Stabilization, Even When The Weather Doesn't Cooperate.

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Natural Erosion can be beautiful, in the right setting!

Construction Site Erosion is NEVER Beautiful, it's only UGLY!

How do we PREVENT UGLY when the weather doesn't cooperate?

Whether you are working in the Muddy Spring or Fall, the Summertime heat or the middle of Winter you need to know the Basics of "Erosion & Sediment Control"

EROSION CONTROL = PREVENTION
SEDIMENT CONTROL = REMEDIATION

You need to be Proactive and not Reactive, you must have a Plan (SWPPP), the tools (Materials) needed and the right skills (Contractor) to be successful (Compliant).

Managing construction sites to minimize erosion and prevent sediment transport is a year-round challenge.

This challenge becomes even greater during the late Fall, Winter & Spring months. Rains in late Fall, thaws throughout the Winter and Spring melt and rains can produce significant flows over frozen and saturated ground.

At the same time as the erosion risk increases, the "toolbox" available to the planner and on-site coordinator shrinks considerably over this period.

Here are some of the "Standard BMPs" that we normally use along with the negative effects that wet and cold weather have on their effectiveness.

Vegetative Ground Cover

Cannot be established outside of the growing season. Most effective soil protection method is therefore unavailable.

Hydroseeding

Stabilizers are poor in cold conditions, poor or no growth of seed over winter.

There are possibilities that we will cover

Diversion Structures

Difficult or impossible to construct in wet or frozen soils.

Sedimentation Basins

Must be installed prior to ground freezing.

Silt Fence

Difficult to impossible to correctly install in frozen ground, must be installed as early as possible, before ground disturbance.

Erosion Control Blankets

Cannot be installed properly on frozen ground, must be secured firmly to the soil.

Grass Lined Swales

Installation following frozen ground is difficult, unprotected soils in concentrated flows results in significant erosion.

Impervious Stabilization

Paving, other measures cannot be completed in winter.

Effective poor weather erosion & sediment control planning.

- Limit the amount of disturbed soil at any given time is of paramount importance in winter. If the site freezes or experiences snowfall accumulation, stabilization will be difficult or impossible.
- To prevent scenarios like this from occurring, there needs to be a detailed plan, this involves a detailed construction sequence and an easily and swiftly executed stabilization installation as soon as possible.
- A successful project depends on the timely execution of the stabilization technique required, it is important to have all of the needed materials on-site and the experienced manpower to correctly complete the installation.

Effective poor weather erosion & sediment control planning.

- Temporary Stabilization during winter construction is of great importance. Mulching alone is not an adequate prevention technique. Large runoff events during thaws or spring rains can quickly overwhelm standard mulch applications.
- Where mulch (straw or hay) is used, the mulch should be applied at twice the normal rate used during the regular construction season and should only be used on relatively flat surfaces.
- If possible, always try to spread a quick germinating seed or cover crop, you never know if/when you may get germination.
- Protect the stabilized area by signage or fencing to prevent accidental disturbance or damage.

Effective poor weather erosion & sediment control planning.

- Silt Fences are generally the last line of defense against sediment-laden runoff and the least effective BMP. As in the regular construction season the proper installation and regular maintenance inspections are necessary for maximum performance.
- As noted, silt fence is difficult to impossible to properly install in frozen ground, other perimeter controls may include wood mulch, straw or excelsior wattles, compost filter socks, triangular silt dikes, etc. The same procedures apply for these alternate methods, proper installation and maintenance are necessary for a successful project.

You don't want to be this guy, have a plan A & a Plan B, C & D. You will need them all!

Compost Filter Sock

Compost Filter Sock

Compost Filter Sock

Straw or Excelsior Wattle

Straw or Excelsior Wattle

Straw or Excelsior Wattle

Track Out Control

- One of the biggest "Red Flags" on your construction site can be the sediment tracked out from the vehicles leaving your project. You can minimize a lot of the sediment transport by limiting access to the site, blocking access to areas on site that have been temporarily or permanently stabilized and by installing a proper, well-defined construction entrance.
- Limited access through a well marked, properly installed and stabilized construction entrance will help to minimize any sediment transport off-site.
- This can be done with geotextiles and the proper gradation of stone or with other materials such as "rumble strips" or wheel wash stations.
- Any materials tracked out of your site and onto the road must be removed daily via mechanical means, very expensive and labor intensive.

Track Out Control

Track Out Control

Hydroseeding

Can it be used during the winter months?

