Watershed Assessment Report

for the

TREPANIER CREEK WATERSHED

TREPANIER CREEK WATERSHED

Prepared for
GORMAN BROS. LUMBER LTD.

by
DOBSON ENGINEERING LTD.

June 27, 2001

Jerome Girard, R.P.F.
Operations Forester
Riverside Forest Products Ltd.
820 Guy Street
Kelowna, British Columbia
V1Y 7R5

Dear Jerome Girard:

As requested, a one year extension to the 1998 Watershed Assessment currently in place for Trepanier and Kelowna Creek Community Watersheds is hereby approved in accordance with section 14 (4) (a) of the Operational Planning Regulation.

This approval is based on information you provided stating that no development outside of the existing Watershed Assessments is planned in 2001, and that updated Watershed Assessments for Trepanier and Kelowna Creek Community Watersheds will be conducted in 2002 and incorporated into the 2003 Forest Development Plan submission.

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Yours truly,

John H. Wenger
District Manager
Penticton Forest District

for: Brian Harris
Designated Environment Official

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GORMAN BROS. LUMBER LTD.

Watershed Assessment Report
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1.0 INTRODUCTION

This watershed assessment report for Trepanier Creek (BC hierarchical watershed code number 310-7422) has been prepared for Gorman Bros. Lumber Ltd. The purpose of the assessment was to comply with the requirements of the Forest Practices Code Operational Regulation that effective December 15, 1998 watershed assessments must be completed for community watersheds prior to submitting a forest development plan.

Two points of interest (POIs) were identified for the watershed, POI1 is located at Okanagan Lake and POI2 is located at the District of Peachland water intake. The main concerns within the Trepanier Creek watershed are water quality and to maintain a supply of timber .

For assessment purposes the watershed has been divided into four sub-basins [MacDonald (T5), Upper Trepanier (T4), Lacoma (T3) and Jack (T2)] and two residual areas (Middle T

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For assessment purposes the watershed has been divided into four sub-basins [MacDonald (T5), Upper Trepanier (T4), Lacoma (T3) and Jack (T2)] and two residual areas (Middle Trepanier and Lower Trepanier).

To complete the watershed assessment procedure, the following tasks were identified:

- review and summarize existing information
- update Equivalent Clearcut Area (ECA) calculations
- complete a reconnaissance level channel assessment procedure (Re-CAP)
- update the watershed report card
- provide a risk assessment of the potential hydrologic impacts associated with the

2.0 BACKGROUND

Overview assessments have been completed for the Trepanier Creek watershed and are summarized in the ***Integrated Watershed Restoration Plan (IWRP)*** **for the Peachland Creek and Trepanier Creek Watersheds** (completed by Dobson Engineering Ltd., dated February 1998). The IWRP report integrated the results of the ***Sediment Source Survey (SSS), Access Management Strategies (AMS), Fisheries Habitat Assessment Procedure (FHAP)*** and ***Interior Watershed Assessment Procedure (IWAP).*** Forest Renewal BC approved a ***Watershed Restoration Program (WRP)*** project in the watershed in the fall of 1996.

A total of 254 km of road were assessed in the Trepanier Creek watershed. Six road high priority sites were identified having a combined length of 1.02 km. Three cutblocks (166 ha) and three landslides were also identified as high priority sites, all of which require further assessment. One road priority site and one landslide are located in the residual; two road priority sites along with one landslide and one cutblock are located in the Jack (T2) sub-basin; three road priority sites along with two cutblocks and one landslide are located in the Lacoma (T3) sub-basin; and no road high priority sites are located in the Upper Trepanier (T4) and MacDonald (T5) sub-basins.

In May 1998, a nonforestry-related landslide occurred below the Ministry of Transportation and Highway's property adjacent to Highway 97C. Field observations and subsequent impacts on Trepanier Creek are summarized below in Section 5.0.

Good spawning and rearing habitat were found in Trepanier Creek in stream reaches with adequate flow, but for the majority of tributaries stream flows were intermittent. The main fish habitat concerns in the watershed included culvert barriers to fish passage, bank erosion, loss of riparian vegetation, or presence of large woody debris jams.

located in the Lacoma (T3) sub-basin; and no road high priority sites are located in the Upper Trepanier (T4) and MacDonald (T5) sub-basins.

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Good spawning and rearing habitat were found in Trepanier Creek in stream reaches with adequate flow, but for the majority of tributaries stream flows were intermittent. The main fish habitat concerns in the watershed included culvert barriers to fish passage, bank erosion, loss of riparian vegetation, or presence of large woody debris jams.

3.0 WATERSHED CHARACTERISTICS

The Trepanier Creek watershed has an area of 255.4 km^2. The watershed ranges in elevation from 342 m at Okanagan Lake to a maximum of 1,900 m at Mount Gottfriedsen. Sixty percent of the Trepanier Creek watershed is above the 1,160 m elevation (the H60 line).

The watershed is located on the eastern edge of the Thompson Highland physiographic division. Bedrock in this area is dominated by Monashee Gneiss and is locally capped by late Tertiary Group Chilcotin Basalts. Bedrock of this type is considered generally

Biogeoclimatic zones range from Ponderosa Pine (PP xh1) and Okanagan Very Hot Interior Douglas Fir (IDF xh1) in lower slopes, to Thompson Dry Cool Interior Douglas Fir (IDF dk1), Montane Spruce (MS dm2, MS xk) and Engelmann Spruce Subalpine Fir (ESSF xc) in mid to upper slopes.

Precipitation in the watershed at Brenda Mines averages 635 mm of precipitation with 61% falling as snow. In the lower reaches of the watersheds, temperatures are generally milder and precipitation amounts lower. Historic flow data gives Trepanier Creek a maximum daily discharge in the 2.6 to 18.1 m^3/s range (Historic Streamflow Summary, British Columbia, 1990).

Trepanier Creek is a fourth-order stream with 31.8 km of fish-bearing stream. Fish species documented include kokanee, rainbow trout, prickly sculpin, burbot and largescale sucker.

Trepanier Creek is designated as a community watershed and has 13 licensed water intakes. Lakes in the Trepanier Creek watershed that aid in the regulation of water flow include Lacoma Lake (with a partial dam), Silver Lake, George Lake and Long Lake.

Brenda Mines, an open pit copper/molybdenum mine in the upper half of the MacDonald sub-basin, stopped operating in 1990. The mine site is being reclaimated with grass-seeding and the planting of some trees. Natural reforestation is expected to occur over time.

4.0 METHODS

The watershed assessment report is based on the interim watershed assessment procedure include Lacoma Lake (with a partial dam), Silver Lake, George Lake and Long Lake.

Brenda Mines, an open pit copper/molybdenum mine in the upper half of the MacDonald sub-basin, stopped operating in 1990. The mine site is being reclaimated with grass-seeding and the planting of some trees. Natural reforestation is expected to occur over time.

4.0 METHODS

The watershed assessment report is based on the interim watershed assessment procedure agreed to by the Kamloops Forest Region and BC Environment.

Updated ECA (September 1998) values were computed by Gorman Bros. Lumber Ltd. ECA values were based on TRIM digital data for contour and hydrological data and FC1 and FIP digital files for determination of logging history. Projected ECA's are based on forest development plans for 1998 to 2003.

A reconnaissance level channel assessment was carried out to determine the present stream channel conditions. Procedure details are summarized in Appendix A; a map and longitudinal profiles of the reach breaks are provided in Appendix B; and field forms and photos for each of the mainstem channels are in Appendices C and D.

5.0 CURRENT WATERSHED CONDITIONS

The current watershed report card for the Trepanier Creek watershed is presented below in Table 1.

TABLE 1
Watershed Inventory Information

Watershed Inventory Category	Jack (T2)	Lacoma (T3)	Upper Trepanier (T4)	MacDonald (T5)	POI2	POI1
Area of unit (ha)	4025	4787	3589	3568	18448	25909
Total area harvested (%)	38.5	18.5	14.9	5.5	25.7	30.2
ECA (%)	10.9	15.0	7.5	22.7	12.0	11.8
ECA above the H60 (ha) (unweighted)	275	720	271	788	1891	2167
ECA above the H60 (%) (unweighted)	7.1	15.0	7.5	22.1	10.2	8.4
Total road density (km/km^2)	1.58	0.96	0.81	1.70	1.34*	1.34
Length of road as a high sediment source (km)	2.0	2.8	0.0	0.0	3.3	3.3
Total number of landslides	1	1	1	0	3	4
Length of road on potential unstable slopes (km)	0.3	0.1	0.1	0.5	1.5	1.5
Number of stream crossings	26	13	5	29	94*	144
[illegible] (unweighted)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Length of road on potential unstable slopes (km)	0.3	0.1	0.1	0.5	1.5	1.5
Number of stream crossings	26	13	5	29	94*	144
Length of stream logged to the streambank (km/km)	0.16	0.05	0.17	0.01	0.21*	0.21
Length of stream with unstable stream channel(km/km)	0.0	0.0	0.0	3.8	8.0	8.9

*Estimated

5.1 Stream Flows

The current (September 1998) ECA for the total Trepanier Creek (POI1) is 11.8% *[Table 1]*, of which one-third is attributable to nonforest development, particularly Brenda Mines and Highway 97C. The current (September 1998) ECA above the District of Peachland water intake (POI2) is 12.0% *[Table 1]*, of which one-half is

The current (September 1998) ECA for the MacDonald sub-basin is 22.7% *[Table 1]*. Minimal forest development has occurred in the sub-basin as Brenda Mines accounts for about 18% of the ECA and Highway 97C occupies 2% of the sub-basin.

The total ECA's for the other three sub-basins ranges from 7.5% to 15.0% *[Table 1]*. There is currently a low concern with potential increases in peak flow associated with the past forest development in these sub-basins.

5.2 Surface Erosion

Road densities are currently moderate in the MacDonald and Jack sub-basins, and low in the rest of the watershed. Road densities above the H60 line are high in the Lacoma, MacDonald and Upper Trepanier sub-basins.

Twelve kilometres of operational road in the Jack sub-basin and five kilometres of operational road in the Middle Trepanier residual area have been permanently deactivated.

No deactivation work has taken place on the non-status roads in the watershed. As stated in Section 2.0, six high priority road sites were identified. Refer to the Sediment Source Survey for details.

5.3 Landslides

As stated in Section 2.0, three forestry-related landslides and three potentially unstable cutblocks were identified in the Sediment Source Survey. See the õpëratiõnaĪ road ĩn the Middle Trepanier residual area have been permanently deactivated.

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5.4 Stream Channel Stability

5.4.1 Trepanier Creek

The mainstem channel of Trepanier Creek extends 18.2 km through the residual of the watershed, from the Lacoma Creek confluence to Okanagan Lake *[Map 1 - Appendix B]*. A descriptive summary of Trepanier Creek is provided below (from the upper reach to the mouth). Field forms and photos for Trepanier Creek are found in Appendix C.

Channel disturbances include a road paralleling the creek with some rip rap encroachments; the remnants of an old bridge crossing; and the loss of some of the mature riparian forest.

Bedload movement through this reach appears to be minimal: no large sediment storage zones were present; bedload transport from the Upper Trepanier Creek and Lacoma Creek sub-basins appears to be minimal; and minimal amounts of sediment were present behind the debris jam. Woody debris was mostly non-functional in this reach.

Reach TE

Reach TE extends 4.2 km downstream from MacDonald Creek. This section of Trepanier Creek has a complex channel morphology with a series of alternating long, straight glides; riffle-pool sequences; and wide depositional areas. This reach was moderately to partially aggraded with large, elevated bar surfaces and large deposits of sand along the banks.

A few debris jams were also present in the reach. Woody debris appears to play an important role in helping to store and regulate the downstream movement of sediment.

Overall, this reach has a moderately aggraded riffle-pool morphology. For the most part, stream bank integrity has been retained with bank disturbances limited to some localized widening at the debris jams.

Reach TD

large, elevated bar surfaces and large deposits of sand along the banks.

A few debris jams were also present in the reach. Woody debris appears to play an important role in helping to store and regulate the downstream movement of sediment.

Overall, this reach has a moderately aggraded riffle-pool morphology. For the most part, stream bank integrity has been retained with bank disturbances limited to some localized widening at the debris jams.

Reach TD

Reach TD, the next 5.3 km downstream to the Venner Creek confluence, has a slightly steeper gradient. This stable section of Trepanier Creek has a predominantly riffle-pool morphology with some cascade-pool sections. The cascade pool sections have well established stone lines, stable banks and a mature riparian forest.

A few debris jams were present in this reach with some accumulation of sediment behind them. The debris jams were smaller and less frequent than those observed in reach TE.

Reach TC

Disturbances are predominantly from residential development along the creek. Most of the mature riparian forest has been removed, numerous stream crossings are present (mostly driveway bridges), and in some locations the stream channel has been modified for water intakes.

Disturbances also include the water intake structure near the upper end of the reach. It is comprised of a long rip-rapped section of channel with a two-metre concrete dam at the downstream end. Bedload can still pass through this section of Trepanier Creek but it appears there has been a reduction in the natural slope which may result in some aggradation.

Reach TB

Reach TB has a stable cascade-pool channel morphology at its upper and lower ends, evident by the stone lines and boulder/bedrock control. This section of Trepanier Creek extends 2.5 km. The stream gradient increases through the middle section of the reach, flowing through a confined bedrock canyon.

An old concrete dam is located in the bedrock canyon. The structure appears stable and doesn't appear to pose any downstream safety concerns. Some sediment is stored behind the structure but appears to have reached an equilibrium where bedload is now transported over the structure.

Reach TA

through the middle section of the reach, flowing through a confined bedrock canyon.

An old concrete dam is located in the bedrock canyon. The structure appears stable and doesn't appear to pose any downstream safety concerns. Some sediment is stored behind the structure but appears to have reached an equilibrium where bedload is now transported over the structure.

Reach TA

Reach TA extends from the base of the bedrock canyon to Okanagan Lake. This section of Trepanier Creek has been channelized with the construction of levees along the fan.

Historically, this lower section of Trepanier Creek would have naturally migrated across the fan. Now, any sediment transported into this reach is readily transported through to Okanagan Lake instead of being deposited on the fan.

5.4.2 MacDonald Creek

The mainstem channel of MacDonald Creek is the 3.8 km of natural

Reach MC starts from the outlet of a small lake below Highway 97C. Extensive bank erosion and channel widening has occurred in the tributary channel through which the 1998 landslide traveled (as identified in Section 2.0).

Reach MB has a moderately degraded step-pool channel morphology. The channel has been torrented, as evident by the exposed culvert at an old stream crossing.

At present, the lower 0.2 km of MacDonald Creek is a moderately aggraded fan complex with sediment deposits spread out over the surface. The banks are highly unstable with easily eroded deposits and multiple channels.

Overall MacDonald Creek has a moderate level of disturbance. Aggradation will continue to occur until the tributary channel is stabilized.

5.4.3 Upper Trepanier Creek

The mainstem channel in the Upper Trepanier sub-basin extends 8.5 km from the Lacoma Creek confluence to a third-order tributary *[Map 1 - Appendix B]*. Three reaches were delineated based on changes in channel gradient.

All three reaches within this sub-basin were considered to be stable based upon a stable riffle-pool channel morphology observed at the downstream end of reach UTA *[Appendix D]* and review of existing information.

5.4.3 Upper Trepanier Creek

The mainstem channel in the Upper Trepanier sub-basin extends 8.5 km from the Lacoma Creek confluence to a third-order tributary *[Map 1 - Appendix B]*. Three reaches were delineated based on changes in channel gradient.

All three reaches within this sub-basin were considered to be stable based upon a stable riffle-pool channel morphology observed at the downstream end of reach UTA *[Appendix D]* and review of existing information. Minimal amounts of sediment appeared to be transported through this creek, evident by the moss-covered bed materials, mid-channel vegetation and stable banks.

5.4.4 Lacoma Creek

The mainstem channel of Lacoma Creek extends 4.8 km up to Lacoma Lake *[Map 1 - Appendix B]*. Two third-order tributaries drain the headwaters of the sub-basin.

The lower two reaches on Lacoma Creek were stable *[Appendix D]*. Reach LB has a stable riffle-pool channel morphology which appears to have

5.4.5 Jack Creek

The mainstem channel of Jack Creek *[Map 1 - Appendix B]* has a partially aggraded cascade-pool channel morphology, evident by disturbed stone lines and elevated bar surfaces *[Appendix D]*. Bedload appears to be readily transported down to Trepanier Creek.

6.0 RISK ASSESSMENT OF PROPOSED FOREST DEVELOPMENT

Forest development is proposed in the Jack (T2) sub-basin, Upper Trepanier (T4) sub-basin and in the Middle Trepanier residual area. Of the 246 ha of proposed harvesting, 54% (133.5 ha) is above the H60 line. No forest development is proposed in the MacDonald and Lacoma sub-basins.

6.1 Stream Flows and Stream Channel Stability

ECA levels will remain about the same for the two POI's in the watershed with the proposed forest development *[Table 2]*. Small increases in ECA will occur with the proposed harvesting in the Jack and Upper Trepanier sub-basins *[Table 2]*. No impacts to stream flow or stream channel stability are anticipated as a result of the proposed forest development.

TABLE 2
Current and Proposed ECA's in the Trepanier Creek Watershed

ECA levels will remain about the same for the two POI's in the watershed with the proposed forest development *[Table 2]*. Small increases in ECA will occur with the proposed harvesting in the Jack and Upper Trepanier sub-basins *[Table 2]*. No impacts to stream flow or stream channel stability are anticipated as a result of the proposed forest development.

TABLE 2
Current and Proposed ECA's in the Trepanier Creek Watershed

Sub-basin	ECA above H60 (%)		Total ECA (%)	
	1998	2003	1998	2003
Jack (T2)	7.1	7.6	10.9	11.8
Lacoma (T3)	15.0	12.7	15.0	12.7
Upper Trepanier (T4)	7.5	9.1	7.5	9.1
MacDonald (T5)	22.1	21.8	22.7	22.4
POI2	10.2	9.8	12.0	12.1
POI1	8.4	8.2	11.8	11.9

Proposed blocks and roads within the current forest development should have limited impact on sediment production, provided that natural drainage patterns are maintained and sediment control measures are implemented. Surface erosion potential mapping has recently been completed for the watershed. These maps should assist in developing appropriate surface erosion control measures.

Further reductions in surface erosion could be achieved by addressing the high priority sites identified in the Sediment Source Survey.

6.3 Landslides

A terrain stability hazard map has been recently completed for the watershed. With terrain stability field assessments required for any proposed development on potentially unstable slopes and by maintaining natural drainage patterns within all blocks and associated roads, there should be a low concern for hydrologic impacts associated with forestry-related landslides.

7.0 CONCLUSIONS

7.1 Current Watershed Conditions (Forestry-related Issues)

- There is a moderate concern with the potential sediment delivery associated with past forest development, in particular the high priority sites identified in the Sediment Source Survey.

- Stream flow, landslide and stream channel stability concerns associated with

7.0 CONCLUSIONS

7.1 Current Watershed Conditions (Forestry-related Issues)

- There is a moderate concern with the potential sediment delivery associated with past forest development, in particular the high priority sites identified in the Sediment Source Survey.

- Stream flow, landslide and stream channel stability concerns associated with past forest development are currently low throughout the watershed.

7.2 Current Watershed Conditions (Nonforestry-related Issues)

- There is a high concern in the Trepanier Creek watershed with the continual input of sediment into the stream channels from instabilities associated with the nonforestry-related landslide in the MacDonald sub-basin.

- Approximately 25% of the Trepanier Creek mainstem channel has a moderate level of disturbance due to nonforestry-related issues.

- The 4.2 km of stream channel downstream from the MacDonald Creek

rehabilitation of the Brenda Mine site are being addressed.

7.3 Proposed Forest Development

- There are no apparent potential hydrologic impacts associated with the proposed forest development as ECA's will remain low, road densities are projected to be lower, potentially unstable terrain is being avoided and current channel instabilities should not be exacerbated.

8.0 RECOMMENDATIONS

8.1 Proposed Forest Development

To minimize potential cumulative impacts of sediment delivery associated with the proposed forest development:

- Ensure that construction, maintenance and deactivation programs are coordinated to include measures to control sediment and maintain natural drainage patterns throughout the life of the newly constructed and upgraded roads.

- Following the completion of the proposed development, road associated with the cutting permits should be deactivated or maintained to a level appropriate with their anticipated future use.

- Grass-seed all exposed soils on cutbanks, fillslopes and ditchlines.

proposed forest development:

- Ensure that construction, maintenance and deactivation programs are coordinated to include measures to control sediment and maintain natural drainage patterns throughout the life of the newly constructed and upgraded roads.

- Following the completion of the proposed development, road associated with the cutting permits should be deactivated or maintained to a level appropriate with their anticipated future use.

- Grass-seed all exposed soils on cutbanks, fillslopes and ditchlines.

To minimize potential cumulative impacts of sediment delivery associated with past forest development:

- Address the high priority roads, landslides and cutblocks identified in the Sediment Source Survey.

