
APPENDIX B - Geomorphology

Table 3-1. Direct and indirect potential influences of land use variables on stream channels and sediment supply.

Land Uses	Potential Impacts											
	(1) Streamflow changes (magnitude/ timing/ duration)	(2) Riparian vegetation change (composition/ density)	(3) Surface disturbance (bare ground/ compaction)	(4) Surface/ sub-surface slope hydrology	(5) Direct channel impacts that destabilize channel	(6) Clear water discharge	(7) Loss of stream buffers, surface filters, ground cover	(8) Altered sediment deposition/ supply (all sources)	(9) Excess woody debris in channel	(10) Stream power change (energy distribution)	(11) Floodplain encroachment channel confinement (lateral containment)	(12) Floodplain encroachment channel confinement (lateral containment)
Urban development	D	D	D	D	D	D	D	I	D	D	D	D
Suburban	D	D	D	D	D	D	D	D	D	D	D	D
Agricultural	D	D	D	D	D	D	D	D	D	D	D	D
Channelization	D	D	D	D	D	D	D	D	D	D	D	D
Flood control, clearing, veg. removal, dredging, levees	I	D	D	D	D	I	D	D	D	D	D	D
Reservoir storage, hydropower	D	I	I	I	D	D	I	I/D	I	D	D	D
Diversions, depletions (-) Imported (+)	D	I	I	I	D	D	I/D	I/D	I/D	D	D	D
Grading	I	D	D	D	D	D	D	D	D	D	D	D
Roads	D	D	D	D	D	I	D	D	D	D	D	D
Mining	D	D	D	D	D	D	D	D	D	D	D	D
In-situ hammer mining	D	D	D	D	D	D	D	D	D	D	D	D

* Mining has occurred in watersheds in areas but is not considered Influential.

D = Direct potential impact
 I = Indirect potential impact
 Blank = Little to no impact

Table 3-2. Relation of stream and channel variables to erosional processes.

Variables Influenced	Potential Erosional Process Impacts											
	Surface erosion	Mass erosion	Gully erosion	Streambank erosion	Channel enlargement	Aggradation	Degradation	Channel succession state	Sediment delivery efficiency			
(1) Streamflow changes (magnitude/ timing/ duration)		I	D	D	D	D	D	D	I			
(2) Riparian vegetation change (composition/ density)			D	D	D	D	D	D	I			
(3) Surface disturbance (% bare ground/ compaction)	D	I (debris torrents)	D (rills-gully)	I	I	I	I	I	D			
(4) Surface/ sub-surface slope hydrology	D	D	D	I	I	I	I	I	D			
(5) Direct channel impacts that destabilize channel			D	D	D	D	D	D	I			
(6) Clear water discharge			D	D	D	I	D	D				
(7) Loss of stream buffers, surface filters, ground cover	D		I						D			
(8) Altered dimension, pattern and profile				D	D	D	D	D				
(9) Excess sediment deposition/ supply				D	D	D	D	D				
(10) Large woody debris in-channel		D	D	D	D	D	D	D				
(11) Stream power change (energy redistribution)			D	D	D	D	D	D				
(12) Floodplain encroachment channel confinement (lateral containment)		I	I	D	D	D	D	I	D			

D = Direct potential contribution
 I = Indirect potential contribution
 Blank = Little to no influence

Worksheet 3-1. Evaluation and summary of guidance criteria for selection of sub-watershed to proceed to RRISSC or to exclude from further assessment.

Sub-watershed/watch location ID	Step 7: Surface erosion		Step 8: Mass erosion		Step 10: Streamflow change		Step 11: Channel processes		Step 12: Direct channel impacts		Step 15: Check location selected for advancement to RRISSC**
	Circle selected guidance criteria number (Table 3-3)*	Reason for exclusion	Circle selected guidance criteria number (Table 3-4)*	Reason for exclusion	Circle selected guidance criteria number (Table 3-5)*	Reason for exclusion	Circle selected guidance criteria number (Table 3-6)*	Reason for exclusion	Circle selected guidance criteria number (Table 3-7)*	Reason for exclusion	
1. MAB5	(1) (2) (3) (4)	Vegetated riparian Zn	(1) (2) (3) (4) (5)	No Slump earth flow	(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)		(1) (2)		10
2. MAB4	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)		(1) (2)		11
3. MAB3	(1) (2) (3) (4)	Vegetated riparian Zn	(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)		(1) (2)		7
4. MAB2	(1) (2) (3) (4)	Vegetated riparian Zn	(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)		(1) (2)		6
5. MAB1	(1) (2) (3) (4)	Vegetated riparian Zn	(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)		(1) (2)		6
6. Squaw 6	(1) (2) (3) (4)	No surface erosion	(1) (2) (3) (4) (5)	No Slump earth flow	(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)		(1) (2)		10
7. Squaw 5.1	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)		(1) (2)		12
8. Squaw 5	(1) (2) (3) (4)	No surface erosion	(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)		(1) (2)		6
9. Squaw 4	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)		(1) (2)		5
10. Squaw 3	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)		(1) (2)		6
11. Squaw 2	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)		(1) (2)		7
12. Squaw 1	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)		(1) (2)		9
13. Butter milk 1	(1) (2) (3) (4)	No surface erosion	(1) (2) (3) (4) (5)	No Slump earth flow	(1) (2) (3) (4) (5)	Stream flow unchanged	(1) (2) (3) (4) (5) (6)	Processes unchanged	(1) (2)		0
14. Butter milk 2	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)		(1) (2)		4
15. Butter milk 3	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)		(1) (2)		8
16.	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)		(1) (2)		

