

VIRGINIA DEPARTMENT OF TRANSPORTATION

LOCATION AND DESIGN DIVISION

INSTRUCTIONAL AND INFORMATIONAL MEMORANDUM

GENERAL SUBJECT: EROSION AND SEDIMENT CONTROL PROGRAM	NUMBER: IIM-LD-11.24
SPECIFIC SUBJECT: PROGRAM ADMINISTRATION AND MINIMUM REQUIREMENTS FOR THE DEVELOPMENT AND IMPLEMENTATION OF EROSION AND SEDIMENT CONTROL PLANS	DATE: AUGUST 15, 2006
	SUPERSEDES: IIM-LD-11.23
DIVISION ADMINISTRATOR APPROVAL:	Mohammad Mirshahi, P.E. State Location and Design Engineer Approved August 15, 2006

Shading has been omitted from this memorandum.

CURRENT REVISION

- Instructions on the design criteria and procedures of erosion and sediment control features will be contained in the *VDOT Drainage Manual*, Appendix 10B.
- Program administration details and instructions on the development of erosion and sediment control plans for Standard, Minimum, No Plan, SAAP, Capital Outlay and State Force Construction/Maintenance Projects are contained in this IIM.
- Instructions on the development and implementation of erosion and sediment control plans have been revised to comply with the Virginia Department of Conservation and Recreation's approval of VDOT's Erosion and Sediment Control and Stormwater Management Standards and Specifications and the Virginia Stormwater Management Program Permit requirements.

EFFECTIVE DATE

- This memorandum is effective upon receipt for all projects that have not progressed beyond the Pre-Advertisement Conference (or similar) Stage (where right of way will not be affected by these instructions) or Right of Way Stage (where additional right of way or easements may be required to implement these instructions).

ACRONYMS

- The following acronyms are used within this document:
 - ACE – Area Construction Engineer
 - CA – Contract Administrator
 - CEP – Concurrent Engineering Process
 - DCR – Department of Conservation and Recreation
 - EPA – Environmental Protection Agency
 - ESC – Erosion and Sediment Control
 - ESCCC – Erosion and Sediment Control Contractor Certification
 - FI – Field Inspection
 - HDA – Hydraulic Design Advisory
 - IIM – Informational and Instructional Memorandum
 - PFI – Preliminary Field Inspection
 - PM – Project Manager
 - RA – Residency Administrator
 - R&B – Road and Bridge
 - RLD – Responsible Land Disturber
 - RLDA – Regulated Land Disturbance Activity
 - SLS – Straight Line Sketch
 - SWM – Stormwater Management
 - TMDL – Total Maximum Daily Load
 - VDOT – Virginia Department of Transportation
 - VSMP – Virginia Stormwater Management Program
 - VTCA – Virginia Transportation Construction Alliance

1.0 PROGRAM ADMINISTRATION

- 1.1 VDOT receives an annual approval of its ESC Standards and Specifications from DCR. By its annual approval of VDOT's ESC Standards and Specifications, DCR authorizes VDOT to administer its ESC Program in accordance with the Approved ESC Standards and Specifications, on all land disturbance activities undertaken by the Department.
- 1.2 VDOT's Approved ESC Standards and Specifications shall apply to all plan design, construction and maintenance activities undertaken by VDOT, either by its internal workforce or contracted to external entities, where such activities are regulated by the Virginia ESC Law and Regulations. During any inspections of VDOT land disturbing activities by DCR, EPA and other such environmental agencies, compliance with the VDOT's Approved ESC Standards and Specifications (and all parts thereof) will be expected.
- 1.3 Any revisions to VDOT's Approved ESC Standards and Specifications shall be reviewed and approved by DCR prior to implementation by VDOT. Such review and approval shall be coordinated by the VDOT ESC Program Administrator.

- 1.4 Where determined necessary to meet an individual project need, VDOT may request DCR to grant a project specific variance to the Approved ESC Standards and Specifications.
 - 1.4.1 All requests for project specific variances to VDOT's Approved ESC Standards and Specifications shall be sent by the ESC Plan Designer/Hydraulics Engineer to the VDOT ESC Program Administrator and shall be accompanied by complete details and documentation, including justification for the requested variance and concurrence by the local DCR ESC Program representative.
 - 1.4.2 The VDOT ESC Program Administrator shall coordinate the review and approval of all requested variances with DCR's ESC Program Administrator.
 - 1.4.3 All requested variances are to be considered unapproved until written approval from DCR is received.
 - 1.4.4 All approved variances shall be listed in the ESC General Notes section of the ESC plans for the land disturbing activity (see IIM-LD-110 and Section 5.2.10 of this IIM).
 - 1.4.5 All documentation for and approval of requested variances shall be retained in the appropriate (i.e. design, construction, etc.) files of the proposed activity.
- 1.5 Non linear projects, such as those administered by the VDOT's Capital Outlay Program, may utilize VDOT's Approved ESC Standards and Specifications or DCR's ESC Standards and Specifications as outlined in the Virginia Erosion and Sediment Control Regulations and Handbook or a combination of the two. Such projects include, but are not limited to, new and/or additions/modifications to Rest Areas, District or Residency Office complexes, Area Maintenance Headquarters/Repair Shops and buildings on the right of way or associated with bridges/piers/tunnels, spreader/tailgate/wash rack sites, holding ponds or containment pads, fuel dispensing facilities, security facilities and drainage improvements to building/parking sites/structures.