Recommendations for the next watershed assessment update:

- A combined long-term forest development plan should be developed by Gorman Bros. Lumber Ltd. and Riverside Forest Products Limited.

8.2 Nonforestry-related Issues

- Stabilize the instabilities associated with the nonforestry-related landslide in the MacDonald sub-basin.

- Explore stream channel enhancement opportunities for lower Trepanier Creek (efforts are currently being led by Ernie Hurd, Councillor for the District of Peachland). It will be important to develop a long-term multi-disciplinary plan that integrates safety concerns (diking requirements for the trailer park), fish enhancement opportunities (instream works and construction of a spawning channel), park development and community involvement.

- The report ***Trepanier Creek, Assessment of Alternatives to Enhance Okanagan Lake Fishery*** (completed by Dobson Engineering Ltd., dated June 1990) for the Habitat Conservation Fund identified potential deficits in low flow requirements for kokanee if full utilization of the water licences was carried out. This report should be updated to assess the changes in flow with water releases from the Brenda Mines site and a reassessment of future water demands by the District of Peachland.

LD/rs/dd/jb

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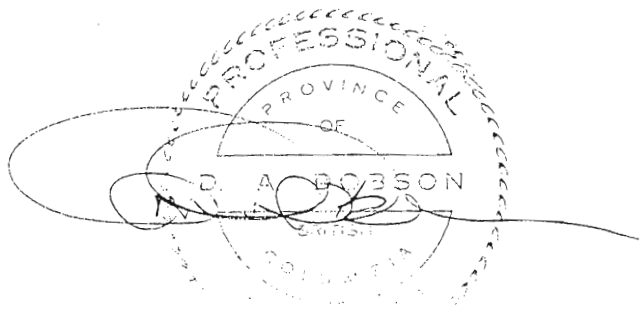
LD/rs/dd/jb



APPENDICES

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APPENDIX A

Re-CAP Procedure Details

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Re-CAP Procedure Details

The reconnaissance level channel assessment procedure (Re-CAP) involved both office and field work. The procedures used are based on the **Channel Assessment Procedure Guidebook** (dated December 1996) and the **Channel Assessment Procedure Field Guidebook** (dated December 1996).

The purpose of the Re-CAP is to:

- Determine the present channel conditions and the extent of disturbed reaches along the mainstem channel.
- Identify any areas for potential rehabilitation work.
- Identify any potential impacts to the channel stability as a result of the proposed forest development.

Office Work

The first step was to break the mainstem channel into reaches. Air photos, TRIM maps and other resource information were used. Reach breaks are usually located at significant changes in channel gradient, discharge (tributary confluences) and hillslope coupling on channel morphology.

A comparison of pre- and post-forest development air photos was not carried out due to canopy cover present on the recent air photos. A longitudinal profile of the mainstem channel was plotted to assist in identifying changes in gradient. A summary table was

Office Work

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A comparison of pre- and post-forest development air photos was not carried out due to canopy cover present on the recent air photos. A longitudinal profile of the mainstem channel was plotted to assist in identifying changes in gradient. A summary table was produced with a list of the reaches (usually lettered from the mouth proceeding upstream), reach lengths and factors used to determine the reach breaks.

Upon completion of the field work (outlined under "Field Work") a summary of the channel characteristics and disturbances for each reach was completed.

Field Work

The objective of the field assessment was to determine the extent and severity of channel impacts from past forest development and other land uses and potential future impacts.

A helicopter survey of the mainstem channel was not deemed necessary because of the good accessibility present along the mainstem channel. The amount and type of information collected at the field locations was site specific.

Information collected at each field assessment site included:

- Channel characteristics - channel gradient, bankfull channel width and depth, bed materials (including size of the largest stone on the bed that is moved by flowing water), bank materials, amount and orientation of LWD and riparian vegetation
- Channel morphology
- Representative photos of the reach
- Channel disturbances - evidence of channel degradation or aggradation

Field forms and photos were completed for each reach visited.

- Channel disturbances - evidence of channel degradation or aggradation

Field forms and photos were completed for each reach visited.

APPENDIX B

Reach Breakdowns

APPENDIX B

Reach Breakdowns

TABLE 1
Reach Breakdown Trepanier Creek

Reach	Length (km)	Features
TF	0.72	---
TE	4.24	ΔS, ΔQ
TD	5.32	ΔF
TC	4.52	ΔF
TB	2.53	ΔS
TA	0.87	ΔS

ΔS=Change in gradient ΔF=Change in channel form/type
ΔQ=Change in volume (tributary input) ΔH=Changes in hillslope coupling

Each progressive reach is different from the preceding one for at least one of the codes in the features column. For example Reach M1 is different from Reach M2 because of a change in gradient and channel type (ΔS,F,).

TABLE 2
Reach Disturbance Summary for Trepanier Creek

Reach	Length (km)	Slope (%)	Channel type	Stream length in each disturbance class (km)			
				None (S)	Low (A1,D1)	Moderate (A2,D2)	High (A3,D3)
TF	0.72	2.6	RP_c-w:S	0.72	---	---	---
TE	4.24	1.8	RP_c-w:A2	---	---	4.24	---
TD	5.32	2.1	RP_c:S	5.32	---	---	---
TC	4.52	1.5	RP_c:D1	---	4.52	---	---
TB	2.53	6.1	CP_b:S	2.53	---	---	---
TA	0.87	2.8	RP_c:D2	---	---	0.87	---

Reach Disturbance Summary for Trepanier Creek

Reach	Length (km)	Slope (%)	Channel type	Stream length in each disturbance class (km)			
				None (S)	Low (A1,D1)	Moderate (A2,D2)	High (A3,D3)
TF	0.72	2.6	RP_c-w:S	0.72	---	---	---
TE	4.24	1.8	RP_c-w:A2	---	---	4.24	---
TD	5.32	2.1	RP_c:S	5.32	---	---	---
TC	4.52	1.5	RP_c:D1	---	4.52	---	---
TB	2.53	6.1	CP_b:S	2.53	---	---	---
TA	0.87	2.8	RP_c:D2	---	---	0.87	---
Total	18.2	---	---	8.57	4.52	5.11	---

Codes for channel types are found in the Forest Practices Code of BC Channel Assessment Procedure Field Guidebook - Dec. 96

Longitudinal Profile - Trepanier Creek (|Profile - Trepanier Creek (Residual)

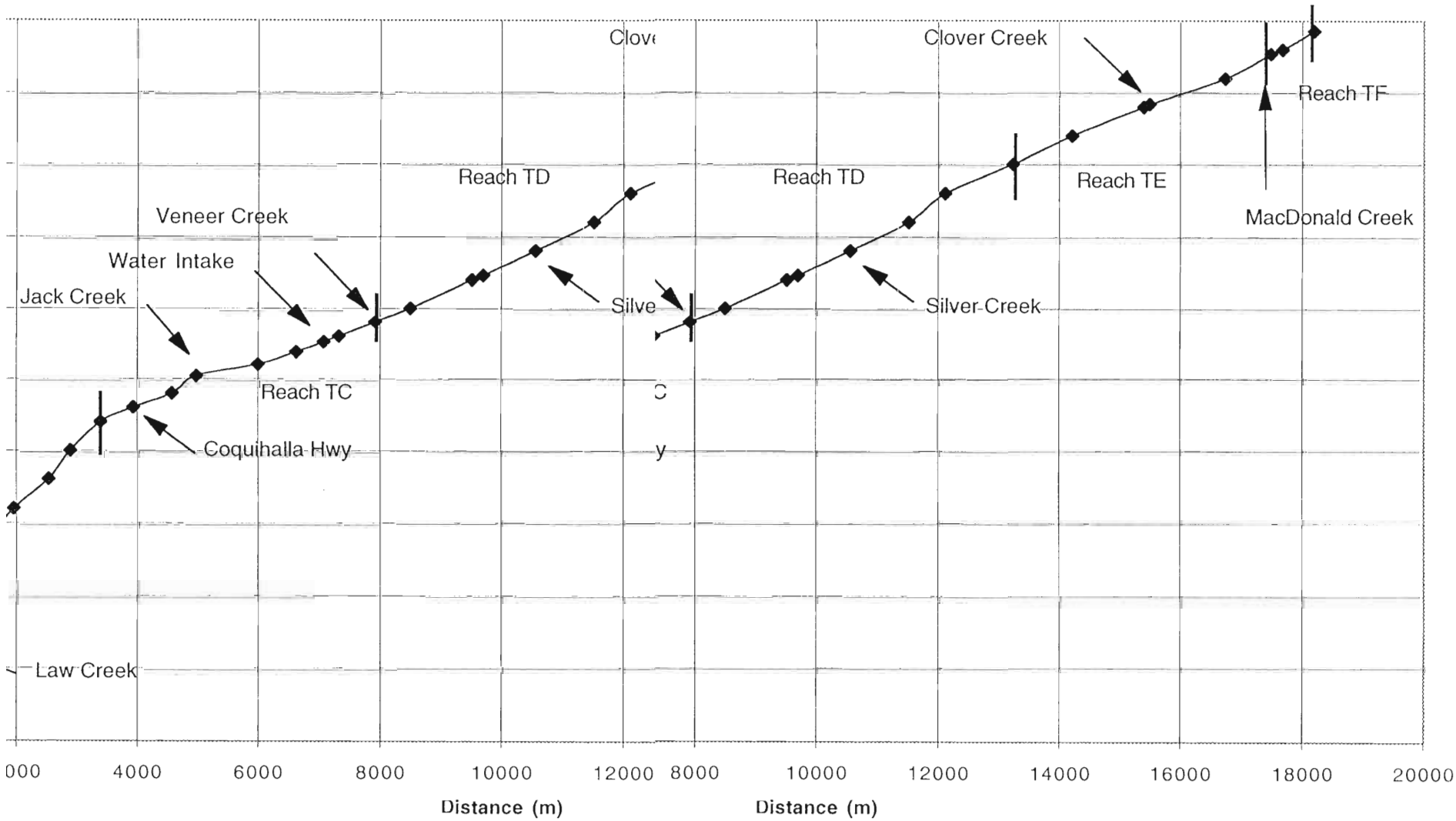


TABLE 1
Reach Breakdown MacDonald Creek

Reach	Length (km)	Features
MC	2.26	---
MB	1.35	ΔS, ΔQ
MA	0.15	ΔS, ΔF

ΔS=Change in gradient ΔF=Change in channel form/type
ΔQ=Change in volume (tributary input) ΔH=Changes in hillslope coupling

Each progressive reach is different from the preceding one for at least one of the codes in the features column. For example Reach M1 is different from Reach M2 because of a change in gradient and channel type (ΔS,F,).

TABLE 2
Reach Disturbance Summary for MacDonald Creek

Reach	Length (km)	Slope (%)	Channel type	Stream length in each disturbance class (km)			
				None (S)	Low (A1,D1)	Moderate (A2,D2)	High (A3,D3)
MC	2.26	9.9	---	---	---	2.26*	---
MB	1.35	13.6	SP_h-w:D2	---	---	1.35	---
MA	0.15	4.7	fan:A2	---	---	0.15	---
Total	3.76	---	---	---	---	3.76	---

Codes for channel types are found in the Forest Practices Code of BC Channel Assessment Procedure Field Guidebook - Dec. 96

* Not assessed in field, but downstream of failure.

Reach	Length (km)	Slope (%)	Channel type	(km)			
				None (S)	Low (A1,D1)	Moderate (A2,D2)	High (A3,D3)
MC	2.26	9.9	---	---	---	2.26*	---
MB	1.35	13.6	SP_h-w:D2	---	---	1.35	---
MA	0.15	4.7	fan:A2	---	---	0.15	---
Total	3.76	---	---	---	---	3.76	---

Codes for channel types are found in the Forest Practices Code of BC Channel Assessment Procedure Field Guidebook - Dec. 96

* Not assessed in field, but downstream of failure.

Longitudinal Profile - MacDonald Clinal Profile - MacDonald Creek

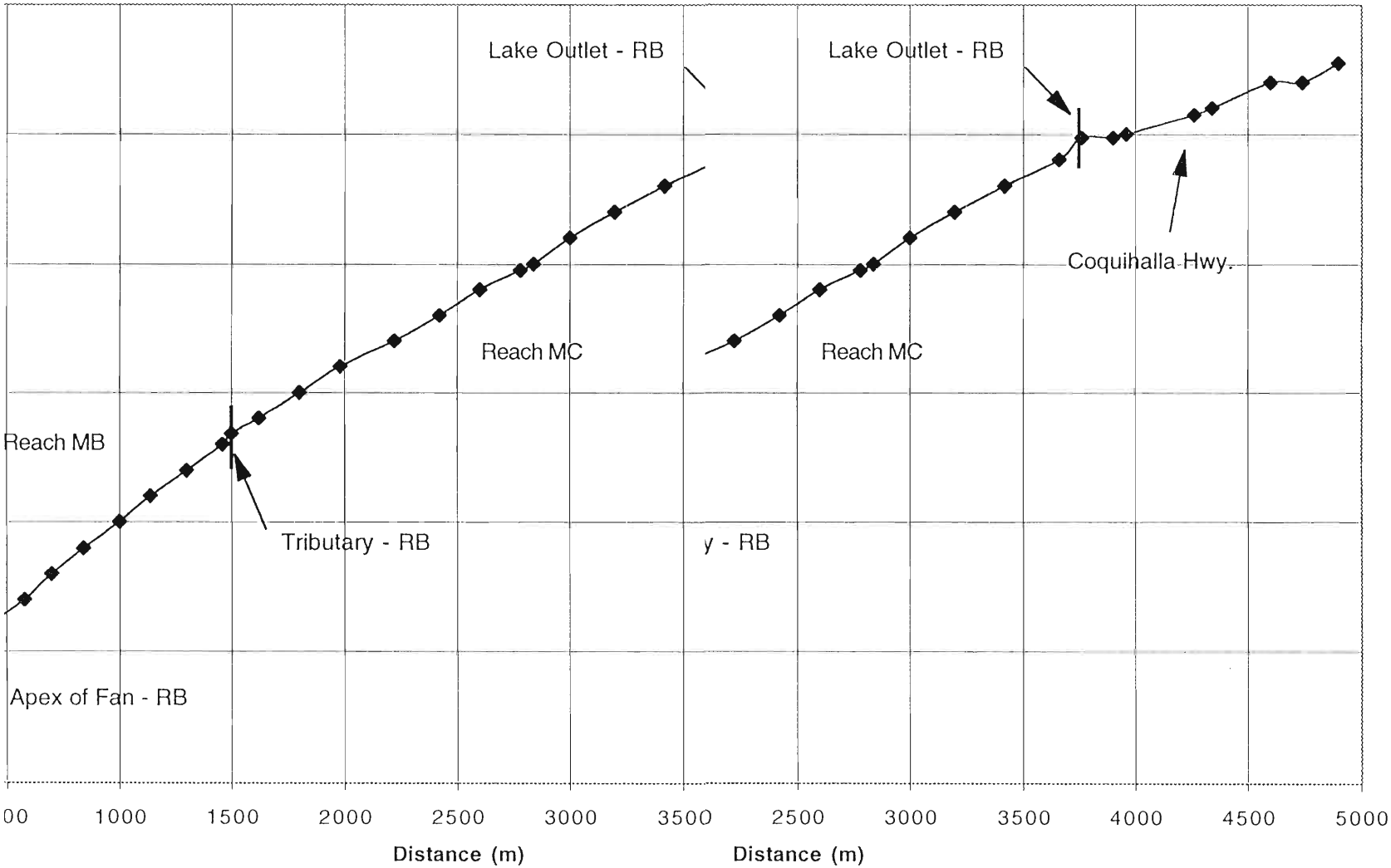


TABLE 1
Reach Breakdown Upper Trepanier Creek

Reach	Length (km)	Features
UTC	0.60	---
UTB	6.52	ΔS
UTA	1.36	ΔS

ΔS=Change in gradient ΔF=Change in channel form/type
ΔQ=Change in volume (tributary input) ΔH=Changes in hillslope coupling

Each progressive reach is different from the preceding one for at least one of the codes in the features column. For example Reach M1 is different from Reach M2 because of a change in gradient and channel type (ΔS,F,).

TABLE 2
Reach Disturbance Summary for Upper Trepanier Creek

Reach	Length (km)	Slope (%)	Channel type	Stream length in each disturbance class (km)			
				None (S)	Low (A1,D1)	Moderate (A2,D2)	High (A3,D3)
UTC	0.60	20.0	---	0.60*	---	---	---
UTB	6.52	3.7	---	6.52*	---	---	---
UTA	1.36	7.6	RP_c-w:S	1.36	---	---	---
Total	8.48	---	---	8.48	---	---	---

Codes for channel types are found in the Forest Practices Code of BC Channel Assessment Procedure Field Guidebook - Dec. 96

* Not assessed in the field, based on office information.

Reach	Length (km)	Slope (%)	Channel type	Stream length in each disturbance class (km)			
				None (S)	Low (A1,D1)	Moderate (A2,D2)	High (A3,D3)
UTC	0.60	20.0	---	0.60*	---	---	---
UTB	6.52	3.7	---	6.52*	---	---	---
UTA	1.36	7.6	RP_c-w:S	1.36	---	---	---
Total	8.48	---	---	8.48	---	---	---

Codes for channel types are found in the Forest Practices Code of BC Channel Assessment Procedure Field Guidebook - Dec. 96

* Not assessed in the field, based on office information.

Longitudinal Profile - Upper Trepanier al Profile - Upper Trepanier Creek

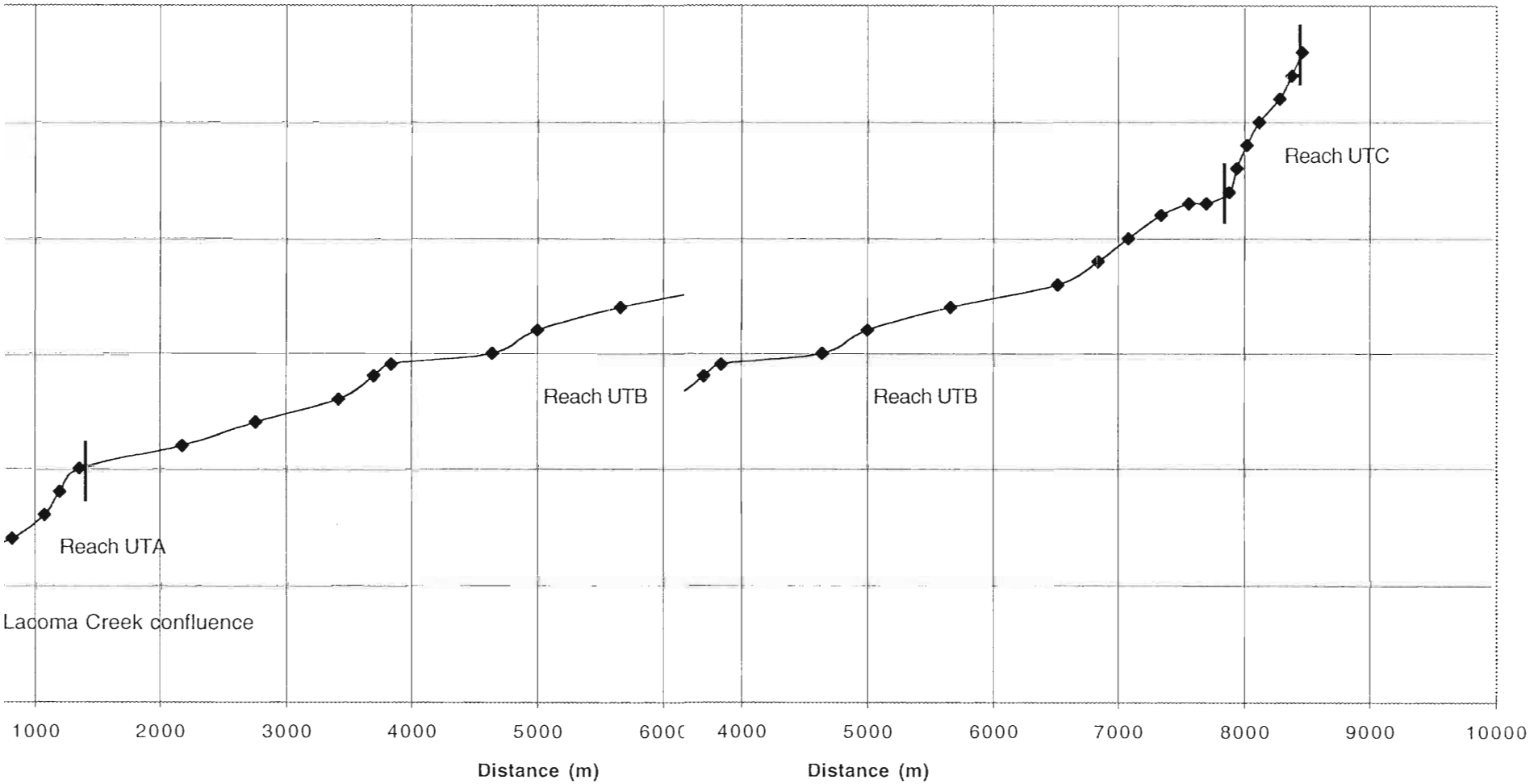


TABLE 1
Reach Breakdown Lacoma Creek

Reach	Length (km)	Features
LD	1.30	---
LC	1.32	ΔS
LB	1.78	ΔS
LA	0.42	ΔS

ΔS=Change in gradient ΔF=Change in channel form/type
ΔQ=Change in volume (tributary input) ΔH=Changes in hillslope coupling

Each progressive reach is different from the preceding one for at least one of the codes in the features column. For example Reach M1 is different from Reach M2 because of a change in gradient and channel type (ΔS,F,).

