qualifications for individuals performing related activities are as follows. The Agreement Holder must obtain or witness proof of compliance before permitting an individual to perform related Services:

1. Power Tools and other machinery: (e.g. skill saw, brush cutters, lawn mowers) must show competency with power tools that will be used to perform the Services. Operators must have sufficient training and/or expertise in operation of equipment being used.
2. Chain Saws: Operator must show proof of BC Forest Safety Council's Basic Chainsaw Operator Training course or equivalent qualification.
3. Tree Falling: Must be certified at the appropriate faller level by BC Forest Safety Council and must adhere to the Province's Hand Falling Activities Guidelines https://gwww.nrs.gov.bc.ca/flnrord/files/flnrord/media/safety/guideline_hand_fallin_g_activities.pdf
4. Snowmobile: operator must have sufficient training and/or expertise in operation of equipment being used.
5. ATV: operator must have sufficient training and/or expertise in operation of equipment being used.
6. Watercraft: operator must show proof of Transport Canada Pleasure Craft License (if boat owner) and/or Pleasure Craft Operator Card.
7. Divers: must be certified by PADI as an Adventure Diver and if appropriate, with the relevant Speciality for the project (e.g. wreck, underwater videography, dry suit).
8. Snow Monitoring: must be certified in Avalanche Skills Training Course Level 1 or higher.
9. All cavers must follow the BC Speleological Association's Cavers Code of Conduct.

7. Accidents and Incidents

The Agreement Holder will report to the Province any serious accident or safety concerns reported to the Agreement Holder or involving an employee or volunteer to the Agreement Holder or which the Agreement Holder discovers involving or regarding trails and structures within the Agreement Area.



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and Trails BC

Schedule C

Insurance

Attachment to the Agreement with Bowen Trail Riders Association for Partnership Agreement No. PA18DCK-007.

Insurance

- A. Unless the Agreement Holder is a local government, a government corporation, a board of education, a public post secondary institution, or similar public sector entity:
 1. On behalf of the Agreement Holder, the Province will purchase and maintain General Liability insurance in the amount of \$2,000,000 inclusive per occurrence against claims by third parties for bodily injury and property damage arising out of the performance of the Services set out in this Agreement. The Province will obligate the insurer's managing broker to provide the Agreement Holder with a Certificate of Insurance and a copy of the policy wording.
 2. On behalf of the Agreement Holder, the Province will purchase and maintain on behalf of the registered volunteers to the Agreement Holder Accidental Death and Dismemberment insurance with a principal sum of \$40,000 covering injury to registered volunteers under the age of 85 while performing the Services set out in this Agreement. The Province will provide information about this policy to the Agreement Holder.
 3. As a condition of the insurance provided by the Province, the Agreement Holder must provide annual underwriting information to the Province in the format and at time(s) required by the insurers.
 4. The Province will take reasonable steps to ensure the coverage specified in sections (1) and (2) is continuous for the duration of this Agreement. The Province will not be responsible for providing coverage in the event the insurance is cancelled or reduced by the insurers.
 5. The Province does not represent or warrant that the insurance purchased by the Province covers any and all losses. The Agreement Holder is responsible for ascertaining the nature and extent of coverage as well as the terms and conditions of the policies. No term or condition of this Agreement amends, extends or alters the coverage afforded by the insurance policies.
- B. The Agreement Holder will provide, maintain, and pay for any additional insurance which the Agreement Holder is required by law to carry or which the Agreement Holder considers necessary to cover risks not otherwise covered by insurance specified in this Schedule. The Agreement Holder waives all rights of recourse against the Province and

releases the Province from all liability for any losses or damage to any property owned by the Agreement Holder including the Agreement Holder's structures, improvements and equipment in the Agreement Area regardless of whether the Agreement Holder purchased property insurance.

From: Anderson, Luc FLNR:EX
To: "Kevan Bernards"; Blackbird, Tom G FLNR:EX
Cc: Bradley, Dan FLNR:EX
Subject: RE: Easy Street/MtGardner/swamp crossing
Date: November 18, 2019 12:14:36 PM

Hi Kevan,

What about using a turnpike, with a smooth pvc to use as cross drainage.

Have a look at the us forest service site for some ideas, I think we also have them in chapter 10

<https://www.fs.fed.us/t-d/pubs/htmlpubs/html07232806/page10.htm>

should be less maintenance and better to ride for moto than a raised structure.

Cheers

Luc

-----Original Message-----

From: Kevan Bernards s.22

Sent: November 18, 2019 11:06 AM

To: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

Cc: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Anderson, Luc FLNR:EX <Luc.Anderson@gov.bc.ca>

Subject: Easy Street/MtGardner/swamp crossing

Hi Tom,

During our hike of Easy Street on Bowen last Tuesday (BTC recon hike, Tuesday November 12) we encountered this wet area, it's on the threshold of a seasonal swamp. The existing trail crosses at the narrowest spot (yellow arrow). Dan and I discussed and weren't sure whether a small bridge or built up trail bed with rocks would be suitable? Dan suggested you might be able to weigh in here? We could probably find cedar on site to construct a bridge, not sure what span would be but definitely under 5m.

Location is approximately here:

49 deg 22' 54" N

123 deg 23' 16" W

Hope you're well!

Thanks,

Kevan

From: [Bradley, Dan FLNR:EX](#)
To: [Kevan Bernards](#)
Subject: RE: Lower Skid Danger Tree
Date: January 31, 2020 8:22:00 AM

Ok that's great!

No need for Tenure applications, your PA authorizes you to fall danger trees as long as the faller has the appropriate level of certification for the work.



Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5
tel: 778-704-7074

From: Kevan Bernards s.22
Sent: January 29, 2020 3:45 PM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Subject: Re: Lower Skid Danger Tree

Hey Dan,

Ok that's perfect we'll cover it on our end until April, thanks! Also since it is a hazard and we only have one certified faller on Bowen do we need to put it out to tenure or can we proceed without doing that?

Thanks

Kevan

Sent from my iPhone

On Jan 29, 2020, at 2:24 PM, Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca> wrote:

Hey Kevan,

Our district is currently over budget so we are unable to provide funding until after April 1 2020. If you are able to secure other sources of funding to remove the danger tree on Lower Skid trail the DRO has agreed to reimburse you after April 1.

<image001.jpg>

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

From: [Bradley, Dan FLNR:EX](#)
To: ["Kevan Bernards"; Kristina Calli C](#); [s.22](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: RE: May 28 Teleconference meeting items
Date: May 27, 2020 3:31:00 PM

Sounds good to me Kevan, Let's have the call at 1:30pm tomorrow if that works.

If Tom is able to join us the call in number should be same as last time, but I confirm tomorrow morning and send the call-in info out to you all.

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Kevan Bernards [s.22](#)
Sent: May 27, 2020 2:45 PM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Kristina Calli C [s.22](#)
[s.22](#)
Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: May 28 Teleconference meeting items

Hi Everyone,

The following is what BTRA was hoping to discuss tomorrow;

- 1.) New MOU,
- 2.) New Partnership Agreement term/RSTBC likely to renew Mount Gardner Agreement with BTRA considering pending municipal request to ban orv use on MtGardner?
- 3.) Information sharing/communication strategy,
- 4.) Schedule A of agreement, keeping bit about acknowledging shared use but amend the rest of that section to be relevant?
- 5.) in light of recent claims of trail damage on Handloggers and Easy Street should BTRA carry out a study to see if a problem really exists, would RSTBC be willing to help with this? On hikes last year of these trails was any damage noted by RSTBC staff, if yes how to fix?
- 6.) it has been alleged that BTRA doesn't want to engage other stakeholders or might be difficult to work with. Would RSTBC be willing to back up our conduct throughout the last 2 years of the agreement?
- 7.) Muni still under the opinion that there's only one motorized trail on Bowen, BTRA has worked on 20 trails on

MtGardner and around 30 at the Towers. Tom's amended statement is badly needed right now as there are on island groups who are rallying against motorized use at this time. (We have an inventories of both areas which we'll share).

8.) BTRA will be sending a delegation to council on June 8 to discuss, the work we've done as trail stewards, what we've accomplished with the other stakeholders and our take on some ongoing issues and opinions which have been expressed to council.

9.) BTRA drafting history of ORV use on MtGardner, how specific should this be? Names, dates or more of an outline?

10.) BTRA Trails Strategy, right track or anything to add or address?

11.) Signs at major junctions? Other?

If this is too long let me know which issues everyone wants to discuss tomorrow.

Cheers,

Kevan

Sent from my iPhone

From: Bradley, Dan FLNR:EX
To: "Jessica Slater"; Kristina C; Kevan Bernards
Cc: Blackbird, Tom G FLNR:EX
Subject: RE: May 28 Teleconference meeting items
Date: May 28, 2020 9:52:00 AM

No problem Jes, there's only a few us on the call s.22
s.22

Talk to you all at 1:30pm, Conference call info below.

1-877-353-9184

Conference ID
s.17

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Jessica Slater s.22
Sent: May 27, 2020 7:43 PM
To: Kristina C s.22
Cc: Kevan Bernards s.22 ; Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Blackbird,
Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: Re: May 28 Teleconference meeting items

s.22

s.22

Is there

some way to record the call by chance? If i miss it? Or maybe just some notes after is easier.

Thanks for coordinating Kevan and Dan.

Jes

> On May 27, 2020, at 4:18 PM, Kristina C s.22 wrote:
>
> 1:30 tomorrow works for me too.
>
> Thanks,
>
> Kristina

>

>> On May 27, 2020, at 3:45 PM, Kevan Bernards s.22 wrote:

>>

>> That works for me, thanks!

>>

>> Sent from my iPhone

>>

>>> On May 27, 2020, at 3:32 PM, Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca> wrote:

>>>

>>> Sounds good to me Kevan, Let's have the call at 1:30pm tomorrow if that works.

>>>

>>> If Tom is able to join us the call in number should be same as last time, but I confirm tomorrow morning and send the call-in info out to you all.

>>>

>>>

>>>

>>>

>>> Dan Bradley

>>> Recreation Technician

>>> Recreation Sites and Trails BC

>>> Ministry of Forests, Lands and Natural Resource Operations

>>> 46360 Airport Road

>>> Chilliwack BC V2P 1A5

>>>

>>> tel: 778-704-7074

>>>

>>>

>>>

>>> -----Original Message-----

>>> From: Kevan Bernards s.22

>>> Sent: May 27, 2020 2:45 PM

>>> To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Kristina Calli C s.22

s.22

>>> Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

>>> Subject: May 28 Teleconference meeting items

>>>

>>> Hi Everyone,

>>>

>>> The following is what BTRA was hoping to discuss tomorrow;

>>>

>>> 1.) New MOU,

>>>

>>> 2.) New Partnership Agreement term/RSTBC likely to renew Mount Gardner Agreement with BTRA considering pending municipal request to ban orv use on MtGardner?

>>>

>>> 3.) Information sharing/communication strategy,

>>>

>>> 4.) Schedule A of agreement, keeping bit about acknowledging shared use but amend the rest of that section to be relevant?

>>>

>>> 5.) in light of recent claims of trail damage on Handloggers and Easy Street should BTRA carry out a study to see if a problem really exists, would RSTBC be willing to help with this? On hikes last year of these trails was any damage noted by RSTBC staff, if yes how to fix?

>>>

>>> 6.) it has been alleged that BTRA doesn't want to engage other stakeholders or might be difficult to work with. Would RSTBC be willing to back up our conduct throughout the last 2 years of the agreement?

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>>> 7.) Muni still under the opinion that there's is only one motorized trail on Bowen, BTRA has worked on 20 trails on MtGardner and around 30 at the Towers. Tom's amended statement is badly needed right now as there are on island groups who are rallying against motorized use at this time. (We have an inventories of both areas which we'll share).

>>>

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>>>

>>> 9.) BTRA drafting history of ORV use on MtGardner, how specific should this be? Names, dates or more of an outline?

>>>

>>> 10.) BTRA Trails Strategy, right track or anything to add or address?

>>>

>>> 11.) Signs at major junctions? Other?

>>>

>>> If this is too long let me know which issues everyone wants to discuss tomorrow.

>>>

>>> Cheers,

>>>

>>> Kevan

>>>

>>> Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: ["Kevan Bernards"](#)
Subject: RE: Signage for MtGardner junctions
Date: June 16, 2020 1:11:00 PM
Attachments: [En Route Trail Sign COMPLETE.pdf](#)

Hey Kevan,

Here is a copy of our current standards for En Route Trail Signage, this is what the DRO is requiring to be installed at trailheads and major intersections.

