Sample No. _____ Date Y Y Y Y / M M / D D Evaluator(s) _____

Stream/Opening Identification

District: _____ Opening ID: _____ Licensee: _____

Forest licence: _____ Block: _____ Harvest year: _____

Stream name: _____

Harvest location: Both sides ☐ Left side ☐ Right side ☐

Stream location: Within block ☐ Adjacent to block(s) ☐

Stream class (plan) ___ (field) ___ Not a high value S6 ☐ Harvest method: _____

Stream order: _____ Stand age (yrs): Left _____ Right _____

Number of road crossings: Above reach in block: _____ Above block: _____

% of watershed developed upstream: _____ Main development(s): _____

Reach location: _____ to _____ m US ☐ DS ☐ from _____

UTM at US ☐ DS ☐ End of reach: Zone: _____ East: _____ North: _____

Channel width (m): _____ Channel depth (m): _____ Channel gradient (%): _____

Wetted width (m): _____ Wetted depth (m): _____ D95 (cm): _____ D50 (cm): _____

Dominant substrate: Bedrock ☐ Boulders ☐ Cobbles ☐ Gravel ☐ Sand ☐ Fines ☐

Channel morphology: Riffle-cascade/pool ☐ Step/pool ☐ Non-alluvial ☐

Water pH _____ Temp _____ Total reach length (m) _____

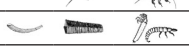
Photographs

Sample No. _____

Field Data

Question Indicator	Point Indicators (Measure at 6 equidistant points or transects along the reach)							Total	Mean
	Transect No.	1	2	3	4	5	6		
NA	Width of treed buffer strip on left side								
NA	Width of treed buffer strip on right side								
Q7(a)	% Moss in riffles								
Q8 (a)	% Fines/sands in riffles								
Q9 (a)	No. sensitive invertebrate types								
Q9 (b)	No. major invertebrate groups								
Q9 (c)	No. insect types								
Q9 (d)	Total No. invertebrate types								
Q13 (b)	% Shade								
Q14 (a)	% Disturbance – increaser species								
Q14 (b)	% Noxious weeds/invasives								

Record the number of different types of invertebrates observed in each sub-group, at each transect sampled. The numbers recorded under each "transect number" are the numbers you use to complete the point indicators table above. Do not complete for naturally dry streams.

Major Group	Sub Group	Sensitivity	Transect Number					
			1	2	3	4	5	6
Insects	Mayflies 	Yes						
	Stoneflies 	Yes						
	Caddisflies 	Yes						
	Chironomids ('midges') 	No						
	Other Diptera 	No						
	Riffle beetle larvae 	Yes						
	Other beetle larvae, adults 	No						
Bivalves	Clams, mussels 	Yes						
Snails	Right side snails 	Yes						
	Left side snails 	No						
Flatworms	Flatworms ("Planaria") 	No						
Nematodes	Nematodes 	No						
Worms	Segmented worms 	No						
Crustaceans	Crustaceans 	No						
Arachnids	Spiders, mites 	No						
Others (eg. leeches = not sensitive)	Consult field guide in Appendix 2 of Protocol for identification of "other" invertebrates and their sensitivity.							

Sample No. _____ Reach length _____ Riparian area (20m*L)_____

Field Data					
Question No. (Indicator)	**Stream Types**	**Continuous Indicators** (These are measured all along the reach to determine total length, numbers or areas present, as appropriate. Record the totals in the "Total" column, even if the total is an estimate. Calculate the percentage of the reach length, riparian area or number of trees represented by each total.)		**Total**	**%**
Q1(a)	RC	Mid-channel bars, wedges (m), measure all but no overlap			
Q1(c)	RC	Lateral bars (m), measure all but no overlap			
Q1(b,c)	RCS	Multiple or braided channels (m), measure all but no overlap			
Q1(a)	Non-alluvial	Moss along the channel bed (m), measure all but no overlap			
Q2	All	Naturally erodible banks (m), measure all but no overlap			
Q2(a,a,b)	All	Recently disturbed bank (m), measure all but no overlap			
Q2(c,c)	RCS	Stable undercut bank (m), measure all but no overlap			
Q2(b,b,a)	All	Shallow rooted banks (m), measure all but no overlap			
Q2(d,d,c)	All	Recently upturned bank root wads, (m) measure all but no overlap			
Q4(a)	RC	Pool length (m)			
Q10	All	No. New windthrow (live trees only)			
Q10	All	No. Old windthrow (but alive when windthrown)			
Q10	All	No. Standing trees			NA
Q11(a)	All	Bare erodible ground in first 10m (m^2), do not include active roads			
Q13(a)	All	Bare erodible ground exposed to rain in first 10m (m^2, do not include active roads)			
Q11(b)	All	Bare erodible ground in first 10m, **plus** all bare soil hydrologically connected to first 10m (m^2)			
Q11(c)	All	Compacted (disturbed) ground in first 10m (m^2, do not include active roads)			
Q11(d)	All	Compacted (disturbed) ground in first 10m, **plus** all compacted (disturbed) ground hydrologically connected to first 10m (m^2)			

