



LIC _____ CP _____ BLK _____ Date _____ Evaluator _____

Soil opening identification

Opening # _____ Opening ID _____

License # _____ CP# _____ Cutblock _____

Evaluator _____ Evaluation Date YYYY/MM/DD

Licensee _____

District _____ Harvest Completion Date YYYY/MM/DD

Net Area to be Reforested (NAR) (ha) _____ Disturbance Gross Area (ha) _____

No UTM Signal Available

Zone _____ Easting _____ Northing _____

Location Description _____

1. Estimating lost soil productivity due to access construction

(Note: Identify each feature being measured or surveyed with a unique number.)

1.1 Delineate and measure cutblock area in un-rehabilitated roads, landings, and borrow pits.

Structure Type	Structure #	Area (ha)	Description	% of Cutblock
				X
				X
				X
				X
				X

1.2 Delineate and measure cutblock area in rehabilitated access and effectiveness of rehabilitation treatments. (Use method described in table 1.)

Structure Type	Structure #	Area (ha)	Description	ER	% of Cutblock
					X
					X
					X
					X



Table 1. Defining ER Score

Effectiveness of rehabilitation treatments on access.

ER (effectiveness of rehab) ranges from 0 (unproductive ground) to 1 (fully restored soil conditions), and is determined according to the following method [partial scores are possible], where: $ER = a+b+c$

- a) Was the rehabilitated area decompacted as necessary? Determine this by digging. Look for uncompacted running surface which may appear as a remaining "midroad ridge" along a road or trail. Assign a score from 0 to 0.5 max and make any comments here, noting which feature the comment refers to:
- b) Was topsoil and/or burnpile debris, and woody debris re-spread with minimal mixing of subsoil? Dig to determine if the texture and organic matter content are similar to undisturbed soils on similar sites in the area, or if it is good rooting medium that is organic rich but free of voids and buried coarse woody debris. Assign a score from 0 to 0.3 max and make any comments here, noting which feature the comment refers to:
- c) Has the site been reforested, or is there a reasonable likelihood that natural revegetation and reforestation will occur as a result of ingress from the surrounding area? Assign a score from 0 to 0.2 max and make any comments here, noting which feature the comment refers to:

1.3 Questions

(Note: If the answer to any of these questions is yes, provide a description, and indicate the feature on the map.)

- | | | | | |
|-------------|---|------------------------------|-----------------------------|-------------------------------------|
| 1.3a | Does the total amount of permanent access seem excessive given the site conditions? | YES <input type="checkbox"/> | NO <input type="checkbox"/> | DON'T KNOW <input type="checkbox"/> |
| 1.3b | Are there portions of the un-rehabilitated access that should have been considered and treated as temporary access (i.e it should have been rehabilitated)? | YES <input type="checkbox"/> | NO <input type="checkbox"/> | DON'T KNOW <input type="checkbox"/> |
| 1.3c | Do any individual access structures seem larger than necessary? | YES <input type="checkbox"/> | NO <input type="checkbox"/> | DON'T KNOW <input type="checkbox"/> |
| 1.3d | Were pre-existing structures, such as old roads and trails, present in the NAR? | YES <input type="checkbox"/> | NO <input type="checkbox"/> | DON'T KNOW <input type="checkbox"/> |
| 1.3e | Were pre-existing structures not used where it appears that they should have been? | YES <input type="checkbox"/> | NO <input type="checkbox"/> | DON'T KNOW <input type="checkbox"/> |
| 1.3f | Are there rehabilitated areas where drainage control was not included in the rehabilitation treatments, but should have been? | YES <input type="checkbox"/> | NO <input type="checkbox"/> | DON'T KNOW <input type="checkbox"/> |

Comments



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2. Estimating in-block area affected or potentially affected by landslides, drainage diversion or significant erosion from roads, landings or trails
(Note: In this table, identify each feature being measured or surveyed with a unique number.)

2.1 Delineate and measure cutblock areas in new failures outside the roads, landings or trail prism. (Include dry ravel.)

Failure #	Description	Affected Area (ha)

2.2 Delineate and measure cutblock areas that could be affected by road, landing or trail construction or maintenance practices. (e.g., Roadcuts through material and/or slope conditions, known to have stability problems in the local area, often including clay textured materials on wet slope locations.)

Failure #	Description	Area Potentially Affected (ha)

2.3 Delineate and measure areas of water diversion, or potential water diversion, onto slopes, channels or structures that normally would not receive that much water. (e.g., Evidence of overland flow. Describe potential concerns regarding stability and/or erosion that may be expected to occur.)

