



ATV Trail Developments Inside Protected Water Supply Areas

Clean and Safe Drinking Water Workshop 2014

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Surface Water Section

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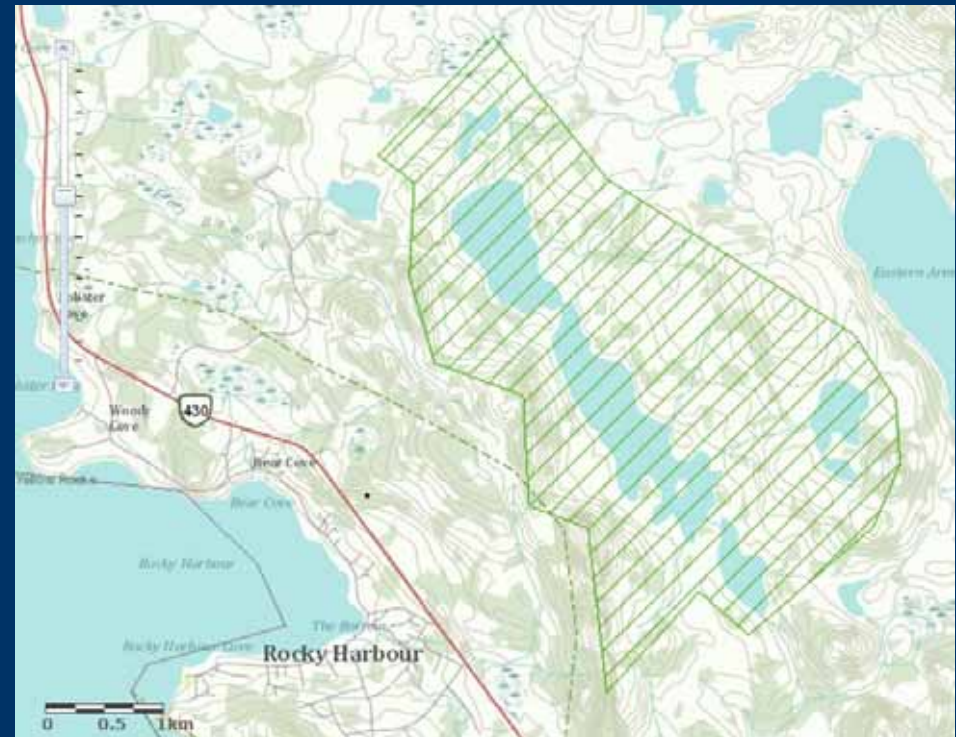
Overview

- What is a PWSA?
- Why ATV guidelines?
 - Sedimentation
 - Erosion
- Trail Design
 - Planning
 - Location
 - Drainage features
 - Water Crossings
- Surfacing
- Monitoring

What is a PWSA?

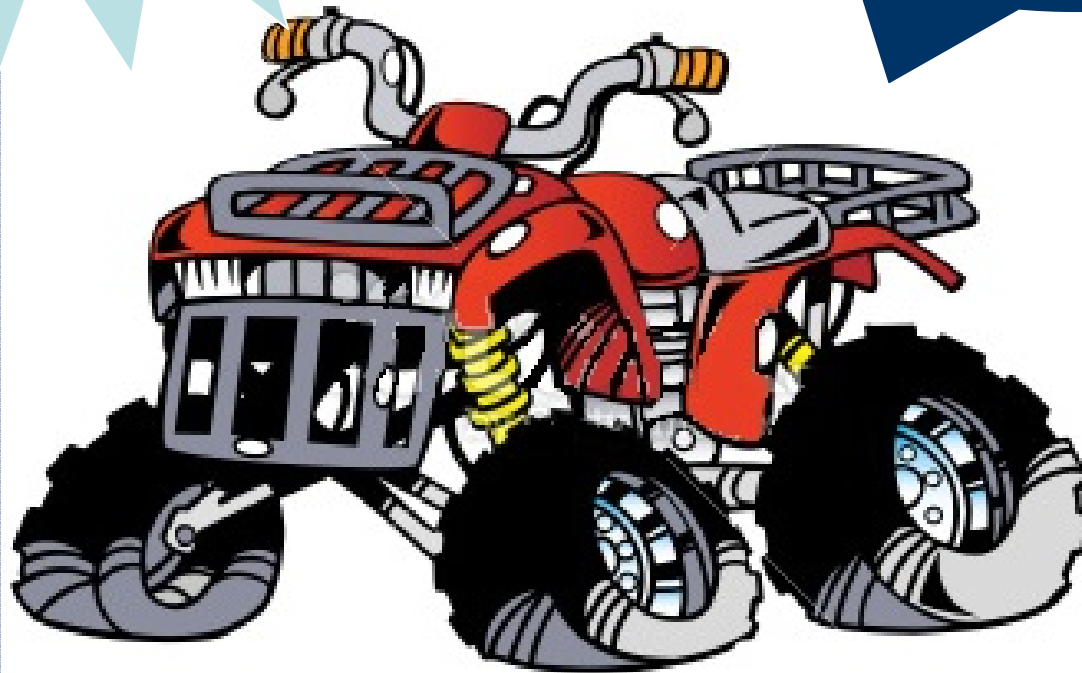
“The legislated protection of your communities source watershed area!”

