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Erosion control in a time of changing weather patterns - Altering how we prepare and plan

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Just yesterday we had another of those flashy, intense rain storms that came through the area and left some places drenched and other places needed to water the lawn. This rain cycle has been going on for some time now and those of us in the design and construction fields have taken notice. Recently, there was the beginning of a similar discussion amongst stormwater regulators which could be positive or negative depending on your view.

From the design perspective, though, we are already changing how we prepare and review erosion control plans and construction sites to address the realities of the current weather patterns. Here are some examples

* The runoff comes in bursts - It seems that having a nice day of light rain where the rain event total is around $\hat{A}1\frac{1}{2}$ " for the day hasn't happened for a while - for the most part, these afternoon rain events seem to be about $\hat{A}1\frac{1}{2}$ " per 20-40minutes. So you could have $\hat{A}1\frac{1}{2}$ " of runoff every afternoon in short very intense rains. If you are in one of those places where the storm lasted a little longer, you get between 1-2" in a thunderstorm every afternoon.

How does this affect your erosion control plans? The standard formula for temporary storage - 3,600cubic feet per acre drainage - seems to still be working but the rain will come again before your temporary sediment basin is empty so you need to arrange to filter the water quickly to get your storage capacity back. This means that even small sites should have temporary sediment traps/basins; there should be someone onsite who can appropriately deal with pumping and filtering; and there needs to be a well-defined discharge point that won't affect downhill neighbors, exposed slopes or other sensitive lands once the pumps get turned on.

* It is feast or famine - Are you one of those places that gets a storm every afternoon? If so, your storage capacity will be constantly put to the test. The construction site is covered with surface mud and work proceeds slowly. You will need to monitor your erosion control even more as water is far stronger than silt fence or berms and even though the site contractors won't want to be on site- most towns require constant vigilance of the erosion control measures. Just because you can't get a machine safely in place is not a good reason why you continue to discharge silty water into a stream.

How does this affect your erosion control plans? The designers need to indicate contingency plans, the level of attention and frequency of inspections to clearly define the contractor's responsibilities and to make sure these items are part of the base contract. Extras for erosion control are a lot more expensive that including them as negotiated unit prices as part of the contract.

* It is dry under the surface - The construction site will dry out very quickly between rains which

means that your plant material will still need to be watered and the ground below may be much dryer than expected or wanted.

How does this affect your erosion control plans? In addition to more storage and temporary facilities, the plans should include the requirements to address dust which usually generates in less than 3 days without rain.

* Require Inspections - Most municipalities and CTDEEP for larger projects, require weekly erosion inspections. This works to every ones' advantage. It gives the contractor a constant reminder to anticipate the weather, it allows the client to have the confidence in the contractor and it allows the Town to monitor what is happening on the site and to address issues as soon as , if not before, they happen.

How does that affect your erosion control plans? The erosion control plan itself is not a guarantee of success. No matter how detailed a plan is, site and weather conditions will create a need for changes in the field. The erosion control plan is not complete without regular inspections during construction. Our experience has shown that weekly inspections are required, at a minimum, to respond to the ever-changing conditions of the site and upcoming weather. Regular inspections help to protect the contractor from the overreacting professional and ensure the professional that the owner and contractor are committed to the goal of the plan (and the requirements of the Town) by responding quickly to the inspection recommendations.

Thinking ahead and understanding the impact the current weather cycle has on your project and the construction site makes for better erosion control plans and cleaner runoff.

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