There is not supposed to be any flexibility in these standards but because there is highly engaged and capable artist community on Bowen the DRO has agreed to 2 potential compromises:

1) Use non-standard materials with the attached layout, symbols, and fonts. This could be galvanized steel with the info cut out or laser etched.

2) Install the standard signage accompanied by an additional post with whatever non-standard layout and symbols you like.

The attached standards are intended to be printed as separate badges to allow sections of the sign to be omitted if not applicable. For example, the 76mm x 76mm square showing the difficulty rating would not be posted on a hiking trail that has no moto or mountain bike use.

The intention of the GPS Locator section is to be printed out and then marked with permanent marker in the field. I'm not sure if this would be a requirement in all locations but I could follow up with Tom if you'd like.

Also, I've received your invoice and will get that processed as soon as I can,

Let me know if you have any other questions!

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-684-2261

-----Original Message-----

From: Kevan Bernards s.22
Sent: June 11, 2020 10:16 AM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: Signage for MtGardner junctions

Hi Dan,

The agreement holders have been busy since our last teleconference. Almost all the posts are installed along Handloggers and canyon trail. BITS members have helped out on Handloggers as well as getting posts in at several

other junctions on the west side. BTRA just has Easy Street left to mark and install 2 trailhead posts.

We'll be ready for signs soon so I'm wondering about format. I found the attached drawing on a gov site. I've shared the design below with BITS and BIHORA as a possibility.

Is this the approved format that we'd be using at main junctions and is there any flexibility in design or info?

In other news, BTRA's delegation to council on Monday night was unsuccessful in persuading them not to send in their letter requesting a ban of motorized recreational use on the mountain. At least we changed the mind of 1 councillor and perhaps were able to better shed some light in the community about our role as trail stewards.

Had a good teleconference with bcorma BOD last night. Great to get their feedback and hear about the successes in other areas of the province. Its interesting to note that Bowen is in almost the same stage as Vedder Mountain was nearly 10 years ago (I think you've also mentioned this). I think I day trip out there would possibly be beneficial to our agreement holders when it's safe to do so.

Anyhow, that's where we're at over here on Bowen.

Cheers,

Kevan

https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/outdoor-recreation/camping-and-hiking/rec-sites-and-trails/structure-drawings/trail_signs_trailhead.pdf



DIRECTIONAL ARROW 76w x 76h mm

Icon: Black circle 64mm outside
Black circle 54mm inside

Other examples of directional arrows may be found on pg. 3 of 4

DIFFICULTY RATING 76w x 89h mm

White lettering or green flood on white substrate Tahoma Bold 24 point
character spacing 0% line spacing 85% character height

Icon: White square 58mm
Blue square 52mm

Other examples of directional arrows may be found on pg. 3 of 4

TRAIL NAME 76w x various height mm

White lettering or green flood on white substrate Tahoma Bold 18 & 32 point
character spacing 0% line spacing 85% character height

RESTRICTIONS LOCATION 76w x various height mm

Black lettering or green flood on white substrate Tahoma Bold 18 & 32 point
character spacing 0% line spacing 85% character height

GPS LOCATOR 76w x 76h mm

White lettering or green flood on white substrate
Header & Footer - Tahoma Bold 28 point
LAT, LONG, SAR - Tahoma Bold 22 point
CALL 911 - Tahoma Bold u&l case 22 point
character spacing 0%

Recreation Sites and Trails BC Logo 76w x 22h mm
Icons 68w mm x 14.5h mm centred

SIGN COLOURS

- Reflective paints

BLACK - C0, M0, Y0, K100

WHITE - C0, M0, Y0, K0

RED - C0, M100, Y100, K0

GREEN - C100, M0, Y100, K0

YELLOW - C0, M13, Y100, K0

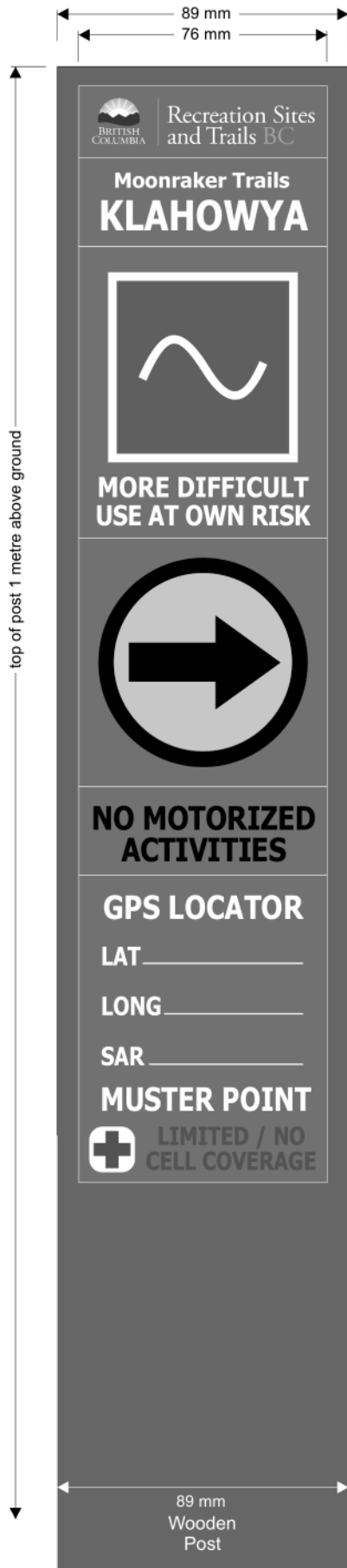
BLUE - C100, M50, Y0, K0

MOUNTING

signage printed on 76mm (3") wide
.055 Duraflex Plastic (sticker/decal)
bond to Polyplate or Aluminum
mounted to wood post measuring
89mm x 89mm (4x4 post)
pre-treated or western red cedar
or Fiberglass Dual-Flex Marker
top of post 1.0m above ground

Standard TRAIL SIGNS - EN ROUTE - pg. 1 of 4			
File No:	En Route Trail Sign.pdf	Draft Date:	10/08
Revision No:	001	Date:	09/12
Revision No:	002	Date:	09/13
Revision No:	003	Date:	02/18
Recreation Sites and Trails BC		Drawing Scale:	1 : 2
		Sheet Size:	8.5" X 11"
		Drawing No:	RST 481-TS-ER

EN ROUTE SIGN



Recreation Sites and Trails BC Logo 76w x 22h mm
Icons 68w mm x 14.5h mm centred

TRAIL NAME 76w x various height mm

White lettering or green flood on white substrate Tahoma Bold 18 & 32 point
character spacing 0% line spacing 85% character height

DIFFICULTY RATING 76w x 89h mm

White lettering or green flood on white substrate Tahoma Bold 24 point
character spacing 0% line spacing 85% character height

Icon: White square 58mm
Blue square 52mm

Other examples of directional arrows may be found on pg. 3 of 4

DIRECTIONAL ARROW 76w x 76h mm

Icon: White circle 64mm outside
White circle 54mm inside

Other examples of directional arrows may be found on pg. 3 of 4

TRAIL RESTRICTIONS; use page 4 "Not Permitted" ICONS for more specific activities.

Black lettering or green flood on white substrate Tahoma Bold 28 point
character spacing 0% line spacing 85% character height

GPS LOCATOR 76w x 76h mm

White lettering or green flood on white substrate
Header & Footer - Tahoma Bold 28 point
LAT, LONG, SAR - Tahoma Bold 22 point
CALL 911 - Tahoma Bold u&l case 22 point
character spacing 0%

SIGN COLOURS

- Reflective paints

BLACK - C0, M0, Y0, K100

WHITE - C0, M0, Y0, K0

RED - C0, M100, Y100, K0

GREEN - C100, M0, Y100, K0

YELLOW - C0, M13, Y100, K0

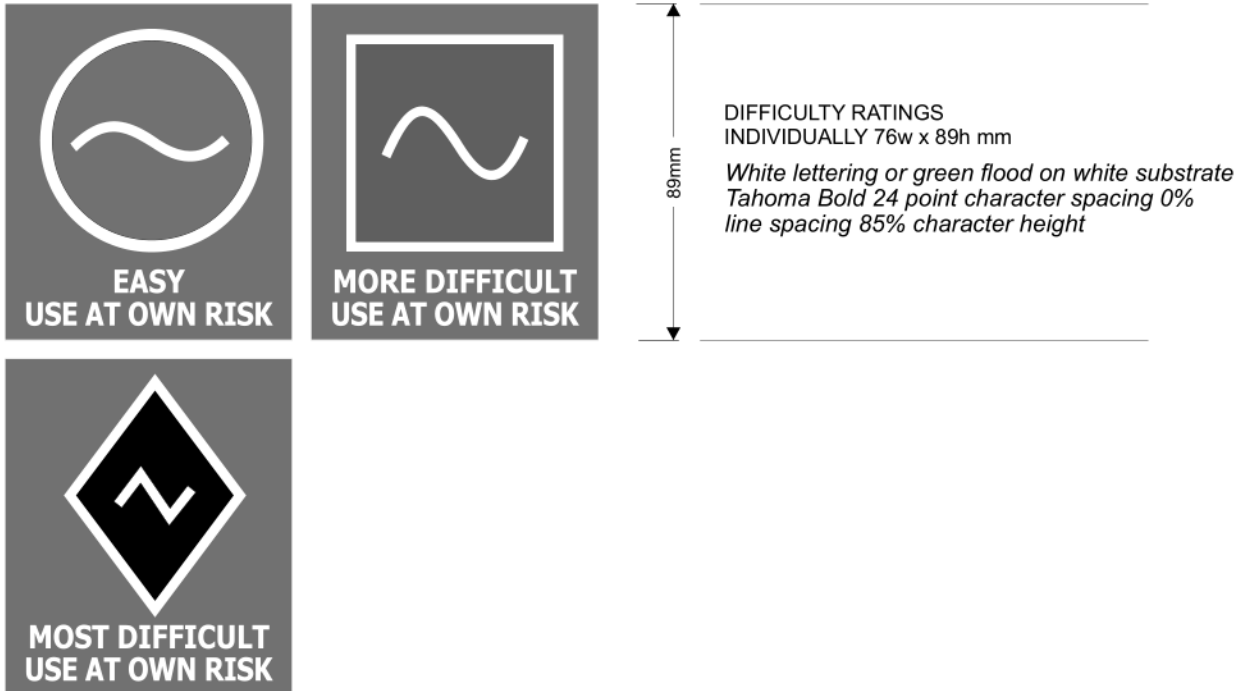
BLUE - C100, M50, Y0, K0

MOUNTING

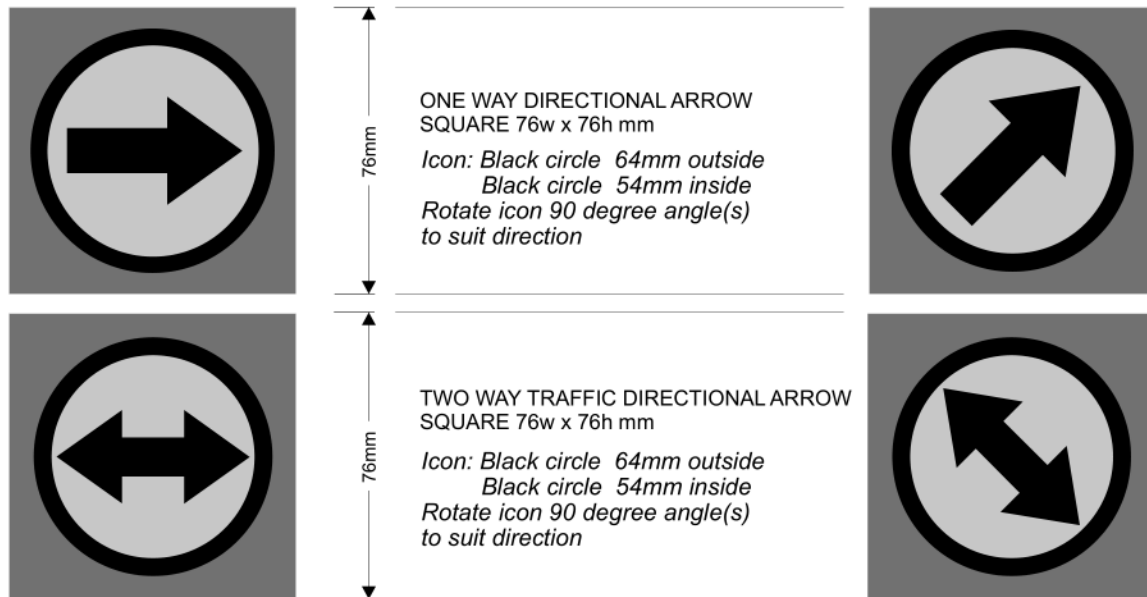
signage printed on 76mm (3") wide
.055 Duraflex Plastic (sticker/decal)
bond to Polyplate or Aluminum
mounted to wood post measuring
89mm x 89mm (4x4 post)
pre-treated or western red cedar
or Fiberglass Dual-Flex Marker
top of post 1.0m above ground

