

Fernandes, Ruth FLNR:EX

From: Trent, Tennessee FLNR:EX
Sent: Wednesday, May 2, 2018 9:59 AM
To: XT:Johnson, Richard FLNR:IN
Subject: Re: Work?

I am in but on a call. I'll try you a little later.

Sent from my handheld device

On May 2, 2018, at 9:57 AM, Richard Johnson <pilotpnt@telus.net> wrote:

Hi Tennessee;
Daniel asked that I contact you concerning a possible project or some inspections. Is there a good time for me to call you? Or if you could let me know what/where it is and I can schedule it in. Right now, things are fairly quiet although they could really get interesting with a rapid snow melt!
s.22

Anyways, I hope to hear from you; I will keep trying your number in case you happen to be in.

Richard (Rick) Johnson RPF
Pilot Point Forest Consultants
2643 5th Avenue
Castlegar BC V1N 2T7
250-365-9983/250-551-8185
e-mail: pilotpnt@telus.net

Fernandes, Ruth FLNR:EX

From: Trent, Tennessee FLNR:EX
Sent: Wednesday, May 9, 2018 4:29 PM
To: XT:Johnson, Richard FLNR:IN
Cc: Scott, Daniel FLNR:EX
Subject: RE: request for quote for forest engineering services

I'll get you a contract a little later this evening Rick.
Cheers
TT

Tennessee Trent - *Manager, Trails*
Ministry of Forests Lands Natural
Resource Operations and Rural Development
Recreation Sites and Trails BC
4th Floor – 333 Victoria Street
Nelson, BC
250-354-6750

tennessee.trent@gov.bc.ca

From: Richard Johnson [<mailto:pilotpnt@telus.net>]
Sent: Thursday, May 3, 2018 8:30 AM
To: Trent, Tennessee FLNR:EX
Cc: Scott, Daniel FLNR:EX
Subject: RE: request for quote for forest engineering services

Hi Tennessee;
Thank you for this invitation to quote.
I understand that this is more or less a short term opportunity, but it would fit well into my current schedule.

My quote for this is an all-inclusive rate ^{s.21} . This includes field and office time, and includes mileage on my vehicle.

If successful, I would be able to make a first inspection (as far as snow conditions allow) the week of May 7.

Rick

From: Trent, Tennessee FLNR:EX [<mailto:Tennessee.Trent@gov.bc.ca>]
Sent: May 2, 2018 4:29 PM
To: XT:Johnson, Richard FLNR:IN
Cc: Scott, Daniel FLNR:EX
Subject: request for quote for forest engineering services

Hi Rick,

I would like to ask you for a quote for an hourly rate for the following:

- We require ongoing periodic inspections of the Columbia and Western Rail Trail from the pumphouse gate in Castlegar (private land not administered by the province) to Santa Rosa Road near Christina Lake. This is a distance of approximately 85 kilometers on the Columbia and Western Rail Trail
- The inspections can be done using an appropriately sized, small highway vehicle.
- The inspections should identify where significant risk is being posed related to engineered infrastructure on the rail trail – specifically the engineered infrastructure is bridges, retaining walls and culverts of all sizes. As you know, some culverts are large (3.5m diameter, 80m long stone arch culverts and other turn of the century rail infrastructure)
- Where you identify concerns related to infrastructure, the province would like a repair prescription and the level of urgency related to implementing the repair
- Should other professionals be required (biologist, engineer etc) please include that in your recommendations
- We would like to have a few, periodic inspections of this section of rail grade through freshet starting as early in May as possible. We discussed approximately 4 inspections over the next 6 weeks or so.

Thank you

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 250-354-6750

tennessee.trent@gov.bc.ca

Fernandes, Ruth FLNR:EX

From: Richard Johnson <pilotpnt@telus.net>
Sent: Friday, May 18, 2018 9:23 AM
To: Trent, Tennessee FLNR:EX
Subject: RE: RC 192300002 Pilot Point signed.pdf

Thanks Tennessee. Both issues are becoming stable as water levels drop and streams dry up so I feel there is no urgency at this time but any actions must be done this year before next freshet.
Rick

From: Trent, Tennessee FLNR:EX [<mailto:Tennessee.Trent@gov.bc.ca>]
Sent: May 18, 2018 8:40 AM
To: XT:Johnson, Richard FLNR:IN
Cc: Scott, Daniel FLNR:EX
Subject: RE: RC 192300002 Pilot Point signed.pdf

Thanks for the update Rick. Generally in good shape. Good to know. A couple of comments below.

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Resource Operations and Rural Development
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4th Floor – 333 Victoria Street
Nelson, BC
250-354-6750

tennessee.trent@gov.bc.ca

From: Richard Johnson [<mailto:pilotpnt@telus.net>]
Sent: Friday, May 18, 2018 12:37 AM
To: Trent, Tennessee FLNR:EX
Subject: RE: RC 192300002 Pilot Point signed.pdf

Thanks Tennessee. I risk managed this a bit and have already put in 2 days of inspections. I suddenly had spare time when all hell broke loose at Grand Forks. I have gotten as far as Quinn Creek (but not including Quinn, which still has considerable snow at creek level). I will pick up most of the rest next week if there is no debris blocking my way in the Paulson area.

So far, everything has been very good on the trail with two exceptions:

- Fill slope failure at 16km, about 1km east of McCormack trestle. Currently the trail is about 3m wide, with about 1.5m of shoulder/trail lost for 10m length. The site is well marked and currently safe for users, but will need to be repaired by either filling the hole with rock or lock blocks or perhaps blasting a lift of rock along the inside. A culvert needs installation but the ground is solid rock. Also, it is uncertain what the footing would be for the fill option.

We may have to look at longer term options and fixes here. I may request a more detailed report and repair plan (with engineer input as needed) but for now we will have to monitor.

- Brooklyn Creek culvert is working well but the fill is scouring on the right side of the outlet due to diversion of the flow below the culvert. This needs armouring with rock or some other alternate; access by equipment is difficult. I will talk to BCTS who (I understand) are proposing to rebuild part of this section for access.

I haven't heard anything from BCTS regarding their proposed access for months. I am not certain they still want access via the rail grade. If someone confirms that is the case, please have them contact me.

The trail was ditched last year from the water intake to at least Quinn Creek with several new cross drains installed and others replaced. Water management has worked out extremely well and virtually all the road surface is dry. I have been in touch with Jeremy Nelson who has indicated some spots to check (the slope failure, Walker Creek).

Good news.

Stream flows from the water intake to Bulldog are starting to reduce so I don't think I need to go in from the Castlegar end for continued monitoring; the next trip I will go in from Paulson end to Quinn and carry on toward Christina. I am hanging flagging tape on each culvert I check.

Sounds good. I suggest it is worth having you go all the way to Cascade trestle. It would be of value.

Rick

From: Trent, Tennessee FLNR:EX [<mailto:Tennessee.Trent@gov.bc.ca>]

Sent: May 17, 2018 9:50 AM

To: XT:Johnson, Richard FLNR:IN

Cc: Scott, Daniel FLNR:EX

Subject: RC 192300002 Pilot Point signed.pdf

Rick

My apologies. I just realized I didn't counter sign and send this back. Here it is now.

Cheers

TT

Tennessee Trent - *Manager, Trails*
Ministry of Forests Lands Natural
Resource Operations and Rural Development
Recreation Sites and Trails BC
4th Floor – 333 Victoria Street
Nelson, BC
250-354-6750

tennessee.trent@gov.bc.ca

Fernandes, Ruth FLNR:EX

From: Trent, Tennessee FLNR:EX
Sent: Wednesday, May 2, 2018 4:29 PM
To: XT:Johnson, Richard FLNR:IN
Cc: Scott, Daniel FLNR:EX
Subject: request for quote for forest engineering services

Hi Rick,

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- We require ongoing periodic inspections of the Columbia and Western Rail Trail from the pumphouse gate in Castlegar (private land not administered by the province) to Santa Rosa Road near Christina Lake. This is a distance of approximately 85 kilometers on the Columbia and Western Rail Trail
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Thank you

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4th Floor – 333 Victoria Street
Nelson, BC
250-354-6750

tennessee.trent@gov.bc.ca

Fernandes, Ruth FLNR:EX

From: Trent, Tennessee FLNR:EX
Sent: Thursday, May 17, 2018 9:50 AM
To: XT:Johnson, Richard FLNR:IN
Cc: Scott, Daniel FLNR:EX
Subject: RC 192300002 Pilot Point signed.pdf
Attachments: RC 192300002 Pilot Point signed.pdf

Rick

My apologies. I just realized I didn't counter sign and send this back. Here it is now.

