

**MOORES RUN
LATERAL STABILITY**

LATERAL STABILITY SUMMARY																						
Reach	Rosgen Stream Type	Channel	Width / Depth Ratio				Dominant BEHI and NBS ²			Depositional Pattern		Meander Pattern		Confinement				Lateral Stability Rating	Comments			
			Study	Reference ¹	Study / Reference	Description	BEHI	Near Bank Shear Stress	Description	Category	Description	Category	Description ³	Study			Reference			Study / Reference	Description	
													Beltwidth	Bankfull	Study MWR	MWR ⁴						
1	C		16.01	16.39	0.98	Stable	Extreme	Moderate	Highly Unstable	B4	Moderately Unstable	Straightened	N/A	47.31	41.00	1.15	N/A	N/A	N/A	Unstable	Survey Date: 09/03-10/03	
2	C		19.66	19.30	1.02	Stable	Low	Low	Stable	B4	Moderately Unstable	Straightened		45.10	45.10	1.00				Stable		
3	D	Left Channel	24.28	19.30	1.26	Moderately Unstable	Low	Low	Stable	B7	Highly Unstable	Straightened		44.00	44.00	1.00				Stable	Channel is aggrading at downstream end with vegetation growing in the channel. Flow is diverting to right channel by cutting across mid-channel bar.	
		Right Channel	10.86	19.30	0.56	Stable	High/Very High	Moderate	Unstable	B7	Highly Unstable	Straightened		44.00	44.00	1.00				Unstable	Channel has downcut and is beginning to lateral adjust.	
4	Transitional					Very Low	Low	Stable	B4	Moderately Unstable	Straightened	Pool cross section		N/A	Stable	Potential to be moderately unstable because of large outfall.						
5	F		23.07	19.30	1.20	Stable	Low	Low	Stable	B4	Moderately Unstable	Straightened		50.00	50.00	1.00				Stable	Additional factors contributing to a stable lateral stability rating, includes a low floodplain bench with dense mature vegetation.	
6	F		21.35	19.30	1.11	Stable	Moderate	Moderate	Moderately Unstable	B4	Moderately Unstable	Straightened		49.50	49.50	1.00				Moderately Unstable		
7	B		18.76	17.10	1.10	Stable	Low	Low	Stable	B4	Moderately Unstable	Straightened		45.00	45.00	1.00				Stable		
8	D	Left Channel	Similar to Reach 03 - Right Channel				Stable	Low	Low	Stable	B7	Highly Unstable		Straightened	Did not have a cross section in this reach					N/A	Stable	Data supports a moderately unstable lateral stability rating; however, the reach is laterally stable because of the large boulders and bedrock in the reach.
		Right Channel					Stable	Low	High	Stable	B7	Highly Unstable		Straightened						N/A	Moderately Unstable	Data supports a stable lateral stability rating; however, toe erosion was observed along the right bank below the concrete revetment.
9	Transitional						Very High	Extreme	Highly Unstable	B4	Moderately Unstable	Straightened	Pool cross section		N/A	Highly Unstable	Stability rating limited to right bank. Left bank is stable because of concrete bank.					

1. Width/depth reference conditions taken from USFWS Maryland Stream Survey reports (CBFO-S02-01 and CBFO-S03-01).
2. Dominant BEHI and NBS are the representative BEHI and NBS of banks prone to erosion for the study reach.
3. Rosgen does not provide a rating for straightened reaches.
4. Confinement not determined due to the lack of reference meander width ratio information for Maryland Piedmont.

