



TERRAIN STABILITY CLASSIFICATION

| Terrain Stability Class | Likelihood of Landslide Initiation | Examples of Terrain Attributes | Management Implications |
|-------------------------|------------------------------------|--|---|
| I | Negligible | <ul style="list-style-type: none">Well-drained slopes and coarse-textured material on up to 30% slopes.Fine-textured material on <10% slopes.Floodplains, fans, organics, wetlands. | <ul style="list-style-type: none">No significant stability problems expected. |
| II | Very Low | <ul style="list-style-type: none">Well-drained, moraine, colluvial, and glaciofluvial deposits on slopes up to 40%.Imperfect to moderately drained lower and mid-slopes with moraine or fine-textured colluvial deposits on slopes up to 40%.Upland plateau areas and bedrock controlled ridges with organics, ill. colluvium, or weathered bedrock on slopes up to 30%. | <ul style="list-style-type: none">No significant stability problems expected.Minor slumping expected along road cuts.Regular road inspections should occur and periodic maintenance may be required. |
| III | Low | <ul style="list-style-type: none">Wet or fine-textured moraine deposits on 30% to 45% slopes.Gullied and moderately well-drained moraine deposits on slopes between 50% and 60%.Well-drained moraine and glaciofluvial deposits with slopes between 50% and 60%.Well-drained moraine and/or colluvial deposits complexed with minor bedrock outcrops on slopes up to 50%.Irregular, hummocky, bedrock-controlled terrain with varying drainage and slope gradients up to 75%. | <ul style="list-style-type: none">Minor problems of instability should be expected. No natural slope failures are present.Some road-induced instability or erosion may occur. Minor slumping expected along road cuts.Regular road inspections should occur and periodic maintenance may be required. Effective drainage should be maintained.Road construction and/or harvesting may cause sidewall sloughing in gullied terrain.Detailed terrain stability field assessment by a qualified terrain stability specialist is usually not required, but sensitive microsites may require review. |
| IV _A | Moderate to High for road induced | <ul style="list-style-type: none">Wet or fine-textured moraine deposits on 45% to 80% slopes.Moderately well-drained moraine, glaciofluvial deposits, and fine-textured colluvium on 50% to 70% slopes.Well-drained, uniform moraine and glaciofluvial deposits and fine-textured colluvium on 55% to 70% slopes.Well-drained, shallow moraine and/or colluvial deposits complexed with minor bedrock outcrops on slopes up to 75%. | <ul style="list-style-type: none">Similar to Class III terrain if harvesting only.Similar to Class IV terrain with conventional road construction.Special construction techniques, regular inspection and maintenance, and permanent revegetation are usually recommended.Detailed terrain stability field assessment by qualified terrain stability specialist is required for development of roads and excavated trails. |
| IV _B | Low for harvesting | <ul style="list-style-type: none">Historic or small-scale instability may be present.Wet or fine-textured moraine deposits on slopes with >50% slopes.Wet gully sidewalls with >50% slopes.Moderately well-drained moraine and glaciofluvial deposits and fine-textured colluvium on >70% slopes.Wet to moderately well-drained moraine and/or colluvial deposits on >70% slopes.Well-drained, uniform moraine and glaciofluvial deposits and fine-textured colluvium on >70% slopes. Little evidence of small-scale instability.Well-drained, shallow moraine and/or colluvial deposits complexed with minor bedrock outcrops on slopes >75%. | <ul style="list-style-type: none">Wet season construction and harvesting will significantly increase the potential for logging-related landslides.Special road construction techniques, regular inspection and maintenance, and permanent revegetation are usually recommended.Detailed terrain stability field assessment by qualified terrain stability specialist is required prior to development. |
| V | Moderate to High | <ul style="list-style-type: none">Wet or fine-textured moraine deposits on slopes with >50% slopes.Wet gully sidewalls with >50% slopes.Moderately well-drained moraine and glaciofluvial deposits and fine-textured colluvium on >70% slopes.Wet to moderately well-drained moraine and/or colluvial deposits on >70% slopes.Well-drained, uniform moraine and glaciofluvial deposits and fine-textured colluvium on >70% slopes. Little evidence of small-scale instability.Well-drained, shallow moraine and/or colluvial deposits complexed with minor bedrock outcrops on slopes >75%. | <ul style="list-style-type: none">Wet season construction and harvesting will significantly increase the potential for logging-related landslides.Special road construction techniques, regular inspection and maintenance, and permanent revegetation are usually recommended.Detailed terrain stability field assessment by qualified terrain stability specialist is required prior to development. |
| VI | High to Very High | <ul style="list-style-type: none">Areas where active or recurrent terrain instability is present.High degree of risk for complete destabilization with recurrent failures or evidence of significant soil creep.Gullied terrain incised in deep soil with evidence of instability on sidewalls.Active erosion or falling scarp of face and terraces, often undercut by lateral fluvial erosion.Steep and/or active in very wet slopes where small-scale instability or surface disturbance is significant. | <ul style="list-style-type: none">This type of terrain should normally be avoided during forestry development.Special road construction techniques, regular inspection and maintenance, and permanent revegetation are usually recommended.On-site supervision of road construction is often required. Detailed terrain stability field assessment by a qualified terrain stability specialist is required prior to development. |

Modified from Mapping and Assessing Terrain Stability Guidebook (Ministry of Forests 1989) and Guidelines and Standards for Terrain Mapping in British Columbia (Resource Inventory Committee, January 1998).