Standard TRAIL SIGNS - EN ROUTE - pg. 2 of 4			
File No:	En Route Trail Sign.pdf	Draft Date:	10/08
Revision No:	001	Date:	09/12
Revision No:	002	Date:	09/13
Revision No:	003	Date:	02/18
Recreation Sites and Trails BC		Drawing Scale:	1 : 2
		Sheet Size:	8.5" X 11"
		Drawing No:	RST 481-TS-ER

DIFFICULTY RATING - OTHER EXAMPLES OF DIFFICULTY RATINGS (Where Applicable to Trail Activity)



DIRECTIONAL ARROWS - OTHER EXAMPLES OF DIRECTIONAL ARROWS



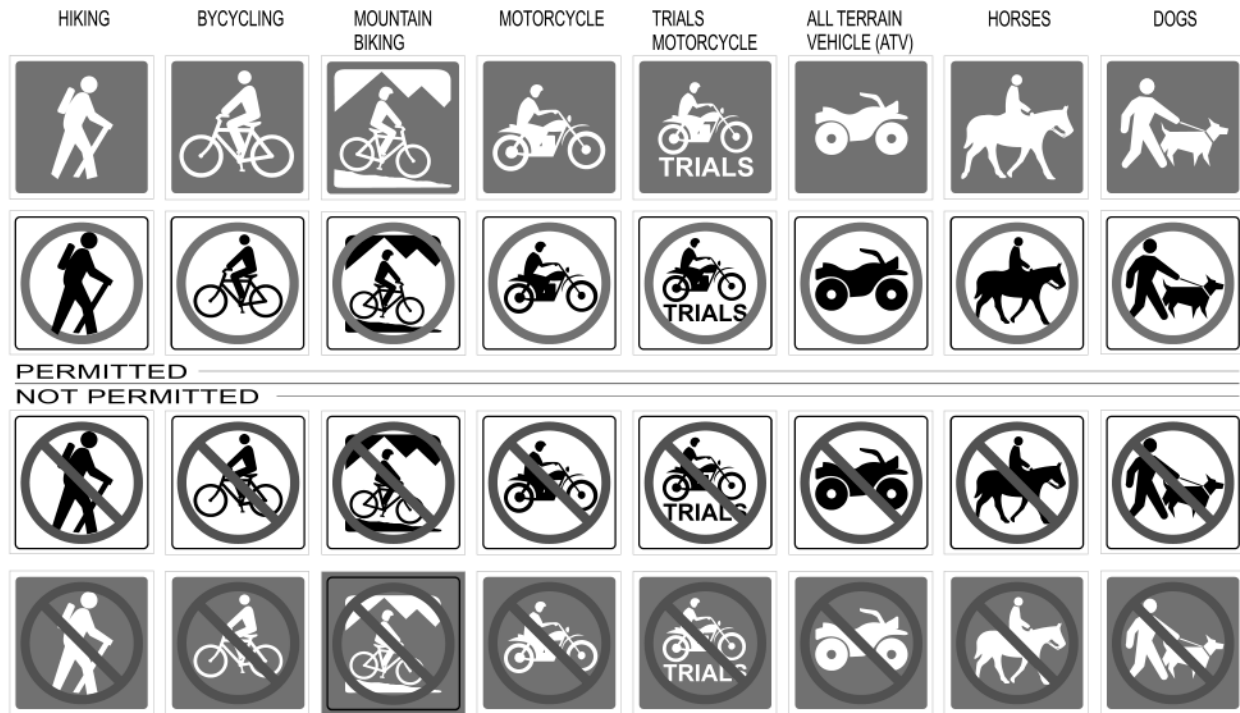
SIGN COLOURS
- Reflective paints

BLACK - C0, M0, Y0, K100
WHITE - C0, M0, Y0, K0
RED - C0, M100, Y100, K0
GREEN - C100, M0, Y100, K0
YELLOW - C0, M13, Y100, K0
BLUE - C100, M50, Y0, K0

Standard TRAIL SIGNS - EN ROUTE - pg. 3 of 4			
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TRAIL ACTIVITIES - OTHER EXAMPLES OF TRAIL ACTIVITIES THAT ARE PERMITTED OR NOT PERMITTED

Trail Activity Stickers/Decals 38h mm x 38w mm spaced accordingly Icons print size at 35h mm x 35w mm centred giving a 1.5mm white surround




PERMITTED
NOT PERMITTED



PERMITTED
NOT PERMITTED

SIGN COLOURS - Reflective paints

BLACK - C0, M0, Y0, K100
WHITE - C0, M0, Y0, K0
RED - C0, M100, Y100, K0
GREEN - C100, M0, Y100, K0
YELLOW - C0, M13, Y100, K0
BLUE - C100, M50, Y0, K0

Standard		TRAIL SIGNS - EN ROUTE - pg. 4 of 4					
File No:		En Route Trail Sign.pdf		Draft Date:		10/08	
Revision No:		001		Date:		09/12	
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Revision No:		003		Date:		02/18	
 Recreation Sites and Trails BC				Drawing Scale:		1 : 2	
				Sheet Size:		8.5" X 11"	
				Drawing No:		RST 481-TS-ER	

From: Bradley, Dan FLNR:EX
To: "Kevan Bernards"
Subject: RE: Trail Markers
Date: March 4, 2020 9:09:00 AM

Thanks Kevan!

.KMZ files are totally fine, and the trail name list is very handy as well. I have a bunch of the other trails that Lisa from Outdoor Therapy but these don't include many of the Motorized Trails. Ideally I'd like to make a map showing all the trail segments and their trail names which and can I then present to you guys for comment to ID any missing trails or any incorrect trail names.

Having this map would be a very handy reference for where all the authorized trails are in the network and what their authorized uses area (ie Motorized/non-motorized) for any new volunteers, stakeholders, or RSTBC staff.



Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5
tel: 778-704-7074

From: Kevan Bernards s.22
Sent: March 4, 2020 8:18 AM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Subject: Re: Trail Markers

Hi Dan,

BTRA is happy to leave trail use up to Tom, that will surely make things easier for the agreement holders!

BITS has just shared more info with us regarding signage design. Hopefully we'll all be meeting next week to discuss the MOU's and finalize a plan for signage at the major junctions.

I've been working on the Inventory stuff but realized that trails are kmz not kml is this format ok? If not I'll reformat...

Here's the link to the Inventory Doc we've created:

https://docs.google.com/document/d/12jQazomy9uVTX3EY5qwt4B2xBZ_DbreA7x1Ztxojd1w

Do we need to assign trail numbers or anything?

Thanks,

Kevan

Sent from my iPhone

On Mar 2, 2020, at 10:18 AM, Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca> wrote:

That sounds reasonable to me, however, you might want to omit "trail use" as a collaborative project. All other projects have been very successful with BITS but when it comes to determining trail use with motorized recreation seems like it hits a lot of roadblocks. It might be more productive to rely more on DRO determination of trail-use, but totally your call on how you want to approach that.

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KML are great! I have the software to convert spatial data into whatever we need but KMLs seem to be the most versatile. If you send me a link to the google doc I can start putting a draft map together.

Dan Bradley
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Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 604-702-5762

-----Original Message-----

From: Kevan Bernards <Kevan.Bernards@gov.bc.ca>

Sent: February 27, 2020 1:51 PM

To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>

Subject: Re: Trail Markers

Great!

I'm drafting an email to BITS now to let them know what our plan is. I also want to

make it clear to them that ALL agreement holder groups should be involved in the following projects;

- Trails Inventory
- Trail Names
- Trail use
- Trail Etiquette guide
- Navigation & Signage

Is this reasonable?

I see that BITS has announced that they will be undertaking some of these and so far this year they haven't really communicated much with us. I don't think it's fair for them to leave the framework of the coalition and then go ahead solo with these projects.

Working on track info/map for moto trails as well. Is it best to send you KML files? I've also created a Trail Inventory google doc as well as a drop box folder with track info. I'll make sure you're added to both. Also, Is there a different preferred format for this stuff?

Thanks,

Kevan

Sent from my iPhone

On Feb 26, 2020, at 10:03 AM, Bradley, Dan FLNR:EX
<Dan.Bradley@gov.bc.ca> wrote:

Sounds good!

You guys are good to go in regard to installing reflective markers on established moto trails under your Partnership Agreement but I appreciate the heads up!

As a courtesy, I would recommend letting BITS know that you will be installing some markers so there's no confusion on would is adding them to the network.

Also, it would be really great to have a complete map of the moto trails in the Mt Gardner Rec Polygon, I'd like to add some data of trail location and name to the Schedule A of your Partnership Agreement when we renew

it.

Sounds great, keep me posted on the new MOU development, if you're looking for any feedback as things develop just let me know,

-----Original Message-----

From: Kevan Bernards s.22

Sent: February 25, 2020 8:21 AM

To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>

Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

Subject: Trail Markers

Hi Dan,

BTRA members have fabricated about 1000 2"x2" reflective trail markers (same specs as purchased by BITS) and we're ready to start installing them on Handloggers, Canyon Trail and Easy Street as soon as this weekend!

I want to make sure that we've got the approval and authorization to do so before we begin.

Thanks,

Kevan

Ps It looks like BTRA and BIHORA will be meeting next week to form the new MOU (key board members have been away from both groups so there's been a delay in this happening).

Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: ["Kevan Bernards"](#)
Subject: RE: prototype signage for major junctions from BITS/agreement holder update
Date: May 6, 2020 4:23:00 PM

Hey Kevan,

Are you available for a call with Tom on Friday at 10am?

I think it's easiest to discuss the items below over the phone so I'll try to call you tomorrow but if it doesn't work out we can discuss them on Friday with Tom!

I'll send out the conference # info when I get it from Tom and we can share it with Kristina.

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Kevan Bernards [s.22](#)
Sent: May 5, 2020 10:11 AM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: prototype signage for major junctions from BITS/agreement holder update

Hi Dan,

Good news, it looks like some of the BITS membership still want to work with us and have shared their latest concept in signage.

- The material is aluminum.
- BTRA is in support but with brown background rather than black.
- Would this design meet RSTBC requirements?

Jes Slater will be BITS new coalition contact which should improve communication between our groups. She has been supportive of collaboration in the past and was present at the coalition meeting in January [s.22](#)

So there's a hope that under the new MOU and with a clear understanding of what our roles are with regards to how we function as a coalition that we can continue to work towards our goals as a partnership rather than individual stakeholders.

I've also been in contact with Kristina from BIHORA regarding the April 27 council meeting and municipal decision to pursue the restriction of motorized use on MtGardner. BIHORA supports BTRA, continued motorized access and stewardship as well as a collaborative partnership. She would like to join us on the conference call if possible?

Councillor Allison Morse asked Tom how many motorized trails there were on Bowen, Tom answered that Easy

Street was the only (section 57?) authorized trail. Council took this to mean that Easy Street is the only motorized trail on island, the paper took it that way too and printed a story stating this and that this could mean the end of motorized use on MtGardner. Obviously, there are many other trails which we use and maintain on the mountain and Bowen. BTRA is worried that this could potentially lead to conflict on the trails, is there any way that Tom could clarify his statement in a letter or call to mayor and council and the Undercurrent?

I am looking forward to our discussion re new PA!

Sincerely,

Kevan

President, BTRA

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: Re: Lower Skid Danger Tree
Date: January 29, 2020 3:45:12 PM

Hey Dan,

Ok that's perfect we'll cover it on our end until April, thanks! Also since it is a hazard and we only have one certified faller on Bowen do we need to put it out to tenure or can we proceed without doing that?

Thanks

Kevan

Sent from my iPhone

On Jan 29, 2020, at 2:24 PM, Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca> wrote:

Hey Kevan,

Our district is currently over budget so we are unable to provide funding until after April 1 2020. If you are able to secure other sources of funding to remove the danger tree on Lower Skid trail the DRO has agreed to reimburse you after April 1.

<image001.jpg>

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

11/11/2020

I just wanted to let you know the map location is correct. What had me worried was that I was confused about the map.

I hope nothing for the future. I had a great time!

Thank you





Best Photo of 2019

On Jan 11, 2020, at 4:41 AM, Shelley Rose (@ShelleyRose) wrote:

Hi Karl!

Thank you for the invitation to the 2020 contest! I'm so glad to hear that you're the judge of the year of the year of the year!

