WORKSHEET 1:   ADVERSE IMPACT FACTORS FOR RIVERINE SYSTEMS WORKSHEET

Stream Type Impacted	Intermittent 0.1			Perennial Stream > 15' in width 0.4			Perennial Stream ≤ 15' in width 0.8		
Priority Area	Tertiary 0.5			Secondary 0.8			Primary 1.5		
Existing Condition	Fully Impaired 0.25			Somewhat Impaired 0.5			Fully Functional 1.0		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.2		
Dominant Impact	Shade/ Clear 0.05	Utility X-ing 0.4	Bank Armor 0.7	Deten-tion 1.5	Stream Crossing (≤ 100') 1.7	Impound 2.7	Morpho-logic Change 2.7	Pipe >100' 3.0	Fill 3.0
Scaling Factor (Based on # linear feet impacted)	< 100' impact 0	100-200' impact 0.05	201-500' impact 0.1	501-1000' impact 0.2	> 1000' impact 0.4 for each 1000' feet of impact (round impacts to the nearest 1000') (example: 2,200' of impact – scaling factor = 0.8; 2,800' of impact – scaling factor – 1.2)				

STREAM

Reaches to Be Impacted	1	2	3	4
Simon Channel Evolution Stage	II			
Rosgen Stream Type/D50	B4			
Criteria for Selecting Existing	FF	FF	FF	FF
Bankfull Width and Depth	Width: 20			
	Depth:2-6			
Bankfull Indicators (attach				
Factors				
Stream Type Impacted	0.4	0.1	0.1	0.1
Priority Area	0.5	0.5	0.5	0.5
Existing	1.0	1.0	1.0	1.0
Duration	0.2	0.2	0.2	0.2
Dominant Impact	2.7	2.7	2.7	2.7
Scaling Factor	--	--	--	--
Sum of Factors M =	4.8	4.5	4.5	4.5
Feet Stream in Reach Impacted	5,202.4	328.2	253.2	302.9
M X LF =	24,971.52	1,476.90	1,139.40	1,363.05

Total Mitigation Credits Required   28,950.87

WORKSHEET 1: ADVERSE IMPACT FACTORS FOR RIVERINE SYSTEMS WORKSHEET

Stream Type Impacted	Intermittent 0.1			Perennial Stream > 15' in width 0.4			Perennial Stream ≤ 15' in width 0.8		
Priority Area	Tertiary 0.5			Secondary 0.8			Primary 1.5		
Existing Condition	Fully Impaired 0.25			Somewhat Impaired 0.5			Fully Functional 1.0		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.2		
Dominant Impact	Shade/ Clear 0.05	Utility X-ing 0.4	Bank Armor 0.7	Deten-tion 1.5	Stream Crossing (≤ 100') 1.7	Impound 2.7	Morpho-logic Change 2.7	Pipe >100' 3.0	Fill 3.0
Scaling Factor (Based on # linear feet impacted)	< 100' impact 0	100-200' impact 0.05	201-500' impact 0.1	501-1000' impact 0.2	> 1000' impact 0.4 for each 1000' feet of impact (round impacts to the nearest 1000') (example: 2,200' of impact – scaling factor = 0.8; 2,800' of impact – scaling factor – 1.2)				

STREAM

Reaches to Be Impacted	5	7	8	9
Simon Channel Evolution Stage				
Rosgen Stream Type/D50				
Criteria for Selecting Existing	FF	FF	FF	FF
Bankfull Width and Depth	Width: 8	Width:8	Width:12	
	Depth:1-2	Depth:1-2	Depth1-2	
Bankfull Indicators (attach				
Factors				
Stream Type Impacted	0.1	0.1	0.8	0.1
Priority Area	0.5	0.5	0.5	0.5
Existing	1.0	1.0	1.0	1.0
Duration	0.2	0.2	0.2	0.2
Dominant Impact	2.7	2.7	2.7	2.7
Scaling Factor	--	--	--	--
Sum of Factors M =	4.5	4.5	5.2	4.5
Feet Stream in Reach Impacted	348.1	310.4	1367.5	142.9
M X LF =	1,566.45	1,396.80	7,111.00	643.05

Total Mitigation Credits Required　　　10,717.3

WORKSHEET 1: ADVERSE IMPACT FACTORS FOR RIVERINE SYSTEMS WORKSHEET

Stream Type Impacted	Intermittent 0.1			Perennial Stream > 15' in width 0.4			Perennial Stream ≤ 15' in width 0.8		
Priority Area	Tertiary 0.5			Secondary 0.8			Primary 1.5		
Existing Condition	Fully Impaired 0.25			Somewhat Impaired 0.5			Fully Functional 1.0		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.2		
Dominant Impact	Shade/ Clear 0.05	Utility X-ing 0.4	Bank Armor 0.7	Deten-tion 1.5	Stream Crossing (≤ 100') 1.7	Impound 2.7	Morpho-logic Change 2.7	Pipe >100' 3.0	Fill 3.0
Scaling Factor (Based on # linear feet impacted)	< 100' impact 0	100-200' impact 0.05	201-500' impact 0.1	501-1000' impact 0.2	> 1000' impact 0.4 for each 1000' feet of impact (round impacts to the nearest 1000') (example: 2,200' of impact – scaling factor = 0.8; 2,800' of impact – scaling factor – 1.2)				

STREAM

Reaches to Be Impacted	10	11	13	15
Simon Channel Evolution Stage				
Rosgen Stream Type/D50				
Criteria for Selecting Existing Condition?	FF	FF	FF	FF
Bankfull Width and Depth			Width:6	Width: 6
			Depth1-2	Depth:1-2
Bankfull Indicators (attach				
Factors				
Stream Type Impacted	0.1	0.1	0.1	0.1
Priority Area	0.5	0.5	0.5	0.5
Existing	1.0	1.0	1.0	1.0
Duration	0.2	0.2	0.2	0.2
Dominant Impact	2.7	2.7	2.7	2.7
Scaling Factor	--	--	--	--
Sum of Factors M =	4.5	4.5	4.5	4.5
Feet Stream in Reach Impacted	119.4	251.00	447.2	418.1
M X LF =	537.30	1,129.50	2,012.40	1,881.45

Total Mitigation Credits Required   5,560.65

WORKSHEET 1: ADVERSE IMPACT FACTORS FOR RIVERINE SYSTEMS WORKSHEET

Stream Type Impacted	Intermittent 0.1			Perennial Stream > 15' in width 0.4			Perennial Stream ≤ 15' in width 0.8		
Priority Area	Tertiary 0.5			Secondary 0.8			Primary 1.5		
Existing Condition	Fully Impaired 0.25			Somewhat Impaired 0.5			Fully Functional 1.0		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.2		
Dominant Impact	Shade/ Clear 0.05	Utility X-ing 0.4	Bank Armor 0.7	Deten-tion 1.5	Stream Crossing (≤ 100') 1.7	Impound 2.7	Morpho-logic Change 2.7	Pipe >100' 3.0	Fill 3.0
Scaling Factor (Based on # linear feet impacted)	< 100' impact 0	100-200' impact 0.05	201-500' impact 0.1	501-1000' impact 0.2	> 1000' impact 0.4 for each 1000' feet of impact (round impacts to the nearest 1000') (example: 2,200' of impact – scaling factor = 0.8; 2,800' of impact – scaling factor – 1.2)				