**MOORES RUN
VERTICAL STABILITY**

VERTICAL STABILITY SUMMARY																												
Reach	Stream Type	Channel	Critical Dimensionless Shear Stress ¹	Critical Shear Stress ¹	Lowest Bank Height (ft)	Maximum Bankfull Depth (ft)	Bank Height Ratio		Sediment Capacity Model ²	Width / Depth Ratio		Successional Stage		Depositional Pattern		Meander Pattern		Entrenchment		Confinement ⁴		Vertical Stability Rating	Comments					
							Value	Description		Study / Reference ³	Description	Value	Description	Value	Description	Value	Description	Value	Description	Value	Description			Value	Description			
1	C		N/A	N/A	7.57	4.48	1.69	Degradation	N/A	0.98	Degrading	C	Stable	B4	Stable	Straightened	N/A	0.00	Stable	N/A	N/A	Stable	Survey Date: 09/03-10/03					
2	C				3.87	3.87	1.00	Stable		1.02	Stable	C	Stable	B4	Stable	Straightened		3.24	Stable			Stable						
3	D	Left Channel			3.81	3.81	1.00	Stable		1.26	Stable	D > C	Stable	B7	Aggradation	Straightened		4.82	N/A			Aggrading						
		Right Channel			0.82	0.82	1.00	Stable		0.56	Degrading	D > C	Stable	B7	Aggradation	Straightened		4.82	N/A			Degrading						
4	Transitional													Transition	Stable	B4		Stable	Straightened					N/A	N/A			Stable
5	F				8.41	3.12	2.70	Degradation		1.20	Stable	F > C	Stable	B4	Stable	Straightened		1.17	N/A			Stable		Data supports a degrading vertical stability rating based on data in this table, but other factors, described in the report, result in a predicted rating of vertically stable.				
6	F				7.98	4.06	1.97	Degradation		1.11	Stable	F > C	Stable	B4	Stable	Straightened		1.11	N/A			Stable		Data supports a degrading vertical stability rating, but bedrock is preventing downcutting.				
7	B				4.68	4.68	1.00	Stable		1.10	Stable	B	Stable	B4	Stable	Straightened		1.73	Stable			Stable						
8	D	Left Channel			Similar to Reach 03 - Right Channel					Stable		Stable	D > F > Bc	Stable	B7	Aggradation		Straightened	N/A			N/A		Stable				
		Right Channel	Stable		Stable	D > F > Bc	Stable	B7	Aggradation	Straightened	N/A	N/A	Stable															
9	Transitional								Transition	Stable	B4	Stable	Straightened	N/A	N/A	Stable												

1. No bar sample collected. Bars in upper reaches - large cobble and boulders. Bars in Reach 01 - sand. No critical dimensionless shear stress or entrainment calculations.
2. The Service did not model sediment capacity.
3. Width/depth reference conditions taken from USFWS Maryland Stream Survey reports (CBFO-S02-01 and CBFO-S03-01).
4. Confinement not determined due to the lack of reference meander width ratio information for Maryland Piedmont.

**MOORES RUN
ENLARGEMENT PREDICTION**

ENLARGEMENT PREDICTION										
Reach	Stream Type	Channel	Lateral Stability		Vertical Stability		Successional Stage		Potential Enlargement Categories	Comments
			Description	Enlargement Potential	BHR	Enlargement Potential	Description	Enlargement Potential		
1	C		Unstable	Moderate Increase	1.69	Extensive	C	Stable	Moderate Increase	
2	C		Stable	Stable	1.00	Stable	C	Stable	Stable	
3	D	Left Channel	Stable	Stable	1.00	Stable	D > C	Stable	Stable	
		Right Channel	Unstable	Moderate Increase	1.00	Stable	D > C	Stable	Moderate Increase	
4	Transitional		Stable	Stable	0.00	Stable	Transition		Stable	
5	F		Stable	Stable	2.70	Extensive	F > C	Stable	Moderate Increase	
6	F		Moderately Unstable	Slight Increase	1.97	Extensive	F > C	Stable	Slight Increase	Vertically stability because of bedrock.
7	B		Stable	Stable	1.00	Stable	B	Stable	Stable	
8	D	Left Channel	Stable	Stable	0.00	Stable	D > F > Bc	Stable	Stable	
		Right Channel	Moderately Unstable	Slight Increase	0.00	Stable	D > F > Bc	Stable	Stable	
9	Transitional		Highly Unstable	Extensive	0.00	Stable	Transition		Extensive	Outfall significantly contributing to extensive enlargement potential.

**MOORES RUN
SEDIMENT SUMMARY**

PREDICTIVE SEDIMENT SUPPLY SUMMARY													
Reach	Rosgen Stream	Channel	Lateral Stability		Vertical Stability		Channel Enlargement		Pfankuch Channel Stability		Total Sediment Supply		Comments
			Description	Score	Description	Score	Description	Score	Description	Score	Total Score	Description	
1	C		Unstable	3	Stable	1	Moderate Increase	3	Stable	1	8	Moderate	
2	C		Stable	1	Stable	1	Stable	1	Stable	1	4	Low	
3	D	Left Channel	Stable	1	Aggrading	1	Stable	1	Moderately Unstable	2	5	Low	
		Right Channel	Unstable	3	Degrading	4	Moderate Increase	3	Moderately Unstable	2	12	Very High	
4	Transitional		Stable	1	Stable	1	Stable	1	Stable	1	4	Low	
5	F		Stable	1	Stable	1	Moderate Increase	1	Stable	1	4	Low	
6	F		Moderately Unstable	2	Stable	1	Slight Increase	3	Stable	1	7	Moderate	
7	B		Stable	1	Stable	1	Stable	1	Moderately Unstable	2	5	Low	
8	D	Left Channel	Stable	1	Stable	1	Stable	1	Moderately Unstable	2	5	Low	
		Right Channel	Moderately Unstable	2	Stable	1	Stable	1	Moderately Unstable	2	6	Moderate	
9	Transitional		Highly Unstable	4	Stable	1	Extensive	4	Moderately Unstable	2	11	High	

