Eco-3

Part II

THE EROSION CONTROL PLANNING PROCESS

1

The Erosion Control Planning Process consists of:

- Scheduling (C162)
- Pre-construction
- Construction
- Maintenance

2

Soil Type

Review Soil Sampling – Jar Test

- Sand Gravel - *(Type A) Unstable, low runoff, quick settling times greater infiltration*
- Silt clay - *Type (D) high runoff, long settling times, less infiltration*

3

Lay of the Land

- Flat – low erosion potential, problems with site drainage, Pump watches, mud
- Slope – gravity works in your favor, greater erosion potential, more maintenance
- Sensitive areas - additional protections or monitoring required

4

Check Permit & Local Requirements

Has the Stormwater Permit been issued?

General Stormwater Permit or

Individual Stormwater Permit

- Site may discharge to a 303d impaired waterway and have additional turbidity limitations or other monitoring requirements

5

Check Permit & Local Requirements

Additional Local Turbidity Monitoring

City of Bellevue -

- *25 NTU Max, Daily 3rd party turbidity monitoring*

City of Redmond

- *25 NTU Max, Phosphorous mitigation plan for Lake Sammamish discharges*

City of Issaquah

- *100 NTU Max*

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Check Permit & Local Requirements

Many jurisdictions have implemented new ordinances and developed supplemental stormwater guidelines in the last few years.

It is recommended that contractors check with the local jurisdiction for ordinances and stormwater compliance guidelines

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Check temporary cover costs

- Seeding or straw mulching
- Use hog fuel generated on site
- *Erosion Blankets*
- *Plastic and sand bags*

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Schedule vs. Seasonal Conditions

How the project is scheduled has the ***biggest*** impact or erosion & sediment control on the site

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Schedule vs. Seasonal Conditions

Consider phasing construction to minimize exposed area during winter months

Move perimeter site work to the beginning of the project to provide protection for the life of the project

- Road widening
- Perimeter Curbing
- Perimeter seeding or landscaping

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Schedule vs. Seasonal Conditions

How does the construction start time compare with seasonal work rules?

Are you going to phase your project?

- Multiple mobilizations by Sub-Contractors
- Consider adding multiple mobilizations to the contract

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Schedule vs. Seasonal Conditions

How does the construction start time compare with seasonal work rules?

Identify high erosion hazard or sensitive area lots

- Steep slope areas or lots near wetlands are typically the last to be sold.
- Consider seasonal conditions for stabilizing these areas
- Stabilize these areas 100%

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Schedule vs. Seasonal Conditions

Western Washington

October 1 through April 30

- No soils shall remain exposed and un-worked for more than 2 days

May 1 to September 30

- No soils shall remain exposed and un-worked for more than 7 days

Clean Water Services, Oregon

October 1 through April 30

- No soils shall remain exposed and un-worked for more than 24 hours

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Schedule vs. Seasonal Conditions

Eastern Washington

October 1 through June 30

- no soils shall remain exposed and un-worked for more than 5 days - Region 2 – 15 days

July 1 to September 30

- no soils shall remain exposed and un-worked for more than 10 days - Region 2 – 30 days

Local rules may vary

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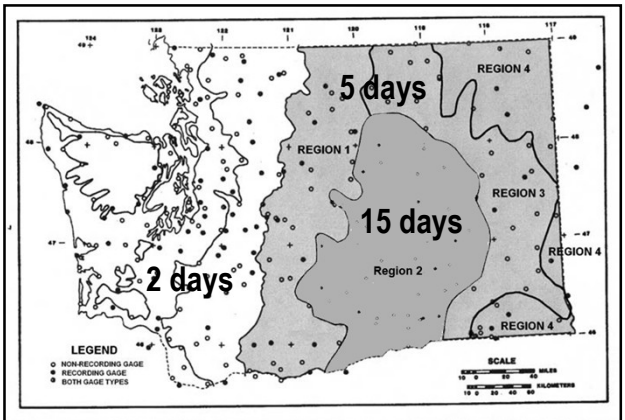

2004 Eastern Washington Manual Figure 1.B or Figure 4.3.1

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Schedule vs. Seasonal Conditions