- Public, community driven process
- Water Resources Act



**Most
Damage!**

**Why is
everybody
always picking
on me?**



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How does trail degradation effect me?

- Erosion
- Sedimentation



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Trail Design - Planning

Legislative Considerations

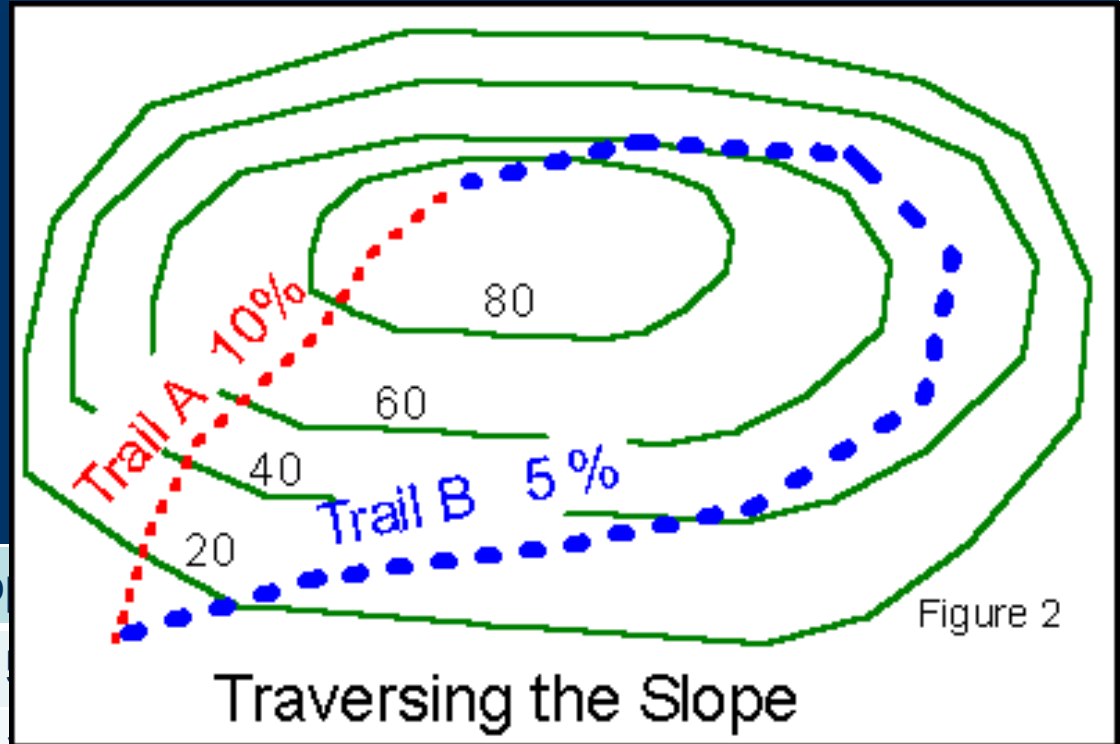
- Water Resources Act
- Environmental Protection Act
- Historic Resources Act
- Lands Act

Users? Frequency? Liability?

