Leonie and Skowootum Creek Watershed

Overview Assessment

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1.0 INTRODUCTION
The following is an overview assessment of Leonie Creek and Skowootum Creek Community Watersheds and the Residual area along the east shore of the Thompson River. The intent of the assessment is to identify any areas of concern for potential watershed restoration works.

The Skowootum and Leonie Creek Community Watersheds are located north of Barriere which is located 65 km North of Kamloops, BC. The Skowootum Watershed is comprised of 1178.6 ha of area and the Leonie Watershed of 3731.4 ha of area.

2.0 METHODOLOGY
The field assessment took place in September, 2006. The primary objectives of the field assessments were to identify and record existing and potential problems along roads, landings, skid trails and fireguards. Prior to the field work being done aerial photos, old reports and 2004 ortho photos were studied. A field supervisor at Tolko Industries (Casey Macaulay) was consulted as well.

The forest and public roads were accessed by driving, walking or ATV. Each road was assessed and selected sites had a partial risk assessments completed. This risk was assigned based on the potential for a hazard to occur and the consequences should that hazard occur. These risks were based mainly on erosion and slope failures that were observed. Risk ratings were based on the suggested guidelines in the Watershed Restoration Technical Circular No.3: Resource Road Rehabilitation Handbook: Planning and Implementation Guidelines, prepared by the BC Ministry of Environment, Lands and Parks and the Ministry of Forests, (G.D. Moore, 1984).

2.1 Risk Ratings
During this assessment, each road was assigned a risk rating based on type and extent of problems identified. These ratings were developed from the Watershed Restoration Technical Circular #3.

2.1.1 No Risk
Roads are frequently located on flat ground with sufficient drainage. With older roads there is plenty of re-vegetation on the road surface.

2.1.2 Low Risk
Roads are stable and show problems that pose a minimal risk to the surrounding environment. Roads may need to be upgraded to meet with the Forest Practices Code of British Columbia.

2.1.3 Moderate Risk
Roads do not pose an immediate and/or high potential threat to cause damage to forest resources; however they can display problems that could escalate in the immediate future. A watershed restoration prescription will be required to develop a pro-active road upgrade and deactivation plan. This plan will identify problem road areas and provide corrections before they become high or very high risk sections.
2.1.4 High Risk
These roads pose an immediate and significant threat to resource values within the watershed. The road will require a watershed restoration prescription.

2.1.5 Very High Risk
The requirement for a road to be placed in this category is the potential for loss of life and/or damage to private property or public utilities. A watershed restoration prescription is needed.

2.2 Field Assessment
The survey identified the following problems within each road section:

- plugged ditches/no ditches,
- no ditch blocks,
- ditchwater flowing directly into streams,
- insufficient cross drain culverts,
- undersized cross drain culverts,
- natural drainage blocked or diverted,
- ditch line/road surface erosion,
- unstable/eroding cut fill slopes,
- washout of road or bridge,
- damaged/unsafe bridge,
- landslide tracts,
- tension cracks on road,
- fill/debris in channels,
- beaver dams,
- cattle usage,
- organic material supporting side cast/fill,
- grader berm,
- over-steepened fill slope, and
- no vegetation.

The following information was collected on the landslide which was significant enough to warrant an overview assessment:

- approximate date of failure,
- date of assessment,
- area (Ha),
- type of failure,
- initiation point,
- surface material,
- sediment delivery,
- current revegetation,
- detailed assessment needed,
- rehabilitation, methods and approach, and
- rehabilitation, priority and rationale.
3.0 RESULTS
The majority of the sections surveyed were considered low to moderate risk. Only site 1 was provided a high risk rating. The field activities are summarized in Table 1 below.