Rainfall Probability -Western Regional Climate Center

- Washington
  www.wrcc.dri.edu/summary/climsmwa.html
- Idaho …/climsmid.html
- Oregon …/climsmor.html
- Alaska …/climsmak.html

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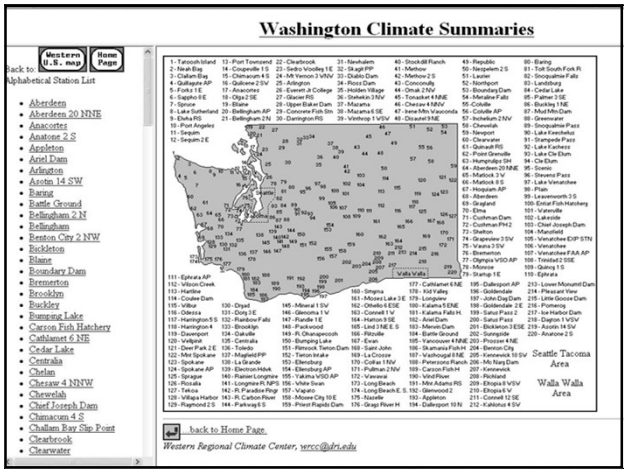

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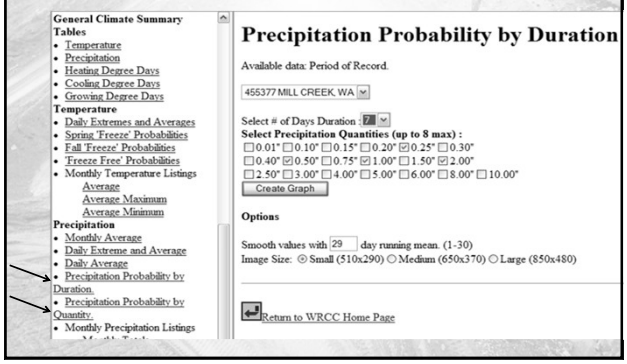
Generate Graphs for:

1. Daily extreme & average
2. Probability by duration or quantity



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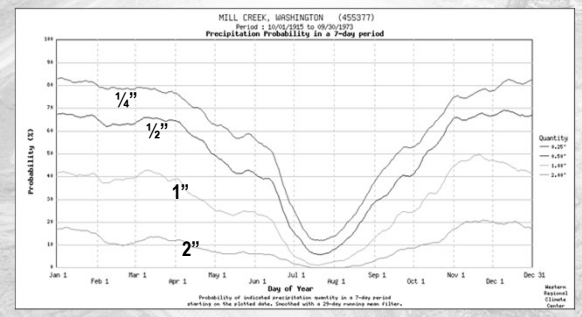
Rainfall Probability - Mill Creek, WA



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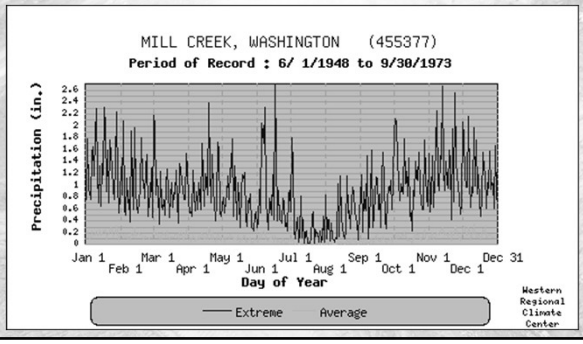
Average & Extreme - Mill Creek, WA



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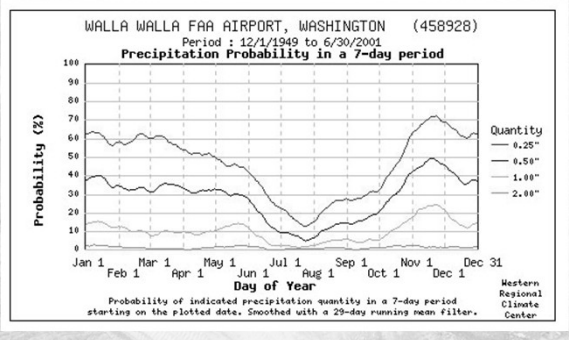
Rainfall Probability - Mill Creek, WA