Trail Design - Location

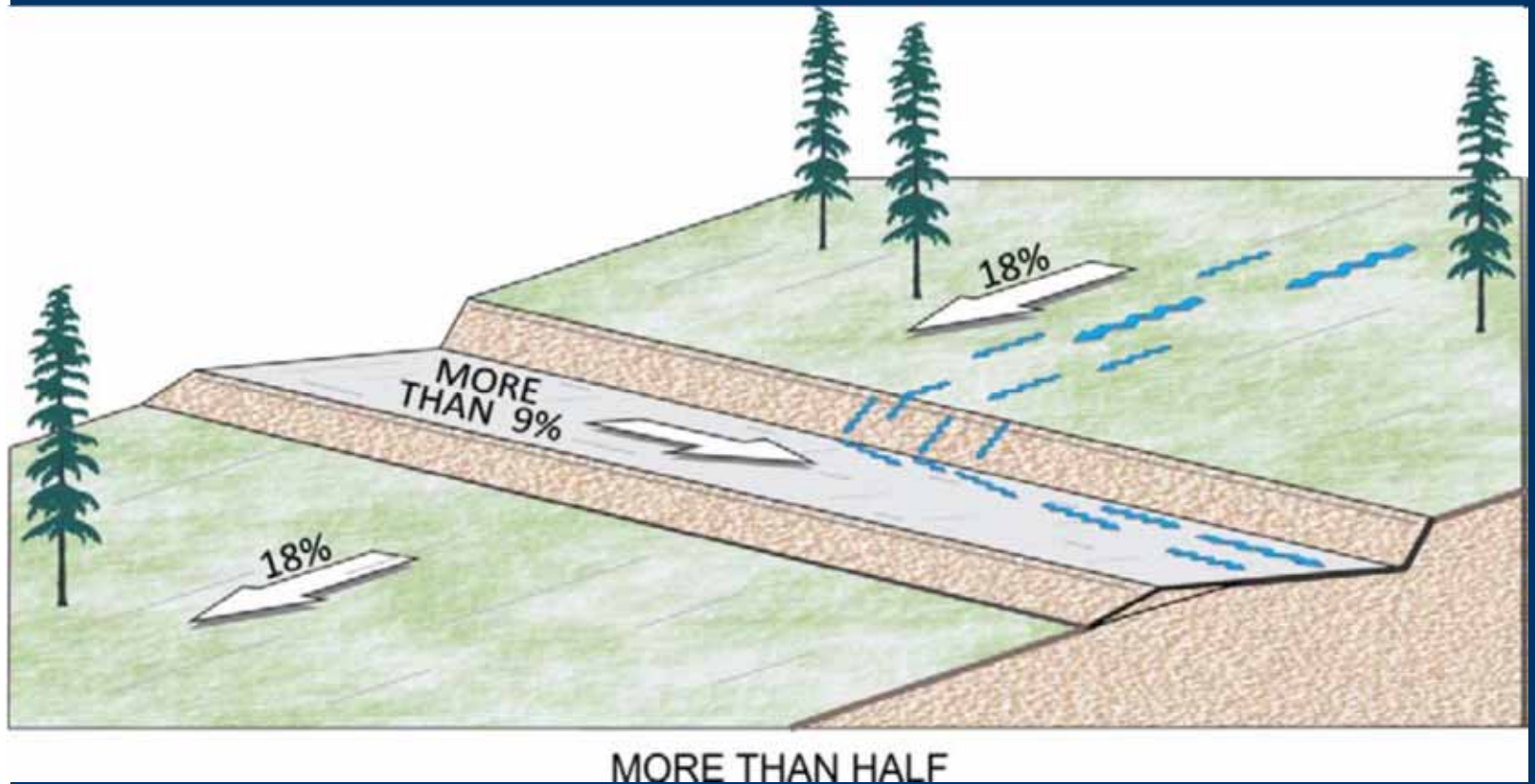
- Choose a path that minimizes erosion, soil disturbance & drainage structures

- Land Use
- Soil
- Slope



Slope Category	Slo
Flat to Mild	1 -
Moderate	6 - 12
Steep	13 - 25

The 'Half Rule'



