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Project Description

This project consists of *the construction/reconstruction of a X.X-mile segment of Mainline XXXX*. This work includes the *installation of two culverts, grading, aggregate base, drainage, and other miscellaneous work*. Soil disturbing activities include *clearing and grubbing, and roadway grading*. The total disturbed area for the project is approximately *X.X* acres. The receiving water is *XXXXX*. Approximately *X.X* acres of new impervious surface will be created by *the reconstructed roadway*. The Runoff Coefficient prior to construction is *0.XX*. The Runoff Coefficient after construction will be *0.XX*.

Off-site and Critical Areas

The surrounding off-site area will not be affected by any land-disturbing activities. Any foreign fill to be brought in must first be approved by the Contracting Officer (CO). *The critical areas are the wetlands surrounding the access road and parking areas.*

Prohibited Discharges

The following discharges are prohibited: wash-water from concrete, paint, curing compounds, and other construction materials; fuels, oils, and equipment-related compounds; soaps and solvents used for vehicle washing; and, waste, garbage, and sanitary waste.

Inspect and maintain on a regular basis all mechanized equipment used in or near surface water to prevent contamination from fuels, lubricants, hydraulic fluids, or other toxic materials.

Solid waste generated from the project will consist of construction debris, garbage, and empty containers. Collect and store all waste in dumpsters, or in metal or plastic drums, as appropriate.

Hazardous waste will not be generated from normal construction activities. Equipment fueling and maintenance could generate spills, leaks, and hazardous wastes like motor oil, diesel, gasoline, and battery fluid. If feasible, conduct these activities in a covered area to avoid contact with storm water. Store all hazardous waste materials in appropriate and clearly marked containers away from other nonwasted materials. Do not dispose of hazardous waste materials into the on-site dumpsters. Dispose of material according to Federal, State, and local regulations.

Develop and implement a Spill Prevention Control and Countermeasures (SPCC) plan following the requirements under 40 CFR 112. Report spills large enough to discharge to surface waters to the National Response Center at 1-800-424-8802.

General Guidelines

The Erosion & Sediment Control Narrative is meant as a guideline for preventing erosion and controlling sediment. The Erosion and Sediment Control measures are defined and outlined in the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-14, and the Special Contract Requirements.

Do not modify the type, size, or location of any measure or practice without prior approval from the CO. No construction access will be permitted through a wetland or waterway. Do not allow construction vehicles to track sediment outside the project limits. Do not allow construction equipment to operate down-slope of the perimeter control measures. Direct storm runoff to vegetated buffer areas and do not discharge directly into surface waters.

Erosion and Sediment Control

Erosion and Sediment Control measures including *fiber roll, rolled erosion control product on slopes, and construction exit* are proposed for this project. Install and maintain all erosion and sediment control measures required for compliance with Department of Environmental Quality regulations. Unless otherwise indicated, construct and maintain all vegetative and structural erosion and sediment control practices according to Minimum Standards and Specifications of the Virginia Erosion and Sediment Control Handbook, 3rd Edition (VESCH) and FP-14 detail drawings. Adhere to the Minimum Standards of VESCH unless waived or approved by variance. *Fiber Roll is a EFLHD FP-14 detail included in the plans by variance.*

Structural Practices

Fiber Roll (E157-04): Fiber roll is placed as shown on the plans to trap sediment and moisture on slopes until vegetation can provide long-term stabilization

Rolled Erosion Control Project (RECP) on Slopes (E629-01): RECP will be used for temporary or permanent soil stabilization on slopes. RECP lessens the impact of soil erosion due to wind or water and provides a mulching layer for the establishment of vegetation.

Stabilized Construction Exit (SCE) (E157-01): SCE are placed as shown on the plans to reduce the amount of mud transported onto paved public roads by vehicles or runoff.

Management Strategies

1. Sequence construction so that grading operations can begin and end as quickly as possible.
2. Temporary seeding or other stabilization must follow immediately after grading.
3. Clearly mark areas which are not to be disturbed with flags, signs, etc.
4. The responsible land disturber must be responsible for the installation and maintenance of all erosion and sediment control practices.
5. After achieving adequate stabilization, the temporary erosion and sediment controls must be cleaned up and removed.

