



Sediment And Erosion Control Plan Review Checklist
This Checklist to be Completed by Design Professional In Charge

This checklist is intended to provide guidance to you as you prepare your design plans. The items on this checklist are some of the items that will be reviewed by Frederick County Soil Conservation staff. Please complete this checklist and submit it with a Sediment and Erosion Control plan.

Project Name: _____ Date Submitted to SCD: _____

Engineer Firm: _____ Engineer Incharge Name: _____

Engineer Incharge Phone #: _____ Email: _____

Cover Sheet - Items that must be on first plan sheet

Engineer Incharge	SCD Reviewer	Item
		Title Block: Project name, property address and legal description (lots/blocks/subdivision, parcels, or other legal references.)
		Project Scope/Name: Examples - Sediment Control and SWM for [project name], Sediment Control for Demolition and Improvement Only, Sediment Control for Mass Grading Only for [project name].
		Owner/ Developer Certification: Name, address, phone number, and signature
		Frederick County Soil Conservation District Signature Block: Lower right-hand corner on all SEC Sheets.
		Location Map: Site outlined and adjacent streets labeled.
		Approval Summary Table: List all approval warranted for the project within this table to include, SCD, MDE Water Resource Permits, Notice of Intent (1 acre or more), etc.
		Sheet Index Table: Provide sheet numbers with description
		Engineer's Design Certification Seal and Signature Block: Seal of a Maryland Registered Professional Engineer (PE), Maryland Land Surveyor, Maryland Landscape Architect or Maryland Architect. Provide Digital Seal and Signature per State and County requirements. Seal only required to be on the first sheet. Provide date signed and expiration date. Plans requiring Small Pond or Dam Safety approval can only be sealed by a Maryland PE.
		Certification of the Disturbed Area Quantity Block: Include cubic yards of excavation and fill with disturbed square feet or acres.
		Property Information/General Notes: Project summary description, statement regarding 100 year floodplain and wetlands. Waterway Class, Stream restriction period. List other plan that are connected to submitted plan; example mass grading, improvement plan phases.

Sediment Control - Plan Views

Engineer Incharge	SCD Reviewer	Item
		Scale: All plan views, profiles and sections. Use legible engineer's scale appropriate for complexity of plan such as 1" = 30' but never smaller than 1" = 50'. Include a bar scale to assist with future document reproduction. If the reviewer cannot read the plans at the scale provided, it may be required to be resubmitted at an appropriate scale.
		Property: Project's property lines and ROW lines dark and clearly identified. Owner information shown for all adjacent properties. Delineate and label ROW to be dedicated when applicable. Include name of adjacent property owner(s).
		North Arrow: On all plan views, including insets and larger scale plan views.
		Existing Topography and Proposed Grades: Shown and clearly labeled. Show sufficient topography on adjacent properties to support the design including Limits of Disturbance (LOD) and drainage impacts. As adjacent properties are typically not accessible by survey crews, utilize readily available public sources when off-site field topography is not available. Existing and proposed contours at 2' intervals are typical. Sufficient spot grades to support drainage areas, divides and flow patterns. Label low points (LP) and high points (HP) with spot elevations.