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Drainage Features

Natural

- Outslopes
- Grade Reversals
 - Drain Dips

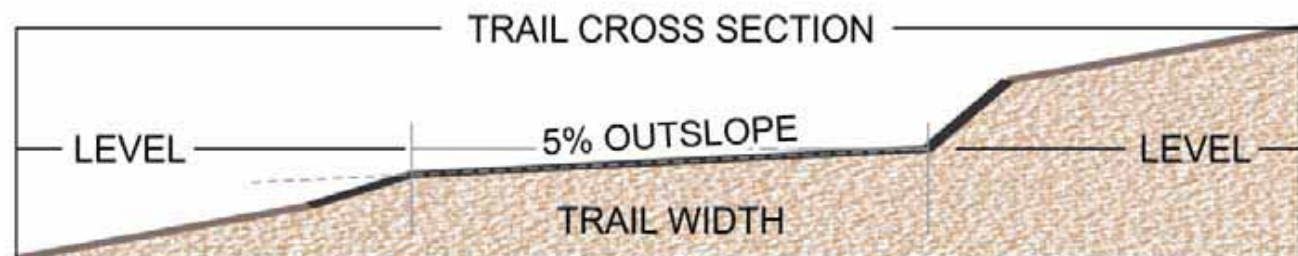
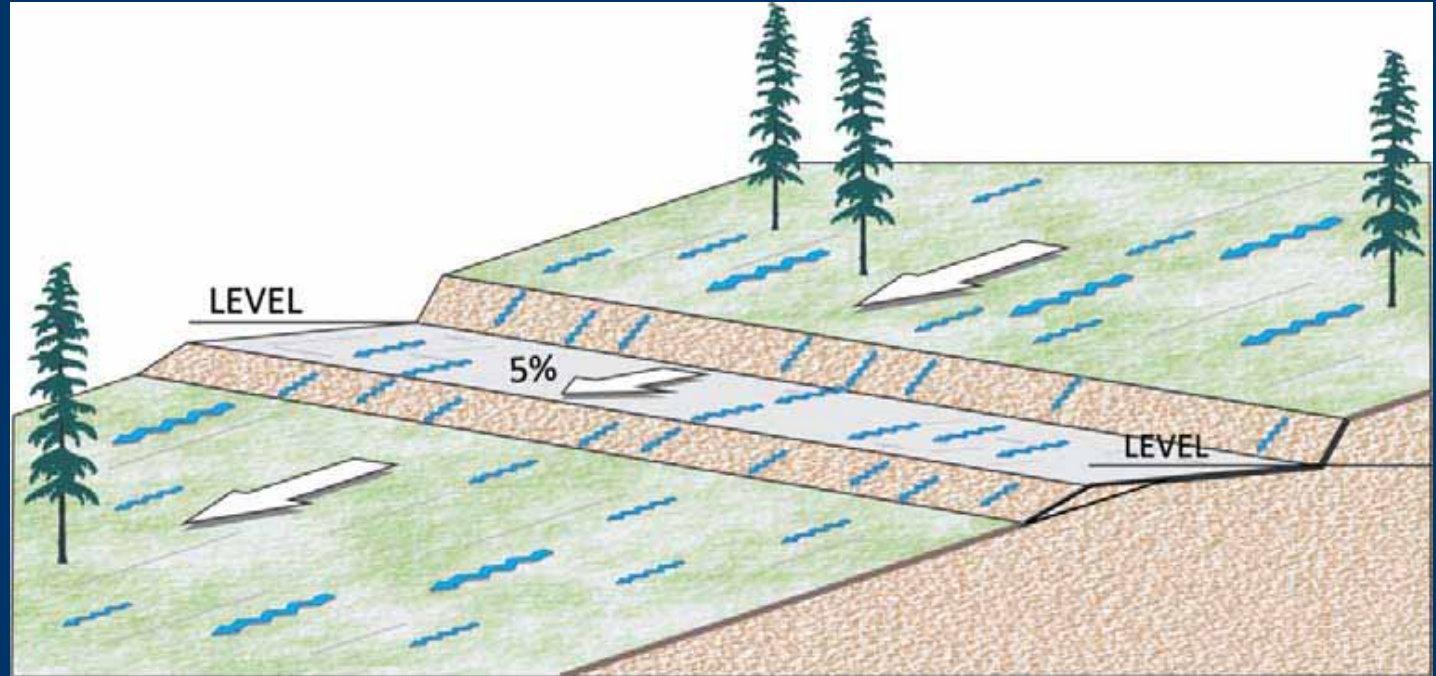
Hillside turns