Shelley Rose
Shelley Rose (@ShelleyRose)
Shelley Rose (@ShelleyRose)
Shelley Rose (@ShelleyRose)
Shelley Rose (@ShelleyRose)
Shelley Rose (@ShelleyRose)

Best Photo of 2019
Shelley Rose (@ShelleyRose)
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Shelley Rose (@ShelleyRose)

Hi Karl!

On Jan 11, 2020, at 4:41 AM, Shelley Rose (@ShelleyRose) wrote:

Hi Karl!

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From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: Re: Signage for MtGardner junctions
Date: June 16, 2020 1:39:08 PM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Dan,

Thank you, this is very helpful!

Cheers,

Kevan

Sent from my iPhone

> On Jun 16, 2020, at 1:12 PM, Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca> wrote:
>
> Hey Kevan,
>
> Here is a copy of our current standards for En Route Trail Signage, this is what the DRO is requiring to be installed at trailheads and major intersections.
> There is not supposed to be any flexibility in these standards but because there is highly engaged and capable artist community on Bowen the DRO has agreed to 2 potential compromises:
>
> 1) Use non-standard materials with the attached layout, symbols, and fonts. This could be galvanized steel with the info cut out or laser etched.
>
> 2) Install the standard signage accompanied by an additional post with whatever non-standard layout and symbols you like.
>
> The attached standards are intended to be printed as separate badges to allow sections of the sign to be omitted if not applicable. For example, the 76mm x 76mm square showing the difficulty rating would not be posted on a hiking trail that has no moto or mountain bike use.
>
> The intention of the GPS Locator section is to be printed out and then marked with permanent marker in the field. I'm not sure if this would be a requirement in all locations but I could follow up with Tom if you'd like.
>
> Also, I've received your invoice and will get that processed as soon as I can,
>
> Let me know if you have any other questions!
>
>
>
>
> Dan Bradley
> Recreation Technician
> Recreation Sites and Trails BC
> Ministry of Forests, Lands and Natural Resource Operations
> 46360 Airport Road
> Chilliwack BC V2P 1A5
>

> tel: 778-684-2261

>

>

>

> -----Original Message-----

> From: Kevan Bernards <Kevan.Bernards@gov.bc.ca>

> Sent: June 11, 2020 10:16 AM

> To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>

> Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

> Subject: Signage for MtGardner junctions

>

> Hi Dan,

>

> The agreement holders have been busy since our last teleconference. Almost all the posts are installed along Handloggers and canyon trail. BITS members have helped out on Handloggers as well as getting posts in at several other junctions on the west side. BTRA just has Easy Street left to mark and install 2 trailhead posts.

>

> We'll be ready for signs soon so I'm wondering about format. I found the attached drawing on a gov site. I've shared the design below with BITS and BIHORA as a possibility.

>

> Is this the approved format that we'd be using at main junctions and is there any flexibility in design or info?

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> In other news, BTRA's delegation to council on Monday night was unsuccessful in persuading them not to send in their letter requesting a ban of motorized recreational use on the mountain. At least we changed the mind of 1 councillor and perhaps were able to better shed some light in the community about our role as trail stewards.

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>

> Anyhow, that's where we're at over here on Bowen.

>

> Cheers,

>

> Kevan

>

>

> https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/outdoor-recreation/camping-and-hiking/rec-sites-and-trails/structure-drawings/trail_signs_trailhead.pdf

>

>

> <En Route Trail Sign COMPLETE.pdf>

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: Re: Trail Markers
Date: March 4, 2020 8:18:19 AM

Hi Dan,

BTRA is happy to leave trail use up to Tom, that will surely make things easier for the agreement holders!

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Do we need to assign trail numbers or anything?

Thanks,

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tel: 604-702-5762

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Subject: Re: Trail Markers

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- Trail Names
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Ps It looks like BTRA and BIHORA will be meeting next week to form the new MOU (key board members have been away from both groups so there's been a delay in this happening).

Sent from my iPhone

From: s.22
To: [Bradley, Dan FLNR:EX](#)
Subject: s.22 shared "Towers Trail Inventory" with you
Date: May 31, 2020 7:43:15 AM



Hi Dan,

s.22 invited you to edit
the folder "**Towers Trail Inventory**" on Dropbox.

[Go to folder](#)

Enjoy!
The Dropbox team

[Report to Dropbox](#)

© 2020 Dropbox

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: Signage for MtGardner junctions
Date: June 11, 2020 10:16:30 AM
Attachments: [trail_signs_trailhead.pdf](#)
[ATT00001.txt](#)

Hi Dan,

The agreement holders have been busy since our last teleconference. Almost all the posts are installed along Handloggers and canyon trail. BITS members have helped out on Handloggers as well as getting posts in at several other junctions on the west side. BTRA just has Easy Street left to mark and install 2 trailhead posts.

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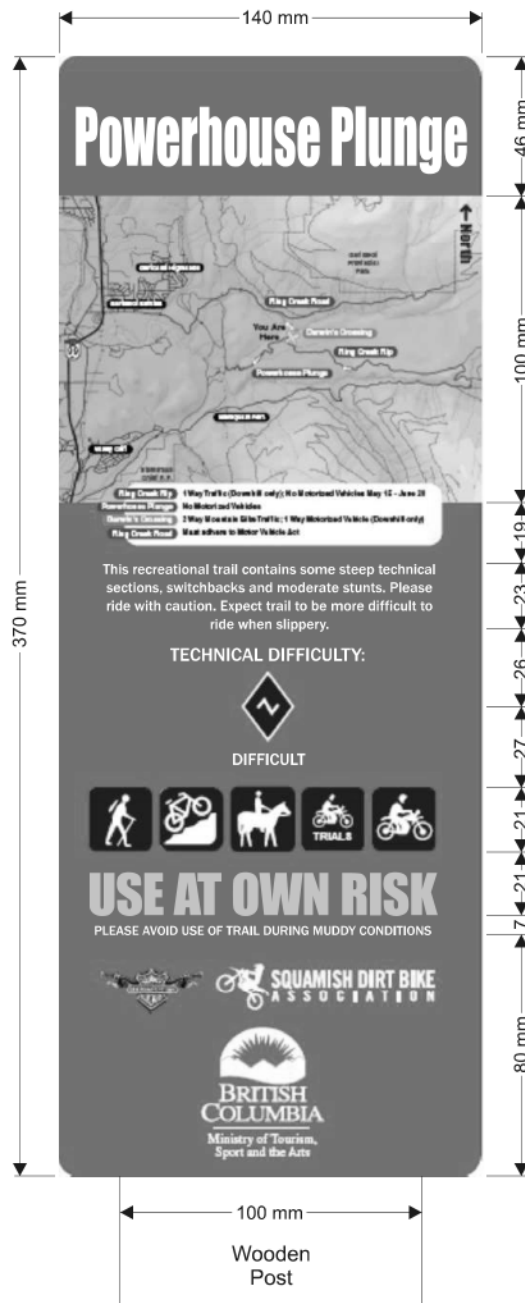
Cheers,

Kevan

https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/outdoor-recreation/camping-and-hiking/rec-sites-and-trails/structure-drawings/trail_signs_trailhead.pdf

TRAIL SIGNS - TRAILHEAD

TRAILHEAD SIGN



Black lettering Impact 70 point
character spacing 0%
condensed horizontally 65%

Trail Area Location Map

White lettering
Franklin Gothic Medium 14 point
character spacing 0%
line spacing 108% character height

White lettering
Franklin Gothic Medium 18 point
character spacing 0%

White lettering
Franklin Gothic Medium 16 point
character spacing 0%

Yellow lettering Impact 50 point
character spacing minus 10%

White lettering
Franklin Gothic Medium 12.5 point
character spacing 0%

User Groups
Clubs/Partners/Sponsors
Province of BC

Size	140mm x 370mm
Background Colour	Green: CMYK (100-0-100-0)
Mounting	- wood post measuring 100mm x 100mm - pre-treated or western red cedar - top of post 1.0m above ground
Font Type/Size	Large Fonts - IMPACT Small Fonts - Franklin Gothic Medium
Icons	Difficulty Rating Symbol User Groups Clubs/Partners/Sponsors Province of BC
Font Colour	Yellow Text: CMYK (0-13-100-0) White Text: CMYK (0-0-0-0)

SIGN COLOURS - Reflective paints

BLACK - C0, M0, Y0, K100	GREEN - C100, M0, Y100, K0
WHITE - C0, M0, Y0, K0	YELLOW - C0, M13, Y100, K0
RED - C0, M100, Y100, K0	ORANGE - C0, M50, Y100, K0

Standard TRAIL SIGNS - TRAILHEAD	
File No:	Draft Date: 10/08
Approved By: <i>W. Marshall</i>	Revision No: Date: 11/08
Date:	Revision No: Date:
Date:	Revision No: Date:
	Drawing Scale: 1 - 2.5 Sheet Size: 8.5" X 11" Drawing No: RST 481-TS-TH

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: prototype signage for major junctions from BITS/agreement holder update
Date: May 5, 2020 10:11:15 AM
Attachments: [ATT00001.txt](#)

Hi Dan,

Good news, it looks like some of the BITS membership still want to work with us and have shared their latest concept in signage.

- The material is aluminum.
- BTRA is in support but with brown background rather than black.
- Would this design meet RSTBC requirements?

Jes Slater will be BITS new coalition contact which should improve communication between our groups. She has been supportive of collaboration in the past and was present at the coalition meeting in January and I believe actually listened and understood what you and Tom had to say.

So there's a hope that under the new MOU and with a clear understanding of what our roles are with regards to how we function as a coalition that we can continue to work towards our goals as a partnership rather than individual stakeholders.

I've also been in contact with Kristina from BIHORA regarding the April 27 council meeting and municipal decision to pursue the restriction of motorized use on MtGardner. BIHORA supports BTRA, continued motorized access and stewardship as well as a collaborative partnership. She would like to join us on the conference call if possible?

Councillor Allison Morse asked Tom how many motorized trails there were on Bowen, Tom answered that Easy Street was the only (section 57?) authorized trail. Council took this to mean that Easy Street is the only motorized trail on island, the paper took it that way too and printed a story stating this and that this could mean the end of motorized use on MtGardner. Obviously, there are many other trails which we use and maintain on the mountain and Bowen. BTRA is worried that this could potentially lead to conflict on the trails, is there any way that Tom could clarify his statement in a letter or call to mayor and council and the Undercurrent?

I am looking forward to our discussion re new PA!

Sincerely,

Kevan

President, BTRA

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: 2020 MtGardner Partnership OP.docx
Date: February 7, 2020 6:46:25 AM
Attachments: [2020 MtGardner Partnership OP.docx](#)
[ATT00001.txt](#)

Hi Dan,

Chuck has informed us that BITS will be dealing with RSTBC directly and so I've included only the BIHORA & BTRA Joint OP here.

Please let me know if you have any questions.

Regards,

Kevan

2020 Mount Gardner Agreement Holder OP (formerly the Coalition)

Bowen Island Horse Owners and Riders Association Operating Plan Key Personnel

P.A. Holder: Bowen Island Horse Owners and Riders Association

P.A. Signing Date: 2-May-18 Agreement #: PA18DCK-008

Period Covered: 1-Jan-20 to 31-Dec-20 P.A. Expiry: 14-May-20

Prepared by: Kristina Calli Contact Info: s.22

778-899-0078

Name Title Duties & responsibilities

- Katrina Smith BIHORA President. Will the lead on planning and executing the BTC Trail Etiquette Day
- Kristina Calli BIHORA Trails Committee Leader, BIHORA representative on BTC Committee. Will Write the BC Equestrian Trails Fund Proposal to Horse Council BC, leads this project if it is funded
- s.22
BTC BIHORA member. Will represent BIHORA and assist with activities as requested by Katrina and Kristina

Bowen Trail Riders Association Operating Plan Key Personnel

P.A. Holder: Bowen Trail Riders Association

P.A. Signing Date: 2-May-18 Agreement #: PA18DCK-007

Period Covered: 1-Jan-20 to 31-Dec-20 P.A. Expiry: 14-May-20

Prepared by: Kevan Bernards

Contact Info: 604-314-3696

s.22

Name Title Duties & responsibilities

- Kevan Bernards President Oversees and manages all BTRA operations
- Dave Paulus Vice-president Assists President with all BTRA operations
- s.22 Treasurer Manages funds and reports on financial status
- s.22 Secretary Records minutes
- s.22 Director, Machine Operator

BIHORA OP ITEMS

PROJECT	BIHORA	RSTBC	GRANTS
BTC Trail Etiquette Day - Develop itinerary and activities for a FUN one-day motorized vehicle, biking, hiking and horseback riding trail sharing learning event	\$0	\$500	\$0
Equestrian Trail Development - Apply for funding to Horse Council BC to develop horse-friendly trails and trail access from Hiker's Trail	\$0	\$1,000	\$5,000
Equestrian Trail Safety Evaluation - Continued surveying of trails on Mt Gardner for horse friendly routes, and identifying locations requiring maintenance to enable horse access	\$0	\$0	\$0
Totals	\$0	\$1500	\$5000

BTRA OP ITEMS

PROJECT	BTRA	RSTBC	GRANTS
Replace Lower Skid Trail Bridge	\$0 *2019 budget item	\$0	\$0
Signage & markers on; Easy Street, Handloggers, Canyon Trail	\$0 *2019 budget item	\$0	\$0
Fencing at old Handloggers crossing	\$0 *2019 budget item	\$0	\$0
Fencing at Reservoir	\$0	\$0	\$0

Bridge	*2019 budget item		
General maintenance; Easy Street, Canyon Trail, Handloggers, trails requiring attention	\$500 *improve trail tread, clear blowdown, improve drainage, minor reroutes, materials, machine work and tools	\$1,500	\$1000
Environmental Studies; Complete TEST doc for polygon area? Study for parking area	\$500	\$500	\$500
Totals	\$1000	\$2000	\$1500

COMBINED BUDGET CONTRIBUTIONS - to KB: from grants, fundraising or both?
Both, to provide an idea of how much each group will be contributing.

