Standard Specifications & Permit Requirements for ESCM

Topics of Discussion

Erosion Control is important

Regulations, Regulatory Agencies and Permits
Clean Water Act, NPDES, EPA, DEQ, USACE

Specifications, Part 00200
Temporary Features and Appurtenances
– Section 00280 Erosion and Sediment Control
– Typical Erosion and Sedimentation
– Typical Best Management Practices
– Typical Erosion and Sediment Control “Fails”
September, 2011: Inside ODOT article

Time to take environmental protection to the next level

You’ve heard me praise the award-winning work of our geometric, construction, project delivery, engineering and support staff in establishing ourselves as leaders in environmental stewardship and innovation. We are known for our accomplishments in the environmental arena and for including these vital quality of life concerns throughout the planning, design and construction process.

But we’ve stumbled in one key area, and it’s time to steady ourselves and make sure we don’t fall again.

Last month we received a fine from the Department of Environmental Quality for lack of erosion control. We’ve been fined similarly before, on the Pioneer Mountain Eddyville project for example. We learned a lesson, but more study and more focus is needed.

Erosion control, as with most of the procedures we use every day to deliver projects, is more than just getting a permit or approving a plan. It requires actively managing erosion control on the job site to ensure no sediment gets into the waters.

“Going Forward, erosion and sediment control on our project sites needs to be an area of emphasis.”

Summary of Terms

- **BMP** – Best Management Practice
- **ESCP** – Erosion and Sediment Control Plan
- **ESCM** – Erosion and Sediment Control Manager
- **ESC** – Erosion and Sediment Control
- **NPDES** – National Pollution Discharge Elimination System
- **PCP** – Pollution Control Plan
- **DEQ** – Department of Environmental Quality
- **USACE** – US Army Corps of Engineers
Regulations and Regulatory Agencies

- Clean Water Act – Federal law to prevent pollution in the waters of the United States
- National Pollutant Discharge Elimination System (NPDES) – our regulations of concern
- Point and nonpoint sources
- Agencies overseeing clean water act
  - Environmental Protection Agency (Federal) (EPA)
  - Division of State Lands (State) (DSL)

Other Agencies and Acts

US Army Corps of Engineers (USACE) – 404 Permit

In-water work activities

- Any activity that might result in discharge/disturbance to waters require Federal 404 Permit
  - Nationwide General Permit
  - Individual Permit
- Permit require DEQ 401 Certification to comply with State water quality regulations
- When needed the PM will provide this permit to the Contractor at the Pre-Construction meeting
NPDES Permits

- Oregon is a delegated state
  - Authorized to issue NPDES Permits
  - State Agency: Oregon Department of Environmental Quality (DEQ)

- NPDES Permit types
  - **Individual 1200-C** (For local agencies, businesses etc.)
  - **General 1200-CA**
    (Agency with several projects of similar type; ODOT has acquired this permit.)

  [https://www.oregon.gov/deq/wq/wqpermits/Pages/Stormwater-Construction.aspx](https://www.oregon.gov/deq/wq/wqpermits/Pages/Stormwater-Construction.aspx)

Relationships

ODOT is a trusted partner, with NMFS, FHWA, ODFW, USFS, ODA, the native Tribes as well as DEQ and USACE. These agencies oversee stewardship of fish, wildlife, clean water, clean air, natural landscapes and other values that are embraced by ODOT.

ODOT’s reputation as a trusted partner is reinforced by our compliance with permit requirements.

All ODOT project work is conducted under five existing 1200-CA Permits. These established permits are enabled by our trusted-partner relationship with DEQ. – This is a sweet deal. Let’s not mess this up.
Compliance Trends

2017 Results .......................... BMP installed incorrectly – 29%
Soil Erosion visible – 16.9%
Current permits not on site – 10.5%

2016 Results ........................... BMP installed incorrectly – 23%
Soil Erosion visible – 14%
Current permits not on site – 11%

2015 Results ........................... BMP installed incorrectly – 23%
Soil Erosion visible – 12%
Current permits not on site – 8%

2014 Results ........................... BMP installed incorrectly – 26%
Soil Erosion visible – 26%
Current permits not on site – 6%

Perimeter Control Was Specified

“Ensure: Make certain that something will occur”
280.30 – ESCM must report permit violations


ORS 468.953
Falsification of reports is a Class C Felony
General Permit: 1200-CA

Activities covered by this permit:

- All ground disturbing construction activities under the authority of a public agency with the disturbance of one or more acres.
- Phased construction where full build-out disturbs a total of one or more acres.
- ODOT has 5 Regions, each Region has its own 1200-CA Permit.
- ODOT's 1200-CA cannot be used on ODOT funded Local Agency projects.