- Climbing Turn
- Switchback

Man-made

- Water Bars
- Culvert/Ditch

Outslope



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Drainage Features

Natural

- Outslopes
- **Grade Reversals**
 - Drain Dips

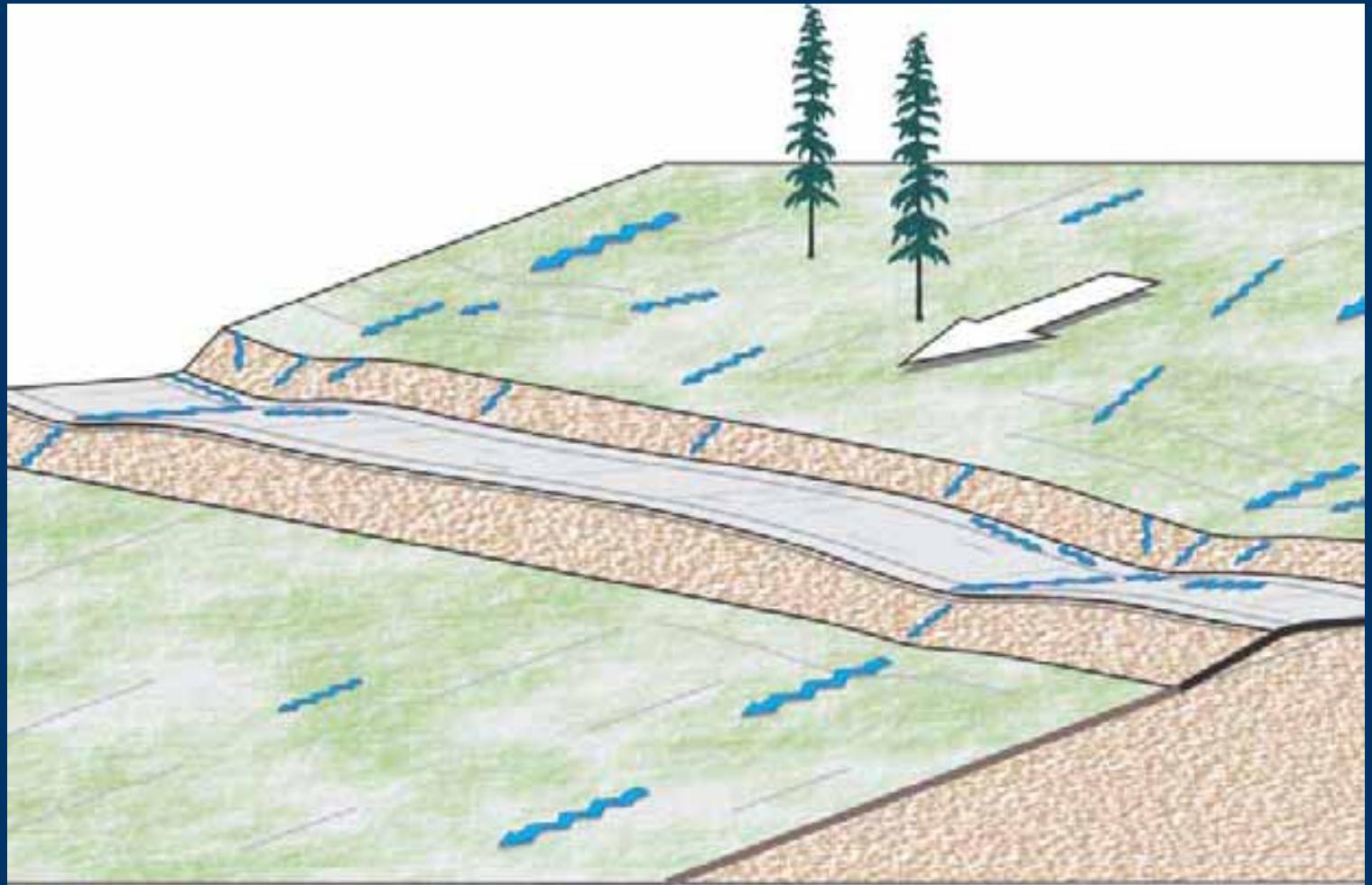
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Drainage Dip