2.0 DCR CERTIFICATIONS

- 2.1 The Virginia ESC Law and Regulations require that the ESC Program administration and the ESC Plan design, impletion and inspection activities be conducted by DCR certified personnel for all Regulated Land Disturbance Activities.
- 2.2 VDOT's ESC Program will be administrated by a DCR Certified Program Administrator.

- 2.2.1 The Program Administrator shall be the person within the Department who has been designated to have overall responsibility for administration of VDOT's ESC Program.
 - 2.2.2 The DCR Program Administrator Certification is acquired by satisfying the DCR eligibility/training requirements and passing the DCR Program Administrator Exam or by possessing a DCR Combined Administrator Certification.
 - 2.2.3 The State Hydraulics Engineer in the Central Office Location and Design Division is currently designated as VDOT's ESC Program Administrator.
- 2.3 The Virginia ESC Regulations require that each RLDA be overseen by a DCR certified RLD.
- 2.3.1 The DCR RLD Certification is required for the VDOT person who has general oversight of the construction phase of a specific RLDA.
 - 2.3.2 The RLD for a specific RLDA must be identified prior to beginning any land disturbance activity (See Section 5.2.3 of this IIM).
 - 2.3.3 The DCR RLD Certification is acquired by passing the DCR RLD Exam or by possessing a DCR Combined Administrator, Program Administrator, Plan Reviewer or Inspector Certification or by possessing a Professional Engineer, Land Surveyor, Landscape Architect or Architect License pursuant to Chapter 4, Title 54.1, of the Code of Virginia.
- 2.4 The proposed ESC Plan for each RLDA must be reviewed and approved by a DCR Certified ESC Plan Reviewer to ensure that the ESC Plan has been developed in accordance with VDOT's Approved ESC Standards and Specifications or variances authorized thereto.
- 2.4.1 The DCR Plan Reviewer Certification is required for any person that has responsibility for reviewing and approving the proposed erosion and sediment control plan for a specific RLDA.
 - 2.4.2 The Certified Plan Reviewer shall be a VDOT employee, or an employee of an engineering consulting firm working for VDOT, who has expertise in drainage design and erosion and sediment control design.
 - 2.4.3 The DCR Plan Reviewer Certification is acquired by satisfying the DCR eligibility/training requirements and passing the DCR Plan Reviewer Exam or by possessing a DCR Combined Administrator Certification or by possessing a Professional Engineer, Land Surveyor, Landscape Architect or Architect License pursuant to Chapter 4, Title 54.1, of the Code of Virginia.

- 2.5 A DCR ESC Inspector Certification is required for those persons having responsibility for ensuring the proper implementation of, or compliance with, the proposed ESC Plan and VDOT's Approved ESC Standards and Specifications, or variances authorized thereto, throughout the construction phase of the RLDA, including all inspection requirements.
- 2.5.1 The Certified Inspector shall be a VDOT employee or an employee of an engineering consulting firm working for VDOT.
- 2.5.2 The DCR Inspector Certification is acquired by satisfying the DCR eligibility/training requirements and passing the DCR Inspector Certification Exam or by possessing a DCR Combined Administrator Certification.
- 2.6 It shall be the responsibility of the Project Authority to ensure that those staff with the appropriate DCR Certifications (RLD, Plan Reviewer or Inspector) performs the functions required by the ESC Law and Regulations and noted in Sections 2.3 through 2.5.
- 2.6.1 For the purposes of this document, the Project Authority is defined as that person with overall responsibility of a land disturbing activity or a specific phase of a land disturbing activity.
- 2.6.2 The Project Authority for preconstruction (design) activities is typically the PM, Residency CA, RA or other such person responsible for this phase of the land disturbing activity. This person shall ensure that the proposed ESC Plan has been reviewed and approved by a DCR Certified Plan Reviewer.
- 2.6.3 The Project Authority for actual land disturbance (construction) activities is typically the ACE, RA or other such person responsible for this phase of the land disturbing activity. This person shall ensure that the RLDA has an assigned DCR Certified RLD and that the impletion of the ESC Plan, including inspection requirements, is being overseen by a DCR Certified Inspector.

3.0 VDOT TRAINING/CERTIFICATIONS

- 3.1 Where land disturbing activities occurring within VDOT right of way are regulated under the Virginia ESC Law and Regulations, Section 107.14(a) of the VDOT R&B Specifications requires that all contractors performing such land disturbing activities have a person certified by the Department in erosion and sediment control within the project limits. This certification requirement is mandatory for both those contractors performing land disturbing activities under contracts managed by VDOT (including PPTA and Design Build agreements) and for those performing land disturbing activities on VDOT right of way under a Land Use Permit.

EXCEPTION – Those contractors performing maintenance related land disturbing activities under a hired equipment contract whose work is directly supervised by VDOT personnel.