STREAM

Reaches to Be Impacted	17	19	20 Upper Reach	20 Lower Reach
Simon Channel Evolution Stage	III			III
Rosgen Stream Type/D50	G5			G5
Criteria for Selecting Existing	FF	FF	FF	FF
Bankfull Width and Depth	Width: 8	Width: 8		Width:4
	Depth:1-3	Depth: 1-2		Depth:<1
Bankfull Indicators (attach				
Factors				
Stream Type Impacted	0.8	0.8	0.8	0.8
Priority Area	0.5	0.5	0.5	0.5
Existing	1.0	1.0	1.0	1.0
Duration	0.2	0.2	0.2	0.2
Dominant Impact	2.7	2.7	2.7	2.7
Scaling Factor	--	--	--	--
Sum of Factors M =	5.2	5.2	5.2	5.2
Feet Stream in Reach Impacted	713.1	5,688.6	887.4	205.5
M X LF =	3,708.12	29,580.72	4,614.48	1,068.60

Total Mitigation Credits Required   38,971.92

WORKSHEET 1: ADVERSE IMPACT FACTORS FOR RIVERINE SYSTEMS WORKSHEET

Stream Type Impacted	Intermittent 0.1			Perennial Stream > 15' in width 0.4			Perennial Stream ≤ 15' in width 0.8		
Priority Area	Tertiary 0.5			Secondary 0.8			Primary 1.5		
Existing Condition	Fully Impaired 0.25			Somewhat Impaired 0.5			Fully Functional 1.0		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.2		
Dominant Impact	Shade/ Clear 0.05	Utility X-ing 0.4	Bank Armor 0.7	Deten-tion 1.5	Stream Crossing (≤ 100') 1.7	Impound 2.7	Morpho-logic Change 2.7	Pipe >100' 3.0	Fill 3.0
Scaling Factor (Based on # linear feet impacted)	< 100' impact 0	100-200' impact 0.05	201-500' impact 0.1	501-1000' impact 0.2	> 1000' impact 0.4 for each 1000' feet of impact (round impacts to the nearest 1000') (example: 2,200' of impact – scaling factor = 0.8; 2,800' of impact – scaling factor – 1.2)				

STREAM

Reaches to Be Impacted	23	24	26	27
Simon Channel Evolution Stage				
Rosgen Stream Type/D50				
Criteria for Selecting Existing Condition?	FF	FF	FF	FF
Bankfull Width and Depth	Width:6			Width:4
	Depth:1-2			Depth:<1
Bankfull Indicators (attach				
Factors				
Stream Type Impacted	0.1	0.1	0.1	0.1
Priority Area	0.5	0.5	0.5	0.5
Existing	1.0	1.0	1.0	1.0
Duration	0.2	0.2	0.2	0.2
Dominant Impact	2.7	2.7	2.7	2.7
Scaling Factor	--	--	--	--
Sum of Factors M =	4.5	4.5	4.5	4.5
Feet Stream in Reach Impacted	1,419.4	52.1	96.1	380.4
M X LF =	6,387.30	234.45	432.45	1,711.80

Total Mitigation Credits Required   8,766.00

WORKSHEET 1: ADVERSE IMPACT FACTORS FOR RIVERINE SYSTEMS WORKSHEET

Stream Type Impacted	Intermittent 0.1			Perennial Stream > 15' in width 0.4			Perennial Stream ≤ 15' in width 0.8		
Priority Area	Tertiary 0.5			Secondary 0.8			Primary 1.5		
Existing Condition	Fully Impaired 0.25			Somewhat Impaired 0.5			Fully Functional 1.0		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.2		
Dominant Impact	Shade/ Clear 0.05	Utility X-ing 0.4	Bank Armor 0.7	Deten-tion 1.5	Stream Crossing (≤ 100') 1.7	Impound 2.7	Morpho-logic Change 2.7	Pipe >100' 3.0	Fill 3.0
Scaling Factor (Based on # linear feet impacted)	< 100' impact 0	100-200' impact 0.05	201-500' impact 0.1	501-1000' impact 0.2	> 1000' impact 0.4 for each 1000' feet of impact (round impacts to the nearest 1000') (example: 2,200' of impact – scaling factor = 0.8; 2,800' of impact – scaling factor – 1.2)				

STREAM

Reaches to Be Impacted	30	32	36	37
Simon Channel Evolution Stage				
Rosgen Stream Type/D50				
Criteria for Selecting Existing	FF	FF	FF	FF
Bankfull Width and Depth	Width: 20			Width: 20
	Depth:2-6			Depth:2-6
Bankfull Indicators (attach				
Factors				
Stream Type Impacted	0.4	0.1	0.8	0.4
Priority Area	0.5	0.5	0.5	0.5
Existing	1.0	1.0	1.0	1.0
Duration	0.2	0.2	0.2	0.2
Dominant Impact	2.7	2.7	2.7	2.7
Scaling Factor	--	--	--	--
Sum of Factors M =	4.8	4.5	5.2	4.8
Feet Stream in Reach Impacted	5,461.8	994.5	803.1	1499.9
M X LF =	26,216.64	4,475.25	4,176.12	7,199.52

Total Mitigation Credits Required   42,067.53

WORKSHEET 1: ADVERSE IMPACT FACTORS FOR RIVERINE SYSTEMS WORKSHEET

Stream Type Impacted	Intermittent 0.1			Perennial Stream > 15' in width 0.4			Perennial Stream ≤ 15' in width 0.8		
Priority Area	Tertiary 0.5			Secondary 0.8			Primary 1.5		
Existing Condition	Fully Impaired 0.25			Somewhat Impaired 0.5			Fully Functional 1.0		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.2		
Dominant Impact	Shade/ Clear	Utility X-ing	Bank Armor	Deten-tion	Stream Crossing (≤ 100')	Impound	Morpho-logic Change	Pipe >100'	Fill
	0.05	0.4	0.7	1.5	1.7	2.7	2.7	3.0	3.0
Scaling Factor (Based on # linear feet impacted)	< 100' impact	100-200' impact	201-500' impact	501-1000' impact	> 1000' impact 0.4 for each 1000' feet of impact (round impacts to the nearest 1000') (example: 2,200' of impact – scaling factor = 0.8; 2,800' of impact – scaling factor – 1.2)				
	0	0.05	0.1	0.2					

STREAM

Reaches to Be Impacted	38	39	40	41
Simon Channel Evolution Stage				
Rosgen Stream Type/D50				
Criteria for Selecting Existing	FF	FF	FF	FF
Bankfull Width and Depth	Width: 5	Width:4	Width:4	Width: 4
	Depth:<1	Depth:<1	Depth<1	Depth:<1
Bankfull Indicators (attach				
Factors				
Stream Type Impacted	0.8	0.1	0.1	0.1
Priority Area	0.5	0.5	0.5	0.5
Existing	1.0	1.0	1.0	1.0
Duration	0.2	0.2	0.2	0.2
Dominant Impact	2.7	2.7	2.7	2.7
Scaling Factor	--	--	--	--
Sum of Factors M =	5.2	4.5	4.5	4.5
Feet Stream in Reach Impacted	375.4	407.8	881.7	637.1
M X LF =	1,952.08	1,835.10	3,967.65	2,866.95

Total Mitigation Credits Required   10,621.78

WORKSHEET 1: ADVERSE IMPACT FACTORS FOR RIVERINE SYSTEMS WORKSHEET

Stream Type Impacted	Intermittent 0.1			Perennial Stream > 15' in width 0.4			Perennial Stream ≤ 15' in width 0.8		
Priority Area	Tertiary 0.5			Secondary 0.8			Primary 1.5		
Existing Condition	Fully Impaired 0.25			Somewhat Impaired 0.5			Fully Functional 1.0		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.2		
Dominant Impact	Shade/ Clear 0.05	Utility X-ing 0.4	Bank Armor 0.7	Deten-tion 1.5	Stream Crossing (≤ 100') 1.7	Impound 2.7	Morpho-logic Change 2.7	Pipe >100' 3.0	Fill 3.0
Scaling Factor (Based on # linear feet impacted)	< 100' impact 0	100-200' impact 0.05	201-500' impact 0.1	501-1000' impact 0.2	> 1000' impact 0.4 for each 1000' feet of impact (round impacts to the nearest 1000') (example: 2,200' of impact – scaling factor = 0.8; 2,800' of impact – scaling factor – 1.2)				