BIHORA	\$5000
BTRA	\$2500
RSTBC	\$3500 (\$1500 BIHORA, \$2000 BTRA)

Joint Operating Plan Safety Strategies

For all volunteer trails improvement project activity, each Agreement Holder strives to mitigate hazards and mishaps by: (1) providing volunteers with an orientation where clear instructions are articulated, best safety practices are highlighted, the waiver of liability is read aloud, after which each volunteer signs it; (2) ensuring that each volunteer works with at least one other volunteer; (3) ensuring safe access to trails; (4) providing each volunteer with an activity log which includes emergency contact numbers; (5) providing available competency training on chainsaw operation and trail maintenance & building best practices.

Agreement Holders will cooperate with each other to mitigate hazards on the network of Mt. Gardner Trails through regular surveillance of these trails and remediation, as required.

Non Budget Item Goals

*work with agreement holders to develop trails inventory, trail designation and trails etiquette guide.

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: BTRA 2019 OP Budget
Date: April 25, 2019 7:41:26 AM
Attachments: [Blank 2.pdf](#)
[ATT00001.txt](#)

Invoice #1

Bowen Trail Riders Association	PA18DCK-007			Total
542 Hilltop Place Bowen Island, BC V0N 1G2	BTRA 2019 Operating Plan Supplies & materials			\$3,500.00
604-314-3696				
kevanbernards@gmail.com				

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#); [Anderson, Luc FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: BTRA spring riding clinic
Date: April 29, 2019 9:17:35 AM

Hi Dan, Luc & Tom,

BTRA would like to notify you that we're planning to host a dirt bike basic skills clinic with Megan Griffiths with support from Traction eRag magazine on Bowen May 27th at the area we call The Towers. We ran a similar clinic last year with great success!
The target number is 10 riders or less so please let me know if we require special permission to proceed.

Dan you mentioned that you and Luc might be interested in attending, if so the link is here:
<https://traction-erag.squarespace.com/>

Unfortunately, bikes are not provided.

GENERAL INFO

- Location is The Towers;
Dropped pin
Near Unnamed Road, Bowen Island, BC V0N 1G2
<https://goo.gl/maps/1KvfgWTVggHDAy8t8>
- Time is 8:00am to 3:45pm on Monday May 27th,
- For Enduro bikes, some dual sport, trials or motocross bikes suitable as well,
- Clinic Content basic skills including; bike set up, body positioning, clutch and brake control, balance drills and small sized log crossing technique will be covered,
- Location the area is a relatively open, flat grassy spot with room for drills, easy to medium difficulty trails in the area for trail ride portion,
- The fee covers Instructors travel, fuel, time and insurance. BTRA is hosting the event but will not be collecting funds.

Please let me know if we need to file any sort of application.

Thank you,

Kevan

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Anderson, Luc FLNR:EX](#); [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: Bluewater Reservoir Trail Bridge
Date: February 6, 2019 7:58:22 AM
Attachments: [ATT00001.txt](#)
[ATT00002.txt](#)
[ATT00003.txt](#)
[ATT00004.txt](#)
[ATT00005.txt](#)
[ATT00006.txt](#)
[attachment 1.pdf](#)
[ATT00007.txt](#)

Hi Gentlemen,

As the Bluewater Reservoir Bridge is our top priority coming into 2019 here's the proposal and a few more details.

Please let me know if you require anymore info or changes to the proposed design. **s.22**
and won't be answering my phone but will respond to email.

Proposed raised grade (red) rock retaining wall (blue) and new level bridge to replace sloped rotten bridge (yellow).

There appears to be a pipe which we would have to burry further when doing the proposed work, not sure who to contact to let them know what weâ•re proposing but Iâ•ll look into it.

Stringer and handrail detail

Stringer span and creek profile

Construction proposed would be similar to Handloggers Bridge completed last year

.

Similar methods would be employed to keep all concrete bleed water out of the creek.

- tarps
- landscape fabric
- poly lined and taped forms

Project Proposal



Reservoir Bridge Proposal

Prepared for: Bowen Trails Coalition

Prepared by: Bowen Trail Riders Association

October 29, 2018

EXECUTIVE SUMMARY

Objective

Replace the existing bridge with a safe, durable design using construction methods similar to the Handloggers Bridge Project.

Goals

- affordable construction budget
- provide an updated safe design.
- complete the project by spring of 2019.

Solution

- utilize donated materials and volunteer labour.
- follow a design plan similar to Handloggers Bridge.

Project Outline

The existing bridge is starting to rot and due to the slope and height above the creek has been identified as a hazard. The goal is to construct a level bridge with handrails. To do this the trail will need to be built up and restrained on the low side. On the high side, the trail should also rise up to meet the bridge in order to control run-off. Design similar to Handloggers Bridge would be implemented to ensure a durable, long lasting structure. It is estimated that approximately 100-150 volunteer hours would be required to build the bridge.

Milestones

- temporary bypass trail ✓
- deactivate old bridge ✓
- excavate footings/remove old bridge structures
- form and pour concrete
- construct bridge

-
- drainage control uphill

BUDGET

Materials

- hardware
- concrete
- lumber

\$1,200.00

Machine

- raise trail grade on low side 1 day

\$1,300

Total

\$2,500.00

Project Manager

-Kevan Bernards, BTRA 604-314-3696

s.22

Thanks,

Kevan

Sent from my iPhone

From: [Blackbird, Tom G FLNR:EX](#)
To: [Bonny Brokenshire](#)
Cc: [Bradley, Dan FLNR:EX](#)
Subject: Bowen Trails Clarification
Date: May 28, 2020 9:57:00 AM

Hello Bonny,

I have asked one of my techs, Dan Bradley to reach out to you in regards to the trail application. I believe this will be ready to go very soon and Dan will be getting that pulled together.

I also wanted to clarify a statement that I made when I spoke to the Mayor and Council and this has been pointed out to me as it was a incorrect statement on my part.

I stated that there was only the 1 trail that was motorized on in the Polygon that RSTBC is dealing with. I misunderstood and thought this question was only in regards to the trails that were creating problems or issues. There are in fact several trails on Bowen that are motorized/shared trails. The number of trails that are utilized by motorized is closer to 12-13 trails. Easy Street is not the only motorized trail. This was my mistake based on all the attention that Easy street has generated leading up to this call. I think it is important that everyone understand that there are a number of motorized trails on Bowen Island that have been there and in use for many years.

There are several letters that have come in regarding this trail and I am well aware of them and will be responding to them in the near future. Right now my focus is getting all our sites ready to be opened on June 1..

Thank you

Tom Blackbird

District recreation Officer

From: [Kevan Bernards](#)
To: [Blackbird, Tom G FLNR:EX](#)
Cc: [Bradley, Dan FLNR:EX](#); [Anderson, Luc FLNR:EX](#)
Subject: Easy Street/MtGardner/swamp crossing
Date: November 18, 2019 11:06:32 AM
Attachments: [ATT00001.txt](#)

Hi Tom,

During our hike of Easy Street on Bowen last Tuesday (BTC recon hike, Tuesday November 12) we encountered this wet area, it's on the threshold of a seasonal swamp. The existing trail crosses at the narrowest spot (yellow arrow). Dan and I discussed and weren't sure whether a small bridge or built up trail bed with rocks would be suitable? Dan suggested you might be able to weigh in here? We could probably find cedar on site to construct a bridge, not sure what span would be but definitely under 5m.

Location is approximately here:

49 deg 22' 54" N
123 deg 23'16" W

Hope you're well!

Thanks,

Kevan

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: Fwd: BTC minutes March 5, 2020
Date: March 6, 2020 1:13:51 PM
Attachments: [Meeting Minutes March 5, 2020.pdf](#)
[ATT00001.htm](#)

Hi Dan,

Here's what we've drafted so far for the new MOU and a bit from our old C&B. Any input/advice from you or Tom would be much appreciated!

Kristina from BIHORA also had a question about how we collect information to the public and present to RSTBC. Next we'll be working on drafting up our communication framework so advice here would be helpful as well.

Thanks,

Kevan

Ps I'll try to get more mapping done over the next few weeks.

Sent from my iPhone

Begin forwarded message:

From: s.22
Date: March 6, 2020 at 8:55:33 AM PST
To: Kevan Bernards, s.22, s.22
Subject: BTC minutes March 5, 2020

Hi BIHORA and BTRA,
Please find attached the minutes from the BTC's meeting last night.
The meeting was held to edit the Memorandum of Understanding together, which will be presented to BITS for their decision on whether to re-join the BTC or not.
Kind regards,
s.22

FYI here are the details of our purpose (which I entered at the bottom of the doc - please feel free to edit, maybe it should be shortened?):

Using transparent communication, to promote safety, accessibility, navigation, and sustainability with respect to maintaining and enhancing existing trails and developing new trails on Bowen Island's Crown lands so that Crown trails users have a positive and enjoyable experience.

Note:

- a.
“Transparent communication” includes being thorough and factual in all communication with the Coalition’s Constituents, the Crown, and other Crown trails stakeholders to increase awareness and support for the Coalition’s aspirations and activities,
- b.
“Safety” means the mitigation of injury and distress to Crown trails users by following the Crown’s requirements for trail workmanship and volunteer administration,
- c.
“Accessibility” includes ease of trailhead access to a diversity of Crown trails users,
- d.
“Navigation” includes clear trail designation, visible wayfinding markers, and signage marking trails and trail junctions,

(e) “Sustainability” means ensuring that the materials used and the structures built in Crown trails projects are durable, as well as ensuring that all trail work meets the Crown's environmental standards.

Bowen Trails Coalition

Meeting Minutes

March 5, 2020

I. Call to order

Kevan Bernards called to order the regular meeting of the Bowen Trails Coalition at 6:30 on March 5, 2020 at BICS non-fiction room.

II. Roll call

The following persons were present:

- BIHORA: Kristina Calli, s.22
- BTRA: Kevan Bernards

III. New business

a) Review memorandum of Understanding and edit for presentation to BITS:

- P1 replace “coalition partnership” with “stewardship agreement”, replace “entering into a” with “maintaining the”
- P2 replace “Bowen Trails Coalition Partnership” with updated name if necessary
- P3 remove entire paragraph
- P4 ACTION: Kevan to confirm that this is correct with Tom Blackbird
- P5 change “with the exception of a shared Operating Plan for activities for activities that are shared between two or more of the Crown Partnership Agreement Holders” to “and each year, before submission to RSTBC, each group will share their Operating Plan with the other groups to ensure no gaps or overlaps”
- P6 add “All board members from Constituent groups are welcome attend all **Bowen Trails Coalition (or new name)** meetings.”

- P8 ACTION: Kevan will clarify with Tom what is required, and what they would like communication-wise
 - Include our purpose which is “A communication platform between the Constituents, Bowen Islanders, and the Crown using transparent communication, to promote safety, accessibility, navigation, and sustainability with respect to maintaining and enhancing existing trails and developing new trails on Bowen Island’s Crown lands so that Crown trails users have a positive and enjoyable experience.”
- a) ACTION: New name to be “Bowen Trail Stewards” or “Bowen Trail Stewards Agreement” if we cannot proceed with “Bowen Trails Coalition” – still to be determined

IV. Adjournment

Kevan Bernards adjourned the meeting at 7:40.