Cheers

TT

Tennessee Trent - *Manager, Trails*
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Resource Operations and Rural Development
Recreation Sites and Trails BC
4th Floor – 333 Victoria Street
Nelson, BC
250-354-6750

tennessee.trent@gov.bc.ca



Ministry of
Forests, Lands,
Natural Resource Operations
& Rural Development

Consulting and General Services Contract

CONTRACT./FILE NO: RC192300002	THIS AGREEMENT DATED FOR REFERENCE THE 9 th DAY OF MAY, 2018.
PROJECT DESCRIPTION: FOREST ENGINEERING INSPECTIONS OF RAIL TRAILS	

BETWEEN:

HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF BRITISH COLUMBIA, as represented by the MINISTER OF FORESTS, LANDS, NATURAL RESOURCE OPERATIONS & RURAL DEVELOPMENT

RSTBC Nelson Trails Office
4th Floor – 333 Victoria Street Nelson, BC

Phone Number: (250) 354-6750
Ministry Representative: Tennessee Trent
E-mail Address: Tennessee.trent@gov.bc.ca

(the "Province", "we", "us", or "our" as applicable)

AND:

Pilot Point Forest Consultants
2643 5th Avenue Castlegar BC V1N 2T7
Phone Number: (250) 365-9983
E-mail Address: pilotpnt@telus.net
Contractor Representative: Richard Johnson
Business Number: FM0375433
WorkSafe BC and/or Personal Optional Protection Number: 718360

(the "Contractor", "you", or "your" as applicable)

The Province wishes to retain the Contractor to provide the Services specified in Schedule A and, in consideration for the remuneration set out in Schedule B, the Contractor has agreed to provide those Services, on the terms and conditions set out in this Agreement.

The Province and the Contractor agree as follows:

ARTICLE 1 DEFINITIONS

1.01 In this Agreement, unless the context otherwise requires:

- (a) "**Business Day**" means a day, other than a Saturday or Sunday, on which Provincial government offices are open for normal business in British Columbia;
- (b) "**Incorporated Material**" means any material in existence prior to the start of the Term or developed independently of this Agreement, and that is incorporated or embedded in the Produced Material by the Contractor or a Subcontractor;
- (c) "**Material**" means the Produced Material and the Received Material;
- (d) "**Produced Material**" means records, software and other material, whether complete or not, that, as a result of this Agreement, are produced or provided by the Contractor or a Subcontractor and includes the Incorporated Material;

- (e) **"Received Material"** means records, software and other material, whether complete or not, that, as a result of this Agreement, are received by the Contractor or a Subcontractor from the Province or any other person;
- (f) **"Record"** is the definition of "record" in the *Interpretation Act* and as incorporated into this Agreement and "records" will bear a corresponding meaning;
- (g) **"Services"** means the services described in Schedule A;
- (h) **"Subcontractor"** means a person described in Section 16.05;
- (i) **"Term"** means the term of the Agreement described in Section 3.01 of this Agreement subject to that term ending earlier in accordance with this Agreement; and
- (j) **"Unit of Measure"** has the meaning described in Schedule B.

1.02 The headings of the clauses of this Agreement have been inserted for reference only and do not define, limit, alter or enlarge the meaning of any provision of this Agreement.

ARTICLE 2 CONTRACT DOCUMENTS AND MODIFICATIONS

2.01 The attached schedules are applicable to and form part of this Agreement:

Schedule	Title
Schedule 'A'	Services
Schedule 'B'	Contract Payment
Schedule 'C'	Safety Conditions Schedule
Schedule 'D'	Insurance Requirements

2.02 No modification of this Agreement is effective unless it is in writing and signed by, or on behalf of, the parties.

ARTICLE 3 TERM OF CONTRACT

3.01 The Term of this Agreement is from and including **May 9 2018** to and including **march 15, 2019** inclusive.

3.02 Regardless of the date of execution or delivery of this Agreement, the Contractor must provide the Services during the Term.

3.03 Time is of the essence in this Agreement and, without limitation, will remain of the essence after any modification or extension of this Agreement, whether or not expressly restated in the document effecting the modification or extension.

ARTICLE 4 CONTRACTOR'S OBLIGATIONS

4.01 You must provide the Services described in Schedule A (the "Services") in accordance with this Agreement.

4.02 Unless the parties otherwise agree in writing, you must supply and pay for all labour, materials, equipment, tools, facilities, and approvals and licences necessary or advisable to perform your obligations under this Agreement, including the license under Section 8.04.

4.03 Unless otherwise specified in this Agreement, you must perform the Services to a standard of care, skill, and diligence maintained by persons providing, on a commercial basis, services similar to the Services.

4.04 You must provide, instruct, and supervise a sufficient number of qualified personnel to enable timely and proper performance and completion of the Services. All such personnel shall be competent, English literate, efficient and qualified by education, training and experience to carry out the tasks to which each is assigned.

4.05 We may from time to time give you reasonable instructions (in writing or otherwise) as to the performance of the Services. You must comply with those instructions but, unless otherwise specified in this Agreement, you may determine the manner in which the instructions are carried out.

4.06 If we provide an instruction under Section 4.05 other than in writing, you may request that the instruction be confirmed by us in writing, which request we must comply with as soon as it is reasonably practicable to do so.

4.07 Requesting written confirmation of an instruction under Section 4.06 does not relieve you from complying with the instruction at the time the instruction was given.

4.08 In the performance of your obligations under this Agreement, you must comply with all applicable laws.

ARTICLE 5 PAYMENT

5.01 If you comply with this Agreement, we must pay you at the rates and times described in Schedule B:

- (a) the fees described in that Schedule;
- (b) the expenses, if any, in accordance with that Schedule if they are supported, where applicable, by proper receipts and, in our opinion, are necessarily incurred by you in providing the Services; and
- (c) any applicable taxes payable by us under law or agreement with the relevant taxation authorities on the fees and expenses described in paragraphs (a) and (b).

We are not obliged to pay you more than the maximum amount or dollar limit specified in Schedule B on account of fees and expenses.

- 5.02 In order to obtain payment of any fees or expenses, if any, under this Agreement, you must submit written statements of account to us in a form satisfactory to us, but no sooner than the dates referred to in Schedule B.
- 5.03 Without limiting Section 11.01 we may withhold from any payment due to you an amount sufficient to indemnify, in whole or in part, the Province and its employees and agents against any liens or other third-party claims that have arisen or could arise in connection with the provision of the Services. An amount withheld under this section must be promptly paid by the Province to you upon the basis for withholding the amount having been fully resolved to the satisfaction of the Province.
- 5.04 Our obligation to pay money to you is subject to the *Financial Administration Act*, which makes that obligation subject to an appropriation being available in the fiscal year of the Province during which payment becomes due.
- 5.05 Unless otherwise specified in this Agreement, all references to money are to Canadian dollars.
- 5.06 If you are not a resident in Canada, you acknowledge that we may be required by law to withhold income tax from the fees described in Schedule B and then to remit that tax to the Receiver General of Canada on your behalf.
- 5.07 Without limiting Section 16.11(a), you must not, in relation to performing your obligations under this Agreement, commit or purport to commit us to pay any money except as may be expressly provided for in this Agreement.
- 5.08 You must:
 - (a) apply for, and use reasonable efforts to obtain, any available refund, credit, rebate or remission of federal, provincial or other tax or duty imposed on you as a result of this Agreement that the Province has paid or reimbursed to you or agreed to pay or reimburse to you under this Agreement; and
 - (b) immediately on receiving, or being credited with, any amount applied for under paragraph (a) remit that amount to us.

