

ALMS Conference - 2011 Urban Lakes and Wetlands

Sediment and Erosion Control Adjacent to Urban Lakes

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Erosion starts when soil particles are displaced either by the action of rainfall, runoff, wind, or ice





**Sediment is defined as the eroded material
suspended in water or air**

Sedimentation is the deposition of eroded material



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Erosion and Sediment Control Upstream of “Urban” Lakes, Ponds & Wetlands

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My Credentials ...

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**What kind of problems did we observe?
This may be asking for trouble ...**



A slightly better approach, as both catchbasin inlet and bottom of raingarden are “protected”



but things went wrong at this raingarden



What should it look like and how should it operate?



Let's put things in perspective: How much sediment might we see in runoff?

Finished Product

- 50% imperviousness
- 400 mm precipitation per year generates about 300 mm runoff
- ignore contribution pervious areas
- yields 1,500 m³ runoff per ha per year
- EMC of say 400 mg/L
- yields 600 kg per ha per year
- 85% TSS removal
- yields 90 kg per ha per year

Construction Phase

- is said to be 200 to 400 times greater than runoff from established communities
- Target is 2 tonnes per ha per year = 2,000 kg per ha per year
- > 20 times finished product
- How well do we do?
- Can the receiving water bodies accommodate this load?

How well do we do?

Some observations in the field



How well do we do?

Some observations in the field



How well do we do?

Some observations in the field



How well do we do?

Some observations in the field



So, where are the challenges?

- Design
 - we don't know how appropriate our assumptions are re amount of sediment produced
 - we don't practice erosion control
 - no risk assessment of sensitivity of downstream areas



So, where are the challenges?

■ Execution

- poor at maintenance & poor at record keeping
- ESC does not stop when the weather turns cold



So, where are the challenges?

- Approvals & Enforcement
 - disconnect between ESC and drainage reviews
 - don't have manpower to be everywhere
 - don't force developers, builders, and/or property owners to re-vegetate in time
- Maybe, we should consider changing or evolving design philosophy

Suggested changes in design philosophy

- Reduce the amount of land stripped and graded
- Practice erosion control
- Reduce runoff volumes

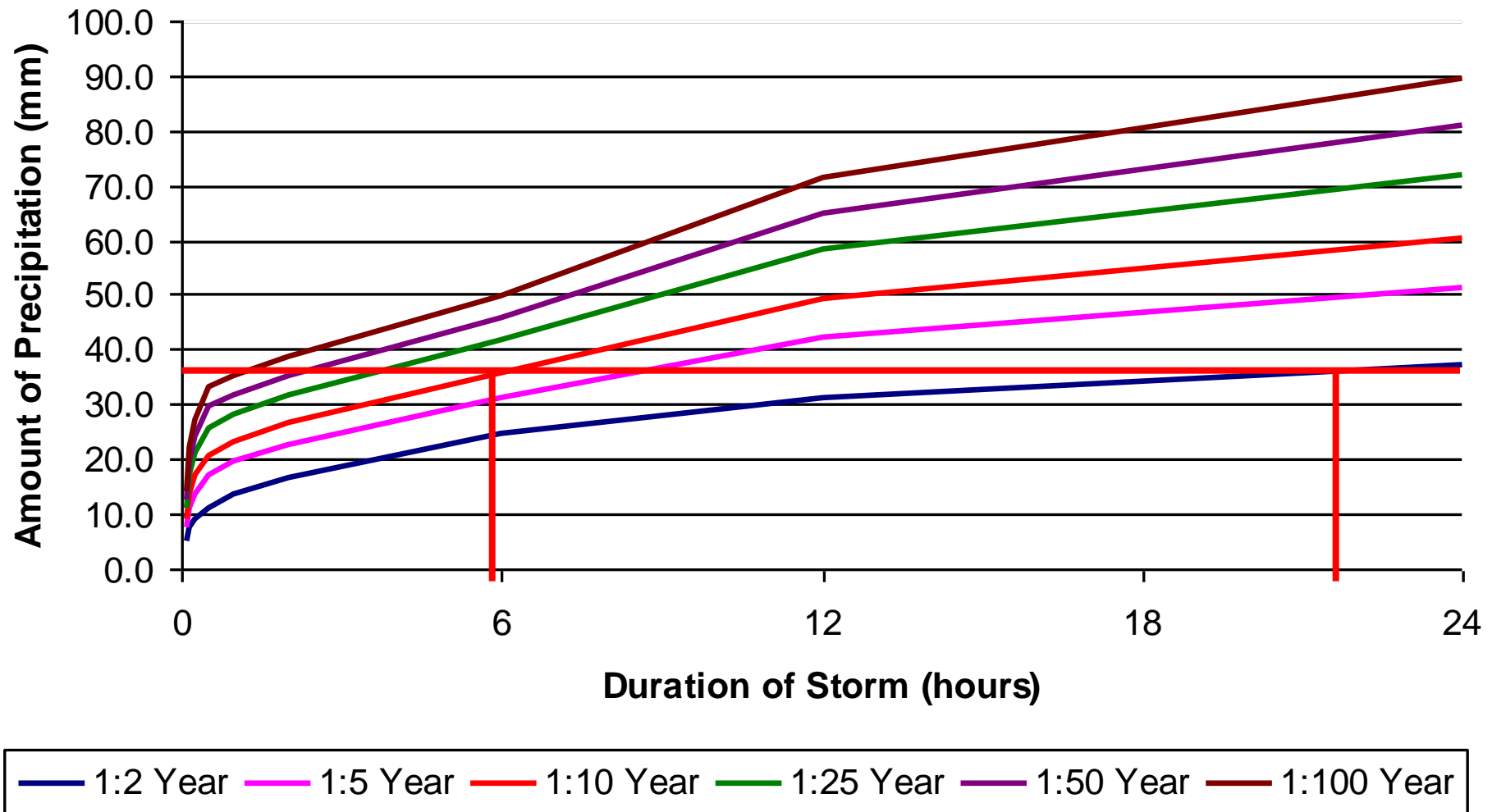


Suggested changes in design philosophy

- Stay outside of sensitive areas
- Avoid runoff from entering sensitive areas
- Consider failure scenarios



Suggested changes in design philosophy



might take to empty the basin?

On behalf of the ones shown below, GOOD LUCK
with protecting your sensitive areas

