

Module 3.

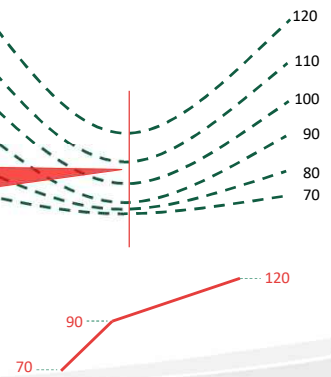
Plan Reading Skills



1

Contour Lines

The closer together
→ the steeper the
slope

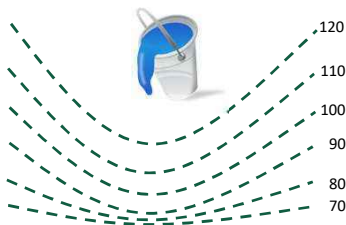


2

Where does
the water
go?



Water flows
perpendicular to the
contour!



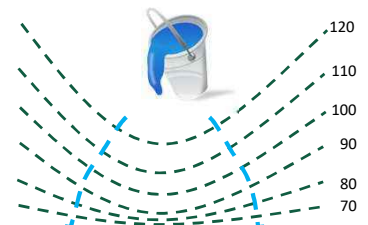
3

Where does
the water
go?



Water flows
perpendicular to the
contour!

Which areas would be most
vulnerable to erosion?



4

Percent Slopes

$$\frac{\text{Vertical Distance}}{\text{Horizontal Distance}} \times 100\%$$

3:1 slope or $1/3 = 0.3333 \times 100\%$ or $33\frac{1}{3}\%$

4:1 slope or $1/4 = 0.25 \times 100\%$ or 25%

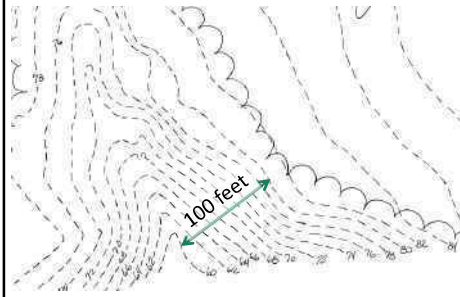
5:1 = ? %

$1/5 = 0.20 \times 100\%$ or 20%



5

Contour Lines & Slopes



20 foot elevation gain in 100 foot distance or a 100:20 slope = 10:2 or 5:1 or also a 20% slope!

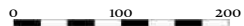
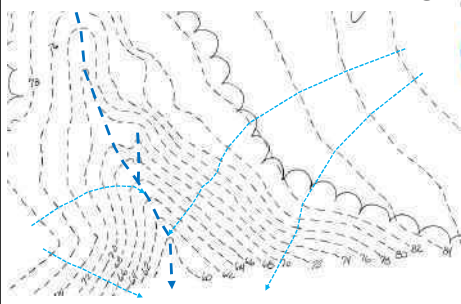


Scale



6

Where does the water go?

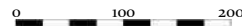
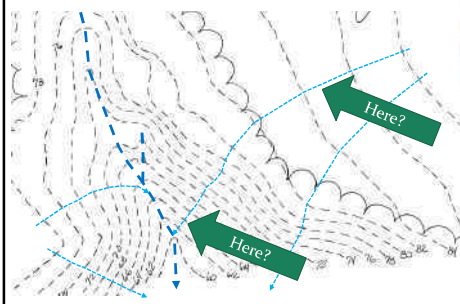