- 3.1.1 Successful completion of the Department’s “Erosion and Sediment Control Contractor Certification” course satisfies the certification requirements of Section 107.14 (a) of the VDOT R&B Specifications.
- 3.1.2 The ESCCC is a joint training effort between VDOT and VTCA. The VDOT Stormwater Technical Committee develops the course material and VTCA administers the training, testing and issuance of certifications.
- 3.2 The VDOT “In Stream Maintenance Training” course is required training for all VDOT personnel performing or supervising maintenance activities, where such activities are regulated under the Virginia ESC Law and Regulations.
 - 3.2.1 The “In Stream Maintenance Training” course is developed and administered by VDOT’s Central Office Environmental Division.
 - 3.2.2 The “In Stream Maintenance Training” course consists of several modules that are targeted toward best management practices for working in and around streams and other environmentally sensitive areas and controlling erosion and sedimentation associated with land disturbance on maintenance activities.
 - 3.2.3 The “In Stream Maintenance Training” course is designed to be conducted at the local level (i.e., Residency, Area Maintenance Headquarters, etc.) by the Residency Environmental Specialist and the modules can be taught individually in short group meetings or they can be combined into one or more groups and taught at a more formal session. Future initiatives will make a web based training option available for use, as appropriate.

4.0 POLICY/GENERAL GUIDELINES

- 4.1 Requirements of the Virginia ESC Regulations and the VDOT ESC Standards and Specifications, as approved by the DCR and described herein, shall be incorporated into all erosion and sediment control designs and shall be enforced on all Regulated Land Disturbance Activities managed by VDOT.
- 4.2 When requested by DCR, and where deemed practical, VDOT projects located in jurisdictions with more stringent ESC technical criteria than that required by State regulations, shall be designed to meet those more stringent criteria. The local criteria may be part of a locally adopted State approved program or may be part of a watershed initiative related to the protection of a water supply, a TMDL implementation plan, or a Tributary Strategy Plan. If appropriate, it will be the

responsibility of the ESC Plan Designer to demonstrate that the local requirements are not practical for the project under consideration. Early coordination should occur between the ESC Plan Designer and the District Environmental Manager and the local program authority in order to identify any such requirements.

- 4.3 Any maintenance or construction activity disturbing 2,500 square feet (232 m²) or greater within the area of Tidewater, Virginia, as defined in the Virginia Chesapeake Bay Preservation Act, must have a project specific ESC Plan developed and implemented in accordance with the VDOT's Approved ESC Standards and Specifications. Tidewater, Virginia is defined as the Counties of Accomack, Arlington, Caroline, Charles City, Chesterfield, Essex, Fairfax, Gloucester, Hanover, Henrico, Isle of Wight, James City, King George, King and Queen, King William, Lancaster, Matthews, Middlesex, New Kent, Northampton, Northumberland, Prince George, Prince William, Richmond, Spotsylvania, Stafford, Surry, Westmoreland and York and the Cities of Alexandria, Chesapeake, Colonial Heights, Fairfax, Falls Church, Fredericksburg, Hampton, Hopewell, Newport News, Norfolk, Petersburg, Poquoson, Portsmouth, Richmond, Suffolk, Virginia Beach and Williamsburg.
- 4.4 Any maintenance or construction activity disturbing 10,000 square feet (929 m²) or greater in areas other than those within Tidewater, Virginia (as defined above) must have a project specific ESC Plan developed and implemented in accordance with VDOT's Approved ESC Standards and Specifications.
- 4.5 VDOT shall be responsible for ensuring compliance with its approved ESC Standards and Specifications by private entities (i.e., agents, contractors, subcontractors, consultants) conducting regulated land disturbance activities on projects managed by VDOT, including those constructed under the Public/Private Transportation Act (PPTA), the Design/Build process and the Capital Outlay Program.
- 4.6 When not included in the proposed ESC Plan for the RLDA, the contractor must provide an ESC Plan in accordance with Section 106 of the VDOT R&B Specifications for borrow pit sites and disposal area sites specifically utilized to obtain or dispose of project materials. Any such ESC Plan provided by the contractor must comply with VDOT's Approved ESC Standards and Specifications. Where required, the contractor must design, construct and maintain sediment basins at these sites. The contractor shall supply supporting calculations for sediment basin design and calculations demonstrating compliance with the Virginia ESC Regulation MS-19 for an adequate receiving channel. All information provided by the contractor should be reviewed by the District Hydraulics Engineer or other appropriate VDOT personnel to ensure accuracy, the use of appropriate methodology and compliance with VDOT's Approved ESC Standards and Specifications, Virginia ESC Law and Regulations, and VSMP Construction Permit Conditions.

5.0 MINIMUM REQUIREMENTS FOR ALL EROSION AND SEDIMENT CONTROL PLANS

5.1 The ESC Plan shall depict (using appropriate plan symbols) locations where specific measures are needed in order to control erosion and sediment deposition within the RLDA limits. Specific erosion and sediment control measures include, but are not limited to, protective linings for ditches, pipe outlet protection, filter barrier, silt fence, check dams, silt traps, sediment traps, sediment basins, diversion berms and ditches, etc. The ESC Plan should be based on the existing field conditions at the time of design, the anticipated sequence of construction, and the site conditions expected as the RLDA is brought to final grade.