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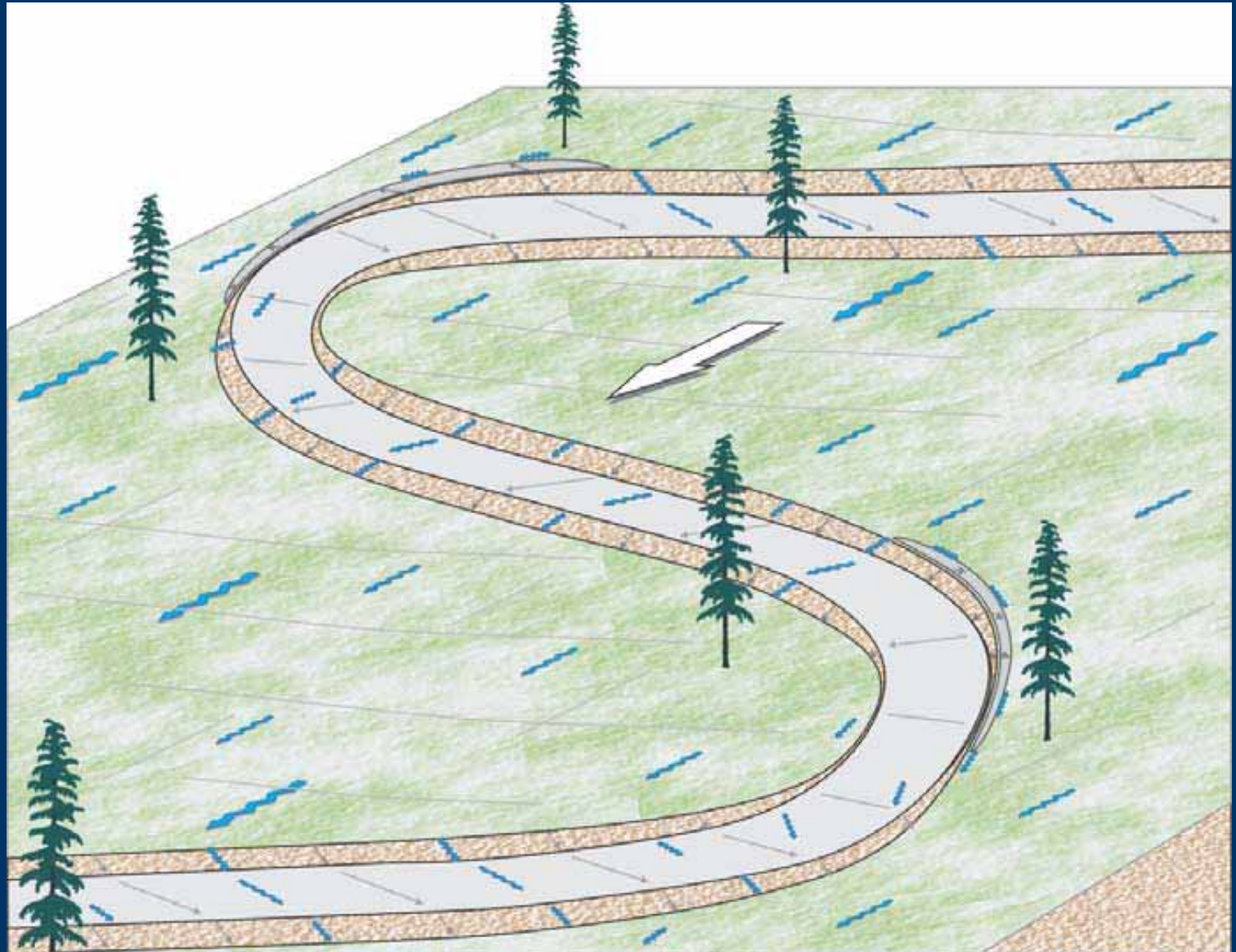