Minutes submitted by: s.22

From: [Kevan Bernards](#)
To: [Blackbird, Tom G FLNR:EX](#); [Bradley, Dan FLNR:EX](#); [Chuck Venhuizen](#); [Kristina Calli](#); s.22
Subject: Jan 28 2020 BTC agenda special meeting
Date: January 28, 2020 8:13:44 AM
Attachments: [Meeting notes.pdf](#)
[ATT00001.txt](#)

Hi Everyone,

Here's the final draft of the agenda, see you all tonight!

Kevan

BTC special meeting (draft agenda)

Tuesday January 28 /6:15pm-8:30pm Bowen Island Municipal Chambers

Attendees

RSTBC - Tom Blackbird District Recreation Officer, Dan Bradley Recreation Technician,

BIHORA -Kristina Calli BTC Vice-Chair, Katrina Smith BIHORA President, Kirsty Johnstone

BITS -Chuck Venheizun BTC Secretary, Jes Slater,

BTRA-Kevan Bernards BTC Chair, Dave Paulus, Karis Clayton, Zack Riley

6:15pm-6:25pm Social (Food & Beverage by BIHORA)

6:25pm-6:30pm Introduction of attendees

Agenda

6:30-6:50 Last Meeting Follow-up

1. Approve Agenda
2. Approval of minutes from dec 2 2019 BTC AGM
3. Action Items from last meeting; a) Chuck has shared Year end Template (AR), all groups filed? b) BITS -Handloggers Trail Improvements, set time/date for hike , c)BTRA will be withdrawing parking proposal from OP, -d) BTRA Announcement regarding withdrawal of Service Trail Proposal from 2020 OP e)Jan 9th BTC meeting postponed,

***Kevan item 3 b) (it would be helpful to see a proposal on paper as well).**

6:50-8:30 New Business

4. RSTBC items-
5. BITS- report B.I. Trail Society report: (20 min)
6. Navigation update (8 min)
7. Year End Report (2 min)
8. 2020 Operation Plan (3 min)
9. Commitment to our Partnership Agreement (2 min)
10. Compliance with RSTBC on halting new trail development while facilitating robust community engagement (2 min)
11. Withdrawal from Bowen Trails Coalition, effective immediately (RSTBC already advised) (3 min) ***Comments from RSTBC- BIHORA, BTRA, *after this announcement and comments have been made it should be decided by constituent members in good standing**

with input from Tom whether; a) the meeting will continue as a coalition meeting (BITS members should then leave at this point and recording duties shall be designated to a current constituent member) or b) the coalition meeting shall be adjourned and any further discussions shall be regarded as that of an informal meeting of stakeholders without agenda or recorded minutes.

12. Pending Agenda Items

13. PA renewal discussion (current agreements expire May of this year),
14. RSTBC guidance on the following;
15. a)-Does the coalition represent a relevant group of stakeholders on Bowen? If not, who should we reach out to and how do we proceed?
16. b)-Public consult/communication and what is expected of the coalition?, examples from other similar groups, process?
17. c)-recent letters to government regarding motorized use on MtGardner, the coalition etc,
18. Review BIHORA proposed communication plan Trails Inventory update, how to best share tracks/organize doc?
19. f)danger tree removal on lower skid trail
20. ?

Notes

- For reference, Meeting minutes from Tom and Dan's last visit (March 25, 2019 items Bowen Trails Coalition),
https://docs.google.com/document/d/12ts1MVpx_sfSnQPv7098IyqWajK8tlttuJKt5UFUDsY
- BIHORA proposed communication plan
<https://docs.google.com/document/d/1sDo0CWbfcj4hED-bK4EMUeCbxuveWbo83fSVBnCri0Q>,
-

Action Items

- 1.

Next Meeting Agenda

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#); [Kristina Calli C; s.22](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: May 28 Teleconference meeting items
Date: May 27, 2020 2:45:35 PM

Hi Everyone,

The following is what BTRA was hoping to discuss tomorrow;

- 1.) New MOU,
- 2.) New Partnership Agreement term/RSTBC likely to renew Mount Gardner Agreement with BTRA considering pending municipal request to ban orv use on MtGardner?
- 3.) Information sharing/communication strategy,
- 4.) Schedule A of agreement, keeping bit about acknowledging shared use but amend the rest of that section to be relevant?
- 5.) in light of recent claims of trail damage on Handloggers and Easy Street should BTRA carry out a study to see if a problem really exists, would RSTBC be willing to help with this? On hikes last year of these trails was any damage noted by RSTBC staff, if yes how to fix?
- 6.) it has been alleged that BTRA doesn't want to engage other stakeholders or might be difficult to work with. Would RSTBC be willing to back up our conduct throughout the last 2 years of the agreement?
- 7.) Muni still under the opinion that there's is only one motorized trail on Bowen, BTRA has worked on 20 trails on MtGardner and around 30 at the Towers. Tom's amended statement is badly needed right now as there are on island groups who are rallying against motorized use at this time. (We have an inventories of both areas which we'll share).
- 8.) BTRA will be sending a delegation to council on June 8 to discuss, the work we've done as trail stewards, what we've accomplished with the other stakeholders and our take on some ongoing issues and opinions which have been expressed to council.
- 9.) BTRA drafting history of ORV use on MtGardner, how specific should this be? Names, dates or more of an outline?
- 10.) BTRA Trails Strategy, right track or anything to add or address?
- 11.) Signs at major junctions? Other?

If this is too long let me know which issues everyone wants to discuss tomorrow.

Cheers,

Kevan

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: New Bowen Trails Partnership MOU
Date: April 30, 2020 1:28:02 PM
Attachments: [New Partnership MOU.pdf](#)
[ATT00001.htm](#)

Hi Dan,

Here's the rough draft of the changes we've made/suggested so far;

Association hereby notifies the British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development (the "Crown") of the following:

(1) **[Association]** has entered into a coalition partnership comprising three (3) Crown Partnership Agreement Holders: Bowen Island Horse Owners and Riders Association, Bowen Island Trail Society and Bowen Trail Riders Association, for the express purpose of maintaining the entering into a Partnership Agreement with the Crown in order to maintain and upgrade Crown trails on Bowen Island according to the Crown's standards.

(2) **[Association]** is in agreement that this partnership of Crown Partnership Agreement Holders is an informal entity known as 'Bowen Trails Coalition' Stewardship Agreement Partnership' (the "Coalition Partnership").

(3) [Association] agrees that the intention of the Partnership is to provide a communication platform between the Constituents, Bowen Islanders, and the Crown using transparent communication, to promote safety, accessibility, navigation, and sustainability with respect to maintaining and enhancing existing trails and developing new trails on Bowen Island's Crown lands so that Crown trails users have a positive and enjoyable experience.

Note:

- a. "Transparent communication" includes being thorough and factual in all communication with the Coalition's Constituents, the Crown, and other Crown trails stakeholders to increase awareness and support for the Coalition's aspirations and activities,
- b. "Safety" means the mitigation of injury and distress to Crown trails users by following the Crown's requirements for trail workmanship and volunteer administration,
- c. "Accessibility" includes ease of trailhead access to a diversity of Crown trails users,
- d. "Navigation" includes clear trail designation, visible wayfinding markers, and unambiguous signage marking trails and trail junctions,
 - e. "Sustainability" means ensuring that the materials used and the structures built in Crown trails projects are durable, as well as ensuring that all trail work meets the Crown's environmental standards.

(3) **[Association]** understands the Crown will circumvent the standard Partnership Agreement

application process by adopting the application for a Partnership Agreement with the Crown which was completed by the Rotary Club of Bowen Island in 2016 and assigning the Coalition Partnership as the signatory in its place. **[Association]** wishes to thank both the Rotary Club and the Crown for their consent to this arrangement.

(4) **[Association]** understands that completion of the Trails Environmental Screening Tool (TEST) document is not a prerequisite for activating the Partnership Agreement with the Crown, since the Rotary Club of Bowen Island's Partnership Agreement application was initiated before the TEST document was created.

(5) **[Association]** will co-operate with each of the other Crown Partnership Agreement Holders to meet the Coalition's obligations to the Crown with respect to its requirements as stipulated in the Partnership Agreement. This will include separate reports and operating plans for each of the Crown Partnership Agreement Holders. Before submission to RSTBC, each group will share their Operating Plan for the new year with the other groups to ensure no gaps or overlaps.

(67) **[Association]** will assign one of its members as a representative of the Coalition Partnership committee, and this person will co-operate with each of the other committee representatives in the facilitation of the Partnership Agreement.

(7) **[Association]** will work with the other Crown Partnership Agreement Holders to develop strategies to ensure effective, transparent communication with key stakeholders of project plans put forth by members of the Partnership.

(8) **[Association]** will take measures to incorporate reasonable feedback received from key stakeholders into the planning of proposed projects. [Kevan to clarify with Tom and Dan what community feedback they want us to provide for each proposal submitted to the DRO - i.e. what is each group responsible for providing, and what is up to the community at large to provide directly to the DRO?].

(9) **[Association]** acknowledges that it may not agree with all projects proposed by the other Crown Partnership Agreement Holders and those that are approved by the DRO, but will work in good faith with the other Crown Partnership Agreement Holders.

(108) **[Association]** reserves the right to determine the number of volunteers, if any, and the amount of funds, if any, that it is able or willing to allocate towards each shared Coalition Partnership project.

(119) **[Association]** accepts the Crown's Commercial & General Liability insurance provisions for Crown trails activities under the Partnership Agreement.

Passed unanimously by the Board of Directors of **[Association]**.

Regards,

Kevan

PDF is original version I believe.

Memorandum of Understanding: **[Association]**

[Association] hereby notifies the British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development (the "Crown") of the following:

- (1) **[Association]** has entered into a coalition comprising three (3) Crown Partnership Agreement Holders: Bowen Island Horse Owners and Riders Association, Bowen Island Trail Society and Bowen Trail Riders Association, for the express purpose of entering into a Partnership Agreement with the Crown in order to maintain and upgrade Crown trails on Bowen Island according to the Crown's standards.
- (2) **[Association]** is in agreement that this partnership of Crown Partnership Agreement Holders is an informal entity known as 'Bowen Trails Coalition' (the "Coalition").
- (3) **[Association]** understands the Crown will circumvent the standard Partnership Agreement application process by adopting the application for a Partnership Agreement with the Crown which was completed by the Rotary Club of Bowen Island in 2016 and assigning the Coalition as the signatory in its place. **[Association]** wishes to thank both the Rotary Club and the Crown for their consent to this arrangement.
- (4) **[Association]** understands that completion of the Trails Environmental Screening Tool (TEST) document is not a prerequisite for activating the Partnership Agreement with the Crown, since the Rotary Club of Bowen Island's Partnership Agreement application was initiated before the TEST document was created.
- (5) **[Association]** will co-operate with each of the other Crown Partnership Agreement Holders to meet the Coalition's obligations to the Crown with respect to its requirements as stipulated in the Partnership Agreement.
- (7) **[Association]** will assign one of its members as a representative of the Coalition committee, and this person will co-operate with each of the other committee representatives in the facilitation of the Partnership Agreement.
- (8) **[Association]** reserves the right to determine the number of volunteers, if any, and the amount of funds, if any, that it is able or willing to allocate towards each Coalition project.
- (9) **[Association]** accepts the Crown's Commercial & General Liability insurance provisions for Crown trails activities under the Partnership Agreement.

Passed unanimously by the Board of Directors of **[Association]**.

<hr/>	<hr/>
<Name>, <Title>	(Date)

Acknowledged and accepted by the Board of **[Association]**.

<hr/>	<hr/>
<Name>, <Title>	(Date)

Acknowledged and accepted by the Board of **[Association]**.

<hr/>	<hr/>
<Name>, <Title>	(Date)

Sent from my iPhone

From: Anderson, Luc FLNR:EX
To: "Kevan Bernards"; Blackbird, Tom G FLNR:EX
Cc: Bradley, Dan FLNR:EX
Subject: RE: Easy Street/MtGardner/swamp crossing
Date: November 18, 2019 12:14:36 PM

Hi Kevan,

What about using a turnpike, with a smooth pvc to use as cross drainage.

Have a look at the us forest service site for some ideas, I think we also have them in chapter 10

<https://www.fs.fed.us/t-d/pubs/htmlpubs/html07232806/page10.htm>

should be less maintenance and better to ride for moto than a raised structure.

Cheers

Luc

-----Original Message-----

From: Kevan Bernards <Kevan.Bernards@gov.bc.ca>

Sent: November 18, 2019 11:06 AM

To: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

Cc: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Anderson, Luc FLNR:EX <Luc.Anderson@gov.bc.ca>

Subject: Easy Street/MtGardner/swamp crossing

Hi Tom,

During our hike of Easy Street on Bowen last Tuesday (BTC recon hike, Tuesday November 12) we encountered this wet area, it's on the threshold of a seasonal swamp. The existing trail crosses at the narrowest spot (yellow arrow). Dan and I discussed and weren't sure whether a small bridge or built up trail bed with rocks would be suitable? Dan suggested you might be able to weigh in here? We could probably find cedar on site to construct a bridge, not sure what span would be but definitely under 5m.