5.2 Erosion Control Plan Information

To comply with the requirements of the VSMP Construction Permit, the following information is to be included in the Erosion and Sediment Control Section of the Plan General Notes (see IIM-LD 110 for additional information). Information to complete the ESC General Notes will be developed by the ESC Plan Designer with assistance from District Hydraulics or Residency staff as needed.

5.2.1 Project Description

Examples:

- This roadway construction project consists of adding two additional parallel lanes to an existing two lane rural roadway facility.
- This roadway construction project consists of improving an existing urban roadway intersection by adding left turn and right turn lanes.
- This roadway construction project consists of replacement of an existing bridge with a new bridge and improvements to the existing roadway approaches.
- This roadway construction project consists of widening an existing urban street and adding additional turn lanes.
- This roadway maintenance project consists of regrading and enlarging the roadside ditches and replacing drainage pipes along an existing rural roadway.

5.2.2 The location (city or county) of the project, the total area, in acres, of the site that is expected to be disturbed by the proposed activities and the applicability of the DCR VSMP Construction Permit.

Example:

- This project is located in Hanover County and approximately 10.5 acres will be disturbed by the proposed construction/maintenance activity. This project is covered under the DCR01 VSMP General Permit For Discharges Of Stormwater From Construction Activities.

5.2.3 The person designated as the Responsible Land Disturber for the RLDA (Name and Title).

Example:

- The Area Construction Engineer, Joe Smith, is designated as the Responsible Land Disturber for this Regulated Land Disturbance Activity.

5.2.4 Description of any surface waters, wetland features or other environmentally sensitive/critical areas immediately adjacent to the RLDA which are not otherwise identified on the plans.

Example:

- There is one farm pond located 1500' north of Station 29+00 Route 602 and an existing perennial stream located 1000' east of and parallel to Route 55 between Stations 204+00 and 212+00.

5.2.5 Description of existing and proposed drainage patterns and approximate slopes or contours (a drainage area map in the project file showing contours/drainage patterns can be referenced to provide the pre and post-drainage areas used for design).

Example:

- A contour map depicting existing/proposed contours/drainage patterns is contained in the project drainage file located in the VDOT Salem District Office Hydraulics Section.

5.2.6 Description of any off-site borrow areas or surplus material disposal areas to be covered by the ESC Plan (reference can be made to Sections 106.03 and 106.04 of the R&B Specifications).

Examples:

- There are no anticipated off-site borrow areas or surplus material disposal areas associated with this project.
- Embankment material needed to complete the construction of this project will be obtained from an off-site borrow area(s) identified by the Department and/or the contractor and approved by the Department. The erosion and sediment control plan for such areas is to be developed in accordance with the Department's Approved Erosion and Sediment Control and Stormwater Management Standards and Specifications and Section 106.03 of the Road and Bridge Specifications.
- Unsuitable or surplus material derived from the construction of this project will be disposed of off-site at area(s) identified by the contractor and approved by the Department. The erosion and sediment control plan for such areas is to be developed in accordance with the Department's Approved Erosion and Sediment Control and Stormwater Management Standards and Specifications and Section 106.04 of the Road and Bridge Specifications.

5.2.7 Description of any other potential pollution sources, such as vehicle fueling, storage of fertilizers or chemicals and sanitary waste facilities (reference can be made to Contract Special Provision S107F).

Example:

- The contractor shall identify locations of potential pollution sources such as vehicle fueling areas, storage areas for fertilizers and chemicals, sanitary waste facilities, etc. and shall develop a stormwater pollution prevention plan for such sites in accordance with Contract Special Provision S107F.

5.2.8 Name of the nearest receiving waters.

Example:

- Stormwater run-off from the construction areas of this project will flow into the following streams: Broad Branch, Deep Creek and Dry Run.

5.2.9 A description of maintenance and inspection requirements of temporary erosion and sediment control measures (reference can be made to Sections 107.14 and 303.03 of the R&B Specifications and Contract Special Provision S107F).

Example:

- Inspection and maintenance of temporary erosion and sediment control measures will be completed in accordance with Sections 107.14 and 303.03 of the Department's Road and Bridge Specifications and Contract Special Provision S107F.

5.2.10 A list of any project specific variances to the Approved ESC Standards and Specifications that have been authorized, in writing, by DCR. List should include a brief description of the variance, dated approved and by whom.

Example

- The following variances to the Department's Approved Erosion and Sediment Control Standards and Specifications have been approved by the Department of Conservation and Recreation:

1. A variance to decrease the height of silt fence to 26" approved by letter from Mr. Eric Capps dated July 15, 2006.

5.3 Sequence of Construction

The proposed ESC Plan shall be developed in conjunction with the proposed Sequence of Construction Plan and should denote the required erosion and sediment controls for the intended sequence of major construction activities. In planning the sequence of construction, consideration should be given to elimination or minimization of the need for major erosion and sediment control facilities, such as sediment basins, by strategic planning of the construction timing and location of erosion and sediment control measures, grading operations, temporary and permanent channels and drainage facilities. Any changes to the proposed sequence

of construction plan that could potentially cause a significant change to the proposed ESC or Drainage Plan shall be submitted to the ESC Plan Designer/Hydraulics Engineer for evaluation of impacts.