Permanent Stabilization

All disturbed areas that will remain dormant for more than one year must be stabilized with permanent seeding immediately following grading. Seeding will be done in accordance with the planting schedule provided on the notes sheets in the site plan drawings. In all seeding operations, seed must be applied prior to mulching as approved by the CO.

Maintenance and Inspection

In general, check all erosion and sediment control measures daily, after every significant rainfall (0.5" in a 24-hour duration), and in accordance with the Stormwater Pollution Prevention Plan (SWPPP). In particular, check the following:

1. *Inspect fiber roll weekly and after each runoff event. Remove sediment deposits from the fiber roll when it reaches half the height of the device. Replace damaged fiber roll within 24 hours of inspection.*
2. *Check SCE regularly for sediment buildup, which will prevent the cleaning of wheels of construction traffic. If SCE is clogged by sediment, remove and clean, or replace.*
3. *Check the seeded areas regularly to ensure that a good stand of vegetation is maintained. Areas must be reseeded as needed to establish and maintain a good stand of vegetation.*
4. *Check RECP regularly to ensure it has not been damaged. Replace any damaged RECP.*

Soils

The following soil types were identified within the project site: *Camocca fine sand, hydrologic soil group is classified as A*. Refer to the SWPPP for a map of specific soil type cover.

Sequence of Construction

Phase I: Establish Perimeter Controls

Prior to any clearing, grubbing, or excavation, construct perimeter controls to ensure that disturbed sediment does not leave the project site. Perimeter controls include *fiber roll and silt fence*.

Phase II: Intermediate Controls

Prior to any heavy machinery or truck vehicles entering the site, construct a stabilized construction entrance. At the end of each day's rough grading operations, shape earthwork to minimize and control erosion from storm runoff. Provide *fiber roll* around all stockpiled excavated roadway material. Apply temporary seeding to stockpiles remaining in place longer than 14 days within 7 days of stockpiling. Provide watering for dust control within the construction limits, on active haul roads, and in pits and staging areas. *Install inlet protection prior to diverting water through inlets. Upon completion of culverts, ensure that culvert entrances, outlets, and outlet channels are at final grade and are stabilized (with vegetation, riprap, or pavement) before routing drainage through completed culverts.*

Phase III: Final Construction/Stabilization

After completion of roadway construction, do the following as directed by the CO: finish grading, place riprap, and apply permanent turf establishment to any remaining disturbed areas; where necessary, replace eroded topsoil and re-apply permanent turf establishment to disturbed areas where vegetation has not established; *inspect, clean, and repair all culvert outlet protection, riprap basins, and stabilized channels; remove all devices used for dewatering; and remove silt fence only after all upslope areas are stabilized and vegetation is well established.*

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VESCH Minimum Standards (MS-19)

This section presents the guidelines & requirements identified in Chapter 6 of the Virginia Erosion & Sediment Control Handbook. All applicable minimum standards (from the Virginia Erosion & Sediment Control Regulations, MS-1MS-19 must be addressed.

1. Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant for longer than 13 days. Permanent stabilization shall be applied to areas to be left dormant for more than one year.	1. Contractor must apply temporary seeding or other temporary stabilization to all denuded areas which will remain dormant for longer than 14 days.
2. During construction of the project, soil stockpiles and borrow areas shall be stabilized or protected with sediment trapping measures. Temporary protection and permanent stabilization shall be applied to all soil stockpiles onsite and borrow areas or soil intentionally transferred offsite.	2. Contractor must apply temporary or permanent stabilization to soil stockpiles which will remain longer than seven (7) days.
3. Permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion.	3. Contractor must apply topsoil and permanent seed mix, approved by the CO, to all denuded areas. No foreign soil can be brought into the project site without approval.
4. Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance takes place.	4. Contractor must establish perimeter controls prior to any land disturbing activity.
5. Stabilization measures shall be applied to earthen structures such as dams, dikes and other diversions immediately after installation.	5. Not Applicable
6. Sediment traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin. Sediment traps shall be constructed to control drainage areas less than three acres with minimum storage capacity of 134 cubic yards/acre of drainage area. The outfall system shall at a minimum maintain the structural integrity of the basin during a 25 year storm of 24 hours.	6. A written exception will be requested from DEQ. Installation of these features would have too great of a footprint and impact on adjacent natural features and wetlands.
7. Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within on year of permanent stabilization shall be provided with additional slope stabilization measures until the problem is corrected.	7. Contractor must grade cut/fill slopes in accordance with these plans.
8. Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structures.	8. Not Applicable. All flow must remain sheet flow.

