Chapter 6

- Page 6-1 – Revised the following language in the first sentence under “Section 6.1.1 Objective” from: “The analysis of the peak rate of runoff...” To: The analysis of “precipitation”, peak rate of runoff...


- Page 6-3 – Deleted the following language at the end of “Section 6.2.5 Documentation” : “Refer to Section 6.5.1 Documentation Requirements, Chapter 3 of this manual and AASHTO Highway Drainage Guidelines Chapter 4 for more details.”

- Page 6-4 Revised the following language in the second bullet under “Section 6.2.9 Approved Peak Discharge Methods” from: “Suitable computer programs such as the USACE’s HEC-HMS and the NRCS’ EFH-2, TR-55 and TR-20 may be used for the hydrologic calculations. The TR-55 method has been found best suited for drainage areas between 200 and 2000 acres (ac). When using any methodology predicated on the 24-hr. rainfall event (i.e. TR-55, TR-20, etc.) it will be necessary to use the values presented in Chapter 11, Appendix 11C-3.” To: Suitable computer programs such as the USACE’s HEC-HMS and the NRCS’ EFH-2, “Win” TR-55, and “Win” TR-20 may be used for the hydrologic calculations. The TR-55 method “(now referred to as the NRCS Method and formerly as the SCS Method)” has been found best suited for drainage areas between 200 and 2,000 acres (ac). When using any methodology predicated on the 24-hr. rainfall event (i.e., “NRCS Method, HEC-HMS,” etc.) it is necessary to use the values presented in “the NOAA Atlas 14 Point Precipitation Frequency Estimates or published in the” Chapter 11, Appendices.

- Page 6-6 – Added the following “Source” under “Table 6-1 Design Storm Selection Guidelines”: “Source: AASHTO Drainage Manual (First Edition), Volume One, Chapter 9, Table 9-1”.

- Page 6-7 – Replaced and renamed “Figure 6-1. Guidelines for Hydrologic Method Selection Based on Drainage Area” To: “Figure 6 1. Guidelines for Peak Discharge Method Selection”.
6.3.3 Runoff Volume Method Selection (Hydrograph Methods)

The hydrograph methods to be used for estimating runoff volume include the following:

<table>
<thead>
<tr>
<th>HYDROLOGIC METHOD</th>
<th>DRAINAGE AREA SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 to 20 acres</td>
</tr>
<tr>
<td></td>
<td>20 to 200 acres</td>
</tr>
<tr>
<td></td>
<td>200 to 640 acres</td>
</tr>
<tr>
<td></td>
<td>640 to 2,000 acres</td>
</tr>
<tr>
<td>Modified Rational Method</td>
<td></td>
</tr>
<tr>
<td>NRCS Unit Hydrograph Method</td>
<td></td>
</tr>
</tbody>
</table>

- Range of Applicability

Note: The above does not indicate definite limits but does suggest a range in which the particular method is “best suited”.

Figure 6.2. Guidelines for Runoff Volume Method Selection

For application of the technical criteria in the Virginia Stormwater Management Program (VSMP), the Department of Environmental Quality prefers use of the NRCS Unit Hydrograph Method for estimating runoff volume. See Chapter 11 Stormwater Management in this Drainage Manual for more discussion. However, the VSMP Regulation does allow use of the Modified Rational Formula as a hydrologic method for estimating runoff volume (see 9 VAC 25-870-72 E).

- Page 6-9 – Deleted the following paragraph at the end of “Section 6.4.1.3 Travel Time in Lakes or Reservoirs”: “For additional discussion of Equation 6.3 and travel time in lakes and reservoirs, see Elementary Mechanics of Fluids, by Hunter Rouse, John Wiley and Sons, Inc., 1946, page 142.”

- Page 6-11 – Revised the following language in the last sentence under “Section 6.4.2.6 Intensity-Duration-Frequency (IDF) Values from: The B, D, & E factors were derived by the Department using the Rainfall Precipitation Frequency data provided by NOAA’S Atlas 14 at the following Internet address: http://hdsc.nws.noaa.gov/hdsc/pfds/orb/va_pfds.html. To: The B, D, & E factors were derived by the Department using the Rainfall Precipitation Frequency data provided by NOAA’s Atlas 14.

