

**APPENDIX M:**

**CITY OF LYNCHBURG, VA**

**EROSION AND SEDIMENT CONTROL BOND ESTIMATE CALCULATION SHEET**

Project: \_\_\_\_\_  
Date: \_\_\_\_\_

Disturbed Acreage: \_\_\_\_\_

<u>VESC Std.</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>UNIT COST</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
3.01	Safety Fence	LF	\$10.00		\$0.00
3.02	Temporary Gravel Construction Entrance	EA	\$985.00		\$0.00
	with Wash Rack	EA	\$3,400.00		\$0.00
3.03	Construction Road Stabilization	SY	\$5.00		\$0.00
3.05	Silt Fence (SF)	LF	\$3.75		\$0.00
3.07	Storm Drain Inlet Protection (IP)	EA	\$250.00		\$0.00
3.08	Culvert Inlet Protection (CIP)	EA	\$250.00		\$0.00
3.12	Diversions (DV)	LF	\$7.00		\$0.00
3.13	Temporary Sediment Trap (ST)				
	.99 Acres or less Drainage Area	EA	\$1,250.00		\$0.00
	.99 and 2.99 Acres Drainage Area	EA	\$2,300.00		\$0.00
3.14	Temporary Sediment Basin (SB)				
	3 to 5.9 Acre Drainage Area	EA	\$3,000.00		\$0.00
	6 to 14.9 Acre Drainage Area	EA	\$6,000.00		\$0.00
	15 Acre Drainage Area	EA	\$9,000.00		\$0.00
3.15	Temporary Slope Drain	LF	\$5.75		\$0.00
3.17	Stormwater Conveyance Channels				
	Seeded	SY	\$10.00		\$0.00
	Seeded w/Matting	SY	\$30.00		\$0.00
	Riprap	SY	\$60.00		\$0.00
3.18	Outlet Protection (OP)	EA	\$250.00		\$0.00
3.19	Riprap	TN	\$20.00		\$0.00
3.20	Rock Check Dams (CD)	EA	\$250.00		\$0.00
3.31	Temporary Seeding with Straw	Per Acre	\$1,875.00		\$0.00
3.32	Permanent Seeding with Straw	Per Acre	\$2,250.00		\$0.00
3.33	Sodding	SY	\$5.00		\$0.00
	<b>ESC BOND AMOUNT</b>				\$0.00
	<b>Total ESC Bond</b>				\$0.00

**STORMWATER MANAGEMENT CALCULATOR**

<u>BMP PRACTICE</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>UNIT COST</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
1	Rooftop Disconnection				
	Down Spout	LF	\$5.00		\$0.00
	Roof Drain	LF	\$20.00		\$0.00
	Turf Reinforcement (EC-2)	SY	\$3.00		\$0.00
	Turf Reinforcement (EC-3)	SY	\$8.00		\$0.00
				<b>SUBTOTAL</b>	\$0.00
2	Sheetflow to Vegetated Filter and Conserved Open Space				
	Flow Bypass Structure	EA	\$2,000.00		\$0.00
	#57 Stone	TN	\$50.00		\$0.00
	#3 Stone	TN	\$25.00		\$0.00
	Level Spreader	LF	\$15.00		\$0.00
	Underdrain (for level spreader)	LF	\$20.00		\$0.00
	Concrete Footings (for level spreader)	CY	\$350.00		\$0.00
	Treated Timbers (6"x6")	LF	\$7.50		\$0.00

Jute / Excelsior mesh	SY	\$1.60	_____	\$0.00
Gravel	CY	\$125.00	_____	\$0.00
Filter Fabric	SY	\$2.81	_____	\$0.00
Seeding	SY	\$2.10	_____	\$0.00
Plants / Shrubs	SF	\$2.50	_____	\$0.00
Trees	EA	\$1,000.00	_____	\$0.00
PB - Excavated Soil (for permeable berm)	CY	\$10.00	_____	\$0.00
Sand	TN	\$45.00	_____	\$0.00
#8 Pea Gravel	TON	\$35.00	_____	\$0.00
Geotextile	SY	\$2.50	_____	\$0.00
			<u>SUBTOTAL</u>	\$0.00