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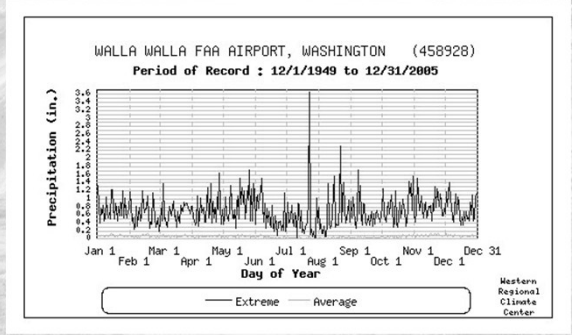
Average & Extreme – Walla Walla



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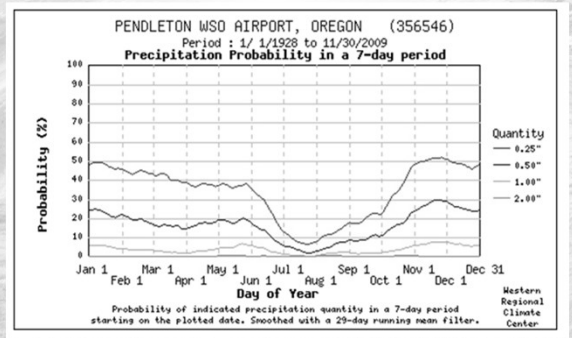
Rainfall Probability – Pendleton,OR



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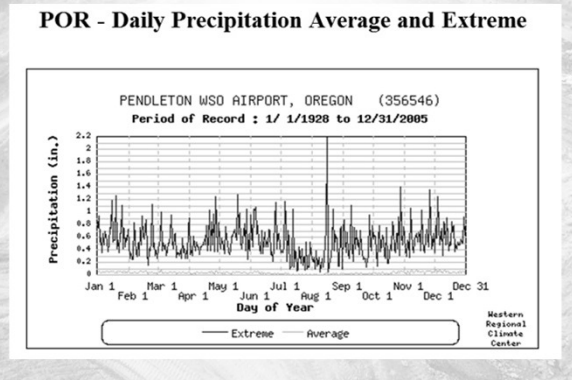
Average & Extreme – Pendleton,OR



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Schedule vs. Seasonal Conditions

Grading
- Cuts
- Exposing slopes

Fills
- Loss of Stormwater Retention
- Tracking sediment onto the street

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Schedule vs. Seasonal Conditions - Cuts & Fills

Example: In November, your existing swale will have 2, 42" storm lines installed…

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Rather than import fill material in November, create a 3 cell Temporary Retention Pond (BMP C-240) by using the existing swale. Fill material will than be imported in the dry season, rather than November to minimize track out

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Construction Area Parking & Staging

- *Gravel area or Sub-base for temporary parking and storage*
  - *By designating a Parking and Staging are you will minimize off road tracking and damage to stabilized areas.*
- *Paved truck wash*
  - *Depending on time of year you may want to install a wheel wash. A 4-5000 yard import export in November may require a Wheel Wash (BMP C- 106)*

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Check off-site drainage (Run On) costs

- *Temporary curb on adjoining roadways*
  - *Keep off site run on off your site*
- *Diversion of off site storm drainage*
  - *Intercept run on and divert around the site.*
- *Drainage systems during construction*
  - *Consider tight-line drainage systems rather than over bare soil*

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Ensure you're checking for offsite Run-On!

Intercept and divert off-site run-on prior to cutting slopes and clearing vegetation.

- *Diversion swales (BMP C-200)*
- *Subsurface drains (BMP C-205)*

**Check for any storm pipe outlets that drain onto your site. This should be done in the planning phase.*

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Run On

Off site water (Run-On) is draining out of the woods and on to your site; causing erosion, overwhelming the retention system, and increasing turbidity.

Can this water be diverted around the site and back to the natural drainage location before it causes these problems?