Failure #	Description	Area (ha)



2.4 Delineate and measure eroded areas, or those at significant risk of erosion in the cutblock. *(Such areas are typically devoid of vegetation. Do not count deposits.)*

Eroded Area #	Description	Affected Area (ha)

2.5 Questions

(Note: If the answer to any of these questions is yes, provide a description, and indicate the feature on the map.)

2.5a Have harvesting practices or access construction led to or significantly increased the potential for mass movement or soil erosion? YES NO DON'T KNOW

If YES, explain: _____

2.5b Are there any potential or existing off-site effects related to mass movement, erosion or sedimentation evident during your field or office review? YES NO DON'T KNOW

If YES, explain: _____

3. Estimating percent of the NAR area affected by disturbance to natural drainage patterns as a result of forestry operations

(Note: In this table, identify each feature being measured or surveyed with a unique number.)

3.1 Delineate and measure cutblock areas experiencing, or at risk of experiencing, altered drainage or standing water as a result of construction of roads, landings, trails, or inordinate soil disturbance. *(e.g., Areas with evidence of saturated soils, drowned vegetation or regeneration problems due to raised water table, interception of ephemeral streams or seeps by ditchlines; or areas expected to experience these problems due to evident drainage problems.)*

Feature #	Description	Affected Area (ha)

3.2 Questions

(Note: If the answer to any of these questions is yes, provide a description, and indicate the feature on the map.)

3.2a Are there areas where measures should have been taken to restore natural drainage patterns, but they were not carried out? *(e.g., Waterbarring and cross ditching as appropriate on various structures, ditching to control water across the back of landings.)* YES NO DON'T KNOW

If YES, explain: _____



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4. Description of the soil disturbance hazards, areas affected by dispersed soil disturbance, potentially inordinate disturbance, and roadside work areas in the NAR (Note: In this section, identify each area being measured or surveyed with a unique number. Transects should be designated T1, T2 etc.)

4.1 Soil disturbance hazards for each SU. (For most sensitive portions of cutblock/SU. Attach forms FS711B-1 indicating your checking.)

Source	SU	Hazard				
		Compaction	Displacement	Forest Floor Displacement	Erosion	Mass Wasting

4.2 Delineate and measure areas of potential inordinate disturbance.¹ (For areas greater than 0.2 ha, carry out a transect survey with 50 or more points. Attach FS879 for each transect, use disturbance type codes², circle points with forest floor displaced.)

SU	Area #	Area (ha)	% of Cutblock	Total Points	Total Disturbance %	Counted Disturbance %	Description
			X		X	X	
			X		X	X	
			X		X	X	
			X		X	X	

¹ Areas larger than 0.2 ha with 30% or higher disturbance or smaller area if there is a high risk to other FRPA values.

² Disturbance type codes:

- | | | | |
|-----------|---------------------------------|----------|---|
| Ts | Wheel or track ruts 5-15cm deep | S | Wide scalps |
| Td | Wheel or track ruts > 15cm deep | R | Unrehabilitated excavated and bladed trail |
| E | Repeated machine traffic | Y | Unrehabilitated corduroy trail |
| G | Deep gouges | A | Unrehabilitated compacted area |
| L | Long gouges | O | Other scalps and gouges not meeting above types |
| W | Wide gouges | r | Rehabilitated TAS and compacted areas |
| V | Very wide scalps | M | Other machine traffic types |



4.3 Transects for dispersed disturbance in remainder of each SU. (Attach FS879 for each transect, use disturbance type codes, circle points with forest floor displaced.)

SU	Total Points	Total disturbance %	Counted disturbance %	Description

4.4 Delineate and measure disturbance associated with roadside work areas. (The edges of roadside work areas are typically found where the heavy disturbance or woody debris drops off substantially. Attach FS879 for each transect, use disturbance type codes, circle points with forest floor displaced.)

SU	Total RWA Area (ha)	% of Cutblock	Total Points	Total disturbance %	Counted disturbance %	Description

4.5 Delineate and measure areas of soil rehabilitation within the NAR, and determine the effectiveness of rehabilitation treatments (ER). (Use the method described in Table 1.)

SU	Area #	Rehabilitation Area (ha)	ER	% of Non-Rehabilitation	Description



4.7 Questions

(Note: If the answer to any of these questions is yes, provide a description, and indicate the feature on the map.)