Sediment Control - Plan Views -Continued

Engineer Incharge	SCD Reviewer	Item
		<p>Existing Conditions: Show all existing improvements such as buildings, pavement, curb and gutter, sidewalks, storm drain (size and material), stormwater management facilities, water and sewer, dry utilities, and trees, etc. and identify with a legend and/or labels. Indicate if improvements are to remain, to be removed or to be abandoned in place. Show flow arrows on existing storm drains. For most projects a separate Existing Conditions Plan Sheet with Sediment Control is not necessary even if the project includes demolition, rough grading and rerouting of storm drain as an initial step. Sediment Controls for initial demolition should be shown on the proposed improvements Sediment Control plan whenever possible and practical. It is rare that a project needs numerous "phased" SC plan views showing various stages of construction progressing. Instead the Sequence of Construction should be used to identify the installation and removal of measures as the project progresses.</p>
		<p>Proposed Improvements: Show all proposed improvements such as buildings, pavement, curb and gutter, sidewalks, storm drain (size and material), stormwater management facilities, water and sewer, dry utilities, and trees, etc. and identify with a legend and/or labels. Show building limits and outline and label limits of underground garages. Show flow arrows on proposed storm drain and SWM pipes. Label roads as public or private. Show and label all SWM measures on SC Plan. Clarify pervious and impervious surfaces. Do not show individual hardscape patterns on plan views. Show door locations and critical floor elevations. Do not show interior architectural layout unless critical to the review. Show all well, septic, and geothermal wells with setbacks.</p>
		<p>Easements: Show and label all existing and proposed easements, such as SWM, PUE's, PIE's, public and private Storm Drain, Forest Conservation, and WSSC. Provide recording information if available</p>
		<p>Maximum Slopes on Lots: Permanent cut and fill slopes constructed on residential lots may not exceed 3:1. Non-residential properties may not exceed 2:1 slope. Clearly label all slopes.</p>
		<p>Slope Benching: Shown and designed per MDE requirements and detail. Benching is required for slopes as follows: 2:1 slopes higher than 20 feet; 3:1 slopes higher than 30 feet and 4:1 slopes higher than 40 feet.</p>
		<p>USDA Soil Survey Information: Delineated and labeled with Map Units</p>
		<p>Limit of Disturbance (LOD): Delineate and label. LOD includes all disturbed areas on the site, in the ROW and on adjacent properties.</p>
		<p>Sediment and Erosion Control Devices: Show all Sediment Control devices using standard symbols as established by the 2011 Maryland Standard and Specification for Soil Erosion and Sediment Control manual. Provide SC legend on all SC plan views. Clearly highlight any proposed modifications to the details or special conditions. All sediment control practices must be within the LOD and used per the 2011 Maryland Standards and Specification for Soil Erosion and Sediment Control manual.</p>
		<p>Stabilized Construction Entrance: Required for all projects, shown on SC plan view and mentioned in the SOC. If there is multiple stabilized construction entrances, number each according.</p>
		<p>Drainage Divides for SC: Delineate and label existing and proposed drainage divides on SC plan view sheets when applicable to review of SC measures such as traps and basins.</p>
		<p>Stockpiling, Staging, and Storage Area: Staging, material storage and stockpiling area(s) shown or noted to be on the site and within the LOD. Provide SC and slope benching as necessary.</p>
		<p>Off-Site Drainage Areas: Off-site drainage areas draining towards the project's LOD shown and acreage noted on the SC plan view. Provide a smaller scale inset to support the acreage if necessary.</p>
		<p>Environmental Features: Delineate and label environmental features that may impact SC and/or SWM such as stream valley buffers, steep slopes (>15%) and wetlands (including 25-foot buffer.)</p>
		<p>100-year Floodplain Delineation: Show and label the 100-year floodplain and 25-foot BRL for any drainage way with >30-acre drainage area. Note drainage area in acres and floodplain approving authority with number/panel as applicable for any location when concentrated flow from an area of > 30 acres exits a site.</p>
		<p>Overall SC Plan and Composite Key Sheet: <i>Required</i> for SC plans with more than one plan view. Overall view should show existing contours, proposed improvements and grades, SC and LOD as shown on the larger scale plan views.</p>
		<p>Standard Sediment and Erosion Control Notes: Included on one SC plan sheet.</p>
		<p>MDE SC Details: Include MDE details specification from the 2011 Erosion and Sediment Control manual for all control devices used on the project.</p>

Sediment Control - Plan Views -Continued

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		Sequence of Construction (SOC): Design Professional must expand sequence to fit the specific SC, SWM and construction elements for the project. For instance, instead of "install sediment control measures" list project specific SC measures to be installed at that step. Do not include any steps in the Standard Wording that are not applicable. Include critical project steps and related installation and removal of SC measures so reviewer and SC inspector can ensure there is <u>SC for all work</u> including demolition and construction of SWM facilities. Key items that are required in the SOC shall be pre-construction meeting notifications, obtain Notice of Intent if project is over an acre of disturbance and a copy be furnished to Frederick County Soil Conservation District. If the site has SWM facilities provide information about when will they be converted or installed with statement that area must be stabilized and approved by the sediment control inspector. * For 2 Yr. Renewal submission, place red check marks at items that have been completed within the sequence of construction.
		Sediment Control Inspector Checklist: Checklist for developer/ contractor to use to follow the sequence of construction and inspect sediment controls devices throughout the duration of the project.
		Utility Work Notes: Utility work notes shall include for on and off-site utility and secondary utility works standards.