Scale



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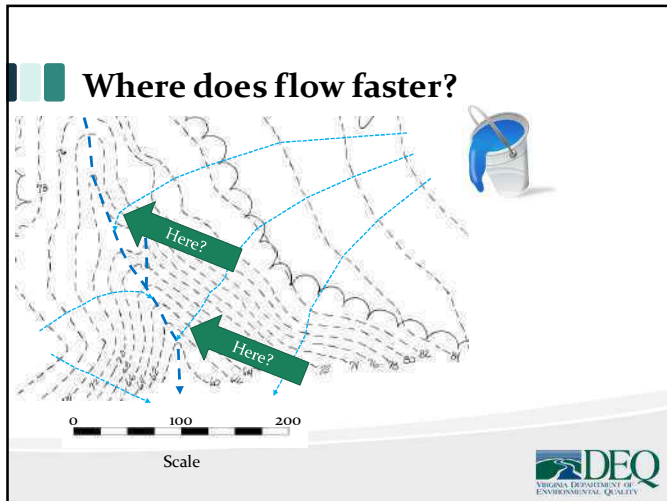
Where does flow faster?



Scale



8



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Steep Slopes – Stormwater Handbook 9.5.4

Generally, disturbance of steep slopes (typically those greater than 25 percent in grade) should be avoided whenever possible. If disturbance of steep slopes is proposed, it is critical to implement effective measures to minimize surface erosion and prevent caving or piping.

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Critical Slope Length

<u>Slope Gradient</u>	<u>Slope Length</u>
15 % >	75 feet (25 yards)
7 – 15%	150 feet (50 yards)
0 - 7%	300 feet (100 yards)

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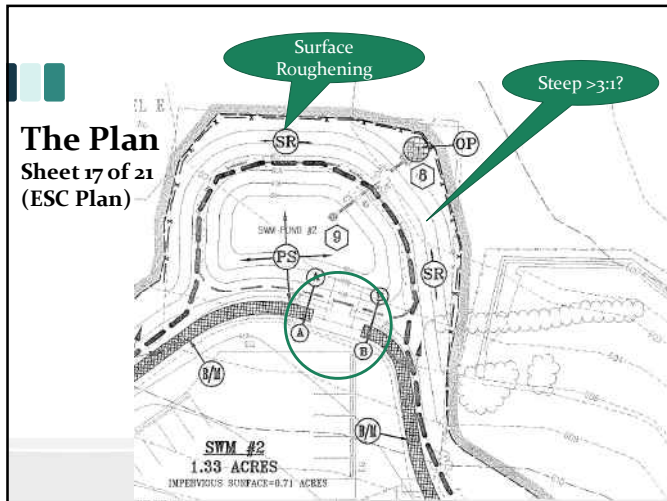
Slope Steepness

- Slope steepness - Velocity increases
- More runoff from a steep slope
- Three categories of erodibility:

<u>Slope Gradient</u>	<u>Hazard</u>
15 % and higher	High erosion Hazard
7 - 15%	Moderate erosion hazard
0 - 7%	Low erosion hazard

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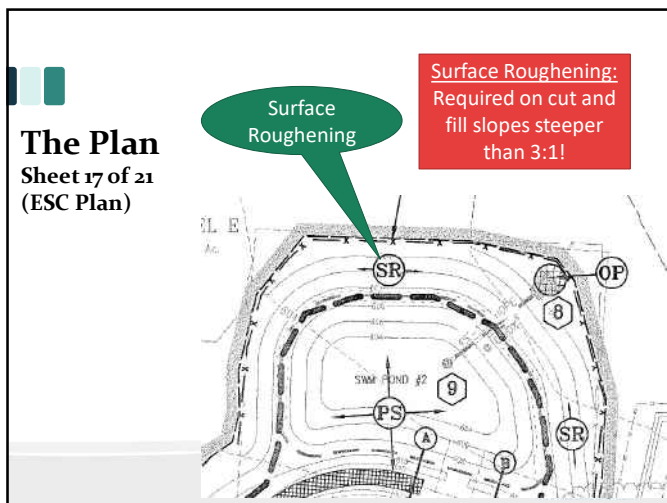
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The Plan
Sheet 18 of 21
(ESC Plan)