*Criteria based on overall review of the list in Tables 3-1 and 3-2.

**Locations that meet one or more selection criteria should proceed to the RRISSC assessment level.

Falls Brook
Falls Brook
Falls Brook

of Circles

Worksheet 3-1. Evaluation and summary of guidance criteria for selection of sub-watershed to proceed to RRISSC or to exclude from further assessment.

Sub-watershed/reason for location ID	Step 7: Surface erosion		Step 8: Mass erosion		Step 10: Streamflow change		Step 11: Channel processes		Step 12: Direct channel impacts		Step 15: Check location selected for advancement to RRISSC**	
	Circle selected guidance criteria number (Table 3-3)*	Reason for exclusion	Circle selected guidance criteria number (Table 3-4)*	Reason for exclusion	Circle selected guidance criteria number (Table 3-5)*	Roads	Reason for exclusion	Circle selected guidance criteria number (Table 3-6)*	Reason for exclusion	Circle selected guidance criteria number (Table 3-7)*		Reason for exclusion
1. High #1. 2	(1) (2) (3) (4)	No surface erosion	(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5)	(5)		(1) (2) (3) (4) (5) (6)		(1) (2)		//
2. High #1. 1	(1) (2) (3) (4)	↓	(1) (2) (3) (4) (5)	No slump earth flow	(1) (2) (3) (4) (5) (6)	(6)	Stream flow exchanged	(1) (2) (3) (4) (5) (6)	Processess unchanged	(1) (2)	Channel not impacted	0
3.	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)	(6)		(1) (2) (3) (4) (5) (6)		(1) (2)		
4. Trib 1	(1) (2) (3) (4)	No surface erosion	(1) (2) (3) (4) (5)	No slump earth flow	(1) (2) (3) (4) (5) (6)	(5)		(1) (2) (3) (4) (5) (6)		(1) (2)		8
5. Trib 2	(1) (2) (3) (4)	No surface erosion	(1) (2) (3) (4) (5)	No slump earth flow	(1) (2) (3) (4) (5) (6)	(5)		(1) (2) (3) (4) (5) (6)		(1) (2)		8
6.	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)	(6)		(1) (2) (3) (4) (5) (6)		(1) (2)		
7.	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)	(6)		(1) (2) (3) (4) (5) (6)		(1) (2)		
8.	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)	(6)		(1) (2) (3) (4) (5) (6)		(1) (2)		
9.	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)	(6)		(1) (2) (3) (4) (5) (6)		(1) (2)		
10.	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)	(6)		(1) (2) (3) (4) (5) (6)		(1) (2)		
11.	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)	(6)		(1) (2) (3) (4) (5) (6)		(1) (2)		
12.	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)	(6)		(1) (2) (3) (4) (5) (6)		(1) (2)		
13.	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)	(6)		(1) (2) (3) (4) (5) (6)		(1) (2)		
14.	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)	(6)		(1) (2) (3) (4) (5) (6)		(1) (2)		
15.	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)	(6)		(1) (2) (3) (4) (5) (6)		(1) (2)		
16.	(1) (2) (3) (4)		(1) (2) (3) (4) (5)		(1) (2) (3) (4) (5) (6)	(6)		(1) (2) (3) (4) (5) (6)		(1) (2)		

Glen Pl. Bk.
Glen Pl. Bk.

6.7 is avg. score

*Criteria based on overall review of the list in Tables 3-1 and 3-2.

**Locations that meet one or more selection criteria should proceed to the RRISSC assessment level.