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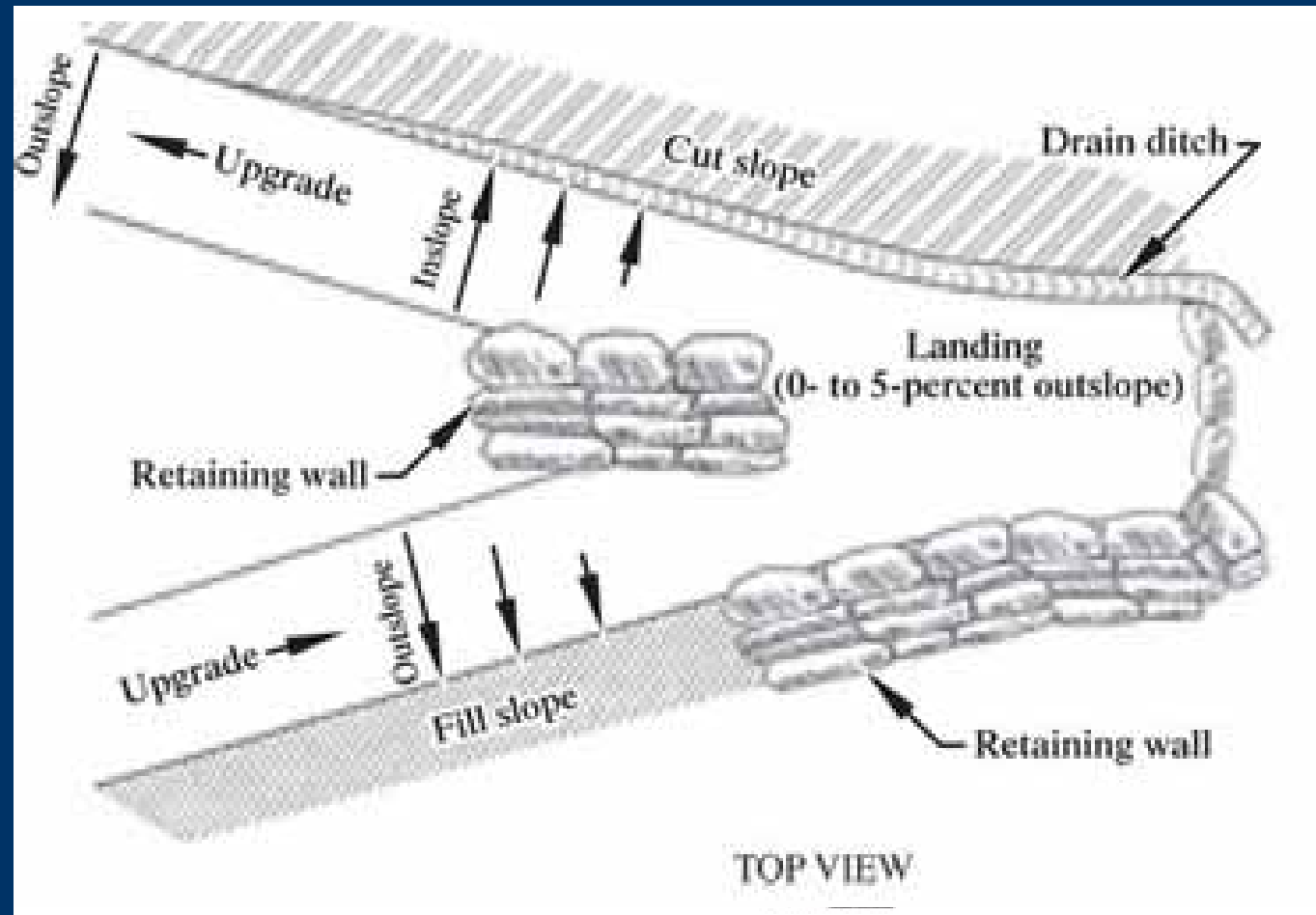
Climbing Turn