SOIL EROSION POTENTIAL

| Soil Erosion Potential | Typical Slope Range | Dominant Texture | Soil Drainage | Other Factors | Management Implications |
|------------------------|--|--|-------------------------------|---|--|
| Very Low (VL) | <10% | Blocky, rubble, silt, mud | Very poor to imperfect, rapid | Flat or very short slopes | <ul style="list-style-type: none">Low concern for sediment production. |
| Low (L) | 5% to 40% | Blocky, rubble, silt, mud, coarse sand, gravel | Poor to rapid | Short slopes, small catchment area | <ul style="list-style-type: none">Erosion limited to channels and stream banks.Expect minor erosion of fines from ditch lines and disturbed soils.Exercises care not to channelize water onto sensitive sites. |
| Moderate (M) | 30% to 70% on M and C, 5% to 40% on F and FG | Rubble, silt, mud, coarse sand, gravel | Imperfect to well | Moderate to long slopes with small to medium catchment area | <ul style="list-style-type: none">Expect some problems with disturbed sediments.Plan additional measures to reduce sediment production where entry into stream network is likely. |
| High (H) | >70% on M, >80% on C, 40% to 70% on F and FG | Silt, sand | Moderate to well | Long slopes, large catchment area, some gullying | <ul style="list-style-type: none">Water management is critical.Care should be taken to prevent soil erosion.Mitigative measures should be employed during road construction.Detailed site inspection by terrain or soils specialist is recommended. |
| Very High (VH) | >70% on F and FG, >80% on M | Silt, sand | Moderate to well | Long slopes, large catchment area, active gullying, active geomorphic processes | <ul style="list-style-type: none">Site disturbance should be avoided.Severe surface and gully erosion problems exist.No water should be channelized onto these sensitive sites.Disturbed sites should be rehabilitated immediately.Detailed site inspection by terrain or soils specialist is recommended. |

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POTENTIAL SEDIMENT DELIVERY FROM SURFACE EROSION SOURCES

| Risk of sediment delivery to streams | Proximity of stream channel to polygon |
|--------------------------------------|--|
| | No stream channel in or adjacent to polygon |
| | Minor stream** channel in or adjacent to polygon |
| | Major stream** channel in or adjacent to polygon |
| Very Low (VL) | Gentle to steep slope |
| Low (L) | Gentle slope |
| Moderate (M) | Moderate slope |
| High (H) | Steep slope |
| Very High (VH) | Steep slope |

* Minor streams are those perennial streams with channel widths that are less than or equal to 1.5m, or any ephemeral stream
** Major streams are perennial streams with channel widths that are greater than 1.5m.
From Mapping and Assessing Terrain Stability Guidebook (Ministry of Forests 1989).

BOUNDARY LINES AND ON-SITE SYMBOLS

| | | | |
|---------|-----------------------------|---|---|
| — | Definite polygon boundary | — | Scarp in surficial materials |
| - - - | Indefinite polygon boundary | — | Recent or recurrent landslide scar |
| | Arbitrary polygon boundary | — | Headwall scar |
| — | Study area boundary | — | Gully |
| o 10000 | Ground Observation | — | Terrain Stability Class IV _A |
| A | Visual Observation | — | Terrain Stability Class IV |
| +++++ | Meltwater channel; small | — | Terrain Stability Class V |
| | Meltwater channel; large | | |

REFERENCES

Howes, D.E. and E. Kew, 1997. "Terrain Classification System for British Columbia (rev. ed.)". MCE Manual 10, Ministry of Environment, Recreational Fisheries Branch and Ministry of Crown Lands, Surveys and Resource Mapping Branch, Victoria, BC. 80p.
Resource Inventory Committee, 1998. "Guidelines and Standards for Terrain Mapping in British Columbia". Earth Science Task Force, Surficial Geology Task Group, Victoria, BC. Forest Practices Code of BC. Mapping and Assessing Terrain Stability Guidebook, Aug. 1998. "Terrain Database Manual". Standards for Digital Terrain Data Capture in British Columbia. June 1998.
Forest Practices Code of BC. Community Watershed Guidebook. October, 1996. Standard for Digital Terrain Data Capture Errata 2005-1-18IP

DATA SOURCES

Fieldwork Date: Collected on October 21-27, 2005
Aerial photos: 2000. Colour
1:20,000 TRIM Base Maps (NAD 83)

CREDITS

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