

Design Advisory

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Road Design Manual -
Section 1.04

Drainage Manual

Soil Erosion and
Sedimentation Control
Manual

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Design Advisory should be
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CONSIDERATION OF SOIL EROSION AND SEDIMENTATION CONTROLS (SESC) DURING DESIGN

Through a series of meetings with Development and Delivery staff at the Region and TSC level, an MDOT audit team developed the following guidance for determining pay items and adequate quantity estimates when designing a successful SESC plan.

It is not unusual for designers to include the usual items - silt fence, inlet protection, check dams, sediment traps - within their projects. Delivery staff has requested a variety of pay items that could be employed when construction staging and weather conditions complicate the active construction site conditions.

Each project manager relies on different sources for assistance, depending on the SESC experience of their Region and TSC staff. However, the goal is always to include adequate pay items and quantities on the plans to allow the contractor, working with the construction staff, to limit soil erosion and prevent the loss of sediment off the right-of-way or into the waters of the state. To accomplish this it is necessary to evaluate several factors, some of which are:

- Extent of earth disturbance on the project
- Soil types in the construction area
- Steepness and length of slopes
- Water resources on and adjacent to the project
- Staging and sequence of the construction activity
- Duration of the project
- Increase in impervious surface area

A successful SESC plan considers these factors as early in the design process as possible. There are many sources of information available within the department to help the designer in this evaluation and plan development including:

- SESC Manual - The Erosion & Sedimentation (E&S) detail sheets in the manual include information on when to use specific E&S measures, what pay items are included, and what construction and maintenance issues to consider.
- Road Design Manual - The twelve elements of an SESC plan recently incorporated into Section 1.04 for Log Projects is a good reference for any project as these same elements must be included in a standard set of plans.
- Drainage Manual - This manual addresses all aspects of roadway drainage including temporary and permanent best management practices to minimize erosion and control sedimentation.
- Technical Training - All new design staff should consider taking the NHI course on SESC. Contact the technical training coordinators at C&T to see when the course is available.
- Staff Expertise - Sources include the Region soils/drainage engineer, resource analyst, and environmental permit coordinator; and staff in the Design hydraulics unit and C&T, Geotechnical Services Section.

By the preliminary plan review stage, the designer should have completed an analysis of the potential for soil erosion to occur during the construction phase. The soils engineer and others should have been contacted for suggestions. A combination of standard and site specific E&S measures should be incorporated and adequate pay item quantities included giving the contractor and construction staff the tools they will inevitably need to execute the project.