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Switchback



Drainage Features

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Water Bar



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Drainage Features

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Hillside turns

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Man-made

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Soil	Slope						
	2%	4%	6%	8%	10%	12%	15%
Loam	350	150	100	75	50	*	*
Clay-Sand	500	350	200	150	100	50	*
Clay/Clay-gravel	+	500	300	200	150	100	75
Gravel	+	+	750	500	350	250	150
Shale/Angular Rock			800	600	400	300	250



Water Crossings

- Bridges
- Culverts

Wet areas

- Corduroy
- Raised Plank Decking
- Puncheons
- Raised Fill



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Bridges/Culverts



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Water Crossings

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Wet areas

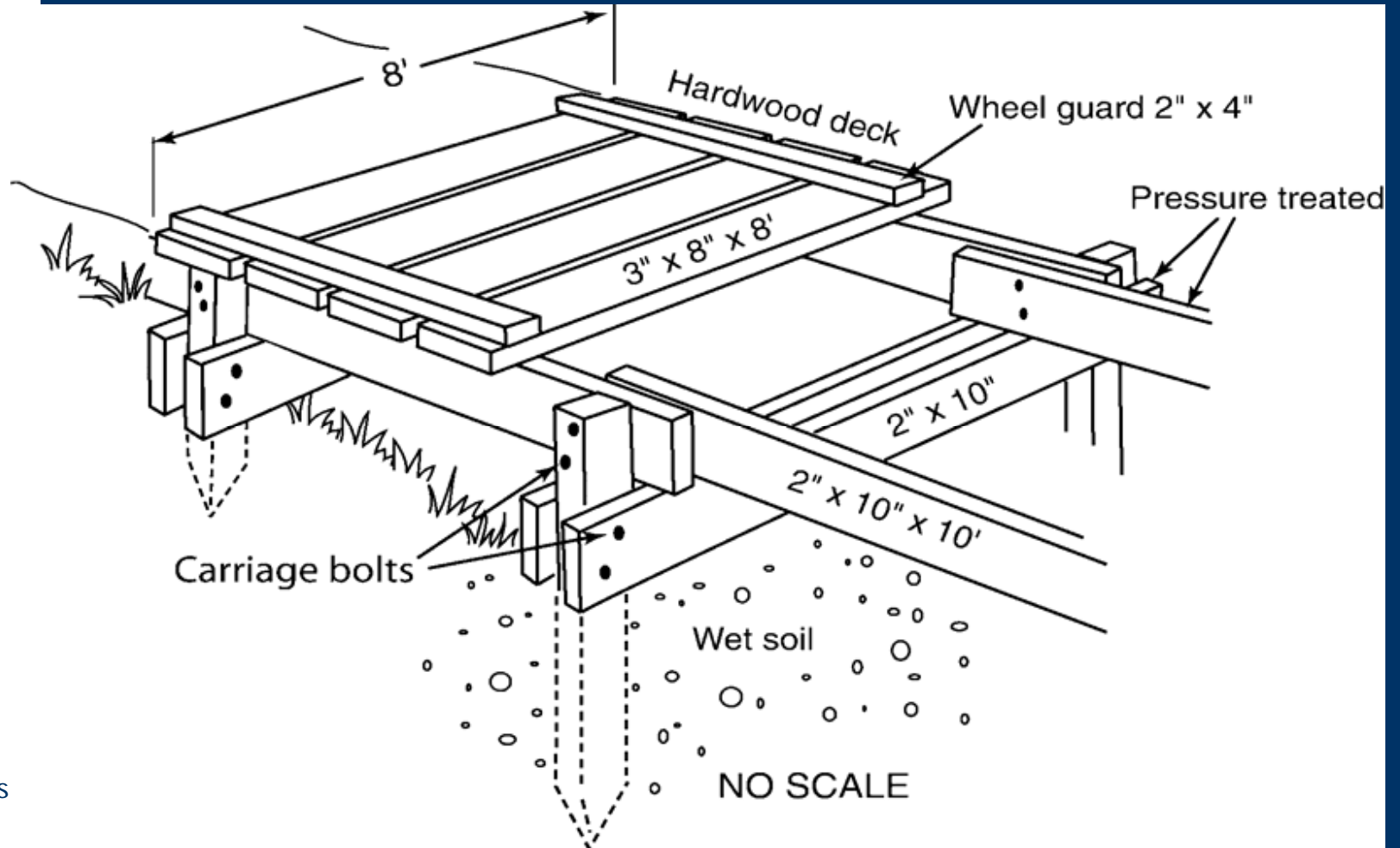
- Corduroy
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Raised Decking





Water Crossings



Wet areas

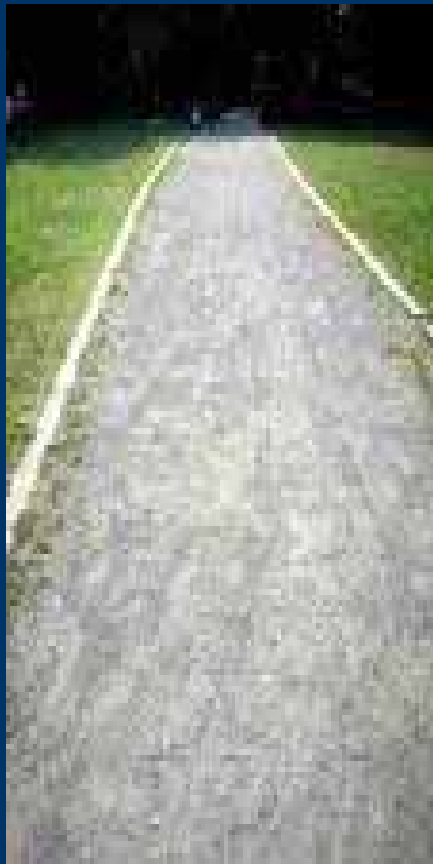
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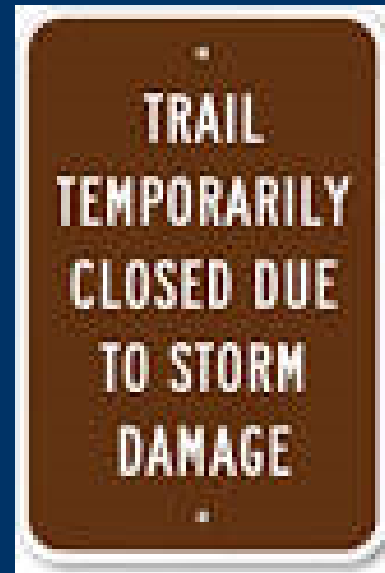
Trail surface

- Surfacing
- Armouring
- Hardening



Monitoring

- Heavy Rainfall events
 - Check water features
 - Steep slopes
- Reporting



Conclusions

- Guidelines are necessary to protect our watershed areas
- Outreach is necessary to promote sustainable use of trial systems

**“WE ALL HAVE A
ROLE TO PLAY!”**

Thank you!



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