ARTICLE 6 REPRESENTATIONS AND WARRANTIES

- 6.01 As at the date this Agreement is executed and delivered by, or on behalf of, the parties, you represent and warrant to us as follows:
 - (a) except to the extent you have previously disclosed otherwise in writing to us:
 - (i) all information, statements, documents and reports furnished or submitted by you to us in connection with this Agreement (including as part of any competitive process resulting in this Agreement being entered into) are in all material respects true and correct,
 - (ii) you have sufficient trained staff, facilities, materials, appropriate equipment and approved subcontractual or other agreements in place and available to enable you to fully perform the Services and to grant any licenses under this Agreement; and
 - (iii) you hold all permits, licenses, approvals and statutory authorities issued by any government or government agency that are necessary for the performance of your obligations under this Agreement; and
 - (b) if the Contractor is not an individual:
 - (i) you have the power and capacity to enter into this Agreement and to observe, perform and comply with the terms of this Agreement and all necessary corporate or other proceedings have been taken and done to authorize the execution and delivery of this Agreement by, or on behalf of, you, and
 - (ii) this Agreement has been legally and properly executed by, or on behalf of, you and is legally binding upon and enforceable against you in accordance with its terms except as enforcement may be limited by bankruptcy, insolvency or other laws affecting the rights of creditors generally and except that equitable remedies may be granted only in the discretion of a court of competent jurisdiction.

ARTICLE 7 PRIVACY, SECURITY AND CONFIDENTIALITY

- 7.01 You must comply with the Privacy Protection Schedule if attached to this Agreement.
- 7.02 You must make reasonable security arrangements to protect the Material from unauthorized access, collection, use, disclosure, alteration, or disposal and comply with the Security Schedule, if attached.
- 7.03 You must treat as confidential all information in the Material and all other information accessed or obtained by you or a Subcontractor (whether verbally, electronically or otherwise) as a result of this Agreement, and not permit its disclosure or use without our prior written consent except:
- (a) as required to perform your obligations under this Agreement or to comply with applicable laws;
 - (b) if it is information that is generally known to the public other than as a result of a breach of this Agreement; or
 - (c) if it is information in any Incorporated Material.
- 7.04 Any public announcement relating to this Agreement will be arranged by us and, if such consultation is reasonably practicable, after consultation with you.
- 7.05 You must not, without our prior written approval, refer for promotional purposes to the Province being your customer or the Province having entered into this Agreement.

ARTICLE 8 MATERIAL AND INTELLECTUAL PROPERTY

- 8.01 If you receive a request for access to any of the Material from a person other than us, and this Agreement does not require or authorize you to provide that access, you must promptly advise the person to make the request to us.
- 8.02 We exclusively own all property rights in the Material that are not intellectual property rights. Any equipment property we may provide to you or a subcontractor is our exclusive property. You must deliver any Material or equipment property to us immediately following expiration of this Agreement, or sooner upon our request, in the same condition it was supplied to you, excepting always loss or damage attributable to reasonable wear or tear.
- 8.03 We exclusively own all intellectual property rights, including copyright:
- (a) in Received Material that you receive from us, and
 - (b) in Produced Material, other than any Incorporated Material.
- Upon our request, you must deliver to us documents satisfactory to us that irrevocably waive in our favour any moral rights that you (or your employees) or a Subcontractor (or its employees) may have in the Produced Material and confirm the vesting in the Province of the copyright in the Produced Material, other than any Incorporated Material.
- 8.04 Upon any Incorporated Material being embedded or incorporated in the Produced Material and to the extent that it remains so embedded or incorporated, you grant the Province:
- (a) a non-exclusive, perpetual, irrevocable, royalty-free, worldwide license to exercise, in respect of that Incorporated Material, the rights set out in the *Copyright Act (Canada)*, including the right to use, reproduce, modify, publish and distribute that Incorporated Material; and
 - (b) the right to sublicense or assign to third-parties any or all of the rights granted to the Province under Section 8.04 (a).

ARTICLE 9 RECORDS AND REPORTS

- 9.01 You must, upon our request, fully inform us of all work done by you or a Subcontractor in connection with providing the Services.
- 9.02 If Schedule B provides for you to be paid fees at a Unit of Measure rate or for you to be paid or reimbursed for expenses, you must maintain time records and books of account, invoices, receipts and vouchers of expenses in support of those payments, in form and content satisfactory to us. Unless otherwise specified in this Agreement, the Contractor must retain such documents for a period of not less than seven years after this Agreement ends.

ARTICLE 10 AUDIT

- 10.01 In addition to any other rights of inspection the Province may have under statute or otherwise, we may at any reasonable time and on reasonable notice to you, enter on your premises to inspect and, at our discretion, copy any of the Material and you must permit, and provide reasonable assistance to, the exercise by us of our rights under this section.

ARTICLE 11 INDEMNITY AND INSURANCE

- 11.01 You must indemnify and save harmless the Province and its employees and agents from any loss, claim (including any claim of infringement of third-party intellectual property rights), damage award, action, cause of action, cost or expense that the Province or any of its employees or agents may sustain, incur, suffer or be put to at any time, either before or after this Agreement ends, (each a "Loss") to the extent the Loss is directly or indirectly caused or contributed to by:
- (a) any act or omission by you or by any of your agents, employees, officers, directors or Subcontractors in connection with this Agreement; or
 - (b) any representation or warranty by you being or becoming untrue or incorrect.
- 11.02 You must comply with the insurance requirements in Schedule D, if attached, as those terms may be modified from time to time in accordance with our directions.
- 11.03 Without limiting the generality of Section 4.08, you must comply with, and must ensure that any Subcontractors comply with, all applicable occupational health and safety laws in relation to the performance of your obligations under this Agreement, including the *Workers Compensation Act* in British Columbia or similar laws in other jurisdictions.
- 11.04 At your own expense, and where required under *Workers Compensation Act* in British Columbia, you must obtain WorkSafe BC coverage for yourself, all workers and any shareholders, directors, partners or other individuals employed or engaged in the performance of the Services and you shall ensure all approved Subcontractors obtain WorkSafe BC Coverage.
- 11.05 If you are an individual or a partnership of individuals and do not have the benefit of mandatory workers compensation coverage under the *Workers Compensation Act* in British Columbia, you must apply for and maintain Personal Optional Protection under the *Workers Compensation Act*.
- 11.06 You are responsible for all fines, levies, penalties and assessments made or imposed under the *Workers Compensation Act* and regulations relating in any way to the Services.
- 11.07 You may be considered the "Prime Contractor" for the Services, as described in the attached Safety Conditions Schedule, and as such shall enter into a Prime Contractor Agreement and carry out the duties as described therein;
- 11.08 Upon our request you must provide us with evidence of your compliance with Sections 11.02, 11.04 and 11.05.

ARTICLE 12 FORCE MAJEURE

- 12.01 An "Event of Force Majeure" means a natural disaster, fire, flood, storm, epidemic or power failure, war (declared and undeclared), insurrection or act of terrorism or piracy, strike (including illegal work stoppage or slowdown) or lockout, or a freight embargo if such event prevents a party from performing its obligations in accordance with this Agreement and is beyond the reasonable control of that party.
- 12.02 An "Affected Party" means a party prevented from performing its obligations in accordance with this Agreement by an Event of Force Majeure.
- 12.03 An Affected Party is not liable to the other party for any failure or delay in the performance of the Affected Party's obligations under this Agreement resulting from an Event of Force Majeure and any time periods for the performance of such obligations are automatically extended for the duration of the Event of Force Majeure provided that the Affected Party complies with the requirements of Section 12.04.
- 12.04 An Affected Party must promptly notify the other party in writing upon the occurrence of the Event of Force Majeure and make all reasonable efforts to prevent, control or limit the effect of the Event of Force Majeure so as to resume compliance with the Affected Party's obligations under this Agreement as soon as possible.