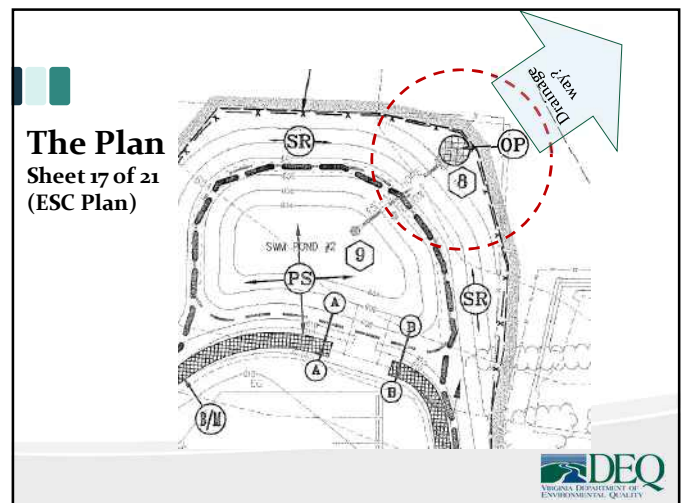
TABLE 3.32-D
SITE SPECIFIC SEEDING MIXTURES FOR PIEDMONT AREA

	Total Lbs. Per Acre
Minimum Care Lawn	
- Commercial or Residential	175-200 lbs.
- Kentucky 31 or Turf-Type Tall Fescue	95-100%
- Improved Perennial Ryegrass	0-5%
- Kentucky Bluegrass	0-5%
High-Maintenance Lawn	200-250 lbs.
- Kentucky 31 or Turf-Type Tall Fescue	100%
General Slope (3:1 or less)	
- Kentucky 31 Fescue	128 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
Low-Maintenance Slope (Steeper than 3:1)	150 lbs.
- Kentucky 31 Fescue	108 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
- Crowwetch **	20 lbs.
	150 lbs.