STREAM

Reaches to Be Impacted	42	43	44	45
Simon Channel Evolution Stage				
Rosgen Stream Type/D50				
Criteria for Selecting Existing	FF	FF	FF	FF
Bankfull Width and Depth		Width:12	Width:4	Width: 6
		Depth: 1-3	Depth<1	Depth:<1
Bankfull Indicators (attach				
Factors				
Stream Type Impacted	0.1	0.8	0.1	0.1
Priority Area	0.5	0.5	0.5	0.5
Existing	1.0	1.0	1.0	1.0
Duration	0.2	0.2	0.2	0.2
Dominant Impact	2.7	2.7	2.7	2.7
Scaling Factor	--	--	--	--
Sum of Factors M =	4.5	5.2	4.5	4.5
Feet Stream in Reach Impacted	123.6	3,153.1	41.9	168.2
M X LF =	556.20	16,396.12	188.55	756.90

Total Mitigation Credits Required   17,897.77

WORKSHEET 1: ADVERSE IMPACT FACTORS FOR RIVERINE SYSTEMS WORKSHEET

Stream Type Impacted	Intermittent 0.1			Perennial Stream > 15' in width 0.4			Perennial Stream ≤ 15' in width 0.8		
Priority Area	Tertiary 0.5			Secondary 0.8			Primary 1.5		
Existing Condition	Fully Impaired 0.25			Somewhat Impaired 0.5			Fully Functional 1.0		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.2		
Dominant Impact	Shade/ Clear 0.05	Utility X-ing 0.4	Bank Armor 0.7	Deten-tion 1.5	Stream Crossing (≤ 100') 1.7	Impound 2.7	Morpho-logic Change 2.7	Pipe >100' 3.0	Fill 3.0
Scaling Factor (Based on # linear feet impacted)	< 100' impact 0	100-200' impact 0.05	201-500' impact 0.1	501-1000' impact 0.2	> 1000' impact 0.4 for each 1000' feet of impact (round impacts to the nearest 1000') (example: 2,200' of impact – scaling factor = 0.8; 2,800' of impact – scaling factor – 1.2)				

STREAM

Reaches to Be Impacted	46	49	50	51
Simon Channel Evolution Stage				
Rosgen Stream Type/D50				
Criteria for Selecting Existing Condition?	FF	FF	FF	FF
Bankfull Width and Depth	Width: 6	Width: 8	Width: 12	Width: 4
	Depth:1-2	Depth:1-2	Depth:1-2	Depth:<1
Bankfull Indicators (attach				
Factors				
Stream Type Impacted	0.1	0.8	0.8	0.1
Priority Area	0.5	0.5	0.5	0.5
Existing	1.0	1.0	1.0	1.0
Duration	0.2	0.2	0.2	0.2
Dominant Impact	2.7	2.7	2.7	2.7
Scaling Factor				
Sum of Factors M =	4.5	5.2	5.2	4.5
Feet Stream in Reach Impacted	678.8	2,162.5	1,857.7	301.5
M X LF =	3,054.60	11,245.00	9,660.04	1,356.75

Total Mitigation Credits Required   25,316.39

WORKSHEET 1: ADVERSE IMPACT FACTORS FOR RIVERINE SYSTEMS WORKSHEET

Stream Type Impacted	Intermittent 0.1			Perennial Stream > 15' in width 0.4			Perennial Stream ≤ 15' in width 0.8		
Priority Area	Tertiary 0.5			Secondary 0.8			Primary 1.5		
Existing Condition	Fully Impaired 0.25			Somewhat Impaired 0.5			Fully Functional 1.0		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.2		
Dominant Impact	Shade/ Clear 0.05	Utility X-ing 0.4	Bank Armor 0.7	Deten-tion 1.5	Stream Crossing (≤ 100') 1.7	Impound 2.7	Morpho-logic Change 2.7	Pipe >100' 3.0	Fill 3.0
Scaling Factor (Based on # linear feet impacted)	< 100' impact 0	100-200' impact 0.05	201-500' impact 0.1	501-1000' impact 0.2	> 1000' impact 0.4 for each 1000' feet of impact (round impacts to the nearest 1000') (example: 2,200' of impact – scaling factor = 0.8; 2,800' of impact – scaling factor – 1.2)				

STREAM

Reaches to Be Impacted	52	53	55	57
Simon Channel Evolution Stage				
Rosgen Stream Type/D50				
Criteria for Selecting Existing	FF	FF	FF	FF
Bankfull Width and Depth	Width: 6	Width:6		
	Depth:<1	Depth: 1-2		
Bankfull Indicators (attach				
Factors				
Stream Type Impacted	0.1	0.1	0.8	0.1
Priority Area	0.5	0.5	0.5	0.5
Existing	1.0	1.0	1.0	1.0
Duration	0.2	0.2	0.2	0.2
Dominant Impact	2.7	2.7	2.7	2.7
Scaling Factor	-	-	-	-
Sum of Factors M =	4.5	4.5	5.2	4.5
Feet Stream in Reach Impacted	142.9	654.0	69.0	13.7
M X LF =	643.05	2,943.00	358.80	61.65

Total Mitigation Credits Required   4,006.50

WORKSHEET 1: ADVERSE IMPACT FACTORS FOR RIVERINE SYSTEMS WORKSHEET

Stream Type Impacted	Intermittent 0.1			Perennial Stream > 15' in width 0.4			Perennial Stream ≤ 15' in width 0.8		
Priority Area	Tertiary 0.5			Secondary 0.8			Primary 1.5		
Existing Condition	Fully Impaired 0.25			Somewhat Impaired 0.5			Fully Functional 1.0		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.2		
Dominant Impact	Shade/ Clear 0.05	Utility X-ing 0.4	Bank Armor 0.7	Deten-tion 1.5	Stream Crossing (≤ 100') 1.7	Impound 2.7	Morpho-logic Change 2.7	Pipe >100' 3.0	Fill 3.0
Scaling Factor (Based on # linear feet impacted)	< 100' impact 0	100-200' impact 0.05	201-500' impact 0.1	501-1000' impact 0.2	> 1000' impact 0.4 for each 1000' feet of impact (round impacts to the nearest 1000') (example: 2,200' of impact – scaling factor = 0.8; 2,800' of impact – scaling factor – 1.2)				

STREAM

Reaches to Be Impacted	58	59	61	63
Simon Channel Evolution Stage				
Rosgen Stream Type/D50				
Criteria for Selecting Existing	FF	FF	FF	FF
Bankfull Width and Depth				
Bankfull Indicators (attach				
Factors				
Stream Type Impacted	0.1	0.1	0.1	0.8
Priority Area	0.5	0.5	0.5	0.5
Existing	1.0	1.0	1.0	1.0
Duration	0.2	0.2	0.2	0.2
Dominant Impact	2.7	2.7	2.7	2.7
Scaling Factor	--	--	--	--
Sum of Factors M =	4.5	4.5	4.5	5.2
Feet Stream in Reach Impacted	89.1	56.0	60.4	37.8
M X LF =	400.95	252.00	271.80	196.56