- The short answer is yes! But it can be complicated, in order to actually spray the material you should have above freezing temperatures, a good supply of water, access to the area to be stabilized and the right product.
- Standard hydromulches typically rely on basic starch tackifiers like guar gum to bind them together and to the soil. They rely on a mechanical bond to be successful, this is best achieved in warmer weather.
- Many of the Bonded Fiber Matrix (BFM) types of mulches and all of the Flexible Growth Mediums (FGM) rely more on a mix of polymers and other additives that form a chemical bond with the other particles and the soil. This allows them to be effective in a wider range of conditions and in less than ideal situations.

The BFMs & FGMs are best applied using a hose and shot into the soil at a close range.

However they can also be successfully applied using the nozzle on the "tower", the key here is to be able to spray in 2 different directions if possible.

If that is not possible the rate should be increased accordingly to get complete and total coverage of the soil.

Hydromulch can also be an effective stabilization material for stockpiles, it can "blanket" rough surfaces fairly well if applied by an experienced applicator.

Diversion Structures

Diverting runoff on hard surfaces or protecting temporarily stabilized areas by redirecting flow can be critical. Triangular Silt Dike is one option.

DuraWattles, Erosion Eels or Compost Filter Socks can also be used to channel flows where you want them.

Erosion Eel

Diamond Sock

Sediment Basins

If you have muddy stormwater onsite but no sediment or detention basin to send it to, you can use dewatering bags to filter out the solids and discharge the clean water offsite.

Erosion Control Blankets

How can you use them on frozen soils and be successful? It all depends on the right materials and the expertise to make it work.

Optional fasteners/staples/stakes

Top 5 Most Common Infractions!

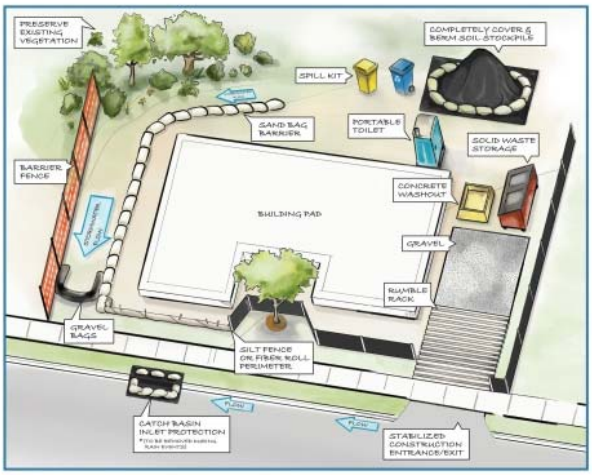
Rank	Issue	Non-compliant action	Non-compliant photo	Compliant action	Compliant photo
1	Missing or inadequate soil stabilization	Without proper stabilization, soil is vulnerable to erosion.		Mats, mulches, blankets and other BMPs temporarily stabilize and permanently establish vegetation on disturbed soils.	
2	Missing perimeter controls	When perimeter controls are missing, stormwater carries sediment off site and into waters of the state.		Silt fence, biorolls, and other BMPs intercept runoff and settle out sediment while allowing water to run through.	
3	Missing or inadequate inlet protection	Missing or inadequate inlet protection allows sediment to enter the storm sewers and/or water bodies.		Inlet protection BMPs capture sediment before it enters the storm sewer.	
4	Vehicle tracking	Without a tracking BMP, vehicles track sediment onto paved surfaces.		Rock pads and other sediment tracking BMPs knock sediment off tires before it is tracked onto paved surfaces.	
5	Best Management Practices not maintained	Unmaintained BMPs do not function properly and allow sediment to escape and enter waters of the state.		All BMPs must be maintained to ensure effectiveness.	

NOPE!

Heck Nope!

Definitely Nope!

Plenty of resources available, have a plan and several backups!



CITY OF HERMOSA BEACH
Community Development Department
1315 Valley Drive, Hermosa Beach, CA 90254
Building Division: 310.318.0235
hermosabch.org/Applications/Forms/Handouts

KEEP IT ONSITE!

Best Management Practices

for Small Construction Sites

Our beaches, coastal streams and wetlands are precious to our coastal communities, but human activity such as construction work can pollute these natural treasures unless contractors use effective best management practices (BMPs).

This brochure outlines the minimum required BMPs for construction projects that disturb less than one acre* of soil (small construction sites).

* Construction projects that disturb one acre or more of soil must comply with the Statewide Construction General Permit: waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

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Questions?

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