### Table 1. Watershed Risk Assessment

<table>
<thead>
<tr>
<th>Site</th>
<th>Watershed</th>
<th>Risk</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Leonie</td>
<td>High</td>
<td>This site includes a large landslide that has been moving for several decades. The slide is coupled to the mainstem of Leonie creek. This slide is beyond the scope of restoration works. There have been several previous assessments completed on this slide.</td>
</tr>
<tr>
<td>2</td>
<td>Leonie</td>
<td>Low</td>
<td>Perched culvert (possible fish barrier).</td>
</tr>
<tr>
<td>3</td>
<td>Leonie</td>
<td>Low</td>
<td>This site used to be a concern in 1996. However since this time the road was deactivated and a new road was built further away from creek.</td>
</tr>
<tr>
<td>4</td>
<td>Leonie</td>
<td>Low</td>
<td>Dry creek bed at crossing. Well vegetated stable banks. Cattle access into the creek. Bridge at this site.</td>
</tr>
<tr>
<td>5</td>
<td>Leonie</td>
<td>n/a</td>
<td>No road access to the site.</td>
</tr>
<tr>
<td>6</td>
<td>Leonie</td>
<td>Low to Moderate</td>
<td>Some livestock damage to the bank of the creek. Sedimentation on the fillslope.</td>
</tr>
<tr>
<td>6A</td>
<td>Leonie</td>
<td>Low</td>
<td>Bridge in great shape. Lots of algae in creek. Minimal disturbance.</td>
</tr>
<tr>
<td>7</td>
<td>East of Leonie</td>
<td>Moderate</td>
<td>Collapsed culvert at outtake. Sediment delivery in peak flows. Culvert needs to be repaired or removed.</td>
</tr>
<tr>
<td>8</td>
<td>Leonie</td>
<td>Low</td>
<td>Log bridge in good condition. Upstream there is historic riparian logging that occurred several decades ago. This resulted in some sedimentation into the creek. No restoration activities are recommended at this time.</td>
</tr>
<tr>
<td>9</td>
<td>Skowootum</td>
<td>Low to Moderate</td>
<td>Upgraded crossing. Newer construction. Non-vegetative banks that need vegetative cover to minimize erosion.</td>
</tr>
<tr>
<td>10</td>
<td>Skowootum</td>
<td>Low</td>
<td>Perched culvert if there are resident fish in upper Skowootum. Livestock use the creek at this site.</td>
</tr>
<tr>
<td>11</td>
<td>Skowootum</td>
<td>Low-Moderate</td>
<td>Previously deactivated crossing.</td>
</tr>
<tr>
<td>12</td>
<td>Leonie</td>
<td>Low</td>
<td>Well vegetated, stable crossing.</td>
</tr>
<tr>
<td>13</td>
<td>Leonie</td>
<td>Low</td>
<td>Well vegetated, stable crossing.</td>
</tr>
<tr>
<td>14</td>
<td>Residual</td>
<td>Low</td>
<td>There were 2 crossings reviewed at this site. The first is along the main road near the lake. A small wooden bridge over the creek exists and is not contributing to disturbance in the channel. The upper crossing was about 100 metres upstream and includes a functioning ford crossing. Just upstream of this crossing is a fenced water reservoir.</td>
</tr>
</tbody>
</table>

The long profiles for the main stem of both Skowootum and Leonie Creek were prepared and are included within. The long profiles indicate the Skowootum Creek has a gentle to moderate terrain in the mid to upper watershed and steep terrain midslope that is just above the North Thompson river floodplain. There were no lake or other large depositional areas identified on the long profile. The majority of the forestry activities have occurred in the mid and upper watershed.
The long profile of Leonie creek indicates a more undulating slope with steep terrain in the upper and mid watershed. The lake in the mid watershed is dammed and will function as a depositional area for any sediment generated in the upper watershed.

4.0 CONCLUSIONS
The overview assessment did not identify any sites that are a high risk and need immediate watershed restoration activities. Site 7 needs to have the damaged culvert repaired or removed. The large slide at site 1 has been moving for several decades. Since the previous assessment in 1996 the landslide has continued to rotate back into the hillslope. The main road has been relocated away from the slide to ensure it does not influence the conditions.

At site 3 the main access road has been deactivated and relocated away from the creek. This site was previously a concern and is now corrected with the completion of these works.

There are no roads proposed for deactivation based on the completion of this project.
5.0 LITERATURE CITED


Appendix A

Longitudinal Profile of Skowootum Creek
Appendix B

Longitudinal Profile of Leonie Creek

Horizontal Distance (Km)

Elevation (m)
Appendix C – Site photographs