Total Mitigation Credits Required 1,121.31

WORKSHEET 1: ADVERSE IMPACT FACTORS FOR RIVERINE SYSTEMS WORKSHEET

Stream Type Impacted	Intermittent 0.1			Perennial Stream > 15' in width 0.4			Perennial Stream ≤ 15' in width 0.8		
Priority Area	Tertiary 0.5			Secondary 0.8			Primary 1.5		
Existing Condition	Fully Impaired 0.25			Somewhat Impaired 0.5			Fully Functional 1.0		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.2		
Dominant Impact	Shade/ Clear 0.05	Utility X-ing 0.4	Bank Armor 0.7	Deten-tion 1.5	Stream Crossing (≤ 100') 1.7	Impound 2.7	Morpho-logic Change 2.7	Pipe >100' 3.0	Fill 3.0
Scaling Factor (Based on # linear feet impacted)	< 100' impact 0	100-200' impact 0.05	201-500' impact 0.1	501-1000' impact 0.2	> 1000' impact 0.4 for each 1000' feet of impact (round impacts to the nearest 1000') (example: 2,200' of impact – scaling factor = 0.8; 2,800' of impact – scaling factor – 1.2)				

STREAM

Reaches to Be Impacted	64	66	68 (dam fill)	68 (rip-rap outlet)
Simon Channel Evolution Stage				
Rosgen Stream Type/D50				
Criteria for Selecting Existing	FF	FF	FF	FF
Bankfull Width and Depth				
Bankfull Indicators (attach				
Factors				
Stream Type Impacted	0.8	0.1	0.4	0.4
Priority Area	0.5	0.5	0.5	0.5
Existing	1.0	1.0	1.0	1.0
Duration	0.2	0.2	0.2	0.2
Dominant Impact	2.7	2.7	3.0	0.7
Scaling Factor	--	--	--	
Sum of Factors M =	5.2	4.5	5.1	2.8
Feet Stream in Reach Impacted	34.8	40.3	375.0	50
M X LF =	180.96	181.35	1,912.50	140.00

Total Mitigation Credits Required   2,414.81

WORKSHEET 1: ADVERSE IMPACT FACTORS FOR RIVERINE SYSTEMS WORKSHEET

Stream Type Impacted	Intermittent 0.1			Perennial Stream > 15' in width 0.4			Perennial Stream ≤ 15' in width 0.8		
Priority Area	Tertiary 0.5			Secondary 0.8			Primary 1.5		
Existing Condition	Fully Impaired **FF** 0.25			Somewhat Impaired 0.5			Fully Functional 1.0		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.2		
Dominant Impact	Shade/ Clear 0.05	Utility X-ing 0.4	Bank Armor 0.7	Deten-tion 1.5	Stream Crossing (≤ 100') 1.7	Impound 2.7	Morpho-logic Change 2.7	Pipe >100' 3.0	Fill 3.0
Scaling Factor (Based on # linear feet impacted)	< 100' impact 0	100-200' impact 0.05	201-500' impact 0.1	501-1000' impact 0.2	> 1000' impact 0.4 for each 1000' feet of impact (round impacts to the nearest 1000') (example: 2,200' of impact – scaling factor = 0.8; 2,800' of impact – scaling factor – 1.2)				

RAW WATER PIPELINE & INTAKE PUMP STATION

Reaches to Be Impacted	Intake Tributary 1	Pipeline Big Indian Creek	Pipeline Tributary 1	Pipeline Tributary 2
Simon Channel Evolution Stage				
Rosgen Stream Type/D50				
Criteria for Selecting Existing	FF	FF	FF	FF
Bankfull Width and Depth				
Bankfull Indicators (attach				
Factors				
Stream Type Impacted	0.8	0.4	0.8	0.1
Priority Area	0.5	0.5	0.5	0.5
Existing	1.0	1.0	1.0	1.0
Duration	0.05	0.05	0.05	0.05
Dominant Impact	0.4	0.4	0.4	0.4
Scaling Factor	--	--	--	--
Sum of Factors M =	2.75	2.35	2.75	2.05
Feet Stream in Reach Impacted	262.0	66.0	70.6	102.5
M X LF =	720.50	155.10	194.15	210.13

Total Mitigation Credits Required   1,279.88

WORKSHEET 1: ADVERSE IMPACT FACTORS FOR RIVERINE SYSTEMS WORKSHEET

Stream Type Impacted	Intermittent 0.1			Perennial Stream > 15' in width 0.4			Perennial Stream ≤ 15' in width 0.8		
Priority Area	Tertiary 0.5			Secondary 0.8			Primary 1.5		
Existing Condition	Fully Impaired 0.25			Somewhat Impaired 0.5			Fully Functional 1.0		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.2		
Dominant Impact	Shade/ Clear 0.05	Utility X-ing 0.4	Bank Armor 0.7	Deten-tion 1.5	Stream Crossing (≤ 100') 1.7	Impound 2.7	Morpho-logic Change 2.7	Pipe >100' 3.0	Fill 3.0
Scaling Factor (Based on # linear feet impacted)	< 100' impact 0	100-200' impact 0.05	201-500' impact 0.1	501-1000' impact 0.2	> 1000' impact 0.4 for each 1000' feet of impact (round impacts to the nearest 1000') (example: 2,200' of impact – scaling factor = 0.8; 2,800' of impact – scaling factor – 1.2)				

RAW WATER PIPELINE & INTAKE PUMP STATION

Reaches to Be Impacted	Pipeline Tributary 3	Pipeline Tributary 4	Pipeline Tributary 6	Pipeline Tributary 7
Simon Channel Evolution Stage				
Rosgen Stream Type/D50				
Criteria for Selecting Existing	FF	FF	FF	FF
Bankfull Width and Depth				
Bankfull Indicators (attach				
Factors				
Stream Type Impacted	0.8	0.4	0.1	0.1
Priority Area	0.5	0.5	0.5	0.5
Existing	1.0	1.0	1.0	1.0
Duration	0.05	0.05	0.05	0.05
Dominant Impact	0.4	0.4	0.4	0.4
Scaling Factor	--	--	--	--
Sum of Factors M =	2.75	2.35	2.05	2.05
Feet Stream in Reach Impacted	50.3	54.0	126.3	194.1
M X LF =	138.33	126.90	258.92	397.91

Total Mitigation Credits Required   922.05

STREAM CHANNEL RESTORATION, STREAM RELOCATION, AND STREAMBANK RESTORATION WORKSHEET

Net Benefit	All proposals must include at least a 25' riparian buffer on both banks Buffers >50' +2'/%slope also may generate riparian credit (see buffer worksheet)				
	Streambank Stabilization	Structure Removal	Stream Channel Restoration and Stream Relocation		
	2.0	4.0 to 8.0	Priority 4 1.0	Priority 3 4.0	Priority 1 and 2 8.0
Monitoring/ Contingency	Minimal (Required) 0.0	Moderate 0.3	Substantial 0.4		Excellent 1.0
Priority Area	Tertiary 0.05		Secondary 0.2		Primary 1.0
Control	RC on restored channel and 25' buffer (Required) 0.1	Required RC + CE or GPP 0.3		Required RC + CE + GPP 0.5	
Mitigation Timing	Schedule 3 0	Schedule 2 (Use for all banks) 0.1		Schedule 1 0.5	

Factors	Bulldozer Branch Lower	Caterpillar Creek Upper	Caterpillar Creek Middle	Caterpillar Creek Lower & Confluence
Net Benefit	8.00	8.00	8.00	8.00
Monitoring/Contingency (at least minimal M&C required)	1.00	1.00	1.00	1.00
Priority Area	0.05	0.05	0.05	0.05
Control (at least a RC required)	0.30	0.30	0.30	0.30
Mitigation Timing	0.50	0.50	0.50	0.50
Sum Factors M=	9.85	9.85	9.85	9.85
Feet Stream in Reach (do not count each bank separately) LF =	631	1,494	444	866
M X LF =	6,215	14,716	4,373	8,530