ARTICLE 13 NON-COMPLIANCE WITH AGREEMENT CONDITIONS

- 13.01 An "Event of Default" means any of the following:
- (a) your failure to perform any of your obligations under this Agreement, or
 - (b) any representation or warranty made by you in this Agreement is untrue or incorrect, or
 - (c) an Insolvency Event, which means any of the following:
 - (i) an order is made, a resolution is passed or a petition is filed, for your liquidation or winding up,
 - (ii) you commit an act of bankruptcy, make an assignment for the benefit of your creditors or otherwise acknowledge your insolvency,

- (iii) a bankruptcy petition is filed or presented against you or a proposal under the *Bankruptcy and Insolvency Act* (Canada) is made by you,
 - (iv) a compromise or arrangement is proposed in respect of you under the *Companies' Creditors Arrangement Act* (Canada),
 - (v) a receiver or receiver-manager is appointed for any of your property, or
 - (vi) you cease, in our reasonable opinion, to carry on business as a going concern.
- 13.02 On the happening of an Event of Default, or at any time thereafter, we may, at our option, elect to do any one or more of the following:
- (a) by written notice to you, require that the Event of Default be remedied within a time period specified in the notice;
 - (b) pursue any remedy or take any other action available to us at law or in equity; or
 - (c) by written notice to you, terminate this Agreement with immediate effect or on a future date specified in the notice, subject to the expiration of any time period specified under Section 13.02(a).
- 13.03 No failure or delay on our part to exercise our rights in relation to an Event of Default will constitute a waiver by us of such rights.
- 13.04 If you become aware that an Event of Default has occurred or anticipates that an Event of Default is likely to occur, you must promptly notify us of the particulars of the Event of Default or anticipated Event of Default. A notice under this section as to the occurrence of an Event of Default must also specify the steps you propose to take to address, or prevent recurrence of, the Event of Default. A notice under this section as to an anticipated Event of Default must specify the steps you propose to take to prevent the occurrence of the anticipated Event of Default.

ARTICLE 14 TERMINATION

- 14.01 In addition to our right to terminate this Agreement under Section 13.02(c) on the happening of an Event of Default, we may terminate this Agreement for any reason by giving at least 5 days' written notice of termination to you.
- 14.02 Unless Schedule B otherwise provides, if we terminate this Agreement under Section 14.01:
- (a) we must, within 30 days of such termination, pay you any unpaid portion of the fees and expenses described in Schedule B which corresponds with the portion of the Services that was completed to our satisfaction before termination of this Agreement; and
 - (b) you must, within 30 days of such termination, repay to us any paid portion of the fees and expenses described in Schedule B which corresponds with the portion of the Services that we have notified you in writing was not completed to our satisfaction before termination of this Agreement.
- 14.03 The payment by us of the amount described in Section 14.02(a) discharges us from all liability to make payments to the Contractor under this Agreement.

ARTICLE 15 DISPUTE RESOLUTION

- 15.01 In the event of any dispute between the parties arising out of or in connection with this Agreement, the following dispute resolution process will apply unless the parties otherwise agree in writing:
- (a) the parties must initially attempt to resolve the dispute through collaborative negotiation;
 - (b) if the dispute is not resolved through collaborative negotiation within 15 Business Days of the dispute arising, the parties must then attempt to resolve the dispute through mediation under the rules of the British Columbia Mediator Roster Society; and
 - (c) if the dispute is not resolved through mediation within 30 Business Days of the commencement of mediation, the dispute must be referred to and finally resolved by arbitration under the *Arbitration Act*.
- 15.02 Unless the parties otherwise agree in writing, an arbitration or mediation under Section 15.01 will be held in Victoria, British Columbia.
- 15.03 Unless the parties otherwise agree in writing or, in the case of an arbitration, the arbitrator otherwise orders, the parties must share equally the costs of a mediation or arbitration under Section 15.01 other than those costs relating to the production of expert evidence or representation by counsel.

ARTICLE 16 GENERAL

- 16.01 Any notice or document contemplated by this Agreement, to be effective, must be in writing and delivered as follows:
- (a) hand delivered to the party or the specified party representative, in which case it will be deemed to be received on the day of its delivery; or
 - (b) by prepaid post to the party's address specified on the first page of this Agreement, in which case if mailed during any period when normal postal services prevail, it will be deemed to be received on the fifth Business Day after its mailing; or
 - (c) delivered by courier service to the party's address specified on the first page of this Agreement, in which case it will be deemed received on the fifth Business Day after collection by the courier service; or
 - (d) by facsimile or electronic transmission to the specified facsimile number or Email address on the first page of this Agreement, in which case it will be deemed to be received on the day of transmittal unless transmitted after the normal business hours of the addressee or on a day that is not a Business Day, in which cases it will be deemed to be received on the next following Business Day.
- 16.02 Either party may from time to time give notice to the other party of a substitute address, Email address, or fax number, which from the date such notice is given will supersede for purposes of Section 16.01 any previous address, Email address, or fax number specified for the party giving the notice.
- 16.03 You must not assign any of your rights or obligations under this Agreement without our prior written consent. Upon providing written notice to you, the Province may assign to any person any of the Province's rights under this Agreement and may assign to any "government corporation", as defined in the *Financial Administration Act*, any of the Province's obligations under this Agreement.
- 16.04 You must not subcontract any of your obligations under this Agreement without our prior written consent, excepting persons listed in Schedule A.
- 16.05 No subcontract, whether consented to or not, relieves you from any obligations under this Agreement. You must comply with the Subcontracting Schedule if attached to this Agreement. You must ensure that any person retained by you or any person retained by a person retained by you fully complies with this Agreement in performing the subcontracted obligations.
- 16.06 We may, for reasonable cause, object to the use of a proposed Subcontractor and require you to retain another qualified subcontractor.
- 16.07 A waiver of any term or breach of this Agreement is effective only if it is in writing and signed by, or on behalf of, the waiving party and is not a waiver of any other term or breach.
- 16.08 This Agreement and any modification of it constitute the entire Agreement between the parties as to performance of the Services.
- 16.09 Sections 4.08, 5.01 to 5.04, 5.07, 5.08, 7.01 to 7.05, 8.01 to 8.04, 9.01, 9.02, 10.01, 11.01, 11.02, 11.07, 12.01 to 12.04, 13.02, 13.03, 14.02, 14.03, 15.01 to 15.03, 16.01, 16.02, 16.09, and 16.11, any accrued but unpaid payment obligations, and any other sections of this Agreement (including schedules) which, by their terms or nature, are intended to survive the completion of the Services or termination of this Agreement, will continue in force indefinitely subject to any applicable limitation period prescribed by law, even after this Agreement ends.
- 16.10 The schedules to this Agreement (including any appendices or other documents attached to, or incorporated by reference into, those schedules) are part of this Agreement.
- 16.11 In relation to the performance of your obligations under this Agreement, you are an independent contractor and not our:
- (a) employee or partner; or
 - (b) agent except as may be expressly provided for in this Agreement.
- You must not act or purport to act contrary to this section.
- 16.12 You must not do anything that would result in personnel hired or used by you or a Subcontractor in relation to providing the Services being considered our employees.
- 16.13 If one or more individuals are identified in the schedules as "Key Personnel", you must cause those individuals to perform the Services on your behalf and not remove or replace them, without our prior written approval. Any approved replacement is at your expense.