Sediment Control Devices used within limits of disturbance (LOD)

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		Stabilized Construction Entrance: To reduce tracking of sediment onto roadways and provide a stable area for entering to or exit from the construction site. Refer to B-1 in the 2011 MD Standards And Specification Soil Erosion and Sediment Control manual for Design Criteria.
		Earth Dike: To direct sediment-laden runoff to a sediment trapping practice or to intercept and divert clear water away from disturbed areas. There are two standard sizes of earth dikes and three types of flow channel stabilization. Refer to C-1 in the 2011 MD Standards And Specification Soil Erosion and Sediment Control manual for Design Criteria.
		Diversion Fence: To direct sediment-laden runoff to a sediment trapping practice, or to intercept and divert clear water away from disturbed areas. Constructed along the limit of disturbance (LOD) or across disturbed areas, a diversion fence is used when there is insufficient space to construct an earth dike, temporary swale, or perimeter dike swale. Refer to C-9 in the 2011 MD Standards And Specification Soil Erosion and Sediment Control manual for Design Criteria.
		Silt Fence: Used to intercept sediment-laden sheet flow runoff allowing the deposition of sediment transported from upslope. Silt fence is not to be used as a velocity check in swales or placed where it will intercept concentrated flow. Silt Fence is to be placed on the contour. Silt fence is limited to intercepting sheet flow runoff from small disturbed areas. The use of silt fence is based on slope length and steepness of the contributing drainage area. Refer to E-1 in the 2011 MD Standards And Specification Soil Erosion and Sediment Control manual for Design Criteria.
		Super Silt Fence: Used to intercept sediment-laden sheet flow runoff allowing the deposition of sediment transported from upslope. Super Silt fence is not to be used as a velocity check in swales or placed where it will intercept concentrated flow. Super Silt Fence is to be placed on the contour. Where the slope steepness or slope length criterion for silt fence cannot be met or where additional protection is warranted such as adjacent to wetlands, streams, or other sensitive areas. The use of super silt fence is based on the slope length and steepness of the contributing drainage area. Refer to E-3 in the 2011 MD Standards And Specification Soil Erosion and Sediment Control manual for Design Criteria.
		Filter Logs: Used to collect and filter sheet flow and can only be proposed in instances where the use of silt fence is not practical or may significantly damage tree roots. When use of Filter Logs is necessary, include in SOC, provide detail, show on plan and in SC legend. Specify filter log size and installation type. Refer to E-6 in the 2011 MD Standards And Specification Soil Erosion and Sediment Control manual for Design Criteria.
		Storm Drain Inlet Protection: Used to filter sediment-laden runoff before it enters the storm drain system. When sediment-laden flow is directed to an inlet and it is not possible to temporarily divert the storm drain outfall into a sediment trapping practice, or when watertight blocking of inlets is not advisable. Types of inlet protections include Standard Inlet, As-Grade Inlet, Curb Inlet, Median Inlet, Combination Inlet and Gabian. Refer to E-9 in the 2011 MD Standards And Specification Soil Erosion and Sediment Control manual for Design Criteria.

Sediment Traps

**Sediment Trap must be designed per Section G-1 of the MDE 2011 Standards and Specification for Soil Erosion and Sediment Control.
(Place N/A if this section does not apply)**

Engineer Incharge	SCD Reviewer	Item
		Trap Data: In table form with required information per MDE 2011 Standards and Specifications Sections G-1-1 . Table MUST be placed on the same sheet as the plan view of the trap. At a minimum the information must include:
		1) Trap Number and Type
		2) Drainage Area (Initial and Final); Interim only when applicable
		3) Storage Volume Required and Provided (Wet, Dry, and Total)
		4) Elevations - Bottom, Dry Storage, Wet Storage, Cleanout (50% of wet storage), and Outlet

Sediment Traps- Continued

**Sediment Trap must be designed per Section G-1 of the MDE 2011 Standards and Specification for Soil Erosion and Sediment Control.
(Place N/A if this section does not apply)**