TABLE 2
Reach Disturbance Summary for Lacoma Creek

Reach	Length (km)	Slope (%)	Channel type	Stream length in each disturbance class (km)			
				None (S)	Low (A1,D1)	Moderate (A2,D2)	High (A3,D3)
LD	1.30	2.3	---	1.30*	---	---	---
LC	1.32	6.3	---	1.32*	---	---	---
LB	1.78	1.4	RP_g:S	1.78	---	---	---
LA	0.42	5.7	CP_b:S	0.42	---	---	---
Total	4.82	---	---	4.82	---	---	---

Codes for channel types are found in the Forest Practices Code of BC Channel Assessment Procedure Field Guidebook - Dec. 96

Reach	Length (km)	Slope (%)	Channel type	Stream length in each disturbance class (km)			
				None (S)	Low (A1,D1)	Moderate (A2,D2)	High (A3,D3)
LD	1.30	2.3	---	1.30*	---	---	---
LC	1.32	6.3	---	1.32*	---	---	---
LB	1.78	1.4	RP_g:S	1.78	---	---	---
LA	0.42	5.7	CP_b:S	0.42	---	---	---
Total	4.82	---	---	4.82	---	---	---

Codes for channel types are found in the Forest Practices Code of BC Channel Assessment Procedure Field Guidebook - Dec. 96

* Not assessed in the field, based on office information.

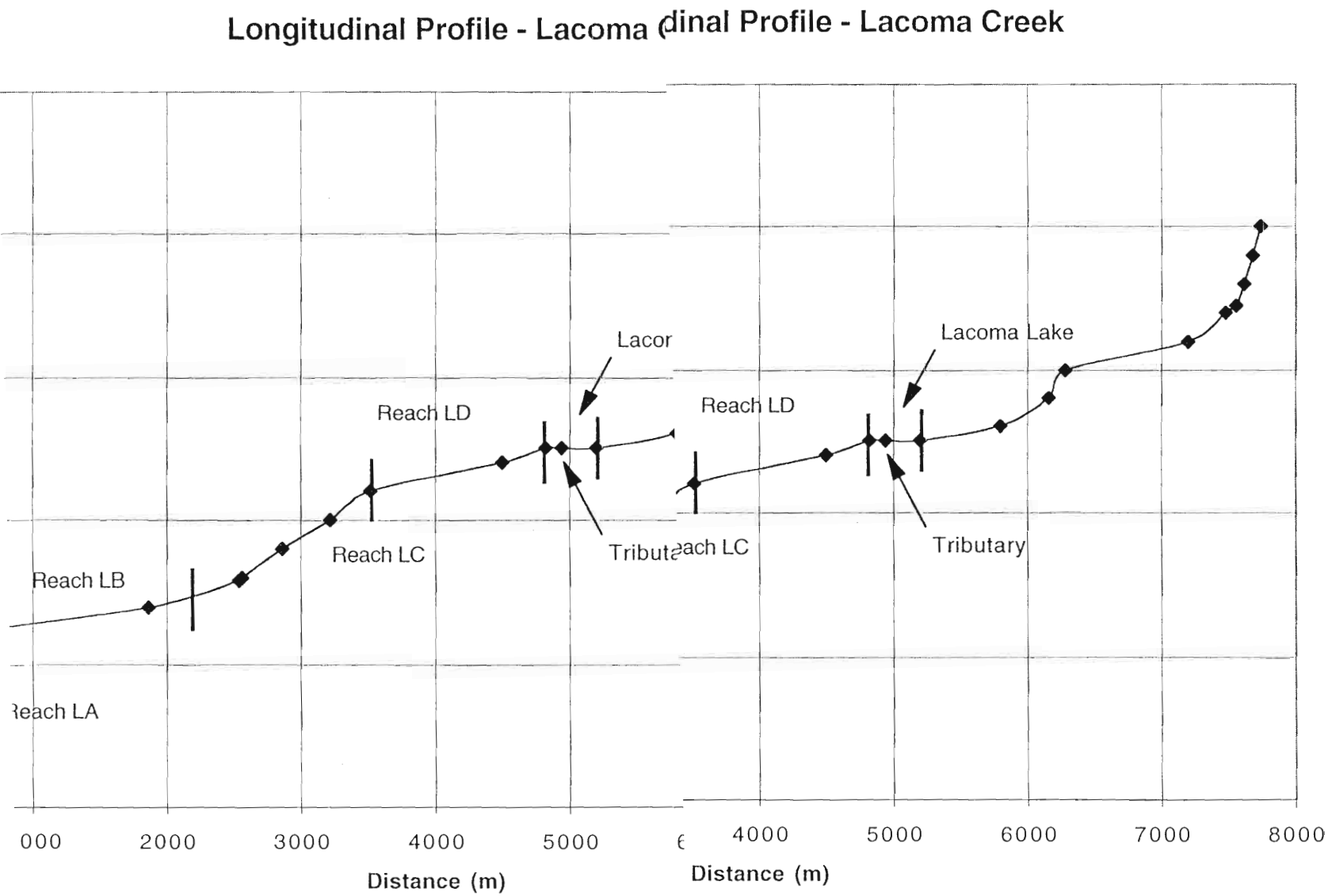

Longitudinal Profile - Lacoma Creek
Lacor
Reach LD
Reach LC
Reach LB
Reach LA
Tributa
000
2000
3000
4000
5000
Distance (m)
Lacoma Lake
Reach LD
Reach LC
Tributary
4000
5000
6000
7000
8000
Distance (m)

TABLE 1
Reach Breakdown Jack Creek

Reach	Length (km)	Features
JA		---
ΔS=Change in gradient		ΔF=Change in channel form/type
ΔQ=Change in volume (tributary input)		ΔH=Changes in hillslope coupling

Each progressive reach is different from the preceding one for at least one of the codes in the features column. For example Reach M1 is different from Reach M2 because of a change in gradient and channel type (ΔS,F,).

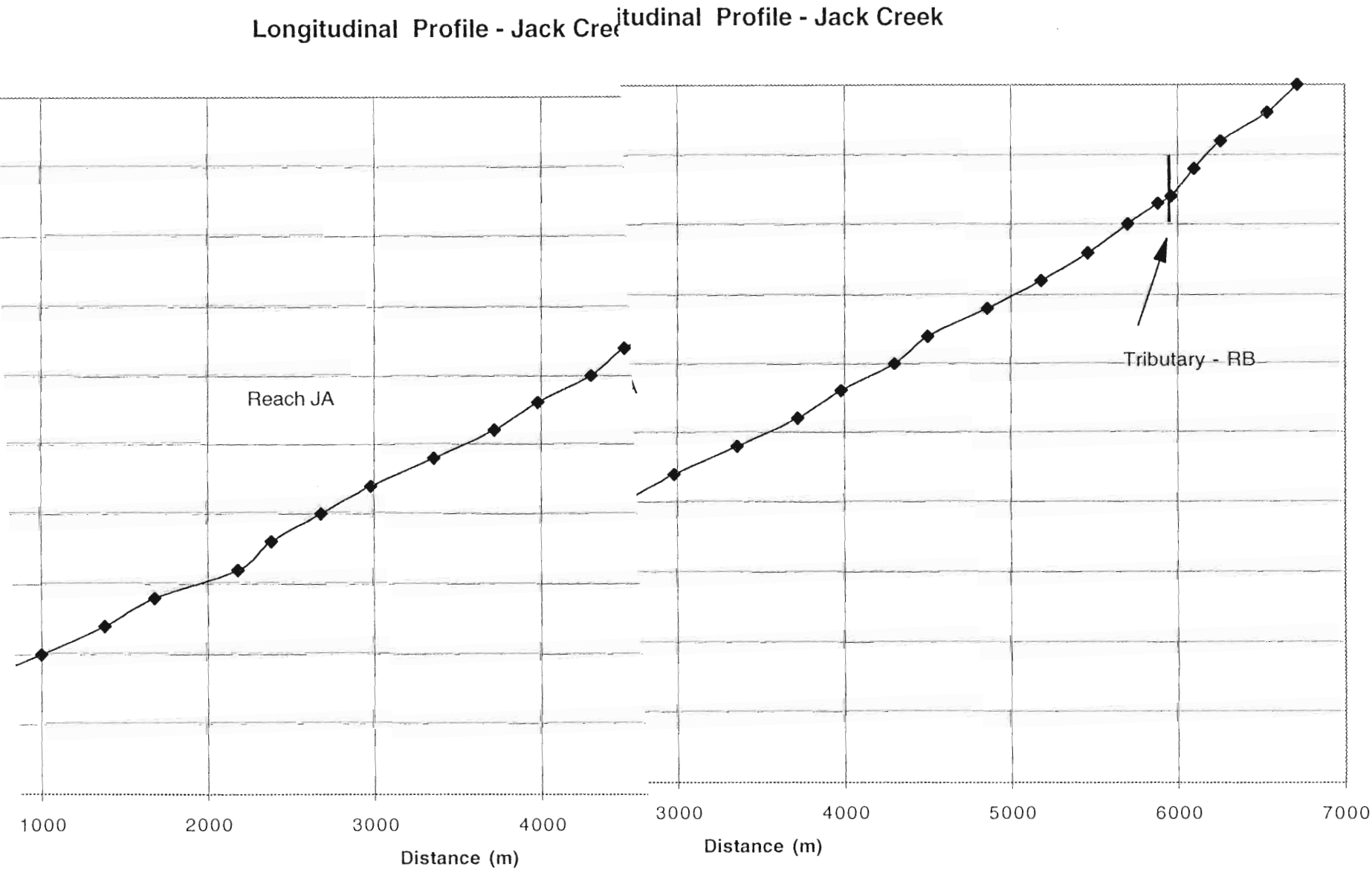
TABLE 2
Reach Disturbance Summary for Jack Creek

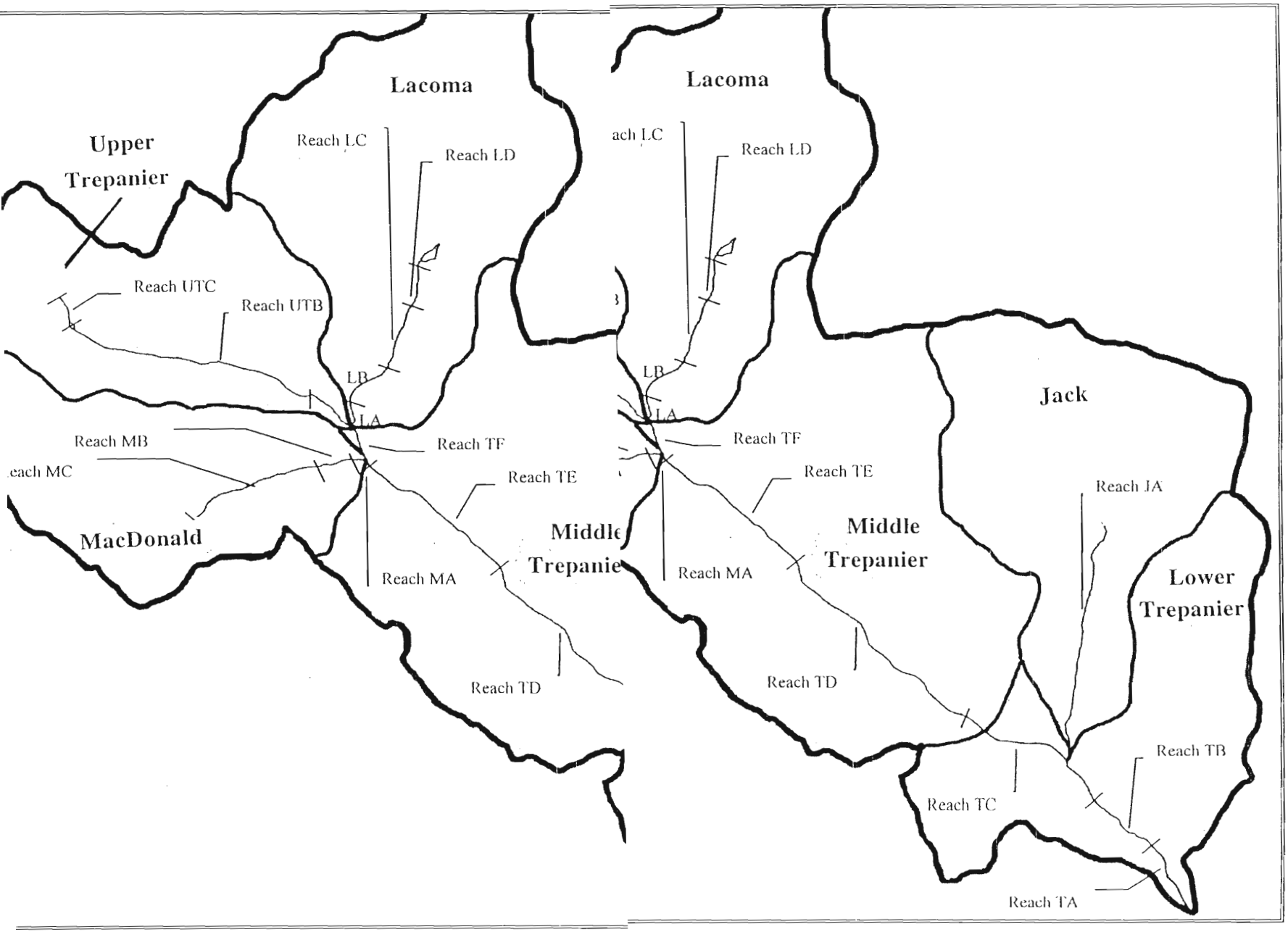
Reach	Length (km)	Slope (%)	Channel type	Stream length in each disturbance class (km)			
				None (S)	Low (A1,D1)	Moderate (A2,D2)	High (A3,D3)
JA	5.88	6.2	CP_b:A1	---	5.88	---	---
Total	5.88			---	5.88	---	---

Codes for channel types are found in the Forest Practices Code of BC Channel Assessment Procedure Field Guidebook - Dec. 96

	(km)	(%)	type	None (S)	Low (A1,D1)	Moderate (A2,D2)	High (A3,D3)
JA	5.88	6.2	CP_b:A1	---	5.88	---	---
Total	5.88			---	5.88	---	---

Codes for channel types are found in the Forest Practices Code of BC Channel Assessment Procedure Field Guidebook - Dec. 96


Longitudinal Profile - Jack Cre
itudinal Profile - Jack Creek
Reach JA
Tributary - RB
1000
2000
3000
4000
3000
4000
5000
6000
7000
Distance (m)
Distance (m)



Map 1. Reach Breaks for the Trepanier Creek W[illegible]ks for the Trepanier Creek Watershed

APPENDIX C

Trepanier Creek
Field Forms and Photos

APPENDIX C

Trepanier Creek
Field Forms and Photos

Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: **Residual**
Reach: **TF**
Map Sheet: **082E081**

Date: **Aug 14/98**
Crew: **Davies**
Weather: **Sunny**

Station	Wb (m)	d (cm)	s (%)	D (cm)	Channel Type
0+000	7.2	60	2.0	25	RP_c-w:S
0+025	7.0	70	3.0	25	RP_c-w:S
0+050	8.4	50		25	RP_c-w:S

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
0+000	A:2/5	RP_c-w:S	---	
0+025	A:2/5	RP_c-w:S	D5	TR2-3/4
0+050	A:2/5	RP_c-w:S	---	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

0+025	A:2/5	RP_c-w:S	D5	TR2-3/4
0+050	A:2/5	RP_c-w:S	---	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

A (Erodible): 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
S (Non-erodible): 1=Till, 2=Colluvium, 3=Bedrock

Comments

200 m upstream of MacDonald Creek confluence.
Bed materials consist of cobbles with some pebbles and boulders.
Banks are vegetated with some boulders in fine-textured matrix.
Riparian vegetation consists of 5 m alder with tall deciduous and conifers.
LWD spanning the channel, small accumulation of SWD.
Debris jam below old bridge crossing.

PHOTO TF-1. Upstream view of reach TF on Trepanier Creek.
(TR2-3, Aug. 14/98)

PHOTO TF-1. Upstream view of reach TF on Trepanier Creek.
(TR2-3, Aug. 14/98)

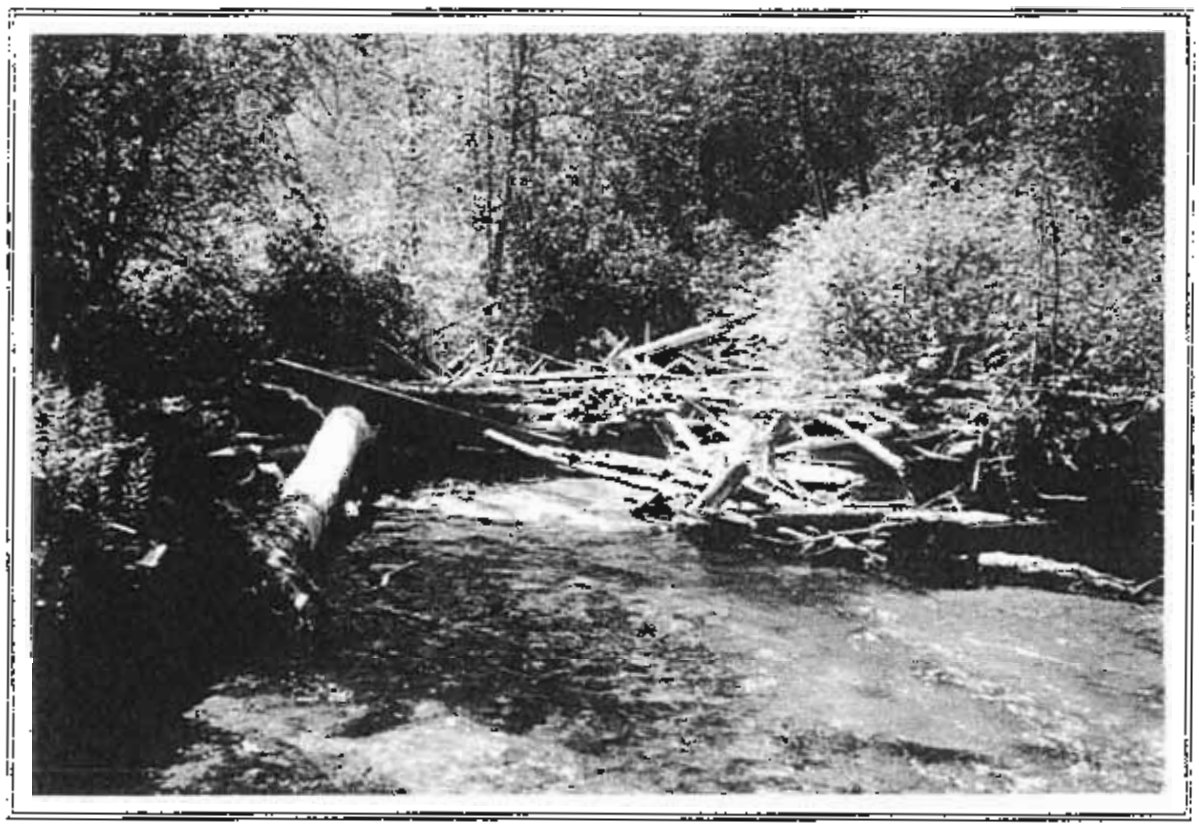


PHOTO TF-3. Debris accumulation at downstream end of reach TF, just upstream of MacDonald Creek. *(TR1-25, Aug. 14/98)*

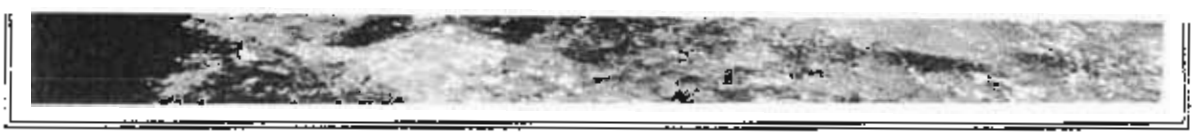


PHOTO TF-3. Debris accumulation at downstream end of reach TF, just upstream of MacDonald Creek. *(TR1-25, Aug. 14/98)*

Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: Residual
Reach: TE
Map Sheet: 082E081

Date: Aug 17/98
Crew: Davies
Weather: Sunny

Station	Wb (m)	d (cm)	s (%)	D (cm)	Channel Type
0+000	7.2	80	3.5	22	$CP_{1a}S$
0+070	8.6	40	3.0	24	$CP_{1a}S$
0+130	7.2	60	3.0	25	$CP_{1a}S$

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
	A4/5	$CP_{1a}S$		TR2-21/22
	A4/5	$CP_{1a}S$		
	A4/5	$CP_{1a}S$		

S1 Homogenous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

	A4/5	$CP_{1a}S$		
	A4/5	$CP_{1a}S$		

S1 Homogenous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

A: Erodible: 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
B: Non-erodible: 1=Till, 2=Clay/Hardpan, 3=Bedrock

Comments: Bed materials consist of boulders with some deposits of sand and pebbles.
Large lag boulders.
Banks are cobble/boulder.
Riparian vegetation - tall conifers and deciduous trees.
Short section with some bedrock control.
Sediment accumulation 250 m downstream.