9. Whenever water seeps from a slope face, adequate drainage or other protection shall be provided	9. Not anticipated. Proposed roadway is in a fill section above the groundwater table.
10. All storm sewer inlets that are made operable during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.	10. Not Applicable.
11. Before newly constructed stormwater conveyance channels or pipes are made operational, adequate outlet protection and any required temporary or permanent channel lining shall be installed in both the conveyance channel and receiving channel.	11. Not Applicable.
12. When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area to the greatest extent possible during construction. Non-erodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by non-erodible cover materials.	12. No work anticipated in live watercourse. However, Contractor must protect watercourses, particularly when working adjacent to existing impoundments.
13. When a live watercourse must be crossed by construction vehicles more than twice in any six-month period, a temporary vehicular stream crossing constructed of non-erodible material shall be provided.	13. Not Applicable.
14. All applicable federal, state, and local regulations pertaining to working in or crossing live watercourses shall be met.	14. Not Applicable. Contractor must protect live watercourses when working adjacent to them.
15. The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.	15. Not Applicable. Contractor must protect live watercourses when working adjacent to them.
16. Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:	
A. No more than 500 linear feet of trench may be opened at one time.	A. Contractor must backfill utility trenches greater than 500 linear feet.
B. Excavated material shall be placed on the uphill side of trenches.	B. Contractor must place excavated material uphill from utility trenches.
C. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams on off-site property.	C. Contractor must not discharge sediment-laden runoff or groundwater. Contractor shall install and maintain sediment trapping device prior to discharge.

D. Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.	D. Contractor to compact trenches in accordance with the plans and specifications.
E. Re-stabilization shall be accomplished in accordance with these regulations.	E. Contractor must re-stabilize any disturbed area until permanent stabilization is achieved.
F. Applicable safety regulations shall be complied with.	F. Contractor to adhere to all applicable safety regulations.
17. Where construction vehicles access routes intersect paved or public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned thoroughly at the end of the day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. This provision shall apply to individual development lots as well as to larger land disturbing activities.	17. Contractor to sweep streets and allay dust daily within the project area.
18. All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the local program authority. Trapped sediment and the disturbed soil areas resulting from the deposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.	18. Contractor must remove temporary filter barriers following final stabilization and prior to project close out.
19. Properties and waterways downstream from development sites shall be protected from the sediment deposition, erosion and damage due to increases in volume, velocity and peak flow rate of stormwater runoff for the stated frequency storm of 24-hour duration in accordance with the following standards and criteria. Concentrated stormwater runoff leaving a development site shall be discharged directly into adequate natural or man-made receiving channel, pipe, or storm sewer system. For those sites, downstream stability analyses at the outfall of the pipe or pipe system shall be performed.	19. Contractor must discharge treated or filtered runoff directly to the open space unless otherwise directed.

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Temporary Seeding		
Planting Dates	Species	Rate (lbs./acre)
September 1 - February 15	50/50 mix of Annual Ryegrass (<i>Lolium multiflorum</i>) and Cereal (winter) Rye (<i>Secale cereal</i>)	50 - 100
February 16 - April 30	Annual Ryegrass (<i>Lolium multiflorum</i>)	60 - 100
May 1 - August 31	German Millet (<i>Setaria italica</i>)	50

The following criteria shall apply to all seed species listed above:

Seeding Procedures:

Apply seed evenly with a broadcast seeder, cultipack seeder, or hydroseeder. Plant small grains with no more than 1 inch deep. Plant grasses and legumes with no less than one quarter inch soil cover.

Mulching Procedures:

Seed applied in the fall for winter cover and seed applied during hot and dry summer months shall be mulched according to LIST SPEC, except that hydromulches shall not be acceptable during these periods.

Temporary seeding applications performed under favorable soil and site conditions during optimum spring and fall seeding dates, as listed above, may not require mulch.

Permanent Seeding	
Species	Rate (lbs./acre)
Little Bluestem (<i>Schizachryium scoparium</i>)	50
Purpletop (<i>Tridens favus</i>)	15
Switchgrass, Shelter (<i>Panicum virgatum</i>)	15
Virginia Wildrye (<i>Elymus virginicus</i>)	20

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