Channel Restoration/Relocation Credits Generated (Sheet 1) = (M X LF) =   **33,835**

STREAM CHANNEL RESTORATION, STREAM RELOCATION, AND STREAMBANK RESTORATION WORKSHEET

Net Benefit	All proposals must include at least a 25' riparian buffer on both banks Buffers >50' +2'/%slope also may generate riparian credit (see buffer worksheet)				
	Streambank Stabilization	Structure Removal	Stream Channel Restoration and Stream Relocation		
	2.0	4.0 to 8.0	Priority 4 1.0	Priority 3 4.0	Priority 1 and 2 8.0
Monitoring/ Contingency	Minimal (Required) 0.0	Moderate 0.3	Substantial 0.4		Excellent 1.0
Priority Area	Tertiary 0.05		Secondary 0.2		Primary 1.0
Control	RC on restored channel and 25' buffer (Required) 0.1	Required RC + CE or GPP 0.3	Required RC + CE + GPP 0.5		
Mitigation Timing	Schedule 3 0	Schedule 2 (Use for all banks) 0.1	Schedule 1 0.5		

Factors	Corn Crib Creek	Bobcat Run Upper	Bobcat Run Lower	Deere Draw
Net Benefit	8.00	1.00	8.00	8.00
Monitoring/Contingency (at least minimal M&C required)	1.00	1.00	1.00	1.00
Priority Area	0.05	0.05	0.05	0.05
Control (at least a RC required)	0.30	0.30	0.30	0.30
Mitigation Timing	0.50	0.50	0.50	0.50
Sum Factors M=	9.85	2.85	9.85	9.85
Feet Stream in Reach (do not count each bank separately) LF =	1,905	620	553	2,812
M X LF =	18,764	1,767	5,447	27,698

Channel Restoration/Relocation Credits Generated (Sheet 2) = (M X LF) =   **53,677**

STREAM CHANNEL RESTORATION, STREAM RELOCATION, AND STREAMBANK RESTORATION WORKSHEET

	All proposals must include at least a 25' riparian buffer on both banks Buffers >50' +2'/%slope also may generate riparian credit (see buffer worksheet)				
Net Benefit	Streambank Stabilization	Structure Removal	Stream Channel Restoration and Stream Relocation		
	2.0	4.0 to 8.0	Priority 4 1.0	Priority 3 4.0	Priority 1 and 2 8.0
Monitoring/ Contingency	Minimal (Required) 0.0	Moderate 0.3	Substantial 0.4		Excellent 1.0
Priority Area	Tertiary 0.05		Secondary 0.2		Primary 1.0
Control	RC on restored channel and 25' buffer (Required) 0.1	Required RC + CE or GPP 0.3		Required RC + CE + GPP 0.5	
Mitigation Timing	Schedule 3 0	Schedule 2 (Use for all banks) 0.1		Schedule 1 0.5	

Factors	Massey Flats	Case Creek		
Net Benefit	8.00	8.00		
Monitoring/Contingency (at least minimal M&C required)	1.00	1.00		
Priority Area	0.05	0.05		
Control (at least a RC required)	0.30	0.30		
Mitigation Timing	0.50	0.50		
Sum Factors M=	9.85	9.85		
Feet Stream in Reach (do not count each bank separately) LF =	1,722	1,460		
M X LF =	16,962	14,381	0	

Channel Restoration/Relocation Credits Generated (Sheet 3) = (M X LF) =   **31,343**

RIPARIAN RESTORATION AND PRESERVATION WORKSHEET

Net Benefit - select value for each stream side	Riparian Restoration/ Habitat Improvement/Preservation Factors – MBW = Minimum Buffer Width = 50'+2'/% slope Select Values from Table 1			
System Credit Condition 1	Condition 1: MWB restored or protected on both streambanks To Calculate Value: Average of the Net Benefit values for Stream Side A and Stream Side B			
System Credit Condition 2	RC Placed on Channel 0.05		RC and CE Placed on Channel 0.1	
M&C - select value for each stream side	Mimimal (Required) 0	Moderate 0.2	Substantial 0.25	Excellent 0.3
Priority Area	Tertiary 0.05	Secondary 0.2		Primary 0.7
Control	RC on restored channel and 25' buffer (Required) 0.1	Required RC + CE or GPP 0.3		Required RC + CE + GPP 0.5
Mitigation Timing - select value for each stream side	Schedule 3 0	Schedule 2 (Use for all banks) 0.05		Schedule 1 0.15

Riparian Reaches		**IC-A**	**IC-B**	**IC-C**	**IC-D**
		Complete the Following for Each Riparian Reach			
Simon Channel Evolution Stage		I	I	I	I
Rosgen Stream Type D/50		E4	E4	E4	E4
Criteria for Selecting Existing Condition for Each Reach		W/D RATIO ENT RATIO	W/D RATIO ENT RATIO	W/D RATIO ENT RATIO	W/D RATIO ENT RATIO
Bankfull Width and Depth	Width:	56.10	56.10	56.10	56.10
	Depth:	5.88	5.88	5.88	5.88
Bankfull Indicators (attach photograph showing bankfull for each reach)		SEE APPENDIX B	SEE APPENDIX B	SEE APPENDIX B	SEE APPENDIX B
Factors					
Net Benefit	Stream Side A	0.00	0.10	1.00	1.50
	Stream Side B	1.50	2.00	2.00	2.00
System Credit: Condition 1 Met		0.00	1.05	1.50	1.75
System Credit: Condition 2 met (applicable only if Condition 1 met)		0.00	0.10	0.10	0.10
M&C (at least minimal M&C required)	Stream Side A	0.00	0.30	0.30	0.30
	Stream Side B	0.30	0.30	0.30	0.30
Priority Area		0.05	0.05	0.05	0.05
Control (at least a RC required)		0.30	0.30	0.30	0.30
Mitigation Timing (none for riparian preservation)	Stream Side A	0.15	0.15	0.15	0.15
	Stream Side B	0.15	0.15	0.15	0.15
Sum of Factors	M =	2.45	4.50	5.85	6.60
Linear Feet of Stream Buffered (do not count each bank separately)	LF =	138	109	108	74
M X LF =		338	491	632	488

Riparian Restoration Credits Generated (Sheet 1) = (M X LF) =   **1,949**

RIPARIAN RESTORATION AND PRESERVATION WORKSHEET

Net Benefit - select value for each stream side	Riparian Restoration/ Habitat Improvement/Preservation Factors – MBW = Minimum Buffer Width = 50'+2'/% slope Select Values from Table 1			
System Credit Condition 1	Condition 1: MWB restored or protected on both streambanks To Calculate Value: Average of the Net Benefit values for Stream Side A and Stream Side B			
System Credit Condition 2	RC Placed on Channel 0.05		RC and CE Placed on Channel 0.1	
M&C - select value for each stream side	Mimimal (Required) 0	Moderate 0.2	Substantial 0.25	Excellent 0.3
Priority Area	Tertiary 0.05	Secondary 0.2		Primary 0.7
Control	RC on restored channel and 25' buffer (Required) 0.1	Required RC + CE or GPP 0.3		Required RC + CE + GPP 0.5
Mitigation Timing - select value for each stream side	Schedule 3 0	Schedule 2 (Use for all banks) 0.05		Schedule 1 0.15