- 16.14 We must make available to you all information in our possession which we consider pertinent to the performance of the Services.
- 16.15 You must not provide any services to any person in circumstances which, in our reasonable opinion, could give rise to a conflict of interest between your duties to that person and your duties to us under this Agreement.
- 16.16 If there is a conflict among provisions of this Agreement, a provision in the body of this Agreement will prevail over any conflicting provision in, attached to, or incorporated by reference into a schedule, unless that conflicting provision expressly states otherwise and a provision in a schedule will prevail over any conflicting provision in a document attached to or incorporated by reference into a schedule, unless the schedule expressly states otherwise.
- 16.17 This Agreement does not operate as a permit, license, approval or other statutory authority which you may be required to obtain from the Province or any of its agencies in order to provide the Services. Nothing in this Agreement is to be construed as interfering with, or fettering in any manner, the exercise by the Province or its agencies of any statutory, prerogative, executive or legislative power or duty.
- 16.18 If any provision of this Agreement or the application of it to any person or circumstance is invalid or unenforceable to any extent, the remainder of this Agreement and the application of such provision to any other person or circumstance will not be affected or impaired and will be valid and enforceable to the extent permitted by law.
- 16.19 Each party must perform the acts, execute and deliver the writings, and give the assurances as may be reasonably necessary to give full effect to this Agreement.
- 16.20 This Agreement is governed by, and is to be interpreted and construed in accordance with, the laws applicable in British Columbia.

ARTICLE 17 INTERPRETATION

17.01 In this Agreement:

- (a) "we", "us", and "our" refer to the Province alone and never refer to the combination of the Contractor and the Province;
- (b) the Contractor and the Province are referred to as "the parties" and each of them as a "party";
- (c) "includes" and "including" are not intended to be limiting;
- (d) unless the context otherwise requires, references to sections by number are to sections of this Agreement;
- (e) "attached" means attached to this Agreement when used in relation to a schedule;
- (f) unless otherwise specified, a reference to a statute by name means the statute of British Columbia by that name, as amended or replaced from time to time;
- (g) the headings have been inserted for convenience of reference only and are not intended to describe, enlarge or restrict the scope or meaning of this Agreement or any provision of it;
- (h) "person" includes an individual, partnership, corporation or legal entity of any nature; and
- (i) unless the context otherwise requires, words expressed in the singular include the plural and *vice versa*.

ARTICLE 18 EXECUTION AND DELIVERY

18.01 This Agreement may be entered into by a separate copy of this Agreement being executed by, or on behalf of, each party and that executed copy being delivered to the other party by a method provided for in Section 16.01 or any other method agreed to by the parties.

The Parties have executed this Agreement as follows:

SIGNED AND DELIVERED on behalf of the Province by an authorized representative of the Province 	SIGNED AND DELIVERED by or on behalf of the Contractor (or by an authorized signatory of the Contractor if a corporation) 
(Authorized Ministry Expense Authority)	(Contractor or Authorized Signatory)
Tennessee Trent	R.L. Johnson
(PRINTED NAME of Ministry Expense Authority)	(PRINTED NAME of Contractor)
Dated this <u>17th</u> day of <u>May</u> , 20 <u>18</u>	Dated this <u>9</u> day of <u>May</u> , 20 <u>18</u>

Fernandes, Ruth FLNR:EX

From: Richard Johnson <pilotpnt@telus.net>
Sent: Friday, May 18, 2018 1:54 PM
To: Trent, Tennessee FLNR:EX
Subject: Brooklyn Creek and BCTS
Attachments: P1210707.JPG

Hi Tennessee;

I talked with Todd Philips (BCTS Engineer) today as well as a Forest Tech (Milan Mi) about BCTS plans for the area around Brooklyn Creek. They are planning to layout blocks in the upper Pup Creek area (as well as the lower Brooklyn Creek area) and the hauling of wood would follow the rail trail from about Pup Creek to just east of Bulldog Tunnel before joining the Bulldog FSR which goes over top of the tunnel. Thus, they would be rebuilding the crossing at Brooklyn which has a small scour issue.

They do not know at this time when such work will occur. I asked them to get in touch with you; they have a good map which shows how aggressive the logging will be (Douglas-fir bark beetle). Brooklyn residents might be concerned but that is not your problem. They promised they would contact you soon.

The scour should be repaired this year to avoid potential loss of the trail next year, should the BCTS work not begin for another year or two. Considering it is beetle, I would anticipate they will be building in the spring next year (my guess). It will be difficult for us to find, haul, dump and place angular rock due to the general absence of it within a reasonable distance. However, if BCTS does not plan to do the work until later next year then we might be able to do a short-term fix using sandbags or concrete sacks to protect the vulnerable bank. Good hard labour could be used to even reduce the pile of rock that is diverting the stream. If they plan to do the work late this fall or early in the new year then we might not have to worry so much. The scour is active but the stream is starting to reduce in volume so no more scour activity is expected this year.

I've attached a photo of the Brooklyn Creek scour.

Richard (Rick) Johnson RPF
Pilot Point Forest Consultants
2643 5th Avenue
Castlegar BC V1N 2T7
250-365-9983/250-551-8185
e-mail: pilotpnt@telus.net

Fernandes, Ruth FLNR:EX

From: Trent, Tennessee FLNR:EX
Sent: Friday, May 18, 2018 2:38 PM
To: XT:Johnson, Richard FLNR:IN
Cc: Scott, Daniel FLNR:EX
Subject: RE: Brooklyn Creek and BCTS
Attachments: P1210707.jpg

Thanks Rick,

That photo is a little alarming given the history and on-going litigation related to the Brooklyn Creek fill. I have reached out to Ken Scown as well.

My other solution was going to be a mini-excavator ramping down to place large fill / rip-rap but that would be really inefficient and costly with trucking material. Daniel and I will follow up later for a repair plan at the fill, likely using the concrete sacks.

Have a good long weekend.

Tennessee Trent - *Manager, Trails*
Ministry of Forests Lands Natural
Resource Operations and Rural Development
Recreation Sites and Trails BC
4th Floor – 333 Victoria Street
Nelson, BC
250-354-6750

tennessee.trent@gov.bc.ca

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e-mail: pilotpnt@telus.net



Fernandes, Ruth FLNR:EX

From: Trent, Tennessee FLNR:EX
Sent: Tuesday, May 22, 2018 8:23 AM
To: XT:Johnson, Richard FLNR:IN
Cc: Scott, Daniel FLNR:EX
Subject: RE: Inspections of Columbia Western Rail Trail Contract RC192300002

Thanks Rick.

Tennessee Trent - *Manager, Trails*
Ministry of Forests Lands Natural
Resource Operations and Rural Development
Recreation Sites and Trails BC
4th Floor – 333 Victoria Street
Nelson, BC
250-354-6750

tennessee.trent@gov.bc.ca

From: Richard Johnson [<mailto:pilotpnt@telus.net>]
Sent: Monday, May 21, 2018 9:51 PM
To: Trent, Tennessee FLNR:EX
Cc: Scott, Daniel FLNR:EX
Subject: Inspections of Columbia Western Rail Trail Contract RC192300002

Hi Tennessee and Daniel;

This is an interim report on my inspection work on CWRT from Castlegar water intake to the Cascade Bridge south of Christina Lake.

To date, I have spent two days in the field and checked all drainage structures from 8.8km to 41.3 approximately, which is the east end of Quinn Creek fill. I hope to continue again this week and spend another two days to the trestle south of Christina Lake. I am checking each culvert I cross, including cross drains, and hanging a "culvert" flag at each. I also take a quick look at the trestles and walls but these are not affected by any runoff except for the odd wall with a culvert. Attached are two reports of high priority repairs, both involving fill slope failures. These have been the only two issues I have encountered so far, which is quite amazing.

Since my last trip along this wonderful trail, many new cross drains have been installed (mostly 400mm plastic pipe) and the ditches have been dug out. Most culverts have had maintenance done to the inlets as well. All new culverts have been installed well and according to accepted standards. As a result, no water has flowed down the grades and the surface is in very good condition. Note, however, that the present caretakers were unable to finish grading from Farr Creek bridge due to a late start on work last year (fire season) and an early winter/freeze. However, only light grading is needed and some minor road shaping. The trail is adequate for bicycles, despite the grading. I have hiked down to the big culverts (Shields, Pup) and both are running very well. Shields is at only 15-20% capacity and there is minimal upstream debris. The bypass built in 2014 is good. Pup Creek is running about 25% capacity and no debris issues were observed.