ODOT 1200-CA Permit

- Project Manager will provide a copy of the permit to the Contractor at the preconstruction conference.
- A copy of the permit must be retained on an active site.
- Local permits may be required in addition to 1200-CA permit (local regulations may be more stringent and must comply).
The 1200-CA Permit requires an Erosion and Sediment Control Plan (ESCP) be developed and implemented to prevent:

- Earth slides or mudflows that leave site or are likely to discharge to surface waters
- Concentration of flow causing erosion or that are likely to leave site with a sediment load
- Evidence of rills, rivulets or channels
- Deposition of sediment where it can move into unprotected storm water inlets
- Lack of maintenance

Oregon Dept. of Environmental Quality Resources


Erosion and Sediment Control Manual

- Appendix A: Climate Information and Rainfall
- Appendix B: Soil Survey Information
- Appendix C: Acronyms and Terms
- Appendix D: Runoff Control BMPs
- Appendix E: Erosion Prevention BMPs
- Appendix F: Sediment Control BMPs
- Appendix G: Non-Storm Water Pollution Control BMPs
Section 00280 Description

00280.00 Scope

- This work consists of controlling soil erosion by wind or water and preventing eroded sediments from leaving site.
- Requirements described in these Specifications and ESCP are the **minimum** for all project construction sites. Changing site conditions frequently require additional measures.
- These Specifications cover all ODOT projects unless specified and includes disposal sites.
- The 1200-CA permit provides the structure for the 00280 Specifications and the specs support the permit.

00280.00 Scope

- Comply with Federal, State, and Local laws, rules, and regulations
- Local permits may be more stringent than these specifications
- This work consists of providing effective functioning erosion and sediment control until the site is permanently stabilized.
- **Contractor is responsible to comply with all permit requirements and specification conditions**
- Inspector verifies Contractor performs work
0280.04 – Requirement Overview – Page 202
Erosion and Sediment Control Plan (ESCP) on Agency Controlled Lands

- 00280.04 includes language the inspector may use as enforcement piece to revise ESCP to provide better performance. Let’s review…
- DEQ may request modifications to the ESCP at any time. Inspector may require ESCP modifications
- Be aware the permit identifies non-stormwater discharges that are allowable if identified in ESCP

Section 00280.05
ESCP on Non-Agency Controlled Lands

- Submittals are the same as for Agency-controlled lands
- ODOT’s 1200-CA permit does not cover non-Agency controlled land
- Work on non-Agency lands require 1200-C (individual) permit or proof permit is not required and statement that hold the Agency harmless for work on the land.
- ODOT’s inspector verifies permit and/or other required documents are obtained, but has no jurisdiction over activities on non-Agency lands.
What are Erosion and Sedimentation?

Erosion

Sedimentation

Sediment leaving site

Turbid water leaving site
What are Erosion and Sedimentation?

Rill Erosion

Gully Erosion

Inspector Responsibilities

- Have knowledge and understanding of the project, the ESCP and the Pollution Control Plan (PCP).

- Ensure that the Contractor submits the Construction ESCP at the Pre-Con meeting. Ensure it satisfies requirements.

- Ensure that the Contractor installs ESCP identified BMPs and updates the ESCP as construction progresses.

- Ensure that the Contractor maintains the erosion control facilities as needed.

- Ensure the Contractor keeps the project in Permit compliance. – ODOT is permittee and ultimately responsible
1200-CA Permit / 00280.06, 00280.30 & 00280.61
ESCM Requirements

- ESCM is Agency inspector’s point of contact for ESC issues.
- Provide the ESCM’s name and 24-hour contact number ten days before the preconstruction conference.
- Should the ESCM be replaced during a project contract, the Contractor shall provide written notice within 5 days.

00280.06, 00280.30 & 00280.61
Erosion and Sediment Control Manager (ESCM)

- Contractor shall provide a person experienced in all disciplines of highway construction and certified as qualified, as the Erosion and Sediment Control Manager (ESCM).
- The ESCM is responsible for ensuring BMPS provide effective functioning (00280.61).
- ESCM has the authority to immediately mobilize personnel to correct and modify erosion prevention and sediment control devices as required. (00280.30)
Key Responsibility of ESCM – 00280.30
(Inspector to verify)

Contractor’s ESCM has 15 responsibilities listed on Page 208,
Let’s review….