Riparian Reaches		**IC-E**	**IC-F**	**IC-G**	**IC-H**
		Complete the Following for Each Riparian Reach			
Simon Channel Evolution Stage		I	I	I	I
Rosgen Stream Type D/50		E4	E4	E4	E4
Criteria for Selecting Existing Condition for Each Reach		W/D RATIO ENT RATIO	W/D RATIO ENT RATIO	W/D RATIO ENT RATIO	W/D RATIO ENT RATIO
Bankfull Width and Depth	Width:	56.10	56.10	56.10	56.10
	Depth:	5.88	5.88	5.88	5.88
Bankfull Indicators (attach photograph showing bankfull for each reach)		SEE APPENDIX B	SEE APPENDIX B	SEE APPENDIX B	SEE APPENDIX B
Factors					
Net Benefit	Stream Side A	2.00	2.00	2.00	0.40
	Stream Side B	2.00	1.50	0.60	1.00
System Credit: Condition 1 Met		2.00	1.75	1.30	0.70
System Credit: Condition 2 met (applicable only if Condition 1 met)		0.10	0.10	0.10	0.10
M&C (at least minimal M&C required)	Stream Side A	0.30	0.30	0.30	0.30
	Stream Side B	0.30	0.30	0.30	0.30
Priority Area		0.05	0.05	0.05	0.05
Control (at least a RC required)		0.30	0.30	0.30	0.30
Mitigation Timing (none for riparian preservation)	Stream Side A	0.15	0.15	0.15	0.15
	Stream Side B	0.15	0.15	0.15	0.15
Sum of Factors	M =	7.35	6.60	5.25	3.45
Linear Feet of Stream Buffered (do not count each bank separately) LF =		286	581	491	344
M X LF =		2,102	3,835	2,578	1,187

Riparian Restoration Credits Generated (Sheet 2) =   (M X LF) =   **9,701**

RIPARIAN RESTORATION AND PRESERVATION WORKSHEET

Net Benefit - select value for each stream side	Riparian Restoration/ Habitat Improvement/Preservation Factors – MBW = Minimum Buffer Width = 50'+2'/% slope Select Values from Table 1			
System Credit Condition 1	Condition 1: MWB restored or protected on both streambanks To Calculate Value: Average of the Net Benefit values for Stream Side A and Stream Side B			
System Credit Condition 2	RC Placed on Channel 0.05	RC and CE Placed on Channel 0.1		
M&C - select value for each stream side	Mimimal (Required) 0	Moderate 0.2	Substantial 0.25	Excellent 0.3
Priority Area	Tertiary 0.05	Secondary 0.2		Primary 0.7
Control	RC on restored channel and 25' buffer (Required) 0.1	Required RC + CE or GPP 0.3		Required RC + CE + GPP 0.5
Mitigation Timing - select value for each stream side	Schedule 3 0	Schedule 2 (Use for all banks) 0.05		Schedule 1 0.15

Riparian Reaches		**IC-I**	**IC-J**	**IC-K**	**IC-L**
		Complete the Following for Each Riparian Reach			
Simon Channel Evolution Stage		I	IV	IV	I
Rosgen Stream Type D/50		E4	C5	C5	E5
Criteria for Selecting Existing Condition for Each Reach		W/D RATIO ENT RATIO	W/D RATIO ENT RATIO	W/D RATIO ENT RATIO	W/D RATIO ENT RATIO
Bankfull Width and Depth	Width:	56.10	70.00	70.00	62.10
	Depth:	5.88	5.32	5.32	5.95
Bankfull Indicators (attach photograph showing bankfull for each reach)		SEE APPENDIX B.	SEE APPENDIX B.	SEE APPENDIX B.	SEE APPENDIX B.
Factors					
Net Benefit	Stream Side A	0.40	2.00	2.00	2.00
	Stream Side B	0.00	2.00	1.20	0.80
System Credit: Condition 1 Met		0.20	2.00	1.60	1.40
System Credit: Condition 2 met (applicable only if Condition 1 met)		0.10	0.10	0.10	0.10
M&C (at least minimal M&C required)	Stream Side A	0.30	0.30	0.30	0.30
	Stream Side B	0.30	0.30	0.30	0.30
Priority Area		0.05	0.05	0.05	0.05
Control (at least a RC required)		0.30	0.30	0.30	0.30
Mitigation Timing (none for riparian preservation)	Stream Side A	0.15	0.15	0.15	0.15
	Stream Side B	0.15	0.15	0.15	0.15
Sum of Factors	M =	1.95	7.35	6.15	5.55
Linear Feet of Stream Buffered (do not count each bank separately) LF =		136	1,553	342	1,256
M X LF =		265	11,415	2,103	6,971

Riparian Restoration Credits Generated (Sheet 3) = (M X LF) =   **20,754**

RIPARIAN RESTORATION AND PRESERVATION WORKSHEET

Net Benefit - select value for each stream side	Riparian Restoration/ Habitat Improvement/Preservation Factors – MBW = Minimum Buffer Width = 50'+2'/% slope Select Values from Table 1			
System Credit Condition 1	Condition 1: MWB restored or protected on both streambanks To Calculate Value: Average of the Net Benefit values for Stream Side A and Stream Side B			
System Credit Condition 2	RC Placed on Channel 0.05		RC and CE Placed on Channel 0.1	
M&C - select value for each stream side	Mimimal (Required) 0	Moderate 0.2	Substantial 0.25	Excellent 0.3
Priority Area	Tertiary 0.05	Secondary 0.2		Primary 0.7
Control	RC on restored channel and 25' buffer (Required) 0.1	Required RC + CE or GPP 0.3		Required RC + CE + GPP 0.5
Mitigation Timing - select value for each stream side	Schedule 3 0	Schedule 2 (Use for all banks) 0.05		Schedule 1 0.15

Riparian Reaches		IC-M	CC-A	BBU-A	BBU-B
		Complete the Following for Each Riparian Reach			
Simon Channel Evolution Stage		IV	V	IV	IV
Rosgen Stream Type D/50		C5	F4	G6	G6
Criteria for Selecting Existing Condition for Each Reach		W/D RATIO ENT RATIO	Relocated/ Channelized	Relocated/ Channelized	Relocated/ Channelized
Bankfull Width and Depth	Width:	70.00	17.80	4.00	4.00
	Depth:	5.32	1.40	0.30	0.30
Bankfull Indicators (attach photograph showing bankfull for each reach)		SEE APPENDIX B.	SEE APPENDIX B.	SEE APPENDIX B.	SEE APPENDIX B.
Factors					
Net Benefit	Stream Side A	0.00	2.00	0.30	0.30
	Stream Side B	0.80	2.00	1.00	2.00
System Credit: Condition 1 Met		0.00	2.00	0.65	1.15
System Credit: Condition 2 met (applicable only if Condition 1 met)		0.00	0.10	0.10	0.10
M&C (at least minimal M&C required)	Stream Side A	0.00	0.30	0.30	0.30
	Stream Side B	0.30	0.30	0.30	0.30
Priority Area		0.05	0.05	0.05	0.05
Control (at least a RC required)		0.30	0.30	0.30	0.30
Mitigation Timing (none for riparian preservation)	Stream Side A	0.15	0.15	0.15	0.15
	Stream Side B	0.15	0.15	0.15	0.15
Sum of Factors	M =	1.75	7.35	3.30	4.80
Linear Feet of Stream Buffered (do not count each bank separately) LF =		1,479	1,460	147	383
M X LF =		2,588	10,731	485	1,838