**MOORES RUN
GENERAL EROSION PREDICTION**

BANK EROSION PREDICTION SUMMARY												
Reach	Reach Length	Cross Section	Near Bank Stress Rating	BEHI	Bank Erosion Prediction (ft/yr)	Length of Bank (ft)	Height of Bank (ft)	Erosion Total (ft ³ /yr)	Erosion Total (ton/yr)	Reach Total (ton/yr)	Reach Total (ton/yr/ft)	Comments
1	Bank 1	429		Moderate	Low	0.0900	120	7.0	75.60	3.64		
	Bank 2	429		Moderate	Very Low	0.0900	151	3.4	46.21	2.22		
	Bank 3	429	XS 38 (LB)	Low	High	0.4700	74	8.7	302.59	14.57		
	Bank 4	429	XS G (RB)	High	Extreme	1.7000	268	13.0	5922.80	285.17	305.61	0.71
2	Bank 5	255	XS 32 (LB)	Moderate	Low	0.0900	260	4.5	105.30	5.07		
	Bank 6	255	XS 32 (RB)	Low	Low	0.0430	250	4.5	48.38	2.33	7.40	0.03
3	Bank 7	448		Moderate	High	0.7000	54	5.0	189.00	9.10		
	Bank 8	448	XS 28 (RB)	High	Low	0.2000	110	5.5	121.00	5.83		
	Bank 9a	448		Moderate	Very High	0.7000	80	6.5	364.00	17.53		
	Bank 9b	448	XS A (RB)	Low	Moderate	0.1700	21	4.8	17.21	0.83		
	Bank 9c	448		Moderate	Very Low	0.0900	75	3.2	21.60	1.04		
	Bank 9d	448		Low	Very Low	0.0430	125	3.5	18.81	0.91		
	Bank 9e	448		Low	Moderate	0.1700	20	3.0	10.20	0.49		
4	Bank 9f	448	XS 26 (LB) (Left Channel)	Low	Low	0.0430	35	1.7	2.56	0.12	35.84	0.08
	Bank 10	317	XS 26 (RB) (Right Channel)	Low	Very Low	0.0430	392	4.0	67.42	3.25		
	Bank 11	317		Moderate	Moderate	0.3300	52	6.0	102.96	4.96		
	Bank 12	317	XS B (LB)	Moderate	Very High	0.7000	88	6.0	369.60	17.80		
5	Bank 13	317	XS C (LB)	Low	Very Low	0.0430	102	3.0	13.16	0.63	26.63	0.08
	Bank 13	672	XS C (LB)	Low	Very Low	0.0430	153	3.0	19.74	0.95		
	Bank 14	672		Moderate	Very High	0.7000	75	7.0	367.50	17.69		
	Bank 15	672	XS C (RB)	Low	Moderate	0.1700	88	6.9	103.22	4.97		
	Bank 16	672		Moderate	Low	0.0900	135	9.5	115.43	5.56		
	Bank 17	672		Low	Low	0.0430	113	7.0	34.01	1.64		
	Bank 18	672		Low	Low	0.0430	350	5.0	75.25	3.62		
	Bank 19	672		Low	Low	0.0430	285	6.5	79.66	3.84		
6	Bank 20	672		High	Very High	1.1000	35	9.0	346.50	16.68		
	Bank 21	672	XS 18 (RB)	Moderate	Moderate	0.3300	63	9.0	187.11	9.01	63.96	0.10
	Bank 22	489		High	Extreme	1.7000	70	7.0	833.00	40.11		
	Bank 23	489	XS 14 (LB)	Moderate	Moderate	0.3300	397	8.5	1113.59	53.62		
7	Bank 24	489	XS 14 (RB)	Low	Low	0.0430	155	3.6	23.99	1.16	94.88	0.19
	Bank 25	134	XS E (RB)	Low	Low	0.0430	221	13.3	126.58	6.09	30.40	0.23
8	Bank 26	134		Moderate	Moderate	0.3300	180	8.5	504.90	24.31		
	Bank 27	169		High	Low	0.2000	213	9.0	383.40	18.46	18.46	0.11
9	Bank 28	169		High	Low	0.2000	213	9.0	383.40	18.46	18.46	0.11
	Bank 27	354		Extreme	Very Low	0.9000	165	3.0	445.50	21.45		
9	Bank 28	354		Extreme	Very High	2.7000	155	12.5	5231.25	251.88	273.33	0.77
						TOTAL	5,130	TOTAL	17789.01	856.51		