Although the Contractor and ESCM take the lead on erosion and sediment control, ODOT is the permittee and ultimately responsible.

Erosion
00280.14 – 00280.16
Materials

- **00280.14** – Erosion Prevention – This Section lists materials that cover soil and prevent erosion
- **00280.15** – Runoff Control – This Section lists BMPs and materials to control stormwater runoff
- **00280.16** – Sediment Control – This Section lists BMPS and materials that prevent untreated sediment from leaving the project site.
- Material descriptions and requirements ranging from Biofilter Bags to Chemical Soil Stabilization.

00280.14 – 00280.16
Materials (continued)

- When specified, use materials from the Qualified Product List (QPL)
- QPL Program discussion
Construction

00280.44 – Erosion Prevention BMPs

Plastic sheeting – 280.44(a)
Slope Matting 280.44(e)
Fiber Rolls & Vegetation 280.46(e) & 1030

Construction (continued)

00280.44 – Erosion Prevention BMPs

Compost Mulch 280.44(f)
Straw Mulch 280.44(d)
Hydromulch 280.44(e)(4) & 1030.48(a)
Construction (continued)

00280.45 – Runoff Control BMPs

- Check Dams 280.45(a)
- Lined Channel 280.44(e)
- Temp. Slope Drain 280.45(d)

Construction (continued)

00280.46 – Sediment Control BMPs

- Const. Entrance 280.46(a)
- Sediment Fence 280.46(c)
- Inlet Protection 280.46(d)
## Construction

### 00280.40 Installation
- Install all BMPs as shown in the plans or approved ESCP
- Install BMPs before performing clearing activities
- BMPs can be non-structural such as limiting clearing of vegetation
- Provide continuous erosion prevention and sediment control for the entire period of the project
- If planned or installed BMP are not effective, modify or change them so they are effective
- Inspectors to verify Contractor satisfies these requirements.

### 00280.41 Construction: Work Restrictions (Required Actions)
- Delineate clearing limits and No Work Areas with high visibility markings such as orange plastic mesh fence.
- Install perimeter controls prior to ground disturbing activities
- Update the ESCP and schedule for wet season to ensure appropriate controls are implemented and maintained. Wet Season Work: Oct. 1 – May 31 (00280.02)
- Temporary work suspension during wet season is an appropriate BMP.
- Limit the amount of disturbed areas to that which can be effectively controlled.
Construction: Stabilization

Stabilization – “Measures or methods necessary to prevent erosion of sediments from leaving the project site...”

00280.42 (a) Soil Exposure Limitations

Statewide (Entire Year) – Stabilize within seven days of exposure, all areas within 100 ft. of waterways, wetlands or other sensitive areas using methods that do not rely solely upon germination to control erosion.

Construction: Stabilization (continued)

00280.42 (a) Soil Exposure Limitations (continued)

- West of the Cascades (Entire Year)
  Stabilize all other areas within 14 days of exposure
- East of the Cascades (October 1-April 30)
  Stabilize all other areas within 14 days of exposure
- East of the Cascades (May 1-September 30)
  Stabilize slope and embankment construction in stages based on site conditions, weather and as determined by Agency
Construction: Stabilization (continued)

00280.42 Stabilization: Soil Exposure Limitations
(continued)

- 00280.42 (b) Temporary Stabilization
  - Every 14 days or more frequently as needed
  - 1 day prior to anticipated rain events
  - When sediments leave site
  - At the end of each day during wet periods
  - As emergency measure when rain is falling
  - When actions or weather cause dust
Construction: Stabilization (continued)

- **00280.42 (c) Permanent Stabilization**
  - Provide permanent stabilization when earthwork to establish finish grades is complete. – “…at the earliest practicable time”
  - If seed is not established, or soil not protected, provide additional BMP’s that do not rely on germination to provide stabilization

Construction

**00280.43 Area Preparation**

- Prepare areas as per 01040.48(d)
- Track all fill slopes
  - Steeper than 1V:3H
  - Flatter than 1V:1.5H
  - Parallel to slope contours
  - Track grousers greater than 13/8”
Construction (continued)