- | | | | | |
|-------------|--|------------------------------|-----------------------------|-------------------------------------|
| 4.7a | Do any of the sensitivity ratings appear to have been incorrectly determined in the planning stage? | YES <input type="checkbox"/> | NO <input type="checkbox"/> | DON'T KNOW <input type="checkbox"/> |
| 4.7b | Do any of the SU's appear to have been mapped incorrectly, or are there complexes that have not been recognized? | YES <input type="checkbox"/> | NO <input type="checkbox"/> | DON'T KNOW <input type="checkbox"/> |
| 4.7c | Were any of the roadside work areas wider than necessary for the harvesting system used? | YES <input type="checkbox"/> | NO <input type="checkbox"/> | DON'T KNOW <input type="checkbox"/> |
| 4.7d | Does there appear to be more soil disturbance within the roadside work areas than necessary? If so, discuss the relative trade-offs between the size and severity of disturbance within roadside work areas versus the use of conventional landings. | YES <input type="checkbox"/> | NO <input type="checkbox"/> | DON'T KNOW <input type="checkbox"/> |
| 4.7e | Considering a range of factors, including safety and efficiency, does the amount of area occupied by skid trails and temporary access structures and/or the disturbance associated with these structures appear excessive? | YES <input type="checkbox"/> | NO <input type="checkbox"/> | DON'T KNOW <input type="checkbox"/> |
| 4.7f | Were there features smaller than 0.2 ha, or other areas where soil disturbance was not recognized in the survey, but appeared to be a concern. | YES <input type="checkbox"/> | NO <input type="checkbox"/> | DON'T KNOW <input type="checkbox"/> |
| 4.7g | Are there disturbance types present that should have been rehabilitated but the rehabilitation treatments were not carried out? | YES <input type="checkbox"/> | NO <input type="checkbox"/> | DON'T KNOW <input type="checkbox"/> |

Comments



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5. Fine Organic Matter

	Value (1, 3, 5, or 7)		Value (1, 3, 5, or 7)
Fuel depth		Fuel size	
Horizontal fuel arrangement		Vertical fuel arrangement	

5.1 Questions

(Note: If the answer to any of these questions is yes, provide a description, and indicate the feature on the map.)

5.1a Does it appear that measures to conserve fine organic matter should have been carried out on the site, but such measures were either neglected or ineffective? YES NO DON'T KNOW

Table 2. Fine Organic Matter Assessment

Fuel Loading Factors	Site Characteristics and Point Rating			
Fuel depth	< 20 1	20-40 cm 3	40-60 cm 5	> 60 cm 7
Fuel size (% of all fuels that are < 7.1 cm)	< 15% 1	15-30% 3	31-45% 5	> 45% 7
Horizontal fuel arrangement (% of area, fine fuels < 7.1 cm)	Fuel coverage < 20% 1	Fuel coverage 20-50% 3	Fuel coverage 51-80% 5	Fuel coverage > 80% 7
Vertical fuel arrangement (fine fuels < 7.1 cm)	Mixed with soil 1	On ground 3	Partially elevated 5	Mostly elevated 7

The post-harvesting assessment form should be filled out in field while walking through the block. Care should be taken to include all of the fuel types and/or treatment units so that the estimate is representative of the complete block.

Comments



6. Professional Opinion/Comments

6.1 Questions

- 6.1a** In your professional opinion, to what extent did the practices on this block maintain soil productivity and hydrologic function, given the opportunities that were likely available?