	<u>UNIT</u>	<u>UNIT COST</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
3 Grass Channel				
Seeding	SY	\$2.10	_____	\$0.00
Check Dam	EA	\$300.00	_____	\$0.00
Excavation & Embankment	CY	\$6.00	_____	\$0.00
Lining (for gravel flow spreader)	SY	\$2.50	_____	\$0.00
E&SC Netting / Mats (E&SC spec 3.36)	SY	\$3.00	_____	\$0.00
			<u>SUBTOTAL</u>	\$0.00

	<u>UNIT</u>	<u>UNIT COST</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
4 Soil Amendments				
Compost	CY	\$90.00	_____	\$0.00
Seeding	SY	\$2.10	_____	\$0.00
Undercut	CY	\$6.00	_____	\$0.00
			<u>SUBTOTAL</u>	\$0.00

	<u>UNIT</u>	<u>UNIT COST</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
5 Vegetated Roof				
Extensive Green Roof (installed)	SF	\$10.00	_____	\$0.00
Intensive Green Roof (installed)	SF	\$25.00	_____	\$0.00
			<u>SUBTOTAL</u>	\$0.00

	<u>UNIT</u>	<u>UNIT COST</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
6 Rainwater Harvesting				
Storage Tank	GAL	\$3.00	_____	\$0.00
Excavation	CY	\$6.00	_____	\$0.00
Pump	EA	\$4,000.00	_____	\$0.00
Booster Pump	EA	\$2,000.00	_____	\$0.00
Concrete Base	CY	\$400.00	_____	\$0.00
Valves, Backflow Preventers, Piping	LS	\$4,000.00	_____	\$0.00
			<u>SUBTOTAL</u>	\$0.00

	<u>UNIT</u>	<u>UNIT COST</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
7 Permeable Pavement				
Excavation/Embankment (Subgrade Prep)	CY	\$6.00	_____	\$0.00
Pervious Concrete	SF	\$8.20	_____	\$0.00
Porous Asphalt	TN	\$100.00	_____	\$0.00
Stone Layer/Bedding Material	TN	\$50.00	_____	\$0.00
Interlocking Concrete Pavers	SY	\$45.00	_____	\$0.00
Filter Fabric (polypropylene)	SY	\$2.50	_____	\$0.00
Underdrain (perforated)	LF	\$20.00	_____	\$0.00
Drop Inlet	EA	\$3,500.00	_____	\$0.00
Observation well (PVC pipe)	LF	\$20.00	_____	\$0.00
Impermeable Liner (30 mil, PVC, gemembran	SY	\$5.00	_____	\$0.00
			<u>SUBTOTAL</u>	\$0.00

	<u>UNIT</u>	<u>UNIT COST</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
8 Infiltration				
COL_E&S Surety Est. Spreadsheet	EA	\$3,000.00	_____	\$0.00
Topsoil	CY	\$40.00	_____	\$0.00

Sand Layer	CY	\$45.00	_____	\$0.00
Sod	SF	\$1.50	_____	\$0.00
Aggregate	TN	\$50.00	_____	\$0.00
Filter Fabric (polypropylene geotextile)	LF	\$20.00	_____	\$0.00
4" PVC Cleanout	LF	\$20.00	_____	\$0.00
			<u>SUBTOTAL</u>	\$0.00

		<u>UNIT</u>	<u>UNIT COST</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
9	Bio-Retention				
	Filter Media	CY	\$72.00	_____	\$0.00
	Excavation	CY	\$6.00	_____	\$0.00
	Stone	TN	\$50.00	_____	\$0.00
	Mulch	SY	\$5.00	_____	\$0.00
	Plantings	SF	\$1.25	_____	\$0.00
	Underdrain	LF	\$20.00	_____	\$0.00
	Outlet Structure	EA	\$2,500.00	_____	\$0.00
	Outlet Pipe	LF	\$75.00	_____	\$0.00
				<u>SUBTOTAL</u>	\$0.00