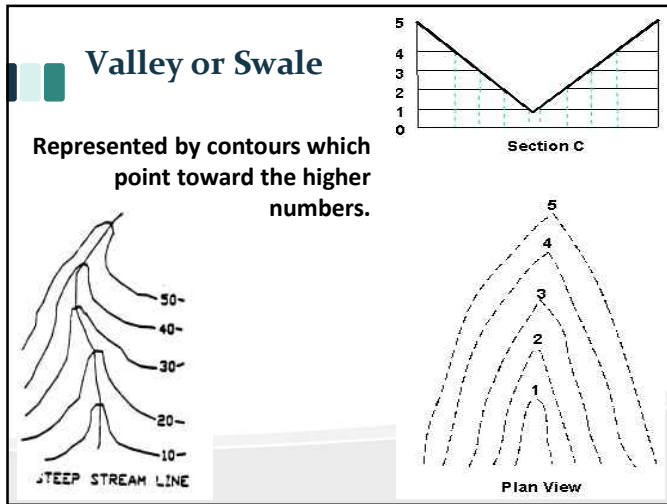
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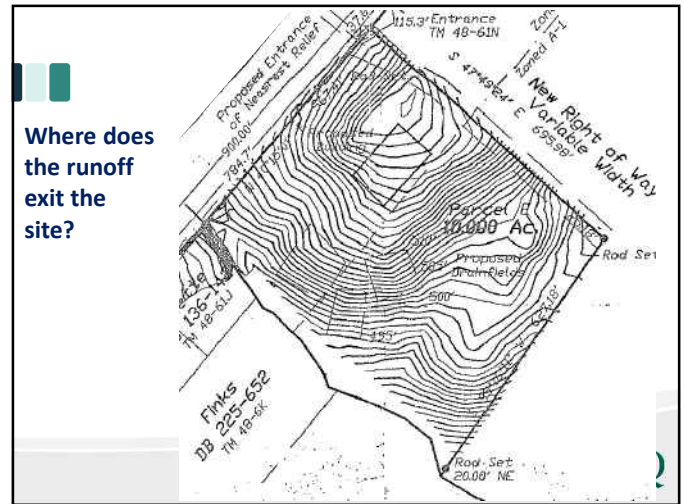
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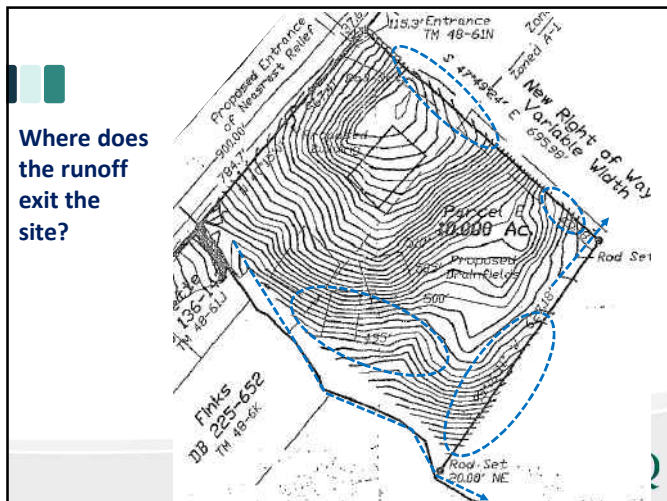
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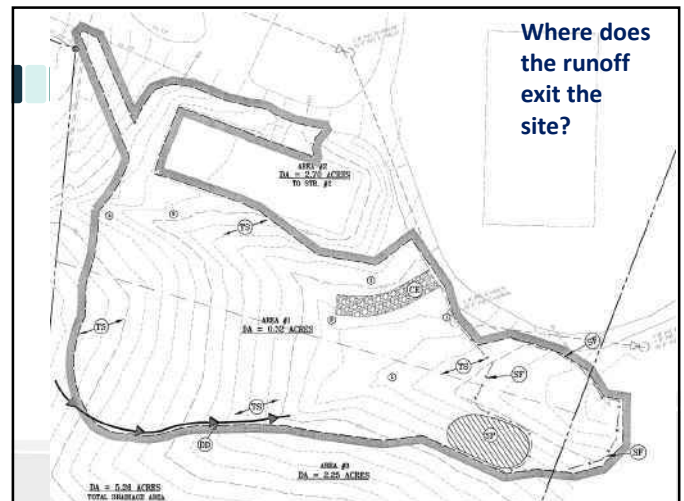
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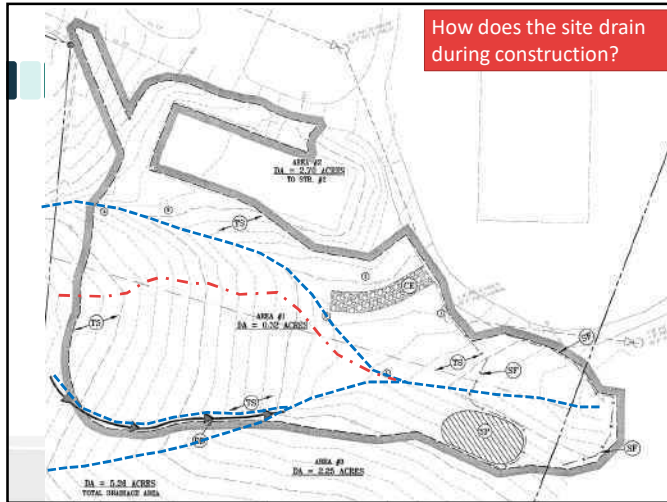
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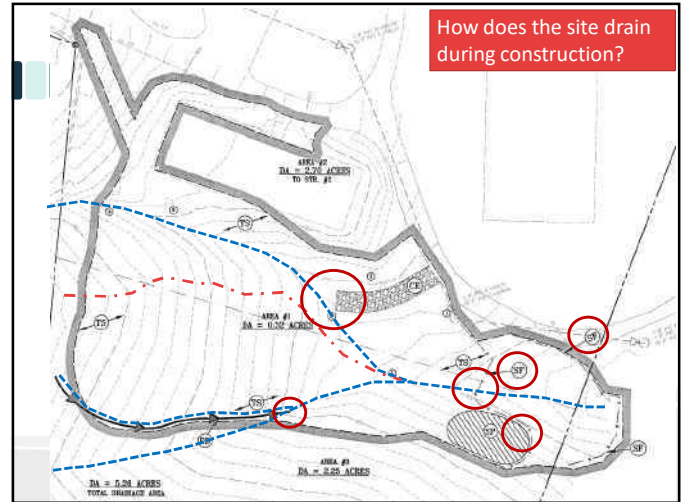
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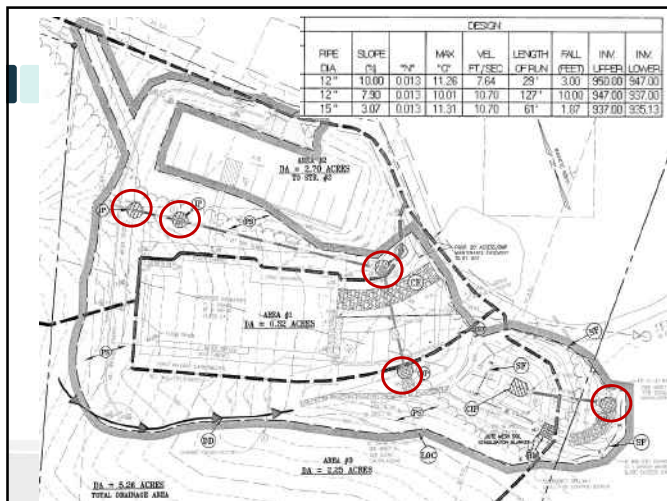
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Inverts of Culverts