- Page 6-12 – Deleted the following language at the end of the second bullet under “Section 6.4.3.1.2 Application”: “Also, the effects of upstream detention facilities may be taken into account.”
Page 6-13 – Revised the following language at the beginning of “Section 6.4.3.1.4 Equations” from: “The rational formula estimates the peak rate...” To: The “Rational Method” formula estimates the peak rate...

Page 6-14 – Revised the following language in the last sentence in the first paragraph under “Section 6.4.3.1.6 Time of Concentration” from: “A table showing the B, D, & E factors for Virginia counties and larger cities is presented in Appendix 6C-2.” To: A table showing the B, D, & E factors for “rain gages across” Virginia is presented in Appendix 6C-2.

Page 6-15 – Added the following language in the last sentence in the last paragraph under “Section 6.4.3.1.6 Time of Concentration” (from previous page) from: “Overland flow should be limited to about 200’” To: Overland flow should be limited to about 200’, ‘with a maximum flow length no greater than 300’.”

Deleted the following language at the end of the “Overland Flow – Seelye Method”: “The Seelye method is the preferred VDOT method for computing overland flow time.”

Page 6-16 – Added the following language at the end of the first paragraph under “Channel Flow”: “A direct solution for the Kirpich nomograph using an equation is also included in Appendix 6D-5. The Kirpich method should only be used for channel flow in Virginia.”

Page 6-17 – Added the following language at the beginning of “Section 6.4.3.2 Anderson Method”: “NOTE: For VDOT purposes, the Anderson Method is not recommended for use outside of urbanized areas in the Northern Virginia District.”

Page 6-19 – Added “Equations” numbers (6.7) and (6.8).

Page 6-20 – Revised the name of “Table 6-3A Anderson Flood Frequency Ratios” to Table “6-4” Anderson Flood Frequency Ratios.

Deleted the following language:

Snyder Method

Introduction

The Snyder Method was developed as the “Synthetic Flood Frequency Method” by Franklin F. Snyder. This method was originally presented in the “ASCE Proceedings, Vol. 84 No. HYS) in October 1958.

Applications

The Snyder Method has been found to produce acceptable results when properly applied to drainage areas between 200 acres and 20 square miles. This method provides the user with an adjustment factor for partly developed basins by the use of percentage factors for the length of channel storm sewered and/or improved.
Equations

The Snyder Method can be used to determine peak discharges based on runoff, time of concentration, and drainage area. The Snyder Equation can be used for natural basins, partially developed basins, and completely sewered areas. The following is the Snyder Equation:

\[ Q_p = 500AI_R \]  

\[ (6.7) \]

Where:

- \( Q_p \) = Peak discharge, cubic feet per second (cfs)
- \( A \) = Basin area, square miles (mi\(^2\))
- \( IR \) = (Runoff/T\(_c\)), inches per hour (in/hr)
- \( T_c \) = Time of concentration, hours (hrs)

Revised language (renamed section) in “Section 6.4.3.4 Rural Regression Method” to “Section 6.4.3.” Rural Regression Method.

Added the following language at the end of the second paragraph under “Section 6.4.3.3.1 Introduction”: “However, note that StreamStats does not include the supplemental regression equations provided by VDOT for storm events omitted by USGS.”

- Page 6-21 Added the following language at the end of “Section 6.4.3.5 Characteristics”: “for watersheds that cross physiographic regions:


However, note that StreamStats does not include the supplemental regression equations provided by VDOT for storm events omitted by “Peak-Flow Characteristics of Virginia Streams,” U.S.G.S. Scientific Investigations Report 2011-5144 (2011).”

- Page 6-22 – Revised the name of “Figure 6.2. Peak Discharge Regions” to “Figure 6.3. Peak Discharge Regions for Regression Equations”.

- Page 6-29 – Revised the following language in the last bullet under “Section 6.4.4.1.5” from: “The \( a \) and \( b \) factors for equation 6.9 are listed in Chapter 11, Appendix 11 H-2 and are to be used for no other purpose” To: “The \( a \) and \( b \) factors for equation 6.9 are listed in Chapter 11, Appendix 11 “K-I” and are to be used for no other purpose.