POORLY
MODERATELY
WELL
VERY WELL
DON'T KNOW

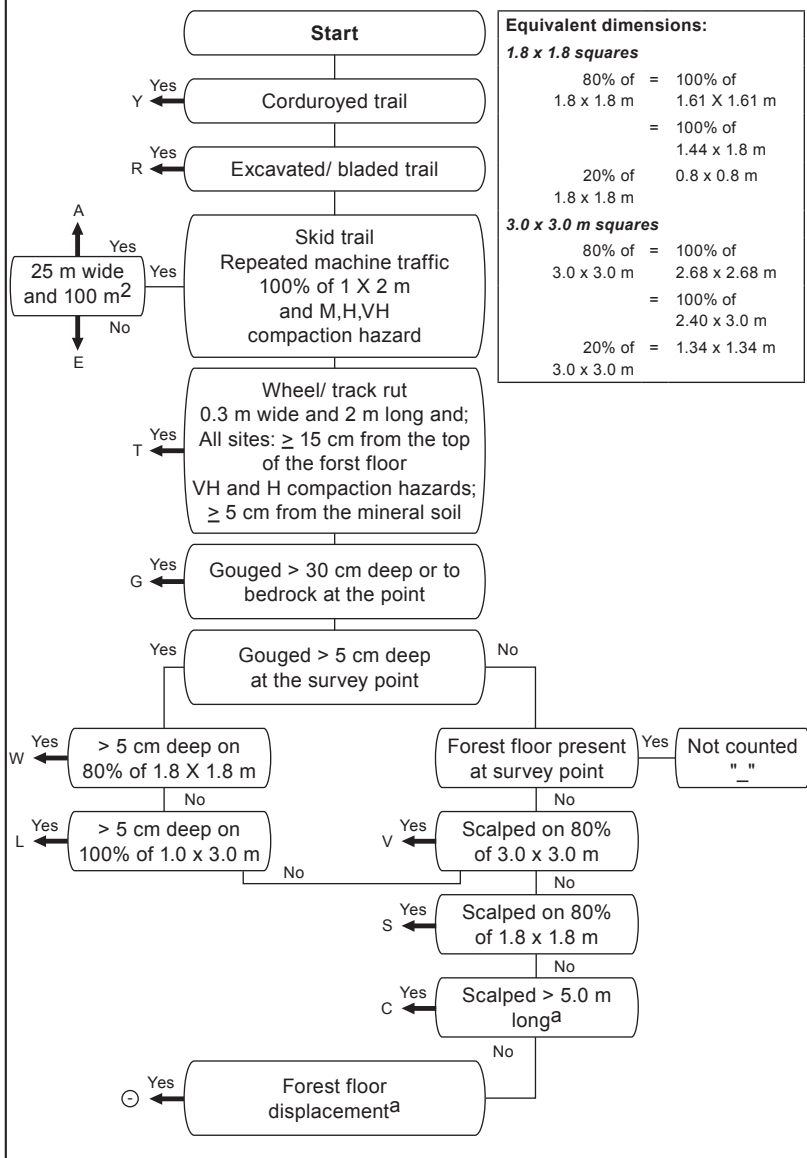
Rationale?

- 6.1b** Are there issues on this block that are of concern for the other FRPA Resource Values?

Notes



Appendix 1. Flow chart for assessment of soil disturbance survey points





Appendix 2. Counted soil disturbance categories and recommended limits according to hazard ratings

Soil disturbance hazard ^a	Soil sensitivity rating	Categories counted in allowable soil disturbance	Allowable soil disturbance (% NAR)	
<u>Coast and Interior</u>				
Assessment of soil hazards not required		Always + S + E + T5 + A	5	
Likelihood of landslides	M, H	Always + S	5	
Soil erosion	VH	Always + S	5	
Soil displacement	VH	Always + S	5	
Soil compaction	VH	Always + S + E + T5 + A	5	
			<u>Coast</u>	<u>Interior</u>
Soil erosion	H	Always	5	10
Soil erosion	M, L	Always	5	10
Soil displacement	H, M, L	Always	5	10
Soil compaction	H	Always	5	10
Soil compaction	M	Always	5	10
Soil compaction	L	Always	5	10
Likelihood of landslides	L	Always	5	10

^a Assessing the hazards for soil compaction, soil displacement, and soil erosion need not be done if the harvesting method is cable or aerial.

^b Under the “Categories counted” column, the term “Always” includes soil disturbance that is always counted, namely excavated or bladed trails, corduroyed trails, 15-cm-deep ruts, deep gouges, long gouges, wide gouges, very wide scalps. The meaning of the other symbols are: “S”: wide scalps; “T5”: 5-cm-deep ruts; “E”: repeated machine traffic; and “A”: compacted areas.

Combine the categories measured for different hazard ratings if that will result in more categories being counted or a lower allowable disturbance limit. For example, on a site with a Very High compaction hazard and a High surface erosion hazard, the categories counted are “Always + S + E + A + T5,” the soil disturbance limit would be 5%.



Appendix 3. Field data checklist	
Description	Survey Done
Length and width estimates for typical roads and landings	<input type="checkbox"/>
Size, location and rehabilitation status of rehabilitated structures	<input type="checkbox"/>
Structures built through materials unsuitable for rehab	<input type="checkbox"/>
Landslides (area)	<input type="checkbox"/>
Active erosion	<input type="checkbox"/>
Areas with altered drainage (within NAR and resulting from access)	<input type="checkbox"/>
Areas with inordinate soil disturbance	<input type="checkbox"/>
Area and soil disturbance within roadside work areas	<input type="checkbox"/>
Transects for dispersed soil disturbance (all SU's)*	<input type="checkbox"/>
Assess fine organic matter	<input type="checkbox"/>
Other areas or features of interest	<input type="checkbox"/>
Check soil disturbance hazards and Standards Units (all SU's)	<input type="checkbox"/>

*other features may require survey when present