Riparian Restoration Credits Generated (Sheet 4) = (M X LF) =   **15,643**

RIPARIAN RESTORATION AND PRESERVATION WORKSHEET

Net Benefit - select value for each stream side	Riparian Restoration/ Habitat Improvement/Preservation Factors – MBW = Minimum Buffer Width = 50'+2'/% slope Select Values from Table 1			
System Credit Condition 1	Condition 1: MWB restored or protected on both streambanks To Calculate Value: Average of the Net Benefit values for Stream Side A and Stream Side B			
System Credit Condition 2	RC Placed on Channel 0.05		RC and CE Placed on Channel 0.1	
M&C - select value for each stream side	Mimimal (Required) 0	Moderate 0.2	Substantial 0.25	Excellent 0.3
Priority Area	Tertiary 0.05	Secondary 0.2		Primary 0.7
Control	RC on restored channel and 25' buffer (Required) 0.1	Required RC + CE or GPP 0.3		Required RC + CE + GPP 0.5
Mitigation Timing - select value for each stream side	Schedule 3 0	Schedule 2 (Use for all banks) 0.05		Schedule 1 0.15

Riparian Reaches		BBL-A	CCU-A	CCU-B	CCU-C
		Complete the Following for Each Riparian Reach			
Simon Channel Evolution Stage		IV	III	III	III
Rosgen Stream Type D/50		G6	E4	E4	E4
Criteria for Selecting Existing Condition for Each Reach		Relocated/ Channelized	Channelized	Channelized	Channelized
Bankfull Width and Depth	Width:	4.00	10.30	10.30	10.30
	Depth:	0.30	1.41	1.41	1.41
Bankfull Indicators (attach photograph showing bankfull for each reach)		SEE APPENDIX B.	SEE APPENDIX B.	SEE APPENDIX B.	SEE APPENDIX B.
Factors					
Net Benefit	Stream Side A	0.30	0.00	0.10	0.40
	Stream Side B	2.00	1.00	1.00	1.50
System Credit: Condition 1 Met		1.15	0.50	0.55	0.95
System Credit: Condition 2 met (applicable only if Condition 1 met)		0.10	0.10	0.10	0.10
M&C (at least minimal M&C required)	Stream Side A	0.30	0.30	0.30	0.30
	Stream Side B	0.30	0.30	0.30	0.30
Priority Area		0.05	0.05	0.05	0.05
Control (at least a RC required)		0.30	0.30	0.30	0.30
Mitigation Timing (none for riparian preservation)	Stream Side A	0.15	0.15	0.15	0.15
	Stream Side B	0.15	0.15	0.15	0.15
Sum of Factors M =		4.80	2.85	3.00	4.20
Linear Feet of Stream Buffered (do not count each bank separately) LF =		256	180	57	63
M X LF =		1,228.80	513.00	171.00	264.60

Riparian Restoration Credits Generated (Sheet 5) =   (M X LF) =   **2,177**

RIPARIAN RESTORATION AND PRESERVATION WORKSHEET

Net Benefit - select value for each stream side	Riparian Restoration/ Habitat Improvement/Preservation Factors – MBW = Minimum Buffer Width = 50'+2'/% slope Select Values from Table 1			
System Credit Condition 1	Condition 1: MWB restored or protected on both streambanks To Calculate Value: Average of the Net Benefit values for Stream Side A and Stream Side B			
System Credit Condition 2	RC Placed on Channel 0.05		RC and CE Placed on Channel 0.1	
M&C - select value for each stream side	Mimimal (Required) 0	Moderate 0.2	Substantial 0.25	Excellent 0.3
Priority Area	Tertiary 0.05	Secondary 0.2		Primary 0.7
Control	RC on restored channel and 25' buffer (Required) 0.1	Required RC + CE or GPP 0.3		Required RC + CE + GPP 0.5
Mitigation Timing - select value for each stream side	Schedule 3 0	Schedule 2 (Use for all banks) 0.05		Schedule 1 0.15

Riparian Reaches		CCU-D	CCU-E	CCM-A	CCM-B
		Complete the Following for Each Riparian Reach			
Simon Channel Evolution Stage		III	III	III	III
Rosgen Stream Type D/50		E4	E4	E4	E4
Criteria for Selecting Existing Condition for Each Reach		Channelized	Channelized	Channelized	Channelized
Bankfull Width and Depth	Width:	10.30	10.30	10.30	10.30
	Depth:	1.41	1.41	1.41	1.41
Bankfull Indicators (attach photograph showing bankfull for each reach)		SEE APPENDIX B.	SEE APPENDIX B.	SEE APPENDIX B.	SEE APPENDIX B.
Factors					
Net Benefit	Stream Side A	1.20	0.30	1.00	1.00
	Stream Side B	1.50	0.30	0.30	1.50
System Credit: Condition 1 Met		1.35	0.30	0.65	1.25
System Credit: Condition 2 met (applicable only if Condition 1 met)		0.10	0.10	0.10	0.10
M&C (at least minimal M&C required)	Stream Side A	0.30	0.30	0.30	0.30
	Stream Side B	0.30	0.30	0.30	0.30
Priority Area		0.05	0.05	0.05	0.05
Control (at least a RC required)		0.30	0.30	0.30	0.30
Mitigation Timing (none for riparian preservation)	Stream Side A	0.15	0.15	0.15	0.15
	Stream Side B	0.15	0.15	0.15	0.15
Sum of Factors	M =	5.40	2.25	3.30	5.10
Linear Feet of Stream Buffered (do not count each bank separately)	LF =	104	570	149	81
M X LF =		562	1,283	492	413

Riparian Restoration Credits Generated (Sheet 6) =   (M X LF) =   **2,749**

RIPARIAN RESTORATION AND PRESERVATION WORKSHEET

Net Benefit - select value for each stream side	Riparian Restoration/ Habitat Improvement/Preservation Factors – MBW = Minimum Buffer Width = 50'+2'/% slope Select Values from Table 1			
System Credit Condition 1	Condition 1: MWB restored or protected on both streambanks To Calculate Value: Average of the Net Benefit values for Stream Side A and Stream Side B			
System Credit Condition 2	RC Placed on Channel 0.05		RC and CE Placed on Channel 0.1	
M&C - select value for each stream side	Mimimal (Required) 0	Moderate 0.2	Substantial 0.25	Excellent 0.3
Priority Area	Tertiary 0.05	Secondary 0.2		Primary 0.7
Control	RC on restored channel and 25' buffer (Required) 0.1	Required RC + CE or GPP 0.3		Required RC + CE + GPP 0.5
Mitigation Timing - select value for each stream side	Schedule 3 0	Schedule 2 (Use for all banks) 0.05		Schedule 1 0.15

Riparian Reaches		CCM-C	CCM-D	MFL-A	DD-A
		Complete the Following for Each Riparian Reach			
Simon Channel Evolution Stage		III	III	III	IV
Rosgen Stream Type D/50		E4	E4	G6	G4
Criteria for Selecting Existing Condition for Each Reach		Channelized	Channelized	Channelized	Channelized/Incised
Bankfull Width and Depth	Width:	10.30	10.30	4.00	12.70
	Depth:	1.41	1.41	0.30	1.58
Bankfull Indicators (attach photograph showing bankfull for each reach)		SEE APPENDIX B.	SEE APPENDIX B.	SEE APPENDIX B.	SEE APPENDIX B.
Factors					
Net Benefit	Stream Side A	1.00	2.00	0.30	2.00
	Stream Side B	2.00	2.00	2.00	0.30
System Credit: Condition 1 Met		1.50	2.00	1.15	1.15
System Credit: Condition 2 met (applicable only if Condition 1 met)		0.10	0.10	0.10	0.10
M&C (at least minimal M&C required)	Stream Side A	0.30	0.30	0.30	0.30
	Stream Side B	0.30	0.30	0.30	0.30
Priority Area		0.05	0.05	0.05	0.05
Control (at least a RC required)		0.30	0.30	0.30	0.30
Mitigation Timing (none for riparian preservation)	Stream Side A	0.15	0.15	0.15	0.15
	Stream Side B	0.15	0.15	0.15	0.15
Sum of Factors	M =	5.85	7.35	4.80	4.80
Linear Feet of Stream Buffered (do not count each bank separately)	LF =	389	566	105	468
M X LF =		2,276	4,160	504	2,246