% New Windthrow = (# New Windthrow) / (# New Windthrow + # Standing Trees) X 100
% Old Windthrow = (# Old Windthrow) / (# Old Windthrow + # New Windthrow + # Standing Trees) X 100

Sample No. _____

Other Indicators to Note (Answer Yes, No, or NA as appropriate for the questions)				
Q01	**Sediment and LWD Storage Characteristics – For Non-Alluvial Streams Only**	**Yes**	**No**	**NA**
Q1(b)	Do sediment and/or LWD deposits that completely fill the channel up to the top of the banks represent less than 5% of the reach length?	☐	☐	☐
Q1(c)	Are moveable sediments widely distributed in small pockets along the whole stream reach, not concentrated in a few relatively large compartments?	☐	☐	☐
Q04	**Surface Sediment Texture – For Riffle and Cascade Pool Streams Only**			
Q4(b)	Is the texture of the surface substrate mainly heterogenous?	☐	☐	☐
Q04	**Deep Pools – For Riffle, Cascade, and Step Pool Streams Only**			
Q4(c)	Are two or more deep pools present? (Tip: A deep pool is a pool whose depth from the deepest spot of the pool to the top of the bank is twice the same depth at riffle crests)	☐	☐	☐
Q05	**Connectivity**			
Q5(a)	Are temporary blockages to fish, sediment or debris absent?	☐	☐	
Q5(b)	Is down-cutting that blocks fish movements or isolates the channel from the adjacent floodplain absent?	☐	☐	
Q5(c)	Are sediment or debris buildups absent at or in all crossing structures immediately u/s or d/s of the sample reach?	☐	☐	☐
Q5(d)	Is down-cutting below any crossing structure that blocks fish movements upstream by any size fish at any time absent?	☐	☐	☐
Q5(e)	Fish passage determination table for culverted crossings only.	☐	☐	☐

Table: Fish passage determination table for culverted crossings only.

Attribute	Measurement	Category Score	Field Score
Embedded	Continuous and embedded > 30cm or 20% of pipe diam.	0	
	Continuous, but <30cm or 20% pipe diam.	5	
	Discontinuous or not embedded	10	
Outlet Drop (perch)	< 15 cm	0	
	15-30 cm	5	
	>30 cm	10	
Culvert Slope	<1%	0	
	1-3%	5	
	>3%	10	
SWR *	<1.0	0	
	1.0-1.3	3	
	>1.3	6	
Culvert Length	<15m	0	
	15-30m	3	
	>30m	6	
Total Field Score			
Fish Passage Maintained?	Answer yes if score is 14 or less		YES/ NO

* SWR = Stream Width Ratio is calculated as natural channel width/ culvert diameter.

Sample No. _____ Channel Area (W*L) _____ Riparian area _____

Other Indicators to Note (Answer Yes, No, or NA as appropriate for the Questions)				
Q05	**Connectivity** (continued)	**Yes**	**No**	**NA**
Q5(f)	Is dewatering absent?	☐	☐	
Q5(g)	Are trails, roads or levees that isolate off-channel areas or divert normal overland flow away from the reach absent?	☐	☐	
Q5(h)	Is all water in the stream still flowing in its original channel, not withdrawn or diverted elsewhere?	☐	☐	
Q06	**Fish Cover Diversity – For Fish-Bearing Streams Only** (To be considered present, each type of cover should cover 1% or more of the total channel area)			
Q6(a)	Are deep pools present?	☐	☐	☐
Q6(b)	Are unembedded boulders present?	☐	☐	☐
Q6(c)	Is woody debris or other organic debris present?	☐	☐	☐
Q6(d)	Are undercut banks present?	☐	☐	☐
Q6(e)	Is aquatic vegetation present?	☐	☐	☐
Q6(f)	Is overhanging vegetation present?	☐	☐	☐
Q6(g)	Are there stable gravels and cobbles present with spaces for fish to hide in?	☐	☐	☐
Q07	**Moss Condition**			
Q7(b)	Are half or more of the moss patches present intact (not embedded, buried, or scoured)?	☐	☐	☐
Q7(c)	Are moss patches easily observed and vigorous, not stressed, dried or dead?	☐	☐	☐
Q08	**Fine Inorganic Sediments** (To be considered present, Q8a and Q8b must be 1% or more of the total channel area at ONE place)			
Q8(a)	Are riffles or pool/riffle breaks free of fine or sand/sized inorganic sediments that "blanket" the streambed?	☐	☐	☐
Q8(b)	Is the channel area free of "quick sand" or "quick gravel"?	☐	☐	☐
Q8(c)	Is the substrate mostly unembedded?	☐	☐	☐
Q13	**Bank Microclimate**			
Q13(c)	Are moisture-loving plants present and in good condition?	☐	☐	
Q13(d)	Are the bank soils mostly moist and cool?	☐	☐	
Q15	**Browsing, Grazing**			
Q15(c)	Is heavy browse absent? (TIP: Mark "No" if even one plant shows heavy browse)	☐	☐	
Q15(d)	Is most (90%) of the available forage free of heavy grazing?	☐	☐	