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This job consisted of cutting a 6 mile roadway through a mountain pass.

A major portion of the planning should have been to intercept any run-on to before it entered the work area. (IDT Highway 95 realignment project)

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EPA News Release (Region 10): **Idaho Transportation Department to pay $325,000 in additional penalties** for federal storm water violations

(Seattle, WA. – July 5, 2008) The Idaho Transportation Department (ITD) has agreed to pay $325,000 in penalties for numerous violations of a Clean Water Act (CWA) Consent Decree, the U.S. EPA announced today.

The 2006 Consent Decree was the result of **CWA violations by ITD and its contractor from 2001 to 2003, committed during the "Mica to Bellgrove" Highway 95 realignment project** in northern Idaho. In that case, **EPA fined ITD and its contractor a total of $895,000 for numerous storm water management problems** and resulting discharges that harmed the Mica Creek watershed and violated the terms of EPA's national Construction General Permit.

…ITD is required to provide storm water training to its personnel, implement new self-inspection protocols, …The additional penalties are largely related to failure by ITD and its contractors to train environmental personnel in a timely way, failure to conduct self-inspections as required, and failure to document compliance with storm water requirements.

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Temporary curbing installed along roadways; intercepting sheet flow run-on

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Identify special areas

Contract & clearing limit lines (BMP C-103)

Silt fence installation areas (BMP C-233)

- Do a perimeter review and compare silt fence locations with the TESC Plan and modify as needed.
  - *Less silt fence that is properly maintained is preferable*

Identify sensitive area boundaries

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Install Temporary Erosion & Sediment Control Measures (TESC)

Siltation Controls

- Silt Fence, wattles, interceptor dikes etc.

Construction Entrance / Exit (BMP C-105)

Stabilize parking / staging areas and construction roadways (BMP C-107)

Install Truck wash (BMP C-106)

- If needed

36

Develop a Spill Prevention Plan

Do you have a spill kit on site?

Do you have a fuel tank on site?

How will you handle broken fuel or hydraulic lines?

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Have A Plan On Where Dewatering Water Will Be Pumped ***Before*** You Begin Excavation

Ineffective Dewatering

- Pumping water behind the installed silt fence from an excavation

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Ineffective Dewatering

The water then seeps around the improperly installed silt fence, across the sidewalk, and into the street.

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Ineffective Dewatering

Sediment laden water then crosses the street and causing back ups in lined basins.

Vehicles using the street consequently track sediment down the road and off site.

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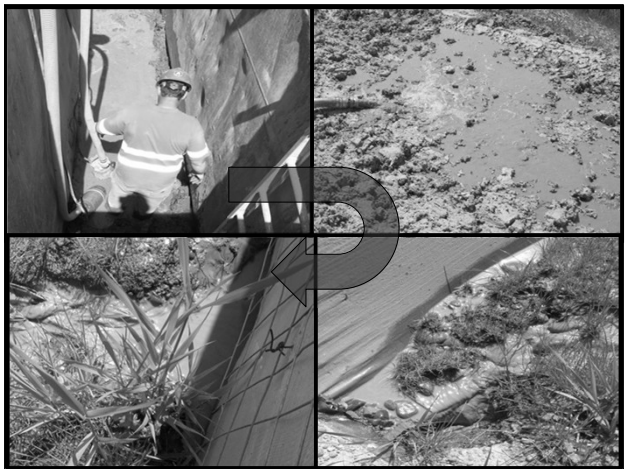

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Stormwater from newly poured concrete next to sensitive area

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Perimeter Protection

Schedule your work to provide perimeter protection for the duration of the project.

As work progresses pay attention to the areas next to sensitive areas and streams.

Stabilize slopes ***early*** in the project.

Improperly installed silt fence allowing run-off to enter surface waters.

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Daily Work in Progress

Schedule work near sensitive areas to be completed in one working day (if possible).

Do *not* start work and leave sensitive areas exposed because of missing materials or a late sub-contractor.

Example:

- Catch basin is not ready
- Rockery contractor delays for a few days
- Slope is left exposed over the weekend

Plan to "Button Up" perimeter work areas ASAP.

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