

4.2 Watershed Integrity Indicator 1. Terrain Stability/Sediment Transport Capability Mapping

4.2.1 Background:

Weiland and Maloney (1997) state that the following terrain types have moderate to high potential to deliver sediment into associated waterbodies, especially if disturbed by harvest or road building:

- Loamy, sandy or silty soils with gentle slopes (<15%) and a high watertable
- Long uniform slopes (>15%) with loamy soils and moderate [or poorer] drainage
- Steep gulleys and steep streamside scarp slopes of a variety of materials, including glacial till over bedrock.

These terrain types are mapped as moderate to very high surface erosion potential (through sediment transfer potential mapping), and/or as unstable or potentially unstable terrain (through terrain stability mapping).

Forest development within these terrain types has the potential to affect natural or characteristic levels of each of the watershed integrity elements listed in the Introduction. Completion of this mapping across the TSA is thus an obvious step in identifying potential high hazard sediment sources prior to planned forest development within those areas.

4.2.2 Measure:

Progress towards full completion of Terrain Stability, and Sediment Transport Capability mapping for Bulkley TSA

4.2.3 Results and Discussion:

Figure 17 shows current progress towards completion of reconnaissance-level terrain stability and sediment transfer potential mapping¹. The figure shows that a significant proportion of the District has been mapped: 47% of total area and 61% of area in the current Timber Harvesting Landbase.

If [forested areas with slopes greater than 60%] is used as a proxy measure to represent high hazard sediment sources, then approximately 92% of sources have either been mapped or are contained within no-harvest areas (i.e. parks, ecoreserves, LRMP SMZ1 zones, and Core Ecosystem areas).

¹Section 12 of the Operational Planning Regulation requires completion of terrain stability hazard/soil erosion potential mapping prior to approval of harvesting/road building activities in community watersheds

Section 17 requires completion of terrain stability field assessment for areas with a high likelihood of landslides, unstable terrain, or a slope gradient greater than 60%, prior to approval of a Cutting Permit outside community watersheds. This presumes a need for reconnaissance-level terrain stability mapping and/or slope mapping, to identify areas at risk.

4.2.4 Data Sources:

Wilford, D. 2001. Hydrologic Integrity of Watersheds. Unpublished Ministry of Forests Report.

Weiland, I. and D. Maloney. 1997. Review of Surface Erosion Potential Ratings, Nilkitkwa Area, Bulkley TSA. Unpublished Ministry of Forests Report.

Figure 17

Extent of Reconnaissance-Level Terrain Stability Mapping