5.4 Contents of ESC Plan

Details of the RLDA'S ESC Plan may be shown on, but is not limited to, the plan, profile, typical section and detail sheets of the construction plan set. The ESC Plan shall contain the following information:

5.4.1 ESC General Notes (see IIM-LD-110).

5.4.2 Limits of clearing and grading.

5.4.3 Location of temporary and permanent erosion and sediment control and related stormwater management features.

5.4.4 Construction details for any temporary or permanent erosion and sediment control or related stormwater management features if different from the VDOT R&B Standards and Specifications.

5.4.5 Location of any surface waters, wetland features, or other environmentally sensitive/critical areas within or immediately adjacent to the RLDA area. (Such features located within close proximity of the project, yet outside the limits of the plan, shall be described in the ESC General Note E-1.)

5.4.6 Location of other potential pollutant sources as described in ESC General Note E-1.

6.0 PLAN DEVELOPMENT PROCESS

6.1 The decision as to which type of ESC Plan concept (Single Phase or Multiple Phase Plan) to develop for each RLDA shall be determined by the ESC Plan Designer/Hydraulics Engineer and the Project Manager (or other such project authority) during the initial stages of plan development.

6.2 Concurrent Engineering Plan Development Process

The CEP Development Process incorporates the principles of teamwork, flexibility, and milestones. The development, review, and approval of the project specific erosion and sediment control plan is included in the CEP milestones as follows:

6.2.1 Scoping Stage

The ESC Plan Designer/Hydraulics Engineer shall identify any local ESC or related SWM technical criteria or watershed initiatives that may influence the ESC or related SWM design of the project. This should include early

coordination with the local program authority and the District Environmental Manager to assess any impacts on the project design.

6.2.2 PFI/Public Hearing Stage

The ESC Plan Designer/Hydraulics Engineer shall develop preliminary ESC and associated SWM Plans and show locations of all major erosion and sediment control, stormwater management, and/or drainage structures on the plans that may affect the required right of way. The District Environmental Manager shall provide comments, as appropriate, to the ESC Plan Designer/Hydraulics Engineer regarding the preliminary plan, including any pertinent information that might affect the final design of the ESC Plan.

6.2.3 FI Stage

Prior to the FI, the ESC Plan Designer/Hydraulics Engineer shall develop final ESC and associated SWM plans and show final design locations, sizes, and other plan details as necessary to accurately determine the required right-of-way and/or easement, and to determine whether the selected ESC Plan Concept is appropriate. The ESC and related SWM Plan design shall address any comments or recommendations from the Public Hearing process as accepted/incorporated by the Project Manager (or other such project authority). This phase of the ESC and related SWM Plan design process provides all the necessary information needed to conduct a thorough Field Inspection. The District Environmental Manager shall provide comments, as appropriate, to the ESC Plan Designer/Hydraulics Engineer regarding the proposed ESC Plan.

6.2.4 ESC Plan Design Completion

After FI and prior to the Right of Way stage, the ESC Plan Designer/Hydraulics Engineer shall incorporate all changes, deletions, and/or additions into the ESC and related SWM Plan resulting from any FI and/or Quality Control Review comments or plan revisions. The ESC Plan shall be carefully reviewed for compliance with the approved VDOT ESC Standards and Specifications including the types of proposed measures, means of access for maintenance, and required right of way and/or easements.

6.2.5 ESC & SWM Plan Design Certification

Prior to the Pre-Advertisement Conference (or similar project meeting), the ESC Plan Designer/Hydraulics Engineer shall have the ESC and related SWM Plan reviewed by a DCR Certified ESC Plan Reviewer. The ESC Plan Reviewer shall verify that the ESC and related SWM Plan for the project is in compliance with the VDOT Approved ESC and SWM Standards and Specifications. Any comments by the Plan Reviewer shall be addressed with the ESC Plan Designer/Hydraulics Engineer. Once all comments have been reconciled, the ESC Plan Reviewer completes, signs and forwards the ESC & SWM Plan Design Certification Form (LD-445C) to the ESC Plan Designer/Hydraulics Engineer. The ESC Plan Designer/Hydraulics Engineer provides the completed LD-445C to the Project Manager (or other such

project authority) for use in the VSMP Construction Permit Process (See IIM-LD-242), as applicable, and to the District Environmental Manager for use in the Environmental Quality Assurance process.

6.2.6 Pre-Advertisement Conference

The District Environmental Manager shall complete the Quality Assurance Review for use in the Environmental Certification process.