PHOTO TE-5. Upstream view of Trepanier Creek below the Clover Creek confluence. *(TR2-21, Aug. 17/98)*

PHOTO TE-5. Upstream view of Trepanier Creek below the Clover Creek confluence. *(TR2-21, Aug. 17/98)*

Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: Residual
Reach: TE
Map Sheet: 082E081

Date: Aug 17/98
Crew: Davies
Weather: Sunny

Station	Wb (m)	d (cm)	s (%)	D (cm)	Channel Type
0+000	15.7	60	1.0	25	RP -w:D1
0+050	14.1	80	1.5	20	RP -w:D1
0+100	10.1	65	1.5	25	RP -w:D1

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
0+000	A:2 to 4	RP -w:D1	---	
0+050	A:2 to 4	RP -w:D1	S5, C2	TR3-3 [illegible]
0+100	A:2 to 4	RP -w:D1	---	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD [illegible]

0+050	A:2 to 4	RP -w:D1	S5, C2	TR3-3 [illegible]
0+100	A:2 to 4	RP -w:D1	---	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD [illegible]

A: Bed: 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
B: Non-alluvial: 1=Till, 2=Colluvium, 3=Bedrock

Comments: Downstream end of reach. 1.25 km from woods end of road.
Bed materials - cobbles, some pebbles and boulders.
Banks - fluvial deposits - pebbles to boulders.
Riparian vegetation is predominantly 4 m shrubs, some tall deciduous trees, the odd tall conifer.
LWD along margins, not functional.
Secondary channel at stations 0+000 and 0+50

PHOTO TE-7. Upstream view of Trepanier Creek, the lower end of reach TR. *(TR3-7, Aug. 17/98)*

Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: **Residual**
Reach: **TE**
Map Sheet: **082E081**

Date: **Aug 14/98**
Crew: **Davies**
Weather: **Sunny**

Station	WD (m)	d (cm)	s (%)	D (cm)	Channel Type
0+000	7.2	65	2.5	25	RP-sw,D1

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
0+000	A 4/5	RP-sw,D1	C1, C5	TR1 23/24

S1 Homogeneous bed texture	C1 Extensive riffles or cascades	B1 Abandoned channels
S2 Sediment fingers	C2 Minimal pool area	B2 Eroding banks
S3 Sediment wedges	C3 Elevated mid-channel bars	B3 Avulsions
S4 Extensive bars	C4 Multiple channels or braids	D1 Small woody debris
S5 Extensive scoured zones	C5 Disturbed stone lines	D2 LWD function
		D3 Recently formed LWD jams

S1 Homogeneous bed texture	C1 Extensive riffles or cascades	B1 Abandoned channels
S2 Sediment fingers	C2 Minimal pool area	B2 Eroding banks
S3 Sediment wedges	C3 Elevated mid-channel bars	B3 Avulsions
S4 Extensive bars	C4 Multiple channels or braids	D1 Small woody debris
S5 Extensive scoured zones	C5 Disturbed stone lines	D2 LWD function
		D3 Recently formed LWD jams

A (Erodible): 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
N (Non-erodible): 1=Till, 2=Colluvium, 3=Bedrock

Comments: Trepanier Creek 100 m downstream of MacDonald Creek confluence.
Bed materials consist of cobbles and boulders.
Small pockets of sand and pebbles.
Constant riffle.
Bank materials consist of cobbles and boulders in fine-textured matrix. High root density.
Riparian vegetation is tall deciduous trees with the odd conifer.
LWD limited to a few pieces parallel to banks.
Stable.

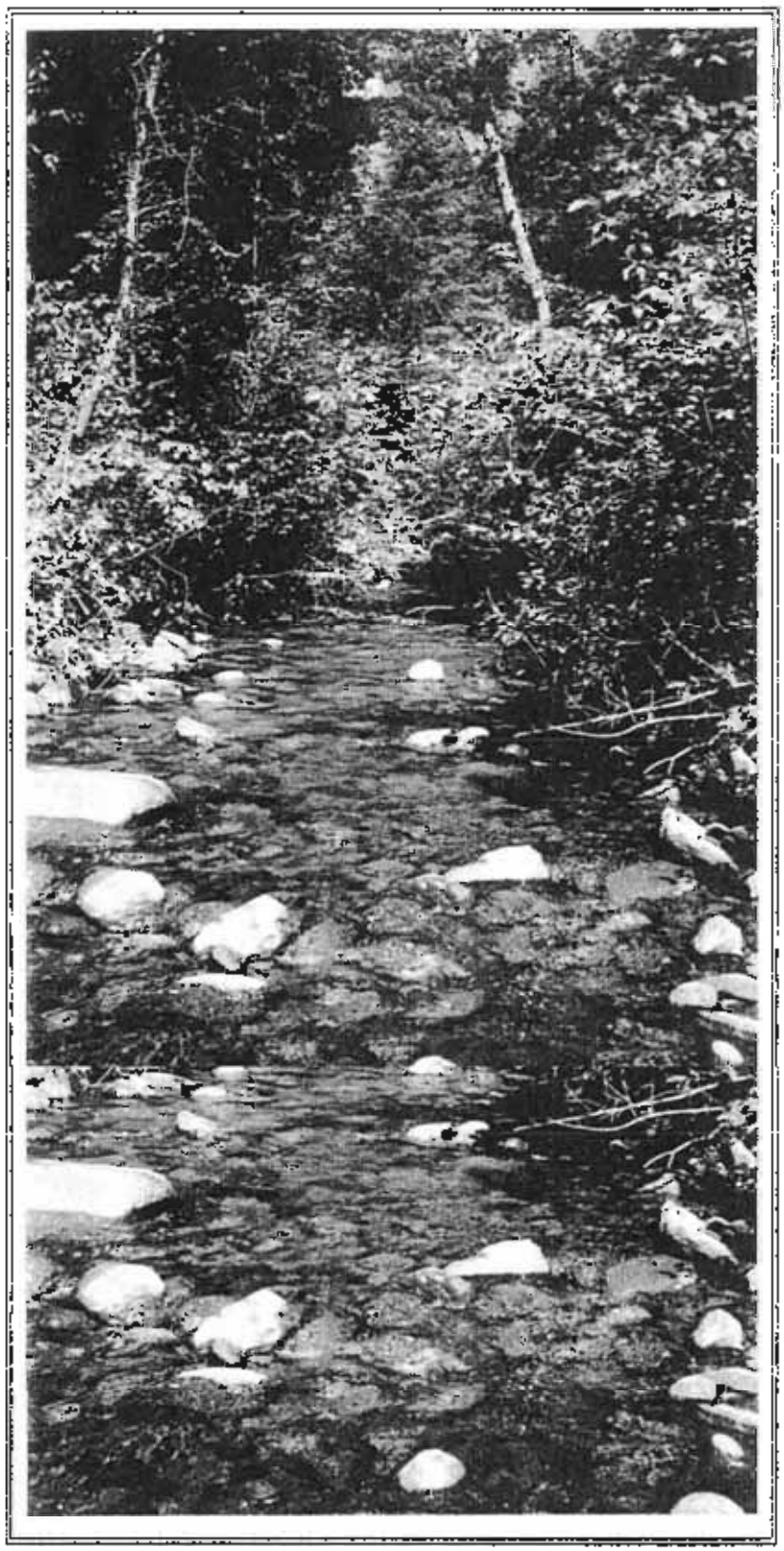


PHOTO TE-1. Upstream view of Trepanier Creek below MacDonald Creek. (TR1-23 Aug. 14/98)

Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: Residual
Reach: TE
Map Sheet: 082E081

Date: Aug 17/98
Crew: Davies
Weather: Sunny

Station	Wb (m)	d (cm)	s (%)	D (cm)	Channel Type
0+000	8.2	0.9	2.0	15	RP_1-w:A2
0+050	8.1	0.5	2.0	19	RP_1-w:A2
0+100	8.4	0.7	2.0	23	RP_1-w:A2
0+150	7.2	0.7	1.5	26	RP_1-w:A2

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
0+000	A:2 to 4	RP_1-w:A2	S3, C3	TR2-15
0+050	A:2 to 4	RP_1-w:A2	---	
0+100	A:2 to 4	RP_1-w:A2	S3, C3	TR2-15 to 17
0+150	A:2 to 4	RP_1-w:A2	---	

S1 Homogenous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

0+050	A:2 to 4	RP_1-w:A2	---	
0+100	A:2 to 4	RP_1-w:A2	S3, C3	TR2-15 to 17
0+150	A:2 to 4	RP_1-w:A2	---	

S1 Homogenous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

E: Erodible: 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
N: Non-erodible: 1=Till, 2=Colluvium, 3=Bedrock

Comments: 1.3 km downstream of MacDonald Creek.
Bed materials consist of sand to boulders.
Bank material consists of sand and cobbles.
Riparian vegetation-tall conifers with deciduous trees and shrubs.
Woody debris along banks from alders, providing some cover, non-functional.
Floodplain sand deposits.
Pools 0.5 m deep.
150 m downstream large cobble bar.

PHOTO TE-2. Upstream view of Trepanier Creek, 1.3 km below MacDonald Creek. Note sand deposits above the cobble bar. *(TR2-15, Aug. 17/98)*

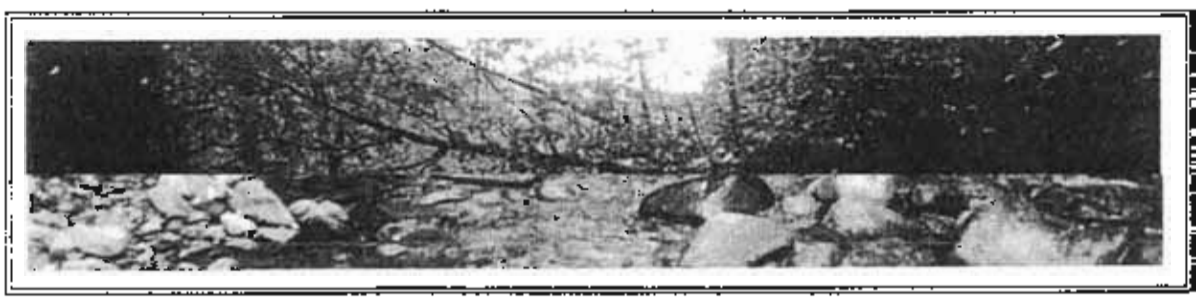
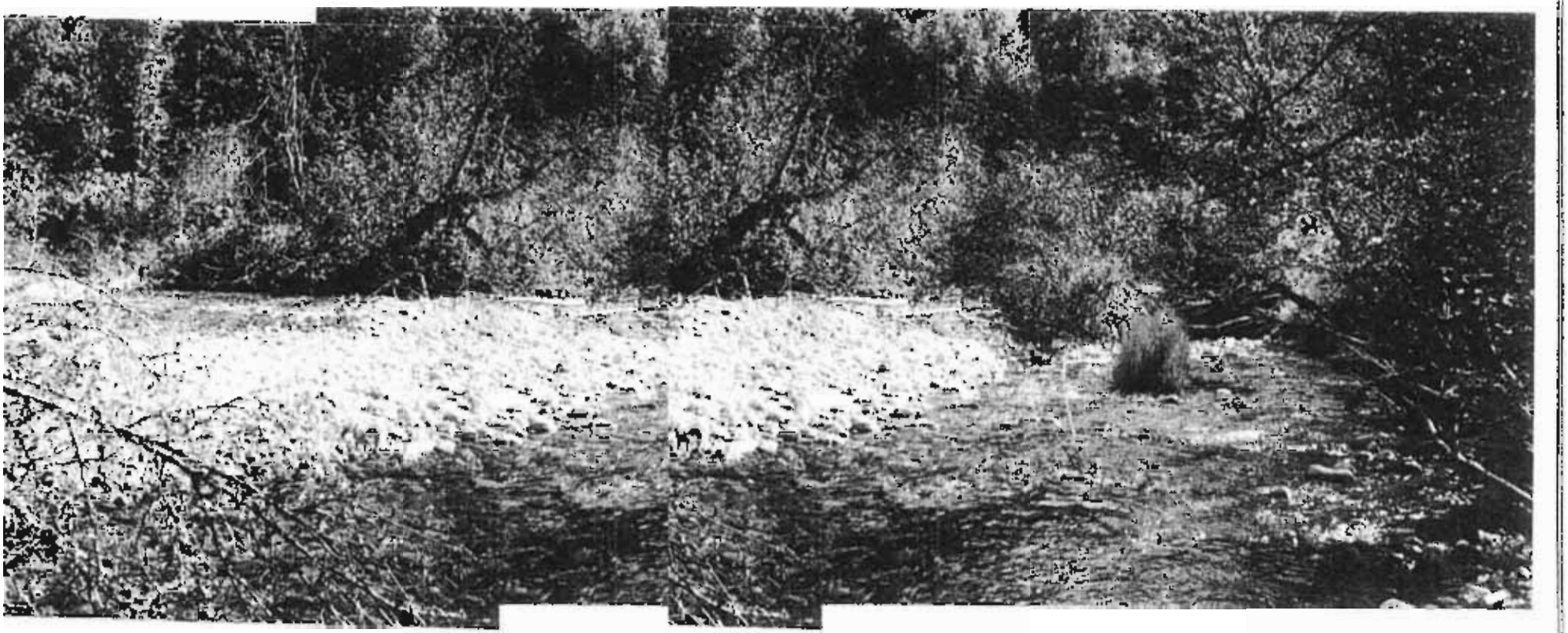


PHOTO TE-2. Upstream view of Trepanier Creek, 1.3 km below MacDonald Creek. Note sand deposits above the cobble bar. *(TR2-15, Aug. 17/98)*



ram view of Trepanier Creek, 700 m upstream from the Clover Creek upstream from the Clover Creek confluence. *(HR2-18419, Aug. 17/88)*

Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: Residual
Reach: TD
Map Sheet: 082E081

Date: Aug 17/98
Crew: Davies
Weather: Sunny

Station	Wb (m)	d (cm)	s (%)	D (cm)	Channel Type
0+000	9.5	40	3.5	25	CP_2S

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
0+000	A4/5	CP_2S	---	TR3-8/9

S1 Homogenous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function

[illegible]	A4/5	CP_2S	---	TR3-8/9

S1 Homogenous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

A (Erodible): 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
N (Non-erodible): 1=Till, 2=Colluvium, 3=Bedrock

Comments 2.0 km from woods end of road.
Bed materials boulder with some sand deposits.
Banks are cobble/boulder with vegetated cover and organics.
Riparian vegetation consists of tall deciduous and conifer trees, 4 to 6 m understory.
Odd piece of LWD spanning channel.

PHOTO TD-1. Downstream view of Trepanier Creek.
(TR3-9, Aug. 17/98)

PHOTO TD-1. Downstream view of Trepanier Creek.
(TR3-9, Aug. 17/98)

Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: Residual
Reach: TD
Map Sheet: 082E081

Date: Aug 17/98
Crew: Davies
Weather: Sunny

Station	Wb (m)	d (cm)	s (%)	D (cm)	Channel Type
0+000	9.4	50	1.5	17	RP -w:D?

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
0+000	A:2/3,N:2	RP -w:D?	C1, B2, D1	TR3-10#11

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

A (Erodible): 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
N (Non-erodible): 1=Till, 2=Colluvium, 3=Bedrock

Comments: 3.3 km from woods end of road.
Bed materials are sand to boulders.
Banks consist of fine-textured sediment with organics.
Section consists of stable talus slope.
Mature riparian forest.
Large woody debris accumulation, minor bank erosion.
Some overbank sand deposits.

PHOTO TD-3. Upstream view of Trepanier Creek above the debris jam.
(TR3-10, Aug. 17/98)

PHOTO TD-3. Upstream view of Trepanier Creek above the debris jam.
(TR3-10, Aug. 17/98)

Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: Residual
Reach: TD
Map Sheet: 082E081/082E082

Date: Aug 17/98
Crew: Davies
Weather: Sunny

Station	Wb (m)	d (cm)	S (%)	D (cm)	Channel Type
0+000	9.1	55	2.5	20	RP_c-w:S
0+025	7.9	40	2.5	19	RP_c-w:S
0+050	8.5	80	2.5	25	RP_c-w:S

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
0+000	A:3/4	RP_c-w:S	---	TR3-12
0+025	A:3/4	RP_c-w:S	---	
0+050	A:3/4	RP_c-w:S	---	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

0+050	A:3/4	RP_c-w:S	---	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

A (Erodible): 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
S (Non-erodible): 1=Till, 2=Colluvium, 3=Bedrock

Comments: 4.8 km from woods end of road.
Bed materials sand to boulders.
Banks consist of fine grained sediment in root matrix with pebbles and cobbles.
Minor undercutting of banks.
Riparian vegetation is tall conifers with an understory of deciduous trees and shrubs.
LWD spanning channel, scattered pieces along banks.

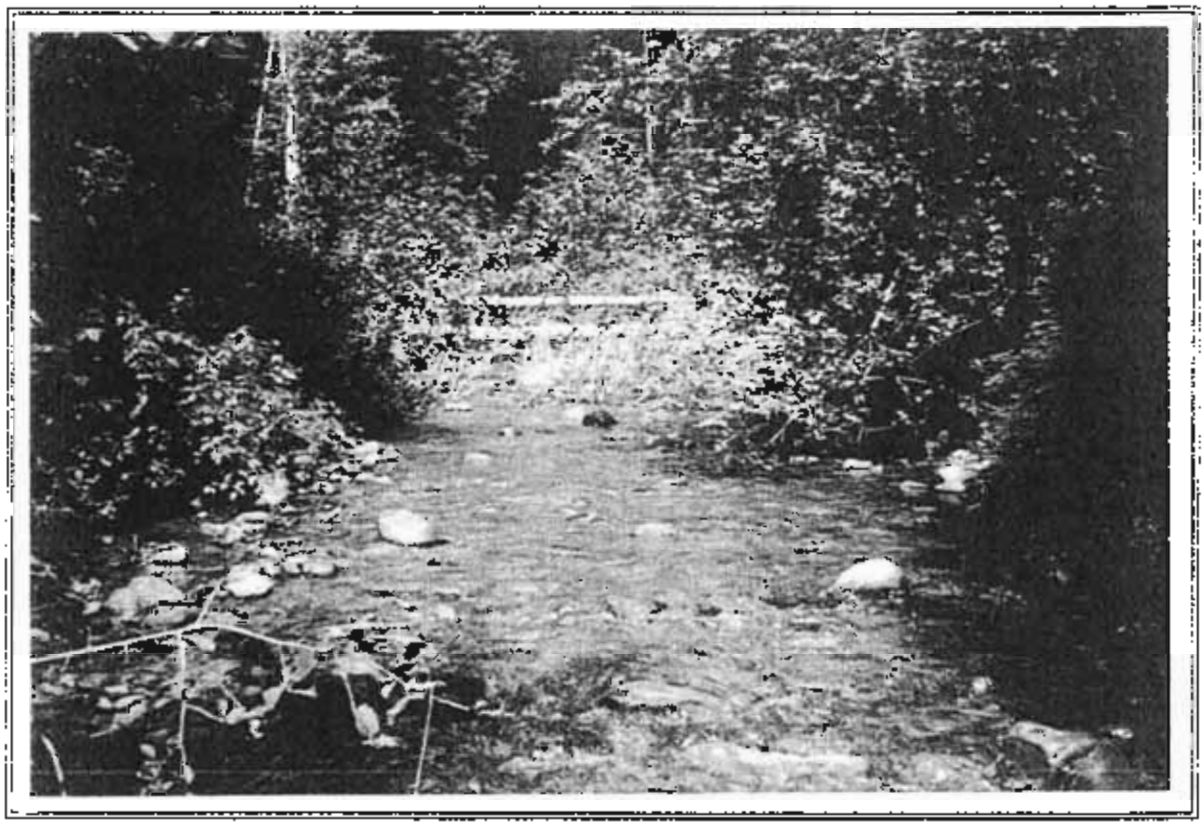


PHOTO TD-4. Upstream view of Trepanier Creek 2.2 km from end of reach.
(TR3-12, Aug. 17/98)

PHOTO TD-4. Upstream view of Trepanier Creek 2.2 km from end of reach.
(TR3-12, Aug. 17/98)

Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: Residual
Reach: TD
Map Sheet: 082E082

Date: Aug 17/98
Crew: Davies
Weather: Sunny

Station	Wb (m)	d (cm)	s (%)	D (cm)	Channel Type
0+000	9.5	70	2.0	23	RP,cS

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
0+000	A3/S	RP,cS	---	TR3-20

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

				TR3-20

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

A (Erodible): 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
N (Non-erodible): 1=Till, 2=Colluvium, 3=Bedrock

Comments: Bed materials cobbles/boulder.
Bank materials cobble/boulder, some pockets of sand.
Some moss covered boulders in channel.
Minimal amounts of LWD.
Mature riparian forest.
Stable.