The attached repairs are projects and could cost \$15,000 or more. The repair at 15.9km (just east of McCormack Trestle) will need engineering review due to presence of rock and uncertainty about soil stability below the trail. The other repair, at Brooklyn Creek, must be discussed with BC Timber Sales as they may be planning to upgrade this section of trail for log haul. This could be an advantage for trail repair.

For your information, Atco Forest Products is also doing some block layout in the vicinity of Shields. I am not certain if they will be proposing use of the Rail Trail but they will be doing substantial upgrades to Shields Creek FSR as they plan to adverse haul out to the Highway at Nancy Greene.

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Fernandes, Ruth FLNR:EX

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Sent: Monday, May 21, 2018 9:51 PM
To: Trent, Tennessee FLNR:EX
Cc: Scott, Daniel FLNR:EX
Subject: Inspections of Columbia Western Rail Trail Contract RC192300002
Attachments: Report 36.9km Brooklyn Creek scour.doc; Report 15.9km Fill Failure.doc

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To date, I have spent two days in the field and checked all drainage structures from 8.8km to 41.3 approximately, which is the east end of Quinn Creek fill. I hope to continue again this week and spend another two days to the trestle south of Christina Lake. I am checking each culvert I cross, including cross drains, and hanging a "culvert" flag at each. I also take a quick look at the trestles and walls but these are not affected by any runoff except for the odd wall with a culvert. Attached are two reports of high priority repairs, both involving fill slope failures. These have been the only two issues I have encountered so far, which is quite amazing.

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For your information, Atco Forest Products is also doing some block layout in the vicinity of Shields. I am not certain if they will be proposing use of the Rail Trail but they will be doing substantial upgrades to Shields Creek FSR as they plan to adverse haul out to the Highway at Nancy Greene.

Richard (Rick) Johnson RPF

Pilot Point Forest Consultants

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COLUMBIA WESTERN RAIL TRAIL BROOKLYN CREEK FILL SCOUR 36.9KM (APPROXIMATELY)

On May 15, 2018, as part of an overall inspection of potential spring freshet issues on the Columbia Western Rail Trail (CWRT) a review was conducted of Brooklyn Creek crossing, which was built in November 2012 to replace a culvert and large fill that “blew out” due to high stream flow and a plugged culvert. This site is at approximately 36.9km (28km from the Castlegar Water Intake) and about 1.7km from the east portal of Bulldog Tunnel.

Description and Probable Cause of Failure

The culvert and debris catchment features are in good working order on the upstream end. However, at the outlet end, the bank on the left side has crept down and obstructed the flow, pushing it to the right and into the right bank. This has resulted in scour of the road fill. Presently, the dimensions of the scour are approximately 15m long and 3-4m high with additional scour of the stream bed below the culvert outfall. At present, there are no safety issues but if not repaired, the scour will likely continue and could seriously impact the road. Depending upon soil moisture levels due to melting snow and rainfall, this could occur in 2019 thus cutting off the trail. **This is a high priority repair.**

Two repair options are presented. In ordinary circumstances the scour issue would be quite straight-forward to repair but in this case, one option is relatively difficult due to the distance of the problem area below the road. It is out of reach of excavators and considerable disruption to the existing road is required for an excavator to have a working bench close enough to conduct site preparation and to move/deposit/place materials for armouring of the banks. Disruption of the road could adversely affect the overall work as access would only be available from (probably) the west side.

Another issue is the minimal availability of loose angular rock that would be needed for armouring the slope. A source might be found at the east end of Bulldog Tunnel, which was accessed for the original repair. However, most of the “good” rock was used in 2012. About 120m³ of rock is required for this fix; it might be possible to scrounge it from various sites at Bulldog Tunnel but some sorting will be required thus raising costs.

The undersigned met with BC Timber Sales (BCTS) to determine what their plans are for the area. Layout flagging had been noticed to the east of this site and rumour had it that BCTS was proposing to harvest the area around Pup Creek a couple of kilometres to the east. Indeed, BCTS has plans to harvest beetle infested stands (Douglas-fir beetle) in Pup Creek and elsewhere, and are proposing to utilize the Rail-Trail as a haul road from Pup Creek to the east end of Bulldog Tunnel at which point they will depart the Trail. This would mean that

BCTS will have to upgrade the road significantly at Brooklyn Creek crossing as it is completely inadequate for any industrial use in its present condition. Thus, it might be possible to do a temporary fix (Option 2) to stabilize the road fill until such time that BCTS builds the road to a higher standard. There is not, as of yet, a time schedule for the work but generally speaking harvest of such stands must begin in September of the chosen year. It is possible that construction work could be conducted in 2019 but it would more likely be 2020 with harvest that fall. A short-term repair could be done this year but would need monitoring and possible maintenance in 2019. This may be considered quite hypothetical as there could be other issues in the planning process of BCTS that could significantly alter the approval process.

Repair Options

There are two repair options. One is a more or less permanent repair that would stabilize the bank for some time. The other is a temporary repair that should stabilize the bank for the next year, possibly the following year as well, and until BC Timber Sales rebuilds the stream crossing for access to their timber sales. BCTS should be consulted to determine if they have a schedule in mind and when they would likely be building the road between Pup Creek and Bulldog Tunnel.

There is a small difference in the costs of the two options because one has significant use of equipment while the other is primarily labour and materials.

- i) **Option 1** is to use equipment to conduct a more or less permanent repair to the scour. While the repair is relatively common and simple under ordinary circumstances, this site creates difficult machine access to the culvert and downstream area of concern. An excavator must pull back/relocate and armour the left bank of the stream to straighten the stream out again. It must also place angular rock on the right bank and fill in the scoured portion of the road fill as well as the scoured streambed at the outfall of the culvert. To do this, the existing road will require significant excavation in order for the excavator to have adequate reach to the downstream areas of the stream. Rock is still available at the east end of Bulldog Tunnel but is in various locations and mixed with soil or other unusable material. It will require sorting before loading. Two excavators would be required, one to sort material and load trucks and the other at Brooklyn Creek to place material as it arrives. Two trucks would be advantageous but the road between the culvert and the material source is narrow with no passing points. The estimated cost of this option is \$15,000.
- ii) **Option 2** uses primarily labour to prepare the site and place bags of ready-mix concrete such as Sakcrete. Four workers plus a supervisor would dig by hand a bench to place at least 400 bags of Sakcrete along

the right bank to stabilize it from further scour. More Sakrete would be placed beneath the outfall of the culvert to reduce scour of the streambed. Labour would also be used to straighten out the stream below the culvert by moving boulders that have slid down on the left bank. This work is not as permanent as that of Option 1 but would stabilize the bank (with annual inspections required) until such time that BCTS rebuilds the Brooklyn Creek crossing. The costs of this option could be reduced if volunteer labour was used. The estimated cost is \$13,200.

The access for Option 1 would be from the Paulson Detour road, which is about 21.5km to the west. Access for Option 2 could be from the Castlegar end about 28km away or from the Paulson Detour road. All lowbedding or freight trucks would have to come in from the west through the Bulldog Tunnel which is accessible to lowbeds.

R.L. Johnson RPF
May 20 2018



Photo 1. Outlet of culvert on May 7, 2013 shows riprap and channel properly located with straight runout of stream flow.



Photo 2. View of outlet on May 15, 2018. The bank on the left has slumped down over the past 5 years causing rock armour to divert the flow of the stream into the opposite bank. Riprap on the right bank is gone and needs replacing.



Photo 3. Intake of culvert from right bank



Photo 4. Intake of culvert looking upstream.



Photo 5. View of scour from outlet.



Photo 6. View of scour from bank on west side. No tension cracks were observed on the fill above the scoured area.

**COLUMBIA WESTERN RAIL TRAIL
FILL SLOPE FAILURE
15.9KM (APPROXIMATELY 1km EAST OF MCCORMACK TRESTLE)**

On May 11, 2018, as part of an overall inspection of potential spring freshet issues on the Columbia Western Rail Trail (CWRT) a review was conducted of a fill slope failure at approximately 15.9km on the CWRT, about one kilometre from McCormack Trestle and about 7.1km west of the gate at the Castlegar water intake.