6.3 Plan Development Process for Special Avertisement and Award Process (SAAP) and “No Plan” Projects

6.3.1 A “No Plan” project is defined as an assembly of letter size sketches and narratives depicting the project’s location, typical cross section, estimated quantities and any other specific details necessary (i.e., ESC and/or SWM plans) for the construction of the project. Any “No Plan” project that disturbs 2,500 square feet (232 m²) or greater in Tidewater, Virginia or 10,000 square feet (929 m²) or greater elsewhere within the State must have a project specific ESC Plan. A project developed under the “No Plan” concept is one that generally requires little or no survey, engineering or hydraulic analysis in order to produce the necessary contract documents. Any required right of way is generally acquired through donations in lieu of the purchase/condemnation process. See Appendix A of the *VDOT Road Design Manual* for additional information on the “No Plan” concept.

6.3.2 “SAAP” Projects are defined as those advertised under the Special Avertisement and Award Process. The “No Plan” concept is generally used to produce the required contract documents. “SAAP” projects generally have one or more of the following characteristics:

- They require little or no preliminary engineering.
- They are standard maintenance repair contracts (e.g., bridge, guardrail or concrete pavement repairs).
- They are standard incidental construction and/or improvement projects of limited scope.
- The work being performed involves a singular function or specialty work (e.g., bridge painting, pavement markings or pipe installation).

Any “SAAP” project that disturbs 2,500 square feet (232 m²) or greater in Tidewater, Virginia or 10,000 square feet (929 m²) or greater elsewhere within the State must have a project specific ESC Plan.

6.3.3 During the early stages of the preparation of the contract assembly for any “SAAP” or “No Plan” Project, the Contract Administrator (CA) (or other such project authority) should conduct a Scoping Meeting to determine what is needed on the project in order to comply with the VDOT Approved ESC and SWM Standards and Specifications. This should include filling out Forms LD-439 and EQ-429 to the extent possible.

The Scoping Meeting should include the CA, the District L&D Engineer and/or Hydraulics Engineer, and the appropriate District Environmental Section personnel in order to accurately determine the project requirements.

6.3.4 The CA, with the assistance of the District Hydraulics Engineer (as needed), or other appropriately qualified personnel, should prepare a preliminary Straight Line Sketch (SLS) in accordance with Form LD-438.

6.3.5 Upon completion of the Preliminary SLS, the CA should coordinate with the appropriate personnel in the District Hydraulics Section and the District Environmental Section to schedule a Field Review. The following data should be made available to all Field Review participants:

- A completed Form EQ-429 and Form LD-439.
- A Vicinity Map – United States Geological Survey (USGS) Topographical Map and County Road Map showing the location and limits of the proposed project.
- A SLS of the project prepared in accordance with Form LD-438, showing the project limits and the approximate location of proposed drainage items and erosion and sediment control items.

6.3.6 If during the Field Review it is found that such items as stormwater management facilities, drainage improvements, temporary sediment basins or temporary sediment traps are required, the District Hydraulics Section will determine and request the necessary survey data, and provide engineering support in the development of the SLS to ensure consistency with the VDOT Approved ESC and SWM Standards and Specifications.

6.3.7 Upon completion of the design of any required stormwater management facilities, drainage improvements, or sediment trapping facilities, the District Hydraulics Section and the District Environmental Section will provide the CA with final comments, recommendations and plan details.

6.3.8 Final approval of the SLS:

- Upon incorporation of all the required revisions, a DCR Certified ESC Plan Reviewer shall make a final review of the ESC and/or SWM Plan. Once any Plan Reviewer comments have been reconciled with the ESC Plan Designer/Hydraulics Engineer, the Plan Reviewer shall complete and sign the LD-445C Erosion and Sediment Control and Stormwater Management Certification form and forward it to the CA for use in the VSMP Construction Permit Process (See IIM-LD-242), if applicable.
- The CA will incorporate the final SLS, and Special Provisions S107F and S107G into the contract assembly.

- Thereafter, any significant change to the project that may impact the ESC, SWM, or Drainage Plan will require resubmission of the revised SLS to the ESC Plan Designer and/or District Hydraulics Engineer for review and approval prior to implementation.

6.3.9 The final version of the SLS and any associated ESC General Notes or Construction Notes will serve as the ESC and SWM Plan for the project. During the construction phase of the project, a copy of the ESC and SWM Plan shall be kept on the project site (Record Set) and in the project file at the Residency Office as documentation that all policies and procedures have been addressed with regard to the SWM and ESC requirements of the project. During construction, any changes to the proposed ESC Plan necessitated by unforeseen conditions or other circumstances shall be documented on the Record Set of the ESC Plan.

6.4 Plan Development Process for State Force Construction Projects

- 6.4.1 State Force Construction Projects include land-disturbing activities that are performed with state force equipment and/or hired equipment.
- 6.4.2 Residency personnel should contact the Residency Environmental Specialist and the District Hydraulics Engineer to review any State Force Construction Projects to determine if the proposed work is of a magnitude that may require any drainage or stormwater management improvements, and/or an erosion and sediment control plan. If it is determined that drainage or stormwater management improvements, and/or an erosion and sediment control plan are needed, the same procedures outlined under the SAAP/No Plan Project Plan Development Process shall be followed.