Sample No. _____

Field Data Summary Tables

Table 1. Boulder-line/step characteristics of step-pool type reaches (Q1B, Q4B)

Number of boulder lines/ steps	Number of channel spanning boulder lines/steps	Number of boulder lines/ steps with moss	Number of boulder lines/ steps with a deep plunge pool	Length of reach with no boulder steps and plunge pools

Table 2. Wood characteristics of sample reach (Q3)

Number of wood Accumulations	Number of wood accumulations with new, recently deposited wood	Number of channel spanning wood accumulations (NA for non-alluvial streams)	Main status of wood in each accumulation (Tally "S" for stable; "U" for unstable)		Main orientation of wood in each accumulation (Tally "P" for parallel, "X" for across or diagonal)	
			S	U	P	X

Table 3. Riparian Structure (Q15a) Estimate percentage likeness (0-100%) of the distribution or relative abundance of each component compared to the typical healthy, unmanaged plant community along the reach.

Snags (%)	Gaps (%)	Over-story trees (%)	Under-story trees (%)	Tall shrubs /regen (%)	Low shrubs /ferns (%)	Herbs (%)	Mosses (%)	Lichens (%)	CWD (%)	Total (Sum of %'s)	Average % (Answer to Q15a)

Table 4. Riparian Vegetation Form, Vigor, and Recruitment (Q15b) Does each component exhibit good vigor, form, and recruitment (Y/N)? Vigor or form is poor if discolored, defoliated, brittle, burned, broken, heavily browsed, mushroomed, wind-thrown, harvested, or dead.

	Snags	Gaps	Over-story trees	Under-story trees	Tall shrubs/regen	Low shrubs/ferns	Herbs	Mosses	Lichens	CWD	Total possible number of Yes answers	Actual number of Yes answers	% of cells with Yes answers (Answer to Q15b)
Form													
Vigor	NA	NA								NA			
Recruitment													

Sample No. _____

Riparian Effectiveness Routine Evaluation Checklist

Question 1. Is the channel bed undisturbed?	**Yes** ☐	**No** ☐	**NA** ☐
Note: For Question 1, decide what the predominant channel morphology is and then complete the section for that morphology only (i.e. Part A, B or C)			
A) Riffle-pool or cascade-pool channels			
a) Does less than 50% of the reach have active sediment wedges or mid-channel bars?	☐	☐	
b) Does less than 50% of the reach have active multiple channels and/or braids?	☐	☐	
c) Does more than 50% of the reach have lateral bars?	☐	☐	
If there are 2 or more "Yes" answers, mark the "Yes" box for Question 1. Otherwise mark the "No" box.			
B) Step-pool channels			
a) Do more than 50% of the steps present span the channel?	☐	☐	
b) Do more than 25% of the steps have moss?	☐	☐	
c) Does less than 25% of the reach have active multiple channels and/or braids?	☐	☐	
If there are 2 or more "Yes" answers, mark the "Yes" box for Question 1. Otherwise mark the "No" box.			
C) Non-alluvial channels			
a) Does 25% or more of the channel bed length have moss on the substrate? (Answer NA if stream has naturally fine or organic channel bed)	☐	☐	☐
b) Do moveable sediments and/or debris deposits that completely fill the channel up to the top of the banks represent less than 5% of the total reach length?	☐	☐	
c) Are moveable sediments widely distributed in small pockets along the whole stream reach, not concentrated in a few relatively large compartments?	☐	☐	
If there are 2 or more "Yes" answers, mark the "Yes" box for Question 1. Otherwise mark the "No" box.			

Please refer to "What is Stream Channel Morphology" in the riparian protocol for descriptions, tables and figures on channel morphology. If you are using the summary table that describes the general features of each type of channel morphology, base your decision on all the characteristics listed. The degree of channel incisement and the presence or absence of floodplains formed by sediments deposited by the stream and later vegetated are key criteria. If a stream is not meandering or depositing sediments that will eventually re-vegetate (i.e. "alluvial"), but just cutting through peat lands, colluvial deposits or glacial fluvial deposits and not adding material to the adjacent areas, call these streams non-alluvial.