Added the following language after the last bullet under “Section 6.4.4.1.5”: “For further explanation see Chapter 11, section 11.5.7.1.”

- Page 6-30 – Revised language (renamed section) in “Section 6.4.4.2 SCS Unit Hydrograph” to “NRCS Methods (Graphical Peak Discharge and Unit Hydrograph)” Revised the following language in “Section 6.4.4.2.1 Introduction” from: “Techniques developed by the former United States Department of Agriculture, Soil
Conservation Service (SCS) for calculating rates of runoff require the same basic data as the Rational Method: drainage area, a runoff factor, time of concentration, and rainfall. The SCS has been renamed the National Resources Conservation Service or NRCS. Because this method has been traditionally called the SCS method, this manual will continue to use this terminology. The SCS approach, however, also considers the time distribution of the rainfall, the initial rainfall losses to interception and depression storage and an infiltration rate that decreases during the course of a storm. With the SCS method, the direct runoff can be calculated for any storm, either real or synthetic, by subtracting infiltration and other losses from the rainfall to obtain the precipitation excess. Details of the methodology can be found in the SCS National Engineering Handbook, Part 630 - Hydrology.

Techniques developed by the United States Department of Agriculture (“USDA”) Natural Resources Conservation Service or NRCS (formerly “Soil Conservation Service or SCS) for calculating rates of runoff require the same basic data as the Rational Method: drainage area, a runoff factor, time of concentration, and rainfall. The “NRCS” approach, however, also considers the time distribution of the rainfall, the initial rainfall losses to interception and depression storage and an infiltration rate that decreases during the course of a storm. With the “NRCS” method, the direct runoff can be calculated for any storm, either real or synthetic, by subtracting infiltration and other losses from the rainfall to obtain the precipitation excess. Details of the methodology can be found in the “USDA-NRCS” National Engineering Handbook, Part 630 - Hydrology.

Revised the following language in the beginning of the first sentence in “Section 6.4.4.2.2 Application” from: “Two types of hydrographs are used in the SCS procedure...” To: Two types of hydrographs are used in the “NRCS” procedure...

- Page 6-31 – Revised the following language in the last sentence under “Section 6.4.4.2.4 Time of Concentration” from: “The SCS derived the following empirical relationship between lag time and time of concentration:” To: The “NRCS” derived the following empirical relationship between lag time and time of concentration:

Revised the following language in the first and fifth sentence of the third paragraph under “Section 6.4.4.2.5 Curve Numbers” to replace “SCS” with “NRCS”.

- Page 6-32 – Revised the following language in the first sentence under “Section 6.4.4.2.6 Equations” from: “The following discussion outlines the equations and basic concepts utilized in the SCS method.” To: The following discussion outlines the equations and basic concepts utilized in the “NRCS” method.

Revised the following language in the first and fifth sentence of the fourth paragraph under “Section 6.4.4.2.6 Equations” to replace “SCS” with “NRCS”.

- Page 6-33 – Revised the following language to the “CN” part of the Equation from: “CN = SCS Runoff curve number” To: CN = “NRCS” Runoff curve number.
Page 6-34 – Deleted the following References:


AASHTO Model Drainage Manual- 2005

Added the following References:


Chapter 7

Page 7-9 Added the following language after the first sentence in the third paragraph under “Section 7.4.1.2 Design Considerations”:  “Severe right-of-way limitations may include, but are not limited to, adverse environmental impacts, significant distance to tie to existing grade, and property damage.”

Added the following language after the first sentence in the fourth paragraph under “Section 7.4.1.2 Design Considerations”:  “Severe right-of-way limitations may include, but are not limited to, adverse environmental impacts, significant distance to tie to existing grade, and property damage.”
Chapter 9

- Page 9-38 – Added the following language at the end of the second sentence in the first paragraph: “…additional concrete, or other design approved by VDOT.”

Added the following language after the first paragraph: “For Step Down Manholes located in the VDOT right of way that require manhole bottom protection (e.g., additional concrete, steel plate, etc.), bottom protection designs shall be submitted for VDOT approval prior to fabrication.”