Description and Probable Cause of Failure

The failure is relatively small and is 10m long with up to 2m width of shoulder and trail gone. The depth is about 4m deep down the slope to a slope change. It is estimated that about 100-130m³ of soil slid down the slope, which is 70-80%. The remaining trail is about 3.1m wide plus a 0.8m safety buffer at the failure edge and another 1.0m ditch. The alignment at this section is straight and the failure is well marked with traffic cones and flagging tape. It is wide and safe enough for most vehicular traffic (this is on the way to the recreational lots at Shields and Coykendahl).

The cutbank along this section is solid rock up to 8m high which extends about 15m on each side of the failure for a length of 42m. This rock might extend to the lower fill slope although no outcrops were visible at the failed slope.

A runoff stream was active at the west end of the failure section. This was ditched to a 400mm plastic pipe about 10m to the east. There are indications that the ditch was quite full during snowmelt and may have reached about 0.5 – 0.75 pipe capacity. The pipe is “gun barrelled” out over the lower slope. It was also noted that there is a seepage zone on the trail grade about 20-30cm below the surface which appears to have been saturated. This may have allowed seepage into the fill slope (silty sand) thus saturating it. It is possible that water flowing out of the 400mm culvert triggered the slide; the culvert is at the east end of the failure. Subsequent to the failure, a waterbar has been dug opposite the main runoff coming off the rock face. Rock is very close to the surface at this point, which is why a culvert was not installed here. The runoff period has finished and there was minimal water flowing at the time of the review.

Repair Options

There are three repair options, all requiring access from the east and not from Shields Creek FSR. Currently, the site is stable and safe for traffic but repairs are required before the winter as there is a potential of the slope failure to continue creeping back into the road at next spring's freshet. Thus, there is a HIGH PRIORITY for repair. The options presented are for consideration but more extensive survey and investigation is required to determine the nature of

the soil below the road. If the proposed bench is on solid rock then blasting would be required. This is not included in the estimates below. Professional engineering reviews and designs are recommended due to the high estimated costs of repair.

- i) **Option 1** is to excavate a 2m wide bench about 6-7m below the grade in order to key in a retaining wall of large angular rock which would rise at 1/2:1 to the existing surface level to regain 2m of road width. Angular rock is scarce but suitable rock was located about 2km east of the site. This would need to be selected and loaded, then hauled to the worksite and dumped. A mid-sized excavator with suitable reach is required in order to excavate about 7m below the grade and to place rock. Hauling of rock could cause trail deterioration; about 10-15 loads may be required using a standard size dump truck. A 400mm culvert requires installation at the location of the waterbar; this is apparently on solid rock and blasting may be needed. The estimated cost of this option is \$13,000 plus probably repairs/maintenance to the trail for 2km.
- ii) **Option 2** is to excavate a 2m wide bench 6-7m below the grade and build up a sloped retaining wall of concrete lock blocks. It is estimated about 80 blocks would be needed for this option (8 blocks long and 10 blocks high). A professional evaluation and design will be required for a wall this high. A rough estimate for this option is \$30,000, much of it for the cost of the blocks. A culvert will also be required for this option.
- iii) **Option 3** is a simpler remedy of blasting about 2m into the bank to widen the trail by about 2-2.5m. It is estimated about 1.5 days of blasting is required to remove 600m³ of rock for the widening and for the culvert. A section about 30-40m long, 8m high and one drill steel wide (about 2m) is required to be removed. Rock would require disposal below the trail and could be partly used to fill in the void created by the failure. This is a preferred option as there is no concern about stable footings for rock or lock block retaining structures and damage to the trail for several kilometres is minimized. Blasting might be required in any case to install the culvert. Rock can be spoiled over the bank such that it will be available for other uses if needed. The estimated cost of this option is \$20-25,000.

R.L. Johnson RPF
May 20 2018



Photo 1. View of failure from west end. Note that although water coming out of the culvert may have triggered the failure, the fill material was likely saturated from seepage flowing about 30cm below the trail surface.



Photo 2. View of failure from east end



Photo 3. View down the slope.



Photo 4. View of rock face on west end of section, showing the recently installed water bar. This is where the most runoff from above the rock occurred. The culvert was installed about 10m downgrade to the east because of solid rock underneath the trail at this point.



Photo 5. View of waterbar and rock bluff to the east. Note the safety warnings and straight horizontal alignment. A sign is also posted about 30m to the east.

**COLUMBIA WESTERN RAIL TRAIL
LIST OF RECOMMENDED TRAIL MAINTENANCE
JUNE 1, 2018**

The Columbia Western Rail Trail was reviewed from the Castlegar water intake to the Kettle River trestle below Christina Lake between May 11 and June 1 2018 to determine any impacts of the spring freshet on drainage structures or road grade. This table lists any issues noted, with recommended repairs. Note that most of these would be considered “routine maintenance” but are listed in order for trail stewards to know what work is needed to ensure a problem-free drainage system on the trail. All culverts are flagged with “culvert” flagging and those that need attention have an additional pink flagging.

There are some issues noted that are beyond the realm of “routine”. They are included because they are chronic issues that need resolution and that have the potential of failure or causing considerable damage. They would require professional input to determine a resolution.

Priority is based on the likelihood of an event occurring and the potential damage if repair is not done. None of the repairs, including high priority ones, at the present moment are urgent but the high priority repairs should be completed this year before winter and the next freshet.

The km location of the site is based on that observed during the review but the km might be different for other vehicles. Thus, the “Reference” will better define the location of each site.

Approximate km	Reference	Description	Priority
10.9	2.1km from water intake (gate)	18” cross drain inlet blocked; clear by hand	Low
15.9	1km east of McCormack trestle	Fill slope failure; covered in report dated May 20 2018	HIGH
17.3	0.5km west of McCormack trestle.	600mm culvert has block of wood at inlet to remove by hand	Moderate
18.8	2km west of McCormack trestle	Debris in ditch leading to 500mm cross drain needs cleaning by hand	Moderate
23.8	1.1km west of tunnel	41m concrete flume has debris in the flume; remove by hand	Moderate
35.05	150m east of Pup Creek fill	Seepage onto grade at wide spot; needs ditching	Low
36.9	Brooklyn Creek	Fill scour on downstream right bank of stream; covered in report dated May 20 2018	HIGH
40.40	0.9km west of west end Bulldog tunnel	730mm CMP has block of wood in inlet; remove by hand	HIGH
46.90	Porcupine Creek	Minor debris 10m upstream of inlet; remove by hand when water levels lower (need chainsaw)	Moderate
50.75	0.8km east of junction with Dog Creek FSR	450mm CMP cross drain has large deadfall in inlet; remove by hand	HIGH

**COLUMBIA WESTERN RAIL TRAIL
LIST OF RECOMMENDED TRAIL MAINTENANCE
JUNE 1, 2018**

Approximate km	Reference	Description	Priority
55.05	3.5km west of Dog Creek FSR junction	New 20m ditch to 800mm CMP requires armouring with angular rock to prevent erosion of trail. Equipment.	HIGH
59.75	Walker Creek	The stream overflowed the four culverts and flowed for 100m down the trail to the west, scouring the surface. The trail has recently been repaired. This has occurred for the past two years according to the CWRT society. There may be upstream issues from public roads that are contributing bedload to the stream, which in turn obstructs the flow through the culverts. A recent slide on the Bypass Road has also left large volumes of material in this stream which will cause issues for the next few years. Large volumes of gravel/boulder bedload material have been excavated for at least the past two years from the culvert intake area. The crossing needs to have a professional review to improve the culvert capacity or to even relocate it into what may be an old streambed to the west. The present 900mm metal culverts are also in poor condition with perforated and deteriorating floors. Debris is an issue at this crossing as well.	HIGH
60.65	0.9km west of Walker Creek (5 culverts)	High flow has overtopped road. Need a berm to contain high flows to prevent road scour. Equipment.	Moderate
60.85	Near Paulson Bridge	Large rock failure has left unstable rock face. Warning signs needed to advise travellers of 'No Stopping'.	HIGH
62.65	1km west of Paulson tunnel	400mm CMP cross drain needs clean out by hand.	Moderate
63.4	Stone wall	Wall has built-in culvert that has light debris at the inlet. Needs hand cleaning.	HIGH
64.25	0.5km east of Coryell water tank base	400mm concrete culvert half blocked with bedload; clean by hand	Moderate