Sample No. _____

Question 2. Are the channel banks intact?	**Yes** ☐	**No** ☐
Note: For Question 2, decide what the predominant channel morphology is and then complete the section for that morphology only (i.e. Part A, B or C)		
A) Riffle-pool or cascade-pool channels		
a) Does less than 15% of the total reach length have recently disturbed banks (e.g. banks disturbed by stream flows, sloughs, slumps, windthrow, infilling, animals, roads, or harvest and silviculture activities)?	☐	☐
b) Are more than 65% of the banks on naturally erodible sections of the reach deeply rooted?	☐	☐
c) Does more than 50% of the naturally erodible reach length have stable undercut banks?	☐	☐
d) Does less than 10% of the total reach length have recently upturned (wind thrown) root wads along the banks?	☐	☐
If there are 3 or more "Yes" answers, mark the "Yes" box for Question 2. Otherwise mark the "No" box		
B) Step-pool channels		
a) Does less than 10% of the total reach length have recently disturbed banks (e.g. banks disturbed by stream flows, slumps, sloughs, windthrow, infilling, animals, roads, or harvest and silviculture activities)?	☐	☐
b) Are more than 75% of the banks on naturally erodible sections of the reach deeply rooted?	☐	☐
c) Does more than 50% of the naturally erodible reach length have stable undercut banks?	☐	☐
d) Does less than 25% of the total reach length have recently upturned (wind thrown) root wads along the banks?	☐	☐
If there are 3 or more "Yes" answers, mark the "Yes" box for Question 2. Otherwise mark the "No" box		
C) Non-alluvial channels		
a) Does less than 10% of the total reach length have recently disturbed banks (e.g. banks disturbed by stream flows, sloughs, slumps, windthrow, infilling, animals, roads, or harvest and silviculture activities)?	☐	☐
b) Are more than 75% of the banks on naturally erodible sections of the reach deeply rooted?	☐	☐
c) Does less than 25% of the total reach length have recently upturned (wind thrown) root wads along the banks?	☐	☐
If there are 2 or more "Yes" answers, mark the "Yes" box for Question 2. Otherwise mark the "No" box		

Please refer to the Riparian Protocol for more descriptions of stable, vegetated undercut banks versus unstable, overhanging banks.

Sample No. _____

Question 3. Are channel LWD processes undisturbed?		**Yes** ☐	**No** ☐
Note: For Question 3, decide what the predominant channel morphology is and then complete the section for that morphology only (i.e. Part A, B or C)			
A)	Riffle-pool or cascade-pool channel		
	a) Is wood in the channel mainly old and/or stable?	☐	☐
	b) Do one to twelve accumulations of wood span the channel?	☐	☐
	c) Do half or more of all wood accumulations present lack new or recently deposited wood that is unstable?	☐	☐
	d) Is wood in the channel mainly across or diagonal to the main axis of the channel, not parallel?	☐	☐
	e) Is the wood in the channel mostly intact, (i.e. not recently lost or moved by hand, floods, debris torrents, debris flows)?	☐	☐
	If there are 4 or more "Yes" answers, mark the "Yes" box for Question 3. Otherwise mark the "No" box.		
B)	Step-pool channel		
	a) Is wood in the channel mainly old and/or stable?	☐	☐
	b) Are one to twelve accumulations of wood present in the channel?	☐	☐
	c) Do half or more of all wood accumulations present lack new or recently deposited wood that is unstable?	☐	☐
	d) Is wood in the channel mainly across or diagonal to the main axis of the channel, not parallel?	☐	☐
	e) Is the wood in the channel mostly intact, (i.e. not recently lost or moved by hand, floods, debris torrents, debris flows)?	☐	☐
	If there are 4 or more "Yes" answers, mark the "Yes" box for Question 3. Otherwise mark the "No" box.		
C)	Non-alluvial channel		
	a) Is wood in the channel mainly old and/or stable?	☐	☐
	b) Do half or more of all wood accumulations present lack new or recently deposited wood that is unstable?	☐	☐
	c) Is wood in the channel mainly across or diagonal to the main axis of the channel?	☐	☐
	d) Is the wood in the channel mostly intact, (i.e. not recently lost or moved by hand, floods, debris torrents, debris flows)?	☐	☐
	If there are 3 or more "Yes" answers, mark the "Yes" box for Question 3. Otherwise mark the "No" box.		

TIP: "Old" wood is wood that is stable, and well incorporated into the streambed, streambanks or pre-existing log jams. The wood is usually mossy. "New" wood is any wood that is not yet stable or well incorporated into the streambed, streambanks or stable log jams. New wood is usually wood that was recently deposited after road building and the latest harvesting was started. This could include stems or branches that were blown off trees after harvesting started, or old wood that has recently moved and is no longer stable. TIP: If half or more of the reach length is completely filled with wood, consider this to be more than 12 accumulations of wood.

Sample No. _____

Question 4. Is the channel morphology intact? (Mark NA if the channel is non-alluvial, and therefore lacking a riffle-pool, cascade-pool or step-pool morphology)	**Yes** ☐	**No** ☐	**NA** ☐
Note: For Question 4, decide what the predominant channel morphology is and then complete the section for that morphology only (i.e. Part A or B)			
A) Riffle-pool or cascade-pool channel			
a) Are pools present along >25% of the reach?	☐	☐	
b) Is the surface sediment texture mainly heterogenous and well sorted, i.e. is the range of sediment classes (sands, gravel, cobbles, etc.) present on the streambed large and well sorted by water?	☐	☐	
c) Are two or more deep pools present? (A deep pool is a pool with a channel depth twice the average channel depth at riffle crests).	☐	☐	
If there are 2 or more "Yes" answers, mark the "Yes" box for Question 4. Otherwise mark the "No" box.			
B) Step-pool channel			
a) Are plunge pools frequent, i.e. are >25% of the steps associated with a plunge pool with depths similar to the size of the largest rock in the step?	☐	☐	
b) Does the channel alternate almost exclusively between steps and pools (i.e. less than 25% of the channel consists of relatively long cascades)?	☐	☐	
c) Are two or more deep pools present? (A deep pool is a pool with a channel depth twice the average channel depth at the steps, i.e. the "riffle crests").	☐	☐	
If there are 2 or more "Yes" answers, mark the "Yes" box for Question 4. Otherwise mark the "No" box.			