Location is approximately here:

49 deg 22' 54" N

123 deg 23' 16" W

Hope you're well!

Thanks,

Kevan

From: [Chuck Venhuizen](#)
To: [Kristina Calli](#); [Kevan Bernards](#)
Cc: [Blackbird, Tom G FLNR:EX](#); [Bradley, Dan FLNR:EX](#)
Subject: RE: Jan 28 2020 PA Holders agenda special meeting
Date: January 28, 2020 9:37:51 AM
Importance: High

Hello Partnership Agreement Holders,
Bowen Island Trail Society's departure from the Bowen trails coalition is official. In our judgement it is therefore incorrect to call our meeting tonight a 'BTC' meeting. We request that instead it be termed a special meeting between the Partnership Agreement Holders and RSTBC. We therefore respectfully ask that the agenda not be construed as a coalition meeting and instead give priority to the following items:

1. (20 min) Trail Society report. Our:

- **Navigation** update (8 min)
- **Year End** Report (2 min)
- **2020 Operation** Plan (3 min)
- **Our withdrawal from Bowen Trails Coalition:** (2 min)
- **Implications of our exit from this coalition:** (2 min)
- **Our Commitment to RSTBC**

2. RSTBC response & direction

Our Trail Society looks forward to fulfilling the terms of our Partnership Agreement on behalf of all non-motorized users within a robust and unencumbered relationship with RSTBC.

Have a good day.

Chuck

s.22

-----Original Message-----

From: "Kevan Bernards"

Sent: Tuesday, January 28, 2020 8:13am

To: "Tom Blackbird" , "Dan Bradley" , "Chuck Venhuizen" , "Kristina Calli" , s.22

s.22

Subject: Jan 28 2020 BTC agenda special meeting

Hi Everyone,

Here's the final draft of the agenda, see you all tonight!

Kevan

Sent from my iPhone

From: [Blackbird, Tom G FLNR:EX](#)
To: [Chuck Venhuizen](#); [Kristina Calli](#); [Kevan Bernards](#)
Cc: [Bradley, Dan FLNR:EX](#)
Subject: RE: Jan 28 2020 PA Holders agenda special meeting
Date: January 28, 2020 10:22:00 AM

Good Morning all,

Seeing that that BITS is officially departing from the coalition, I would suggest that we keep this meeting to a minimum agenda and that only the partners and RST be in attendance.

I would suggest we keep the agenda item 1 with more emphasis on the withdrawal from the coalition.

Thanks in advance and looking forward to a good discussion tonight.

From: Chuck Venhuizen

Sent: January 28, 2020 9:38 AM

To: Kristina Calli ; Kevan Bernards

Cc: Blackbird, Tom G FLNR:EX ; Bradley, Dan FLNR:EX

Subject: RE: Jan 28 2020 PA Holders agenda special meeting

Importance: High

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Bowen Island Trail Society's departure from the Bowen trails coalition is official. In our judgement it is therefore incorrect to call our meeting tonight a 'BTC' meeting. We request that instead it be termed a special meeting between the Partnership Agreement Holders and RSTBC. We therefore respectfully ask that the agenda not be construed as a coalition meeting and instead give priority to the following items:

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From: "Kevan Bernards" <s.22>

Sent: Tuesday, January 28, 2020 8:13am

To: "Tom Blackbird" <Tom.Blackbird@gov.bc.ca>, "Dan Bradley"

<dan.bradley@gov.bc.ca>, "Chuck Venhuizen" <s.22>

"Kristina Calli"

s.22

Subject: Jan 28 2020 BTC agenda special meeting

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Sent from my iPhone

From: [Blackbird, Tom G FLNR:EX](#)
To: [Bradley, Dan FLNR:EX](#)
Subject: RE: May 28 Teleconference meeting items
Date: May 28, 2020 9:58:00 AM

Dan,

You call in as the moderator with this number.. s.17

I will call in as a participant in case I have to bail early...

-----Original Message-----

From: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>

Sent: May 28, 2020 9:52 AM

To: Jessica Slater s.22

Kristina C s.22

; Kevan Bernards

s.22

Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

Subject: RE: May 28 Teleconference meeting items

No problem Jes, there's only a few us on the call s.22

s.22

Talk to you all at 1:30pm, Conference call info below.

1-877-353-9184

Conference ID

s.17

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Jessica Slater s.22

Sent: May 27, 2020 7:43 PM

To: Kristina C s.22

Cc: Kevan Bernards s.22 ; Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

Subject: Re: May 28 Teleconference meeting items

s.22

s.22

Is there

some way to record the call by chance? If i miss it? Or maybe just some notes after is easier.

Thanks for coordinating Kevan and Dan.

Jes

> On May 27, 2020, at 4:18 PM, Kristina C s.22

wrote:

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> 1:30 tomorrow works for me too.

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> Thanks,

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> Kristina

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>> Sent from my iPhone

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>>>> Dan Bradley

>>>> Recreation Technician

>>>> Recreation Sites and Trails BC

>>>> Ministry of Forests, Lands and Natural Resource Operations

>>>> 46360 Airport Road

>>>> Chilliwack BC V2P 1A5

>>>>

>>>> tel: 778-704-7074

>>>>

>>>>

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>>>> -----Original Message-----

>>>> From: Kevan Bernards s.22

>>>> Sent: May 27, 2020 2:45 PM

>>>> To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Kristina Calli C s.22

s.22

>>>> Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

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>>> 11.) Signs at major junctions? Other?
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>>> If this is too long let me know which issues everyone wants to discuss tomorrow.
>>>
>>> Cheers,
>>>
>>> Kevan
>>>
>>> Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: [Jessica Slater](#); [Kristina C](#); [Kevan Bernards](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: RE: May 28 Teleconference meeting items
Date: May 28, 2020 9:52:22 AM

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1-877-353-9184

Conference ID
s.17

Dan Bradley
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 >>> Ministry of Forests, Lands and Natural Resource Operations
 >>> 46360 Airport Road
 >>> Chilliwack BC V2P 1A5
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 >>> tel: 778-704-7074
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 >>> -----Original Message-----
 >>> From: Kevan Bernards s.22
 >>> Sent: May 27, 2020 2:45 PM
 >>> To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Kristina Calli C <s.22
 s.22
 >>> Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
 >>> Subject: May 28 Teleconference meeting items
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To: [Bradley, Dan FLNR:EX](#)
Subject: RE: May 28 Teleconference meeting items
Date: May 28, 2020 9:45:00 AM

1-877-353-9184

s.17

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From: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Sent: May 28, 2020 9:45 AM
To: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Subject: RE: May 28 Teleconference meeting items

Yes, can you send the conference call # info again?

Dan Bradley
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46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Sent: May 28, 2020 9:44 AM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Subject: RE: May 28 Teleconference meeting items

Dan,

Are we set for 1:30 today?

-----Original Message-----

From: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Sent: May 27, 2020 3:32 PM
To: Kevan Bernards s.22 ; Kristina Calli C s.22

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From: [Bradley, Dan FLNR:EX](#)
To: [Blackbird, Tom G FLNR:EX](#)
Subject: RE: May 28 Teleconference meeting items
Date: May 28, 2020 9:44:53 AM

Yes, can you send the conference call # info again?

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

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-----Original Message-----

From: Kevan Bernards s.22

Sent: May 27, 2020 2:45 PM

To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Kristina Calli C s.22

Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

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Subject: RE: May 28 Teleconference meeting items
Date: May 28, 2020 9:59:19 AM

No problem, will do

Dan Bradley
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Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5

tel: 778-704-7074

-----Original Message-----

From: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>
Sent: May 28, 2020 9:59 AM
To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>
Subject: RE: May 28 Teleconference meeting items

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>>> To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Kristina Calli C s.22

s.22

>>> Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>

>>> Subject: May 28 Teleconference meeting items

>>>

>>> Hi Everyone,

>>>

>>> The following is what BTRA was hoping to discuss tomorrow;

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>>> 1.) New MOU,

>>>

>>> 2.) New Partnership Agreement term/RSTBC likely to renew Mount Gardner Agreement with BTRA considering pending municipal request to ban orv use on MtGardner?

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>>> 11.) Signs at major junctions? Other?

>>>

>>> If this is too long let me know which issues everyone wants to discuss tomorrow.

>>>

>>> Cheers,

>>>

>>> Kevan

>>>

>>> Sent from my iPhone

From: [Bradley, Dan FLNR:EX](#)
To: [Jessica Harman](#); [Kevan Bernards](#); [Kristina Calli C](#); [Blackbird, Tom G FLNR:EX](#)
Cc: [Phil Osborne](#)
Subject: RE: Mount Gardner MOU
Date: June 24, 2020 9:41:03 AM

Looks like Tom and I are free 10am on July 7th , would that work for everyone?



Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
Chilliwack BC V2P 1A5
tel: 778-704-7074

From: Jessica Harman
Sent: June 23, 2020 9:06 PM
To: Kevan Bernards
Cc: Blackbird, Tom G FLNR:EX ; Bradley, Dan FLNR:EX ; Kristina Calli C ; Phil Osborne
Subject: Re: Mount Gardner MOU

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi guys,

I'm afraid the new MOU is not supported by the Bowen Island Trail Society board as we feel it requires further clarification in regards to community consultation among a few other points. I would be pleased to join in a call to discuss the designation of the Gardner trails but am CCing Phil, BITS President as he would be even better suited for the conversation.

Jes

On Tue, 23 Jun 2020 at 09:09, Kevan Bernards <[s.22](#)>

wrote:

Hi Tom,

I'm hoping we can set up another teleconference with yourself and Dan possibly in the second week of July (6-10).

The new MOU is all but ready to go but recently some concerns have surfaced related to the municipality's decision to request a ban of recreational motorized use on Mount Gardner and this is throwing up a bit of a roadblock.

We had a very positive outcome after our last meeting on May 28. I'm hoping we can discuss this current situation and any implications it may have on our agreement renewal and reiterate our roles as stewards so that we may continue to focus on the development of the MOU and fulfilling our role as trail stewards.

Sincerely,

Kevan Bernards

BTRA

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Chuck Venhuizen](#); [Kristina Calli](#)
Cc: [Blackbird, Tom G FLNR:EX](#); [Bradley, Dan FLNR:EX](#); s.22 s.22 [Dave Paulus](#); s.22
Subject: Re: BTC is 3
Date: January 26, 2020 12:40:26 PM

Hi All,

Chuck you are mistaken. This will still be a coalition meeting as you will not be officially withdrawing from the coalition until the announcement has been made during the meeting.

In fact, by choosing to exit the coalition, the BITS is therefore choosing to abandon adherence to the coalition constitution and bylaws which would put the society (BITS) in a position of "not in good standing". At that point the coalition will regrettably be left with a vacancy to fill. However this would not mean the termination of the coalition (there is nothing in our constitution and bylaws about this). The constitution and bylaws (section 3.5) do outline a possible situation were a constituent may be "not in good standing" and so therefore I believe indicate a strong case that the coalition can continue function with only 2 constituents until such a time that the vacancy could be filled.

Tom will need to weigh in here and confirm whether they prefer to continue working with a coalition seeking new constituents or as individual partnership agreement holders.

I move that at this point during the meeting it should be decided by members of the coalition in good standing if;

- a) the meeting will continue as a coalition meeting (BITS members should then leave at this point and recording duties shall be designated to a current constituent member) or
- b) the coalition meeting shall be adjourned and any further discussions shall be regarded as that of an informal meeting of stakeholders without agenda or recorded minutes.

We have all spent a great deal and time, effort and passion on this coalition and partnership. This move by the BITS is indeed regrettable. BTRA does not view the coalition as "an extra layer of bureaucracy" but a worthwhile endeavour and so will remain committed to pursuing this collaborative arrangement.

Sincerely,

Kevan

BTC Chair

Sent from my iPhone

On Jan 26, 2020, at 9:35 AM, Chuck Venhuizen wrote:

Hi Kristina and Kevan,

As I was waking up this morning I realized more clearly than ever that the Bowen Trails Coalition has effectively been neutralized and rendered non-functional, if for no other reason than sections 7.5 to 7.8 of the BTC Constitution which establish the parameters for conducting any business. Specifically, if a quorum of 3 Constituents is not present, then no business can be conducted. Essentially, this means that if either BIHORA, BITS or BTRA were to withdraw from the BTC, it would cease to be operational. Our Trail Society has withdrawn. Therefore, the Coalition is dead. As well, our meeting with Tom and Dan this Tuesday is by definition a meeting between the 3 Partnership Agreement Holders and Tom and Dan, not a BTC meeting. This new development is actually very good news for many compelling reasons, one being that the BTC has been an extra layer of bureaucracy which, now removed, will save all Partnership Agreement Holders much precious time.