At least one culvert should be countersunk

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Tools for Inspectors

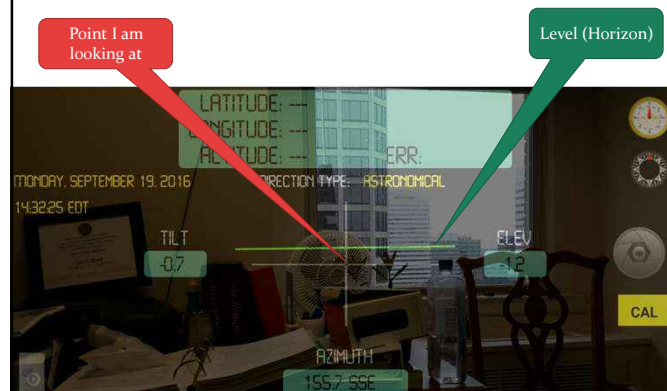


Clinometer



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Surveyor Tools for Android



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With all these tools you need a surveying rod, ruler or a something that has the same height as your eyes



3 feet?
I am 5'10", but
my eyes are at
5'4" or this
went up by
±2'4"



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What Hydrology Variables do Inspectors Need to be Aware of?

- Where is water & sediment leaving my site?
- Any sensitive areas (e.g. wetlands, streams, protected species)?
- Community impacts?
- What will be the locations of my stormwater BMPs?



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What Hydrology Variables do Inspectors Need to be Aware of?

- Is the site graded correctly so that BMPs receive the correct drainage?
- Is the contractor keeping to the construction sequence (e.g. is the site stabilized before the P-BMPs receive drainage)?



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QuickPolls - Slope



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Poll Questions (5)

Plans show an existing 75' slope at a 1:1 slope. This will be graded to a 100' 4:1 slope for final grade. Is this an area for concern?

- Neither are an erosion concern
- The initial 1:1 slope is a concern
- The final 4:1 slope is a concern
- Both are erosion concerns



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Questions?



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