		<u>UNIT</u>	<u>UNIT COST</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
10	Dry Swale				
	Filter Media	CY	\$90.00	_____	\$0.00
	Riprap	SY	\$90.00	_____	\$0.00
	Excavation	CY	\$6.00	_____	\$0.00
	6" Underdrain (schedule 40 PVC with cleanou	LF	\$20.00	_____	\$0.00
	Check Dam	EA	\$300.00	_____	\$0.00
	Turf	SF	\$1.50	_____	\$0.00
	Plants/Shrubs	SF	\$2.50	_____	\$0.00
	Hardwood Mulch (shredded, aged bark)	SY	\$5.00	_____	\$0.00
	Impermeable Liner (30 mil, PVC, geomembra	SY	\$5.00	_____	\$0.00
	Outlet Structure	EA	\$5,000.00	_____	\$0.00
				<u>SUBTOTAL</u>	\$0.00

		<u>UNIT</u>	<u>UNIT COST</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
11	Wet Swale				
	Excavation	CY	\$6.00	_____	\$0.00
	Riprap	SY	\$90.00	_____	\$0.00
	Plants/Shrubs	SF	\$2.50	_____	\$0.00
	Turf	SF	\$1.50	_____	\$0.00
	Check Dam	EA	\$300.00	_____	\$0.00
				<u>SUBTOTAL</u>	\$0.00

		<u>UNIT</u>	<u>UNIT COST</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
12	Filtering Practice				
	Filter Media	CY	\$90.00	_____	\$0.00
	Excavation	CY	\$6.00	_____	\$0.00
	Stone Layer	TN	\$50.00	_____	\$0.00
	6" Underdrain (schedule 40 PVC with cleanou	LF	\$20.00	_____	\$0.00
	Turf	SF	\$1.50	_____	\$0.00
	Medium Aggregate Concrete Sand	TN	\$45.00	_____	\$0.00
	Underdrain/Cleanouts	LF	\$20.00	_____	\$0.00
	Outlet Pipe	LF	\$75.00	_____	\$0.00
	Outlet Structure	EA	\$5,000.00	_____	\$0.00
				<u>SUBTOTAL</u>	\$0.00

		<u>UNIT</u>	<u>UNIT COST</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
13	Constructed Wetland				
	Outfall/Outlet Structure	EA	\$5,000.00	_____	\$0.00
	Riprap	SY	\$90.00	_____	\$0.00
	Outlet Pipe	LF	\$75.00	_____	\$0.00
	Excavation	CY	\$6.00	_____	\$0.00
	Plants/Shrubs	SF	\$3.00	_____	\$0.00

	Low Flow Pipe	LF	\$65.00		\$0.00
				<u>SUBTOTAL</u>	\$0.00
		<u>UNIT</u>	<u>UNIT COST</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
14	Wet Pond				
	Riser (w/ anti-flotation, anti-vortex, and trash r	EA	\$5,000.00		\$0.00
	Riprap	SY	\$90.00		\$0.00
	Pond Aeration	EA	\$4,000.00		\$0.00
	Plants/Shrubs	SF	\$3.00		\$0.00
	Outlet Pipe	LF	\$75.00		\$0.00
	Outlet Protection (riprap over filter fabric)	EA	\$300.00		\$0.00
	Low Flow Pipe	LF	\$65.00		\$0.00
	Concrete Weir	CY	\$400.00		\$0.00
	Liner	SY	\$5.00		\$0.00
				<u>SUBTOTAL</u>	\$0.00
		<u>UNIT</u>	<u>UNIT COST</u>	<u>QUANTITY</u>	<u>TOTAL COST</u>
15	Extended Detention Pond				
	Excavation & Embankment	CY	\$6.00		\$0.00
	Riprap	SY	\$90.00		\$0.00
	Pond Aeration	EA	\$4,000.00		\$0.00
	Plants/Shrubs	SF	\$3.00		\$0.00
	Outlet Pipe	LF	\$75.00		\$0.00
	Outlet Protection (riprap over filter fabric)	EA	\$300.00		\$0.00
	Outlet Structure	EA	\$5,000.00		\$0.00
				<u>SUBTOTAL</u>	\$0.00
	<b>SWM BOND</b>				<b>\$0.00</b>
	<b>ESC and SWM Totals</b>				<b>\$0.00</b>
	<b>25% Contingencies</b>			<b>25%</b>	<b>\$0.00</b>
	<b><u>Grand Total Bond</u></b>				<b>\$0.00</b>