Engineer Incharge	SCD Reviewer	Item
		5) Embankment height, width (minimum 4 feet) and elevation
		6) Bottom Dimensions
		7) Max Side Slopes for cut and fill
		Trap Plan View: To scale and on SC plan view sheet. Include:
		1) Trap Number and Type
		2) Existing contours and proposed grades
		3) Bottom and outlet elevations
		4) Bottom Dimensions
		5) Side Slopes labeled
		6) Trap inflow points with inflow protection specified (PSD's required for DA's greater than 3 acres.) Max area for RRP or GP is 10 acres
		7) Trap outflow points with outfall protection specified
		8) Minimum 42" Welded Wire Safety Fence (do not block inflows and outflows)
		9) Baffle Boards with dimensions and top elevation
		10) Located a minimum of 20 feet from existing or proposed building
		Inflow Points and Baffle Boards: Locate to maximize the flow distance to the outlet. Length to effective trap width ratio must be 2:1 or greater. Where a 2:1 effective length to width ratio between inflow and outflow cannot be obtained, baffles are required. Baffles are required when DA is > 3.0 ac. See Detail G-2-4 Baffle Boards.
		Outflow Protection: Designed per MDE 2011 D-4 Standards and Specifications for Rock Outlet Protection. Provide project specific design information.
		Pipe Outlet Traps (ST-I): <i>The maximum allowable drainage area to a Pipe Outlet Trap is 5 acres.</i> Refer to Section G-1 Sediment Traps for additional design criteria.
		Stone/Rip Rap Outlet Traps (ST-II): Only permitted when it can be demonstrated that it is not practical to use an ST-I or ST-III trap. Specify and show weir length (must be > four time the DA in acres), outlet elevation at end of rip rap (ex. ground elevation stable trap outfall), weir crest (set at least one foot below the top of embankment) and top of embankment (no more than three feet above existing ground at weir location.) The maximum allowable drainage area to a Stone/Riprap Outlet Sediment Trap is 10 acres.
		Rip Rap Outlet Traps (ST-III): Specify and show depth of outlet (a), bottom width of outlet (b), width of apron at end (1.5 times outlet width (b)), outlet elevation at end of rip rap (ex. ground elevation - stable trap outfall), outlet crest (at least one foot below the top of embankment), top of embankment (no more than three feet above existing ground at weir location), outlet depth (a) and width (b) and embankment height, width, and elevation. The maximum DA to an ST-III trap is 10 acres.
		Stable Trap Surface Outfall: Traps must outfall onto undisturbed land per the MDE details
		Dewatering/Draining Trap: Specify method for dewatering/draining the trap and include necessary MDE details (e.g., removable pumping station, etc.) Specify in SOC.
Sediment Basins		
<p>Sediment Basins must be designed per Section G-2 of the MDE 2011 Standards and Specification for Soil Erosion and Sediment Control. Please note the Conditions of Use. Where any of these criteria cannot be met, the structure must be designed in accordance with Environmental Article, Title 5, Subtitle 5, Annotated Code of Maryland or Natural Resource Conservation Service (NRCS) Maryland Conservation Practice Standard Code No. 378 for Ponds. Ref to the Design Checklist for 378 ponds. (Place N/A if this section does not apply)</p>		
Engineer Incharge	SCD Reviewer	Item
		Basin Design Data Table G-6: Completed and placed on plan sheet.
		Basin Data: At a minimum the information must include:
		1) Basin Number
		2) Drainage Area (Initial and Final); Interim if applicable
		3) Storage Volume Required and Provided (Wet, Dry, and Total)
		4) Elevations - Bottom, Dry Storage, Wet Storage, Cleanout (50% of wet storage), and Outlet
		5) Distance between the top of riser and cleanout sediment elevation in feet and inches
		6) Embankment height, width (minimum 4 feet) and elevation
		7) Bottom Dimensions and Max Side Slopes for cut and fill
Sediment Basins- Continued		
<p>Sediment Basins must be designed per Section G-2 of the MDE 2011 Standards and Specification for Soil Erosion and Sediment Control. Please note the Conditions of Use. Where any of these criteria cannot be met, the structure must be designed in accordance with Environmental Article, Title 5, Subtitle 5, Annotated Code of Maryland or Natural Resource Conservation Service (NRCS) Maryland Conservation Practice Standard Code No. 378 for Ponds. Ref to the Design Checklist for 378 ponds. (Place N/A if this section does not apply)</p>		
Engineer Incharge	SCD Reviewer	Item