TIP: A stream reach can have aspects of both cascade-pool and step-pool morphology. Use the predominant morphology to decide which set (A or B) of indicator statements to use.

TIP: Steep streams (with gradients between approximately 5-15%) that look like long cascades could be step-pool streams that are filled in with abundant sediment. Even steeper streams (with gradients much greater than 15%) are probably non-alluvial, especially small streams.

TIP: Only measure the lengths of the main pools present. These are the pools that extend from one side of the wetted channel to the other. Do not include the small pools that are often present behind boulders in riffles or cascades or the small backwater or back eddy pools that might be present along the margins of riffles and cascades.

Sample No. _____

Question 5. Are all aspects of the aquatic habitat sufficiently connected to allow for normal, unimpeded movements of fish, organic debris, and sediments?	**Yes** ☐	**No** ☐	**NA**
a) Are temporary blockages to fish, debris or sediment movements absent (e.g. weirs, dams, beaver dams, impermeable log jams)?	☐	☐	
b) Is down cutting in the main channel that now isolates the floodplain from normal flooding or blocks access to tributary streams or off-channel areas absent?	☐	☐	
c) On all streams, are build-ups of sediment or debris within any crossing structure or portion of the stream channel within the road right-of-way immediately upstream or downstream of the sample reach absent*?	☐	☐	☐
d) On fish streams, are all crossing structures immediately upstream or downstream of the sample reach free of any down cutting that blocks fish movements upstream by any size fish at any time?	☐	☐	☐
e) On fish streams, does the culvert immediately upstream or downstream of the sample reach score less than 15 using the rapid assessment for barrier determination, indicating fish passage is unimpaired? (Answer NA if crossing is a bridge or the stream is classed as non-fish (S5 or S6) above the culvert).	☐	☐	☐
f) Is dewatering over the sample reach channel width due to excessive new accumulations of sediment absent?	☐	☐	
g) Are all off-channel or overland flow areas still connected to the main channel, not isolated or cut off by roads or levees?	☐	☐	
h) Is all water in the stream still in the stream, not withdrawn or diverted elsewhere?	☐	☐	
If there are any "No" answers, mark the "No" box for Question 5. Otherwise mark the "Yes" box.			

* Consider debris or sediment accumulations a blockage if the height of the obstruction is more than twice the channel depth immediately below it. For all streams, if recent sediment or debris deposits are preventing more than 2/3 of the flow (at bankfull depth) from remaining in the channel, consider it a blockage (i.e. flow is or will be forced above or around the obstruction; look for signs of erosion if flows are low).

Note that active beaver dams will almost always be temporary blockages. TIP: "Down cutting" refers to channel incisement; i.e. the vertical movement of the channel downwards into the channel bed.

Question 6. Does the stream support a good diversity of fish cover attributes? To qualify as cover, each cover attribute should represent at least 1% of the total stream area observed. (Mark NA if the stream is non-fish bearing; i.e. classes S5 or S6)	**Yes** ☐	**No** ☐	**NA** ☐
a) Is deep pool habitat available?	☐	☐	
b) Are stable, unembedded boulders present? (Answer NA if stream is non-alluvial and boulders are naturally absent)	☐	☐	☐
c) Are stable rootwads, woody debris or other organic material that fish can hide in present? "Other" organic debris is made up mostly of uncompacted leaf and/or wood particles that small fish can hide under.	☐	☐	
d) Are stable, deep-rooted undercut banks present?	☐	☐	
e) Is submerged or emergent aquatic vegetation present?	☐	☐	
f) Is overhanging vegetation present within 1 m of the top of the channel?	☐	☐	
g) Are stable unembedded gravels and cobbles with void spaces for fish to hide in present? (Answer NA if stream is non-alluvial and gravels and cobbles are naturally absent)	☐	☐	☐
If there are three or more "No" answers, Mark the "No" box for Question 6. Otherwise, mark the "Yes" box.			

Sample No. _____

Question 7. Does the amount of moss present in shallow areas of the channel indicate a stable and productive system? (Mark "NA" if the sample is all pool habitat or the streambed naturally lacks a stable mineral substrate for moss to grow on)	**Yes** ☐	**No** ☐	**NA** ☐
a) Is average coverage of moss patches on stable mineral substrates 1% or more of the channel bed in riffle areas?	☐	☐	
b) Are half or more of the moss patches present (even uncommon, occasional or rare patches) generally intact, not embedded with sediments, buried or damaged by scouring? Mark "NA" if no moss is present.	☐	☐	☐
c) Are moss patches easily observed from the margins, riffles or shallow pools of the stream and generally vigorous, not stressed, dried or dead? Mark NA if no moss is present.	☐	☐	☐
If there are any "No" answers, mark the "No" box for Question 7. Otherwise, mark the "Yes" box.			