00280.48 Emergency Materials

- Should/will be listed in the Special Provisions
- Stockpile materials on-site for unknown weather or erosion conditions, in addition to materials required by ESCP
- All materials must be removed from the site at the completion of project (within 30 days)

Sediment Fence Issues
Sediment Fence Issue

00280.70 Removal

- Removal of sediment fence is required after acceptance of permanent stabilization
- Use of alternative sediment barriers instead of sediment fence can avoid issues

Check Dam Issues
Straw bale not an approved check dam

Erosion Control Mulch
Straw Wattle Installation

- Make mud slurry
- Generate thick turbid runoff
- Can track offsite

1200-CA Schedule A 3c ii – Required controls and practices: “All unpaved roads located on-site shall be graveled” (exemptions apply)
## Maintenance

### 00280.61 – Ineffective Controls

- Repair, replace or provide additional devices when control features do not function effectively.
- Devices repaired, replaced, or added due to improper installation, insufficient maintenance, or damage from the Contractor operations will be made at no additional cost to the Agency.
- 1200-CA, Permit – Requires permittee to operate and maintain all BMP to achieve compliance with the permit. (ODOT is the permittee).

## Maintenance

### 00280.62 Inspection and Monitoring (continued)

### Monitoring Receiving Stream

- Furnish rain gauge and monitor rainfall – Report 24-hour rainfall of 1/2 inch or greater to Agency.
- Observe and record color and turbidity – This requirement supports **1200-CA, Schedule B.7.c**.
- Permit Non-Compliance and Water Quality Violations
  - verbal report to the Engineer within 24 hours
  - written report within 5 calendar days
Maintenance

00280.63 Sediment Removal

- Remove sediment and upgrade or repair the devices ASAP (no later than 2 days after the ground has dried for equipment operation)
- Under no conditions shall sediment be intentionally washed into storm sewers or drainage ways unless it is captured by a BMP before entering receiving waters.
- With Agency approval, hand carry and install ESC devices when rainfall continues.

 Maintenance

00280.63 Sediment Removal (continued)

- Catch Basins-storage capacity <50%
- Sediment Controls-filtering capacity <33%
- Construction Entrances – add or replace aggregate or other material for proper function of entrances
- Paved Areas
  – keep them clean
  – use methods that prevent transport of sediment-laden water to streams
Finishing and Clean-up

00280.70 Removal of temporary ESC devices
- No later than 30 days from acceptance of stabilization
- Permanently stabilize areas (2 days) affected by removal process

00280.71 Sediment Disposal
- Regrade removed sediment into slopes
- Dispose according to 00290.20
- Do not flush sediments into drainage systems – This requirement supports 1200-CA, A.4.b.

00280.80 – Measurement
Multiple methods for calculation
- Lump Sum Basis (no measurement)
- Unit Basis
- Length Basis
- Area Basis
- Limitations
00280.90 – Payment

- Lump Sum Basis (4-25% payments)
- If only payment item is “Erosion Control” all labor and materials are incidental.
- Emergency materials are paid at bid item price if used.
- Unit, Length, Area Basis
  - Payment will be in full for furnishing and placing materials including equipment, labor, and incidentals

Special Provisions

Modifications to the Specifications with higher authority

- 00280.05 Project Signing – Install a minimum of two “Erosion Concerns? CALL (XXX) XXX-XXXX” (CG20-10) Type “OO” signs within the Project limits.
- 00280.48 Emergency Materials – Add the following paragraphs after the paragraph that begins “Provide, stockpile, and protect...”: Provide and stockpile the following emergency materials on the Project site: Item Quantity
Special Provisions (continued)

- **00280.70 Removal** – Add the following paragraph to the end of this section: If shown or if directed, compost filter material may be dispersed in place. Cut open compost filter socks and dispose of sock material according to 00290.20.

Compost – Specification
(03020 – Erosion Materials)

- Check Special Provisions for Compost requirements
- Contractor make sure the Specs are met
- Contractor will be responsible for removing and replacing material
- Check Compost Technical Data Sheet
Compost

- Use Compost Standard Drawings and Details (RD1032, RD1033, DET 6017)
- Compost particle size is important in BMP function.
- Compost use variance should be approved by PE/PM
- Problems obtaining compost products? – report to Program Coordinators – Compost suppliers can and will screen coarse compost meeting ODOT spec, on request if given advanced notice