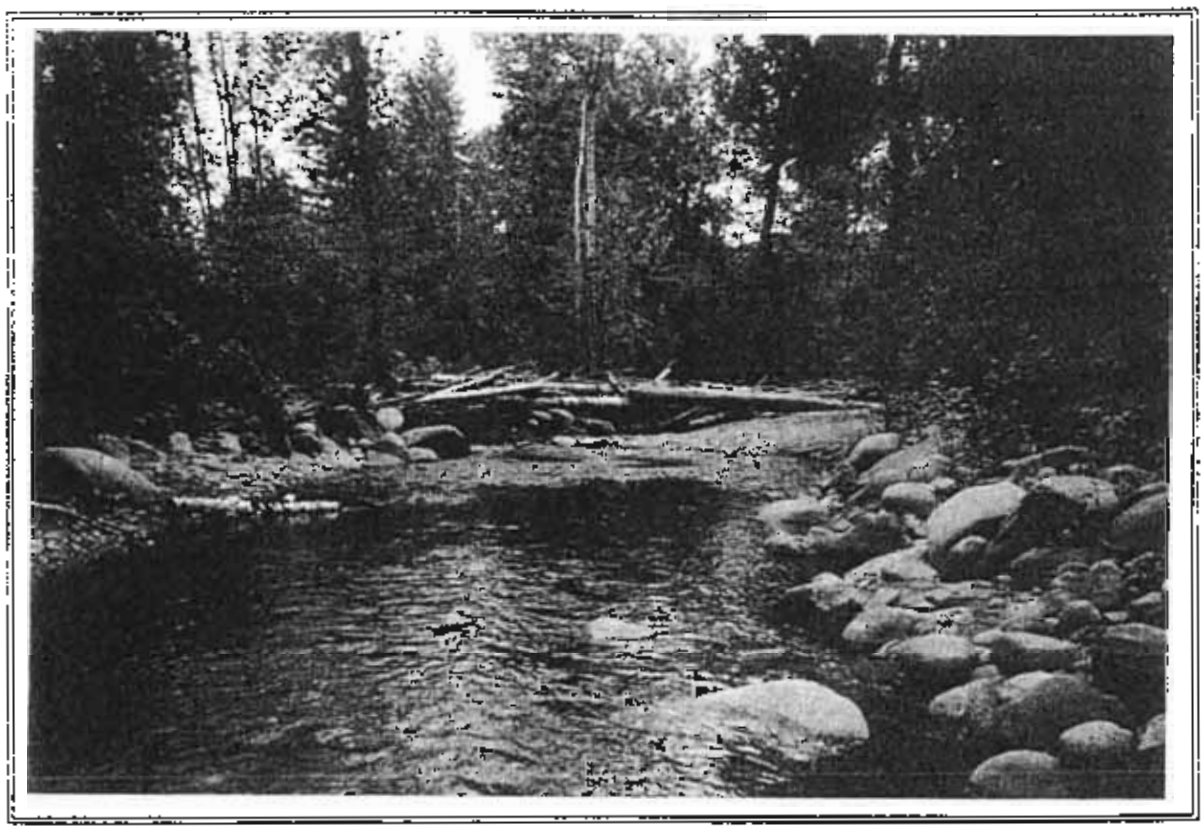


PHOTO TD-6. Downstream view of Trepanier Creek, 200 m above the old bridge crossing near the Silver Creek confluence. *(TR3-14, Aug. 17/98)*

PHOTO TD-6. Downstream view of Trepanier Creek, 200 m above the old bridge crossing near the Silver Creek confluence. *(TR3-14, Aug. 17/98)*

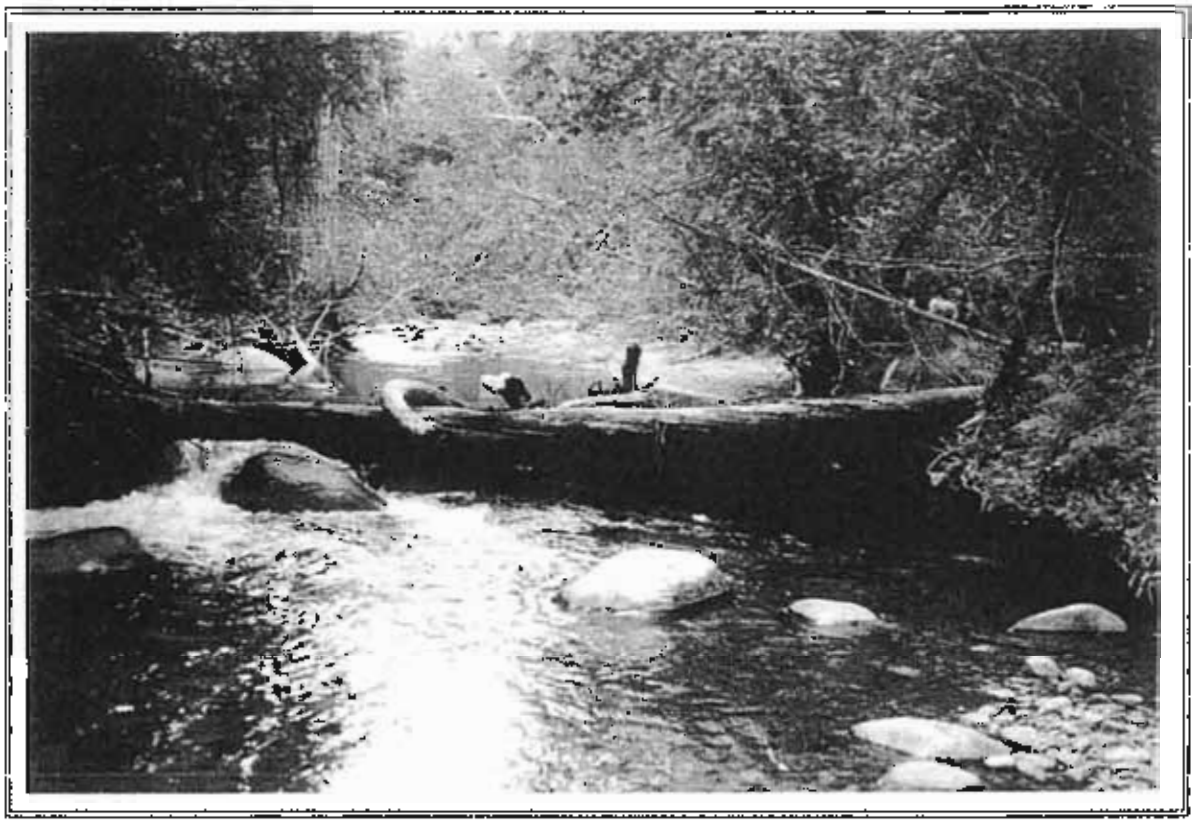


PHOTO TD-8. Upstream view of Trepanier Creek, 100 m upstream from the power line crossing. *(TR3-19, Aug. 17/98)*

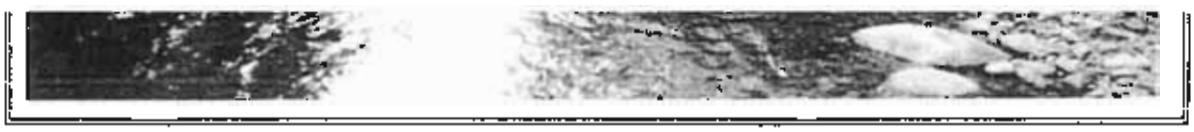


PHOTO TD-8. Upstream view of Trepanier Creek, 100 m upstream from the power line crossing. *(TR3-19, Aug. 17/98)*

PHOTO TD-9. Upstream view of Trepanier Creek at the WSC gauging station. *(TR3-20, Aug 17/98)*

PHOTO TD-9. Upstream view of Trepanier Creek at the WSC gauging station. *(TR3-20, Aug 17/98)*

Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: Residual
Reach: TC
Map Sheet: 082E082

Date: Sept 3/98
Crew: Davies
Weather: Sunny

Station	Wb (m)	d (cm)	s (%)	D (cm)	Channel Type
0+000	8.7	90	2.5	25	RP:D1
0+050	10.6	70	2.0	25	RP:D1

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
0+000	A:3 to 5	RP_c:D1	C1, C5	TR4-7
0+050	A:3 to 5	RP_c:D1	---	---

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

0+000	A:3 to 5	RP_c:D1	C1, C5	TR4-7
0+050	A:3 to 5	RP_c:D1	---	---

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

A (Erodible): 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
N (Non-erodible): 1=Till, 2=Colluvium, 3=Bedrock

Comments: Moderate amount of disturbance due to water intake, residential development and roads.
Most of the mature riparian forest has been removed.
Bed materials predominantly cobble/boulder.
Bank materials are pebbles to boulders.
Minimal amounts of LWD
Disturbed stone lines.

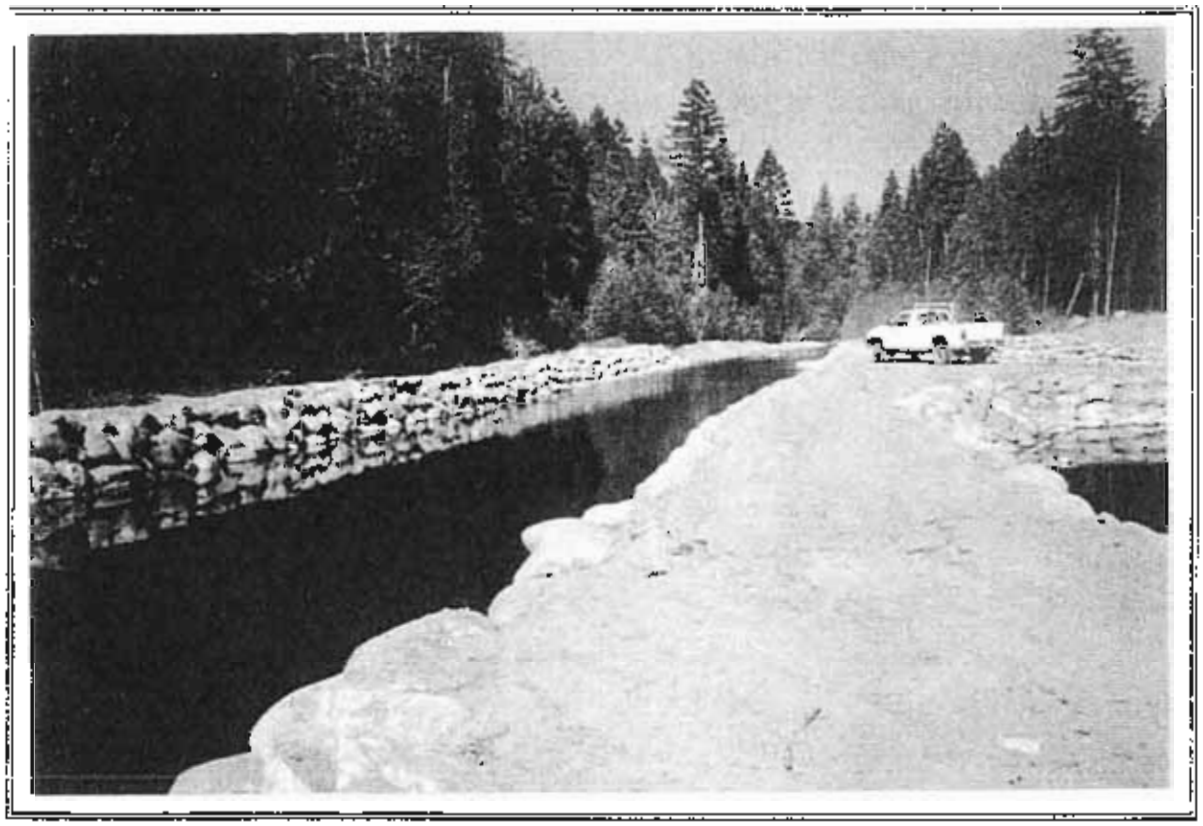


PHOTO TC-1. Upstream view of Trepanier Creek at the water intake.
(TR4-12, Sept. 3/98)

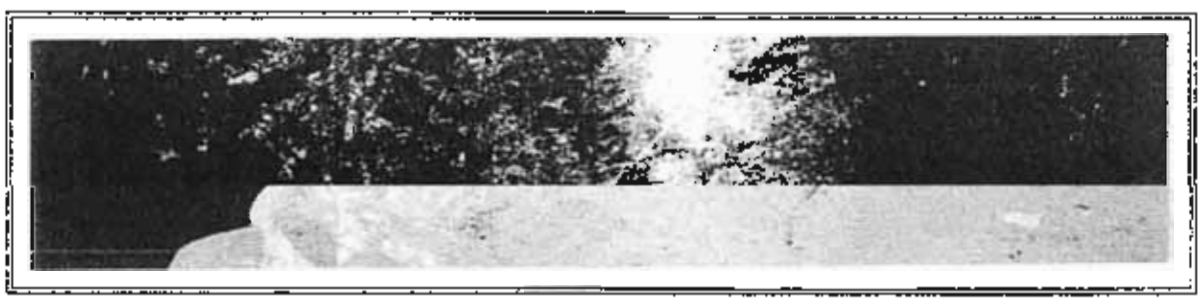


PHOTO TC-1. Upstream view of Trepanier Creek at the water intake.
(TR4-12, Sept. 3/98)

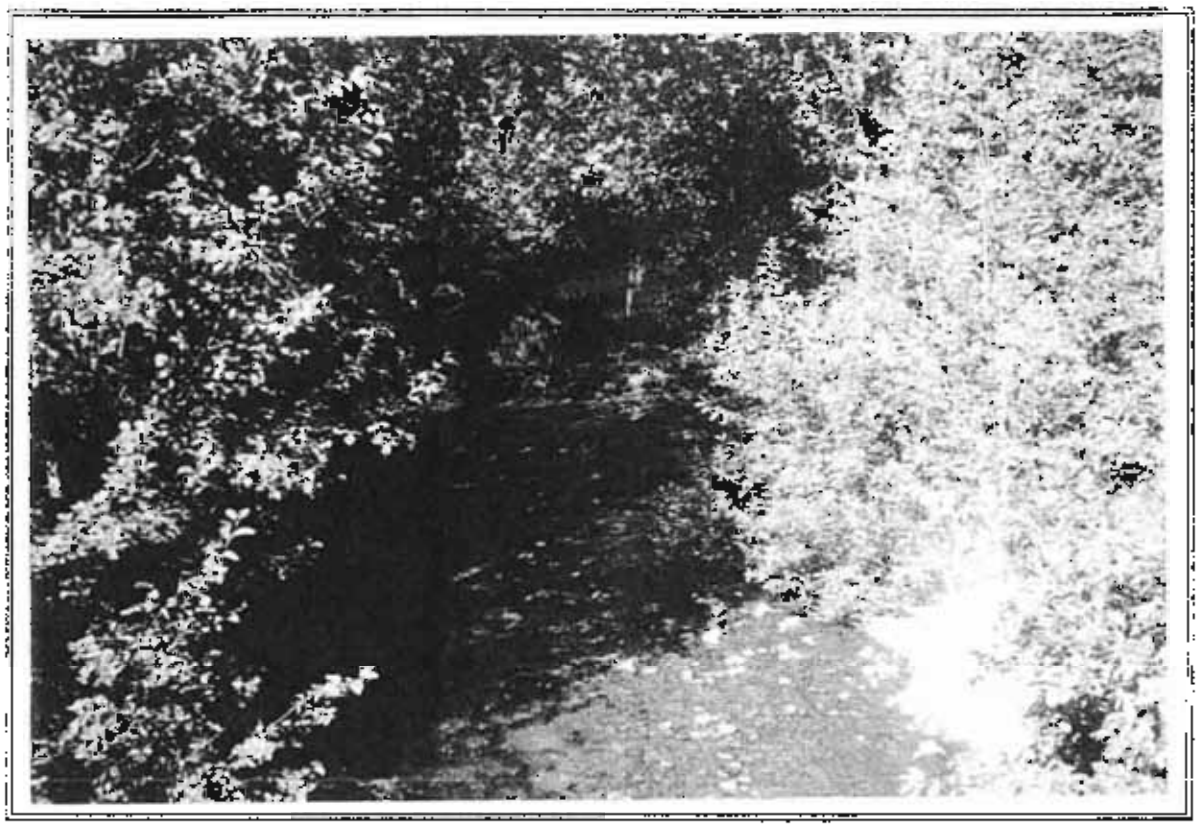


PHOTO TC-3. Upstream view of Trepanier Creek at the Paradise Valley Road bridge *(TR4-11, Sept. 3/98)*

PHOTO TC-3. Upstream view of Trepanier Creek at the Paradise Valley Road bridge. *(TR4-11, Sept. 3/98)*

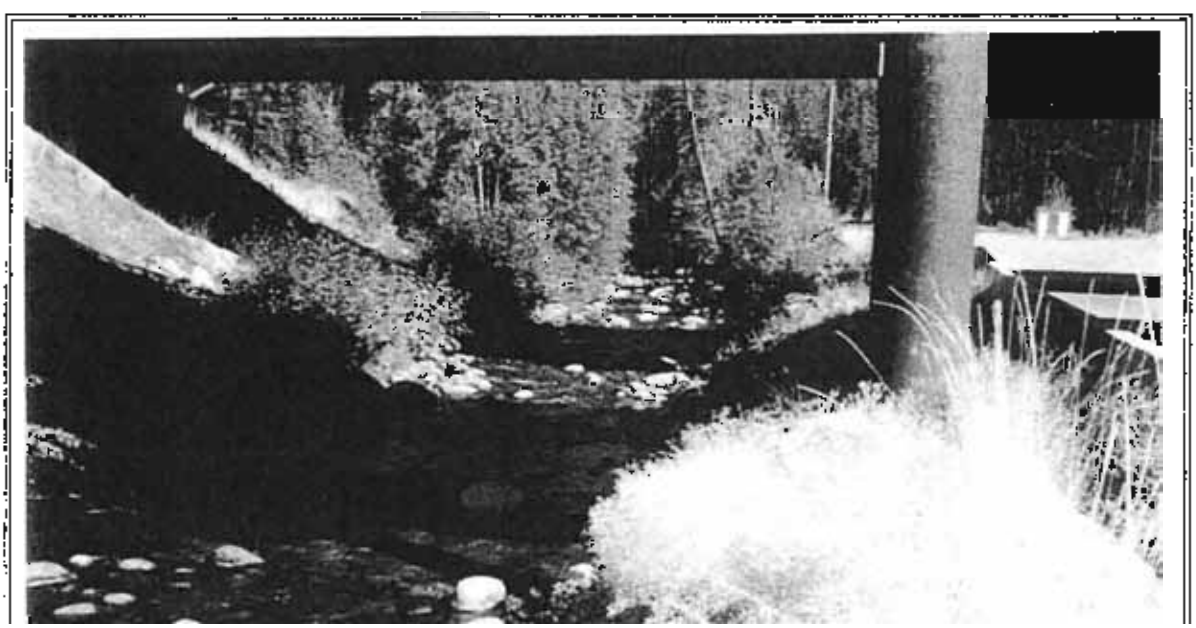


PHOTO TC-5. Lower section of reach TC on Trepanier Creek, downstream of the Coquihalla Highway *(TR4-7, Sept. 3/98)*

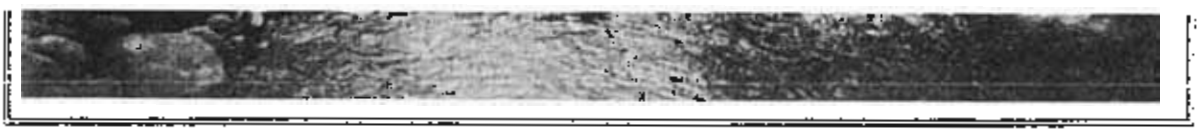


PHOTO TC-5. Lower section of reach TC on Trepanier Creek, downstream of the Coquihalla Highway *(TR4-7, Sept. 3/98)*

Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: **Residual**
Reach: **TB**
Map Sheet: **082E072/082E082**

Date: **Sept 3/98**
Crew: **Davies**
Weather: **Sunny**

Station	Wb (m)	d (cm)	s (%)	D (cm)	Channel Type
0+000	7.8	70	5.0	30	CP..S
0+050	9.5	60	4.5	30	CP..S

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
0+000	N:3	CP..S	---	TR4-4
0+050	N:3	CP..S	-	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

0+000	N:3	CP..S	---	TR4-4
0+050	N:3	CP..S	---	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

V (Veg): 0=None, 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
N (Natural): 0=Fill, 1=Fill, 2=Cultivation, 3=Bedrock

Comments: Lower section is coupled to slopes.
Some bedrock control.
Bed materials consist of boulders and bedrock.
Same for banks.
Riparian vegetation consists of tall conifers and deciduous trees
LWD spanning channel.