Riparian Restoration Credits Generated (Sheet 7) = (M X LF) = **9,186**

RIPARIAN RESTORATION AND PRESERVATION WORKSHEET

Net Benefit - select value for each stream side	Riparian Restoration/ Habitat Improvement/Preservation Factors – MBW = Minimum Buffer Width = 50'+2'/% slope Select Values from Table 1			
System Credit Condition 1	Condition 1: MWB restored or protected on both streambanks To Calculate Value: Average of the Net Benefit values for Stream Side A and Stream Side B			
System Credit Condition 2	RC Placed on Channel 0.05		RC and CE Placed on Channel 0.1	
M&C - select value for each stream side	Mimimal (Required) 0	Moderate 0.2	Substantial 0.25	Excellent 0.3
Priority Area	Tertiary 0.05	Secondary 0.2		Primary 0.7
Control	RC on restored channel and 25' buffer (Required) 0.1	Required RC + CE or GPP 0.3		Required RC + CE + GPP 0.5
Mitigation Timing - select value for each stream side	Schedule 3 0	Schedule 2 (Use for all banks) 0.05		Schedule 1 0.15

Riparian Reaches		DD-B	DD-C	DD-D	DD-E
		Complete the Following for Each Riparian Reach			
Simon Channel Evolution Stage		IV	IV	IV	IV
Rosgen Stream Type D/50		G4	G4	G4	G4
Criteria for Selecting Existing Condition for Each Reach		Channelized/Incised	Channelized/Incised	Channelized/Incised	Channelized/Incised
Bankfull Width and Depth	Width:	12.70	12.70	12.70	12.70
	Depth:	1.58	1.58	1.58	1.58
Bankfull Indicators (attach photograph showing bankfull for each reach)		SEE APPENDIX B.	SEE APPENDIX B.	SEE APPENDIX B.	SEE APPENDIX B.
Factors					
Net Benefit	Stream Side A	1.50	1.00	2.00	2.00
	Stream Side B	1.00	2.00	2.00	2.00
System Credit: Condition 1 Met		1.25	1.50	2.00	2.00
System Credit: Condition 2 met (applicable only if Condition 1 met)		0.10	0.10	0.10	0.10
M&C (at least minimal M&C required)	Stream Side A	0.30	0.30	0.30	0.30
	Stream Side B	0.30	0.30	0.30	0.30
Priority Area		0.05	0.05	0.05	0.05
Control (at least a RC required)		0.30	0.30	0.30	0.30
Mitigation Timing (none for riparian preservation)	Stream Side A	0.15	0.15	0.15	0.15
	Stream Side B	0.15	0.15	0.15	0.15
Sum of Factors M =		5.10	5.85	7.35	7.35
Linear Feet of Stream Buffered (do not count each bank separately) LF =		163	277	102	1,424
M X LF =		831	1,620	750	10,466

Riparian Restoration Credits Generated (Sheet 8) =   (M X LF) =   **13,668**

RIPARIAN RESTORATION AND PRESERVATION WORKSHEET

Net Benefit - select value for each stream side	Riparian Restoration/ Habitat Improvement/Preservation Factors – MBW = Minimum Buffer Width = 50'+2'/% slope Select Values from Table 1			
System Credit Condition 1	Condition 1: MWB restored or protected on both streambanks To Calculate Value: Average of the Net Benefit values for Stream Side A and Stream Side B			
System Credit Condition 2	RC Placed on Channel 0.05		RC and CE Placed on Channel 0.1	
M&C - select value for each stream side	Mimimal (Required) 0	Moderate 0.2	Substantial 0.25	Excellent 0.3
Priority Area	Tertiary 0.05	Secondary 0.2		Primary 0.7
Control	RC on restored channel and 25' buffer (Required) 0.1	Required RC + CE or GPP 0.3		Required RC + CE + GPP 0.5
Mitigation Timing - select value for each stream side	Schedule 3 0	Schedule 2 (Use for all banks) 0.05		Schedule 1 0.15

Riparian Reaches		CCC	MFL-B		
		Complete the Following for Each Riparian Reach			
Simon Channel Evolution Stage		III	III		
Rosgen Stream Type D/50		G6	G6		
Criteria for Selecting Existing Condition for Each Reach		Channelized	Channelized		
Bankfull Width and Depth	Width:	4.00	4.00		
	Depth:	0.30	0.30		
Bankfull Indicators (attach photograph showing bankfull for each reach)		SEE APPENDIX B.	SEE APPENDIX B.	SEE APPENDIX B.	SEE APPENDIX B.
Factors					
Net Benefit	Stream Side A	0.30	0.30		
	Stream Side B	0.30	0.30		
System Credit: Condition 1 Met		0.30	0.30		
System Credit: Condition 2 met (applicable only if Condition 1 met)		0.10	0.10		
M&C (at least minimal M&C required)	Stream Side A	0.30	0.30		
	Stream Side B	0.30	0.30		
Priority Area		0.05	0.05		
Control (at least a RC required)		0.30	0.30		
Mitigation Timing (none for riparian preservation)	Stream Side A	0.15	0.15		
	Stream Side B	0.15	0.15		
Sum of Factors M =		2.25	2.25	0.00	0.00
Linear Feet of Stream Buffered (do not count each bank separately) LF =		1,414	1,247		
M X LF =		3,182	2,806	0	0

Riparian Restoration Credits Generated (Sheet 9) =   (M X LF) =   **5,987**

COMPENSATORY STREAM
MITIGATION WORKSHEETS

Mitigation Summary Worksheet
for the
Indian Creek Water Supply Reservoir

I. Required Mitigation

A.	Reservoir Pool Impacts	=	194,360.3 (39,680.5) l.f.
	Dam Construction	=	2,052.5 (425 l.f.)
	Raw Water Pipeline Impact	=	2,201.9 (925.8 l.f.)
	Total Required Mitigation Credits = **198,614.7 (41,031.3 l.f.)**		

II. Mitigation Credit Summary

		Credits	Acres
B.	Mitigation Bank	--	--
C.	Stream Channel Restoration and/or Enhancement	118,854	--
D.	Riparian Restoration and/or Enhancement	81,814	117.41
E.	Functional Replacement Mitigation = B + C + D	200,668	117.41
F.	Riparian Preservation	--	--
H.	**Total Proposed Non-Bank Mitigation = E + F + G**	**200,668**	**117.41**

The following criteria must be satisfied for the mitigation proposal to meet minimum SOP requirements:

1. Total Proposed Mitigation (Row H) must be greater than or equal to Total Required Mitigation Credits (Row A).

2. Functional Replacement Mitigation (Row E) must be at least 50% of Row A.

3. Preservation Mitigation (Row G) can be up to, but not more than 50% of Row A, if no Upland Buffer Credits are proposed. If Upland Buffer Credits are proposed, then Preservation Mitigation may be reduced to 30% of the Total Required Mitigation Credits.

4. Upland Buffer (Row F) cannot exceed 20% of the Total Required Mitigation (Row A). The following table provides examples of how Preservation and Upland Buffer Mitigation can be used in combination:

Total Required Mitigation Credits	Functional Replacement Credits	Preservation Credits	Total Generated Mitigation Credits
198,614.7	200,668	--	200,668