Chapter 10

- Page 10-1 – Revised the following language in the second sentence in the first paragraph under “Section 10.1.1 Objective” from: “The Department’s annually approved erosion and sediment control (ESC) and stormwater management (SWM) standards and specifications.” To: The Department’s “DEQ” approved erosion and sediment control (ESC) and stormwater management (SWM) standards and specifications “should be implemented on all regulated land-disturbing activities.”

Revised the following language in the fourth sentence in the first paragraph under “Section 10.1.1 Objective” from: “This Handbook can be ordered from the Virginia Department of Environmental Quality at (804) 698-4000, or can be found at the website:” To: This Handbook can be ordered “online” or found at the “following” website:

Added the following language in the second paragraph under “Section 10.1.1 Objective” from: “The Virginia Erosion and Sediment Control Regulations can be accessed from the website” To: The Virginia Erosion and Sediment Control Regulations can be accessed from the “following” website.

Revised the following language in the first sentence in the first paragraph under “Section 10.1.2 Principal Factors Influencing Erosion” from: “The properties of soil which influence erosion by rainfall and runoff are ones which affect the infiltration capacity of a soil and those which affect the resistance of soil particles be detached and carried away by falling or flowing water.” To: The properties of soil “that” influence erosion by rainfall and runoff are ones “affecting” the infiltration capacity of a soil and the resistance of soil particles “to detachment” and “movement” by water “or wind”.

- Page 10-2 – Added the following at the end of the paragraph in “Section 10.1.2.4 Climate”: “However, Virginia experiences the most intense rainfall events in the warmer summer months, which corresponds with the busiest road construction period of the year. The intense summer rainfalls combined with exposed soils can result in higher rates of erosion on a construction site.”
Page 10-3 – Revised the following language in the first sentence under “Section 10.2.1 Federal Policy” from: “As a result of the National Environmental Policy Act of 1969 and the Chesapeake Bay Protection Act…” To: “As a result of the National Environmental Policy Act of 1969, the Federal Water Pollution Control Act (also known as the Clean Water Act)” and the “Federal” Chesapeake Bay Protection Act…

Revised the following language in the second paragraph under “Section 10.2.2 State Policy” from: “…on all regulated land disturbance activities undertaken by the Department.” To: “…on all regulated land-disturbing activities” (RLDA) undertaken by the Department.

Page 10-4 – Revised the following language in the second sentence of the first paragraph from: “During any inspections of VDOT land disturbing activities by DEQ, EPA and other such environmental agencies, compliance with the VDOT’s Approved ESC Standards…” To: “During these regulated land-disturbing activities,” compliance with the VDOT’s Approved ESC Standards…

Revised the following language in the first sentence of the second paragraph from: “Statewide use of standards, specifications or products not contained in VDOT’s DEQ Approved ESC Standards and Specifications will require a revision to the Approved…” To: “Statewide use of standards, specifications or products not contained in VDOT’s DEQ Approved ESC Standards and Specifications will require a revision “or deviation” to the Approved…”

Revised the following language in the second sentence of the second paragraph from: “Any revisions to the Approved ESC Standards…” To: Any revision “or deviation” to the Approved ESC Standards…

Deleted the following language in which was the former first bullet: “All requests for project specific variances for those projects being designed in a VDOT District Office shall be coordinated by the District Hydraulics Engineer with the appropriate DEQ Regional Office staff. All variance requests shall be accompanied by complete details and documentation, including justification for the requested variance. Copies of any variance requests, approvals and related correspondence are to be sent to the DEQ Regulatory Programs Manager in the DEQ Central Office Stormwater Management Division and the VDOT State MS4/Stormwater Management Engineer in the VDOT Central Office. If the VDOT District Office and the DEQ Regional Office cannot come to agreement on a specific request, or if additional review is necessary, the assistance of the DEQ or VDOT Central Office can be requested.”