In light of the above, I think it would be prudent to order our agenda as follows:

1. (20 min) Trail Society report. Our:

- **Navigation** update (8 min)
- **Year End** Report (2 min)
- **2020 Operation** Plan (3 min)
- **Commitment** to our Partnership Agreement (2 min)
- **Compliance** with RSTBC on halting new trail development while facilitating robust community engagement (2 min)
- **BTC exit & implications**

2. (? min) BTRA report

3. (? Min) BIHORA report

4. RSTBC response & direction

Even though this will not be a BTC meeting, our Trail Society will still record the minutes. Kevan, may I assume that you are still ready to chair this meeting?

Respectfully,

Chuck Venhuizen

BI Trail Society

Partnership Agreement Director

-----Original Message-----

From: "Kevan Bernards"

Sent: Saturday, January 25, 2020 4:53pm

To: "Chuck Venhuizen"

Cc: "Kristina Calli" , "Phil Osborne"

Subject: Re: Trail Society agenda items

Hi all,

This is unfortunate news.

Given this recent disclosure, I'll have to rework the current draft agenda for Tuesday's meeting. I hope to have this done by tomorrow morning.

Sincerely,

Kevan

From: [Kristina C](#)
To: [Kevan Bernards](#)
Cc: [Bradley, Dan FLNR:EX](#); [s.22](#) ; [Blackbird, Tom G FLNR:EX](#)
Subject: Re: May 28 Teleconference meeting items
Date: May 27, 2020 4:18:52 PM

1:30 tomorrow works for me too.

Thanks,

Kristina

> On May 27, 2020, at 3:45 PM, Kevan Bernards [s.22](#) wrote:
>
> That works for me, thanks!
>
> Sent from my iPhone
>
>> On May 27, 2020, at 3:32 PM, Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca> wrote:
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>> Dan Bradley
>> Recreation Technician
>> Recreation Sites and Trails BC
>> Ministry of Forests, Lands and Natural Resource Operations
>> 46360 Airport Road
>> Chilliwack BC V2P 1A5
>>
>> tel: 778-704-7074
>>
>>
>>
>> -----Original Message-----
>> From: Kevan Bernards [s.22](#)
>> Sent: May 27, 2020 2:45 PM
>> To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Kristina Calli C [s.22](#)
[s.22](#)
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>> If this is too long let me know which issues everyone wants to discuss tomorrow.
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>> Cheers,
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>> Kevan
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>> Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Kristina Calli C; s.22](#) [Blackbird, Tom G FLNR:EX](#)
Subject: Re: May 28 Teleconference meeting items
Date: May 27, 2020 3:45:36 PM

That works for me, thanks!

Sent from my iPhone

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> Sent from my iPhone

From: [Jessica Slater](#)
To: [Kristina C](#)
Cc: [Kevan Bernards](#); [Bradley, Dan FLNR:EX](#); [Blackbird, Tom G FLNR:EX](#)
Subject: Re: May 28 Teleconference meeting items
Date: May 27, 2020 7:42:37 PM

s.22

s.22

Is there

some way to record the call by chance? If i miss it? Or maybe just some notes after is easier.

Thanks for coordinating Kevan and Dan.

Jes

> On May 27, 2020, at 4:18 PM, Kristina C s.22 wrote:

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> 1:30 tomorrow works for me too.

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>>>> tel: 778-704-7074

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>>>> Sent: May 27, 2020 2:45 PM

>>>> To: Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Kristina Calli C s.22

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To: [Bradley, Dan FLNR:EX](#)
Cc: [Jessica Harman](#); [Kevan Bernards](#); [Blackbird, Tom G FLNR:EX](#); [Phil Osborne](#)
Subject: Re: Mount Gardner MOU
Date: June 24, 2020 9:57:36 AM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi All,

Works for me!

Many thanks,

Kristina
BIHORA

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Looks like Tom and I are free 10am on July 7th, would that work for everyone?

Dan Bradley
Recreation Technician
Recreation Sites and Trails BC
Ministry of Forests, Lands and Natural Resource Operations
46360 Airport Road
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From: Jessica Harman s.22
Sent: June 23, 2020 9:06 PM
To: Kevan Bernards s.22
Cc: Blackbird, Tom G FLNR:EX <Tom.Blackbird@gov.bc.ca>; Bradley, Dan FLNR:EX <Dan.Bradley@gov.bc.ca>; Kristina Calli C s.22 Phil Osborne s.22
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Sent from my iPhone

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Cc: [Blackbird, Tom G FLNR:EX](#); [Bradley, Dan FLNR:EX](#); [Kristina Calli C](#); [Phil Osborne](#)
Subject: Re: Mount Gardner MOU
Date: June 23, 2020 9:16:41 PM

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To: [Kristina C](#)
Cc: [Bradley, Dan FLNR:EX](#); [Jessica Harman](#); [Blackbird, Tom G FLNR:EX](#); [Phil Osborne](#)
Subject: Re: Mount Gardner MOU
Date: June 25, 2020 9:09:19 AM

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That works for me!

Cheers, Kevan

Sent from my iPhone

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From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: Signage for MtGardner junctions
Date: June 11, 2020 10:16:30 AM
Attachments: [trail_signs_trailhead.pdf](#)
[ATT00001.txt](#)

Hi Dan,

The agreement holders have been busy since our last teleconference. Almost all the posts are installed along Handloggers and canyon trail. BITS members have helped out on Handloggers as well as getting posts in at several other junctions on the west side. BTRA just has Easy Street left to mark and install 2 trailhead posts.

We'll be ready for signs soon so I'm wondering about format. I found the attached drawing on a gov site. I've shared the design below with BITS and BIHORA as a possibility.

Is this the approved format that we'd be using at main junctions and is there any flexibility in design or info?

In other news, BTRA's delegation to council on Monday night was unsuccessful in persuading them not to send in their letter requesting a ban of motorized recreational use on the mountain. At least we changed the mind of 1 councillor and perhaps were able to better shed some light in the community about our role as trail stewards.

Had a good teleconference with bcorma BOD last night. Great to get their feedback and hear about the successes in other areas of the province. Its interesting to note that Bowen is in almost the same stage as Vedder Mountain was nearly 10 years ago (I think you've also mentioned this). I think I day trip out there would possibly be beneficial to our agreement holders when it's safe to do so.

Anyhow, that's where we're at over here on Bowen.

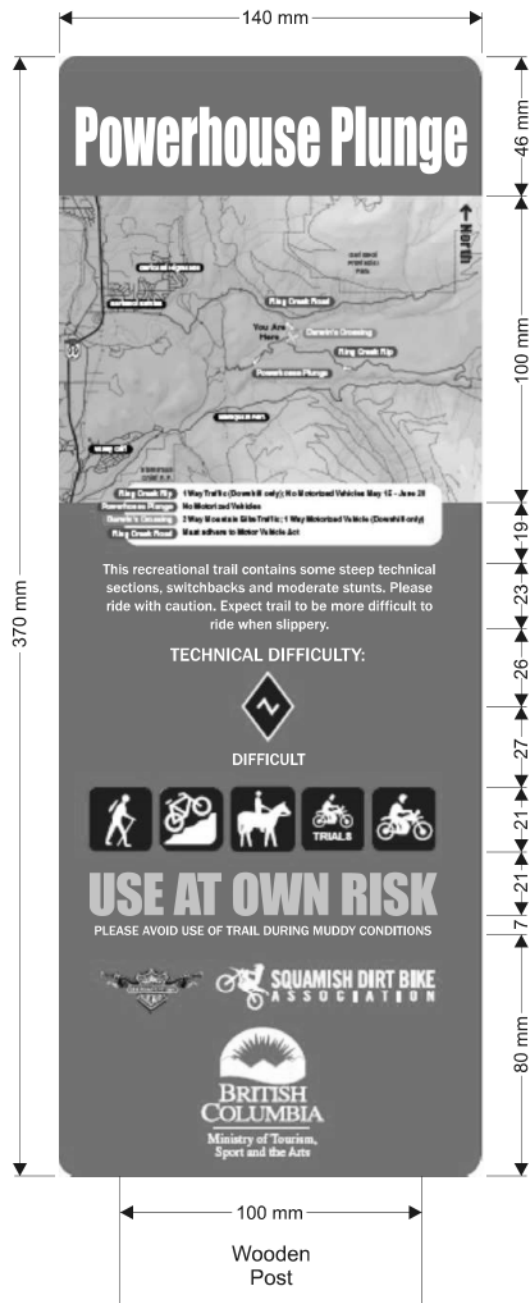
Cheers,

Kevan

https://www2.gov.bc.ca/assets/gov/sports-recreation-arts-and-culture/outdoor-recreation/camping-and-hiking/rec-sites-and-trails/structure-drawings/trail_signs_trailhead.pdf

TRAIL SIGNS - TRAILHEAD

TRAILHEAD SIGN



Black lettering Impact 70 point
character spacing 0%
condensed horizontally 65%

Trail Area Location Map

White lettering
Franklin Gothic Medium 14 point
character spacing 0%
line spacing 108% character height

White lettering
Franklin Gothic Medium 18 point
character spacing 0%

White lettering
Franklin Gothic Medium 16 point
character spacing 0%

Yellow lettering Impact 50 point
character spacing minus 10%


White lettering
Franklin Gothic Medium 12.5 point
character spacing 0%

User Groups
Clubs/Partners/Sponsors
Province of BC

Size	140mm x 370mm
Background Colour	Green: CMYK (100-0-100-0)
Mounting	- wood post measuring 100mm x 100mm - pre-treated or western red cedar - top of post 1.0m above ground
Font Type/Size	Large Fonts - IMPACT Small Fonts - Franklin Gothic Medium
Icons	Difficulty Rating Symbol User Groups Clubs/Partners/Sponsors Province of BC
Font Colour	Yellow Text: CMYK (0-13-100-0) White Text: CMYK (0-0-0-0)

SIGN COLOURS - Reflective paints

BLACK - C0, M0, Y0, K100	GREEN - C100, M0, Y100, K0
WHITE - C0, M0, Y0, K0	YELLOW - C0, M13, Y100, K0
RED - C0, M100, Y100, K0	ORANGE - C0, M50, Y100, K0

Standard TRAIL SIGNS - TRAILHEAD	
File No:	Draft Date: 10/08
Approved By: <i>WJ Marshall</i>	Revision No: Date: 11/08
Date:	Revision No: Date:
Date:	Revision No: Date:
 Ministry of Tourism, Sport and the Arts	Drawing Scale: 1 - 2.5 Sheet Size: 8.5" X 11" Drawing No: RST 481-TS-TH

Sent from my iPhone

From: [Kevan Bernards](#)
To: [Bradley, Dan FLNR:EX](#)
Cc: [Blackbird, Tom G FLNR:EX](#)
Subject: prototype signage for major junctions from BITS/agreement holder update
Date: May 5, 2020 10:11:15 AM
Attachments: [ATT00001.txt](#)

Hi Dan,

Good news, it looks like some of the BITS membership still want to work with us and have shared their latest concept in signage.

- The material is aluminum.
- BTRA is in support but with brown background rather than black.
- Would this design meet RSTBC requirements?

Jes Slater will be BITS new coalition contact which should improve communication between our groups. She has been supportive of collaboration in the past and was present at the coalition meeting in January s.22

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So there's a hope that under the new MOU and with a clear understanding of what our roles are with regards to how we function as a coalition that we can continue to work towards our goals as a partnership rather than individual stakeholders.

I've also been in contact with Kristina from BIHORA regarding the April 27 council meeting and municipal decision to pursue the restriction of motorized use on MtGardner. BIHORA supports BTRA, continued motorized access and stewardship as well as a collaborative partnership. She would like to join us on the conference call if possible?

Councillor Allison Morse asked Tom how many motorized trails there were on Bowen, Tom answered that Easy Street was the only (section 57?) authorized trail. Council took this to mean that Easy Street is the only motorized trail on island, the paper took it that way too and printed a story stating this and that this could mean the end of motorized use on MtGardner. Obviously, there are many other trails which we use and maintain on the mountain and Bowen. BTRA is worried that this could potentially lead to conflict on the trails, is there any way that Tom could clarify his statement in a letter or call to mayor and council and the Undercurrent?

I am looking forward to our discussion re new PA!

Sincerely,

Kevan

President, BTRA

Sent from my iPhone