PHOTO TB-1. Upstream view of Trepanier Creek from the Law Creek confluence *(TR4-4, Sept. 4/98)*

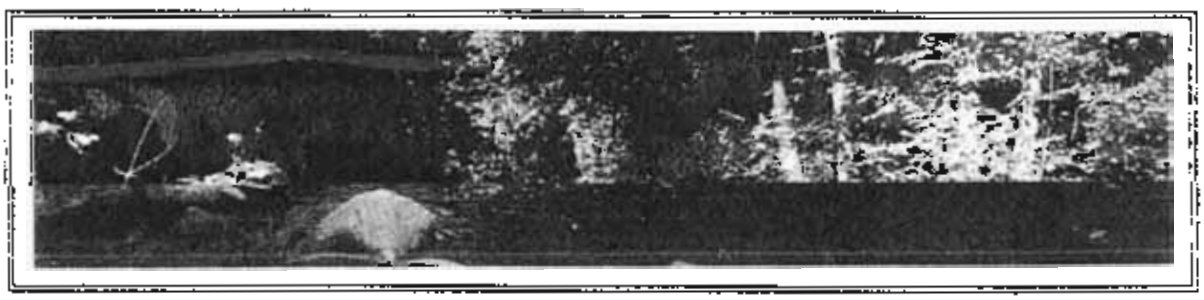
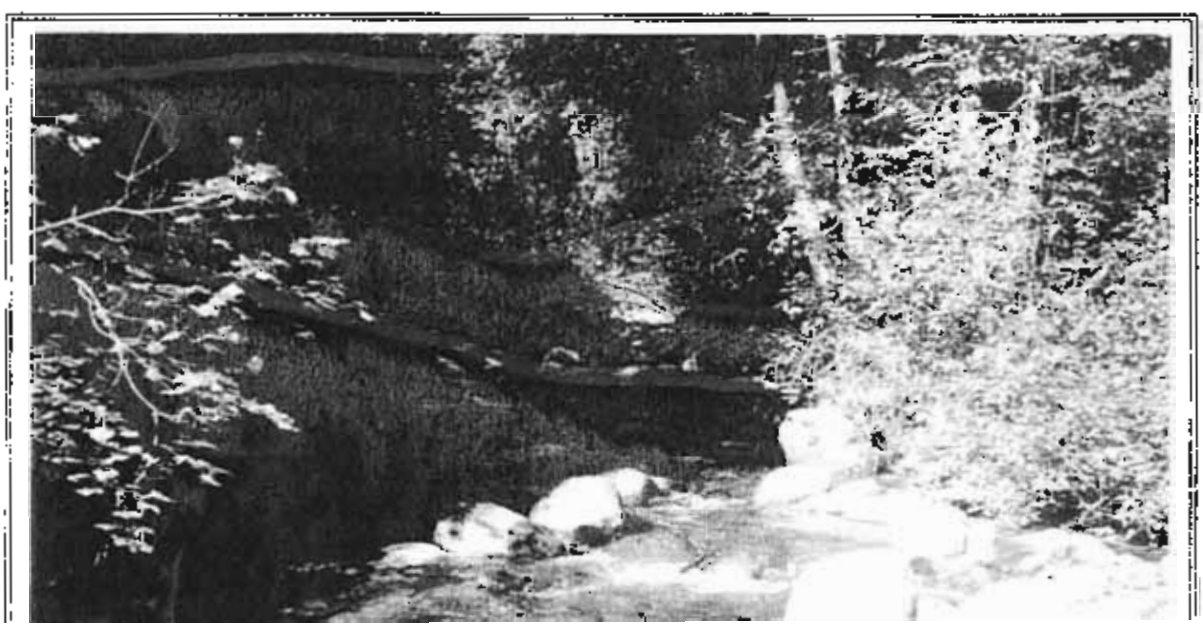


PHOTO TB-1. Upstream view of Trepanier Creek from the Law Creek confluence. *(TR4-4, Sept. 4/98)*



Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: **Residual**
Reach: **TA**
Map Sheet: **082E072**

Date: **Sept 3/98**
Crew: **Davies**
Weather: **Sunny**

Station	Wb (m)	d (cm)	s (°c)	D (cm)	Channel Type
0+(0.0)	12.0	120	2.0	25	RP_D2

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
	A:2 & 4	RP_D2	C1, C2, C5	TR4-1,2,6

S1 Homogeneous bed texture	C1 Extensive riffles or cascades	B1 Abandoned channels
S2 Sediment fingers	C2 Minimal pool area	B2 Eroding banks
S3 Sediment wedges	C3 Elevated mid-channel bars	B3 Avulsions
S4 Extensive bars	C4 Multiple channels or braids	D1 Small woody debris
S5 Extensive scoured zones	C5 Disturbed stone lines	D2 LWD function
		D3 Recently formed LWD jams

S1 Homogeneous bed texture	C1 Extensive riffles or cascades	B1 Abandoned channels
S2 Sediment fingers	C2 Minimal pool area	B2 Eroding banks
S3 Sediment wedges	C3 Elevated mid-channel bars	B3 Avulsions
S4 Extensive bars	C4 Multiple channels or braids	D1 Small woody debris
S5 Extensive scoured zones	C5 Disturbed stone lines	D2 LWD function
		D3 Recently formed LWD jams

A (Erodible): 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
N (Non-erodible): 1=Till, 2=Colluvium, 3=Bedrock

Comments: Bed materials consist of cobbles and boulders.
Banks for the most part are constructed levees.
Riparian vegetation primarily deciduous tress and shrubs.
Some planting has taken place to stabilize banks.
Reach appears degraded.

PHOTO TA-1. Downstream view of the lower section of reach TA on Trepanier Creek. *(TR4-3, Sept. 3/98)*

PHOTO TA-1. Downstream view of the lower section of reach TA on Trepanier Creek. *(TR4-3, Sept. 3/98)*

APPENDIX D

Trepanier Tributary Channels
Field Forms and Photos

APPENDIX D

Trepanier Tributary Channels
Field Forms and Photos

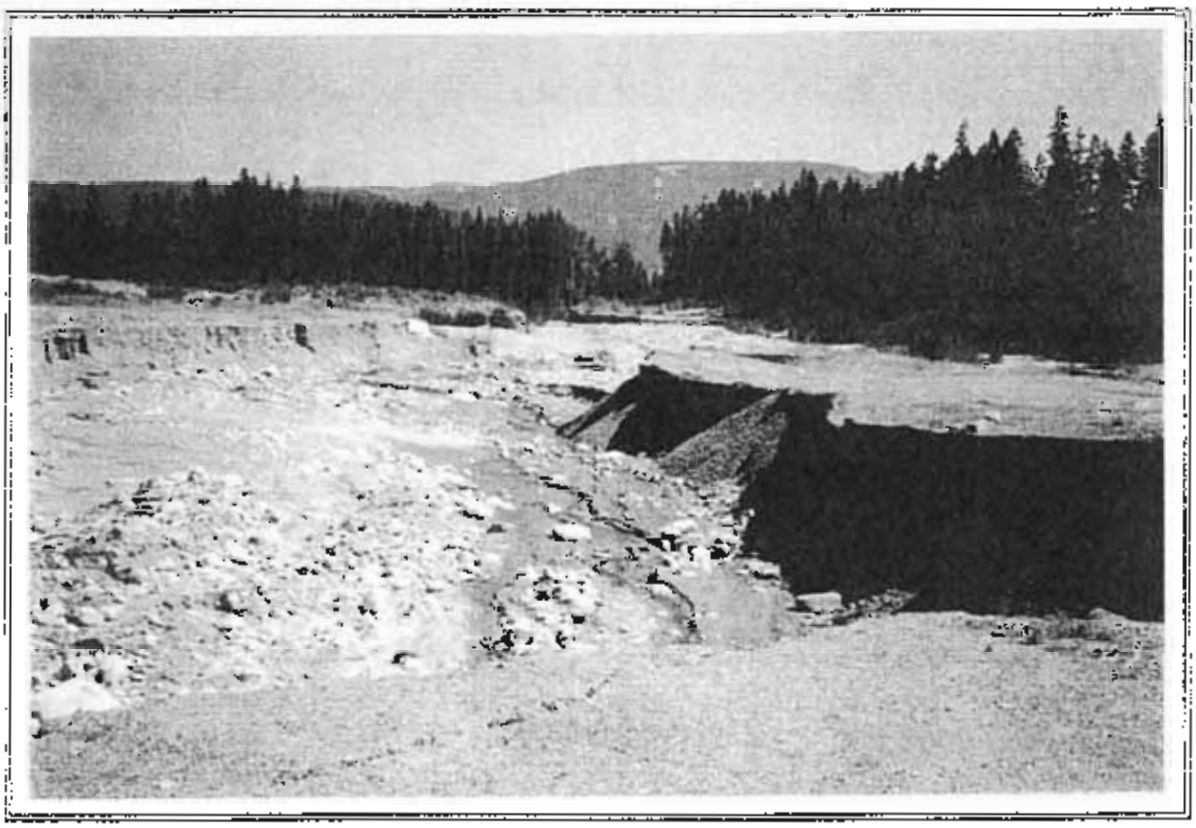


PHOTO MC-1. Downstream view of tributary channel in upper section of reach MC on MacDonald Creek. *(TR4-22, Sept. 1981)*

PHOTO MC-1. Downstream view of tributary channel in upper section of reach MC on MacDonald Creek. *(TR4-22, Sept. 1981)*

Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: MacDonald Creek
Reach: MB
Map Sheet: 082E081

Date: Aug 14/98
Crew: Davies
Weather: Sunny

Station	Wb (m)	d (cm)	S (%)	D (cm)	Channel Type
0+020	5.1	40	16	25	SP_c-w:D2
0+040	4.5	70	10	25	SP_c-w:D2
0+060	8.6	60	19	20	SP_c-w:D2
0+080	4.7	60	10	20	SP_c-w:D2

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
0+020	A 4/5	SP_c-w:D2	C5, D2	
0+040	A 4/5	SP_c-w:D2	C5, D2	
0+060	A 4/5	SP_c-w:D2	C5, D2	TR1-17/18
0+080	A 4/5	SP_c-w:D2	C5, D2	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffle-pool cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

0+060	A 4/5	SP_c-w:D2	C5, D2	
0+080	A 4/5	SP_c-w:D2	C5, D2	TR1-17/18
0+080	A 4/5	SP_c-w:D2	C5, D2	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffle-pool cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

A=Erodible 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
N=Non-erodible 1=Till, 2=Colluvium, 3=Bedrock

Comments: Bed materials consist of sand to boulders.
Banks are cobble/boulder intermixed with fine-textured material.
Some overbank sand deposits present.
Minor undercutting of banks.
Scattered LWD in channel, remnants of old debris jam.
Riparian vegetation tall deciduous and conifers, and shrubs.
Disorganized stone lines.
Washed out stream crossing upstream.

PHOTO MB-1. Upstream view of reach MB on MacDonald Creek.
(TR1-17, Aug. 14/98)

PHOTO MB-1. Upstream view of reach MB on MacDonald Creek.
(TR1-17, Aug. 14/98)

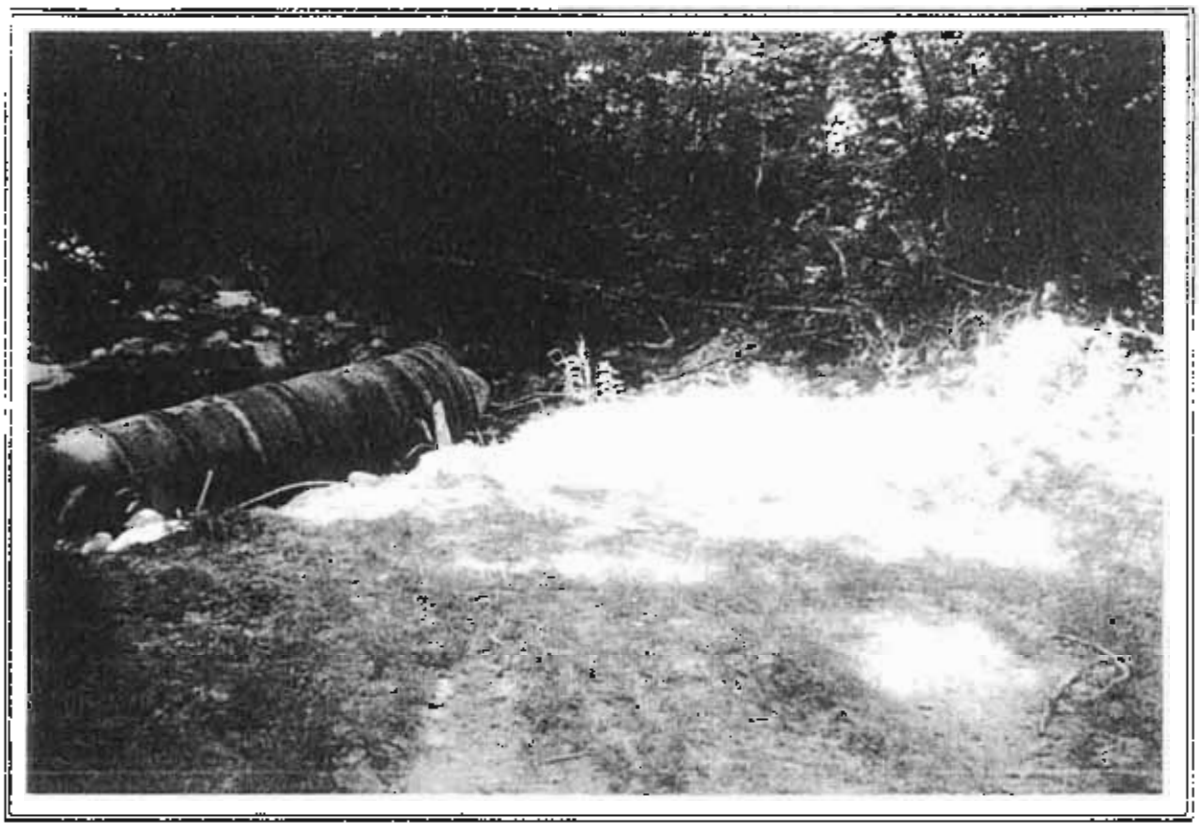


PHOTO MB-3. View of lower stream crossing in reach MB of MacDonald Creek *(TR1-16, Aug. 14/98)*

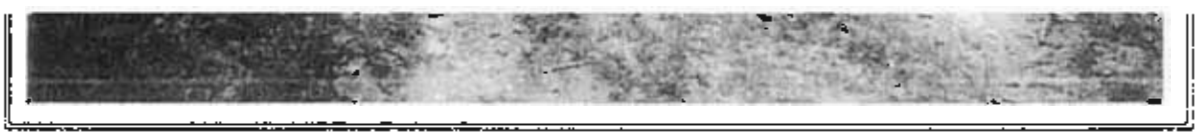


PHOTO MB-3. View of lower stream crossing in reach MB of MacDonald Creek *(TR1-16, Aug. 14/98)*

Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: MacDonald Creek
Reach: MA
Map Sheet: 082E081

Date: Aug 14/98
Crew: Davies
Weather: Sunny

Station	Wb (m)	d (cm)	s (%)	D (cm)	Channel Type
0+900	4.2	130	4.5	25	SP_c-w:D1
1+050	4.5	120	5.0	25	fan complex

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
0+00	A4/5	SP_c-w:D1	---	
0+50	A 2/4	fan complex	B2, B3, C4, C5	FR1-19 to 21

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

X (Erodible): 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
N (Non-erodible): 1=Till, 2=Colluvium, 3=Bedrock

Comments: Reach break between MA and MB.
Laterally mutable fan.
Multiple channels.
Layered sand deposits on flood plain.
Eroding banks.
Overbank deposits

PHOTO MA-1. Downstream view of reach MA on MacDonald Creek.
(TR1-20, Aug. 14/98)

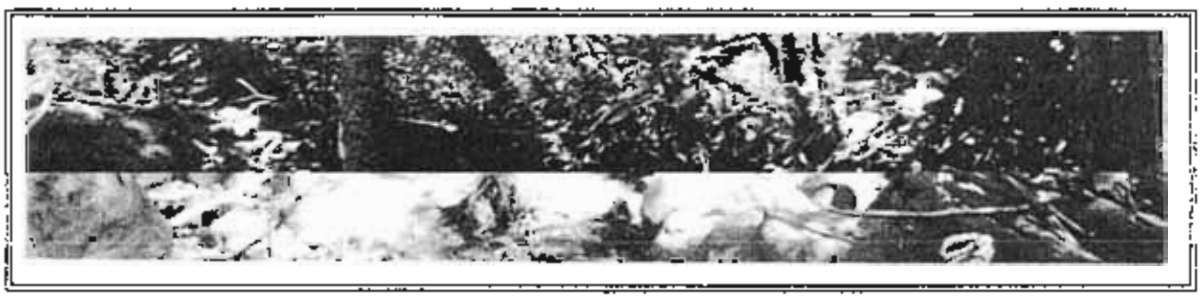


PHOTO MA-1. Downstream view of reach MA on MacDonald Creek.
(TR1-20, Aug. 14/98)

PHOTO MA-3. View southeast along road, MacDonald Creek in middle of photo.
(TR1 21, Aug. 14/98)

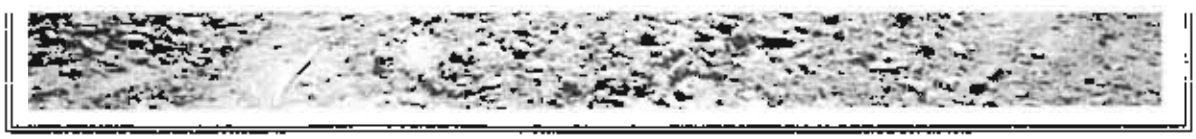


PHOTO MA-3. View southeast along road, MacDonald Creek in middle of photo.
(TR1 21, Aug. 14/98)

Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: Upper Trepanier Creek
Reach: UTA
Map Sheet: 082E081

Date: Aug 14/98
Crew: Davies
Weather: Sunny

Station	Wb (m)	d (cm)	s (%)	D (cm)	Channel Type
0+000	5.2	60	2.0	15	RP-wS
0+025	5.6	40	2.0	23	RP-wS

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
0+000	A2 to5	RP-wS	---	TR2-5,6
0+025	A2 to5	RP-wS	---	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

0+025	A2 to5	RP-wS	---	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

A: Predominant: 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
N: Natural Stable: 1=Fill, 2=Colluvium, 3=Bedrock

Comments: Bed materials-boulder with some sand, pebbles and cobbles.
Banks are moss-covered boulders and fines.
Complex morphology with pools, mid-channel vegetation.
Small woody debris scattered along margins.
Appears stable.

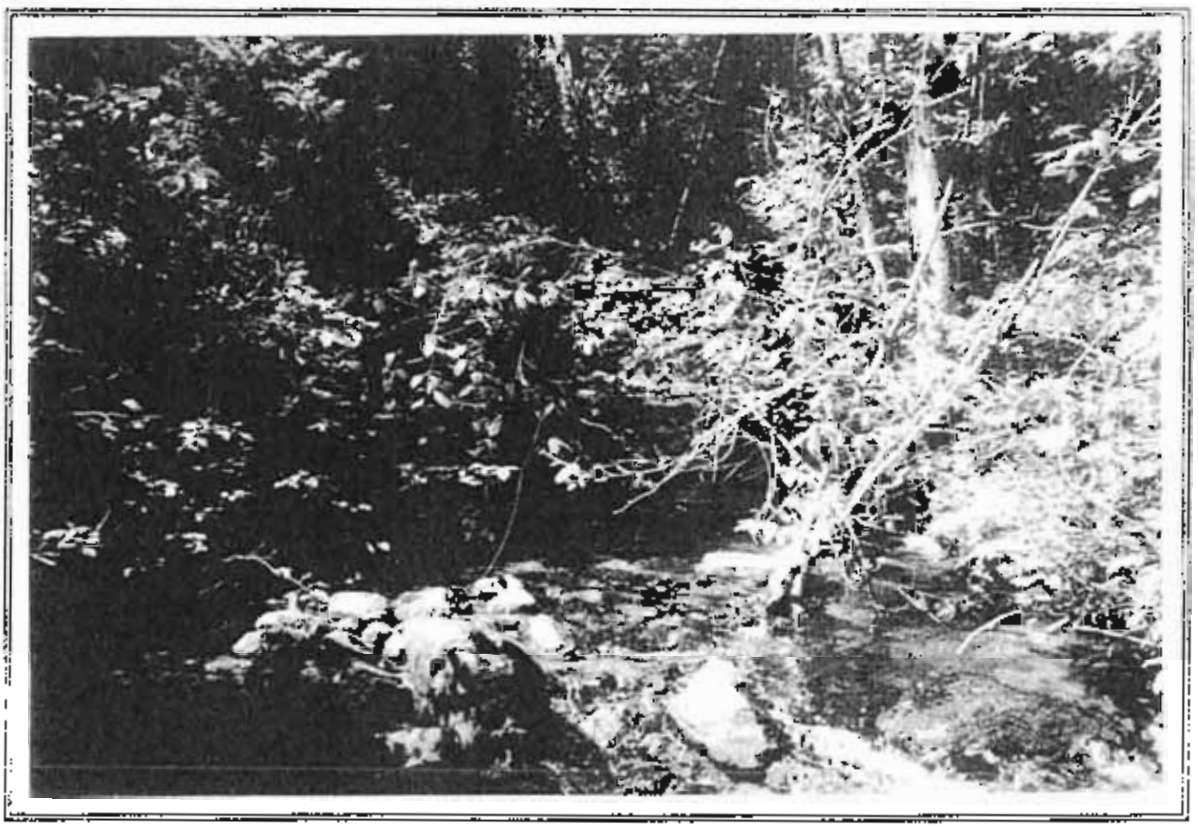


PHOTO UTA-1. Upstream view of Upper Trepanier Creek, 50 m from the Lacerna Creek confluence. *(TR2-5, Aug. 14/98)*

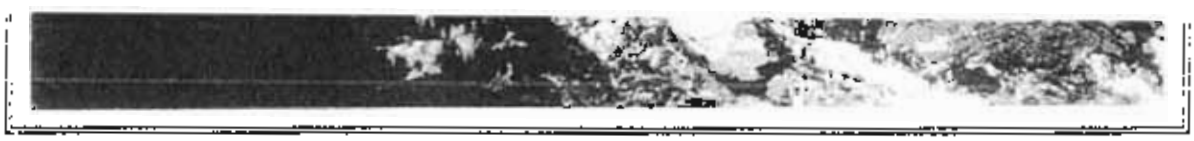


PHOTO UTA-1. Upstream view of Upper Trepanier Creek, 50 m from the Lacerna Creek confluence. *(TR2-5, Aug. 14/98)*

Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: Lacoma Creek
Reach: LB
Map Sheet: 082E081

Date: Aug 14/98
Crew: Davies
Weather: Sunny

Station	Wb (m)	d (cm)	s (%)	D (cm)	Channel Type
0+000	6.7	35	1.0	8	RP_S
0+025	4.8	45	1.0	n	RP_S

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
	A:1/2	RP_S	---	TR2-7 to 8
	A:1/2	RP_S	---	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

	A:1/2	RP_S	---	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

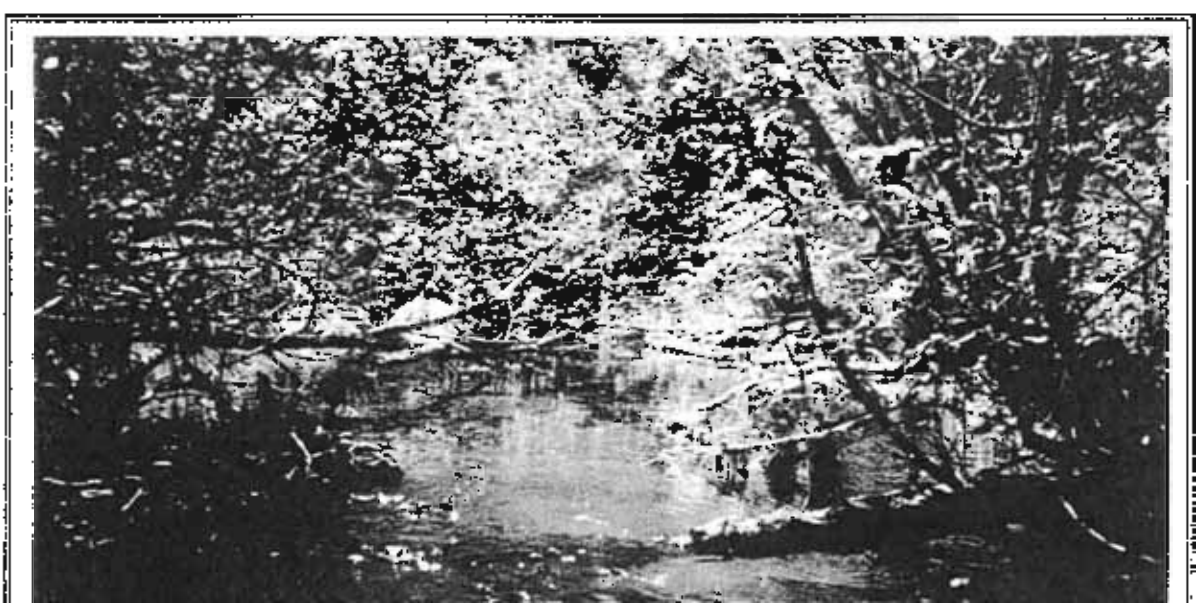
B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

A (erodible): 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
N (Non-erodible): 1=Till, 2=Colluvium, 3=Bedrock

Comments: Bed materials pebble and cobble.
Banks fine textured matrix with organics.
Riparian vegetation 10 m to 20 m deciduous trees.
No woody debris apparent.
Multiple channels with vegetated islands.
No elevated bar surfaces.
Some mobile sand deposits present on bed and along channel margins.
Channel confined between moderate slope, partially coupled.

PHOTO LB-1. Upstream view of lower Laconia Creek.
(TR2-7, Aug. 14/98)

PHOTO LB-1. Upstream view of lower Laconia Creek.
(TR2-7, Aug. 14/98)



Trepanier Creek Channel Assessment - Field Form 1

Stream: Lacoma Creek
Reach: LA
Map Sheet: 082F081

Date: Aug 14/98
Crew: Davies
Weather: Sunny

Station	Wb (m)	d (cm)	s (%)	D (cm)	Channel Type
0+000	6.0	65	3.5	22	CP_2S
0+020	5.7	70	3.5	23	CP_2S

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
0+000	A:3 to 5	CP_2S	---	TR2-10/11
0+020	A:3 to 5	CP_2S	---	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD zones

0+020	A:3 to 5	CP_2S	---	

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD zones

A (Erodible): 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
N (Non-erodible): 1=Till, 2=Colluvium, 3=Bedrock

Comments: Bed materials boulders.
Banks consist of pebbles to boulders, trace fines.
Some sections with LWD along banks
Minor undercutting.
Moss-covered.
Minimal woody debris in channel, non-functioning.
Well formed stone lines with plunge pools.
Riparian buffer of tall deciduous trees with the odd conifer.

PHOTO LA-L Upstream view of lower Lacoma Creek.
(TR2-10, Aug. 14/98)

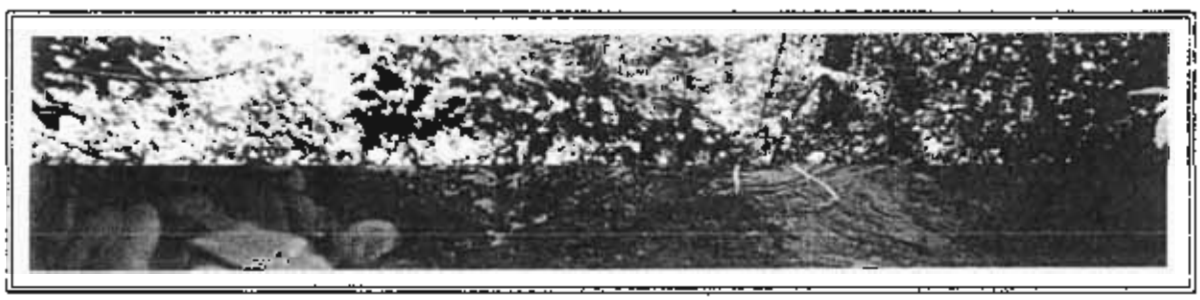
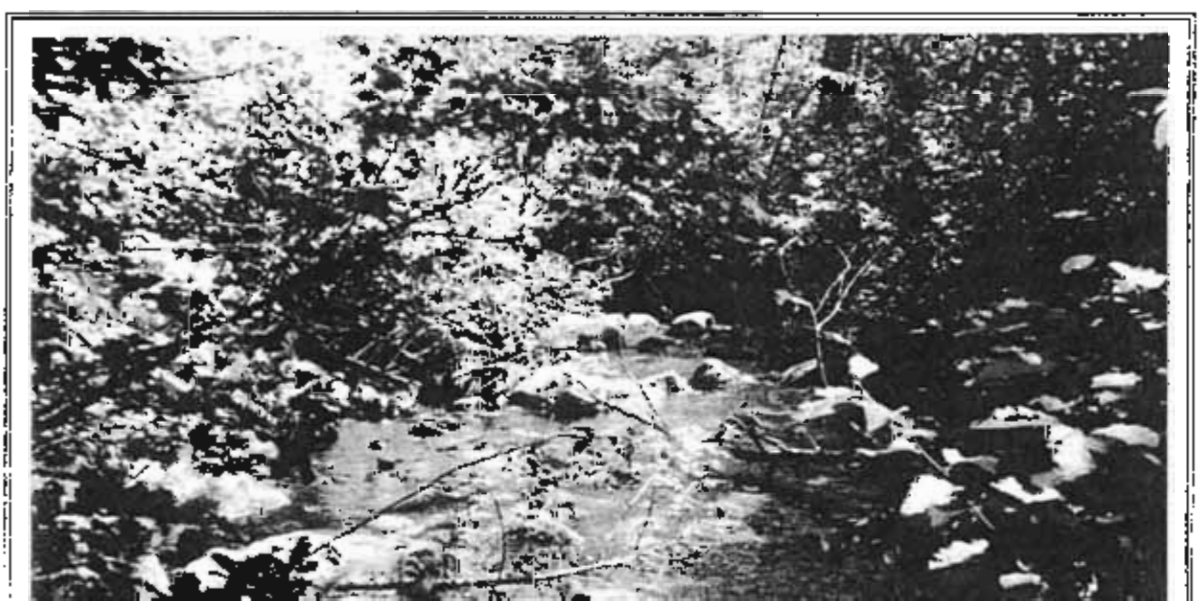


PHOTO LA-L Upstream view of lower Lacoma Creek.
(TR2-10, Aug. 14/98)



Trepanier Creek Channel Assessment - Field Form 1

Sub-basin: Jack Creek
Reach: JA
Map Sheet: 082E082

Date: Sept 3/98
Crew: Davies
Weather: Sunny

Station	Wb (m)	d (cm)	s (%)	D (cm)	Channel Type
0+000	3.8	50	3.0	25	CP;AA

Distance	Bank Type	Channel Type	Disturbance Indicators	Photo Roll and Frame
0+000	A;3 to 5	CP;AA	C2, C3, C5	TR4-15 to 17

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

S1 Homogeneous bed texture
S2 Sediment fingers
S3 Sediment wedges
S4 Extensive bars
S5 Extensive scoured zones

C1 Extensive riffles or cascades
C2 Minimal pool area
C3 Elevated mid-channel bars
C4 Multiple channels or braids
C5 Disturbed stone lines

B1 Abandoned channels
B2 Eroding banks
B3 Avulsions
D1 Small woody debris
D2 LWD function
D3 Recently formed LWD jams

A (Erodible): 1=Silt, 2=Sand, 3=Gravel, 4=Cobble, 5=Boulder
N (Non-erodible): 1=Till, 2=Colluvium, 3=Bedrock

Comments

Bed materials are pebble to boulder.
Some sediment storage.
Infilled pools.
Banks are pebbles to boulders, some bedrock.
Riparian vegetation is young conifers and deciduous trees.
Woody debris parallel to banks

PHOTO JA-1. Upstream view of Jack Creek, above the Trepanier Bench Road. *(TR4-15, Sept. 3/98)*

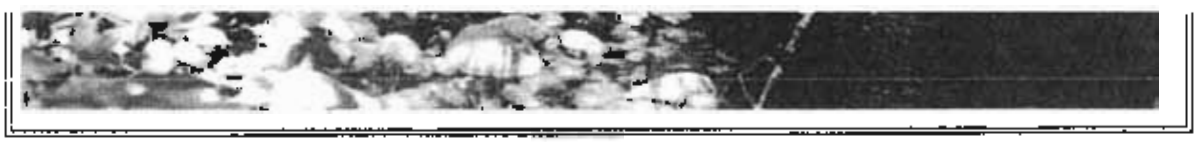


PHOTO JA-1. Upstream view of Jack Creek, above the Trepanier Bench Road. *(TR4-15, Sept. 3/98)*

PHOTO JA-2. Downstream view of Jack Creek from the Trepanier Bench Road. (*TR4-17, Sept. 3/98*)

APPENDIX E

Initial Watershed Assessment
Committee Minutes

APPENDIX E

Initial Watershed Assessment
Committee Minutes

Interior Watershed Assessment Procedure
for the
Trepanier Creek Watershed

Minutes
of the
Initial Roundtable Meeting

Date: September 22, 1998
Time: 1:00 p.m.
Place: German Bros. Lumber Ltd., Westbank

1. Participants

Don Dobson	Dobson Engineering Ltd.
Mike Doiron	Riverside Forest Products Ltd.
Dave Gooding	BC Environment
Brian Harris	BC Environment
Jerome Jang	Penticton Forest District
Barb Pryce (Chair)	Penticton Forest District
Kerry Rouck	German Bros. Lumber Ltd.
Wally Semenoff	District of Peachland

2. Terms of Reference of Technical Advisory Committee

To set the framework for the meeting, Barb suggested that it would be useful to review the terms of reference for the committee which are:

Don Dobson	Dobson Engineering Ltd.
Mike Doiron	Riverside Forest Products Ltd.
Dave Gooding	BC Environment
Brian Harris	BC Environment
Jerome Jang	Penticton Forest District
Barb Pryce (Chair)	Penticton Forest District
Kerry Rouck	German Bros. Lumber Ltd.
Wally Semenoff	District of Peachland

2. Terms of Reference of Technical Advisory Committee

To set the framework for the meeting, Barb suggested that it would be useful to review the terms of reference for the committee which are:

- provide direction to the hydrologist
- identify the issues in the watershed
- review the draft WAP report
- make recommendations to be included in the WAP report for consideration in future forest development plan updates

It was noted that there was a level 1 IWAP completed for Trepanier Creek in 1997, but it needed to be updated to include forest development to 1997. In addition there have been other WRP assessments completed in 1997 (refer to item 3a in these minutes). The work to be completed by Dobson Engineering Ltd. DEL is to focus on updating the existing report cards, include the proposed development (1998-2003), and update the report.

It was agreed that the WAP report should be completed and reviewed by December 15, 1998. DEL should provide the draft final report to the committee members at least two weeks before the final meeting. ***Action - DEL***

3. Overview of previous assessment work

3a)WRP History

The following WRP assessments have been completed:

- IWAP level 1 - 1997
- Sediment Source Survey - 1997
- Access Management Map - 1997
- Fish Habitat Assessment - 1997
- IWRP - 1997
- Reconnaissance Channel Assessment - 1998

It was noted that the lower reach of Trepanier Creek is poor fish habitat. Some rehab work could be undertaken to improve it, perhaps the local fish and game club might be interested in such a project.

3b) Water Delivery System

Wally explained that Trepanier Creek provides domestic water for approximately half of Peachland. The lack of storage in the watershed is a concern to the district. In 1998 there was a landslide into Trepanier Creek that initiated below the MoTH property adjacent to Highway 97C from re-directed runoff at the Brenda Mine site. Material from the slide has affected the creek all the way to Okanagan Lake. The district had to use its alternate supply in Okanagan Lake until the water quality improved. The district is considering a 20 year water supply plan that might include more storage.In 1998 the district spent $20,000 of FRBC funds at its intake on Trepanier Creek.

3b) Water Delivery System

Wally explained that Trepanier Creek provides domestic water for approximately half of Peachland. The lack of storage in the watershed is a concern to the district. In 1998 there was a landslide into Trepanier Creek that initiated below the MoTH property adjacent to Highway 97C from re-directed runoff at the Brenda Mine site. Material from the slide has affected the creek all the way to Okanagan Lake. The district had to use its alternate supply in Okanagan Lake until the water quality improved. The district is considering a 20 year water supply plan that might include more storage.In 1998 the district spent $20,000 of FRBC funds at its intake on Trepanier Creek.

The proposed discharge from Brenda Mines into Trepanier Creek, which may occur this fall is a concern to the community with regards to water quality.

Dave stated that BC Environment encourages off-stream mainstem storage rather than upland storage as has been the norm in the past.

Kerry noted that FRBC is funding water quality work in the creek.

3 c) & 4 Forest Development and proposed Forest Development

Kerry stated that GBL has 10 blocks planned in the upper watershed. GBL is also waiting the outcome of the protected area issue before proceeding with a comprehensive plan for the

Barb agreed to investigate what the long term status will be for the mine and will advise DEL. *Action - Barb*

5. Discussions of Proposed Points of Interest (POI) and sub-basin boundaries

Two points of interest were decided upon for this assessment. The first POI is located at the mouth of Trepanier Creek at Okanagan Lake. The second POI is the District of Peachland water intake. In the earlier IWAP only the POI at the mouth was considered. With the second POI included, it will be necessary to sub-divide the residual area into a unit below the POI at the intake and one above. *Action - DEL*.

It was noted by Kerry and Mike that there had been some shifting of the watershed boundary, in particular the portion between Powers Creek where it had been GPS'd. It will be necessary for DEL to check the boundary that Simons Reid Collins is using to be sure that it is the correct watershed. *Action - DEL*

6. Next Meeting

Rob Scherer will be in contact with all participants to schedule the final round table meeting. The date will be included in the final copy of these minutes. It was agreed that the meeting should be no later than Friday, December 11, 1998. The draft report would be distributed two weeks before that date. *Action - Rob Scherer*

7. Action Items

- DEL to send draft minutes to the Penticton Indian Band and Westbank Indian Band for review and comment.
- DEL to include a section in the WAP report that would address other issues than those that can be dealt with in the FDP.
- DEL to have the WAP report completed in time so that the WAC can convene and complete its review before December 15, 1998.

The date will be included in the final copy of these minutes. It was agreed that the meeting should be no later than Friday, December 11, 1998. The draft report would be distributed two weeks before that date. *Action - Rob Scherer*

7. Action Items

- DEL to send draft minutes to the Penticton Indian Band and Westbank Indian Band for review and comment.
- DEL to include a section in the WAP report that would address other issues than those that can be dealt with in the FDP.
- DEL to have the WAP report completed in time so that the WAC can convene and complete its review before December 15, 1998.
- DEL to review the ECA issue within the Brenda Mine site and determine if it is a concern and if so how to deal with it since the open pit and the spoil areas are permanent losses to the forest cover.
- Barb to investigate the long term status of the Brenda Mine site. Will it remain as a deletion from the provincial Forest or not?
- DEL to highlight any critical areas in the watershed in the report.
- DEL to include a second POI at the intake in the update and to revise the resultant area boundaries accordingly.
- DEL to check with Rob Kennett regarding the correct watershed boundary.
- Rob Scherer to contact participants to determine date for final meeting.

APPENDIX F

ECA Data

APPENDIX F

ECA Data

ECA Summary-Worksheet.xls

ɛek ECA Calculation Summary Worksheet

Gorman Bros.
November 1998

Gorman Bros.
November 1998

ʿacteristics

	Crown Land		Private Land		Operable Land				Operable Land		
ʌrea (ha)	Area (ha)	%	Area (ha)	%	Area (ha)	%		%	Area (ha)	%	
4,025.4	3,902.3	96.9%	123.1	3.1%	3,902.3	96.9%	Private Land is excl	3.1%	3,902.3	96.9%	Private Land is excluded from the ECA Calculations for Jack Creek Subbasin
4,787.1	4,787.1	100.0%	0	0.0%	4,787.1	100.0%		0.0%	4,787.1	100.0%	
3,589.4	3,589.4	100.0%	0	0.0%	3,589.4	100.0%		0.0%	3,589.4	100.0%	
3,568.1	3,568.1	100.0%	0	0.0%	3,568.1	100.0%		0.0%	3,568.1	100.0%	
6,503.7	6,359.4	97.8%	144.3	2.2%	6,359.4	97.8%	Private Land is excl	2.2%	6,359.4	97.8%	Private Land is excluded from the ECA Calculations for the Lower Trepanier Subbasin
3,435.5	2,779.8	80.9%	655.66	19.1%	2,779.8	80.9%	This summary inclu	19.1%	2,779.8	80.9%	This summary includes the private land in the ECA Calculation as per the 1995 IWAP guidebook
25,909.0	24,986.0	*96.4%*	923.06	*3.6%*	24,986.0	*96.4%*		*3.6%*	24,986.0	*96.4%*	

ɛrshed is 1140 m (60.7%)

ʿea Below H60 (ha)	Area Above H60 (ha)	Total Sub-basin Area (ha)	Area Harvested (ha)		rea ʿested ha)	
1,545.5	2,356.8	3,902.3	1,549.9	Information retrieved from FIP files. Does not inc	,549.9	Information retrieved from FIP files. Does not include areas cleared for agriculture, highways, mines, etc.
732.7	4,054.4	4,787.1	889.7		889.7	
446.3	3,143.1	3,589.4	533.6		533.6	
373.7	3,194.4	3,568.1	198.0		198.0	
3,355.9	3,003.5	6,359.4	3,124.9		,124.9	
3,435.2	0.3	3,435.4	1,529.5		,529.5	
9,889.2	15,752.5	25,641.6	7,825.6		,825.6	

ɾcut Areas 2003

ɔA Below H60 (ha)	ECA Below H60 (%)	ECA Above H60 (ha)	ECA Above H60 (%)	ECA for Sub basin (ha)	ECA for Sub basin (%)
147	3.8%	265.99	6.8%	412.99	10.6%
0	0.0%	608.26	12.7%	608.26	12.7%
0	0.0%	223	6.2%	223	6.2%
23.13	0.6%	776.74	21.8%	799.87	22.4%
299.61	4.7%	110.73	1.7%	410.34	6.5%
377.48	11.0%	0	0.0%	377.48	11.0%
847.22	3.3%	1984.72	7.7%	2831.94	11.0%

Forest Developme

Sub-basin Name	Pro Cle or Sub Aren (ha)	ECA for Sub basin (%)
Jack	412.99	10.6%
Lacoma	608.26	12.7%
Upper Trep	223	6.2%
McDonald	799.87	22.4%
Mid Trep	410.34	6.5%
Lower Trep	377.48	11.0%
Total Watershed	?831.94	11.0%

Forest Development Plan Projections 2003

Sub-basin Name	Proposed Clearcut Area (ha)	Proposed CCArea Below H60	Proposed CCArea Above H60
Jack	0	16.992	30.8
Lacoma	0	0	0
Upper Trep	0	0	102.7
McDonald	0	0	0
Mid Trep	0	95.526	0
Lower Trep	0	0	0
Total Watershed	0	112.518	133.5

ɾcut Areas 2003 with 1998 Forest Development Plan Blocks

ɔA Below H60 (ha)	ECA Below H60 (%)	ECA Above H60 (ha)	ECA Above H60 (%)	ECA for Sub basin (ha)	ECA for Sub basin (%)
163.992	4.2%	296.79	7.6%	460.782	11.8%
0	0.0%	608.26	12.7%	608.26	12.7%
0	0.0%	325.7	9.1%	325.7	9.1%
23.13	0.6%	776.74	21.8%	799.87	22.4%
395.136	6.2%	110.73	1.7%	505.866	8.0%
377.48	11.0%	0	0.0%	377.48	11.0%
959.738	3.7%	2118.22	8.3%	3077.958	12.0%

cks

for Sub n (ha)	ECA for Sub basin (%)
160.782	11.8%
608.26	12.7%
325.7	9.1%
799.87	22.4%
505.866	8.0%
377.48	11.0%
077.958	12.0%

Gorman Bros. Lumber Ltd.

a Summary

SCR	SubBasinName BelowIntak	Jack	Lacoma	Mid Trep	MacDonal	Upper Trep	Grand Total
	0.3	1986.8	3643.2	2723.9	2173.0	2776.9	13304.2
		22.6	4.6	8.8	35.8		71.8
		131.3	100.5	85.2	19.0	33.3	369.3
		8.4	9.8	18.7			36.9
		13.4	99.0	6.2		84.0	202.6
					7.6		7.6
					1.1		1.1
		128.2	148.6	154.4	112.5	162.0	705.8
			12.4				12.4
			4.0	1.9	110.5	2.0	118.4
		1.2	22.1	0.6	12.8	5.1	41.9
		30.9	10.0	3.8	722.1	79.8	846.6
		33.9					33.9
	0.3	2356.8	4054.4	3003.5	3194.4	3143.1	15752.5
	2611.0	1380.4	591.9	3017.2	348.9	415.8	8365.2
	12.8	2.6	6.1	3.6			25.0
	5.6	64.9		107.5	4.6		182.6
	14.9	4.5	37.6	2.0		8.7	67.7
		0.8		1.3			2.2
	26.8	28.7	88.8	79.4	0.7	20.8	245.2
			6.8	12.0	0.9	1.0	20.7
	5.9	4.8	1.6				12.3
	39.1	0.1		9.2			48.4
	43.3	13.8		157.5	18.5		233.1
	20.0	44.9					65.0
	2779.5	1545.5	732.7	3389.7	373.7	446.3	9267.4
	2779.8	3902.3	4787.1	6393.2	3568.1	3589.4	25019.9

Trep	MacDonal	Upper Trep	Grand Total
2723.9	2173.0	2776.9	13304.2
8.8	35.8		71.8
85.2	19.0	33.3	369.3
18.7			36.9
6.2		84.0	202.6
	7.6		7.6
	1.1		1.1
154.4	112.5	162.0	705.8
			12.4
1.9	110.5	2.0	118.4
0.6	12.8	5.1	41.9
3.8	722.1	79.8	846.6
			33.9
3003.5	3194.4	3143.1	15752.5
3017.2	348.9	415.8	8365.2
3.6			25.0
107.5	4.6		182.6
2.0		8.7	67.7
1.3			2.2
79.4	0.7	20.8	245.2
12.0	0.9	1.0	20.7
			12.3
9.2			48.4
157.5	18.5		233.1
			65.0
3389.7	373.7	446.3	9267.4
6393.2	3568.1	3589.4	25019.9

NP_CD	Reference
0	Non-qualified (Forested)
3	Rock
11	Non-Productive
12	Non-Productive
15	Lake
35	Swamp
42	Clearing
54	Urban
63	Open Range

NF_DESCR	Reference
NCBR	NonCommercial Brush
NSR	Not Sufficiently Restocked
NTA	No Typing Available (within Riverside's TFL)

Watershed Assessment Procedure
for the
TREPANIER CREEK WATERSHED

Final Watershed Assessment Committee (WAC) Recommendations
December 3, 1998

It is strongly recommended that the reader review these Recommendations and the Trepanier Creek Watershed Assessment Hydrologist's Report concurrently.

The 1999 proposed Forest Development Plan (FDP) can proceed, subject to the recommendations stated below.

FINAL WAC RECOMMENDATIONS WHICH ARE TO BE ADDRESSED THROUGH THE FDP:

Recommendation 1 (first bullet in Hydrologist's Report).

Ensure that construction, maintenance and deactivation programs are coordinated to include measures to control sediment and maintain natural drainage patterns throughout the life of the newly constructed and upgraded

FINAL WAC RECOMMENDATIONS WHICH ARE TO BE ADDRESSED THROUGH THE FDP:

Recommendation 1 (first bullet in Hydrologist's Report).

Ensure that construction, maintenance and deactivation programs are coordinated to include measures to control sediment and maintain natural drainage patterns throughout the life of the newly constructed and upgraded roads.

Accepted by WAC. Forest Practices Code (FPC) requirements.

Recommendation 2 (second bullet in Hydrologist's Report).

Following the completion of the proposed development, road associated with the cutting permits should be deactivated or maintained to a level appropriate with their anticipated future use.

Recommendation 3 (third bullet in Hydrologist's Report).

Grass-seed all exposed soils on cutbanks, fillslopes and ditchlines.

Accepted by WAC. FPC requirements.

WAC RECOMMENDATIONS WHICH WILL NOT BE ADDRESSED THROUGH THE FDP:

Recommendation 4 (fourth bullet in Hydrologist's Report).

Address the high priority roads, landslides and cutblocks identified in the Sediment Source Survey.

Accepted by WAC. Gormans will address as FRBC funding allows. Compared with other priorities in other community watersheds, this may not be a high priority for Gormans. Rob Scherer - if this is undertaken, first priority should be to address water quality issues.

Action: Dobson Engineering Limited to review and assess risk.

Recommendation 5 (fifth bullet in Hydrologist's Report).

A combined long-term forest development plan should be developed by Gorman Bros. Lumber Ltd. and Riverside Forest Products Limited.

with other priorities in other community watersheds, this may not be a high priority for Gormans. Rob Scherer - if this is undertaken, first priority should be to address water quality issues.

Action: Dobson Engineering Limited to review and assess risk.

Recommendation 5 (fifth bullet in Hydrologist's Report).

A combined long-term forest development plan should be developed by Gorman Bros. Lumber Ltd. and Riverside Forest Products Limited.

Accepted by WAC. Partially done - Riverside has completed their portion. Gormans is awaiting outcome of PAS recommendations at LRMP and will take under consideration.

Recommendation 6 (sixth bullet in Hydrologist's Report).

Establish a monitoring program on Trepanier Creek to assess potential changes in stream channel stability and sediment movement in order to develop long-term ECA levels for the sub-basins and the watershed.

Recommendation 7 (seventh bullet in Hydrologist's Report).

Stabilize the instabilities associated with the nonforestry-related landslide in the MacDonald sub-basin.

Accepted by WAC.

Action: Dave Gooding to pursue resolution of this with Brenda Mine. Gormans may have opportunity in 2 to 3 years to apply some of their FRBC multi year funding to this problem. Brian Harris will discuss with Ray Jubb.

Recommendation 8 (eighth bullet in Hydrologist's Report).

Explore stream channel enhancement opportunities for lower Trepanier Creek, (efforts are currently being led by Ernie Hurd, Councillor for the District of Peachland). It will be important to develop a long-term multi-disciplinary plan that integrates safety concerns (diking requirements for the trailer park), fish enhancement opportunities (instream works and construction of a spawning channel), park development and community involvement.

Supported by WAC. No action items attached to this. District of Peachland may apply for funding from Fisheries Renewal B.C.

Recommendation 9 (ninth bullet in Hydrologist's Report).

that integrates safety concerns (diking requirements for the trailer park), fish enhancement opportunities (instream works and construction of a spawning channel), park development and community involvement.

Supported by WAC. No action items attached to this. District of Peachland may apply for funding from Fisheries Renewal B.C.

Recommendation 9 (ninth bullet in Hydrologist's Report).

The report **Trepanier Creek, Assessment of Alternatives to Enhance Okanagan Lake Fishery** *(completed by Dobson Engineering Ltd., dated June 1990) for the Habitat Conservation Fund identified potential deficits in low flow requirements for kokanee if full utilization of the water licences was carried out. This report should be updated to assess the changes in flow with water releases from the Brenda Mines site and a reassessment of future water demands by the District of Peachland.*

Supported by WAC.

Action: Brian Harris will forward this Recommendation to Dave Jones, BCE for

Watershed Assessment Procedure
for the
TREPANIER CREEK WATERSHED

Final Watershed Assessment Committee (WAC) Meeting
Summary Notes
December 3, 1998

Location: Dobson Engineering, Kelowna, B.C.

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1. Introduction of Attendees

Mike Doiron	Riverside Forest Products
Dave Gooding	B.C. Environment (BCE)
Brian Harris	B.C. Environment (BCE)
Jerome Jang	Ministry of Forests (MOF)
Barb Pryce (Chair)	Ministry of Forests (MOF)
Kerry Rouck	Gorman Bros. Lumber Ltd.
Rob Scherer	Dobson Engineering Ltd.
Wally Semenoff	District of Peachland

2. Background

Action items from the Initial WAC meeting were reviewed. Brief discussion about the

Jerome Jang	Ministry of Forests (MOF)
Barb Pryce (Chair)	Ministry of Forests (MOF)
Kerry Rouck	Gorman Bros. Lumber Ltd.
Rob Scherer	Dobson Engineering Ltd.
Wally Semenoff	District of Peachland

2. Background

Action items from the Initial WAC meeting were reviewed. Brief discussion about the purpose of today's meeting and how the WAC recommendations will be dealt with.

WAC meeting notes will state one of three things for each recommendation:

1. Agree with recommendations in the Hydrologist's Report
2. Disagree with recommendations and here are the alternative recommendations
3. Documentation of dissenting opinion

3. Presentation of Watershed Assessment Report

Rob Scherer reviewed the Trepanier Creek Watershed Assessment Report.

4. Discussion

Re: Review of Report.

WAC - Concern about channel condition of MacDonald Creek. Believe it is associated with Brenda Mine activities. Landslide occurred May 1998.

Action: Dave Gooding - Encourage Brenda Mine to undertake some rehabilitation work on MacDonald Creek. See Recommendation section for further information.

Mike Doiron - no FDP plans for this next five year plan period. Riverside does have plans for harvesting beyond the five year period, subject to PAS recommendations from the LRMP.

Jerome Jang - new blocks will have to be shown as "information blocks" until the next WAP is done to assess the impact of those proposals on the proposals.

Mike Doiron/Kerry Rouck- what do they need in a FDP for five years of blocks - do they have to be "A" blocks or can they show "I" blocks?

Jerome Jang - In community watersheds in order to approve Forest Development Plans, blocks must have Watershed Assessments which was why the licensees were to give Dobson Engineering Ltd. their projected 1999 blocks for this WAP. This was discussed at the Initial WAC meetings.

Note: *In discussions outside of the WAC meeting, it was determined that the current interpretation is that the licensees can propose additional "A" blocks in their FDP. The District Manager will assess these proposals in context of the WAC recommendations*

Mike Doiron/Kerry Rouck- what do they need in a FDP for five years of blocks - do they have to be "A" blocks or can they show "I" blocks?

Jerome Jang - In community watersheds in order to approve Forest Development Plans, blocks must have Watershed Assessments which was why the licensees were to give Dobson Engineering Ltd. their projected 1999 blocks for this WAP. This was discussed at the Initial WAC meetings.

Note: *In discussions outside of the WAC meeting, it was determined that the current interpretation is that the licensees can propose additional "A" blocks in their FDP. The District Manager will assess these proposals in context of the WAC recommendations* *and make a determination to approve or not approve the additional blocks as appropriate. It will be in the best interests of the licensees to complete hydrological assessments of any such new proposals.*

5. Recommendations

See attached document.

6. Next Steps.

7. Other Items.

Wally Semenoff - will this information be made public in order to clear up any misinformation about the amount of harvesting taking place? MOF has no specific strategy. The FDP process does make this information available. DEL, licensees and MOF have been available to meet with Council over time to provide them with information.

Action: Licensees will meet with Council again next spring.

8. Adjourn. Trepanier Creek Watershed Assessment Process completed.

BRITISH COLUMBIA

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Penticton Forest District
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From: Barb Pryce

To:	**To Fax #:**
Mike Doiron	042
Dave Gooding	046
Kerry Rouck	041
Rob Scherer	861-8766
Wally Semenoff	767-3433

Number of Pages (including this page): **4** **Date: 10 December 1998**

Subject: **Draft Trepanier Creek Watershed Assessment Committee Final Meeting Notes and Recommendations**

Comments: Here are the draft notes from our meeting on December 3, 1998. Please review and forward your comments back to me by December 17, 1998.

Number of Pages (including this page): **4** **Date: 10 December 1998**

Subject: **Draft Trepanier Creek Watershed Assessment Committee Final Meeting Notes and Recommendations**

Comments: Here are the draft notes from our meeting on December 3, 1998. Please review and forward your comments back to me by December 17, 1998.

Thank you.

Cc: Jerome Jang
Brian Harris

Watershed Assessment Procedure for the TREPANIER CREEK WATERSHED

Final Watershed Assessment Committee (WAC) Meeting Summary Notes and Recommendations December 3, 1998

Location: Dobson Engineering, Kelowna, B.C.

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1. Introduction of Attendees

Mike Doiron	Riverside Forest Products
Dave Gooding	B.C. Environment (BCE)
Brian Harris	B.C. Environment (BCE)
Jerome Jang	Ministry of Forests (MOF)
Barb Pryce (Chair)	Ministry of Forests (MOF)
Kerry Rouck	Gorman Bros. Lumber Ltd.
Rob Scherer	Dobson Engineering Ltd.
Wally Semenoff	District of Peachland

2. Background

Action items from the Initial WAC meeting were reviewed. Brief discussion about the

Dave Gooding	B.C. Environment (BCE)
Brian Harris	B.C. Environment (BCE)
Jerome Jang	Ministry of Forests (MOF)
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Kerry Rouck	Gorman Bros. Lumber Ltd.
Rob Scherer	Dobson Engineering Ltd.
Wally Semenoff	District of Peachland

2. Background

Action items from the Initial WAC meeting were reviewed. Brief discussion about the purpose of today's meeting and how the WAC recommendations will be dealt with.

WAC meeting notes will state one of three things for each recommendation:

1. Agree with recommendations in the Hydrologist's Report
2. Disagree with recommendations and here are the alternative recommendations
3. Documentation of dissenting opinion

3. Presentation of Watershed Assessment Report

Rob Scherer reviewed the Trepanier Creek Watershed Assessment Report.

Action: Dave Gooding - Encourage Brenda Mine to undertake some rehabilitation work on MacDonald Creek. See Recommendation section for further information.

Mike Doiron - no FDP plans for this next five year plan period. Riverside does have plans for harvesting beyond the five year period, subject to PAS recommendations from the LRMP.

Jerome Jang - new blocks will have to be shown as "information blocks" until the next WAP is done to assess the impact of those proposals on the proposals.

Mike Doiron/Kerry Rouck- what do they need in a FDP for five years of blocks - do they have to be "A" blocks or can they show "I" blocks?

Jerome Jang - can show "I" blocks as part of their FDP, do not need 5 years of "A" blocks. In community watersheds in order to approve Forest Development Plans, blocks must have Watershed Assessments which was why the licensees were to give Dobson Engineering Ltd. their projected 1999 blocks for this WAP. This was discussed at the Initial WAC meetings.

5. Recommendations

The unstated recommendation is that the 1999 proposed Forest Development Plan (FDP) can proceed, subject to the recommendations stated below.

Recommendation 1 (first bullet in Hydrologist's Report). Accepted by WAC. Forest Practices Code (FPC) requirements.
must have Watershed Assessments which was why the licensees were to give Dobson Engineering Ltd. their projected 1999 blocks for this WAP. This was discussed at the Initial WAC meetings.

5. Recommendations

The unstated recommendation is that the 1999 proposed Forest Development Plan (FDP) can proceed, subject to the recommendations stated below.

Recommendation 1 (first bullet in Hydrologist's Report). Accepted by WAC. Forest Practices Code (FPC) requirements.

Recommendation 2 (second bullet in Hydrologist's Report). Accepted by WAC. FPC requirements.

Recommendation 3 (third bullet in Hydrologist's Report). Accepted by WAC. FPC requirements.

Recommendation 4 (fourth bullet in Hydrologist's Report). Non-FDP related. Accepted by WAC. Gormans will address as FRBC funding allows. Compared with other priorities in other community watersheds, this may not be a high priority for Gormans. Rob Scherer - if this is undertaken, first priority should be to address water quality issues.

Recommendation 6 (sixth bullet in Hydrologist's Report). Non-FDP related. Accepted by WAC. At discretion of licensees. Could start monitoring sites prior to proposed development. Licensees will work with DEL and Dave Gooding to discuss a monitoring strategy for all community watersheds under assessment in Penticton Forest District.

Recommendation 7 (seventh bullet in Hydrologist's Report). Non-FDP related. Accepted by WAC.

Action: Dave Gooding to pursue resolution of this with Brenda Mine. Gormans may have opportunity in 2 to 3 years to apply some of their FRBC multi year funding to this problem. Brian Harris will discuss with Ray Jubb.

Recommendation 8 (eighth bullet in Hydrologist's Report). Non-FDP related. Supported by WAC. No action items attached to this. District of Peachland my apply for funding from Fisheries Renewal B.C.

Recommendation 9 (ninth bullet in Hydrologist's Report). Non-FDP related. Supported by WAC.

Action: Brian Harris will forward this Recommendation to Dave Jones, BCE for his consideration.

Dave Gooding - not concerned with logging impacts, more concerned with Brenda Mines impacts.

funding from Fisheries Renewal B.C.

Recommendation 9 (ninth bullet in Hydrologist's Report). Non-FDP related. Supported by WAC.

Action: Brian Harris will forward this Recommendation to Dave Jones, BCE for his consideration.

Dave Gooding - not concerned with logging impacts, more concerned with Brenda Mines impacts.

6. Next Steps.

Barb Pryce will draft meeting notes and recommendations from today's meeting. A draft will be forwarded to all WAC members for comment prior to forwarding to Prescribing Foresters.

7. Other Items.

Wally Semenoff - will this information be made public in order to clear up any misinformation about the amount of harvesting taking place? MOF has no specific strategy. The FDP process does make this information available. DEL licensees and