Revised the following language in the first sentence in the first bullet from: “All requests for project specific variances for those projects…” To: “All requests for project specific variances “and deviations” for “VDOT” projects…”

Added the following language in the second bullet: All requested variances “and deviations” are to be considered unapproved until written approval from DEQ is received.
Added the following language in the third bullet: All approved variances “and deviations for Erosion and Sediment Control” shall be listed in Note “19” in Section II…

Added the following language in the fourth bullet: All documentation for and approval of requested variances “and deviations” shall be retained…

Added the following language in the fifth bullet: The VDOT State MS4/Stormwater Management Engineer shall maintain a file of all requested and approved variances “and deviations”.

• Page 10-5 – Revised the following language in the first sentence in the second paragraph from: “Any maintenance or construction activity that disturbs…” To; Any “regulated land-disturbing activity, including” maintenance “and” construction activities, that disturb…

• Page 10-6 Added the following language at the end of the third bullet of this page: “See VDOT Form LD-445C for additional information pertaining to plan review certification for VDOT regulated land-disturbing activities.”

• Page 10-7 – Revised the following language in the second bullet under “Section 10.2.2.2 VDOT Training/Certifications” from: “The ESCCC is a joint training effort between the VDOT and the VTCA. The VDOT develops the course material and the VTCA administers the training, testing and issuance of certifications.” To: The ESCCC is a joint training effort between the VDOT and the “transportation construction industry in Virginia.” The VDOT develops the course material and “members of the transportation construction industry in Virginia” administer the training, testing and issuance of certifications.

Deleted the following language:

“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.

• The “In Stream Maintenance Training” course is developed and administered by the VDOT’s Central Office Environmental Division.

• 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.

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 or other such person. The modules can be taught individually in short group meetings or several modules can be combined and taught at a more formal training session. A web based training option is available in the VDOT University Virtual Campus.”
• Page 10-8 – Added the following language after the third paragraph: "The blading/dragging/grading associated with the maintenance of the travel surface of a dirt roadway is considered a land disturbance for erosion and sediment control, but not for stormwater management. The blading/dragging/grading associated with the maintenance of the travel surface of a gravel or aggregate stabilized roadway is not considered a land disturbance for erosion and sediment control or stormwater management."

Revised the following language in the fifth sentence in the sixth paragraph under “Section 10.2.2.3 Policy/General Guidelines” from: “All information provided by the contractor should be reviewed by the District Hydraulics Engineer or other appropriate VDOT personnel to ensure accuracy…” To: All information provided by the contractor should be reviewed by the Engineer or other “DEQ certified plan reviewer” to ensure accuracy…

• Page 10-10 – Revised the following language in the first sentence in the first paragraph under “Section 10.3 Documentation” from: “Drainage designers should use the guidelines and checklists such as those provided in the Virginia Erosion and Sediment Control Handbook (VESCH) or VDOT...” To: Drainage designers should use guidelines and checklists such as those provided in the Virginia Erosion and Sediment Control Handbook (VESCH), “the DEQ Website,” or VDOT…
10.3.1.2 Limits of Disturbance
The regulatory Limits of Disturbance (LOD) include any land change which may result in soil erosion from water or wind and the movement of sediments into waters or onto lands of the Commonwealth. This includes, but is not limited to, clearing, grubbing, grading, excavating, filling, stockpiling, surcharging, transporting, open trenching, and other activities that expose soils to potential erosion and sedimentation.

The LOD should include the activities noted above, as well as the following (where applicable for a project):
1. Areas required to install and maintain ESC and SWM facilities, both temporary and permanent
2. Temporary easements secured for land-disturbing and construction activities
3. Areas permitted for unavoidable impacts to waters of the United States (U.S.)
4. Areas used for regulated onsite support activities, including stockpiling, laydown, mobilization, equipment storage and maintenance, etc.
5. Construction access routes where vehicle and equipment travel could expose soils
6. Utility easements and installations where soils could be exposed, such as open trenching; these ancillary activities can be difficult to capture during design and planning and often require separate approved plans and permit coverage or modification of existing plans and permit coverage
7. Temporary stream crossings for vehicles, equipment, or utility installations
8. Boring and receiving pits required for jack and bore activities or directional drilling (but not the entire length of the jack and bore or drilling where soils are not exposed)
9. Other areas/activities where regulated land-disturbing and construction activities occur