		Basin Plan View: To scale and on SC plan view sheet. Include:
		1) Basin Number
		2) Existing contours and proposed grades
		3) Principal Spillway riser and barrel with sizes and materials
		4) Bottom, Emergency Spillway, and Outlet elevations
		5) Bottom Dimensions
		6) Max Side Slopes for cut and fill
		7) Location of projection collar, filter diaphragm, and anti-seep collar as applicable
		8) Basin inflow and outflow points with outfall protection specified (PSD's required for DA's greater than 3 acres) Max area for RRP or GP is 10 acres
		9) Minimum 42" Welded Wire Safety Fence
		10) Baffles Boards with dimensions and top elevation – (required when DA is > 3.0 ac.)
		11) Located a minimum of 20 feet from existing or proposed building
		Cross Section Through the embankment and Principal Spillway: To scale and placed on basin plan view when possible and to include the following:
		1) Constructed and settled top elevations
		2) Riser and Barrel with sizes and materials
		3) Location of projection collar, filter diaphragm, and anti-seep collar.
		4) Trash Rack
		5) Weir Elevation
		6) Orifice Size and Invert
		7) Cutoff trench location, side slopes, dimensions, and material
		8) All required WSEL's including safety storm
		9) Embankment top width and elevation
		Embankment Height: Low Hazard Class per USDA NRCS.
		Dam Breach: If Basin is to be converted to a pond, provide Dam Breach Analysis approval. Some basins may require MDE pond approval prior to approval of SC plans.
		Dewatering/Draining: Specify method for dewatering/draining the basin and include necessary MDE details (e.g. removable pumping station, etc.). Specify in SOC.
		Inflow Points and Baffle Boards: Locate to maximize the flow distance to the outlet. Length to effective basin width ratio must be 2:1 or greater. Where a 2:1 effective length to width ratio between inflow and outflow cannot be obtained, baffles are required. See Detail G-2-4 Baffle Boards.
		Outflow Protection: To be designed per MDE 2011 D-4 Standards and Specifications for Rock Outlet Protection. Provide project specific information.
		Stable Basin Outfall: Basins must outfall onto undisturbed land per MDE detail.

Private Storm Drain – Outfalls, Channels ,and Swales
 (Place N/A if this section does not apply)

Engineer Incharge	SCD Reviewer	Item
		<p>Outfall Design: Outflow protection per MDE 2011 D-4 Standards and Specifications for Rock Outlet Protection. Provide cross section of rock outlet and plan view detail and specify Type (I, II or III.) Slope = 0%.</p>
		<p>Outfall Plan, View and Profiles: For private storm drain outfalls demonstrating non-erosive release of runoff to an existing storm drain system, adequate receiving channel, or stable slope. Include topography for 100feet below any outfall. Show rip rap with dimensions, size and class (d_{50} and MSHA), rip rap channel constructed depth and side slopes if applicable, slope of the last run of pipe. Q_{10} and non-erosive V_{10}.</p>
		<p>Rip Rap Outfall Construction Details: Outfalls must be designed to conform to receiving channel/condition using MDE design specifications. Specify Rock Outlet Protection Type (I, II or III) Include existing and proposed grades, rip rap dimensions (with ranges when applicable), rip rap size and class (d_{50} MSHA class), channel side slopes, max and min. channel depth and Q_{10} depth of flow. Embedded depth of rip rap to be = $2.0 \times d_{50}$. Rip rap to be placed on specified filter fabric.</p>
		<p>Engineered Channels and Swales: Plan views and profiles for channels and swales demonstrating non-erosive conveyance and outfall to an existing storm drain system, adequate receiving channel, or stable slope. Include existing and proposed grades, channel length, slope, side slopes, and bottom width.</p>
		<p>Cross Sections for Construction: Channel cross section for construction. Bottom width, side slopes, minimum constructed depth, method of surface stabilization, Q_{10} WSEL, freeboard, Q_{10}, and non-erosive V_{10}.</p>
		<p>Computations: Q_{10} and non-erosive V_{10} using input based on the design. When practical these can be placed directly on the plan and do not need to be in a separate report</p>

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