**COLUMBIA WESTERN RAIL TRAIL
LIST OF RECOMMENDED TRAIL MAINTENANCE
JUNE 1, 2018**

Approximate km	Reference	Description	Priority
64.35	0.4km east of Coryell water tank base	500mm concrete culvert needs hand cleaning upstream	Moderate
64.55	0.2m east of Coryell	600mm concrete culvert is two-thirds blocked with debris; hand clean.	HIGH
64.75	Coryell Creek (at old water tank)	Moderate debris 6m upstream of inlet needs cleaning with chainsaw at low water. Debris jams further upstream appear to be well established and stable and could be considered for non-removal except for any loose material. A review by the CWRT society indicated holes in the concrete floor that were also observed in a 2011 inspection. A professional inspection is recommended to observe any changes in the past 7 years.	Moderate possible HIGH
65.85	1.1km west of Coryell	600mm concrete culvert. Brush out and remove light debris by hand	Moderate
67.50	1.7km west of Coryell	500mm cross drain is half blocked each end. Dig out by hand	Moderate
68.70	Metal footbridge	Trim overhanging branches off bridge by hand	Moderate
68.71	West end of metal footbridge	A large boulder has fallen onto the trail causing a difficult passage for quads. It will require machine removal. <i>Risk of unstable rock at site; requires caution working.</i>	Moderate
71.01	0.8km west of Snowslide Creek bridge	Flume is blocked in several spots with overflow noted. There is a risk of overflowing stream accumulating behind the fill, with the potential of losing the large fill. Priority repair; hand work.	HIGH
71.51	1.3km west of Snowslide creek bridge	600mm concrete culvert has channel 17m long that has debris. Clean by hand	Moderate
72.6	2.4km west of Snowslide Creek bridge	600 CMP has wood debris for 5m upstream; clean out by hand	Moderate
73.36	3.1km west of Snowslide Creek bridge	300mm CMP is blocked; hand clean	HIGH
73.42	3.2km west of Snowslide Creek bridge	400mm CMP blocked each end; hand clean	HIGH
END			

Fernandes, Ruth FLNR:EX

From: Richard Johnson <pilotpnt@telus.net>
Sent: Sunday, June 3, 2018 11:26 PM
To: Trent, Tennessee FLNR:EX
Cc: Scott, Daniel FLNR:EX
Subject: Inspection of CWRT May-June 2018
Attachments: List of Recommended Maintenance CWRT June 2018.doc

Hi Tennessee;

I have completed my inspection of the CWRT from the Pump House in the east to the Kettle River bridge south of Christina Lake. This is a length of approximately 81km, from 8.8km to 89.6km.

To date, I have submitted two reports to you of a fill failure at 15.9km and road fill scour at Brooklyn Creek.

Attached is a list of "Recommended Trail Maintenance" that covers the full length of the inspection.

I am pleased to say that there are very few issues to report that are other than "routine". The Trail Maintenance recommendations include several cross drains that require some cleanout most of which can easily be done by hand with one or two people. No stability issues were noted anywhere other than rockfall issues at Paulson bridge (60.85km) and at the metal footbridge (68.7km).

There is one chronic issue, however, that should be addressed and that is at Walker Creek at 59.75km. According to Jeremy Nelson of the CWRT Society, this has had extreme bedload movement for the past two years which has blocked the culverts to some extent, causing the stream to overflow and run about 100m down the grade to the west. Deposits of bedload at the culverts have had to be excavated from the inlets. This happened again this spring (it is all repaired). This issue has many factors affecting it, including highway drainage systems, recent slides on the highway and on the Bypass Road, bedload material in the stream bed, culvert issues, etc. Without an assessment of the entire stream to determine bedload volumes, it is difficult to suggest a fix that could be considered permanent. However, some possible ones are

- replacement of four culverts (900mm) with larger ones, possibly 1200mm, but this would result in a hump over the crossing
- realignment of the culverts so the stream has a more direct flow into them
- construction of berms in the sinewy stream course leading to the culverts, that would capture bed load. These would require at least annual maintenance, possibly twice each year.
- relocation of the stream along a possible old streambed for about 100m to the west

A review of this stream and possible solutions would require input from geotechnical professionals, stream biologists and hydrology professionals.

Jeremy Nelson provided me with several photos of Coryell tunnel drainage structure, which has a rock tunnel upstream and concrete works on the downstream portion. There are some issues with scour of concrete; these were noted in the 2011 inspections but may have increased in the last 7 years. It may be time to undertake a professional inspection of these major culverts. Note that each wall was visually checked and there were no apparent issues with the walls. I can forward these photos to you upon your request to do so.

Much of the trail grade has had considerable upgrading consisting of re-establishment of the ditch; scaling back of some banks; dozens of new cross drains or replacement of old culverts; grading of the trail. This has improved the drainage on the trail considerably, with virtually no water running down the grade. More brushing and improvements are planned this year according to Jeremy; last year the high fire hazards prevented completion of them.

Would it be okay for me to forward the recommended maintenance list to Jeremy Nelson so he knows where the maintenance is required on the culverts and other items?

If there is any further work you wish me to do on this project, please advise. At this time, freshet is completed.

Thanks!

Richard (Rick) Johnson RPF
Pilot Point Forest Consultants
2643 5th Avenue
Castlegar BC V1N 2T7
250-365-9983/250-551-8185
e-mail: pilotpnt@telus.net

Fernandes, Ruth FLNR:EX

From: Richard Johnson <pilotpnt@telus.net>
Sent: Friday, June 8, 2018 9:39 PM
To: Trent, Tennessee FLNR:EX
Cc: Scott, Daniel FLNR:EX
Subject: RE: Inspection of CWRT May-June 2018

Hi Tennessee;

I agree that you should manage communications and work with CWTS. Some of the things on the list are "big ticket" items. On the list, however, are partial blockages of several smaller culverts that can be addressed by a couple of volunteers in one day. Some are critical to do this year; one is a culvert through a wall that is partially blocked and another is a blocked flume directing flows to the base of a huge fill. Those are the ones I wanted to send to Jeremy so that they can deal with those small items which could easily become major issues. They aren't machine work, just simple hand work that would probably be done for no cost. If that is okay, I could easily revise the list to exclude the major works projects that would require equipment and just keep the culverts and cross drains that need a quick clean out.

Thanks.

Rick

From: Trent, Tennessee FLNR:EX [mailto:Tennessee.Trent@gov.bc.ca]
Sent: June 5, 2018 2:55 PM
To: XT:Johnson, Richard FLNR:IN
Cc: Scott, Daniel FLNR:EX
Subject: RE: Inspection of CWRT May-June 2018

Hi Rick,

Thank you for the detailed work. Glad we made it through freshet so well.

I would prefer that we manage communications and work requests with the Columbia and Western Trail Society Rick. I appreciate the offer but there are several considerations for the province on this section of trail and for now I would like to keep roles and responsibilities very simple and clear.

Keep in touch. I expect we will receive an invoice from you in time. I would like to keep the contract that we have with you open. It is likely that we will need your services again sooner than later.

Tennessee

Tennessee Trent - *Manager, Trails*
Ministry of Forests Lands Natural
Resource Operations and Rural Development
Recreation Sites and Trails BC
4th Floor – 333 Victoria Street
Nelson, BC
250-354-6750

tennessee.trent@gov.bc.ca

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Sent: Sunday, June 3, 2018 11:26 PM
To: Trent, Tennessee FLNR:EX

Cc: Scott, Daniel FLNR:EX

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Richard (Rick) Johnson RPF
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