Some items the designer should consider when developing the LOD:
1. The right-of-way and easements (temporary and permanent) available within the project area
2. Waters of the US within the project limits and permitted impacts to waters of the US
3. The proposed cut and fill limits for grading required by the project (is sufficient area provided to tie proposed grades to existing grades with required ESC in-place)
4. Access to the toe of fill slopes and head of cut slopes for construction and maintenance activities
5. The minimum setbacks required for proper ESC installation, maintenance, and removal

The “simplest” way to develop the LOD would be to include all right of way and easements included in the project area, but that approach is very conservative and could create its own issues to consider.”
• Page 10-12 – Added the following language:

“1. If the entire project area, including all right-of-way and easements, is included in the LOD, then the SWM computations must reflect that area; expanding the LOD could result in the need for additional SWM controls on a project

2. The contractor may require additional area outside of the right of way and easements for construction access or to properly install and maintain temporary ESC; what legal arrangements must be made to secure the additional right of way, easement, access agreement, etc.

3. If unavoidable impacts to waters of the US were not considered for the entire right of way and easements, including temporary impacts for ESC, then expanding the LOD to use all of the right of way or easement could require additional 401/404 permitting

4. Expanding the LOD may also require a CGP modification, or trigger the need for permit coverage when the original LOD was < 1.00 acre and the expanded LOD is now ≥ 1.00 acre

When developing the LOD and delineating it on an ESC Plan, the designer should balance project constructability with minimization of land disturbance. During the concurrent engineering process, the LOD is likely to change and will continue to change as the project moves from preliminary engineering through right-of-way and construction. It is difficult to predict how much area will be needed to construct the project without detailed knowledge of all construction means and methods, which are generally unavailable during the planning stage. The LOD on the plan should be reviewed carefully during the constructability review and at the project pre-construction conference to ensure that everyone is familiar with the LOD and determine if additional LOD is necessary. Potential revisions to the LOD during the construction phase should be discussed at the pre-construction meeting, including the process for review and approval.

The LOD must be clearly delineated in the ESC plan to show where regulated land-disturbing and construction activities are permitted. Conducting regulated land-disturbing activities outside of the permitted LOD shown on the ESC plan is not allowed. When regulated land-disturbing occurs outside of the permitted area, revisions must be made to the LOD shown on the ESC plan. ESC and SWM design and computations may also require revisions to address the LOD, and the CGP coverage may require modification to include the additional project or disturbed area not included in the permitted LOD.

The VDOT CADD Standards include a new line type and weight for drawing the LOD in a project model. The LOD should be placed in a separate layer in MicroStation, so it can be turned on for ESC plan sheets and environmental commitments plan sheets. See the CADD manual for more details. Also, the LOD can be used as the basis for project site map required for securing permit coverage for a project under the CGP.”
Page 10-13 – Revised the following language in the second bullet under “Section 10.3.1.3 Contents of ESC Plan” from: “Limits of clearing and grading (plan view and typical section).” To: Limits of “Disturbance (LOD) for regulated land-disturbing and construction activities (plan view).”

Revised the following language in the second bullet under “Section 10.3.2.1 Concurrent Engineering Process for Plan Development (CEP)” from: “PFI/Public Hearing Stage: The ESC Plan Designer/Hydraulics Engineer shall develop preliminary ESC and associated post construction SWM Plans (see the latest version of IIM-LD-195 for information on the technical criteria and requirements for permanent SWM facilities) and show locations of all major erosion...” To: “Preliminary Field Investigation’ (PFI), Public Hearing (PH), Stages: The ESC Plan Designer/Hydraulics Engineer shall develop preliminary ESC (and associated post construction SWM Plans; (see the latest version of IIM-LD-195 for information on the technical criteria and requirements for permanent SWM facilities) and show “the limits of disturbance (LOD) and” locations of all major erosion...

Page 10-14 – Revised the following language in the first bullet from: “FI Stage: Prior to the FI, the ESC Plan...” To: “Field Investigation” (FI) Stage: Prior to the FI, the ESC Plan...

Revised the following language in the last sentence in the second bullet from: “…including, but not limited to, the types of proposed measures, means of access for maintenance, and required right of way and/or easements.” To: … including, but not limited to, “the limits of disturbance (LOD)”, the types of proposed measures, means of access for maintenance, and required right of way and/or easements “for regulated land-disturbing activities”.