6.5 Plan Development Process for Minimum Plan and Standard Plan Construction Projects

- 6.5.1 Minimum Plan projects are those that require a limited amount of survey information in order to perform the necessary engineering studies and to provide the information required to secure the necessary rights of way. The minimum amounts of detail needed to address environmental requirements and to construct the project are provided in a standard plan assembly format. See Appendix A of the *VDOT Road Design Manual* for additional information on the Minimum Plan concept.
- 6.5.2 Standard Plan Projects are those that require complete survey information in order to perform the necessary detailed engineering studies and to develop a complete and detailed construction plan assembly.
- 6.5.3 Projects developed under the Minimum and Standard Plan concepts must have an ESC plan, and, if required, a SWM Plan (see IIM-LD-195). These plan assemblies should be developed consistent with the steps identified under the Concurrent Engineering Plan Development process described in Section 6.2 of this IIM.

6.5.4 Single Phase ESC Plan Concept

- 6.5.4.1 The Single Phase ESC Plan concept may be used on minor construction projects where all of the erosion and sediment control measures can be clearly depicted on the construction plan sheet (e.g., rural secondary project, minor urban widening project, bridge and approach project, etc.)
- 6.5.4.2 The ESC Plan shall address both those items requiring installation prior to the beginning of grubbing operations or the installation of major drainage structures and those items to be installed as grading operations and installation of minor drainage facilities progress. The ESC Plan shall contain or be accompanied by, at a minimum, all those items identified in the Minimum Requirements for All Erosion and Sediment Control Plans (described in Section 5.4 of this IIM).
- 6.5.4.3 In addition to standard plan symbols, supplemental notes/narratives may be used to clearly define the intent and purpose of the proposed erosion and sediment control measures and to define their sequence of installation. Some standard construction notes and symbols have been developed and are included as a part of the VDOT CADD Cell and Custom Line Style Library and the Geopak Road Plan View Labeler.

6.5.5 Multiple Phase ESC Plan Concept

- 6.5.5.1 The Multiple Phase ESC Plan concept shall be used on construction projects where additional plan sheet(s) are needed in order to clearly depict the erosion and sediment control measures required at the various stages of construction (e.g., rural multi-lane roadway projects, major urban roadway projects, roadway projects on new locations, roadway projects through environmentally sensitive areas, etc.).
- 6.5.5.2 In addition to standard plan symbols, supplemental notes/narratives may be used to clearly define the intent and purpose of the proposed erosion and sediment control measures and to define their installation sequencing. Some standard construction notes and symbols have been developed and are included as a part of the VDOT CADD Cell and Custom Line Style Library and the Geopak Road Plan View Labeler.
- 6.5.5.3 Projects may be developed using the Multiple Phase concept on only those portions of the project that require greater detail and clarity than that provided by the Single Phase concept (e.g., construction in environmentally sensitive areas or major waterway areas, areas where plan clutter reduces the ability to clearly show the erosion and sediment control items, and where grading operations are required

prior to installation of major temporary ESC measures or permanent drainage improvements).

6.5.5.4 At a minimum, the ESC Plan should be developed in two phases:

- Phase I for those items needed to be installed prior to the beginning of grubbing operations or the installation of major drainage structures.
- Phase II for those items to be installed as grading operations and installation of minor drainage facilities progress.

6.5.5.5 Projects with complex grading operations and/or sequence of construction plans may warrant additional ESC Plan Phases to clearly identify all required ESC items.

6.5.5.6 Generally, the Phase I and the Phase II details (including associated narratives or notes) should each be depicted on a separate plan sheet following the applicable construction plan sheet (e.g., Construction Plan Sheet 5, Profile Sheet 5A, ESC Phase I Plan Sheet 5B, ESC Phase II Plan Sheet 5C).

6.5.5.7 When found appropriate, the Phase I and Phase II details may be depicted on a single plan sheet following the applicable construction plan sheet (e.g., Construction Plan Sheet 5, Profile Sheet 5A, ESC Phase I & II Plan Sheet 5B).

6.5.5.8 In general, when utilizing a separate plan sheet for both the Phase I and the Phase II details, erosion and sediment control items (including protective linings in permanent ditches and channel relocations) depicted on the Phase I Plan Sheet should not be duplicated on the Phase II Plan Sheet. Temporary erosion and sediment control items depicted on the Phase I & II Plan Sheets should not be duplicated on the Construction Plan Sheet. Permanent improvements identified to be completed in Phase I, such as drainage structures, should also be shown on the Phase II plan.

6.5.5.9 The ESC Phase I Plan Sheet shall, at a minimum, depict the following:

- Existing contours and appropriate existing hydraulic and topographic features as referenced in the Survey File.
- Proposed centerline, edges of pavement and construction limits.
- Permanent drainage culverts, temporary diversion channels and permanent channel relocations (including any protective linings required) involving natural drainage ways that would be constructed or installed prior to the start of grading operations.

- Temporary Sediment Basins (including grading contours, if applicable) that are to be constructed in the initial phases of the grading operations.
- Stormwater Management Basins (including grading contours, if applicable) that will be utilized as temporary sediment basins and that are to be constructed in the initial phases of the grading operations.
- Diversion dikes, berm ditches and other perimeter ditches (including any required protective linings) that need to be installed prior to the start of grubbing or other earth moving operations.
- Temporary sediment traps, filter barriers, silt fences, rock check dams, turbidity curtains and any other perimeter controls that need to be installed prior to the start of grubbing or other earth moving operations.
- Any necessary construction notes/narratives.