Question 8. Has the introduction of sand or fine sized inorganic sediments been minimized? (Mark "NA" when the largest mobile sediment present in the reach is sand from natural sources only)	**Yes** ☐	**No** ☐	**NA** ☐
a) Are inorganic ("gritty" feeling) fine and sand-sized sediments in riffles or critical spawning areas best described as little or lacking? Little or lacking is when average coverage in these areas is less than 10%, and no one area of this habitat equal to 1% or more of the total channel area is completely covered ("blanketed") with fines or sands.	☐	☐	
b) Are individual areas of quick sand or quick gravel that a foot can be easily pushed or wiggled into all smaller than an area equal to 1% of the total channel area?	☐	☐	
c) Are gravels and cobbles unembedded in a matrix of sand or finer sized particles? Unembedded means that most of the gravel and cobbles are touching each other and easy to move.	☐	☐	
d) Is there an average of one or more sensitive invertebrate types at invertebrate sample sites? Mark "NA" if high water conditions prevent effective sampling or the sample sites are dry due to natural conditions.	☐	☐	☐
If there are any "No" answers, mark the "No" box for Question 8. Otherwise, mark the "Yes" box.			

TIP: If the stream banks from top to bottom on both sides are all naturally composed of sand or finer size sediments, then it is probable the fines on the streambed are also natural.

Question 9. Does the stream support a diversity of aquatic invertebrates? (Mark "NA" if high water conditions prevent effective sampling or sample sites are mostly dry due to natural conditions)	**Yes** ☐	**No** ☐	**NA** ☐
a) Is an average of one or more sensitive invertebrate (e.g. a caddisfly, stonefly, mayfly or freshwater clam) present at the sites sampled?	☐	☐	
b) Is an average of two or more different major invertebrate groups (e.g. insects, worms, crustaceans, etc.) present at the sites sampled?	☐	☐	
c) Is an average of three or more recognizably different insects present at the sites sampled?	☐	☐	
d) Is an average of four or more recognizably different invertebrates present at the sites sampled?	☐	☐	
If there are two or more "Yes" answers, mark the "Yes" box for Question 9. Otherwise, mark the "No" box.			

Sample No. _____

Question 10. Has the vegetation retained in the RMA been sufficiently protected from windthrow? (Note: only dominant or co-dominant trees that were alive when they were windthrown count as windthrow).	**Yes** ☐	**No** ☐	**NA**
a) The incidence of post-treatment windthrow (living trees) in S1-S3 RRZs or S4-S6 RMZs with WTPs does not exceed 5% of the living stems, over and above what occurs naturally in the area. Mark NA and answer 10 b) if there is no reserve zone, or management zone with wildlife trees or wildlife tree patches.	☐	☐	☐
b) The incidence of post-treatment windthrow (living trees) in S4-S6 RMZs that are not part of a WTP does not exceed 10% of the living stems, over and above what occurs naturally in the area. Mark NA if there is a reserve zone or wildlife tree patch adjacent to the stream, and answer 10 a).	☐	☐	☐
c) Designated wildlife trees in S1-S6 RMAs are still standing, or if windthrown (living trees), still functional as wildlife trees (e.g. above-ground bear dens). Mark NA if there are no designated wildlife trees.	☐	☐	☐
If there are any "No" answers, mark the "No" box for Question 10. Otherwise, mark the "Yes".			

1. $\%\ \textit{Old Windthrow} = \dfrac{\textit{(\# Old Windthrow Trees)}}{\textit{(\# Standing Trees + \# Old Windthrow + \# New Windthrow)}} \times 100$

2. $\%\ \textit{New Windthrow} = \dfrac{\textit{(\# New Windthrow Trees)}}{\textit{(\# Standing Trees + \# New Windthrow)}} \times 100$

To calculate % new windthrow over and above the natural pre-treatment windthrow, subtract (1) from (2).

Question 11. Has the amount of bare erodible ground or soil compaction in the riparian area been minimized?	**Yes** ☐	**No** ☐
a) Is total bare erodible ground area present in the first 10 m of the riparian area (not counting active road right-of-ways) less than 1% of the total riparian area?	☐	☐
b) Is total bare erodible ground area present in the first 10 m of the riparian area, **plus** all other bare erodible ground hydrologically linked to the stream or to the first 10 m of riparian area less than 5% of the total riparian area?	☐	☐
c) Is the total area compacted (disturbed) by animals or machinery in the first 10 m of the riparian area (not counting active road right-of-ways) less than 10% of the total riparian area?	☐	☐
d) Is the total area compacted (disturbed) by animals or machinery in the first 10 m of the riparian area, **plus** all other compacted areas hydrologically linked to the stream or to the first 10 m of riparian zone less than 15% of the total riparian area?	☐	☐
If there are any "No" answers, mark the "No" box for Question 11. Otherwise, mark the "Yes" box.		

TIP: Sediment deposited on the ground from upslope sources is considered bare ground for Question 11, but not if the sediment is deposited due to flooding (i.e. over-bank deposits).

Sample No. _____

Question 12. Has sufficient vegetation been retained or managed to maintain an adequate root network or LWD supply?	**Yes** ☐	**No** ☐	**NA**
a) On all streams, are all trees less than 1.3 m, shrubs, and herbaceous vegetation present to the fullest extent possible within 5 m of the stream banks?	☐	☐	
b) On S1 to S3 size streams, is the first 10 m of the riparian reserve zone intact (regardless of windthrow), thereby providing for 80% or more of the LWD normally supplied to streams with no additional inputs from upstream or the adjacent hillslopes?	☐	☐	☐
c) On S4 streams, where the windthrow hazard was not assessed, or where windthrow hazard was assessed as not high, are all windfirm trees with roots embedded in the bank, and 50% of all other trees (excluding dominant conifers) within 10 m of the stream banks still present?	☐	☐	☐
d) On S4 streams, where the windthrow hazard was assessed as high, are all under-story trees taller than 1.3 m present within 10 m of the stream banks, to the fullest extent possible?	☐	☐	☐
e) On valley bottom S5 streams with alluvial banks and a floodplain, are 50% of dominant and codominant windfirm stems within 30 m of the stream banks still present?	☐	☐	☐
f) On non-valley, LWD dependent S5 streams, are all leaners within 10 m of the stream banks and all under-story trees taller than 1.3 m within 5 m of the streambank still present to the fullest extent possible?	☐	☐	☐
g) On LWD dependent S6 streams, or S6 that flow directly into fish-bearing waters, are at least 10 under-story trees taller than 1.3 m present within 5 m of the stream banks?	☐	☐	☐
If there are any "No" answers, mark the "No" box for Question 12. Otherwise, mark the "Yes" box.			

TIP: All streams require an answer to indicator statement 12 (a). At most, only one other indicator statement will be applicable. Right-of-ways should not be considered a factor for Question 12 unless the right-of-ways represent more than 25% of the riparian habitat.

Question 13. Has sufficient vegetation been retained to provide shade and reduce bankmicroclimate change?	**Yes** ☐	**No** ☐
a) Is the bare erodible ground directly exposed to rain less than 1% of the riparian area?	☐	☐
b) Does shade (the average amount of sky not visible due to vegetation) average more than 60%, as estimated visually for any two of the east, south and west aspects at 60° above the horizontal?	☐	☐
c) Are moisture loving macrophytes, mosses, ferns or other bryophytes generally present and in vigorous condition, and no indication of stress due to sunburn, drought or desiccation?	☐	☐
d) Is the soil in the riparian habitat mostly cool and moist to the touch?	☐	☐
If there are 3 or more "Yes" answers, mark the "Yes" box for Question 13. Otherwise, mark the "No" box.		

Sample No. _____

Question 14. Have the number of disturbance-increaser species, noxious weeds, and/or invasive plant species present been limited to a satisfactory level?	**Yes** ☐	**No** ☐
a) Do disturbance-increaser plants (domestic grasses, dandelions, pineapple weed, buttercups, etc.) occupy less than 25% of total area in the first 10 m of the riparian zone?	☐	☐
b) Do noxious weeds and/or other invasive plant species occupy less than 5% of total area in the first 10 m of the riparian area?	☐	☐
If there are any "No" answers, mark the "No" box for Question 14. Otherwise, mark the "Yes" box.		

TIP: To estimate coverage by disturbance-increaser plants or weeds and other invasive plants at a sample site, record the percentage of two10 m long line transect (one on each side of the stream) that is occupied by these plants. Start the line transects at the edge of the stream and go 10 m at right angles to the main axis of the stream reach.

Question 15. Is the riparian vegetation and forest structure within the first 10 m from the edge of the stream generally characteristic of what the healthy unmanaged riparian plant community would normally be along the reach?	**Yes** ☐	**No** ☐
a) Are all the major vegetation layers and structural components of the expected healthy unmanaged riparian plant community (e.g. snags, CWD, gaps, tall trees, understory, tall shrubs, low shrubs, herbaceous plants, mosses and lichens) adequately represented? Adequate representation is 1) the presence of all expected layers and components over 75% of the reach, 2) 75% of the expected layers or components over all of the reach, or 3), any combination of 1) and 2) that collectively averages 75% or more.	☐	☐
b) Do 75% or more of the expected major vegetation layers and structural components of the healthy unmanaged riparian plant community collectively exhibit good vigor, normal growth form, and satisfactory recruitment?	☐	☐
c) Is heavy browse absent? Heavy browse on a plant is browse down to second year wood over most (>50% of the branches) of the plant.		
d) Is 90% or more of the available grazing area free of heavy grazing? Heavy grazing is defined as less than the recommended target stubble height for the dominant forage species present.	☐	☐
	☐	☐
If there are 3 or more "Yes" answers, mark the "Yes" box for Question 15. Otherwise, mark the "No" box.		

TIP: All four statements can always be answered "Yes" or "No". There are no NA statements.

TIP: If more than 25% of all the vegetation along both sides of the total reach length is removed, as would be the case for a complete clearcut along the reach, then 15(a) and 15(b) would be marked "No".

TIP: The answer to Q15(c) on browse is "No" if even one plant shows heavy browse. Please refer to the riparian protocol for a description of heavy browse.

Sample No. _____

Summary		Yes	No	NA
Question 1.	Is the channel bed undisturbed?	☐	☐	
Question 2.	Are the channel banks intact?	☐	☐	
Question 3.	Are channel LWD processes intact?	☐	☐	
Question 4.	Is the channel morphology intact?	☐	☐	☐
Question 5.	Are all aspects of the aquatic habitat sufficiently connected to allow for normal, unimpeded movements of fish, organic debris, and sediments?	☐	☐	
Question 6.	Does the stream support a good diversity of fish cover attributes?	☐	☐	☐
Question 7.	Does the amount of moss present on the substrates indicate a stable and productive system?	☐	☐	☐
Question 8.	Has the introduction of fine sediments been minimized?	☐	☐	☐
Question 9.	Does the stream support a diversity of aquatic invertebrates?	☐	☐	☐
Question 10.	Has the vegetation retained in the RMA been sufficiently protected from windthrow?	☐	☐	
Question 11.	Has the amount of bare erodible ground or soil compaction in the riparian area been minimized?	☐	☐	
Question 12.	Has sufficient vegetation been retained to maintain an adequate root network or LWD supply?	☐	☐	
Question 13.	Has sufficient vegetation been retained to provide shade and reduce bank microclimate change?	☐	☐	
Question 14.	Have the number of disturbance-increaser plants, noxious weeds and/or invasive plant species present been limited to a satisfactory level?	☐	☐	
Question 15.	Is the riparian vegetation within the first 10m from the edge of the stream generally characteristic of what the healthy unmanaged riparian plant community would normally be along the reach?	☐	☐	

of "Yes" answers: _____ + # of "No" answers: _____ + # of "NA" answers: _____ = Total # of answers: _____

Conclusion on Functioning Condition (check one):

- ☐ Properly Functioning (0-2 "No's")
- ☐ Functioning but at Risk (3-4 "No's")
- ☐ Functioning but at High Risk (5-6 "No's")
- ☐ Not Properly Functioning (>6 "No's")

List the questions that had a "No" answer below, and check what you believe was the main reason(s) for the problem. A "No" answer due to natural causes would include any natural events such as insects, fires, floods, slides, diseases etc. that were clearly unrelated to man's activities in the stream or adjacent riparian area. Check Logging, Livestock, Roads or Other Manmade as a cause if these factors directly affected the stream or riparian area assessed in this evaluation. Check Upstream Factors if the "No" answer was the result of some event or condition that occurred upstream, regardless if it was manmade or natural.

"No" answer questions	Causes of "No" Answers						
	Current Logging	Old Logging	Animal Disturbance	Roads	Other Impacts	Natural Impacts	Unknown Upstream
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐

Sample No. _____

Specific Causes of "No" Answers and Proximity to Reach of Each Cause.

Check off each Question with a "No" answer, then beside each main specific cause that applies, record a 1 for within the reach, 2 for above the reach, and 3 for within and above the reach

Cause of "No" Answers	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐	10 ☐	11 ☐	12 ☐	13 ☐	14 ☐	15 ☐
OLD LOGGING															
Low retention															
Forest structure issues															
Other															
CURRENT LOGGING															
Low retention															
Falling and yarding															
Machine disturbance															
Windthrow															
Mass wasting															
Stream diversions															
Road or debris blockages															
Altered watershed hydrology															
Other															
ROADS, TRAILS															
Encroachment on RMA															
Running surface erosion															
Other ROW erosion															
Mass wasting															
Crossing structure															
Ditch water delivery															
Other															
ANIMAL DISTURBANCE															
Livestock															
Beavers															
Other ungulates															
Humans															
Other															
NATURAL IMPACTS															
High sediment levels															
Fire															
Insects															
Diseases															
Wind															
Mass wasting															
Floods															
Other															
OTHER IMPACTS															
Non-logging roads, trails															
Utility corridors															
Recreation															
Agriculture															
Mining															
Urban, industry															
Firewood cutting															
Silviculture treatments															
Other															
UNKNOWN UPSTREAM															

Sample No. _____

Final Comments

	Yes	No
Does the conclusion on functioning condition generally agree with your personal opinion on the functioning condition of this stream reach? If not, please describe why not.	☐	☐
All "No" answers are weighted equally. Were any specific problems identified that affected the assessment more than others?	☐	☐
Were there any notable management practices prescribed and implemented on this stream? If so, please describe and comment on their effectiveness.	☐	☐
Is the sample reach a potential "Reference Stream" with no impacts in the reach due to human activity beside the reach and little human related activity in the watershed area upstream of the sample reach?	☐	☐
Were any invasive plants observed? Remember to complete an Invasive Plant field card if the answer is "Yes".	☐	☐
Was there WQ sampling completed at any upstream crossings? If so, please enter sample ID #'s.	☐	☐

Draw a map of the stream and illustrate the retention and location of other significant features present (e.g. roads, crossings, slides). Also mark the stream assessed on a map in a way that will be legible when scanned.