Page 10-19 – Revised the following language in the second bullet under “The ESC Phase I Plan Sheet, at a minimum, depict the following:” from: “Proposed centerline, edges of pavement and construction limits.” To: Proposed centerline, edges of pavement, construction limits, “and limits of disturbance”.

Added a new bullet number 8 under “The ESC Phase I Plan Sheet, at a minimum, depict the following:” “Inlet protection for existing inlets that require sediment control prior to initiation of land-disturbing activities in the contributing drainage area.”

Page 10-20 – Revised the following language in the first bullet under “The Phase II Plan Sheet shall, at a minimum, depict the following:” from: “Proposed centerline, edges of pavement and construction limits.” To: Proposed centerline, edges of pavement, “limits of disturbance” and construction limits.

Revised the following language in the third bullet under “The Phase II Plan Sheet shall, at a minimum, depict the following:” from: “Temporary sediment basins and permanent stormwater management basins installed under the Phase I Plan.” To: Temporary sediment basins and permanent stormwater management “facilities” installed under the Phase I Plan.
Revised the following language in the sixth bullet under “The Phase II Plan Sheet shall, at a minimum, depict the following:” from: “Temporary sediment traps, 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.” To: Temporary sediment traps, silt fences, rock check dams, drop inlet silt traps, “inlet protection, outlet protection,” and any other erosion and sediment control measures needed to be installed as grading operations progress.

Added the following language (bullets 4 & 5) under “The following drainage items from the Phase I and II Plan Sheets shall be depicted on the Construction Plan Sheet”: “Protection ditch linings.” and “Outlet protection.”

- Page 10-22 – Revised the following language in the last sentence in the first paragraph from: “The mechanism to be used for this purpose will be SWPPP Certification form LD-445E.” To: The mechanism to be used for this purpose will be SWPPP Certification “on the SWPPP General Information Sheet.”

Revised the following language in the first sentence in the last paragraph under “Section 10.3.5 SWPPP General Information Sheets” from: “The SWPPP General Information Sheets are updated from time to time to clarify and/or include additional requirements as a result of changes to the VPDES Regulation…” To: The SWPPP General Information Sheets are updated from time to time to clarify and/or include additional requirements as a result of changes to the “VSMP” Regulation…

- Page 10-23 – Revised the following language in the first sentence in the next to last paragraph from: “The permanent BMP information (when applicable) in Section VI is to be completed by the Hydraulic Engineer...” To: The permanent “stormwater management facility (SWMF) or best management practice (BMP)” information (when applicable) in Section VI is to be completed by the Hydraulic Engineer...

Revised the following language in the last sentence in the next to last paragraph from: “When submitting a request for termination of the General VPDES Construction Permit coverage, the RLD is to use the information in the Permanent BMP table(s) in completing the BMP information section on form LD-445D.” To: When submitting a request for termination of the Construction General Permit coverage, the RLD is to use the information in the Permanent “SWMF”/BMP table(s) in completing the “post construction SWM control” information section on form LD-445D.

- Page 10-24 – Added the following language to the end of bullet number 2: The SWPPP General Information Sheets (with all notes completed with appropriate information “as applicable”).

Added new bullet number 5: “Pollution Prevention (P2) Plan.”
Revised the following language in bullet number 9 from: “A copy of the General VPDES Construction Permit Registration Information form LD-445, (when applicable).” To: A copy of the Construction General Permit Registration Information forms LD-445 “and LD-445C” (when applicable).

Revised the following language in bullet number 10 from: “Documents required to be developed/provided by the contractor for erosion and sediment control and stormwater pollution...” To: Documents required to be developed/provided by the contractor for erosion and sediment control, “stormwater management” and pollution...

Revised the following language in bullet number 11 from: “All ESC inspection reports.” To: All ESC “and SWPPP” inspection reports.

Revised the following language in the last sentence of this page from: “Where no facilities are available at the activity site to maintain the SWPPP documents, they are to be kept at a location convenient...” To: Where no facilities are available at the activity site to maintain the SWPPP documents, they are to be kept at a “central” location convenient...