6.5.5.10 The Phase II Plan Sheet shall, at a minimum, depict the following:

- Proposed centerline, edges of pavement and construction limits.
- Any permanent drainage culverts and channel relocations involving natural drainage ways installed under the Phase I Plan.
- Temporary Sediment Basins and Stormwater Management Basins installed under the Phase I Plan.
- All culverts, storm sewer pipe, drop inlets and associated drainage structures that will be installed as grading operations progress.
- All required protective ditch linings (e.g., Standard EC-2 or EC-3, concrete, riprap, etc.), paved flumes and associated structures that will be installed as grading operations progress.
- Temporary sediment traps, slope drains, filter barriers, silt fences, rock check dams, drop inlet silt traps, and any other erosion and sediment control measures needed to be installed as grading operations progress.
- Any necessary construction notes/narratives.

6.5.5.11 The following drainage items from the Phase I and II Plan Sheets shall be depicted on the Construction Plan Sheet:

- Permanent drainage culverts, storm sewer systems, drop inlets and associated structures.
- Permanent channel relocations involving natural waterways.
- Permanent Stormwater Management Facilities.
- Rock Check Dams that will be left in place after construction to serve as a permanent stormwater management structure.

7.0 COMPUTATIONS

- 7.1 All computations to support the ESC and related SWM Plan, and the drainage design plan, including the drainage area map, shall be developed in accordance with the *VDOT Drainage Manual*, related Informational and Instructional Memoranda (IIM), and Drainage Design Memoranda (DDM), and be made part of the project file.
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8.0 FIELD REVISIONS AND EVALUATIONS

- 8.1 The ESC Plan must be fully and effectively implemented throughout the entire construction phase of the project.
- 8.2 During the construction phase of the project, the Project Engineer, Project Construction Inspector, Environmental Monitor and the contractor shall continuously evaluate the project for areas that may require the deletion/addition/modification of the proposed erosion and sediment control measures in order for the project to remain in compliance with the approved VDOT ESC Standards and Specifications, Virginia ESC Law and Regulations, and VSMP Construction Permit conditions. Changes in the proposed erosion and sediment control measures may be needed due to unforeseen site conditions, contractor scheduling, changes in the proposed sequence of construction or other factors unknown at the time of the development of the proposed ESC Plan.
- 8.2.1 Minor changes to the proposed ESC Plan (e.g., deletion/addition/modification to non-engineered items such as filter barrier, silt fence, check dams, drop inlet silt traps, etc.) may be approved by the VDOT DCR Certified Inspector.
- 8.2.2 When changes to the proposed ESC Plan require detailed hydrologic/hydraulic engineering analysis/calculations (e.g., deletion/addition/modification to engineered items such as sediment traps, sediment basins, etc.), the Project Engineer and/or the Project Inspector should coordinate a site inspection with the District Hydraulics Engineer and/or the ESC Plan Designer/Hydraulics Engineer. The site inspection should be used to assemble detailed notes, sketches, and photographs to formally document the need for ESC Plan changes. The ESC Plan Designer and/or Hydraulics Engineer will provide the appropriate engineering analysis to document the required changes and to ensure the ESC Plan's continued compliance with the approved VDOT ESC Standards and Specifications, Virginia ESC Law and Regulations, and VSMP Construction Permit conditions.
- 8.2.3 Any approved changes to the proposed ESC Plan must be noted on a designated plan set (Record Set) which shall be retained on the project site and made available upon request.

- 8.3 During the construction phase of the project, the Project Engineer, the Project Construction Inspector and/or the Environmental Monitor will periodically (or upon request) provide the ESC Plan Designer and/or Hydraulics Engineer with a detailed evaluation report that notes the success or failure of the proposed erosion and sediment control measures depicted in the construction plans and/or the implementation of different measures as a result of new design technologies. The VDOT ESC Program Administrator (State Hydraulics Engineer) is to be provided a copy of all such reports.
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9.0 MAINTENANCE

- 9.1 Maintenance of the erosion and sediment control items must be continually provided during the duration of the land disturbance activity.
- 9.2 The inspection and maintenance of all temporary and permanent erosion and sediment controls shall be in accordance with Section 107.14 of the VDOT R&B Specifications and Contract Special Provisions S107F and S303E.
- 9.3 Accumulated sediment shall, at a minimum, be removed from erosion and sediment control facilities in accordance with Contract Special Provision S303E.
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10.0 STANDARD FORMS

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| LD-438 | Guidelines for Development of Erosion and Sediment Control (ESC) and Stormwater Management (SWM) Plans for Projects with Straight Line Sketches |
| LD-439 | Drainage Information Sheet |
| LD- 445C | Erosion and Sediment Control and Stormwater Management Certification Form |

For the current version of these forms see the VDOT extranet site:
<http://www.extranet.vdot.state.va.us/forms/> .