- Page 10-25 – Revised the following language in the first bullet under “Section 10.3.7 SWPPP Components” from: “A copy of the VPDES Construction General Permit registration statement, permit coverage letter and LD-445A are to be posted at the construction site.” To: A copy of the Construction General Permit coverage letter and “form” LD-445A are to be posted at the construction site.

Revised the following language in the secondary bullet under the first bullet in “Section 10.3.7 SWPPP Components” from: “The RLD ensures that a copy of the General VPDES Construction Permit Registration Information form LD-445, and...” To: The RLD ensures that a copy of the Construction General Permit Registration Information forms (LD-445 “and LD-445C”), and...

- Page 10-28 – Revised the following language in the secondary bullet under the sixth bullet from: “The VDOT RLD provides the appropriate information on SWPPP Certification form LD-445E and ensures a copy is maintained in the SWPPP file for the RLDA.” To: The VDOT RLD provides the appropriate information on “the SWPPP General Information Sheets or” SWPPP Certification and ensures a copy is maintained in the SWPPP file for the RLDA.

Revised the following language in the seventh bullet from: “A report summarizing the scope of the ESC inspections...” To: A report summarizing the scope of the ESC “and SWPPP self” inspections...
Revised the following language in the secondary bullet under the seventh bullet from: “The Contractor’s Erosion and Sediment Control Contractor Certified (ESCCC) person conducts initial inspections and completes the Construction Runoff Control Inspection Form C-107. The VDOT Certified ESC Inspector verifies inspection information on Form C-107 and the RLD ensures that all of the C-107 forms are maintained in the SWPPP file for the RLD.” To: The Contractor’s Erosion and Sediment Control Contractor Certified (ESCCC) person conducts initial inspections and completes the Construction Runoff Control Inspection Form C-107 “Part I”. The VDOT Certified ESC Inspector verifies inspection information on Form C-107 “Part I” and the RLD ensures that all of the C-107 “Part I” forms are maintained in the SWPPP file for the RLDA.

Page 10-29 – Added the following language (secondary bullet) at the top of the page: “The Project Manager, Project Engineer, Area Construction Engineer, or designated individual is responsible for completing and documenting VSMP authority periodic inspections on Form C-107 Part II. The individual signing the form on behalf of VDOT must be certified as a DEQ Stormwater Management Inspector. Copies of the Form C-107 Part II and associated Corrective Action Plans are maintained in the SWPPP file for the RLDA.”

Revised language in the first bullet under “SWPPP inspection requirements shall be amended as follows” from: “Inspections shall be conducted at a frequency of (i) at least once every four business days or (ii) at least once every five business days and no later than 48 hours following a measurable storm event. In the event that a measurable storm event occurs when there are more than 48 hours between business days...” To: Inspections shall be conducted at a frequency of (i) at least once every four business days or (ii) at least once every five business days and no later than “24” hours following a measurable storm event. In the event that a measurable storm event occurs when there are more than “24” hours between business days...

Page 10-30 – Revised the following language in the first sentence in the second paragraph under “Section 10.3.9 Field Revisions and Evaluations” from: “During the construction phase of the project, the Project Engineer the Project ESC Inspector, and the contractor...” To: During the construction phase of the project, the Project Engineer, the Project ESC Inspector, “District NPDES Coordinator”, and the contractor...

Added the following language at the end of the second paragraph under “Section 10.3.9 Field Revisions and Evaluations”: “See Figure 10-1 for a flow chart showing the plan revision process.”
• Page 10-31 – Revised the following language third paragraph from: “During the construction phase of the project, the Project Engineer and/or the Project ESC Inspector will periodically, 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 (or other such documents) and/or the implementation of different measures as a result of new technologies/products. The VDOT Stormwater Program Administrator is to be provided a copy of all such reports.”

To: During the construction phase of the project, the Project Engineer Project ESC Inspector, “and/or District NPDES Coordinator” will periodically, 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 (or other such documents) and/or the implementation of different measures as a result of new technologies/products. The VDOT “MS4”/Stormwater “Engineer” is to be provided a copy of all such reports.

• Page 10-34 – added the following “References”:
