

Figure 2 – Water Surface Profiles Along Restored Channel

Modeling	HEC-RAS		Channel Flowline	Water	Flow Depth	Middle	Overbank
Element	Section	Peak Flow	Note)	Elevation	Note)	Velocity	Velocity
		(cfs)	(feet)	(feet)	(feet)	(ft/s)	(ft/s)
Channel 6	19156	20	498.0	499.2	1.2	1.7	
Section	18653	20	497.5	499.0	1.5	1.1	
Section	18150	20	497.0	499.0	2.0	0.7	
Grade Control	17877	20	496.7	499.0	2.3	0.6	
Grade Control	17876	20	495.7	499.0	3.3	0.3	0.0
Section	17646	19	495.5	499.0	3.5	0.2	0.0
Channel 5	17142	173	495.0	498.4	3.4	2.0	0.3
Grade Control	16597	176	494.4	497.0	2.6	4.9	
Grade Control	16596	176	493.4	497.0	3.6	1.8	0.3
Section	16136	177	493.0	496.6	3.6	1.9	0.3
Section	15632	180	492.5	496.0	3.5	2.0	0.3
Channel 4	15124	176	492.0	495.5	3.5	1.9	0.3
Section	14618	177	491.5	494.9	3.4	2.1	0.3
Grade Control	14040	180	490.9	493.5	2.6	4.5	
Grade Control	14039	180	489.9	493.5	3.6	1.9	0.3
Section	13611	182	489.5	493.1	3.6	1.9	0.3
Section	13108	186	489.0	492.6	3.6	2.0	0.3
Section	12693	186	488.5	492.2	3.6	1.9	0.3
Section	12100	208	487.9	491.5	3.6	2.2	0.3
Section	11786	206	487.6	490.9	3.3	2.8	0.3
Grade Control	11477	206	487.3	490.0	2.7	4.6	
Grade Control	11476	206	486.3	490.0	3.7	2.0	0.3
Channel 3	11094	203	485.9	489.6	3.7	2.0	0.3
Section	10592	206	485.4	489.1	3.7	2.0	0.3
Section	10000	210	484.8	488.5	3.7	2.1	0.3
Section	9587	211	484.4	487.9	3.5	2.3	0.3
Section	9267	214	484.1	487.3	3.2	3.0	0.2
Grade Control	8917	214	483.8	486.5	2.6	4.4	
Grade Control	8916	217	482.8	486.5	3.7	2.1	0.3
Section	8581	216	482.4	486.1	3.7	2.1	0.3
Section	8077	213	481.9	485.6	3.7	2.0	0.3
Section	7606	210	481.5	485.1	3.6	2.2	0.3
Channel 2	7074	207	480.9	484.4	3.5	2.4	0.3
Section	6697	227	480.5	483.7	3.2	3.3	0.2
Grade Control	6357	226	480.2	482.9	2.7	4.3	

### Table 4 – Unsteady HEC-RAS Modeling Results for 1-Year, 3-Hour Storm Event

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Grade Control	6356	226	479.2	483.0	3.8	2.1	0.3
Section	6028	225	478.9	482.6	3.7	2.2	0.3
Section	5701	223	478.6	482.1	3.5	2.5	0.3
Section	5315	224	478.2	481.3	3.1	3.6	0.1
Grade Control	5077	223	477.9	480.6	2.7	4.5	
Grade Control	5076	226	476.9	480.6	3.7	2.1	0.3
Section	4795	225	476.6	480.3	3.7	2.1	0.3
Section	4562	225	476.4	480.1	3.7	2.2	0.3
Section	4189	225	476.0	479.5	3.5	2.5	0.3
Grade Control	3797	224	475.6	478.4	2.8	4.7	
Grade Control	3796	224	474.6	478.4	3.8	2.0	0.3
Section	3536	224	474.4	478.1	3.7	2.1	0.3
Section	3233	224	474.1	477.8	3.7	2.2	0.3
Section	3025	225	473.9	477.6	3.7	2.3	0.3
Section	2839	224	473.7	477.3	3.6	2.3	0.3
Section	2616	224	473.5	476.8	3.3	3.1	0.3
Grade Control	2462	224	473.3	476.2	2.9	4.5	
Grade Control	2461	244	472.3	476.2	3.9	2.1	0.3
Channel 1	2047	243	471.9	475.8	3.9	2.1	0.3
Section	1782	247	471.6	475.5	3.9	2.1	0.3
Section	1522	250	471.4	475.3	3.9	2.1	0.3
Grade Control	1236	254	471.1	474.0	2.9	4.9	
Grade Control	1235	254	470.1	474.0	3.9	2.2	0.4
Section	1008	257	469.9	473.8	3.9	2.2	0.4
Section	859	258	469.7	473.6	3.9	2.2	0.4
Section	538	263	469.4	473.3	3.9	2.2	0.4
Section	36	263	468.9	472.8	3.9	2.2	0.4

			Channel	Water	Flow	Middle	
Modeling	Cross		(see	Surface	(see	Channel	Overbank
Element	Section	Peak Flow	Note)	Elevation	Note)	Velocity	Velocity
		(cfs)	(feet)	(feet)	(feet)	(ft/s)	(ft/s)
Channel 6	19156	24	498.0	499.4	1.4	1.7	
Section	18653	23	497.5	499.3	1.8	1.1	
Section	18150	23	497.0	499.2	2.2	0.8	
Grade Control	17877	22	496.7	499.2	2.5	0.6	
Grade Control	17876	23	495.7	499.2	3.5	0.3	0.0
Section	17646	22	495.5	499.2	3.7	0.2	0.0
Channel 5	17142	215	495.0	498.7	3.7	2.1	0.3
Grade Control	16597	218	494.4	497.2	2.8	4.8	
Grade Control	16596	218	493.4	497.2	3.8	2.0	0.3
Section	16136	220	493.0	496.7	3.7	2.1	0.3
Section	15632	222	492.5	496.2	3.7	2.1	0.3
Channel 4	15124	218	492.0	495.7	3.7	2.1	0.3
Section	14618	220	491.5	495.1	3.6	2.2	0.3
Grade Control	14040	223	490.9	493.7	2.8	4.9	
Grade Control	14039	223	489.9	493.7	3.8	2.0	0.3
Section	13611	224	489.5	493.3	3.8	2.1	0.3
Section	13108	227	489.0	492.8	3.8	2.1	0.3
Section	12693	227	488.5	492.4	3.9	1.9	0.3
Section	12100	267	487.9	491.7	3.8	2.4	0.4
Section	11786	266	487.6	491.3	3.6	2.7	0.4
Grade Control	11477	264	487.3	490.2	2.9	5.1	
Grade Control	11476	264	486.3	490.2	3.9	2.2	0.4
Channel 3	11094	261	485.9	489.8	3.9	2.2	0.4
Section	10592	263	485.4	489.3	3.9	2.2	0.4
Section	10000	266	484.8	488.7	3.9	2.2	0.4
Section	9587	269	484.4	488.3	3.9	2.4	0.4
Section	9267	271	484.1	487.7	3.6	2.8	0.4
Grade Control	8917	269	483.8	486.7	2.9	4.9	
Grade Control	8916	275	482.8	486.7	3.9	2.3	0.4
Section	8581	273	482.4	486.4	4.0	2.2	0.4
Section	8077	271	481.9	485.9	4.0	2.2	0.4
Section	7606	269	481.5	485.4	3.9	2.3	0.4
Channel 2	7074	269	480.9	484.8	3.9	2.2	0.4
Section	6697	302	480.5	484.2	3.7	2.9	0.4
Grade Control	6357	301	480.2	483.3	3.1	5.0	0.1

### Table 5 – Unsteady HEC-RAS Modeling Results for 2-Year, 3-Hour Storm Event

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Grade Control	6356	301	479.2	483.3	4.1	2.3	0.4
Section	6028	300	478.9	482.9	4.0	2.4	0.4
Section	5701	299	478.6	482.5	3.9	2.5	0.4
Section	5315	298	478.2	481.8	3.6	3.2	0.4
Grade Control	5077	297	477.9	480.9	3.0	5.1	0.1
Grade Control	5076	297	476.9	480.9	4.0	2.3	0.4
Section	4795	296	476.6	480.6	4.0	2.3	0.4
Section	4562	296	476.4	480.4	4.0	2.4	0.4
Section	4189	295	476.0	480.0	3.9	2.4	0.4
Grade Control	3797	294	475.6	478.7	3.1	4.8	0.2
Grade Control	3796	294	474.6	478.7	4.1	2.3	0.4
Section	3536	294	474.4	478.4	4.0	2.4	0.4
Section	3233	294	474.1	478.1	4.0	2.4	0.4
Section	3025	296	473.9	477.8	3.9	2.5	0.4
Section	2839	295	473.7	477.6	3.9	2.6	0.4
Section	2616	295	473.5	477.1	3.6	3.1	0.4
Grade Control	2462	294	473.3	476.5	3.2	4.4	0.3
Grade Control	2461	314	472.3	476.5	4.2	2.3	0.4
Channel 1	2047	314	471.9	476.1	4.2	2.2	0.4
Section	1782	317	471.6	475.9	4.3	2.2	0.4
Section	1522	320	471.4	475.7	4.3	2.2	0.4
Grade Control	1236	324	471.1	474.3	3.2	4.8	0.4
Grade Control	1235	324	470.1	474.3	4.2	2.4	0.4
Section	1008	326	469.9	474.0	4.1	2.4	0.4
Section	859	328	469.7	473.9	4.2	2.4	0.4
Section	538	332	469.4	473.6	4.2	2.4	0.4
Section	36	332	468.9	473.1	4.2	2.4	0.4

Modeling	HEC-RAS Cross		Channel Flowline (see	Water Surface	Flow Depth (see	Middle Channel	Overbank
Element	Section	Peak Flow	Note)	Elevation	Note)	Velocity	Velocity
		(cfs)	(feet)	(feet)	(feet)	(ft/s)	(ft/s)
Channel 6	19156	49	498.0	500.5	2.5	1.6	
Section	18653	48	497.5	500.2	2.7	1.2	
Section	18150	43	497.0	500.1	3.1	0.7	0.0
Grade Control	17877	33	496.7	500.0	3.3	0.4	0.1
Grade Control	17876	33	495.7	500.0	4.3	0.2	0.0
Section	17646	28	495.5	500.0	4.5	0.2	0.0
Channel 5	17142	419	495.0	499.5	4.5	2.6	0.5
Grade Control	16597	447	494.4	497.9	3.5	5.0	0.6
Grade Control	16596	446	493.4	498.0	4.6	2.7	0.5
Section	16136	441	493.0	497.5	4.5	2.7	0.5
Section	15632	433	492.5	497.0	4.5	2.7	0.5
Channel 4	15124	425	492.0	496.5	4.5	2.6	0.5
Section	14618	429	491.5	496.0	4.5	2.7	0.5
Grade Control	14040	428	490.9	494.4	3.5	4.9	0.6
Grade Control	14039	426	489.9	494.4	4.5	2.6	0.5
Section	13611	423	489.5	494.0	4.5	2.6	0.5
Section	13108	421	489.0	493.6	4.6	2.5	0.5
Section	12693	421	488.5	493.3	4.8	2.3	0.4
Section	12100	531	487.9	492.7	4.8	2.9	0.6
Section	11786	529	487.6	492.4	4.8	2.9	0.6
Grade Control	11477	527	487.3	491.0	3.7	5.2	0.8
Grade Control	11476	527	486.3	491.1	4.8	2.9	0.6
Channel 3	11094	519	485.9	490.7	4.8	2.8	0.5
Section	10592	512	485.4	490.2	4.8	2.8	0.5
Section	10000	508	484.8	489.6	4.8	2.8	0.5
Section	9587	510	484.4	489.2	4.8	2.8	0.5
Section	9267	513	484.1	488.9	4.8	2.8	0.5
Grade Control	8917	508	483.8	487.5	3.6	5.1	0.7
Grade Control	8916	521	482.8	487.6	4.8	2.9	0.6
Section	8581	519	482.4	487.2	4.8	2.8	0.5
Section	8077	517	481.9	486.8	4.9	2.7	0.5
Section	7606	517	481.5	486.4	4.9	2.8	0.5
Channel 2	7074	511	480.9	485.9	5.0	2.6	0.5
Section	6697	646	480.5	485.5	5.0	3.3	0.6
Grade Control	6357	646	480.2	484.2	3.9	5.3	0.9

### Table 6 – Unsteady HEC-RAS Modeling Results for 5-Year, 3-Hour Storm Event

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Grade Control	6356	646	479.2	484.3	5.1	3.2	0.6
Section	6028	646	478.9	483.9	5.0	3.2	0.6
Section	5701	646	478.6	483.5	4.9	3.4	0.7
Section	5315	647	478.2	482.9	4.7	3.7	0.7
Grade Control	5077	646	477.9	481.9	4.0	5.3	0.9
Grade Control	5076	646	476.9	482.0	5.1	3.1	0.6
Section	4795	647	476.6	481.7	5.1	3.1	0.6
Section	4562	647	476.4	481.4	5.0	3.2	0.6
Section	4189	643	476.0	481.0	5.0	3.2	0.6
Grade Control	3797	648	475.6	479.6	4.0	5.2	0.9
Grade Control	3796	648	474.6	479.7	5.1	3.1	0.6
Section	3536	648	474.4	479.4	5.0	3.2	0.6
Section	3233	647	474.1	479.1	4.9	3.3	0.6
Section	3025	654	473.9	478.8	4.9	3.5	0.7
Section	2839	654	473.7	478.5	4.8	3.6	0.7
Section	2616	653	473.5	478.0	4.5	4.0	0.8
Grade Control	2462	653	473.3	477.4	4.1	4.9	0.8
Grade Control	2461	706	472.3	477.5	5.2	3.3	0.7
Channel 1	2047	705	471.9	477.0	5.1	3.4	0.7
Section	1782	708	471.6	476.7	5.1	3.4	0.7
Section	1522	712	471.4	476.3	4.9	3.7	0.7
Grade Control	1236	708	471.1	475.3	4.2	5.0	0.9
Grade Control	1235	710	470.1	475.4	5.3	3.2	0.6
Section	1008	711	469.9	475.2	5.3	3.2	0.6
Section	859	713	469.7	475.1	5.4	3.2	0.6
Section	538	716	469.4	474.7	5.3	3.2	0.6
Section	36	715	468.9	474.2	5.3	3.2	0.6

	HEC-RAS		Channel Flowline	Water	Flow Depth	Middle	
Flement	Cross	Peak Flow	(see Note)	Surface	(see Note)	Channel	Overbank Velocity
Liement	Section	(cfs)	(feet)	(feet)	(feet)	(ft/s)	(ft/s)
Channel 6	19156	68	498.0	500.9	2.9	1.3	
Section	18653	68	497.5	500.6	3.1	1.1	0.1
Section	18150	56	497.0	500.5	3.5	0.6	0.1
Grade Control	17877	52	496.7	500.5	3.8	0.5	0.1
Grade Control	17876	52	495.7	500.5	4.8	0.3	0.1
Section	17646	52	495.5	500.5	4.9	0.3	0.1
Channel 5	17142	602	495.0	499.8	4.8	3.2	0.6
Grade Control	16597	595	494.4	498.3	3.9	5.0	0.8
Grade Control	16596	598	493.4	498.4	5.0	3.0	0.6
Section	16136	588	493.0	498.0	5.0	3.0	0.6
Section	15632	586	492.5	497.5	4.9	3.0	0.6
Channel 4	15124	585	492.0	496.9	4.9	3.0	0.6
Section	14618	588	491.5	496.3	4.8	3.1	0.6
Grade Control	14040	581	490.9	494.8	3.9	4.8	0.8
Grade Control	14039	582	489.9	494.9	5.0	2.9	0.6
Section	13611	579	489.5	494.6	5.1	2.8	0.6
Section	13108	582	489.0	494.1	5.1	2.8	0.6
Section	12693	582	488.5	493.8	5.3	2.6	0.5
Section	12100	757	487.9	493.1	5.2	3.5	0.7
Section	11786	740	487.6	492.7	5.1	3.6	0.7
Grade Control	11477	737	487.3	491.5	4.2	5.2	0.9
Grade Control	11476	741	486.3	491.7	5.3	3.3	0.7
Channel 3	11094	732	485.9	491.3	5.4	3.2	0.7
Section	10592	733	485.4	490.8	5.4	3.3	0.7
Section	10000	739	484.8	490.1	5.3	3.3	0.7
Section	9587	743	484.4	489.6	5.2	3.4	0.7
Section	9267	728	484.1	489.2	5.1	3.5	0.7
Grade Control	8917	735	483.8	488.1	4.3	5.0	0.9
Grade Control	8916	758	482.8	488.2	5.4	3.3	0.7
Section	8581	753	482.4	487.9	5.5	3.2	0.6
Section	8077	749	481.9	487.4	5.5	3.1	0.6
Section	7606	748	481.5	487.0	5.5	3.2	0.6
Channel 2	7074	747	480.9	486.5	5.6	3.0	0.6
Section	6697	977	480.5	486.0	5.5	4.2	0.8
Grade Control	6357	973	480.2	484.9	4.7	5.6	1.1

### Table 7 – Unsteady HEC-RAS Modeling Results for 10-Year, 3-Hour Storm Event

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Grade Control	6356	973	479.2	485.0	5.8	3.7	0.8
Section	6028	973	478.9	484.6	5.7	3.9	0.8
Section	5701	973	478.6	484.1	5.5	4.1	0.8
Section	5315	974	478.2	483.4	5.2	4.6	0.9
Grade Control	5077	971	477.9	482.6	4.7	5.6	1.1
Grade Control	5076	971	476.9	482.7	5.8	3.8	0.8
Section	4795	971	476.6	482.4	5.8	3.8	0.8
Section	4562	972	476.4	482.0	5.6	3.9	0.8
Section	4189	973	476.0	481.5	5.5	4.1	0.8
Grade Control	3797	968	475.6	480.3	4.7	5.4	1.0
Grade Control	3796	968	474.6	480.4	5.8	3.7	0.8
Section	3536	968	474.4	480.1	5.7	3.8	0.8
Section	3233	966	474.1	479.7	5.6	3.9	0.8
Section	3025	978	473.9	479.4	5.5	4.1	0.8
Section	2839	978	473.7	479.1	5.4	4.2	0.9
Section	2616	978	473.5	478.7	5.2	4.6	0.9
Grade Control	2462	978	473.3	478.2	4.9	5.1	1.0
Grade Control	2461	1,071	472.3	478.3	6.0	3.9	0.8
Channel 1	2047	1,068	471.9	477.7	5.8	4.1	0.8
Section	1782	1,068	471.6	477.4	5.8	4.2	0.9
Section	1522	1,070	471.4	476.9	5.5	4.5	0.9
Grade Control	1236	1,065	471.1	476.2	5.1	5.2	1.0
Grade Control	1235	1,066	470.1	476.3	6.2	3.7	0.8
Section	1008	1,067	469.9	476.0	6.1	3.7	0.8
Section	859	1,068	469.7	475.9	6.2	3.7	0.8
Section	538	1,071	469.4	475.6	6.2	3.7	0.8
Section	36	1,070	468.9	475.1	6.2	3.7	0.8

			Channel		Flow		
	HEC-RAS		Flowline	Water	Depth	Middle	
Modeling	Cross	Deels Flows	(see	Surface	(see	Channel	Overbank
Element	Section	Peak Flow	Note)	Elevation (feet)	Note)	velocity	velocity
Channel C	10150		(1991)			(1(/S)	(11/5)
Channel 6	19150	93	498.0	501.2	3.2	1.3	0.1
Section	18053	90	497.5	501.0	3.5	1.0	0.1
Section Crada Cantral	18150	81 72	497.0	500.9	3.9	0.7	0.1
Grade Control	17070	73	490.7	500.9	4.2	0.5	0.1
Grade Control	17876	76	495.7	500.9	5.2	0.4	0.1
Section	17646	/3	495.5	500.9	5.4	0.3	0.1
Channel 5	1/142	800	495.0	500.2	5.2	3.8	0.7
Grade Control	16597	780	494.4	498.8	4.4	5.0	0.9
Grade Control	16596	785	493.4	498.9	5.5	3.3	0.7
Section	16136	782	493.0	498.5	5.5	3.3	0.7
Section	15632	784	492.5	497.9	5.4	3.4	0.7
Channel 4	15124	/82	492.0	497.4	5.4	3.5	0.7
Section	14618	/8/	491.5	496.7	5.2	3./	0.7
Grade Control	14040	/6/	490.9	495.4	4.5	4.8	0.9
Grade Control	14039	//1	489.9	495.5	5.6	3.2	0.6
Section	13611	770	489.5	495.1	5.6	3.1	0.6
Section	13108	775	489.0	494.7	5.7	3.1	0.6
Section	12693	775	488.5	494.4	5.9	2.9	0.6
Section	12100	1,030	487.9	493.6	5.7	4.1	0.8
Section	11786	1,028	487.6	493.1	5.4	4.4	0.9
Grade Control	11477	1,003	487.3	492.2	4.8	5.3	1.0
Grade Control	11476	1,005	486.3	492.3	6.0	3.7	0.8
Channel 3	11094	997	485.9	491.9	6.0	3.7	0.8
Section	10592	1,000	485.4	491.3	5.9	3.7	0.8
Section	10000	1,005	484.8	490.7	5.8	3.8	0.8
Section	9587	1,008	484.4	490.1	5.7	4.0	0.8
Section	9267	1,010	484.1	489.6	5.5	4.2	0.9
Grade Control	8917	994	483.8	488.8	5.0	5.0	1.0
Grade Control	8916	1,026	482.8	488.9	6.1	3.7	0.8
Section	8581	1,021	482.4	488.6	6.2	3.6	0.7
Section	8077	1,019	481.9	488.1	6.2	3.5	0.7
Section	7606	1,018	481.5	487.7	6.2	3.5	0.7
Channel 2	7074	1,017	480.9	487.2	6.3	3.4	0.7
Section	6697	1,363	480.5	486.6	6.1	4.9	1.0
Grade Control	6357	1,359	480.2	485.6	5.4	5.9	1.2

### Table 8 – Unsteady HEC-RAS Modeling Results for 25-Year, 3-Hour Storm Event

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Grade Control	6356	1,359	479.2	485.7	6.5	4.3	0.9
Section	6028	1,359	478.9	485.3	6.4	4.5	0.9
Section	5701	1,360	478.6	484.8	6.2	4.7	1.0
Section	5315	1,361	478.2	484.0	5.8	5.2	1.1
Grade Control	5077	1,356	477.9	483.3	5.4	6.0	1.2
Grade Control	5076	1,358	476.9	483.4	6.5	4.3	0.9
Section	4795	1,359	476.6	483.0	6.4	4.4	0.9
Section	4562	1,358	476.4	482.7	6.3	4.5	0.9
Section	4189	1,359	476.0	482.1	6.1	4.8	1.0
Grade Control	3797	1,354	475.6	481.1	5.5	5.7	1.2
Grade Control	3796	1,355	474.6	481.2	6.6	4.2	0.9
Section	3536	1,355	474.4	480.9	6.5	4.3	0.9
Section	3233	1,354	474.1	480.5	6.4	4.4	0.9
Section	3025	1,372	473.9	480.2	6.3	4.6	1.0
Section	2839	1,371	473.7	479.9	6.2	4.8	1.0
Section	2616	1,371	473.5	479.4	5.9	5.1	1.0
Grade Control	2462	1,370	473.3	479.1	5.8	5.3	1.1
Grade Control	2461	1,515	472.3	479.1	6.8	4.5	0.9
Channel 1	2047	1,510	471.9	478.5	6.6	4.7	1.0
Section	1782	1,511	471.6	478.2	6.5	4.8	1.0
Section	1522	1,511	471.4	477.7	6.3	5.0	1.0
Grade Control	1236	1,508	471.1	477.1	6.0	5.5	1.1
Grade Control	1235	1,508	470.1	477.2	7.1	4.2	0.9
Section	1008	1,510	469.9	477.0	7.1	4.2	0.9
Section	859	1,511	469.7	476.8	7.1	4.2	0.9
Section	538	1,515	469.4	476.5	7.1	4.2	0.9
Section	36	1,515	468.9	476.0	7.1	4.2	0.9

			Channel		Flow		
	HEC-RAS		Flowline	Water	Depth	Middle	
Flomont	Cross	Dook Flow	(see	Surface	(see Noto)	Volocity	Overbank Volocity
Element	Section	(cfc)	(foot)	(foot)	(foot)	(ft/c)	(ft/c)
Channel 6	10156	116	(198.0	501 5	25	1 2	0.2
Section	19150	110	498.0	501.5	3.5	1.0	0.2
Section	18150	104	497.5	501.4	13	0.7	0.2
Grade Control	17877	104	497.0	501.3	4.5	0.7	0.1
Grade Control	17876	100	430.7	501.3	5.6	0.0	0.1
Section	17646	96	495.7	501.3	5.8	0.4	0.1
Channel 5	171/2	98/	495.5 195.0	501.5	5.5	<i>1</i> 1	0.1
Grade Control	16597	965	499.0 ЛОЛ Л	199.2	1.8	5.2	1.0
Grade Control	16596	967	493.4	499.2 499.4		3.6	0.7
Section	16136	966	493.0	493.4	5.9	3.6	0.8
Section	15632	968	492.5	498.3	5.8	3.7	0.8
Channel 4	15124	962	492.0	490.5	5.0	3.8	0.8
Section	14618	960	491 5	497.0	5.5	4.0	0.8
Grade Control	14040	944	490.9	497.0	35.9 5.0 4.8		0.9
Grade Control	14039	946	489.9	496.0	6.1	3.4	0.7
Section	13611	948	489.5	495.6	6.1	3.4	0.7
Section	13108	954	489.0	495.2	6.2	3.3	0.7
Section	12693	954	488.5	494.9	6.4	3.1	0.7
Section	12100	1,280	487.9	494.0	6.1	4.5	0.9
Section	11786	1,273	487.6	493.5	5.9	4.8	1.0
Grade Control	11477	1,249	487.3	492.7	5.4	5.5	1.1
Grade Control	11476	1,255	486.3	492.8	6.5	4.0	0.8
Channel 3	11094	1,245	485.9	492.4	6.5	4.0	0.8
Section	10592	1,246	485.4	491.8	6.4	4.1	0.8
Section	10000	1,249	484.8	491.1	6.3	4.2	0.9
Section	9587	1,251	484.4	490.6	6.2	4.3	0.9
Section	9267	1,251	484.1	490.1	6.0	4.5	0.9
Grade Control	8917	1,240	483.8	489.4	5.6	5.1	1.0
Grade Control	8916	1,281	482.8	489.4	6.6	4.0	0.8
Section	8581	1,275	482.4	489.1	6.7	3.9	0.8
Section	8077	1,274	481.9	488.7	6.8	3.8	0.8
Section	7606	1,274	481.5	488.2	6.7	3.8	0.8
Channel 2	7074	1,271	480.9	487.8	6.9	3.7	0.8
Section	6697	1,723	480.5	487.1	6.6	5.4	1.1
Grade Control	6357	1,719	480.2	486.2	6.0	6.3	1.3

### Table 9 – Unsteady HEC-RAS Modeling Results for 50-Year, 3-Hour Storm Event

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Grade Control	6356	1,721	479.2	486.3	7.1	4.8	1.0
Section	6028	1,722	478.9	485.9	7.0	4.9	1.0
Section	5701	1,723	478.6	485.4	6.8	5.2	1.1
Section	5315	1,723	478.2	484.6	6.4	5.7	1.2
Grade Control	5077	1,718	477.9	483.9	6.0	6.3	1.3
Grade Control	5076	1,720	476.9	484.0	7.1	4.8	1.0
Section	4795	1,720	476.6	483.6	7.0	4.8	1.0
Section	4562	1,721	476.4	483.3	6.9	5.0	1.1
Section	4189	1,721	476.0	482.7	6.7	5.3	1.1
Grade Control	3797	1,717	475.6	481.7	6.1	6.0	1.3
Grade Control	3796	1,717	474.6	481.8	7.2	4.6	1.0
Section	3536	1,719	474.4	481.5	7.1	4.8	1.0
Section	3233	1,717	474.1	481.1	7.0	4.9	1.0
Section	3025	1,741	473.9	480.8	6.9	5.1	1.1
Section	2839	1,739	473.7	480.5	6.8	5.2	1.1
Section	2616	1,738	473.5	480.1	6.6	5.4	1.1
Grade Control	2462	1,738	473.3	479.8	6.5	5.6	1.2
Grade Control	2461	1,930	472.3	479.8	7.5	5.0	1.0
Channel 1	2047	1,921	471.9	479.2	7.3	5.1	1.1
Section	1782	1,925	471.6	478.8	7.2	5.2	1.1
Section	1522	1,924	471.4	478.4	7.0	5.4	1.1
Grade Control	1236	1,923	471.1	477.8	6.7	5.8	1.2
Grade Control	1235	1,923	470.1	477.9	7.8	4.6	1.0
Section	1008	1,926	469.9	477.7	7.8	4.6	1.0
Section	859	1,929	469.7	477.6	7.9	4.6	1.0
Section	538	1,934	469.4	477.2	7.8	4.6	1.0
Section	36	1,934	468.9	476.7	7.8	4.6	1.0

Modeling	HEC-RAS Cross		Channel Flowline (see	Water Surface	Flow Depth (see	Middle Channel	Overbank
Element	Section	Peak Flow	Note)	Elevation	Note)	Velocity	Velocity
		(cfs)	(feet)	(feet)	(feet)	(ft/s)	(ft/s)
Channel 6	19156	139	498.0	501.9	3.9	1.2	0.2
Section	18653	137	497.5	501.8	4.3	0.9	0.2
Section	18150	130	497.0	501.7	4.7	0.7	0.1
Grade Control	17877	126	496.7	501.7	5.0	0.6	0.1
Grade Control	17876	126	495.7	501.7	6.0	0.5	0.1
Section	17646	126	495.5	501.7	6.2	0.4	0.1
Channel 5	17142	1,171	495.0	500.9	5.9	4.4	0.9
Grade Control	16597	1,152	494.4	499.6	5.2	5.3	1.1
Grade Control	16596	1,155	493.4	499.7	6.3	3.8	0.8
Section	16136	1,157	493.0	499.3	6.3	3.9	0.8
Section	15632	1,155	492.5	498.7	6.2	4.0	0.8
Channel 4	15124	1,143	492.0	498.1	6.1	4.1	0.8
Section	14618	1,139	491.5	491.5 497.4 5.9 4.3		0.9	
Grade Control	14040	1,126	490.9	490.9 496.3		4.9	1.0
Grade Control	14039	1,129	489.9	496.4	6.5	3.6	0.8
Section	13611	1,130	489.5	496.0	6.5	3.6	0.7
Section	13108	1,138	489.0	495.6	6.6	3.5	0.7
Section	12693	1,138	488.5	495.4	6.9	3.3	0.7
Section	12100	1,543	487.9	494.5	6.6	4.8	1.0
Section	11786	1,530	487.6	493.9	6.3	5.1	1.1
Grade Control	11477	1,510	487.3	493.2	5.8	5.7	1.2
Grade Control	11476	1,513	486.3	493.3	7.0	4.3	0.9
Channel 3	11094	1,501	485.9	492.9	7.0	4.3	0.9
Section	10592	1,504	485.4	492.3	6.9	4.4	0.9
Section	10000	1,508	484.8	491.6	6.8	4.5	0.9
Section	9587	1,510	484.4	491.1	6.7	4.6	1.0
Section	9267	1,509	484.1	490.6	6.5	4.8	1.0
Grade Control	8917	1,501	483.8	489.9	6.1	5.3	1.1
Grade Control	8916	1,548	482.8	490.0	7.2	4.2	0.9
Section	8581	1,546	482.4	489.7	7.3	4.1	0.9
Section	8077	1,543	481.9	489.2	7.3	4.1	0.9
Section	7606	1,544	481.5	488.8	7.3	4.1	0.9
Channel 2	7074	1,542	480.9	488.4	7.5	4.0	0.8
Section	6697	2,108	480.5	487.6	7.1	5.8	1.2
Grade Control	6357	2,104	480.2	486.8	6.6	6.6	1.4

### Table 10 – Unsteady HEC-RAS Modeling Results for 100-Year, 3-Hour Storm Event

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Grade Control	6356	2,106	479.2	486.9	7.7	5.2	1.1
Section	6028	2,107	478.9	486.4	7.5	5.4	1.1
Section	5701	2,109	478.6	485.9	7.3	5.6	1.2
Section	5315	2,108	478.2	485.1	6.9	6.1	1.3
Grade Control	5077	2,103	477.9	484.5	6.6	6.6	1.4
Grade Control	5076	2,105	476.9	484.6	7.7	5.2	1.1
Section	4795	2,107	476.6	484.2	7.6	5.3	1.1
Section	4562	2,107	476.4	483.9	7.5	5.4	1.1
Section	4189	2,107	476.0	483.2	7.2	5.7	1.2
Grade Control	3797	2,102	475.6	482.3	6.7	6.3	1.3
Grade Control	3796	2,105	474.6	482.5	7.8	5.0	1.1
Section	3536	2,107	474.4	482.1	7.7	5.1	1.1
Section	3233	2,103	474.1	481.7	7.6	5.2	1.1
Section	3025	2,132	473.9	481.4	7.5	5.4	1.1
Section	2839	2,131	473.7	481.1	7.4	5.5	1.2
Section	2616	2,130	473.5	480.7	7.2	5.7	1.2
Grade Control	2462	2,130	473.3	480.4	7.1	5.9	1.2
Grade Control	2461	2,371	472.3	480.4	8.1	5.4	1.1
Channel 1	2047	2,362	471.9	479.9	8.0	5.5	1.2
Section	1782	2,364	471.6	479.5	7.9	5.6	1.2
Section	1522	2,365	471.4	479.1	7.7	5.8	1.2
Grade Control	1236	2,368	471.1	478.6	7.5	6.1	1.3
Grade Control	1235	2,368	470.1	478.7	8.6	5.0	1.1
Section	1008	2,374	469.9	478.4	8.5	5.0	1.1
Section	859	2,376	469.7	478.3	8.6	5.0	1.1
Section	538	2,382	469.4	478.0	8.6	5.0	1.1
Section	36	2,382	468.9	477.5	8.6	5.0	1.1









## **APPENDIX G**

## DETAILED FIGURES AND TABLES DOCUMENTING PROJECTED UPLIFT FROM PROPOSED AQUATIC RESOURCES MITIGATION ACTIVITIES









CREATED MITIGATION STREAM CHANNELS ENHANCED MITIGATION STREAM CHANNELS NG STREAM CHANNELS - TO BE FILLED RIPARIAN BUFFER ZONE INCLUDING MEANDER BELT WIDTH SJD ASSESSMENT AREA CONSERVATION POOL











# TABLE G-1 (PAGE 1 OF 2)CALCULATED FUNCTIONAL CAPACITY UNITS (FCUs) FROM MITIGATION PROJECT

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
IDENTIFICATION NAME	REFERENCE FIGURE	OHWM WIDTH RANGE	EXISTING LAND USE CATEGORY	STREAM FLOW REGIME CLASSIFICATION	REFERENCE TABLE	LENGTH (FEET)	BASE FCI	PROJECTED FCI	FC MULTIPLIER	BASE FCU	PROJECTED FCU
S1-TRIB1-ENH	G-5	2.5-5'	1	Ephemeral	Table G-2 (1)	389	0.32	2.24	0.00125	0.16	1.09
S2-TRIB1-A1-ENH	G-5, G-7	2.5-5'	1	Ephemeral	Table G-2 (2)	1,833	0.32	2.22	0.00125	0.73	5.09
S2-TRIB1-ENH	G-5, G-7	6-15'	1	Ephemeral	Table G-2 (3)	2,101	0.25	2.26	0.00125	0.67	5.93
S2-TRIB2-A1-ENH	G-7, G-8	0.5-2.0'	2	Ephemeral	Table G-2 (4)	702	0.93	2.24	0.00125	0.82	1.97
S2-TRIB2-A2-ENH	G-8	0.5-2.0'	3	Ephemeral	Table G-2 (5)	671	1.15	2.24	0.00125	0.96	1.88
S2-TRIB2-A3-ENH	G-7, G-8	0.5-2.0'	3	Ephemeral	Table G-2 (6)	1,574	1.15	2.24	0.00125	2.26	4.41
S2-TRIB2-A4-ENH	G-8	0.5-2.0'	3	Ephemeral	Table G-2 (7)	747	1.15	2.24	0.00125	1.07	2.09
S2-TRIB2-ENH	G-6, G-7, G-8	2.5-5'	1	Ephemeral	Table G-2 (8)	4,567	0.32	2.24	0.00125	1.83	12.79
S2-TRIB3-A10-ENH	G-8	2.5-5'	3	Ephemeral	Table G-2 (9)	269	1.22	2.27	0.00125	0.41	0.76
S2-TRIB3-A5-ENH	G-6, G-8	2.5-5'	3	Ephemeral	Table G-2 (10)	4,152	1.22	2.27	0.00125	6.31	11.78
S2-TRIB3-A5-TribA-ENH	G-6	0.5-2.0'	3	Ephemeral	Table G-2 (11)	574	1.15	2.26	0.00125	0.82	1.62
S2-TRIB3-A5-TribB-ENH	G-8	0.5-2.0'	3	Ephemeral	Table G-2 (12)	697	1.15	2.24	0.00125	1.00	1.95
S2-TRIB3-A6-ENH	G-8	0.5-2.0'	3	Ephemeral	Table G-2 (13)	1,209	1.15	2.26	0.00125	1.73	3.42
S2-TRIB3-A7-ENH	G-8	2.5-5'	3	Ephemeral	Table G-2 (14)	2,280	1.22	2.27	0.00125	3.47	6.47
S2-TRIB3-A8-ENH	G-8	2.5-5'	3	Ephemeral	Table G-2 (15)	762	1.22	2.27	0.00125	1.16	2.16
S2-TRIB3-A9-ENH	G-8	2.5-5'	3	Ephemeral	Table G-2 (16)	367	1.22	2.27	0.00125	0.56	1.04
S2-TRIB3-ENH	G-6, G-8	6-15'	2	Ephemeral	Table G-2 (17)	7,838	0.83	2.31	0.00125	8.09	22.63
T2-BAKER-ENH	G-1, G-2	2.5-5'	2	Ephemeral	Table G-2 (18)	2,996	0.95	2.26	0.00125	3.56	8.46
T3-BAKER-ENH	G-2	2.5-5'	2	Ephemeral	Table G-2 (19)	2,175	0.95	2.26	0.00125	2.58	6.14
T3-TRIB1-ENH	G-2	0.5-2.0'	1	Ephemeral	Table G-2 (20)	1,422	0.34	2.22	0.00125	0.60	3.95
T3-TRIB2-ENH	G-2	0.5-2.0'	1	Ephemeral	Table G-2 (21)	330	0.34	2.21	0.00125	0.14	0.91
FNSR-RST	G-3, G-5, G-6	16-25'	1	Intermittent with Perennial Pools	Table G-2 (22)	19,217	0.00	2.67	0.00380	0.00	194.98
MS-A (TRIB-NSR-MC-RST)	G-3	2.5-5'	1	Ephemeral	Table G-2 (23)	5,173	0.00	2.32	0.00125	0.00	15.00
MS-A-TRIB1	G-3	0.5-2.0'	1	Ephemeral	Table G-2 (24)	1,748	0.00	2.23	0.00125	0.00	4.87
MS-A-TRIB2	G-3, G-4	0.5-2.0'	1	Ephemeral	Table G-2 (25)	1,460	0.00	2.21	0.00125	0.00	4.03
MS-B (TRIB-NSR-MC-RST)	G-4	2.5-5'	1	Ephemeral	Table G-2 (26)	3,999	0.00	2.32	0.00125	0.00	11.60
MS-B-TRIB1	G-4	2.5-5'	1	Ephemeral	Table G-2 (27)	694	0.00	2.28	0.00125	0.00	1.98
MS-B-TRIB2	G-4	2.5-5'	1	Ephemeral	Table G-2 (28)	836	0.00	2.26	0.00125	0.00	2.36
MS-B-TRIB3	G-4	2.5-5'	1	Ephemeral	Table G-2 (29)	989	0.00	2.26	0.00125	0.00	2.79
MS-C (TRIB-NSR-MC-RST)	G-2, G-4	2.5-5'	1	Ephemeral	Table G-2 (30)	5,910	0.00	2.32	0.00125	0.00	17.14
MS-C-TRIB1	G-2, G-4	2.5-5'	1	Ephemeral	Table G-2 (31)	1,558	0.00	2.28	0.00125	0.00	4.44
MS-D (TRIB-FNSR-RST)	G-3, G-5	6-15'	1	Ephemeral	Table G-2 (32)	4,649	0.00	2.36	0.00125	0.00	13.71
MS-E (TRIB-FNSR-RST)	G-3	2.5-5'	1	Ephemeral	Table G-2 (33)	3,126	0.00	2.33	0.00125	0.00	9.10
MS-F (TRIB-FNSR-RST)	G-5	6-15'	1	Ephemeral	Table G-2 (34)	4,857	0.00	2.36	0.00125	0.00	14.33
MS-F-TRIB1	G-5	6-15'	1	Ephemeral	Table G-2 (35)	2,691	0.00	2.33	0.00125	0.00	7.84
MS-F-TRIB2	G-5	2.5-5'	1	Ephemeral	Table G-2 (36)	943	0.00	2.26	0.00125	0.00	2.66
MS-G (TRIB-FNSR-RST)	G-3, G-4	2.5-5'	1	Ephemeral	Table G-2 (37)	3,911	0.00	2.27	0.00125	0.00	11.10
MS-H (TRIB-FNSR-RST)	G-5, G-6	6-15'	1	Ephemeral	Table G-2 (38)	4,973	0.00	2.38	0.00125	0.00	14.79
MS-I (TRIB-FNSR-RST)	G-6	6-15'	2	Ephemeral	Table G-2 (39)	2,173	0.00	2.36	0.00125	0.00	6.41
NSR-MC-RST	G-3, G-4	16-25'	1	Intermittent	Table G-2 (40)	8,801	0.00	2.25	0.00250	0.00	49.51

### TABLE G-1 (PAGE 2 OF 2) CALCULATED FUNCTIONAL CAPACITY UNITS (FCUs) FROM MITIGATION PROJECT

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
IDENTIFICATION NAME	REFERENCE FIGURE	OHWM WIDTH RANGE	EXISTING LAND USE CATEGORY	STREAM FLOW REGIME CLASSIFICATION	REFERENCE TABLE	LENGTH (FEET)	BASE FCI	PROJECTED FCI	FC MULTIPLIER	BASE FCU	PROJECTED FCU
NSR-MC-PRE	G-3, G-4	16-25'	1	Intermittent	Table G-2 (41)	6,579	0.51	0.00	0.00250	8.39	0.00
S1 (FMR BAKER)-PRE	G-3	6-15'	1	Ephemeral	Table G-2 (42)	1,448	0.25	0.00	0.00125	0.46	0.00
S1-PRE	G-3	6-15'	1	Ephemeral	Table G-2 (43)	1,483	0.25	0.00	0.00125	0.47	0.00
S1-TRIB1-PRE	G-3, G-5	2.5-5'	1	Ephemeral	Table G-2 (44)	1,378	0.32	0.00	0.00125	0.55	0.00
S2-PRE	G-3, G-5, G-6	6-15'	1	Ephemeral	Table G-2 (45)	3,955	0.25	0.00	0.00125	1.25	0.00
S2-PRE	G-6	6-15'	2	Ephemeral	Table G-2 (46)	1,166	0.83	0.00	0.00125	1.20	0.00
S2-TRIB1-PRE	G-3, G-5	6-15'	1	Ephemeral	Table G-2 (47)	4,739	0.25	0.00	0.00125	1.50	0.00
S2-TRIB2-PRE	G-5	2.5-5'	1	Ephemeral	Table G-2 (48)	3,831	0.32	0.00	0.00125	1.53	0.00
S2-TRIB3-A1-PRE	G-6	6-15'	2	Ephemeral	Table G-2 (49)	247	0.83	0.00	0.00125	0.25	0.00
S2-TRIB3-A2-PRE	G-6	6-15'	2	Ephemeral	Table G-2 (50)	598	0.83	0.00	0.00125	0.62	0.00
S2-TRIB3-A3-PRE	G-6	6-15'	2	Ephemeral	Table G-2 (51)	210	0.83	0.00	0.00125	0.22	0.00
S2-TRIB3-A4-PRE	G-6	0.5-2.0'	1	Ephemeral	Table G-2 (52)	2,246	0.34	0.00	0.00125	0.96	0.00
S2-TRIB3-PRE	G-6	6-15'	2	Ephemeral	Table G-2 (53)	1,555	0.83	0.00	0.00125	1.60	0.00
S2-TRIB3-PRE	G-6	6-15'	1	Ephemeral	Table G-2 (54)	1,156	0.25	0.00	0.00125	0.37	0.00
(13) TOTALS						145,953				58.32	495.20
(14) TOTALS (ROUNDED)										58	495
(15) NET UPLIFT FROM MIT	<b>IGATION PROJE</b>	CT								437	FCU

#### NOTES FOR TABLE G-1:

(1) Stream identification name. Nomenclature: "S" indicates stream; "TRIB" indicates tributary; "T" indicates tributary to Baker Creek (BAKER); "MS" indicates new mitigation stream; "NSR" indicates North Sulphur River; "FNSR" indicates former North Sulphur River; "MC" indicates main channel (channelized NSR); "ENH" indicates enhancement of existing stream; "RST" indicates restoration of stream; "PRE" indicates pre-project (i.e., existing) streams (streams with "PRE" will be filled)

(2) Stream location shown on figure(s) referenced.

(3) Stream width range at ordinary high water mark (OHWM). OHWM defined as the projected line of scour along a stream channel where the channel is typically void of vegetation. Stream OHWM used for stream classification.

(4) Existing land use category: 1 = cropland and pasture, 2 = grasses and parklike (partially wooded grassland), 3 = young trees and forest. Land use used for FCI calculations. Refer to Table G-2 for FCI calculation details (Table reference in Column 6).

(5) Stream flow regime classification with mitigation activities implemented. Stream flow regime determines the multiplier used in Column 10.

(6) Details of SWAMPIM pre and post project stream scoring for each stream segment are shown in the tables referenced.

(7) Stream segment length in feet along the thalweg.

(8) Base Functional Capacity Index (FCI) score for stream segment, representing pre-project conditions. A score of "0" indicates that the stream does not exist today.

(9) Projected FCI score for stream segment; representing post-project conditions. A score of "0" indicates that the stream will be impacted (filled) by mitigation activities. Stream channel will no longer exist. (10) Functional Capacity multiplier for stream segment. Perennial = 0.00380; Intermittent = 0.0025; Ephemeral = 0.00125. Ref: Mitigation Plan Appendix C - SWAMPIM Protocol Documentation (11) Base Functional Capacity Unit (FCU) = Column 7 x Column 8 x Column 10 (pre-project conditions)

(12) Projected FCU = Column 7 x Column 9 x Column 10 (post-project conditions).

(13) Summation of Columns 7, 11, and 12.

(14) Totals from Column 13 rounded to the nearest whole number.

(15) Net Uplift from Mitigation Project = Projected FCU - Base FCU (rounded to the nearest whole number)

### TABLE G-2 (1): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S1-TRIB1- ENH	S1-TRIB1- 2.5-5.0'/ Ephemeral/ ENH Section of existing	H1. Flow Regime and Groundwater Interaction	1	1	<ul> <li>Protection within large, contiguous mitigation area;</li> </ul>	<ul> <li>GCS will reduce channel downcutting and improve</li> </ul>	<ul> <li>Mitigation measures in place and stable at release of monitoring</li> </ul>
	channelized tributary	H2a. Channel Condition/ Alteration	2	8	Implementation of measures to	stream stability, sediment	period after completion of project
	channel west of FM 904	H2b. Channel Capacity to Flow Frequency	2	8	prevent uncontrolled access	transport and floodplain	including any remedial plantings
	that will be enhanced	H2c. Channel Bank Stability	3	9	(cattle, etc.) from outside	connectivity (through	(minimum of seven (7) years);
		H3a. Channel Sinuosity	0	4	aquatic mitigation boundary;	increased overbank	<ul> <li>200 woody stems per acre with</li> </ul>
		H3b. Bottom Substrate Composition	1	9	<ul> <li>Supplemental plantings of</li> </ul>	frequency);	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR Manning's n	1	4	native trees, shrubs, and herbaceous species;	<ul> <li>LWD will increase channel roughness and channel</li> </ul>	invasive species standards stated in mitigation plan;
		H3d. Channel Incision	1	8	Use of large woody debris     (LWD) or other native material	sinuosity and improve bank	• SWAMPIM Score achieved at the
		H4a. Pools	0	4		stability;	release of monitoring.
		H4b. Channel Flow Status	0	7	for in-channel structure;	<ul> <li>Created pools will retain</li> </ul>	
		Hydrology Subtotal FCI (c)	0.11	0.62	<ul> <li>Adjustment of channel gradient by installing grade control</li> </ul>	water;	
		WQ1a. Bank Stability	3	9		<ul> <li>Protection, plantings, and</li> </ul>	
	WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	8	structures (GCS) made from native material (rock or woody	measures to prevent uncontrolled access will		
		WQ2. Water Clarity	0	9	debris) where appropriate;	improve bank stability, will filter runoff and enhance water quality;	
		WQ3. Nutrient Enrichment OR Presence of	0	9	• Creation of pools in combination with LWD and GCS		
		WO4. Composition of Organic Matter	0	9	and other locations where appropriate;	<ul> <li>Woody debris, leaf litter, and</li> </ul>	
		WQ5. Land Use Pattern Beyond Immediate	4.5			overhanging herbaceous	
		Riparian Zone	1.5	10	Creation of buffer zones around	vegetation from established	
		WQ6a. Riparian Zone Width (from stream	1 5	10	channel (approx. 120' width)	buffer zones will enhance in-	
		edge to field)	1.5	10	plus appropriate meander belt	stream habitat and biological	
		WQ6b. Riparian Zone Vegetation	1 5	10	width;	productivity.	
		Protection/Completeness	1.5	10	Monitoring and management		
		Water Quality Subtotal FCI (d)	0.11	0.93			
		HB1. Flow Regime	1	1			
		HB2. Epifaunal Substrate and Available Cover	1	5	Notes:		
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documentat	tion (included in Appendix C of Propos	sed Mitigation Plan) for scoring
		HB4. Pool Variability	0	3	methodology.		<i></i>
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions; "W(	Q" = Water Quality/Biogeochemical F	functions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	7	(c) Hydrology Subtotal FCI Score = S	um of individual scores ÷100 (100 is r	nighest possible score for Hydrology).
		HB7. Channel Alteration	2	9	Shown as rounded to the nearest hi	undredth. - Cum of individual coords : 00 (00 ii	
		HB8. Channel Sinuosity	0	4	(d) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (80 is	s highest possible score for water
		HB9. Bank Stability	3	9	Quality). Snown as rounded to the r	learest nunareath. 2 of individual coores : 120 (120 is bia	hast passible score for Habitat) Chaun
		HB10. Vegetative Protection	1.5	10	(e) mubilal Sublolar FCI Score = Sun	т ој тнанчациј scores ÷120 (120 is nig. љ	nest possible score for Habitatj. Snown
		HB11. Riparian Zone	1.5	10	(f) Total ECI - Hydrology Subtotal F	11. CL + Water Quality Subtetal FCL + Uab	itat Subtatal ECI Valua far tha Tatal is
		HB12. Riparian Habitat Condition	1.5	10	()) I ULUI FCI - MYUI ULUYY SUBLULAI FC	Li + Wulei Quuilly Sublolui FCI + Hab s for the Subtotals then rounded to th	he nearest hundredth
		Habitat Subtotal FCI <i>(e)</i>	0.10	0.69			הב הבערכזר חעווערבענוו.
		TOTAL - FCI <i>(f)</i>	0.32	2.24			

### TABLE G-2 (2): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING)	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
			SCORES				
S2-TRIB1-	2.5-5.0'/ Ephemeral/	H1. Flow Regime and Groundwater	1	1	<ul> <li>Protection within large</li> </ul>	<ul> <li>GCS will reduce channel</li> </ul>	<ul> <li>Mitigation measures in place and</li> </ul>
A1-ENH	A1-ENH Upstream tributary channel to be enhanced;	Interaction	-	-	contiguous mitigation area;	downcutting and improve	stable at release of monitoring
		H2a. Channel Condition/ Alteration	2	8	8 • Implementation of measures to stream stability, sedim	stream stability, sediment	period after completion of project
	Will connect to MS-F	H2b. Channel Capacity to Flow Frequency	2	8	prevent uncontrolled access	transport and floodplain	including any remedial plantings
	(TRIB-FNSR-RST).	H2c. Channel Bank Stability	3	9	(cattle, etc.) from outside	connectivity (through increased	(minimum of seven (7) years);
		H3a. Channel Sinuosity	0	3	aquatic mitigation boundary;	overbank frequency);	<ul> <li>200 woody stems per acre with</li> </ul>
		H3b. Bottom Substrate Composition	1	9	Supplemental plantings of	LWD will increase channel	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR	1	4	native trees, shrubs, and	roughness and channel	invasive species standards stated in
		Manning's n	-	•	herbaceous species;	sinuosity and improve bank	mitigation plan;
		H3d. Channel Incision	1	8	Use of large woody debris	stability;	• SWAMPIM Score achieved at the
		H4a. Pools	0	4	(LWD) or other native material	• Created pools will retain water;	release of monitoring.
		H4b. Channel Flow Status	0	7	for in-channel structure;	<ul> <li>Protection, plantings, and</li> </ul>	
		Hydrology Subtotal FCI <i>(c)</i>	0.11	0.61	• Adjustment of channel gradient by installing grade control	measures to prevent	
		WQ1a. Bank Stability	3	9		uncontrolled access will	
		WQ1b. Channel Bottom Bank Stability OR	1	8	structures (GCS) made from	improve bank stability, will	
		Channel Sediments or Substrate Composition	1	0	native material (rock or woody	filter runoff and enhance water	
		WQ2. Water Clarity	0	9		quality;	
		WQ3. Nutrient Enrichment OR Presence of	0	q		Woody debris, leaf litter, and	
		Aquatic Vegetation	Ŭ	5		vegetation from established	
		WQ4. Composition of Organic Matter	0	9	and other locations where	buffor zonos will onbanco in	
		WQ5. Land Use Pattern Beyond Immediate	1.5	10	<ul> <li>Creation of buffer zones around</li> </ul>	stream habitat and biological productivity.	
		Riparian Zone	1.5	10			
		WQ6a. Riparian Zone Width (from stream	15	10	channel (approx. 120 width)		
		edge to field)	1.5		width:		
		WQ6b. Riparian Zone Vegetation	1.5	10	<ul> <li>Monitoring and management.</li> </ul>		
		Protection/Completeness	1.5	10			
		Water Quality Subtotal FCI (d)	0.11	0.93	-		
		HB1. Flow Regime	1	1	<u>ار                                     </u>		
		HB2. Epifaunal Substrate and Available Cover	1	5	Notes:		
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documenta	ition (included in Appendix C of Propo	sed Mitigation Plan) for scoring
		HB4. Pool Variability	0	3	methodology.		
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions; "W	'Q" = Water Quality/Biogeochemical I	Functions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	7	(c) Hydrology Subtotal FCI Score = .	Sum of individual scores ÷100 (highes	t possible score for Hydrology). Shown as
		HB7. Channel Alteration	2	9	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	0	3	(d) Water Quality Subtotal FCI Scol	re = Sum of individual scores ÷80 (high	hest possible score for Water Quality).
		HB9. Bank Stability	3	9	Shown as rounded to the nearest h	nundredth.	
		HB10. Vegetative Protection	1.5	10	(e) Habitat Subtotal FCI Score = Su	m of individual scores ÷120 (highest p	ossible score for Habitat). Shown as
		HB11. Riparian Zone	1.5	10	rounaea to the nearest hundredth.		Stat Cultured FCL Males for the Table
		HB12. Riparian Habitat Condition	1.5	10	(J) Iotal FCI = Hydrology Subtotal F	CI + Water Quality Subtotal FCI + Hal	Ditat Subtotal FCI. Value for the Total is
		Habitat Subtotal FCI <i>(e)</i>	0.10	0.68	caiculatea using spreadsheet value	ne nearest hundreath.	
		TOTAL - FCI (f)	0.32	2.22			

### TABLE G-2 (3): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING)	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA	
			SCORES					
SZ-TRIB1-	6-157 Ephemeral/	H1. Flow Regime and Groundwater	1	1	Protection within large	GCS will reduce channel	Mitigation measures in place and	
ENH	Upstream portion of				contiguous mitigation area;	downcutting and improve	stable at release of monitoring	
	channelized tributary to	H2a. Channel Condition/ Alteration	0	8	<ul> <li>Implementation of measures</li> </ul>	stream stability, sediment	period after completion of project	
		H2b. Channel Capacity to Flow Frequency	0	8	to prevent uncontrolled access	transport and floodplain	including any remedial plantings	
	fragment; will connect to	H2c. Channel Bank Stability	ability 3 9 (cattle, etc.) from outside connectivity (through	(minimum of seven (7) years);				
	MIS-F (TRIB-FINSR-RST)	H3a. Channel Sinuosity	0	3	aquatic mitigation boundary;	Increased overbank	• 200 woody stems per acre with	
		H3b. Bottom Substrate Composition	1	9	<ul> <li>Supplemental plantings of</li> </ul>	frequency);	diversity, vegetative cover, and	
		H3c. In stream Bottom Topography OR	1	5	native trees, shrubs, and	LWD WIII Increase channel	invasive species standards stated in	
		Manning's n			herbaceous species;	roughness and channel	mitigation plan;	
		H3d. Channel Incision	0	8	Use of large woody debris	sinuosity and improve bank	• SWAMPIM Score achieved at the	
		H4a. Pools	0	7	(LWD) or other native material	stability;	release of monitoring.	
		H4b. Channel Flow Status	0	7	for in-channel structure;	Created pools will retain		
		Hydrology Subtotal FCI (c)	0.06	0.65	Adjustment of channel	water;		
		WQ1a. Bank Stability	3	9	gradient by installing grade	Protection, plantings, and		
		WQ1b. Channel Bottom Bank Stability OR	1	Q	control structures (GCS) made	measures to prevent		
		Channel Sediments or Substrate Composition	-	0	trom native material (rock or woody debris) where	uncontrolled access will improve bank stability, will filter runoff and ophance		
		WQ2. Water Clarity	0	9	woody debris) where			
		WQ3. Nutrient Enrichment OR Presence of	0	8	appropriate;	niter runon and ennance		
		Aquatic Vegetation	0	0	Creation of pools in	water quality;		
		WQ4. Composition of Organic Matter	0	9	Combination with LWD and	Woody debris, leaf litter, and     averbanging borbassaus		
		Q5. Land Use Pattern Beyond Immediate	15	10	GCS and other locations where	overhanging herbaceous		
		Riparian Zone	1.5	10	appropriate;	buffer zones will enhance in		
		WQ6a. Riparian Zone Width (from stream	15	1 5 10	Creation of buffer zones	stream babitat and biological		
		edge to field)	1.5	10	around channel (approx. 120	stream habitat and biological		
		WQ6b. Riparian Zone Vegetation	15	10	width) plus appropriate	productivity.		
		Protection/Completeness	1.5	10	Meander beit width;			
		Water Quality Subtotal FCI (d)	0.11	0.91	• Monitoring and management.			
		HB1. Flow Regime	1	2				
		HB2. Epifaunal Substrate and Available Cover	1	5	Notes:			
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documenta	tion (included in Appendix C of Propos	sed Mitigation Plan) for scoring	
		HB4. Pool Variability	0	4	methodology.			
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions; "W(	Q" = Water Quality/Biogeochemical F	unctions; "HB" = Habitat Functions.	
		HB6. Channel Flow Status	0	7	(c) Hydrology Subtotal FCI Score = S	Sum of individual scores ÷100 (highest	possible score for Hydrology). Shown as	
		HB7. Channel Alteration	0	9	rounded to the nearest hundredth.			
		HB8. Channel Sinuosity	0	3	(d) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).	
		HB9. Bank Stability	3	9	Shown as rounded to the nearest h	unded to the nearest hundredth.		
		HB10. Vegetative Protection	1.5	10	(e) Habitat Subtotal FCI Score = Sun	n of individual scores ÷120 (highest po	ossible score for Habitat). Shown as	
		HB11. Riparian Zone	1.5	10	rounded to the nearest hundredth.			
		HB12. Riparian Habitat Condition	1.5	10	(f) Total FCI = Hydrology Subtotal F	CI + Water Quality Subtotal FCI + Hab	itat Subtotal FCI. Value for the Total is	
		Habitat Subtotal FCI (e)	0.09	0.70	calculated using spreadsheet values	s for the Subtotals, then rounded to th	he nearest hundredth.	
		TOTAL - FCI <i>(f)</i>	0.25	2.26		r		

### TABLE G-2 (4): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA	
S2-TRIB2- A1-FNH	0.5-2.0'/ Ephemeral/ Existing upstream tributary to S2-TRIB2- PRE; Will connect to MS- H (TRIB-FNSR-RST)	H1. Flow Regime and Groundwater	0	1	<ul> <li>Protection within large contiguous mitigation area;</li> <li>Implementation of measures to</li> </ul>	<ul> <li>GCS will reduce channel downcutting and improve stream stability, sediment transport and floodplain connectivity (through increased overbank frequency);</li> <li>LWD will increase channel</li> </ul>	<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings (minimum of seven (7) years);</li> <li>200 woody stems per acre with diversity, vegetative cover, and</li> </ul>	
		H2a. Channel Condition/ Alteration	2	8				
		H2b. Channel Capacity to Flow Frequency	2	8	prevent uncontrolled access			
		H2c. Channel Bank Stability	6	9	<ul> <li>(cattle, etc.) from outside</li> <li>aquatic mitigation boundary;</li> <li>Supplemental plantings of</li> </ul>			
		H3a. Channel Sinuosity	5	5				
		H3b. Bottom Substrate Composition	1	9				
		H3c. In stream Bottom Topography OR	3	3	native trees, shrubs, and	roughness and channel	invasive species standards stated in	
		Manning's n			herbaceous species;	sinuosity and improve bank	mitigation plan;	
		H3d. Channel Incision	1	8	<ul> <li>Use of large woody debris (LWD) or other native material for in-channel structure;</li> <li>Adjustment of channel gradient by installing grade control structures (GCS) made from native material (rock or woody debris) where appropriate;</li> <li>Creation of pools in combination with LWD and GCS and other locations where appropriate:</li> <li>Use of large woody debris Created pools with Protection, plant measures to pre- uncontrolled acc improve bank sta filter runoff and quality;</li> <li>Woody debris, le overhanging her vegetation from buffer zones will</li> </ul>	<ul><li>stability;</li><li>Created pools will retain water;</li><li>Protection, plantings, and</li></ul>	<ul> <li>SWAMPIM Score achieved at the release of monitoring.</li> </ul>	
		H4a. Pools	0	3				
		H4b. Channel Flow Status	0	7				
		Hydrology Subtotal FCI (c)	0.20	0.61		measures to prevent		
		WQ1a. Bank Stability	6	9		<ul> <li>v installing grade control</li> <li>ructures (GCS) made from</li> <li>ative material (rock or woody</li> <li>bebris) where appropriate;</li> <li>reation of pools in</li> <li>ombination with LWD and GCS</li> <li>nd other locations where</li> <li>opropriate;</li> <li>reation of buffer zones around</li> <li>nannel (approx. 120' width)</li> <li>us appropriate meander belt</li> <li>idth;</li> <li>ionitoring and management.</li> <li>uncontrolled access will</li> <li>improve bank stability, will</li> <li>filter runoff and enhance water</li> <li>quality;</li> <li>Woody debris, leaf litter, and</li> <li>overhanging herbaceous</li> <li>vegetation from established</li> <li>buffer zones will enhance in-</li> <li>stream habitat and biological</li> <li>productivity.</li> </ul>		
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	8				
		WQ2. Water Clarity	0	9				
		WQ3. Nutrient Enrichment OR Presence of	5	9				
		Aquatic Vegetation	_					
		WQ4. Composition of Organic Matter	5	9				
		WQ5. Land Use Pattern Beyond Immediate	6	10	Creation of buffer zones around			
		Riparian Zone			channel (approx. 120' width)			
		wQ6a. Riparian Zone Width (from stream	6	10	<ul> <li>plus appropriate meander belt width;</li> <li>Monitoring and management.</li> </ul>			
		edge to field)						
		Protection/Completeness	6	10				
		Water Quality Subtotal FCI (d)	0.44	0.93				
		HB1. Flow Regime	0	1				
		HB2. Epifaunal Substrate and Available Cover	3	5	Notes	1		
		HB3. Stream Bottom Substrate	1	6				
		HB4. Pool Variability	0	3	<ul> <li>(d) Refer to SWAMFIN Documentation (included in Appendix C of Proposed Intigation Plan) for scoring methodology.</li> <li>(b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Functions.</li> <li>(c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown a rounded to the nearest hundredth.</li> <li>(d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality). Shown as rounded to the nearest hundredth.</li> <li>(e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.</li> <li>(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is</li> </ul>			
		HB5. Sediment Deposition and Scouring	0	9				
		HB6. Channel Flow Status	0	7				
		HB7. Channel Alteration	2	9				
		HB8. Channel Sinuosity	5	5				
		, HB9. Bank Stability	6	9				
		HB10. Vegetative Protection	6	10				
		HB11. Riparian Zone	6	10				
		HB12. Riparian Habitat Condition	6	10				
		Habitat Subtotal FCI <i>(e)</i>	0.29	0.70	calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.	ne nearest hundredth.		
		TOTAL - FCI <i>(f)</i>	0.93	2.24				

### TABLE G-2 (5): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING)	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S2-TRIB2-	0.5-2.0'/ Ephemeral/	H1. Flow Regime and Groundwater		1	Protection within large	GCS will reduce channel	Mitigation measures in place and
A2-ENH	Existing upstream tributary to S2-TRIB2- PRE; Will connect to MS- H (TRIB-FNSR-RST)	Interaction	0		contiguous mitigation area;	downcutting and improve	stable at release of monitoring
		H2a. Channel Condition/ Alteration	3	8	<ul> <li>Implementation of measures to prevent uncontrolled access (cattle, etc.) from outside aquatic mitigation boundary;</li> </ul>	stream stability, sediment transport and floodplain connectivity (through increased overbank frequency);	<ul> <li>period after completion of project including any remedial plantings (minimum of seven (7) years);</li> <li>200 woody stems per acre with</li> </ul>
		H2b. Channel Capacity to Flow Frequency	2	8			
		H2c. Channel Bank Stability	8	9			
		H3a. Channel Sinuosity	0	3			
		H3b. Bottom Substrate Composition	1	9	<ul> <li>Supplemental plantings of</li> </ul>	LWD will increase channel	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR	5	5	native trees, shrubs, and	roughness and channel	invasive species standards stated in
		Manning's n	5	5	herbaceous species;	sinuosity and improve bank	mitigation plan;
		H3d. Channel Incision	1	8	<ul> <li>Use of large woody debris (LWD) or other native material for in-channel structure;</li> <li>Adjustment of channel gradient by installing grade control</li> </ul>	<ul> <li>stability;</li> <li>Created pools will retain water;</li> <li>Protection, plantings, and measures to prevent uncontrolled access will</li> </ul>	<ul> <li>SWAMPIM Score achieved at the release of monitoring.</li> </ul>
		H4a. Pools	1	3			
		H4b. Channel Flow Status	0	7			
		Hydrology Subtotal FCI (c)	0.21	0.61			
		WQ1a. Bank Stability	8	9			
		WQ1b. Channel Bottom Bank Stability OR	1	o	structures (GCS) made from	improve bank stability, will	
		Channel Sediments or Substrate Composition	Ŧ	0	native material (rock or woody	filter runoff and enhance water	
		WQ2. Water Clarity	0	9	debris) where appropriate;	quality;	
		WQ3. Nutrient Enrichment OR Presence of	1	0	Creation of pools in	• Woody debris, leaf litter, and	
		Aquatic Vegetation	4	5	combination with LWD and GCS	overhanging herbaceous	
		WQ4. Composition of Organic Matter	5	9	and other locations where	vegetation from established	
		WQ5. Land Use Pattern Beyond Immediate	7	10	appropriate;	buffer zones will enhance in-	
		Riparian Zone	,	10	Creation of buffer zones around	stream habitat and biological	
		WQ6a. Riparian Zone Width (from stream	0	10	channel (approx. 120' width)	productivity.	
		edge to field)	5	10	plus appropriate meander beit		
		WQ6b. Riparian Zone Vegetation	0	10	<ul> <li>Monitoring and management.</li> </ul>		
		Protection/Completeness	5	10			
		Water Quality Subtotal FCI (d)	0.54	0.93			
		HB1. Flow Regime	0	1			
		HB2. Epifaunal Substrate and Available Cover	5	5	Notes:		
		HB3. Stream Bottom Substrate	1	6	<ul> <li>(a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring methodology.</li> <li>(b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Functions.</li> <li>(c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown or rounded to the nearest hundredth.</li> <li>(d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality). Shown as rounded to the nearest hundredth.</li> <li>(e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.</li> <li>(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is</li> </ul>		
		HB4. Pool Variability	0	3			
		HB5. Sediment Deposition and Scouring	0	9			
		HB6. Channel Flow Status	0	7			
		HB7. Channel Alteration	3	9			
		HB8. Channel Sinuosity	5	5			
		HB9. Bank Stability	8	9			
		HB10. Vegetative Protection	9	10			
		HB11. Riparian Zone	9	10			
		HB12. Riparian Habitat Condition	8	10			
		Habitat Subtotal FCI (e)	0.40	0.70	calculated using spreadsheet value.	s for the Subtotals, then rounded to th	ne nearest hundredth.
		TOTAL - FCI (f)	1.15	2.24	1		

### TABLE G-2 (6): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA	
S2-TRIB2- A3-ENH	0.5-2.0'/ Ephemeral/ Existing upstream tributary to S2-TRIB2- PRE; Will connect to MS- H (TRIB-FNSR-RST)	H1. Flow Regime and Groundwater	0	1	<ul> <li>Protection within large contiguous mitigation area;</li> <li>Implementation of measures to</li> </ul>	<ul> <li>GCS will reduce channel downcutting and improve stream stability, sediment transport and floodplain connectivity (through increased overbank frequency);</li> <li>LWD will increase channel</li> </ul>	<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings (minimum of seven (7) years);</li> <li>200 woody stems per acre with diversity, vegetative cover, and</li> </ul>	
		H2a, Channel Condition/ Alteration	3	8				
		H2b. Channel Capacity to Flow Frequency	2	8	prevent uncontrolled access			
		H2c. Channel Bank Stability	8	9	<ul> <li>(cattle, etc.) from outside aquatic mitigation boundary;</li> <li>Supplemental plantings of native trees, shrubs, and herbaceous species;</li> <li>Use of large woody debris (LWD) or other native material for in-channel structure;</li> <li>Adjustment of channel gradient by installing grade control structures (GCS) made from native material (rock or woody debris) where appropriate;</li> <li>Creation of pools in combination with LWD and GCS and other locations where appropriate;</li> <li>Cattle, etc.) from outside overbank frequency);</li> <li>LWD will increase channel roughness and channel sinuosity and improve bank stability;</li> <li>Created pools will retain water;</li> <li>Protection, plantings, and measures to prevent uncontrolled access will improve bank stability, will filter runoff and enhance water quality;</li> <li>Creation of pools in combination with LWD and GCS and other locations where appropriate;</li> <li>Mody debris, leaf litter, and overhanging herbaceous vegetation from established buffer zones will enhance in-</li> </ul>			
		H3a. Channel Sinuosity	0	3				
		H3b. Bottom Substrate Composition	1	9				
		H3c. In stream Bottom Topography OR	_	5		invasive species standards stated in		
		Manning's n	5			mitigation plan;		
		H3d. Channel Incision	1	8		<ul> <li>stability;</li> <li>Created pools will retain water;</li> <li>Protection, plantings, and measures to prevent uncontrolled access will improve bank stability, will filter runoff and enhance water quality;</li> <li>Woody debris, leaf litter, and</li> </ul>	<ul> <li>SWAMPIM Score achieved at the release of monitoring.</li> </ul>	
		H4a. Pools	1	3				
		H4b. Channel Flow Status	0	7				
		Hydrology Subtotal FCI (c)	0.21	0.61				
		WQ1a. Bank Stability	8	9				
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	8				
		WQ2. Water Clarity	0	9				
		WQ3. Nutrient Enrichment OR Presence of						
		Aquatic Vegetation	4	9				
		WQ4. Composition of Organic Matter	5	9		vegetation from established		
		WQ5. Land Use Pattern Beyond Immediate	_	10				
		Riparian Zone	/		Creation of buffer zones around	stream habitat and biological		
		WQ6a. Riparian Zone Width (from stream	9	10	channel (approx. 120' width)	productivity.		
		edge to field)			pius appropriate meander belt			
		WQ6b. Riparian Zone Vegetation	9	10	Width;			
		Protection/Completeness	5	10				
		Water Quality Subtotal FCI (d)	0.54	0.93				
		HB1. Flow Regime	0	1				
		HB2. Epifaunal Substrate and Available Cover	5	5	Notes:         (a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring         methodology.			
		HB3. Stream Bottom Substrate	1	6				
		HB4. Pool Variability	0	3				
		HB5. Sediment Deposition and Scouring	0	9	<ul> <li>(b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Functions.</li> <li>(c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth.</li> <li>(d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality). Shown as rounded to the nearest hundredth.</li> <li>(e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.</li> </ul>			
		HB6. Channel Flow Status	0	7				
		HB7. Channel Alteration	3	9				
		HB8. Channel Sinuosity	5	5				
		HB9. Bank Stability	8	9				
		HB10. Vegetative Protection	9	10				
		HB11. Riparian Zone	9	10	<ul> <li>(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is</li> <li>(g) calculated using spreadsheet values for the Subtotals, then rounded to the pagrot hundredth</li> </ul>			
		HB12. Riparian Habitat Condition	8	10			hai subidiai rei. vaiae joi liie idiai is	
		Habitat Subtotal FCI (e)	0.40	0.70	calculatea using spreadsheet values	es jor the Subtolais, then rounded to the nearest hundreath.		
		TOTAL - FCI <i>(f)</i>	1.15	2.24				
# TABLE G-2 (7): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S2-TRIB2- A4-ENH	0.5-2.0'/ Ephemeral/ Existing upstream	H1. Flow Regime and Groundwater	0	1	<ul> <li>Protection within large contiguous mitigation area;</li> <li>Implementation of measures to</li> </ul>	GCS will reduce channel     owncutting and improve     stable at release of	<ul> <li>Mitigation measures in place and stable at release of monitoring</li> </ul>
	tributary to S2-TRIB2-	H2a. Channel Condition/ Alteration	3	8		stream stability, sediment	period after completion of project
	PRE; Will connect to MS-	H2b. Channel Capacity to Flow Frequency	2	8	prevent uncontrolled access	transport and floodplain	including any remedial plantings (minimum of seven (7) years);
	H (TRIB-FNSR-RST)	H2c. Channel Bank Stability	8	9	(cattle, etc.) from outside	connectivity (through increased	
		H3a. Channel Sinuosity	0	3	aquatic mitigation boundary;	overbank frequency);	• 200 woody stems per acre with
		H3b. Bottom Substrate Composition	1	9	Supplemental plantings of	LWD will increase channel	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR	5	5	native trees, shrubs, and	roughness and channel	invasive species standards stated in mitigation plan.
		Manning's n			nerbaceous species;	stability	Miligation plan;
		H3d. Channel Incision	1	8	Use of large woody debris     (UMD) an athen notice motion	Stability;	Swalvipilvi Score achieved at the     release of menitoring
		H4a. Pools	1	3	(LWD) or other native material	Created pools will retain water;	release of monitoring.
		H4b. Channel Flow Status	0	7	I or in-channel structure;	Protection, plantings, and     mossures to provent	
		Hydrology Subtotal FCI (c)	0.21	0.61	Adjustment of channel gradient     by installing grade control	ineasures to prevent	
		WQ1a. Bank Stability	8	9	by installing grade control	improve bank stability will	
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	8	<ul> <li>structures (GCS) made from native material (rock or woody debris) where appropriate;</li> <li>Creation of pools in combination with LWD and GCS and other locations where</li> </ul>	<ul> <li>Improve bank stability, will filter runoff and enhance water quality;</li> <li>Woody debris, leaf litter, and overhanging herbaceous vegetation from established</li> </ul>	
		WQ2. Water Clarity	0	9			
		WQ3. Nutrient Enrichment OR Presence of	4	9			
		Aquatic Vegetation		5			
		WQ4. Composition of Organic Matter	5	9		buffer zones will enhance in	
		WQ5. Land Use Pattern Beyond Immediate	7	10	<ul> <li>Creation of huffer zones around</li> </ul>	stream babitat and biological	
		Riparian Zone	-		• Creation of burler 20nes around chapped (approx, 120' width)	productivity	
		WQ6a. Riparian Zone Width (from stream	9	10	nlus appropriate meander belt	productivity.	
		edge to field)	_		width:		
		WQ6b. Riparian Zone Vegetation	9	10	<ul> <li>Monitoring and management</li> </ul>		
		Protection/Completeness					
		Water Quality Subtotal FCI (d)	0.54	0.93	_		
		HB1. FIOW Regime	0	1 -	-		
		HB2. Epitaunal Substrate and Available Cover	5	5	Notes:		
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documenta	tion (included in Appendix C of Propos	ed Mitigation Plan) for scoring
		HB4. POOL Variability	0	3	methodology		
		HBS. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions; "We	Q" = Water Quality/Biogeocnemical F	unctions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	/	(C) Hydrology Subtotal FCI Score = S	sum of individual scores ÷100 (nignest	possible score for Hydrology). Snown as
		HB7. Channel Alteration	3	9	(d) Water Quality Subtotal ECI Scor	a - Sum of individual scores : 80 (high	act passible score for Water Quality)
		HB8. Channel Sinuosity	5	5	Shown as rounded to the pagreet h	e – Sum oj muiviuuui scores 780 (Mgn undredth	est possible score for water Quality).
			ð O	9	(e) Habitat Subtotal ECI Score - Sub	n of individual scores ±120 (highest p	ssible score for Habitat) Shown as
		IDDU. Vegetative Protection	9	10	rounded to the pearest hundredth	$r$ of manual scores $\pm 120$ (mynest pc	ssible score for musically. Shown as
		IDD11. Riparian Labitat Condition	9	10	(f) Total FCI = Hydrology Subtotal FC	CI + Water Quality Subtotal ECI + Hab	itat Subtotal ECL Value for the Total is
		Hebitet Subtetel FCI (c)	8 0.40	10	calculated using spreadsheet value	s for the Subtotals, then rounded to th	ne nearest hundredth
			0.40	0.70	-		
		IUIAL - FCI (J)	1.15	2.24			

# TABLE G-2 (8): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/	SWAMPIM METRICS (a, b)	BASELINE	PROJECTED	MITIGATION ACTIVITIES/WORK	RATIONALE FOR LIFT	SUCCESS CRITERIA
	CLASSIFICATION DESC.		SCORES	SCORES			
S2-TRIB2-	2.5-5.0'/ Ephemeral/	H1. Flow Regime and Groundwater			Protection within large	GCS will reduce channel	<ul> <li>Mitigation measures in place and</li> </ul>
ENH	Existing upstream reach	Interaction	1	1	contiguous mitigation area:	downcutting and improve stream stability, sediment	stable at release of monitoring
	of S2-TRIB2-PRE; Will	H2a. Channel Condition/ Alteration	2	8	• Implementation of measures to		period after completion of project including any remedial plantings (minimum of seven (7) years);
	connect to MS-H (TRIB-	H2b. Channel Capacity to Flow Frequency	2	8	prevent uncontrolled access	transport and floodplain	
	FNSR-RST)	H2c. Channel Bank Stability	3	9	(cattle, etc.) from outside	connectivity (through increased	
		H3a. Channel Sinuosity	0	4	aquatic mitigation boundary;	overbank frequency);	<ul> <li>200 woody stems per acre with</li> </ul>
		H3b. Bottom Substrate Composition	1	9	• Supplemental plantings of native	LWD will increase channel	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR	1	4	trees, shrubs, and herbaceous species;	roughness and channel	invasive species standards stated in
		Manning's n	1	4		sinuosity and improve bank	mitigation plan;
		H3d. Channel Incision	1	8	• Use of large woody debris (LWD)	stability;	<ul> <li>SWAMPIM Score achieved at the</li> </ul>
		H4a. Pools	0	4	or other native material for in-	• Created pools will retain water;	release of monitoring.
		H4b. Channel Flow Status	0	7	channel structure;	<ul> <li>Protection, plantings, and</li> </ul>	
		Hydrology Subtotal FCI (c)	0.11	0.62	<ul> <li>Adjustment of channel gradient</li> </ul>	measures to prevent	
		WQ1a. Bank Stability	3	9	by installing grade control	uncontrolled access will	
		WQ1b. Channel Bottom Bank Stability OR	1	0	structures (GCS) made from	improve bank stability, will	
		Channel Sediments or Substrate Composition	L	õ	native material (rock or woody	filter runoff and enhance water	
		WQ2. Water Clarity	0	9	debris) where appropriate; quality;	quality;	
		WQ3. Nutrient Enrichment OR Presence of	0	0	Creation of pools in combination	Woody debris, leaf litter, and	
		Aquatic Vegetation	0	9	<ul> <li>with LWD and GCS and other</li> <li>locations where appropriate;</li> <li>Creation of buffer zones around</li> <li>duffer zones will end</li> </ul>	overhanging herbaceous	
		WQ4. Composition of Organic Matter	0	9		vegetation from established	
		WQ5. Land Use Pattern Beyond Immediate	15	10		stream habitat and biological productivity.	
		Riparian Zone	1.5	10	channel (approx. 120 width)		
		WQ6a. Riparian Zone Width (from stream	15	10	plus appropriate meander beit		
		edge to field)	1.5	10	Width;		
		WQ6b. Riparian Zone Vegetation	15	10	• Monitoring and management.		
		Protection/Completeness	1.5	10			
		Water Quality Subtotal FCI (d)	0.11	0.93	-		
		HB1. Flow Regime	1	1			
		HB2. Epifaunal Substrate and Available Cover	1	5	Notes:		
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documenta	tion (included in Appendix C of Propos	ed Mitigation Plan) for scoring
		HB4. Pool Variability	0	3	methodology.		
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions; "We	Q" = Water Quality/Biogeochemical Fi	unctions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	7	(c) Hydrology Subtotal FCI Score = S	bum of individual scores ÷100 (highest	possible score for Hydrology). Shown as
		HB7. Channel Alteration	2	9	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	0	4	(a) water Quality Subtotal FCI Scor	e = sum of inalviaual scores ÷80 (high) undradth	est possible score for water Quality).
		HB9. Bank Stability	3	9	(a) Habitat Subtatal FCI Score Sur	unureuln. n of individual coores : 120 (bishest as	accible coore for Habitath Chaun ac
		HB10. Vegetative Protection	1.5	10	rounded to the nearest hundredth	n oj maiviadal scores +120 (nighest po	issible score for mubilal). Shown as
		HB11. Riparian Zone	1.5	10	(f) Total ECI - Hydrology Subtotal E	CL + Water Quality Subtatal ECL + Uab	itat Subtotal ECL Value for the Total is
		HB12. Riparian Habitat Condition	1.5	10	calculated using spreadsheet value	s for the Subtotals then rounded to th	he nearest hundredth
		Habitat Subtotal FCI <i>(e)</i>	0.10	0.69	culculated using spreadsmeet value.		
		TOTAL - FCI <i>(f)</i>	0.32	2.24			

# TABLE G-2 (9): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S2-TRIB3- A10-ENH	2.5-5.0'/ Ephemeral/ Existing tributary of S2-	H1. Flow Regime and Groundwater Interaction	1	1	<ul> <li>Protection within large contiguous mitigation area;</li> </ul>	GCS will reduce channel     downcutting and improve     stream stability, sediment     period	<ul> <li>Mitigation measures in place and stable at release of monitoring</li> </ul>
	TRIB3-PRE; Will connect	H2a. Channel Condition/ Alteration	3	8	Implementation of measures to		period after completion of project
	to MS-I (TRIB-FNSR-RST)	H2b. Channel Capacity to Flow Frequency	2	8	prevent uncontrolled access (cattle, etc.) from outside	transport and floodplain	including any remedial plantings (minimum of seven (7) years);
		H2c. Channel Bank Stability	8	9		connectivity (through increased	
		H3a. Channel Sinuosity	5	5	aquatic mitigation boundary;	overbank frequency);	<ul> <li>200 woody stems per acre with</li> </ul>
		H3b. Bottom Substrate Composition	1	9	<ul> <li>Supplemental plantings of</li> </ul>	LWD will increase channel	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR Manning's n	5	5	native trees, shrubs, and herbaceous species;	roughness and channel sinuosity and improve bank	invasive species standards stated in mitigation plan
		H3d. Channel Incision	1	8	Use of large woody debris	stability;	• SWAMPIM Score achieved at
		H4a. Pools	1	4	(LWD) or other native material	• Created pools will retain water;	release of monitoring.
		H4b. Channel Flow Status	0	7	for in-channel structure;	<ul> <li>Protection, plantings, and</li> </ul>	
		Hydrology Subtotal FCI (c)	0.27	0.64	Adjustment of channel gradient	measures to prevent	
		WQ1a. Bank Stability	8	9	by installing grade control	uncontrolled access will	
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	8	structures (GCS) made from native material (rock or woody	improve bank stability, will filter runoff and enhance water	
		WQ2. Water Clarity	0	9	debris) where appropriate;	quality;	
		WQ3. Nutrient Enrichment OR Presence of	4	9	<ul> <li>Creation of pools in combination with LWD and GCS and other locations where appropriate;</li> <li>Creation of buffer zones around channel (approx. 120' width) plus appropriate meander belt width;</li> <li>Monitoring and management.</li> <li>Woody debris, leaf litter, and overhanging herbaceous vegetation from established buffer zones will enhance in- stream habitat and biological productivity.</li> </ul>		
		WO4 Composition of Organic Matter	5	9		vegetation from established	
		WQ5. Land Use Pattern Beyond Immediate	7	10		buffer zones will enhance in- stream habitat and biological productivity.	
		WQ6a. Riparian Zone Width (from stream edge to field)	9	10			
		WQ6b. Riparian Zone Vegetation Protection/Completeness	9	10			
		Water Quality Subtotal FCI (d)	0.54	0.93			
		HB1. Flow Regime	1	1			
		HB2. Epifaunal Substrate and Available Cover	5	5	Notes:		
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documenta	tion (included in Appendix C of Propos	ed Mitigation Plan) for scoring
		HB4. Pool Variability	0	3	methodology.		
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions; "We	Q" = Water Quality/Biogeochemical F	unctions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	7	(c) Hydrology Subtotal FCI Score = S	Sum of individual scores ÷100 (highest	possible score for Hydrology). Shown as
		HB7. Channel Alteration	3	9	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	5	5	(a) Water Quality Subtotal FCI Scor	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).
		HB9. Bank Stability	8	9	Shown as rounded to the nearest h	undredth.	
		HB10. Vegetative Protection	9	10	(e) Habitat Subtotal FCI Score = Sun	n of individual scores ÷120 (highest po	ossible score for Habitat). Shown as
		HB11. Riparian Zone	9	10	(f) Total ECL = Undrolowy Subtatul	CLI Water Quality Subtatal FOLI List	itat Subtatal ECI Valua fartha Tatal :-
		HB12. Riparian Habitat Condition	8	10	(j) i ului FCI = myarology Subtotal F	ci + vvaler Quality Sublolar FCI + Habi s for the Subtotals then rounded to the	ha pagrast hundradth
		Habitat Subtotal FCI (e)	0.41	0.70	-	s זטר נוופ שטגטנטוג, נוופון רטטווטפט to tr	וב וובערפגר וועווערבענוו.
		TOTAL - FCI <i>(f)</i>	1.22	2.27			

# TABLE G-2 (10): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING)	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
			SCORES				
S2-TRIB3-	2.5-5.0'/ Ephemeral/	H1. Flow Regime and Groundwater	1	1	<ul> <li>Protection within large</li> </ul>	<ul> <li>GCS will reduce channel</li> </ul>	<ul> <li>Mitigation measures in place and</li> </ul>
A5-ENH	Existing upstream	Interaction	-	-	contiguous mitigation area;	downcutting and improve	stable at release of monitoring
	tributary; Will be	H2a. Channel Condition/ Alteration	3	8	Implementation of measures to	stream stability, sediment	period after completion of project
	enhanced and connect	H2b. Channel Capacity to Flow Frequency	2	8	prevent uncontrolled access	transport and floodplain	including any remedial plantings
	to MS-I (TRIB FNSR-RST)	H2c. Channel Bank Stability	8	9	(cattle, etc.) from outside	connectivity (through increased	(minimum of seven (7) years);
		H3a. Channel Sinuosity	5	5	aquatic mitigation boundary;	overbank frequency);	<ul> <li>200 woody stems per acre with</li> </ul>
		H3b. Bottom Substrate Composition	1	9	<ul> <li>Supplemental plantings of</li> </ul>	<ul> <li>LWD will increase channel</li> </ul>	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR	E	E	native trees, shrubs, and	roughness and channel	invasive species standards stated in
		Manning's n	5	5	herbaceous species;	sinuosity and improve bank	mitigation plan;
		H3d. Channel Incision	1	8	<ul> <li>Use of large woody debris</li> </ul>	stability;	<ul> <li>SWAMPIM Score achieved at</li> </ul>
		H4a. Pools	1	4	(LWD) or other native material	<ul> <li>Created pools will retain water;</li> </ul>	release of monitoring.
		H4b. Channel Flow Status	0	7	for in-channel structure;	<ul> <li>Protection, plantings, and</li> </ul>	
		Hydrology Subtotal FCI (c)	0.27	0.64	Adjustment of channel gradient	measures to prevent	
		WQ1a. Bank Stability	8	9	by installing grade control	uncontrolled access will	
		WQ1b. Channel Bottom Bank Stability OR	1	0	structures (GCS) made from	improve bank stability, will	
		Channel Sediments or Substrate Composition	L	8	native material (rock or woody	filter runoff and enhance water	
		WQ2. Water Clarity	0	9	debris) where appropriate;	quality;	
		WQ3. Nutrient Enrichment OR Presence of	4	0	Creation of pools in	<ul> <li>Woody debris, leaf litter, and</li> </ul>	
		Aquatic Vegetation	4	9	combination with LWD and GCS	overhanging herbaceous	
		WQ4. Composition of Organic Matter	5	9	and other locations where	vegetation from established	
		WQ5. Land Use Pattern Beyond Immediate	7	10	appropriate;	buffer zones will enhance in-	
		Riparian Zone	,	10	Creation of buffer zones around	stream habitat and biological	
		WQ6a. Riparian Zone Width (from stream	9	10	channel (approx. 120 width)	productivity.	
		edge to field)	5	10	plus appropriate meander beit		
		WQ6b. Riparian Zone Vegetation	9	10	width.		
		Protection/Completeness	5	10	• Monitoring and management.		
		Water Quality Subtotal FCI (d)	0.54	0.93			
		HB1. Flow Regime	1	1			
		HB2. Epifaunal Substrate and Available Cover	5	5	Notes:		
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documentat	tion (included in Appendix C of Propose	ed Mitigation Plan) for scoring
		HB4. Pool Variability	0	3	methodology.		
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions; "WO	Q" = Water Quality/Biogeochemical Fu	nctions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	7	(c) Hydrology Subtotal FCI Score = S	um of individual scores ÷100 (highest ן	possible score for Hydrology). Shown as
		HB7. Channel Alteration	3	9	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	5	5	(d) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (highe	st possible score for Water Quality).
		HB9. Bank Stability	8	9	Shown as rounded to the nearest h	undredth.	
		HB10. Vegetative Protection	9	10	(e) Habitat Subtotal FCI Score = Sun	n of individual scores ÷120 (highest pos	ssible score for Habitat). Shown as
		HB11. Riparian Zone	9	10	rounded to the nearest hundredth.		
		HB12. Riparian Habitat Condition	8	10	(f) Total FCI = Hydrology Subtotal FC	CI + Water Quality Subtotal FCI + Habit	at Subtotal FCI. Value for the Total is
		Habitat Subtotal FCI <i>(e)</i>	0.41	0.70	calculated using spreadsheet values	s for the Subtotals, then rounded to the	e nearest hundredth.
		TOTAL - FCI (f)	1.22	2.27	l		

# TABLE G-2 (11): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S2-TRIB3- A5-TribA-	2-TRIB3- 0.5-2.0'/ Ephemeral/ 5-TribA- Existing upstream	H1. Flow Regime and Groundwater Interaction	0	1	<ul> <li>Protection within large contiguous mitigation area;</li> <li>Implementation of measures</li> <li>GCS will reduce channel downcutting and improve stream stability, sediment</li> </ul>	• Mitigation measures in place and stable at release of monitoring period after completion of project	
ENH	tributary to S2-TRIB3-A5;	H2a. Channel Condition/ Alteration	3	8			
	Will be enhanced.	H2b. Channel Capacity to Flow Frequency	2	8	to prevent uncontrolled access	transport and floodplain	including any remedial plantings
		H2c. Channel Bank Stability	8	9	(cattle, etc.) from outside	connectivity (through	(minimum of seven (7) years);
		H3a. Channel Sinuosity	0	4	aquatic mitigation boundary;	increased overbank	<ul> <li>200 woody stems per acre with</li> </ul>
		H3b. Bottom Substrate Composition	1	9	<ul> <li>Supplemental plantings of</li> </ul>	frequency);	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR	-		native trees, shrubs, and	LWD will increase channel	invasive species standards stated in
		Manning's n	5	5	herbaceous species;	roughness and channel	mitigation plan;
		H3d. Channel Incision	1	8	<ul> <li>Use of large woody debris</li> </ul>	sinuosity and improve bank	<ul> <li>SWAMPIM Score achieved at</li> </ul>
		H4a. Pools	1	3	(LWD) or other native material	stability;	release of monitoring.
		H4b. Channel Flow Status	0	7	for in-channel structure;	<ul> <li>Created pools will retain</li> </ul>	
		Hydrology Subtotal FCI (c)	0.21	0.63	<ul> <li>Adjustment of channel</li> </ul>	water;	
		WQ1a. Bank Stability	8	9	gradient by installing grade	<ul> <li>Protection, plantings, and</li> </ul>	
		WQ1b. Channel Bottom Bank Stability OR			control structures (GCS) made	measures to prevent	
		Channel Sediments or Substrate Composition	1	8	from native material (rock or	uncontrolled access will	
		WQ2. Water Clarity	0	9	woody debris) where	improve bank stability, will	
		WQ3. Nutrient Enrichment OR Presence of			appropriate;	filter runoff and enhance	
		Aquatic Vegetation	4	9	<ul> <li>Creation of pools in</li> </ul>	water quality;	
		WQ4. Composition of Organic Matter	5	9	combination with LWD and	<ul> <li>Woody debris, leaf litter, and</li> </ul>	
		WQ5. Land Use Pattern Beyond Immediate	_	10	GCS and other locations where	overhanging herbaceous	
		Riparian Zone	/	10	appropriate;	vegetation from established	
		WQ6a. Riparian Zone Width (from stream		10	<ul> <li>Creation of buffer zones</li> </ul>	buffer zones will enhance in-	
		edge to field)	9	10	around channel (approx. 120'	stream habitat and biological	
		WQ6b. Riparian Zone Vegetation	<u> </u>	10	width) in addition to	productivity.	
		Protection/Completeness	9	10	appropriate meander belt		
		Water Quality Subtotal FCI (d)	0.54	0.93	width;		
		HB1. Flow Regime	0	1	<ul> <li>Monitoring and management.</li> </ul>		
		HB2. Epifaunal Substrate and Available Cover	5	5	Notes:		
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documenta	tion (included in Appendix C of Propo	sed Mitigation Plan) for scoring
		HB4. Pool Variability	0	3	methodology.		ica miligation rany jor scoring
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions: "W	O" = Water Ouality/Bioaeochemical F	unctions: "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	7	(c) Hvdrology Subtotal FCI Score = S	Sum of individual scores ÷100 (hiahest	possible score for Hydroloay). Shown as
		HB7. Channel Alteration	3	9	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	5	5	(d) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).
		HB9. Bank Stability	8	9	Shown as rounded to the nearest h	undredth.	
		HB10. Vegetative Protection	9	10	(e) Habitat Subtotal FCI Score = Sun	n of individual scores ÷120 (highest po	ossible score for Habitat). Shown as
		HB11. Riparian Zone	9	10	rounded to the nearest hundredth.		
		HB12. Riparian Habitat Condition	8	10	(f) Total FCI = Hydrology Subtotal F	CI + Water Quality Subtotal FCI + Hab	itat Subtotal FCI. Value for the Total is
		Habitat Subtotal FCI <i>(e)</i>	0.40	0.70	calculated using spreadsheet value	s for the Subtotals, then rounded to th	he nearest hundredth.
		TOTAL - FCI (f)	1.15	2.26			

# TABLE G-2 (12): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S2-TRIB3- A5-TribB-	0.5-2.5'/ Ephemeral/ Existing upstream	H1. Flow Regime and Groundwater	0	1	Protection within large     contiguous mitigation area:	GCS will reduce channel     downcutting and improve	<ul> <li>Mitigation measures in place and stable at release of monitoring</li> </ul>
ENH	tributary to S2-TRIB3-A5;	H2a. Channel Condition/ Alteration	3	8	• Implementation of measures to	stream stability, sediment	period after completion of project
	Will be enhanced.	H2b. Channel Capacity to Flow Frequency	2	8	prevent uncontrolled access	transport and floodplain	including any remedial
		H2c. Channel Bank Stability	8	9	(cattle, etc.) from outside	connectivity (through increased	plantings(minimum of seven (7)
		H3a. Channel Sinuosity	0	3	aquatic mitigation boundary;	overbank frequency);	years);
		H3b. Bottom Substrate Composition	1	9	Supplemental plantings of	LWD will increase channel	• 200 woody stems per acre with
		H3c. In stream Bottom Topography OR	_	_	native trees, shrubs, and	roughness and channel	diversity, vegetative cover, and
		Manning's n	5	5	herbaceous species;	sinuosity and improve bank	invasive species standards stated in
		H3d. Channel Incision	1	8	<ul> <li>Use of large woody debris</li> </ul>	stability;	mitigation plan;
		H4a. Pools	1	3	(LWD) or other native material	• Created pools will retain water;	<ul> <li>SWAMPIM Score achieved at</li> </ul>
		H4b. Channel Flow Status	0	7	for in-channel structure;	<ul> <li>Protection, plantings, and</li> </ul>	release of monitoring.
		Hydrology Subtotal FCI (c)	0.21	0.61	Adjustment of channel gradient	measures to prevent	
		WQ1a. Bank Stability	8	9	by installing grade control	uncontrolled access will	
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	8	structures (GCS) made from native material (rock or woody debris) where appropriate; • Creation of pools in combination with LWD and GCS and other locations where appropriate; • Uter the state of the	<ul> <li>improve bank stability, will filter runoff and enhance water quality;</li> <li>Woody debris, leaf litter, and overhanging herbaceous vegetation from established buffer zones will enhance in- stream habitat and biological productivity.</li> </ul>	
		WQ2. Water Clarity	0	9			
		WQ3. Nutrient Enrichment OR Presence of	4	9			
		WO4 Composition of Organic Matter	5	9			
		WQ5. Land Use Pattern Beyond Immediate	5	5			
		Riparian Zone	7	10	• Creation of buffer zones around		
		WQ6a. Riparian Zone Width (from stream			channel (approx. 120' width)		
		edge to field)	9	10	plus appropriate meander belt		
		WQ6b. Riparian Zone Vegetation	9	10	<ul><li>width;</li><li>Monitoring and management.</li></ul>		
		Water Quality Subtotal ECL (d)	0.54	0.93			
		HB1. Flow Regime	0	1	-		
		HB2. Epifaunal Substrate and Available Cover	5	5	Notes:		
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documentat	tion (included in Annendix C of Pronos	ed Mitigation Plan) for scoring
		HB4. Pool Variability	0	3	methodology.	ion (mended in Appendix e of Propos	cu whilgulion runn for scoring
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions: "WC	ם" = Water Quality/Bioaeochemical Fi	unctions: "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	7	(c) Hydrology Subtotal FCI Score = S	um of individual scores ÷100 (highest	possible score for Hydrology). Shown as
		HB7. Channel Alteration	3	9	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	5	5	(d) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).
		HB9. Bank Stability	8	9	Shown as rounded to the nearest hu	undredth.	
		HB10. Vegetative Protection	9	10	(e) Habitat Subtotal FCI Score = Sum	n of individual scores ÷120 (highest po	ossible score for Habitat). Shown as
		HB11. Riparian Zone	9	10	rounded to the nearest hundredth.		
		HB12. Riparian Habitat Condition	8	10	(f) Total FCI = Hydrology Subtotal FC	CI + Water Quality Subtotal FCI + Habi	tat Subtotal FCI. Value for the Total is
		Habitat Subtotal FCI (e)	0.40	0.70	calculated using spreadsheet values	s for the Subtotals, then rounded to th	ne nearest hundredth.
		TOTAL - FCI (f)	1.15	2.24	1		

# TABLE G-2 (13): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S2-TRIB3- A6-ENH	0.5-2.0'/ Ephemeral/ Existing upstream	H1. Flow Regime and Groundwater Interaction	0	1	<ul> <li>Protection within large contiguous mitigation area;</li> </ul>	<ul> <li>GCS will reduce channel downcutting and improve</li> </ul>	<ul> <li>Mitigation measures in place and stable at release of monitoring</li> </ul>
	tributary to S2-TRIB3;	H2a. Channel Condition/ Alteration	3	8	Implementation of measures	stream stability, sediment	period after completion of project including any remedial
	Will be enhanced.	H2b. Channel Capacity to Flow Frequency	2	8	to prevent uncontrolled access	transport and floodplain	
		H2c. Channel Bank Stability	8	9	(cattle, etc.) from outside	connectivity (through	plantings(minimum of seven (7)
		H3a. Channel Sinuosity	0	5	aquatic mitigation boundary;	increased overbank	years) ;
		H3b. Bottom Substrate Composition	1	9	<ul> <li>Supplemental plantings of</li> </ul>	frequency);	<ul> <li>200 woody stems per acre with</li> </ul>
		H3c. In stream Bottom Topography OR	F		native trees, shrubs, and	<ul> <li>LWD will increase channel</li> </ul>	diversity, vegetative cover, and
		Manning's n	5	5	herbaceous species;	roughness and channel	invasive species standards stated in
		H3d. Channel Incision	1	8	<ul> <li>Use of large woody debris</li> </ul>	sinuosity and improve bank	mitigation plan;
		H4a. Pools	1	3	(LWD) or other native material	stability;	<ul> <li>SWAMPIM Score achieved at</li> </ul>
		H4b. Channel Flow Status	0	7	for in-channel structure;	<ul> <li>Created pools will retain</li> </ul>	release of monitoring.
		Hydrology Subtotal FCI (c)	0.21	0.63	<ul> <li>Adjustment of channel</li> </ul>	water;	
		WQ1a. Bank Stability	8	9	gradient by installing grade	<ul> <li>Protection, plantings, and</li> </ul>	
		WQ1b. Channel Bottom Bank Stability OR	1	0	control structures (GCS) made	measures to prevent	
		Channel Sediments or Substrate Composition	L	8	from native material (rock or	uncontrolled access will	
		WQ2. Water Clarity	0	9	woody debris) where	improve bank stability, will	
		WQ3. Nutrient Enrichment OR Presence of	4	0	appropriate;	filter runoff and enhance	
		Aquatic Vegetation	4	9	Creation of pools in wat combination with LWD and      Wo	Woody debris leaf litter and	
		WQ4. Composition of Organic Matter	5	9		Woody debris, leaf litter, and	
		WQ5. Land Use Pattern Beyond Immediate	7	10	GCS and other locations where	overnanging nerbaceous	
		Riparian Zone	/	10	appropriate;	vegetation from established	
		WQ6a. Riparian Zone Width (from stream	٩	10	Creation of buffer zones	burler zones will enhance in-	
		edge to field)	5	10	around channel (approx. 120		
		WQ6b. Riparian Zone Vegetation	٩	10	width) plus appropriate	productivity.	
		Protection/Completeness		10	Mender beit width;		
		Water Quality Subtotal FCI (d)	0.54	0.93	• Monitoring and management.		
		HB1. Flow Regime	0	1			
		HB2. Epifaunal Substrate and Available Cover	5	5	Notes:		
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documentat	tion (included in Appendix C of Propos	ed Mitigation Plan) for scoring
		HB4. Pool Variability	0	3	methodology.		
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions; "WC	ע" = Water Quality/Biogeochemical Fi	unctions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	7	(c) Hydrology Subtotal FCI Score = S	um of individual scores ÷100 (highest	possible score for Hydrology). Shown as
		HB7. Channel Alteration	3	9	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	5	5	(d) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).
		HB9. Bank Stability	8	9	Shown as rounded to the nearest h	undredth.	
		HB10. Vegetative Protection	9	10	(e) Habitat Subtotal FCI Score = Sum	n of individual scores ÷120 (highest po	ossible score for Habitat). Shown as
		HB11. Riparian Zone	9	10	rounded to the nearest hundredth.		
		HB12. Riparian Habitat Condition	8	10	(f) Total FCI = Hydrology Subtotal FC	CI + Water Quality Subtotal FCI + Habi	tat Subtotal FCI. Value for the Total is
		Habitat Subtotal FCI <i>(e)</i>	0.40	0.70	calculated using spreadsheet values	s for the Subtotals, then rounded to th	ne nearest hundredth.
		TOTAL - FCI (f)	1.15	2.26			

# TABLE G-2 (14): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING)	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
			SCORES				
S2-TRIB3-	2.5-5.0'/ Ephemeral/	H1. Flow Regime and Groundwater	1	1	Protection within large     GCS within large	GCS will reduce channel	• Mitigation measures in place and
A7-ENH	Existing upstream	Interaction	L	L	contiguous mitigation area;	downcutting and improve	stable at release of monitoring
	tributary to S2-TRIB3;	H2a. Channel Condition/ Alteration	3	8	Implementation of measures	stream stability, sediment	period after completion of project
	Will be enhanced	H2b. Channel Capacity to Flow Frequency	2	8	to prevent uncontrolled access	transport and floodplain	including any remedial plantings (minimum of seven (7) years) ;
		H2c. Channel Bank Stability	8	9	(cattle, etc.) from outside	connectivity (through	
		H3a. Channel Sinuosity	5	5	aquatic mitigation boundary;	increased overbank	<ul> <li>200 woody stems per acre with</li> </ul>
		H3b. Bottom Substrate Composition	1	9	<ul> <li>Supplemental plantings of</li> </ul>	frequency);	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR	E	E	native trees, shrubs, and	<ul> <li>LWD will increase channel</li> </ul>	invasive species standards stated in
		Manning's n	5	5	herbaceous species;	roughness and channel	mitigation plan;
		H3d. Channel Incision	1	8	<ul> <li>Use of large woody debris</li> </ul>	sinuosity and improve bank	<ul> <li>SWAMPIM Score achieved at</li> </ul>
	H4a. Pools	1	4	(LWD) or other native material	stability;	release of monitoring.	
		H4b. Channel Flow Status	0	7	for in-channel structure;	<ul> <li>Created pools will retain</li> </ul>	
		Hydrology Subtotal FCI (c)	0.27	0.64	<ul> <li>Adjustment of channel</li> </ul>	water;	
		WQ1a. Bank Stability	8	9	gradient by installing grade	<ul> <li>Protection, plantings, and</li> </ul>	
		WQ1b. Channel Bottom Bank Stability OR	1	0	control structures (GCS) made	measures to prevent	
		Channel Sediments or Substrate Composition	L L	0	from native material (rock or	uncontrolled access will	
		WQ2. Water Clarity	0	9	<ul> <li>woody debris) where appropriate;</li> <li>Creation of pools in</li> </ul>	improve bank stability, will filter runoff and enhance water quality; • Woody debris leaf litter, and	
		WQ3. Nutrient Enrichment OR Presence of	л	9			
		Aquatic Vegetation	4	5			
		WQ4. Composition of Organic Matter	5	9	combination with LWD and	Woody debris, leaf litter, and     everbanging borbacoous	
		WQ5. Land Use Pattern Beyond Immediate	7	10	GCS and other locations where	vegetation from established buffer zones will enhance in- or stream habitat and biological productivity.	
		Riparian Zone	,	10	appropriate;		
		WQ6a. Riparian Zone Width (from stream	9	10	Creation of burler zones     around chapped (approx, 120')		
		edge to field)	5		width) plus appropriate		
		WQ6b. Riparian Zone Vegetation	9	10	meander helt width:		
		Protection/Completeness	3	10	Meander belt width;		
		Water Quality Subtotal FCI (d)	0.54	0.93			
		HB1. Flow Regime	1	1			
		HB2. Epifaunal Substrate and Available Cover	5	5	Notes:		
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documentat	tion (included in Appendix C of Propos	sed Mitigation Plan) for scoring
		HB4. Pool Variability	0	3	methodology.		
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions; "WC	Q" = Water Quality/Biogeochemical F	unctions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	7	(c) Hydrology Subtotal FCI Score = S	um of individual scores ÷100 (highest	possible score for Hydrology). Shown as
		HB7. Channel Alteration	3	9	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	5	5	(d) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).
		HB9. Bank Stability	8	9	Shown as rounded to the nearest h	undredth.	
		HB10. Vegetative Protection	9	10	(e) Habitat Subtotal FCI Score = Sun	n of individual scores ÷120 (highest po	ossible score for Habitat). Shown as
		HB11. Riparian Zone	9	10	rounded to the nearest hundredth.		
		HB12. Riparian Habitat Condition	8	10	(f) Iotal FCI = Hydrology Subtotal FC	CI + Water Quality Subtotal FCI + Hab	itat Subtotal FCI. Value for the Total is
		Habitat Subtotal FCI <i>(e)</i>	0.41	0.70	calculated using spreadsheet values	s for the Subtotals, then rounded to th	he nearest hundredth.
		TOTAL - FCI <i>(f)</i>	1.22	2.27			

# TABLE G-2 (15): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S2-TRIB3- A8-ENH	2.5-5.0'/ Ephemeral/ Existing upstream	H1. Flow Regime and Groundwater Interaction	1	1	<ul> <li>Protection within large contiguous mitigation area;</li> </ul>	GCS will reduce channel downcutting and improve stream stability, sediment     Mitigation measu stable at release of period after comp	<ul> <li>Mitigation measures in place and stable at release of monitoring</li> </ul>
	tributary to S2-TRIB3;	H2a. Channel Condition/ Alteration	3	8	Implementation of measures to		period after completion of project
	Will be enhanced.	H2b. Channel Capacity to Flow Frequency	2	8	prevent uncontrolled access	transport and floodplain	including any remedial plantings (minimum of seven (7) years) ;
		H2c. Channel Bank Stability	8	9	(cattle, etc.) from outside connectivity (through increased	connectivity (through increased	
		H3a. Channel Sinuosity	5	5	aquatic mitigation boundary;	overbank frequency);	<ul> <li>200 woody stems per acre with</li> </ul>
		H3b. Bottom Substrate Composition	1	9	• Supplemental plantings of native	<ul> <li>LWD will increase channel</li> </ul>	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR Manning's n	5	5	trees, shrubs, and herbaceous species;	roughness and channel sinuosity and improve bank	invasive species standards stated in mitigation plan;
		H3d. Channel Incision	1	8	• Use of large woody debris (LWD)	stability;	<ul> <li>SWAMPIM Score achieved at</li> </ul>
		H4a. Pools	1	4	or other native material for in-	• Created pools will retain water;	release of monitoring.
		H4b. Channel Flow Status	0	7	channel structure;	<ul> <li>Protection, plantings, and</li> </ul>	
		Hydrology Subtotal FCI (c)	0.27	0.64	<ul> <li>Adjustment of channel gradient</li> </ul>	measures to prevent	
		WQ1a. Bank Stability	8	9	by installing grade control	uncontrolled access will	
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	8	structures (GCS) made from native material (rock or woody	filter runoff and enhance water	
		WQ2. Water Clarity	0	9	debris) where appropriate;	quality;	
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	4	9	<ul> <li>Creation of pools in combination with LWD and GCS and other locations where appropriate;</li> <li>Creation of buffer zones around channel (approx. 120' width) plus appropriate meander belt width;</li> <li>Monitoring and management.</li> <li>Woody debris, leaf litter, and overhanging herbaceous vegetation from established buffer zones will enhance in stream habitat and biologica productivity.</li> </ul>	Woody debris, leaf litter, and overhanging herbaceous	
		WQ4. Composition of Organic Matter	5	9		vegetation from established	
		WQ5. Land Use Pattern Beyond Immediate Rinarian Zone	7	10		stream habitat and biological productivity.	
		WQ6a. Riparian Zone Width (from stream edge to field)	9	10			
		WQ6b. Riparian Zone Vegetation Protection/Completeness	9	10			
		Water Quality Subtotal FCI (d)	0.54	0.93			
		HB1. Flow Regime	1	1			
		HB2. Epifaunal Substrate and Available Cover	5	5	Notes:		
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documentat	tion (included in Appendix C of Propos	ed Mitigation Plan) for scoring
		HB4. Pool Variability	0	3	methodology.		
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions; "W(	Q" = Water Quality/Biogeochemical F	unctions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	7	(c) Hydrology Subtotal FCI Score = S	um of individual scores ÷100 (highest	possible score for Hydrology). Shown as
		HB7. Channel Alteration	3	9	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	5	5	(d) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).
		HB9. Bank Stability	8	9	Shown as rounded to the nearest he	undredth.	
		HB10. Vegetative Protection	9	10	(e) Habitat Subtotal FCI Score = Sun	n of individual scores ÷120 (highest po	ossible score for Habitat). Shown as
		HB11. Riparian Labited Condition	9	10	rounded to the nearest hundredth.		
			ð	10	(J) I OLUI FCI = Hydrology Subtotal FC	Li + vvaler Quality Subtotal FCI + Habi	nui Subiolai FCI. Value for the Total IS
			0.41	0.70		s jor the subtotuis, then rounded to tr	וב וובעו בזר וועוועו בענוו.
1	1		1.22	2.21			

# TABLE G-2 (16): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S2-TRIB3- A9-ENH	2.5-5.0'/ Ephemeral/ Existing upstream	H1. Flow Regime and Groundwater Interaction	1	1	<ul> <li>Protection within large contiguous mitigation area:</li> </ul>	GCS will reduce channel     downcutting and improve     stable at release of	<ul> <li>Mitigation measures in place and stable at release of monitoring</li> </ul>
	tributary TO S2-TRIB3;	H2a. Channel Condition/ Alteration	3	8	<ul> <li>Implementation of measures</li> </ul>	stream stability, sediment	after completion of project
	Will be enhanced.	H2b. Channel Capacity to Flow Frequency	2	8	to prevent uncontrolled access	transport and floodplain	including any remedial plantings
		H2c. Channel Bank Stability	8	9	(cattle, etc.) from outside aquatic mitigation boundary;	connectivity (through	(minimum of seven (7) years) ;
		H3a. Channel Sinuosity	5	5		increased overbank	<ul> <li>200 woody stems per acre with</li> </ul>
		H3b. Bottom Substrate Composition	1	9	<ul> <li>Supplemental plantings of</li> </ul>	frequency);	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR	г	г	native trees, shrubs, and	<ul> <li>LWD will increase channel</li> </ul>	invasive species standards stated in
		Manning's n	5	5	herbaceous species;	roughness and channel	mitigation plan;
		H3d. Channel Incision	1	8	<ul> <li>Use of large woody debris</li> </ul>	sinuosity and improve bank	<ul> <li>SWAMPIM Score achieved at</li> </ul>
		H4a. Pools	1	4	(LWD) or other native material	stability;	release of monitoring.
		H4b. Channel Flow Status	0	7	for in-channel structure;	<ul> <li>Created pools will retain</li> </ul>	
		Hydrology Subtotal FCI (c)	0.27	0.64	<ul> <li>Adjustment of channel</li> </ul>	water;	
	WQ1a. Bank Stability	8	9	gradient by installing grade	<ul> <li>Protection, plantings, and</li> </ul>		
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	8	<ul> <li>control structures (GCS) made from native material (rock or woody debris) where appropriate;</li> <li>Creation of pools in combination with LWD and GCS and other locations where appropriate;</li> <li>Creation of buffer zones</li> </ul>	measures to prevent uncontrolled access will	
		WQ2. Water Clarity	0	9		<ul> <li>improve bank stability, will filter runoff and enhance water quality;</li> <li>Woody debris, leaf litter, and overhanging herbaceous vegetation from established buffer zones will enhance in-</li> </ul>	
		WQ3. Nutrient Enrichment OR Presence of					
		Aquatic Vegetation	4	9			
		WQ4. Composition of Organic Matter	5	9			
		WQ5. Land Use Pattern Beyond Immediate	-7	10			
		Riparian Zone	/	10			
		WQ6a. Riparian Zone Width (from stream	0	10			
		edge to field)	9	10	around channel (approx. 120	stream nabitat and biological	
		WQ6b. Riparian Zone Vegetation	٥	10	width) plus appropriate	productivity.	
		Protection/Completeness	3	10	Meander belt width;		
		Water Quality Subtotal FCI (d)	0.54	0.93	• Monitoring and management.		
		HB1. Flow Regime	1	1			
		HB2. Epifaunal Substrate and Available Cover	5	5	Notes:		
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documentat	ion (included in Appendix C of Propos	ed Mitigation Plan) for scoring
		HB4. Pool Variability	0	3	methodology.		
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions; "WC	Q" = Water Quality/Biogeochemical Fi	unctions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	7	(c) Hydrology Subtotal FCI Score = S	um of individual scores ÷100 (highest	possible score for Hydrology). Shown as
		HB7. Channel Alteration	3	9	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	5	5	(d) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).
		HB9. Bank Stability	8	9	Shown as rounded to the nearest hu	ındredth.	
		HB10. Vegetative Protection	9	10	(e) Habitat Subtotal FCI Score = Sum	n of individual scores ÷120 (highest po	ossible score for Habitat). Shown as
		HB11. Riparian Zone	9	10	rounded to the nearest hundredth.		
		HB12. Riparian Habitat Condition	8	10	(f) Total FCI = Hydrology Subtotal FC	CI + Water Quality Subtotal FCI + Habi	itat Subtotal FCI. Value for the Total is
		Habitat Subtotal FCI <i>(e)</i>	0.41	0.70	calculated using spreadsheet values	for the Subtotals, then rounded to th	ne nearest hundredth.
		TOTAL - FCI <i>(f)</i>	1.22	2.27			

### TABLE G-2 (17): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING)	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
			SCORES				
S2-TRIB3-	6-15'/ Ephemeral/	H1. Flow Regime and Groundwater	1	2	<ul> <li>Protection within large</li> </ul>	<ul> <li>GCS will reduce channel</li> </ul>	<ul> <li>Mitigation measures in place and</li> </ul>
ENH	Upstream reach of	Interaction			contiguous mitigation area;	downcutting and improve	stable at release of monitoring
	existing tributary; Will be	H2a. Channel Condition/ Alteration	0	8	Implementation of measures to	stream stability, sediment	period after completion of project
	enhanced and connect to	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	transport and floodplain	including any remedial plantings
	MS-I (TRIB-FNSR-RST)	H2c. Channel Bank Stability	6	9	(cattle, etc.) from outside	connectivity (through	(minimum of seven (7) years);
		H3a. Channel Sinuosity	1	5	aquatic mitigation boundary;	increased overbank	<ul> <li>200 woody stems per acre with</li> </ul>
		H3b. Bottom Substrate Composition	1	9	<ul> <li>Supplemental plantings of</li> </ul>	frequency);	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR	4	5	native trees, shrubs, and	LWD will increase channel	invasive species standards stated in
		Manning's n	•	<u> </u>	herbaceous species;	roughness and channel	mitigation plan;
		H3d. Channel Incision	0	8	Use of large woody debris	sinuosity and improve bank	SWAMPIM Score achieved at
		H4a. Pools	0	7	(LWD) and other native	stability;	release of monitoring.
		H4b. Channel Flow Status	0	7	material for in-channel	Created pools will retain	
		Hydrology Subtotal FCI (c)	0.13	0.68	structure;	water;	
		WQ1a. Bank Stability	6	9	Adjustment of channel gradient	• Protection, plantings, and	
		WQ1b. Channel Bottom Bank Stability OR	1	0	by installing grade control	measures to prevent	
		Channel Sediments or Substrate Composition	T	0	structures (GCS) made from	uncontrolled access will	
		WQ2. Water Clarity	0	9	native material (rock or woody	improve bank stability, will	
		WQ3. Nutrient Enrichment OR Presence of	F	0	debris) where appropriate;	filter runoff and enhance	
		Aquatic Vegetation	5	0	Creation of pools in	water quality;	
		WQ4. Composition of Organic Matter	5	9	combination with LWD and GCS	Woody debris, leaf litter, and	
		WQ5. Land Use Pattern Beyond Immediate	6	10	and other locations where	overnanging nerbaceous	
		Riparian Zone	0	10	appropriate;	vegetation from established	
		WQ6a. Riparian Zone Width (from stream	6	10	Creation of buffer zones around	builer zones will enhance in-	
		edge to field)	0	10	channel (approx. 120' width)	stream nabitat and biological	
		WQ6b. Riparian Zone Vegetation	6	10	plus appropriate meander beit	productivity.	
		Protection/Completeness	0	10	wiath;		
		Water Quality Subtotal FCI (d)	0.44	0.91	• Monitoring and management.		
		HB1. Flow Regime	1	2			
		HB2. Epifaunal Substrate and Available Cover	4	5	Notes:		
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documentat	tion (included in Appendix C of Propos	ed Mitigation Plan) for scorina
		HB4. Pool Variability	0	4	methodology.		5 ,, 5
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions; "W(	Q" = Water Quality/Biogeochemical Fi	unctions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	7	(c) Hydrology Subtotal FCI Score = S	um of individual scores ÷100 (highest	possible score for Hydrology). Shown as
		HB7. Channel Alteration	0	9	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	1	5	(d) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).
		HB9. Bank Stability	6	9	Shown as rounded to the nearest h	undredth.	-
		HB10. Vegetative Protection	6	10	(e) Habitat Subtotal FCI Score = Sun	n of individual scores ÷120 (highest po	ossible score for Habitat). Shown as
		HB11. Riparian Zone	6	10	rounded to the nearest hundredth.		
		HB12. Riparian Habitat Condition	6	10	(f) Total FCI = Hydrology Subtotal FC	CI + Water Quality Subtotal FCI + Habi	itat Subtotal FCI. Value for the Total is
		Habitat Subtotal FCI (e)	0.26	0.72	calculated using spreadsheet values	s for the Subtotals, then rounded to th	ne nearest hundredth.
		TOTAL - FCI (f)	0.83	2.31	1		

# TABLE G-2 (18): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING)	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA	
			SCORES					
T2-BAKER-	2.5-5.0′/	H1. Flow Regime and Groundwater	1	1	<ul> <li>Protection within large</li> </ul>	<ul> <li>GCS will reduce channel downcutting and improve stream stability, sediment</li> </ul>	<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings</li> </ul>	
ENH	Ephemeral/Existing	Interaction			contiguous mitigation area;			
	tributary to Baker Creek;	H2a. Channel Condition/ Alteration	2	8	Implementation of measures to			
	Will be enhanced.	H2b. Channel Capacity to Flow Frequency	2	8	prevent uncontrolled access	transport and floodplain		
		H2c. Channel Bank Stability	6	9	(cattle, etc.) from outside	connectivity (through increased	(minimum of seven (7) years);	
		H3a. Channel Sinuosity	5	5	aquatic mitigation boundary;	overbank frequency);	<ul> <li>200 woody stems per acre with</li> </ul>	
		H3b. Bottom Substrate Composition	1	9	<ul> <li>Supplemental plantings of</li> </ul>	LWD will increase channel	diversity, vegetative cover, and	
		H3c. In stream Bottom Topography OR	2	1	native trees, shrubs, and	roughness and channel	invasive species standards stated in	
		Manning's n	5	4	herbaceous species.	sinuosity and improve bank	mitigation plan;	
		H3d. Channel Incision	1	8	<ul> <li>Use of large woody debris</li> </ul>	stability;	<ul> <li>SWAMPIM Score achieved at</li> </ul>	
		H4a. Pools	0	4	(LWD) or other native material	• Created pools will retain water;	release of monitoring.	
		H4b. Channel Flow Status	0	7	for in-channel structure;	<ul> <li>Protection, plantings, and</li> </ul>		
		Hydrology Subtotal FCI (c)	0.21	0.63	Adjustment of channel gradient	measures to prevent		
		WQ1a. Bank Stability	6	9	by installing grade control	uncontrolled access will		
		WQ1b. Channel Bottom Bank Stability OR	1	0	structures (GCS) made from	improve bank stability, will		
		Channel Sediments or Substrate Composition	1	ŏ	<ul> <li>native material (rock or woody debris) where appropriate;</li> <li>Creation of pools in combination with LWD and GCS and other locations where</li> </ul>	<ul> <li>filter runoff and enhance water quality;</li> <li>Woody debris, leaf litter, and overhanging herbaceous vegetation from established buffer zones will enhance in-</li> </ul>		
		WQ2. Water Clarity	0	9				
		WQ3. Nutrient Enrichment OR Presence of		0				
		Aquatic Vegetation	Э	9				
		WQ4. Composition of Organic Matter	5	9				
		WQ5. Land Use Pattern Beyond Immediate	G	10	appropriate;	buffer zones will enhance in-		
		Riparian Zone	O	10	Creation of buffer zones around	around stream habitat and biological dth) productivity. er belt ment.		
		WQ6a. Riparian Zone Width (from stream	G	10	channel (approx. 120' width)			
		edge to field)	0	10	plus appropriate meander belt			
		WQ6b. Riparian Zone Vegetation	6	10	width;			
		Protection/Completeness	0	10	<ul> <li>Monitoring and management.</li> </ul>			
		Water Quality Subtotal FCI (d)	0.44	0.93				
		HB1. Flow Regime	1	1				
		HB2. Epifaunal Substrate and Available Cover	3	5	Notes:			
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documenta	tion (included in Appendix C of Propos	ed Mitigation Plan) for scoring	
		HB4. Pool Variability	0	3	methodology.			
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions; "W	Q" = Water Quality/Biogeochemical F	unctions; "HB" = Habitat Functions.	
		HB6. Channel Flow Status	0	7	(c) Hydrology Subtotal FCI Score = S	Sum of individual scores ÷100 (highest	possible score for Hydrology). Shown as	
		HB7. Channel Alteration	2	9	rounded to the nearest hundredth.			
		HB8. Channel Sinuosity	5	5	(d) Water Quality Subtotal FCI Scor	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).	
		HB9. Bank Stability	6	9	Shown as rounded to the nearest h	undredth.		
		HB10. Vegetative Protection	6	10	(e) Habitat Subtotal FCI Score = Sur	n of individual scores ÷120 (highest po	ossible score for Habitat). Shown as	
		HB11. Riparian Zone	6	10	rounded to the nearest hundredth.			
		HB12. Riparian Habitat Condition	6	10	(f) Total FCI = Hydrology Subtotal F	Cl + Water Quality Subtotal FCl + Hab	itat Subtotal FCI. Value for the Total is	
		Habitat Subtotal FCI (e)	0.30	0.70	0.70 calculated using spreadsheet values for the Subtotals, then rounded to the ne	ie nearest hundredth.		
		TOTAL - FCI (f)	0.95	2.26	1			

### TABLE G-2 (19): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORFS	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
T3-BAKER- ENH	2.5-5.0'/ Ephemeral/	H1. Flow Regime and Groundwater Interaction	1	1	<ul> <li>Protection within large contiguous mitigation area;</li> </ul>	GCS will reduce channel     downcutting and improve	• Mitigation measures in place and stable at release of monitoring
	Existing tributary to	H2a. Channel Condition/ Alteration	2	8	Implementation of measures to	stream stability, sediment	period after completion of project
	Baker Creek; Will be	H2b. Channel Capacity to Flow Frequency	2	8	prevent uncontrolled access	transport and floodplain	including any remedial plantings
	enhanced.	H2c. Channel Bank Stability	6	9	(cattle, etc.) from outside	connectivity (through	(minimum of seven (7) years);
		H3a. Channel Sinuosity	5	5	aquatic mitigation boundary;	increased overbank	<ul> <li>200 woody stems per acre with</li> </ul>
		H3b. Bottom Substrate Composition	1	9	<ul> <li>Supplemental plantings of</li> </ul>	frequency);	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR	2	1	native trees, shrubs, and	<ul> <li>LWD will increase channel</li> </ul>	invasive species standards stated ir
		Manning's n	5	4	herbaceous species.	roughness and channel	mitigation plan;
		H3d. Channel Incision	1	8	<ul> <li>Use of large woody debris</li> </ul>	sinuosity and improve bank	<ul> <li>SWAMPIM Score achieved at</li> </ul>
		H4a. Pools	0	4	(LWD) or other native material	stability;	release of monitoring.
		H4b. Channel Flow Status	0	7	for in-channel structure;	<ul> <li>Created pools will retain</li> </ul>	
		Hydrology Subtotal FCI (c)	0.21	0.63	Adjustment of channel gradient	water;	
		WQ1a. Bank Stability	6	9	by installing grade control	<ul> <li>Protection, plantings, and</li> </ul>	
		WQ1b. Channel Bottom Bank Stability OR	1	8	<ul> <li>structures (GCS) made from native material (rock or woody debris) where appropriate;</li> <li>Creation of pools in combination with LWD and GCS and other locations where appropriate;</li> <li>Creation of buffer appearance</li> </ul>	measures to prevent	
		Channel Sediments or Substrate Composition	-	Ŭ		<ul> <li>improve bank stability, will filter runoff and enhance water quality;</li> <li>Woody debris, leaf litter, and overhanging herbaceous vegetation from established</li> </ul>	
		WQ2. Water Clarity	0	9			
		WQ3. Nutrient Enrichment OR Presence of	5	9			
		Aquatic Vegetation	5	5			
		WQ4. Composition of Organic Matter	5	9			
		WQ5. Land Use Pattern Beyond Immediate	6	10			
		Riparian Zone	_		channel (approx 120' width)	buffer zones will enhance in-	
		WQ6a. Riparian Zone Width (from stream	6	10	nlus annonriate meander helt	stream habitat and biological	
		edge to field)	_	_	width	productivity.	
		WQ6b. Riparian Zone Vegetation	6	10	Monitoring and management	p	
		Protection/Completeness			• Monitoring and management.		
		Water Quality Subtotal FCI (d)	0.44	0.93	-		
		HB1. Flow Regime	1				
		HB2. Epitaunal Substrate and Available Cover	3	5	Notes:		
		HB3. Stream Bottom Substrate		6	(a) Refer to SWAMPIM Documentat	ion (included in Appendix C of Proposed	Mitigation Plan) for scoring
		HB4. Pool Variability	0	3	methodology.		<i>"</i>
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions; "WC	2" = Water Quality/Biogeochemical Fund	ctions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	7	(c) Hydrology Subtotal FCI Score = S	um of individual scores ÷100 (highest po	ossible score for Hydrology). Shown as
		HB7. Channel Alteration	2	9	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	5	5	(a) water Quality Subtotal FCI Score	e = Sum of inalviaual scores ÷80 (highest	t possible score for Water Quality).
		HB9. Bank Stability	6	9	Shown as rounded to the nearest hi (e) Habitat Subtotal FCI Score = Sun	mureuth.	ible seens for Habitath Channes and
		HB10. Vegetative Protection	6	10		i oj malviaŭal scores ÷120 (nignest poss	ible score for Habitatj. Snown as
		HB11. Riparian Zone	6	10	(f) Total CCL - Undrology Subtated 5	CL Water Quality Cubteted FOL + Unitia	+ Subtatal FCL Malua farth a Tatalia
		HB12. Riparian Habitat Condition	6	10	(j) I OLUI FCI = Hydrology Subtotal FC	Li + vvuler Quullity SUDTOTAL FLI + HADITA	i Subiolai FCI. Value for the Total IS
		Habitat Subtotal FCI <i>(e)</i>	0.30	0.70	culculatea using spredasneet values	s for the Subtotals, then rounded to the l	neurest nundreath.
		TOTAL - FCI <i>(f)</i>	0.95	2.26			

# TABLE G-2 (20): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
T3-TRIB1-	0.5-2.0′/	H1. Flow Regime and Groundwater	_		Protection within large	GCS will reduce channel	• Mitigation measures in place and
ENH	Ephemeral/	Interaction	0	1	contiguous mitigation area;	downcutting and improve	stable at release of monitoring
	Existing tributary to	H2a. Channel Condition/ Alteration	2	8	Implementation of measures to	stream stability, sediment	period after completion of project
	Baker Creek tributary;	H2b. Channel Capacity to Flow Frequency	2	8	prevent uncontrolled access	transport and floodplain	including any remedial plantings
	Will be enhanced.	H2c. Channel Bank Stability	3	9	(cattle, etc.) from outside	connectivity (through increased	(minimum of seven (7) years);
		H3a. Channel Sinuosity	0	4	aquatic mitigation boundary;	overbank frequency);	• 200 woody stems per acre with
		H3b. Bottom Substrate Composition	1	9	Supplemental plantings of	LWD will increase channel	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR		2	native trees, shrubs, and	roughness and channel	invasive species standards stated in
		Manning's n	1	2	herbaceous species;	sinuosity and improve bank	mitigation plan;
		H3d. Channel Incision	1	8	<ul> <li>Use of large woody debris</li> </ul>	stability;	<ul> <li>SWAMPIM Score achieved at</li> </ul>
		H4a. Pools	0	3	(LWD) or other native material	• Created pools will retain water;	release of monitoring.
		H4b. Channel Flow Status	0	7	for in-channel structure;	<ul> <li>Protection, plantings and</li> </ul>	
		Hydrology Subtotal FCI (c)	0.10	0.59	Adjustment of channel gradient	measures to prevent	
		WQ1a. Bank Stability	3	9	by installing grade control	uncontrolled access will	
		WQ1b. Channel Bottom Bank Stability OR	1	0	<ul> <li>structures (GCS) made from native material (rock or woody debris) where appropriate;</li> <li>Creation of pools in combination with LWD and GCS and other locations where</li> </ul>	improve bank stability, will	
		Channel Sediments or Substrate Composition	1	8		<ul> <li>filter runoff and enhance water quality;</li> <li>Woody debris, leaf litter, and overhanging herbaceous vegetation from established buffer zones will enhance in-</li> </ul>	and enhance water is, leaf litter, and
		WQ2. Water Clarity	0	9			
		WQ3. Nutrient Enrichment OR Presence of	0	0			
		Aquatic Vegetation	U	9			
		WQ4. Composition of Organic Matter	0	9			
		WQ5. Land Use Pattern Beyond Immediate	1 5	10	appropriate;		
		Riparian Zone	1.5	10	Creation of buffer zones around	stream nabitat and biological	
		WQ6a. Riparian Zone Width (from stream	15	10	channel (approx. 120 width)		
		edge to field)	1.5	10	plus appropriate meander beit		
		WQ6b. Riparian Zone Vegetation	15	10	• Monitoring and management		
		Protection/Completeness	1.5	10	• Monitoring and management.		
		Water Quality Subtotal FCI (d)	0.11	0.93			
		HB1. Flow Regime	0	1			
		HB2. Epifaunal Substrate and Available Cover	1	5	Notes:		
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documenta	tion (included in Appendix C of Propos	ed Mitigation Plan) for scoring
		HB4. Pool Variability	0	3	methodology.		
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions; "We	Q" = Water Quality/Biogeochemical Fi	unctions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	7	(c) Hydrology Subtotal FCI Score = S	Sum of individual scores ÷100 (highest	possible score for Hydrology). Shown as
		HB7. Channel Alteration	2	9	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	5	5	(d) Water Quality Subtotal FCI Score Shown as rounded to the nearest he (e) Habitat Subtotal FCI Score = Sun	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).
		HB9. Bank Stability	3	9		undredth.	
		HB10. Vegetative Protection	1.5	10		n of individual scores ÷120 (highest po	ossible score for Habitat). Shown as
		HB11. Riparian Zone	1.5	10	rounded to the nearest hundredth.		
		HB12. Riparian Habitat Condition	1.5	10	(j) Iotal FCI = Hydrology Subtotal F	CI + Water Quality Subtotal FCI + Habi	itat Subtotal FCI. Value for the Total is
		Habitat Subtotal FCI <i>(e)</i>	0.14	0.70	calculated using spreadsheet value.	s for the Subtotals, then rounded to th	ne nearest hundredth.
		TOTAL - FCI <i>(f)</i>	0.34	2.22			

# TABLE G-2 (21): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
T3-TRIB2-	0.5-2.0'/	H1. Flow Regime and Groundwater	0	1	Protection within large	GCS will reduce channel	Mitigation measures in place and
ENH	Ephemeral/	Interaction			contiguous mitigation area;	downcutting and improve	stable at release of monitoring
	Existing tributary to	H2a. Channel Condition/ Alteration	2	8	• Implementation of measures to	stream stability, sediment	period after completion of project
	Baker Creek tributary;	H2b. Channel Capacity to Flow Frequency	2	8	prevent uncontrolled access	transport and floodplain	including any remedial plantings
	Will be enhanced.	H2c. Channel Bank Stability	3	9	(cattle, etc.) from outside	connectivity (through increased	(minimum of seven (7) years);
		H3a. Channel Sinuosity	0	3	aquatic mitigation boundary;	overbank frequency);	• 200 woody stems per acre with
		H3b. Bottom Substrate Composition	1	9	Supplemental plantings of	LWD will increase channel	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR	1	2	native trees, shrubs, and	roughness and channel	invasive species standards stated in
		Manning's n	_		herbaceous species.	sinuosity and improve bank	mitigation plan;
		H3d. Channel Incision	1	8	Use of large woody debris	stability;	SWAMPIM Score achieved at
		H4a. Pools	0	3	(LWD) or other native material	• Created pools will retain water;	release of monitoring.
		H4b. Channel Flow Status	0	7	for in-channel structure;	Protection, plantings, and	
		Hydrology Subtotal FCI (c)	0.10	0.58	Adjustment of channel gradient	measures to prevent	
		WQ1a. Bank Stability	3	9	by installing grade control	uncontrolled access will	
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	8	<ul> <li>structures (GCS) made from native material (rock or woody debris) where appropriate;</li> <li>Creation of pools in combination with LWD and GCS</li> </ul>	<ul> <li>improve bank stability, will filter runoff and enhance water quality;</li> <li>Woody debris, leaf litter, and overhanging herbaceous vegetation from established buffer zones will enhance in-</li> </ul>	stability, will nd enhance water , leaf litter, and erbaceous
		WQ2. Water Clarity	0	9			
		WQ3. Nutrient Enrichment OR Presence of	0	0			
		Aquatic Vegetation	0	9			
		WQ4. Composition of Organic Matter	0	9	and other locations where		
		WQ5. Land Use Pattern Beyond Immediate	4 5	10	appropriate;		
		Riparian Zone	1.5	10	• Creation of buffer zones around	stream habitat and biological	
		WQ6a. Riparian Zone Width (from stream	1 5	10	channel (approx. 120' width)	productivity.	
		edge to field)	1.5	10	plus appropriate meander belt		
		WQ6b. Riparian Zone Vegetation	1 5	10	width;		
		Protection/Completeness	1.5	10	<ul> <li>Monitoring and management.</li> </ul>		
		Water Quality Subtotal FCI (d)	0.11	0.93			
		HB1. Flow Regime	0	1			
		HB2. Epifaunal Substrate and Available Cover	1	5	Notes:		
		HB3. Stream Bottom Substrate	1	6	(a) Refer to SWAMPIM Documental	tion (included in Appendix C of Propos	ed Mitigation Plan) for scoring
		HB4. Pool Variability	0	3	methodology.		
		HB5. Sediment Deposition and Scouring	0	9	(b) "H" = Hydrologic Functions; "WC	Q" = Water Quality/Biogeochemical Fi	unctions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	7	(c) Hydrology Subtotal FCI Score = S	ium of individual scores ÷100 (highest	possible score for Hydrology). Shown as
		HB7. Channel Alteration	2	9	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	5	5	( <i>a</i> ) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).
		HB9. Bank Stability	3	9	Shown as rounded to the nearest hur (e) Habitat Subtotal FCI Score = Sum rounded to the nearest hundredth.	undredth.	
		HB10. Vegetative Protection	1.5	10		n of individual scores ÷120 (highest po	ossible score for Habitat). Shown as
		HB11. Riparian Zone	1.5	10			
		HB12. Riparian Habitat Condition	1.5	10	(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for		tat Subtotal FCI. Value for the Total is
		Habitat Subtotal FCI (e)	0.14	0.70	<ul> <li>calculated using spreadsheet values</li> </ul>	calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.	
		TOTAL - FCI (f)	0.34	2.21	1	1	r

# TABLE G-2 (22): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT
FNSR-RST	6-25'/ Intermittent with	H1. Flow Regime and Groundwater Interaction	0	7	<ul> <li>Protection within large contiguous mitigation area;</li> </ul>	<ul> <li>Stream channel and valley design will restore hydrolog</li> </ul>
	Perennial Pools/Replaces	H2a. Channel Condition/ Alteration	0	8	Implementation of measures	function and sediment
	FNSR channel fragments	H2b. Channel Capacity to Flow Frequency	0	8	to prevent uncontrolled access	transport, and create flood
	S1 (FMR BAKER)-PRE,	H2c. Channel Bank Stability	0	9	(cattle, etc.) from outside	connectivity at a 1.5 to 2 ye
	S1-PRE,	H3a. Channel Sinuosity	0	9	aquatic mitigation boundary;	frequency;
	part of S2-TRIB1-PRE,	H3b. Bottom Substrate Composition	0	7	• Creation of contiguous channel	• Flows from drainage area to
	S2-PRE, part of S2-TRIB3-PRE,	H3c. In stream Bottom Topography OR Manning's n	0	8	by connecting segments of channel that had been	restored channel will provid varying intermittent stream
	S2-TRIB3-A1-PRE,	H3d. Channel Incision	0	9	historically filled and	flow with water retained in
	S2-TRIB3-A2-PRE,	H4a. Pools	0	9	restoration of former channel	perennial pools;
	S2-TRIB3-A3-PRE, and	H4b. Channel Flow Status	0	9	segments based on natural	• Protection, riparian planting
	S2-TRIB3,A4-PRE;	Hydrology Subtotal FCI (c)	0	0.83	channel design;	and measures to prevent
	Existing FNSR channel	WO1a, Bank Stability	0	9	<ul> <li>Use of large woody debris</li> </ul>	uncontrolled access will
	fragments do not form contiguous channel but	WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	0	9	(LWD) or other native material for in-channel structure;	provide bank stability, will f runoff and enhance water
	function as multiple	WQ2. Water Clarity	0	9	Maintenance of channel design	quality;
	tributaries to NSR in conjunction with	WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	9	gradient by installing grade control structures (GCS) made	<ul> <li>Removal of existing impoundments within work</li> </ul>
	upstream tributaries. The	WQ4. Composition of Organic Matter	0	9	from native material (rock or	areas of upstream channels
	former NSR channel fragments are presented	WQ5. Land Use Pattern Beyond Immediate Riparian Zone	0	10	woody debris) where appropriate;	help restore hydrology and sediment transport;
	tables. This table is just	WQ6a. Riparian Zone Width (from stream edge to field)	0	10	<ul> <li>Creation of pools in combination with LWD and GCS</li> </ul>	<ul> <li>Incorporation of in-channel structures, plus woody debr</li> </ul>
	for the restored contiguous channel.	WQ6b. Riparian Zone Vegetation Protection/Completeness	0	10	and other locations where appropriate;	and leaf litter from establis riparian buffer zones, and
		Water Quality Subtotal FCI (d)	0	0.94	• Creation of buffer zones around	herbaceous vegetation alon
		HB1. Flow Regime	0	7	channel (min. 120' width) plus	channels will enhance in-
		HB2. Epifaunal Substrate and Available Cover	0	9	appropriate meander belt	stream habitat and biologic
		HB3. Stream Bottom Substrate	0	8	width;	productivity.
		HB4. Pool Variability	0	9	Plantings of native trees,	
		HB5. Sediment Deposition and Scouring	0	9	shrubs, and herbaceous	
		HB6. Channel Flow Status	0	9	species;	
		HB7. Channel Alteration	0	9	Stocking of native fish species	
		HB8. Channel Sinuosity	0	9	• Monitoring and management.	
		HB9. Bank Stability	0	9		
		HB10. Vegetative Protection	0	10		
		HB11. Riparian Zone	0	10	1	
		HB12. Riparian Habitat Condition	0	10	1	
		Habitat Subtotal FCI <i>(e)</i>	0	0.90		
		TOTAL - FCI <i>(f)</i>	0	2.67		

	SUCCESS CRITERIA
ic olain ar de	<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings (minimum of seven (7) years);</li> <li>200 woody stems per acre with diversity, vegetative cover, and invasive species standards stated in mitigation plan;</li> <li>SWAMPIM Score achieved at release of monitoring.</li> </ul>
35,	Notes:
ilter	(a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring
will	(b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Functions. (c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology) Shown
ris ned	as rounded to the nearest hundredth. (d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (hiahest
ıg	possible score for Water Quality).
al	<ul> <li>hundredth.</li> <li>(e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.</li> <li>(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.</li> </ul>

# TABLE G-2 (23): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING)	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
			SCORES				
MS-A	2.5-5'/	H1. Flow Regime and Groundwater	0	1	Protection within large	Stream channel and valley	Mitigation measures in place and
(TRIB-NSR-	Ephemeral/	Interaction	0	Ť	contiguous mitigation area;	design will restore hydrologic	stable at release of monitoring
MC-RST)	Stream was historically	H2a. Channel Condition/ Alteration	0	8	• Implementation of measures to	function and will provide	period after completion of project
	filled and converted	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	sediment transport and	including any remedial plantings
	within cropland and	H2c. Channel Bank Stability	0	9	(cattle, etc.) from outside	floodplain connectivity;	(minimum of seven (7) years);
	pasture.	H3a. Channel Sinuosity	0	8	aquatic mitigation boundary;	<ul> <li>GCS will control channel</li> </ul>	<ul> <li>200 woody stems per acre with</li> </ul>
		H3b. Bottom Substrate Composition	0	9	Restoration of historically-filled	downcutting, improving stream	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR	0	1	former tributary channel based	stability and provide sediment	invasive species standards stated in
		Manning's n	0	4	on natural channel design <u>;</u>	transport;	mitigation plan;
		H3d. Channel Incision	0	8	<ul> <li>Use of large woody debris</li> </ul>	LWD will provide channel	<ul> <li>SWAMPIM Score achieved at</li> </ul>
		H4a. Pools	0	4	(LWD) or other native material	roughness, enhance sinuosity,	release of monitoring.
		H4b. Channel Flow Status	0	7	for in-channel structure;	and improve bank stability;	N/stss:
		Hydrology Subtotal FCI (c)	0	0.66	Maintenance of channel design	• Created pools will retain water;	Notes:
		WQ1a. Bank Stability	0	9	gradient by installing grade	<ul> <li>Protection, riparian plantings,</li> </ul>	(a) Rejer to SWAMPIM Documentation
		WQ1b. Channel Bottom Bank Stability OR	0	0	control structures (GCS) made	and measures to prevent	(Included In Appendix C of Proposed Mitigation Plan) for scoring
		Channel Sediments or Substrate Composition	0	0	from native material (rock or	uncontrolled access will	methodology
		WQ2. Water Clarity	0	9	woody debris) where	improve bank stability, will	(h) "H" - Hydrologic Eunctions: "WO" -
		WQ3. Nutrient Enrichment OR Presence of	0	9	appropriate;	filter runoff and enhance water	Water Quality/Biogeochemical
		Aquatic Vegetation	0	5	Creation of pools in	quality;	Functions: "HB" = Habitat Functions
		WQ4. Composition of Organic Matter	0	9	combination with LWD and GCS	Woody debris, leaf litter, and	(c) $Hvdrology$ Subtotal ECI Score = Sum
		WQ5. Land Use Pattern Beyond Immediate	0	10	and other locations where	overnanging herbaceous	of individual scores ÷100 (highest
		Riparian Zone	Ű	10	appropriate;	buffer zones will enhance in	possible score for Hydrology). Shown
		WQ6a. Riparian Zone Width (from stream	0	10	• creation of burler zones around channel (min_120' width) plus	stream babitat and biological	as rounded to the nearest hundredth.
		edge to field)	-		appropriate meander helt	productivity	(d) Water Quality Subtotal FCI Score =
		WQ6b. Riparian Zone Vegetation	0	10	width:	productivity.	Sum of individual scores ÷80 (highest
		Protection/Completeness			<ul> <li>Plantings of native trees</li> </ul>		possible score for Water Quality).
		Water Quality Subtotal FCI (d)	0	0.93	shrubs and herbaceous	bus Shown of hundred	Shown as rounded to the nearest
		HB1. Flow Regime	0	1	species:		hundredth.
		HB2. Epifaunal Substrate and Available Cover	0	5	Monitoring and management		(e) Habitat Subtotal FCI Score = Sum of
		HB3. Stream Bottom Substrate	0	6			individual scores ÷120 (highest
		HB4. Pool Variability	0	3	4		possible score for Habitat). Shown as
		HB5. Sediment Deposition and Scouring	0	9	-		rounded to the nearest hundredth.
		HB6. Channel Flow Status	0	7			(f) Total FCI = Hydrology Subtotal FCI +
		HB7. Channel Alteration	0	9			Water Quality Subtotal FCI + Habitat
		HB8. Channel Sinuosity	0	8	4		Subtotal FCI. Value for the Total is
		HB9. Bank Stability	0	9	4		calculated using spreadsheet values for
		HB10. Vegetative Protection	0	10	4		the Subtotals, then rounded to the
		HB11. Riparian Zone	0	10	4		nearest hundreath.
		HB12. Riparian Habitat Condition	0	10	4		
		Habitat Subtotal FCI <i>(e)</i>	0	0.73			
		TOTAL - FCI (f)	0	2.32			

# TABLE G-2 (24): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING)	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
			SCORES				
MS-A-	0.5-2.0′/	H1. Flow Regime and Groundwater	0	1	Protection within large	Stream channel and valley	• Mitigation measures in place and
TRIB1	Ephemeral/	Interaction	0	L	contiguous mitigation area;	design will restore hydrologic	stable at release of monitoring
	Stream was historically	H2a. Channel Condition/ Alteration	0	8	• Implementation of measures to	function and will provide	period after completion of project
	filled and converted	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	sediment transport and	including any remedial plantings
	within cropland and	H2c. Channel Bank Stability	0	9	(cattle, etc.) from outside	floodplain connectivity;	(minimum of seven (7) years);
	pasture	H3a. Channel Sinuosity	0	5	aquatic mitigation boundary;	GCS will control channel	<ul> <li>200 woody stems per acre with</li> </ul>
		H3b. Bottom Substrate Composition	0	9	Restoration of historically-filled	downcutting, improving stream	diversity, vegetative cover, and
		H3c. In stream Bottom Topography OR	0	2	former tributary channel based	stability and provide sediment	invasive species standards stated in
		Manning's n	Ū	2	on natural channel design;	transport;	mitigation plan;
		H3d. Channel Incision	0	8	Use of large woody debris	LWD will provide channel	SWAMPIM Score achieved at
		H4a. Pools	0	3	(LWD) or other native material	roughness, enhance sinuosity,	release of monitoring.
		H4b. Channel Flow Status	0	7	for in-channel structure;	and improve bank stability;	Notes:
		Hydrology Subtotal FCI (c)	0	0.60	Maintenance of channel design	Created pools will retain water;	(a) Refer to SWAMPIM Documentation
		WQ1a. Bank Stability	0	9	gradient by installing grade	Protection, riparian plantings,	(included in Appendix C of Proposed
		WQ1b. Channel Bottom Bank Stability OR	0	8	from native material (rock or woody debris) where	and measures to prevent uncontrolled access will improve bank stability, will filter runoff and enhance water quality; • Woody debris leaf litter, and	<ul> <li>Mitigation Plan) for scoring methodology.</li> <li>(b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Functions.</li> </ul>
		Channel Sediments or Substrate Composition	-				
		WQ2. Water Clarity	0	9			
		WQ3. Nutrient Enrichment OR Presence of	0	9	• Creation of pools in		
		Aquatic Vegetation			combination with I WD and GCS		
		WQ4. Composition of Organic Matter	0	9	and other locations where	overhanging herbaceous	(c) Hydrology Subtotal FCI Score = Sum
		WQ5. Land Use Pattern Beyond Immediate	0	10	appropriate:	vegetation from established	of individual scores ÷100 (highest
		Riparian Zone			• Creation of buffer zones around	buffer zones will enhance in-	possible score for Hydrology). Shown
		wQ6a. Riparian Zone width (from stream	0	10	channel (min. 120' width) plus	stream habitat and biological	as rounded to the nearest hundredth.
		WOCh Bingrian Zong Vegetation			appropriate meander belt	productivity.	(d) Water Quality Subtotal FCI Score =
		Protection/Completeness	0	10	width;	. ,	Sum of individual scores ÷80 (highest
		Water Quality Subtotal ECL (d)	0	0.93	• Plantings of native trees,		possible score for water Quality).
		HB1 Flow Regime	0	1	shrubs, and herbaceous		Shown as rounded to the hearest
		HB2 Enifaunal Substrate and Available Cover	0	5	species;		(e) Habitat Subtotal ECI Score - Sum of
	HB3_Stream Bottom Substrate	0	6	<ul> <li>Monitoring and management.</li> </ul>		individual scores $\pm 120$ (highest	
	HB4. Pool Variability	0	3	-		nossible score for Habitat). Shown as	
	HB5. Sediment Deposition and Scouring	0	9			rounded to the nearest hundredth.	
	HB6. Channel Flow Status	0	7	4		(f) Total FCI = Hydrology Subtotal FCI +	
		HB7. Channel Alteration	0	9			Water Quality Subtotal FCI + Habitat
		HB8. Channel Sinuosity	0	5	1		Subtotal FCI. Value for the Total is
		HB9. Bank Stability	0	9	1		calculated using spreadsheet values for
		HB10. Vegetative Protection	0	10	-		the Subtotals, then rounded to the
		HB11. Riparian Zone	0	10			nearest hundredth.
		HB12. Riparian Habitat Condition	0	10	1		
		Habitat Subtotal FCI (e)	0	0.70	1		
		TOTAL - FCI (f)	0	2.23	1		

# TABLE G-2 (25): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT
MS-A- TRIB2	0.5-2.0'/ Ephemeral/	H1. Flow Regime and Groundwater Interaction	0	1	<ul> <li>Protection within large contiguous mitigation area;</li> </ul>	Stream channel and valley design will restore hydrologi
	Stream was historically	H2a. Channel Condition/ Alteration	0	8	• Implementation of measures to	function and will provide
	filled and converted	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	sediment transport and
	within cropland and	H2c. Channel Bank Stability	0	9	(cattle, etc.) from outside	floodplain connectivity;
	pasture	H3a. Channel Sinuosity	0	4	aquatic mitigation boundary;	GCS will control channel
		H3b. Bottom Substrate Composition	0	9	Restoration of historically-filled	downcutting, improving stre
		H3c. In stream Bottom Topography OR Manning's n	0	2	former tributary channel based on natural channel design;	stability and provide sedime transport;
		H3d. Channel Incision	0	8	• Use of large woody debris	LWD will provide channel
		H4a. Pools	0	3	(LWD) or other native material	roughness, enhance sinuosit
		H4b. Channel Flow Status	0	7	for in-channel structure;	and improve bank stability;
		Hydrology Subtotal FCI (c)	0	0.59	Maintenance of channel design	Created pools will retain wat
		WQ1a. Bank Stability	0	9	gradient by installing grade	Protection, riparian planting
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	0	8	control structures (GCS) made from native material (rock or	and measures to prevent uncontrolled access will
		WQ2. Water Clarity	0	9	woody debris) where	improve bank stability, will
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	9	<ul><li>appropriate;</li><li>Creation of pools in</li></ul>	filter runoff and enhance wa quality;
		WQ4. Composition of Organic Matter	0	9	combination with LWD and GCS	Woody debris, leaf litter, and
		WQ5. Land Use Pattern Beyond Immediate	0	10	and other locations where appropriate;	overhanging herbaceous vegetation from established
		WQ6a. Riparian Zone Width (from stream edge to field)	0	10	<ul> <li>Creation of buffer zones around channel (min. 120' width) plus appropriate meander belt width;</li> </ul>	buffer zones will enhance in stream habitat and biologica productivity.
		WQ6b. Riparian Zone Vegetation Protection/Completeness	0	10		
		Water Quality Subtotal FCI (d)	0	0.93	Plantings of native trees,	
		HB1. Flow Regime	0	1	snrubs, and herbaceous species	
		HB2. Epifaunal Substrate and Available Cover	0	5	reationwidth;	
		HB3. Stream Bottom Substrate	0	6	Monitoring and management.	
		HB4. Pool Variability	0	3		
		HB5. Sediment Deposition and Scouring	0	9		
		HB6. Channel Flow Status	0	7		
		HB7. Channel Alteration	0	9		
		HB8. Channel Sinuosity	0	4		
		HB9. Bank Stability	0	9		
		HB10. Vegetative Protection	0	10		
		HB11. Riparian Zone	0	10		
		HB12. Riparian Habitat Condition	0	10		
		Habitat Subtotal FCI <i>(e)</i>	0	0.69		
		TOTAL - FCI <i>(f)</i>	0	2.21		

	SUCCESS CRITERIA
giC	<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings (minimum of seven (7) years);</li> </ul>
eam ent ity,	<ul> <li>200 woody stems per acre with diversity, vegetative cover, and invasive species standards stated in mitigation plan;</li> <li>SWAMPIM Score achieved at release of monitoring.</li> </ul>
ater; gs,	Notes: (a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring methodology.
ater	(b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical
nd d al	Functions; "HB" = Habitat Functions. (c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth. (d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality). Shown as rounded to the nearest hundredth. (e) Habitat Subtotal FCI Score = Sum of
	individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth. (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.

# TABLE G-2 (26): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/	SWAMPIM METRICS (a, b)	BASELINE (EXISTING)	PROJECTED	MITIGATION ACTIVITIES/WORK	RATIONALE FOR LIFT	SUCCESS CRITERIA
	classification plac.		SCORES	SCORES			
MS-B	2.5-5.0′/	H1. Flow Regime and Groundwater			<ul> <li>Protection within large</li> </ul>	<ul> <li>Stream channel and valley</li> </ul>	<ul> <li>Mitigation measures in place and</li> </ul>
(TRIB-NSR-	Ephemeral/	Interaction	0	1	contiguous mitigation area;	design will restore hydrologic	stable at release of monitoring
MC-RST)	Existing upland pond	H2a. Channel Condition/ Alteration	0	8	Implementation of measures to	function and will provide	period after completion of project
	(UP-6) constructed by	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	sediment transport and	including any remedial plantings
	impoundment of	H2c. Channel Bank Stability	0	9	(cattle, etc.) from outside	floodplain connectivity;	(minimum of seven (7) years);
	erosional feature; Area to	H3a. Channel Sinuosity	0	8	aquatic mitigation boundary;	<ul> <li>GCS will control channel</li> </ul>	<ul> <li>200 woody stems per acre with</li> </ul>
	be regraded to replace	H3b. Bottom Substrate Composition	0	9	<ul> <li>Removal of dam and grading to</li> </ul>	downcutting, improve stream	diversity, vegetative cover, and
	UP-6 with created MS-B.	H3c. In stream Bottom Topography OR	0	4	create channel based on	stability, and provide sediment	invasive species standards stated in
		Manning's n	0	-	natural channel design to	transport;	mitigation plan;
		H3d. Channel Incision	0	8	restore hydrology and	LWD will provide channel	• SWAMPIM Score achieved at
		H4a. Pools	0	4	sediment transport;	roughness, enhance sinuosity	release of monitoring.
		H4b. Channel Flow Status	0	7	Use of large woody debris	and improve bank stability;	Notes:
		Hydrology Subtotal FCI <i>(c)</i>	0	0.66	(LWD) or other native material	Created pools will retain water;	(a) Refer to SWAMPIM Documentation
		WQ1a. Bank Stability	0	9	for in-channel structure;	Protection, riparian plantings,	(included in Appendix C of Proposed
		WQ1b. Channel Bottom Bank Stability OR	0	8	<ul> <li>Maintenance of channel design gradient by installing grade</li> </ul>	and measures to prevent	Mitigation Plan) for scoring methodology. (b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Functions.
		Channel Sediments or Substrate Composition			control structures (GCS) made	improve bank stability, will	
		WQ2. Water Clarity	0	9			
		WQ3. Nutrient Enrichment OR Presence of	0	9	woody debris) where	quality:	
		Aquatic Vegetation	-	-	appropriate:	<ul> <li>Woody debris leaf litter and</li> </ul>	
		WQ4. Composition of Organic Matter	0	9	Creation of pools in	overhanging herbaceous	(c) Hydrology Subtotal FCI Score = Sum
		WQ5. Land Use Pattern Beyond Immediate	0	10	combination with LWD and GCS	vegetation from established	of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth.
		Riparian Zone			and other locations where	buffer zones will enhance in- stream habitat and biological	
		wQ6a. Riparian Zone Width (from stream	0	10	appropriate;		
		edge to field)	Creation of buffer zones around productivity	productivity.	(d) Water Quality Subtotal FCI Score =		
		WQ6D. Riparian Zone Vegetation	0	10	channel (min. 120' width) plus appropriate meander belt	,,	Sum of individual scores ÷80 (highest
		Water Quality Subtetal ECL (d)	0	0.02			possible score for Water Quality).
		HP1 Flow Pogimo	0	0.95	width;		Shown as rounded to the nearest
		HB1. Flow Regime	0	5	<ul> <li>Plantings of native trees,</li> </ul>		hundredth.
		HB2. Stream Bottom Substrate	0	5	shrubs, and herbaceous		(e) Habitat Subtotal FCI Score = Sum of
		HB4 Pool Variability	0	3	species;		mainiaual scores $\pm 120$ (mynest
		HB5 Sediment Denosition and Scouring	0	9	<ul> <li>Monitoring and management.</li> </ul>		rounded to the nearest hundredth
		HB6 Channel Flow Status	0	7			(f) Total ECI = Hydrology Subtotal ECI +
		HB7 Channel Alteration	0	, 9			Water Quality Subtotal FCI + Habitat
		HB8 Channel Sinuosity	0	8			Subtotal FCI. Value for the Total is
		HB9. Bank Stability	0	9			calculated using spreadsheet values
		HB10 Vegetative Protection	0	10			for the Subtotals, then rounded to the
		HB11, Riparian Zone	0	10			nearest hundredth.
		HB12, Riparian Habitat Condition	0	10			
		Habitat Subtotal FCI (e)	0	0.73			
		TOTAL - FCI (f)	0	2.32			

# TABLE G-2 (27): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT
MS-B- TRIB1	2.5-5.0'/ Ephemeral/	H1. Flow Regime and Groundwater Interaction	0	1	<ul> <li>Protection within large contiguous mitigation area;</li> </ul>	<ul> <li>Stream channel and valley design will restore hydrolog</li> </ul>
	Existing upland pond	H2a. Channel Condition/ Alteration	0	8	• Implementation of measures to	function and will provide
	(UP-6) constructed by	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	sediment transport and
	impoundment of	H2c. Channel Bank Stability	0	9	(cattle, etc.) from outside	floodplain connectivity;
	erosional feature; area to	H3a. Channel Sinuosity	0	6	aquatic mitigation boundary;	<ul> <li>GCS will control channel</li> </ul>
	be regraded to replace	H3b. Bottom Substrate Composition	0	9	• Removal of dam and grading to	downcutting, improve strea
	UP-6 with created MS-B; upstream tributary to	H3c. In stream Bottom Topography OR Manning's n	0	4	create channel based on natural channel design to	stability, and provide sedim transport;
	MS-B to be created as	H3d. Channel Incision	0	8	restore hydrology and	<ul> <li>LWD will provide channel</li> </ul>
	MS-B-TRIB1.	H4a. Pools	0	4	sediment transport;	roughness, enhance sinuosi
		H4b. Channel Flow Status	0	7	<ul> <li>Use of large woody debris</li> </ul>	and improve bank stability;
		Hydrology Subtotal FCI (c)	0	0.64	(LWD) or other native material	<ul> <li>Created pools will retain wa</li> </ul>
		WQ1a. Bank Stability	0	9	for in-channel structure;	<ul> <li>Protection, riparian planting</li> </ul>
	WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	0	8	• Maintenance of channel design gradient by installing grade	and measures to prevent uncontrolled access will	
		WQ2. Water Clarity	0	9	control structures (GCS) made	improve bank stability, will
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	9	from native material (rock or woody debris) where	filter runoff and enhance wa quality;
		WQ4. Composition of Organic Matter	0	9	appropriate;	<ul> <li>Woody debris, leaf litter, an</li> </ul>
		WQ5. Land Use Pattern Beyond Immediate	0	10	<ul> <li>Creation of pools in combination with LWD and GCS</li> </ul>	overhanging herbaceous vegetation from established
		WQ6a. Riparian Zone Width (from stream edge to field)	0	10	and other locations where appropriate;	buffer zones will enhance ir stream habitat and biologic
	WQ6b. Riparian Zone Vegetation Protection/Completeness	0	10	<ul> <li>Creation of buffer zones around channel (approx. 120' width)</li> </ul>	productivity.	
		Water Quality Subtotal FCI (d)	0	0.93	plus appropriate meander belt	
		HB1. Flow Regime	0	1	wiath;	
		HB2. Epifaunal Substrate and Available Cover	0	5	Plantings of native trees,	
	HB3. Stream Bottom Substrate	0	6	shrubs, and herbaceous		
		HB4. Pool Variability	0	3	• Monitoring and management	
		HB5. Sediment Deposition and Scouring	0	9	• Monitoring and management.	
		HB6. Channel Flow Status	0	7		
		HB7. Channel Alteration	0	9		
		HB8. Channel Sinuosity	0	6		
		HB9. Bank Stability	0	9		
		HB10. Vegetative Protection	0	10		
		HB11. Riparian Zone	0	10		
		HB12. Riparian Habitat Condition	0	10		
		Habitat Subtotal FCI <i>(e)</i>	0	0.71		
		TOTAL - FCI (f)	0	2.28		

SUCCESS CRITERIA
<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings (minimum of seven (7) years);</li> <li>200 woody stems per acre with</li> </ul>
<ul> <li>diversity, vegetative cover, and invasive species standards stated in mitigation plan;</li> <li>SWAMPIM Score achieved at release of monitoring.</li> </ul>
Notes: (a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring methodology.
(b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical
Functions; "HB" = Habitat Functions. (c) Hydrology Subtotal FCI Score = Sum
of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth. (d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality). Shown as rounded to the nearest hundredth. (e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth. (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.

# TABLE G-2 (28): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT
MS-B- TRIB2	2.5-5.0'/ Ephemeral/	H1. Flow Regime and Groundwater Interaction	0	1	<ul> <li>Protection within large contiguous mitigation area;</li> </ul>	<ul> <li>Stream channel and valley design will restore hydrolog</li> </ul>
	Existing upland pond	H2a. Channel Condition/ Alteration	0	8	• Implementation of measures to	function and will provide
	constructed by	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	sediment transport and
	impoundment of	H2c. Channel Bank Stability	0	9	(cattle, etc.) from outside	floodplain connectivity;
	erosional feature; area to	H3a. Channel Sinuosity	0	5	aquatic mitigation boundary;	<ul> <li>GCS will control channel</li> </ul>
	be regraded to replace	H3b. Bottom Substrate Composition	0	9	<ul> <li>Removal of dam and grading to</li> </ul>	downcutting, improve strea
	UP-6 with created MS-B; upstream tributary to	H3c. In stream Bottom Topography OR Manning's n	0	4	create channel based on natural channel design to	stability, and provide sedim transport;
	MS-B to be created as	H3d. Channel Incision	0	8	restore hydrology and	<ul> <li>LWD will provide channel</li> </ul>
	MS-B-TRIB2.	H4a. Pools	0	4	sediment transport;	roughness, enhance sinuosi
		H4b. Channel Flow Status	0	7	<ul> <li>Use of large woody debris</li> </ul>	and improve bank stability;
		Hydrology Subtotal FCI (c)	0	0.63	(LWD) or other native material	<ul> <li>Created pools will retain wa</li> </ul>
		WQ1a. Bank Stability	0	9	for in-channel structure;	<ul> <li>Protection, plantings, and measures to prevent uncontrolled access will improve bank stability, will filter runoff and enhance wa quality;</li> </ul>
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	0	8	<ul> <li>Maintenance of channel design gradient by installing grade control structures (GCS) made from native material (rock or woody debris) where</li> </ul>	
		WQ2. Water Clarity	0	9		
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	9		
		WQ4. Composition of Organic Matter	0	9	appropriate;	<ul> <li>Woody debris, leaf litter, an</li> </ul>
		WQ5. Land Use Pattern Beyond Immediate	0	10	<ul> <li>Creation of pools in combination with LWD and GCS and other locations when appropriate;</li> <li>Creation of buffer zones around channel (approx. 120' width)</li> </ul>	overhanging herbaceous vegetation from established buffer zones will enhance in stream habitat and biologica productivity.
		WQ6a. Riparian Zone Width (from stream edge to field)	0	10		
		WQ6b. Riparian Zone Vegetation Protection/Completeness	0	10		
		Water Quality Subtotal FCI (d)	0	0.93	plus appropriate meander belt	
		HB1. Flow Regime	0	1	width;	
		HB2. Epifaunal Substrate and Available Cover	0	5	Plantings of native trees,	
		HB3. Stream Bottom Substrate	0	6	shrubs, and herbaceous	
		HB4. Pool Variability	0	3	Species;	
		HB5. Sediment Deposition and Scouring	0	9	• Monitoring and management.	
		HB6. Channel Flow Status	0	7		
		HB7. Channel Alteration	0	9		
		HB8. Channel Sinuosity	0	5		
		HB9. Bank Stability	0	9		
		HB10. Vegetative Protection	0	10		
		HB11. Riparian Zone	0	10		
		HB12. Riparian Habitat Condition	0	10		
		Habitat Subtotal FCI <i>(e)</i>	0	0.70		
		TOTAL - FCI (f)	0	2.26		

	SUCCESS CRITERIA
çic	<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings (minimum of seven (7) years);</li> <li>200 woody stems per acre with diversity, vegetative cover, and</li> </ul>
ient ity	<ul> <li>invasive species standards stated in mitigation plan;</li> <li>SWAMPIM Score achieved at release of monitoring.</li> </ul>
ater;	Notes: (a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring methodology
ater	(b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical
nd d al	Functions; "HB" = Habitat Functions. (c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth. (d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality). Shown as rounded to the nearest hundredth. (e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth. (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.

# TABLE G-2 (29): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING)	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
			SCORES				
MS-B-	2.5-5.0′/	H1. Flow Regime and Groundwater	0	1	<ul> <li>Protection within large</li> </ul>	<ul> <li>Stream channel and valley</li> </ul>	Mitigation measures in place and
TRIB3	Ephemeral/	Interaction	0	L	contiguous mitigation area;	design will restore hydrologic	stable at release of monitoring
	Existing upland pond (UP-6) constructed by impoundment of	H2a. Channel Condition/ Alteration	0	8	<ul> <li>Implementation of measures to prevent uncontrolled access (cattle, etc.) from outside aquatic mitigation boundary;</li> <li>GCS w</li> </ul>	function and will provide	period after completion of project
		H2b. Channel Capacity to Flow Frequency	0	8		sediment transport and	including any remedial plantings
		H2c. Channel Bank Stability	0	9		floodplain connectivity;	(minimum of seven (7) years);
	erosional feature; area to	H3a. Channel Sinuosity	0	5		<ul> <li>GCS will control channel</li> </ul>	<ul> <li>200 woody stems per acre with</li> </ul>
	be regraded to replace	H3b. Bottom Substrate Composition	0	9	• Removal of dam and grading to	downcutting, improve stream	diversity, vegetative cover, and
	UP-6 with created MS-B;	H3c. In stream Bottom Topography OR	0	Δ	create channel based on natural	stability, and provide sediment	invasive species standards stated in
	upstream tributary to	Manning's n	0		channel design to restore	transport;	mitigation plan;
	MS-B to be created as	H3d. Channel Incision	0	8	hydrology and sediment	LWD will provide channel	SWAMPIM Score achieved at
	MIS-B-TRIB3.	H4a. Pools	0	4	transport;	roughness, enhance sinuosity	release of monitoring.
		H4b. Channel Flow Status	0	7	• Use of large woody debris (LWD)	and improve bank stability;	Notes:
		Hydrology Subtotal FCI (c)	0	0.63	or other native material for in-	• Created pools will retain water;	(a) Refer to SWAMPIM Documentation
		WQ1a. Bank Stability	0	9	channel structure;	<ul> <li>Protection, riparian plantings,</li> </ul>	(included in Appendix C of Proposed
		WQ1b. Channel Bottom Bank Stability OR	0	8	Maintenance of channel design	and measures to prevent	Mitigation Plan) for scoring
		Channel Sediments or Substrate Composition			gradient by installing grade	<ul> <li>uncontrolled access will improve bank stability, will filter runoff and enhance water quality;</li> <li>Woody debris, leaf litter, and overhanging berbaceous</li> </ul>	methodology. (b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Functions. (c) Hydrology Subtotal FCI Score = Sum
		WQ2. Water Clarity	0	9	from pativo material (rock or		
		WQ3. Nutrient Enrichment OR Presence of	0	9	from native material (rock or woody debris) where		
		Aquatic Vegetation					
		WQ4. Composition of Organic Matter	0	9	• Creation of nools in combination		
		WQ5. Land Use Pattern Beyond Immediate	0	10	with I WD and GCS and other	vegetation from established	of individual scores ÷100 (highest
		Riparian Zone			locations when appropriate:	buffer zones will enhance in-	possible score for Hydrology). Shown as rounded to the nearest hundredth. (d) Water Quality Subtotal FCI Score =
		WQ6a. Riparian Zone Width (from stream	0	10	• Creation of buffer zones around	stream habitat and biological	
		edge to field)			channel (approx. 120' width)	productivity.	
		WQ6b. Riparian Zone Vegetation	0	10	plus appropriate meander belt width;	sum oj possibi Shown hundre (e) Hal individ possibi rounde (f) Toto	sum of mainfudur scores +80 (mynest
		Protection/Completeness		0.02			possible score for water Quality).
		Water Quality Subtotal FCI (d)	0	0.93	• Plantings of native trees, shrubs,		hundredth
		IDD1. FIOW Kegime	0		and herbaceous species;		(e) Habitat Subtotal ECI Score = Sum of
	1 1 1 1	HB2. Epilaunal Substrate and Available Cover	0	5	• Monitoring and management.		individual scores ÷120 (highest
		HB4. Dool Variability	0	2			possible score for Habitat). Shown as
		HB4. POOL Valiability	0	5	-		rounded to the nearest hundredth.
		HBS. Sediment Deposition and Scouring	0	9			(f) Total FCI = Hydrology Subtotal FCI +
	HBO. Channel Alteration	0	7			Water Quality Subtotal FCI + Habitat	
		0	9			Subtotal FCI. Value for the Total is	
	HB0 Bank Stability	0	5			calculated using spreadsheet values for	
	HB10 Vegetative Protection	0	10			the Subtotals, then rounded to the	
		HB11 Riparian Zone	0	10	4		nearest hundredth.
		HB12 Riparian Habitat Condition	0	10	4		
		Habitat Subtotal FCI (e)	0 0	0.70	4		
		TOTAL - FCI (f)	0	2.26	1		

# TABLE G-2 (30): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT
MS-C (TRIB-NSR-	2.5-5.0'/ Ephemeral/	H1. Flow Regime and Groundwater Interaction	0	1	<ul> <li>Protection within large contiguous mitigation area;</li> </ul>	<ul> <li>Stream channel and valley design will restore hydrologi</li> </ul>
MC-RST)	Existing upland pond	H2a. Channel Condition/ Alteration	0	8	• Implementation of measures to	function and will provide
	(UP-19) constructed by	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	sediment transport and
	impoundment of	H2c. Channel Bank Stability	0	9	(cattle, etc.) from outside	floodplain connectivity;
	erosional feature; area to	H3a. Channel Sinuosity	0	8	aquatic mitigation boundary;	<ul> <li>GCS will control channel</li> </ul>
	be regraded to replace	H3b. Bottom Substrate Composition	0	9	• Removal of dam and grading to	downcutting, improve strea
	UP-19 with created MS-C	H3c. In stream Bottom Topography OR Manning's n	0	4	create channel based on natural channel design to	stability, and provide sedime transport;
		H3d. Channel Incision	0	8	restore hydrology and	• LWD will provide channel
		H4a. Pools	0	4	sediment transport;	roughness, enhance sinuosit
		H4b. Channel Flow Status	0	7	<ul> <li>Use of large woody debris</li> </ul>	and improve bank stability;
		Hydrology Subtotal FCI (c)	0	0.66	(LWD) or other native material	<ul> <li>Created pools will retain was</li> </ul>
		WQ1a. Bank Stability	0	9	for in-channel structure;	<ul> <li>Protection, riparian planting and measures to prevent uncontrolled access will</li> </ul>
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	0	8	<ul> <li>Maintenance of channel design gradient by installing grade</li> </ul>	
		WO2. Water Clarity	0	9	control structures (GCS) made	improve bank stability, will
		WQ3. Nutrient Enrichment OR Presence of	0	9	from native material (rock or woody debris) where	filter runoff and enhance wa quality;
		WO4. Composition of Organic Matter	0	9	appropriate;	• Woody debris, leaf litter, an
		WQ5. Land Use Pattern Bevond Immediate		5	<ul> <li>Creation of pools in</li> </ul>	overhanging herbaceous
		Riparian Zone	0	10	combination with LWD and GCS	vegetation from established
		WQ6a. Riparian Zone Width (from stream edge to field)	0	10	<ul> <li>and other locations when appropriate;</li> <li>Creation of buffer zones around channel (approx. 120' width) plus appropriate meander belt width;</li> <li>Plantings of native trees,</li> </ul>	buffer zones will enhance in stream habitat and biologica productivity.
		WQ6b. Riparian Zone Vegetation Protection/Completeness	0	10		
		Water Quality Subtotal FCI (d)	0	0.93		
		HB1. Flow Regime	0	1		
		HB2. Epifaunal Substrate and Available Cover	0	5		
		HB3. Stream Bottom Substrate	0	6	shrubs, and herbaceous	
		HB4. Pool Variability	0	3	Species;	
		HB5. Sediment Deposition and Scouring	0	9	• Monitoring and management.	
		HB6. Channel Flow Status	0	7		
		HB7. Channel Alteration	0	9		
		HB8. Channel Sinuosity	0	8		
		HB9. Bank Stability	0	9		
		HB10. Vegetative Protection	0	10		
		HB11. Riparian Zone	0	10		
		HB12. Riparian Habitat Condition	0	10		
		Habitat Subtotal FCI <i>(e)</i>	0	0.73		
		TOTAL - FCI (f)	0	2.32		

	SUCCESS CRITERIA
ic im ent ty	<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings (minimum of seven (7) years);</li> <li>200 woody stems per acre with diversity, vegetative cover, and invasive species standards stated in mitigation plan;</li> <li>SWAMPIM Score achieved at release of monitoring.</li> </ul>
ter;	
gs,	Notes: (a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring
ater	methodology. (b) "H" - Hydrologic Eurotions: "WO" -
nd	Water Quality/Biogeochemical Functions; "HB" = Habitat Functions.
al	of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth. (d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality). Shown as rounded to the nearest hundredth. (e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest
	possible score for Habitat). Shown as rounded to the nearest hundredth. (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.

# TABLE G-2 (31): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT
MS-C- TRIB1	2.5-5.0'/ Ephemeral/	H1. Flow Regime and Groundwater Interaction	0	1	<ul> <li>Protection within large contiguous mitigation area:</li> </ul>	<ul> <li>Stream channel and valley design will restore hydrologi</li> </ul>
	Existing upland pond	H2a. Channel Condition/ Alteration	0	8	<ul> <li>Implementation of measures to</li> </ul>	function and will provide
	(UP-19) constructed by	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	sediment transport and
	impoundment of	H2c. Channel Bank Stability	0	9	(cattle, etc.) from outside	floodplain connectivity;
	erosional feature; area to	H3a. Channel Sinuosity	0	6	aquatic mitigation boundary;	<ul> <li>GCS will control channel</li> </ul>
	be regraded to replace	H3b. Bottom Substrate Composition	0	9	• Removal of dam and grading to	downcutting, improve stream
	UP-19 with created MS- C; upstream tributary to	H3c. In stream Bottom Topography OR Manning's n	0	4	create channel based on natural channel design to	stability, and provide sedime transport;
	MS-C to be created as	H3d. Channel Incision	0	8	restore hydrology and	• LWD will provide channel
	MS-C-TRIB1.	H4a. Pools	0	4	sediment transport;	roughness, enhance sinuosit
		H4b. Channel Flow Status	0	7	• Use of large woody debris	and improve bank stability;
		Hydrology Subtotal FCI (c)	0	0.64	(LWD) or other native material	<ul> <li>Created pools will retain was</li> </ul>
		WQ1a. Bank Stability	0	9	for in-channel structure;	<ul> <li>Protection, riparian planting and measures to prevent uncontrolled access will improve bank stability, will filter runoff and enhance wa quality;</li> <li>Woody debris, leaf litter, and overhanging herbaceous vegetation from established buffer zones will enhance in- stream habitat and biologica productivity.</li> </ul>
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	0	8	<ul> <li>Maintenance of channel design gradient by installing grade control structures (GCS) made from native material (rock or woody debris) where</li> </ul>	
		WQ2. Water Clarity	0	9		
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	9		
		WQ4. Composition of Organic Matter	0	9	appropriate;	
		WQ5. Land Use Pattern Beyond Immediate	0	10	<ul> <li>Creation of pools in combination with LWD and GCS and other locations when appropriate;</li> <li>Creation of buffer zones around channel (approx. 120' width)</li> </ul>	
		WQ6a. Riparian Zone Width (from stream edge to field)	0	10		
		WQ6b. Riparian Zone Vegetation Protection/Completeness	0	10		
		Water Quality Subtotal FCI (d)	0	0.93	plus appropriate meander belt	
		HB1. Flow Regime	0	1	width;	
		HB2. Epifaunal Substrate and Available Cover	0	5	Plantings of native trees,	
		HB3. Stream Bottom Substrate	0	6	shrubs, and herbaceous	
		HB4. Pool Variability	0	3	species;	
		HB5. Sediment Deposition and Scouring	0	9	• Monitoring and management.	
		HB6. Channel Flow Status	0	7		
		HB7. Channel Alteration	0	9		
		HB8. Channel Sinuosity	0	6		
		HB9. Bank Stability	0	9		
		HB10. Vegetative Protection	0	10	]	
		HB11. Riparian Zone	0	10	]	
		HB12. Riparian Habitat Condition	0	10		
		Habitat Subtotal FCI (e)	0	0.71	]	
		TOTAL - FCI (f)	0	2.28		

SUCCESS CRITERIA
<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings (minimum of seven (7) years);</li> <li>200 woody stems per acre with diversity, vegetative cover, and invasive species standards stated in mitigation plan;</li> <li>SWAMPIM Score achieved at release of monitoring.</li> </ul>
Notes: (a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring methodology. (b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Functions. (c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth. (d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality). Shown as rounded to the nearest hundredth. (e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth. (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.

# TABLE G-2 (32): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT
MS-D (TRIB-	6-15'/ Ephemeral/ Replaces A1-TRIB1-PRE;	H1. Flow Regime and Groundwater Interaction	0	2	<ul> <li>Protection within large contiguous mitigation area;</li> </ul>	<ul> <li>Stream channel and valley design will restore hydrologi</li> </ul>
FNSR-RST)	Existing channel from FM	H2a. Channel Condition/ Alteration	0	8	• Implementation of measures to	function and will provide
	904 is channelized; new	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	sediment transport and
	meandering channel to	H2c. Channel Bank Stability	0	9	(cattle, etc.) from outside	floodplain connectivity;
	be created including	H3a. Channel Sinuosity	0	8	aquatic mitigation boundary;	<ul> <li>GCS will control channel</li> </ul>
	connection with	H3b. Bottom Substrate Composition	0	9	<ul> <li>Grading and creation of</li> </ul>	downcutting, improve stream
	upstream drainage	H3c. In stream Bottom Topography OR Manning's n	0	5	tributary channel based on natural channel design to	stability, and provide sedime transport;
		H3d. Channel Incision	0	8	restore hydrology and	• LWD will provide channel
		H4a. Pools	0	7	sediment transport;	roughness, enhance sinuosit
		H4b. Channel Flow Status	0	7	<ul> <li>Use of large woody debris</li> </ul>	and improve bank stability;
		Hydrology Subtotal FCI (c)	0	0.71	(LWD) or other native material	<ul> <li>Created pools will retain way</li> </ul>
		WQ1a. Bank Stability	0	9	<ul><li>for in-channel structure;</li><li>Maintenance of channel design gradient by installing grade</li></ul>	<ul> <li>Protection, riparian planting and measures to prevent uncontrolled access will</li> </ul>
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	0	8		
		WQ2. Water Clarity	0	9	control structures (GCS) made	improve bank stability, will
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	8	from native material (rock or woody debris) where	filter runoff and enhance wa quality;
		WQ4. Composition of Organic Matter	0	9	appropriate;	<ul> <li>Woody debris, leaf litter, an</li> </ul>
		WQ5. Land Use Pattern Beyond Immediate Riparian Zone	0	10	<ul> <li>Creation of pools in combination with LWD and GCS and other locations when appropriate;</li> <li>Creation of buffer zones around channel (approx. 120' width)</li> </ul>	overhanging herbaceous vegetation from established buffer zones will enhance in stream habitat and biologica productivity.
		WQ6a. Riparian Zone Width (from stream edge to field)	0	10		
		WQ6b. Riparian Zone Vegetation Protection/Completeness	0	10		
		Water Quality Subtotal FCI (d)	0	0.91	plus appropriate meander belt	
		HB1. Flow Regime	0	2	<ul><li>width;</li><li>Plantings of native trees,</li></ul>	
		HB2. Epifaunal Substrate and Available Cover	0	5		
		HB3. Stream Bottom Substrate	0	6	shrubs, and herbaceous	
		HB4. Pool Variability	0	4	species;	
		HB5. Sediment Deposition and Scouring	0	9	• Monitoring and management.	
		HB6. Channel Flow Status	0	7		
		HB7. Channel Alteration	0	9		
		HB8. Channel Sinuosity	0	8		
		HB9. Bank Stability	0	9		
		HB10. Vegetative Protection	0	10		
		HB11. Riparian Zone	0	10		
		HB12. Riparian Habitat Condition	0	10		
		Habitat Subtotal FCI <i>(e)</i>	0	0.74		
		TOTAL - FCI (f)	0	2.36		

	SUCCESS CRITERIA
;ic im ient	<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings (minimum of seven (7) years);</li> <li>200 woody stems per acre with diversity, vegetative cover, and invasive species standards stated in mitigation plan;</li> <li>SWAMPIM Score achieved at</li> </ul>
ty	release of monitoring.
ater; gs,	Notes: (a) Refer to SWAMPIM Documentation
	(Included in Appendix C of Proposed Mitigation Plan) for scoring
ater	methodology. (b) "H" = Hydrologic Functions; "WQ"
nd	= Water Quality/Biogeochemical Functions: "HB" = Habitat Functions
d al	<ul> <li>(c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth.</li> <li>(d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality).</li> <li>Shown as rounded to the nearest hundredth.</li> <li>(e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.</li> <li>(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.</li> </ul>

# TABLE G-2 (33): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT
MS-E (TRIB-	2.5-5.0'/ Ephemeral/ Created tributary on	H1. Flow Regime and Groundwater Interaction	0	1	<ul> <li>Protection within large contiguous mitigation area;</li> </ul>	<ul> <li>Stream channel and valley design will restore hydrologi</li> </ul>
FNSR-RST)	north side of FNSR-RST to	H2a. Channel Condition/ Alteration	0	8	• Implementation of measures to	function and will provide
	convey drainage toward	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	sediment transport and
	FNSR-RST; replaces	H2c. Channel Bank Stability	0	9	(cattle, etc.) from outside	floodplain connectivity;
	portion of S2-TRIB1-PRE	H3a. Channel Sinuosity	0	9	aquatic mitigation boundary;	<ul> <li>GCS will control channel</li> </ul>
		H3b. Bottom Substrate Composition	0	9	Creation of tributary channel	downcutting, improve stream
		H3c. In stream Bottom Topography OR Manning's n	0	4	based on natural channel design to restore hydrology and	stability, and provide sedime transport;
		H3d. Channel Incision	0	8	sediment transport;	• LWD will provide channel
		H4a. Pools	0	4	• Use of large woody debris	roughness, enhance sinuosit
		H4b. Channel Flow Status	0	7	(LWD) or other native material	and improve bank stability;
		Hydrology Subtotal FCI (c)	0	0.67	for in-channel structure;	Created pools will retain wa
		WQ1a. Bank Stability	0	9	Maintenance of channel design	Protection, riparian planting
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	0	8	gradient by installing grade control structures (GCS) made	and measures to prevent uncontrolled access will
		WQ2. Water Clarity	0	9	from native material (rock or	improve bank stability, will
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	9	woody debris) where appropriate;	filter runoff and enhance wa quality;
		WQ4. Composition of Organic Matter	0	9	<ul> <li>Creation of pools in</li> </ul>	Woody debris, leaf litter, an
		WQ5. Land Use Pattern Beyond Immediate Riparian Zone	0	10	<ul> <li>combination with LWD and GCS and other locations when appropriate;</li> <li>Creation of buffer zones around channel (approx. 120' width) plus appropriate meander belt</li> </ul>	overhanging herbaceous vegetation from established buffer zones will enhance in stream habitat and biologica productivity.
		WQ6a. Riparian Zone Width (from stream edge to field)	0	10		
		WQ6b. Riparian Zone Vegetation Protection/Completeness	0	10		
		Water Quality Subtotal FCI (d)	0	0.93	width;	
		HB1. Flow Regime	0	1	Plantings of native trees,	
		HB2. Epifaunal Substrate and Available Cover	0	5	shrubs, and herbaceous	
		HB3. Stream Bottom Substrate	0	6	species;	
		HB4. Pool Variability	0	3	• Monitoring and management.	
		HB5. Sediment Deposition and Scouring	0	9		
		HB6. Channel Flow Status	0	7		
		HB7. Channel Alteration	0	9		
		HB8. Channel Sinuosity	0	9		
		HB9. Bank Stability	0	9		
		HB10. Vegetative Protection	0	10		
		HB11. Riparian Zone	0	10		
		HB12. Riparian Habitat Condition	0	10		
		Habitat Subtotal FCI <i>(e)</i>	0	0.73		
		TOTAL - FCI (f)	0	2.33		

	SUCCESS CRITERIA
ic m ent ty iter;	<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings (minimum of seven (7) years);</li> <li>200 woody stems per acre with diversity, vegetative cover, and invasive species standards stated in mitigation plan;</li> <li>SWAMPIM Score achieved at release of monitoring.</li> </ul>
ater Id I al	Notes: (a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring methodology. (b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Functions. (c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth. (d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality). Shown as rounded to the nearest hundredth. (e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth. (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the

# TABLE G-2 (34): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT
MS-F (TRIB-	6-15'/ Ephemeral/ Replaces S2-TRIB1-PRE;	H1. Flow Regime and Groundwater Interaction	0	2	<ul> <li>Protection within large contiguous mitigation area;</li> </ul>	<ul> <li>Stream channel and valley design will restore hydrologi</li> </ul>
FNSR-RST)	Existing channel is	H2a. Channel Condition/ Alteration	0	8	Implementation of measures to	function and will provide
	channelized; new	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	sediment transport and
	meandering channel to	H2c. Channel Bank Stability	0	9	(cattle, etc.) from outside	floodplain connectivity;
	be created including	H3a. Channel Sinuosity	0	8	aquatic mitigation boundary;	<ul> <li>GCS will control channel</li> </ul>
	connection with	H3b. Bottom Substrate Composition	0	9	<ul> <li>Regrading and creation of</li> </ul>	downcutting, improve stream
	upstream drainage	H3c. In stream Bottom Topography OR Manning's n	0	5	tributary channel based on natural channel design to	stability, and provide sedime transport;
		H3d. Channel Incision	0	8	restore hydrology and	• LWD will provide channel
		H4a. Pools	0	7	sediment transport;	roughness, enhance sinuosit
		H4b. Channel Flow Status	0	7	<ul> <li>Use of large woody debris</li> </ul>	and improve bank stability;
		Hydrology Subtotal FCI (c)	0	0.71	(LWD) or other native material	<ul> <li>Created pools will retain was</li> </ul>
		WQ1a. Bank Stability	0	9	for in-channel structure;	<ul> <li>Protection, riparian_planting</li> </ul>
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	0	8	<ul> <li>Maintenance of channel design gradient by installing grade</li> </ul>	and measures to prevent uncontrolled access will
		WQ2. Water Clarity	0	9	control structures (GCS) made	improve bank stability, will
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	8	from native material (rock or woody debris) where	filter runoff and enhance wa quality;
		WO4. Composition of Organic Matter	0	9	appropriate;	Woody debris, leaf litter, and
		WQ5. Land Use Pattern Beyond Immediate			<ul> <li>Creation of pools in</li> </ul>	overhanging herbaceous
		Riparian Zone	0	10	combination with LWD and GCS	vegetation from established
		WQ6a. Riparian Zone Width (from stream edge to field)	0	10	<ul> <li>and other locations when appropriate;</li> <li>Creation of buffer zones around channel (approx. 120' width)</li> </ul>	buffer zones will enhance in stream habitat and biologica productivity.
		WQ6b. Riparian Zone Vegetation Protection/Completeness	0	10		
		Water Quality Subtotal FCI (d)	0	0.91	plus appropriate meander belt	
		HB1. Flow Regime	0	2	Wiath;	
		HB2. Epifaunal Substrate and Available Cover	0	5	Plantings of native trees,	
		HB3. Stream Bottom Substrate	0	6	shrubs, and herbaceous	
		HB4. Pool Variability	0	4	Species;	
		HB5. Sediment Deposition and Scouring	0	9	• Monitoring and management.	
		HB6. Channel Flow Status	0	7		
		HB7. Channel Alteration	0	9		
		HB8. Channel Sinuosity	0	8		
		HB9. Bank Stability	0	9		
		HB10. Vegetative Protection	0	10		
		HB11. Riparian Zone	0	10		
		HB12. Riparian Habitat Condition	0	10		
		Habitat Subtotal FCI <i>(e)</i>	0	0.74		
		TOTAL - FCI (f)	0	2.36		

SUCCESS CRITERIA
<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings</li> </ul>
<ul> <li>(minimum of seven (7) years);</li> <li>200 woody stems per acre with diversity, vegetative cover, and invasive species standards stated in mitigation plan;</li> <li>SWAMPIM Score achieved at release of monitoring.</li> </ul>
Notes: (a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed
Mitigation Plan) for scoring methodology. (b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical
Functions; "HB" = Habitat Functions. (c) Hydrology Subtotal FCI Score = Sum
of Individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth. (d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality). Shown as rounded to the nearest hundredth. (e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth. (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.

# TABLE G-2 (35): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT
MS-F- TRIB1	6-15'/ Ephemeral/ Replaces modified	H1. Flow Regime and Groundwater Interaction	0	2	<ul> <li>Protection within large contiguous mitigation area:</li> </ul>	<ul> <li>Stream channel and valley design will restore hydrologi</li> </ul>
	drainage through	H2a. Channel Condition/ Alteration	0	8	• Implementation of measures to	function and will provide
	cropland	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	sediment transport and
		H2c. Channel Bank Stability	0	9	(cattle, etc.) from outside	floodplain connectivity;
		H3a. Channel Sinuosity	0	6	aquatic mitigation boundary;	GCS will control channel
		H3b. Bottom Substrate Composition	0	9	Regrading and creation of	downcutting, improve stream
		H3c. In stream Bottom Topography OR Manning's n	0	5	tributary channel based on natural channel design to	stability, and provide sedime transport;
		H3d. Channel Incision	0	8	restore hydrology and	LWD will provide channel
		H4a. Pools	0	7	sediment transport;	roughness, enhance sinuosit
		H4b. Channel Flow Status	0	7	<ul> <li>Use of large woody debris</li> </ul>	and improve bank stability;
		Hydrology Subtotal FCI (c)	0	0.69	(LWD) or other native material	Created pools will retain wat
		WQ1a. Bank Stability	0	9	for in-channel structure;	Protection, riparian planting
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	0	8	<ul> <li>Maintenance of channel gradient by installing grade</li> </ul>	and measures to prevent uncontrolled access will
		WQ2. Water Clarity	0	9	control structures (GCS) made	improve bank stability, will
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	8	from native material (rock or woody debris) where	filter runoff and enhance wa quality;
		WQ4. Composition of Organic Matter	0	9	appropriate;	• Woody debris, leaf litter, and
		WQ5. Land Use Pattern Beyond Immediate	0	10	• Creation of pools in combination with LWD and GCS	overhanging herbaceous vegetation from established
		WQ6a. Riparian Zone Width (from stream edge to field)	0	10	<ul> <li>and other locations when appropriate;</li> </ul>	buffer zones will enhance in stream habitat and biologic
		WQ6b. Riparian Zone Vegetation Protection/Completeness	0	10	channel (approx. 120' width)	productivity.
		Water Quality Subtotal FCI (d)	0	0.91	width	
		HB1. Flow Regime	0	2	Plantings of native trees	
		HB2. Epifaunal Substrate and Available Cover	0	5	shrubs, and herbaceous	
		HB3. Stream Bottom Substrate	0	6	species:	
		HB4. Pool Variability	0	4	<ul> <li>Monitoring and management.</li> </ul>	
		HB5. Sediment Deposition and Scouring	0	9		
		HB6. Channel Flow Status	0	7		
		HB7. Channel Alteration	0	9		
		HB8. Channel Sinuosity	0	6		
		HB9. Bank Stability	0	9		
		HB10. Vegetative Protection	0	10		
		HB11. Riparian Zone	0	10		
		HB12. Riparian Habitat Condition	0	10		
		Habitat Subtotal FCI <i>(e)</i>	0	0.73		
		TOTAL - FCI <i>(f)</i>	0	2.33		

SUCCESS CRITERIA
<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings (minimum of seven (7) years);</li> <li>200 woody stems per acre with</li> </ul>
diversity, vegetative cover, and invasive species standards stated in mitigation plan;
<ul> <li>SWAMPIM Score achieved at release of monitoring.</li> </ul>
Notes: (a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring methodology
(b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical
<ul> <li>Functions; "HB" = Habitat Functions.</li> <li>(c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth.</li> <li>(d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality).</li> <li>Shown as rounded to the nearest hundredth.</li> <li>(e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.</li> <li>(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.</li> </ul>

# TABLE G-2 (36): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT
MS-F- TRIB2	2.5-5.0'/ Ephemeral/ Replaces modified	H1. Flow Regime and Groundwater Interaction	0	1	<ul> <li>Protection within large contiguous mitigation area:</li> </ul>	<ul> <li>Stream channel and valley design will restore hydrologi</li> </ul>
	drainage through	H2a. Channel Condition/ Alteration	0	8	• Implementation of measures to	function and will provide
	cropland	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	sediment transport and
		H2c. Channel Bank Stability	0	9	(cattle. etc.) from outside	floodplain connectivity:
		H3a. Channel Sinuosity	0	5	aquatic mitigation boundary;	GCS will control channel
		H3b. Bottom Substrate Composition	0	9	• Regrading and creation of	downcutting, improve stream
		H3c. In stream Bottom Topography OR Manning's n	0	4	tributary channel based on natural channel design to	stability, and provide sedime
		H3d Channel Incision	0	8	restore hydrology and	• LWD will provide channel
		H4a Pools	0	4	sediment transport;	roughness, enhance sinuosit
		H4h Channel Flow Status	0	7	• Use of large woody debris	and improve bank stability;
		Hydrology Subtotal ECL (c)	0	0.63	(LWD) or other native material	Created pools will retain was
		WO1a Bank Stability	0	9	for in-channel structure;	<ul> <li>Protection, riparian planting</li> </ul>
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	0	8	Maintenance of channel design     gradient by installing grade	and measures to prevent uncontrolled access will
		WO2 Water Clarity	0	9	control structures (GCS) made	improve bank stability, will
		WQ2. Water Clarity WQ3. Nutrient Enrichment OR Presence of	0	9	from native material (rock or woody debris) where	filter runoff and enhance wa quality;
		Aqualic Vegetation	0	0	appropriate;	Woody debris. leaf litter. an
		WQ4. Composition of Organic Matter	0	9	Creation of pools in	overhanging herbaceous
		Riparian Zone	0	10	<ul> <li>combination with LWD and GCS and other locations when appropriate;</li> <li>Creation of buffer zones around channel (approx. 120' width)</li> </ul>	vegetation from established buffer zones will enhance in stream habitat and biologica productivity.
		WQ6a. Riparian Zone Width (from stream edge to field)	0	10		
		WQ6b. Riparian Zone Vegetation Protection/Completeness	0	10		
		Water Quality Subtotal FCI (d)	0	0.93	plus appropriate meander belt	
		HB1. Flow Regime	0	1	Wiath;	
		HB2. Epifaunal Substrate and Available Cover	0	5	Plantings of native trees,	
		HB3. Stream Bottom Substrate	0	6	shrubs, and herbaceous	
		HB4. Pool Variability	0	3	Species;	
		HB5. Sediment Deposition and Scouring	0	9	• Monitoring and management.	
		HB6. Channel Flow Status	0	7		
		HB7. Channel Alteration	0	9		
		HB8. Channel Sinuosity	0	5		
		HB9. Bank Stability	0	9		
		HB10. Vegetative Protection	0	10		
		HB11. Riparian Zone	0	10		
		HB12. Riparian Habitat Condition	0	10		
		Habitat Subtotal FCI <i>(e)</i>	0	0.70		
		TOTAL - FCI (f)	0	2.26		

	SUCCESS CRITERIA
ic	<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings (minimum of seven (7) years);</li> </ul>
im ent ty	<ul> <li>200 woody stems per acre with diversity, vegetative cover, and invasive species standards stated in mitigation plan;</li> <li>SWAMPIM Score achieved at release of monitoring.</li> </ul>
iter; gs,	Notes: (a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring methodology.
ater	(b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical
nd 1 al	Functions; "HB" = Habitat Functions. (c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth. (d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality). Shown as rounded to the nearest hundredth. (e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth. (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.

# TABLE G-2 (37): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT
MS-G (TRIB-	2.5-5.0'/ Ephemeral/ Created tributary on	H1. Flow Regime and Groundwater Interaction	0	1	<ul> <li>Protection within large contiguous mitigation area:</li> </ul>	<ul> <li>Stream channel and valley design will restore hydrologi</li> </ul>
FNSR-RST)	north side of FNSR-RST to	H2a. Channel Condition/ Alteration	0	8	Implementation of measures to	function and will provide
	convey drainage to new	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	sediment transport and
	channel	H2c. Channel Bank Stability	0	9	(cattle, etc.) from outside	floodplain connectivity:
		H3a. Channel Sinuosity	0	6	aquatic mitigation boundary;	<ul> <li>GCS will control channel</li> </ul>
		H3b. Bottom Substrate Composition	0	9	Creation of tributary channel	downcutting, improve strear
		H3c. In stream Bottom Topography OR Manning's n	0	4	based on natural channel design to restore hydrology and	stability, and provide sedime transport;
		H3d. Channel Incision	0	8	sediment transport;	• LWD will provide channel
		H4a. Pools	0	4	• Use of large woody debris	roughness, enhance sinuosit
		H4b. Channel Flow Status	0	7	(LWD) or other native material	and improve bank stability;
		Hydrology Subtotal FCI (c)	0	0.64	for in-channel structure;	<ul> <li>Created pools will retain was</li> </ul>
		WQ1a. Bank Stability	0	9	Maintenance of channel design	• Protection, riparian planting
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	0	8	gradient by installing grade control structures (GCS) made	and measures to prevent uncontrolled access will
		WQ2. Water Clarity	0	9	from native material (rock or	improve bank stability, will
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	9	woody debris) where appropriate;	filter runoff and enhance wa quality;
		WQ4. Composition of Organic Matter	0	9	<ul> <li>Creation of pools in</li> </ul>	<ul> <li>Woody debris, leaf litter, and</li> </ul>
		WQ5. Land Use Pattern Beyond Immediate	0	10	<ul> <li>combination with LWD and GCS and other locations when appropriate;</li> <li>Creation of buffer zones around channel (approx. 120' width) plus appropriate meander belt</li> </ul>	overhanging herbaceous vegetation from established buffer zones will enhance in stream habitat and biologica productivity.
		WQ6a. Riparian Zone Width (from stream edge to field)	0	10		
		WQ6b. Riparian Zone Vegetation Protection/Completeness	0	10		
		Water Quality Subtotal FCI (d)	0	0.93	width;	
		HB1. Flow Regime	0	1	Plantings of native trees,	
		HB2. Epifaunal Substrate and Available Cover	0	5	shrubs, and herbaceous	
		HB3. Stream Bottom Substrate	0	6	species;	
		HB4. Pool Variability	0	3	<ul> <li>Monitoring and management.</li> </ul>	
		HB5. Sediment Deposition and Scouring	0	9		
		HB6. Channel Flow Status	0	7		
		HB7. Channel Alteration	0	9		
		HB8. Channel Sinuosity	0	6		
		HB9. Bank Stability	0	9		
		HB10. Vegetative Protection	0	10		
		HB11. Riparian Zone	0	10	]	
		HB12. Riparian Habitat Condition	0	10	]	
		Habitat Subtotal FCI <i>(e)</i>	0	0.71		
		TOTAL - FCI (f)	0	2.27		

SUCCESS CRITERIA
<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings</li> </ul>
<ul> <li>(minimum of seven (7) years);</li> <li>200 woody stems per acre with diversity, vegetative cover, and invasive species standards stated in mitigation plan;</li> <li>SWAMPIM Score achieved at release of monitoring.</li> </ul>
Notes: (a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring
methodology. (b) "H" = Hydrologic Functions; "WQ" = Water Ouality/Biogeochemical
<ul> <li>Functions; "HB" = Habitat Functions.</li> <li>(c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth.</li> <li>(d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality).</li> <li>Shown as rounded to the nearest hundredth.</li> <li>(e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.</li> <li>(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.</li> </ul>

# TABLE G-2 (38): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT
MS-H (TRIB-	6-15'/ Ephemeral/ Replaces channelized	H1. Flow Regime and Groundwater Interaction	0	2	<ul> <li>Protection within large contiguous mitigation area:</li> </ul>	<ul> <li>Stream channel and valley design will restore hydrolog</li> </ul>
FNSR-RST)	portion of SW-TRIB2-PRE;	H2a. Channel Condition/ Alteration	0	8	Implementation of measures to	function and will provide
	new meandering channel	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	sediment transport and
	to be created including	H2c. Channel Bank Stability	0	9	(cattle, etc.) from outside	floodplain connectivity;
	connection with	H3a. Channel Sinuosity	0	9	aquatic mitigation boundary;	<ul> <li>GCS will control channel</li> </ul>
	upstream drainage	H3b. Bottom Substrate Composition	0	9	<ul> <li>Grading and creation of</li> </ul>	downcutting, improve strea
		H3c. In stream Bottom Topography OR Manning's n	0	5	tributary channel based on natural channel design to	stability, and provide sedim transport;
		H3d. Channel Incision	0	8	restore hydrology and	• LWD will provide channel
		H4a. Pools	0	7	sediment transport;	roughness, enhance sinuosit
		H4b. Channel Flow Status	0	7	Use of large woody debris	and improve bank stability;
		Hydrology Subtotal FCI (c)	0	0.72	(LWD) or other native material	Created pools will retain wa
		WQ1a. Bank Stability	0	9	for in-channel structure;	Protection, riparian planting
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	0	8	Maintenance of channel design gradient by installing grade	and measures to prevent uncontrolled access will
		WQ2. Water Clarity	0	9	control structures (GCS) made	improve bank stability, will
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	8	from native material (rock or woody debris) where	filter runoff and enhance wa quality;
		WQ4. Composition of Organic Matter	0	9	appropriate;	<ul> <li>Woody debris, leaf litter, an</li> </ul>
		WQ5. Land Use Pattern Beyond Immediate	0	10	<ul> <li>Creation of pools in combination with LWD and GCS</li> </ul>	overhanging herbaceous vegetation from established
		WQ6a. Riparian Zone Width (from stream edge to field)	0	10	and other locations when appropriate;	buffer zones will enhance i stream habitat and biologi
		WQ6b. Riparian Zone Vegetation Protection/Completeness	0	10	• Creation of buffer zones around channel (approx. 120' width)	productivity.
		Water Quality Subtotal FCI (d)	0	0.91	plus appropriate meander belt	
		HB1. Flow Regime	0	2	width;	
		HB2. Epifaunal Substrate and Available Cover	0	5	Plantings of native trees,	
		HB3. Stream Bottom Substrate	0	6	shrubs, and herbaceous	
		HB4. Pool Variability	0	4	species;	
		HB5. Sediment Deposition and Scouring	0	9	• Monitoring and management.	
		HB6. Channel Flow Status	0	7		
		HB7. Channel Alteration	0	9		
		HB8. Channel Sinuosity	0	9		
		HB9. Bank Stability	0	9	]	
		HB10. Vegetative Protection	0	10	]	
		HB11. Riparian Zone	0	10	]	
		HB12. Riparian Habitat Condition	0	10	]	
		Habitat Subtotal FCI <i>(e)</i>	0	0.75	]	
		TOTAL - FCI (f)	0	2.38		

SUCCESS CRITERIA
<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings</li> </ul>
<ul> <li>(minimum of seven (7) years);</li> <li>200 woody stems per acre with diversity, vegetative cover, and invasive species standards stated in mitigation plan;</li> <li>SWAMPIM Score achieved at release of monitoring.</li> </ul>
Notes: (a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring
(b) "H" = Hydrologic Functions; "WQ" =
<ul> <li>Water Quality/Biogeochemical</li> <li>Functions; "HB" = Habitat Functions.</li> <li>(c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth.</li> <li>(d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality).</li> <li>Shown as rounded to the nearest hundredth.</li> <li>(e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.</li> <li>(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.</li> </ul>

# TABLE G-2 (39): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT
MS-I (TRIB-	6-15'/ Ephemeral/ Replaces portion of S2-	H1. Flow Regime and Groundwater Interaction	0	2	<ul> <li>Protection within large contiguous mitigation area;</li> </ul>	<ul> <li>Stream channel and valley design will restore hydrologi</li> </ul>
FNSR-RST)	TRIB3-PRE; connects S2-	H2a. Channel Condition/ Alteration	0	8	• Implementation of measures to	function and will provide
	TRIB3-ENH to FNSR-RST	H2b. Channel Capacity to Flow Frequency	0	8	prevent uncontrolled access	sediment transport and
		H2c. Channel Bank Stability	0	9	(cattle, etc.) from outside	floodplain connectivity;
		H3a. Channel Sinuosity	0	8	aquatic mitigation boundary;	<ul> <li>GCS will control channel</li> </ul>
		H3b. Bottom Substrate Composition	0	9	<ul> <li>Regrading and creation of</li> </ul>	downcutting, improve strea
		H3c. In stream Bottom Topography OR Manning's n	0	5	tributary channel based on natural channel design to	stability, and provide sedime transport;
		H3d. Channel Incision	0	8	restore hydrology and	<ul> <li>LWD will provide channel</li> </ul>
		H4a. Pools	0	7	sediment transport;	roughness, enhance sinuosit
		H4b. Channel Flow Status	0	7	<ul> <li>Use of large woody debris</li> </ul>	and improve bank stability;
		Hydrology Subtotal FCI (c)	0	0.71	(LWD) or other native material	<ul> <li>Created pools will retain was</li> </ul>
		WQ1a. Bank Stability	0	9	for in-channel structure;	<ul> <li>Protection, riparian_planting</li> </ul>
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	0	8	• Maintenance of channel design gradient by installing grade	and measures to prevent uncontrolled access will
		WQ2. Water Clarity	0	9	control structures (GCS) made	improve bank stability, will
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	8	from native material (rock or woody debris) where	filter runoff and enhance wa quality;
		WQ4. Composition of Organic Matter	0	9	appropriate;	<ul> <li>Woody debris, leaf litter, and</li> </ul>
		WQ5. Land Use Pattern Beyond Immediate	0	10	• Creation of pools in combination with LWD and GCS	overhanging herbaceous vegetation from established
		WQ6a. Riparian Zone Width (from stream edge to field)	0	10	and other locations when appropriate;	buffer zones will enhance in stream habitat and biologica
		WQ6b. Riparian Zone Vegetation Protection/Completeness	0	10	• Creation of buffer zones around channel (approx. 120' width)	productivity.
		Water Quality Subtotal FCI (d)	0	0.91	plus appropriate meander belt	
		HB1. Flow Regime	0	2		
		HB2. Epifaunal Substrate and Available Cover	0	5	Plantings of native trees,	
		HB3. Stream Bottom Substrate	0	6	shrubs, and herbaceous	
		HB4. Pool Variability	0	4	Species;	
		HB5. Sediment Deposition and Scouring	0	9	• Monitoring and management.	
		HB6. Channel Flow Status	0	7		
		HB7. Channel Alteration	0	9		
		HB8. Channel Sinuosity	0	8		
		HB9. Bank Stability	0	9		
		HB10. Vegetative Protection	0	10		
		HB11. Riparian Zone	0	10		
		HB12. Riparian Habitat Condition	0	10		
		Habitat Subtotal FCI <i>(e)</i>	0	0.74		
		TOTAL - FCI (f)	0	2.36		

	SUCCESS CRITERIA
ic	<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings (minimum of seven (7) years);</li> </ul>
im ent ty	<ul> <li>200 woody stems per acre with diversity, vegetative cover, and invasive species standards stated in mitigation plan;</li> <li>SWAMPIM Score achieved at release of monitoring.</li> </ul>
iter; gs,	Notes: (a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring methodology.
ater	(b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical
nd 1 al	<ul> <li>Functions; "HB" = Habitat Functions.</li> <li>(c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth.</li> <li>(d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality).</li> <li>Shown as rounded to the nearest hundredth.</li> <li>(e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.</li> <li>(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.</li> </ul>

# TABLE G-2 (40): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING)	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT
			SCORES			
NSR-MC-	16-25'/ Intermittent/	H1. Flow Regime and Groundwater	0	3	<ul> <li>Protection within large</li> </ul>	• Discharges from Leon Hurse
RST	Protection of exposed	Interaction	<u> </u>	5	contiguous mitigation area;	Dam will maintain intermitte
	shale in bed and banks of	H2a. Channel Condition/ Alteration	0	6	Implementation of measures to	flow within created base flow
	river channel to be	H2b. Channel Capacity to Flow Frequency	0	5	(cattle etc.) from outside aquatic	channel;
	provided with earthen fill	H2c. Channel Bank Stability	0	9	mitigation boundary:	<ul> <li>Design for base flow channel</li> </ul>
	generated from grading	H3a. Channel Sinuosity	0	6	<ul> <li>Grading existing channel vertical</li> </ul>	and riparian plantings to
	existing enlarged channel	H3b. Bottom Substrate Composition	0	9	side slopes to stable slopes of	provide stable banks,
	side slopes to create	H3c. In stream Bottom Topography OR	0	5	approximately 5:1;	appropriate channel capacity
	stable slopes of approx.	Manning's n	0	5	<ul> <li>Earthen material generated from</li> </ul>	flow frequency to achieve
	5:1. Earthen material	H3d. Channel Incision	0	9	graded slopes used to bury	overbanking for >2 year flow
	generated would be used	H4a. Pools	0	4	exposed shale in the bed and	events, will provide sedimen
	to bury exposed shale in	H4b. Channel Flow Status	0	7	banks of the river channel to an	transport from contributing
	bed and banks of river	Hydrology Subtotal FCI (c)	0.00	0.63	Approximate depth of 10 feet;     Creation of base flow meandering	tributaries for improved
	channel. Meandering	WQ1a. Bank Stability	0	9	<ul> <li>Creation of base now meandering channel within restored</li> </ul>	bottom substrate compositio
	base flow channel would	WQ1b. Channel Bottom Bank Stability OR	0	7	floodplain downstream of Leon	and topography;
	be created within the	Channel Sediments or Substrate Composition	0	/	Hurse Dam to a transition	Channel design length will be
	Multiple shallow pools	WQ2. Water Clarity	0	9	structure immediately upstream	>1.2X valley length;
	(~2 foot doop) would be	WQ3. Nutrient Enrichment OR Presence of	0	0	of confluence of Baker Creek	Channel design will be stable
	( Sheet deep) would be	Aquatic Vegetation	0	9	<ul> <li>Channel design to be based on</li> </ul>	spillway discharge velocities
	channel Earthen fill and	WQ4. Composition of Organic Matter	0	9	natural channel design;	• Design to include shallow po
	graded channel side	WQ5. Land Use Pattern Beyond Immediate	0	10	Base flow channel designed to	areas for increased hydrolog
	slopes would be planted	Riparian Zone	0	10	flow:	and habitat variability;
	with woody vegetation to	WQ6a. Riparian Zone Width (from stream	0	10	<ul> <li>Plantings of native woody and</li> </ul>	<ul> <li>Protection, plantings, and</li> </ul>
	create forested	edge to field)	0	10	herbaceous vegetation to	measures to prevent
	floodplain and riparian	WQ6b. Riparian Zone Vegetation	0	10	establish wooded floodplain and	uncontrolled access will
	zone. Discharge velocities	Protection/Completeness	0	10	riparian habitat;	improve bank stability, will
	to base flow channel	Water Quality Subtotal FCI (d)	0.00	0.91	<ul> <li>Greater than 2-year frequency</li> </ul>	filter runoff and enhance wa
	would range from 3.2 fps	HB1. Flow Regime	0	3	flow will provide overbanking to	quality;
	for the 1-year frequency	HB2. Epifaunal Substrate and Available Cover	0	5	established forested floodplain	Incorporation of in-channel
	storm event to 5.7 fps for	HB3. Stream Bottom Substrate	0	6	created within the existing	leaf litter from established
	the 100-year storm	HB4. Pool Variability	0	2	• Creation of buffer zones (approx	riparian buffor zonas, and
	event. Stepped drop	HB5. Sediment Deposition and Scouring	0	8	500' wide) plus appropriate	horbacoous vogotation along
	structure to be	HB6. Channel Flow Status	0	7	meander belt width;	channels will enhance in-
	constructed immediately	HB7. Channel Alteration	0	9	• Connection of restored, created	stream babitat and biologica
	upstream of Baker Creek	HB8. Channel Sinuosity	0	6	tributaries and restored former	productivity
	confluence to transition	HB9. Bank Stability	0	9	NSR channel to created base flow	
	to downstream river	HB10. Vegetative Protection	0	10	channel	
	channel.	HB11. Riparian Zone	0	10	<ul> <li>Monitoring and management.</li> </ul>	
		HB12. Riparian Habitat Condition	0	10	1	
		Habitat Subtotal FCI <i>(e)</i>	0.00	0.71	1	
		TOTAL - FCI (f)	0.00	2.25	1	

	SUCCESS CRITERIA
e cent ow el ty to w	<ul> <li>Mitigation measures in place and stable at release of monitoring period after completion of project including any remedial plantings (minimum of seven (7) years);</li> <li>200 woody stems per acre with diversity, vegetative cover, and invasive species standards stated in mitigation plan;</li> <li>SWAMPIM Score achieved at</li> </ul>
nt	release of monitoring.
ion De	Notes: (a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed
le at s ool gy	<ul> <li>Mitigation Plan) for scoring methodology.</li> <li>(b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Functions.</li> <li>(c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth.</li> <li>(d) Water Quality Subtotal FCI Score =</li> </ul>
ater	Sum of individual scores ÷80 (highest possible score for Water Quality). Shown as rounded to the nearest
nd	hundredth. (e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible
ng	score for Habitat). Shown as rounded to the nearest hundredth.
al	(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.

# TABLE G-2 (41): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA	
NSR-MC-	16-25'/ Intermittent/ Channel to be filled to reclaim eroded North Sulphur River channel. Mitigation activities, as	H1. Flow Regime and Groundwater	5	0	Protection of eroding shale     downstream of dam will	N/A	N/A	
		H2a. Channel Condition/ Alteration	0	0	involve grading existing			
		H2b. Channel Capacity to Flow Frequency	0	0	channel vertical side slopes to			
		H2c. Channel Bank Stability	2	0	approximate 5:1 stable slopes;			
	described in NSR-MC-	H3a. Channel Sinuosity	2	0	• Earthen material generated			
	RST, will be constructed	H3b. Bottom Substrate Composition	0	0	from grading of channel side			
	within the reclaimed	H3c. In stream Bottom Topography OR	1	0	slopes used to bury exposed			
	channel.	Manning's n	1	0	shale in the bed and banks of			
		H3d. Channel Incision	1	0	the river channel to			
		H4a. Pools	3	0	approximate depth of 10 feet;			
		H4b. Channel Flow Status	2	0	Construction of transition			
		Hydrology Subtotal FCI (c)	0.16	0.00	(grade control) structure			
		WQ1a. Bank Stability	2	0	within channel immediately			
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	0	0	the Main North Sulphur River			
		WQ2. Water Clarity	2	0	channel and Baker Creek			
		WQ3. Nutrient Enrichment OR Presence of	1	0				
		WO4. Composition of Organic Matter	2	0				
		WQ5. Land Use Pattern Beyond Immediate	_					
		Riparian Zone	2	0				
		WQ6a. Riparian Zone Width (from stream edge to field)	2	0				
		WQ6b. Riparian Zone Vegetation Protection/Completeness	2	0				
		Water Quality Subtotal FCI (d)	0.16	0.00				
		HB1. Flow Regime	4	0				
		HB2. Epifaunal Substrate and Available Cover	1	0	Notes:			
		HB3. Stream Bottom Substrate	1	0	<ul> <li>(a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring</li> <li>methodology.</li> <li>(b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Functions.</li> <li>(c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth.</li> <li>(d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality). Shown as rounded to the nearest hundredth.</li> </ul>			
		HB4. Pool Variability	1	0				
		HB5. Sediment Deposition and Scouring	1	0				
		HB6. Channel Flow Status	0	0				
		HB7. Channel Alteration	1	0				
		HB8. Channel Sinuosity	2	0				
		HB9. Bank Stability	2	0				
		HB10. Vegetative Protection	3	0	<ul> <li>(e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.</li> <li>(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.</li> </ul>			
		HB11. Riparian Zone	3	0				
		HB12. Riparian Habitat Condition	3.2	0				
		Habitat Subtotal FCI <i>(e)</i>	0.19	0.00				
		TOTAL - FCI (f)	0.51	0.00				

# TABLE G-2 (42): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA	
S1 (FMR	6-15'/ Ephemeral/	H1. Flow Regime and Groundwater	1	0	• Due to depth and eroded	N/A	N/A	
BAKER)-	Former Baker Creek				nature of channel, channel			
PRE	where it converged with	H2a. Channel Condition/ Alteration	0	0	restoration in its current location is infeasible.			
	FNSR located south of	H2b. Channel Capacity to Flow Frequency	0	0				
	Chappel, surrently	H2c. Channel Bank Stability	3	0	Channel segment will be			
	Channel; currently	H3a. Channel Sinuosity	0	0	Tilled.			
	NSR Main Channel: Will	H3b. Bottom Substrate Composition	1	0	Existing trees will be     homested as appropriate for			
	he replaced by FNSR-RST	H3c. In stream Bottom Topography OR	1	0	harvested as appropriate for			
	be replaced by marking	Manning's n	0		use as large woody debris in			
		H3d. Channel Incision	0	0	- other portions of the project.			
		H4a. Pools	0	0				
		H4b. Channel Flow Status	0	0				
		Hydrology Subtotal FCI (C)	0.06	0	-			
		WQ1a. Bank Stability	3	0				
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	0				
		WQ2. Water Clarity	0	0				
		WQ3. Nutrient Enrichment OR Presence of	0	0				
		WO4 Composition of Organic Matter	0	0				
		WQ5 Land Use Pattern Beyond Immediate	0	0				
		Riparian Zone	1.5	0				
		WQ6a. Riparian Zone Width (from stream edge to field)	1.5	0				
		WQ6b. Riparian Zone Vegetation Protection/Completeness	1.5	0				
		Water Quality Subtotal FCI (d)	0.11	0				
		HB1. Flow Regime	1	0				
		HB2. Epifaunal Substrate and Available Cover	1	0	Notes:			
		HB3. Stream Bottom Substrate	1	0	(a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring			
		HB4. Pool Variability	0	0	methodology.			
		HB5. Sediment Deposition and Scouring	0	0	<ul> <li>(b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Functions.</li> <li>(c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth.</li> <li>(d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality). Shown as rounded to the nearest hundredth.</li> </ul>			
		HB6. Channel Flow Status	0	0				
		HB7. Channel Alteration	0	0				
		HB8. Channel Sinuosity	0	0				
		HB9. Bank Stability	3	0				
		HB10. Vegetative Protection	1.5	0	<ul> <li>(e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.</li> <li>(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is</li> </ul>			
		HB11. Riparian Zone	1.5	0				
		HB12. Riparian Habitat Condition	1.5	0				
		Habitat Subtotal FCI (e)	0.09	0	calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.			
		TOTAL - FCI <i>(f)</i>	0.25	0				
## TABLE G-2 (43): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

S1-PRE       6-25 / Ephemenia/ Interaction       H1. Row legme and Groundwater Interaction       1       0         S1-PRE       6-25 / Ephemenia/ Express do not form configuous channel bur H2b. Channel Capacity of Raw Frequency       0	ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA	
rragments du no form contiguou charnel bulle       H2b. Channel Condition/ Attenzion       0       0         libbo contante bulle       H2b. Channel Company Diversion       0       0         ubic trians to this in	S1-PRE	6-15'/ Ephemeral/ Existing ENSR channel	H1. Flow Regime and Groundwater	1	0	Due to depth and eroded     nature of channel, channel	N/A	N/A	
configuous channel but functions smulphile tributanes to NS III trodingtion of the tributanes on NS III trodingtion of the presented in separate table. Channel sequence will be that obstrate Composition00H3B. Bottom Substrate Composition100H3B. Bottom Substrate Composition100H4B. Dotament Incision000H4B. Dotament Bottom Sink Stability OR10W02. Water Cality30W03. Lander Bottom Sink Stability OR1.50W040. Reparation Zone Vegation1.50W040. Reparation Zone Vegation1.50H8. Pool Vegation1.50H8. Pool Vegation1.50H8. Pool Vegation1.50H8. Pool Vegation1.50H8. Pool Vegation1.50H8. Pool Vegation And Soluting00H8. Pool Vegation1.50H8. Pool Vegation1.50H8. Pool Vegation Hallo Stabiate Company00H8.		fragments do not form	H2a. Channel Condition/ Alteration	0	0	restoration in its current			
tuction as multiple       H2. Channel Bank Stability       3       0         tributaties to NSI III       H3. Channel Sciences Composition       1       0         up, tributaries to NSI III       H3. Channel Sciences Composition       1       0         prestored NSI channel is       H3. Channel Instaints       0       0         H3. Channel Instaints       0       0       0         H3. Channel Instaint       0       0       0         H3. Channel Instaint       0       0       0         W03. Tanke Stability       3       0       0       0         W03. Tanke Stability       3       0       0       0         W03. Tanke Stability       3       0       0       0         W03. Tanke Stability       1.5       0       0       0         W03. Tanke Stability Subtotal FC/d/       0.15       0       0       0         W13. Tanke Stability Subtotal FC/d/       0.15       0       0       0       0         W14. Stability Subtotal FC/d/d		contiguous channel but	H2b. Channel Capacity to Flow Frequency	0	0	location is infeasible.			
tributaries UNR1h       H3b. Bonnel Sinusity       0       0         H3b. Bonnel Substrate Composition       1       0         H3b. Bonnel Substrate Composition       0       0         maintig's n       1       0         Maintig's n       0       0         H4b. Bonnel Incision       0       0         H4b. Channel Row Status       0       0         W02L. Back Stability       3       0         W02L. Back Stability       0       0         W02L. Bac		function as multiple	H2c. Channel Bank Stability	3	0	Channel segment will be			
conjunction with upstream tributaries. The presented in separatic table. This table for an existing former NS segment. Will be replaced by FNSR-RST       H3b. Bottom Substrate Composition H3C. Instrate Indication H3D. Channel Bottom 100,007,007,007,007,007,007,007,007,007,		tributaries to NSR in	H3a. Channel Sinuosity	0	0	filled.			
upstream trubutaries. The presented in separate table. This table for additing former NSR segment. Will be replaced by FNSR-RST       Manning in 1       0       0         Market and table and		conjunction with	H3b. Bottom Substrate Composition	1	0	<ul> <li>Existing trees will be</li> </ul>			
pressured in separate table. This table for all existing former XSR.       Manneg s n Manneg s n Hait. Channel Rission       0       0         Hait. Channel Rission       0       0       0         Hait. Channel Rission       0       0         Hait. Channel Rission       0       0         Hait. Channel Rission       0       0         W01b. Channel Rission       0       0         W01b. Channel Rission       1       0         W02b. Water Clarity       0       0         W02b. Channel Rissine Rission       1.5       0         W02b. Rission Rission       1.5       0         W02b. Rispiral Zone       1.0       0         HB. Channel Rissistrate and Available Cover       1       0         HB. Sediment Doposition and Scouring       0       0         HB. Schamel Rissistrate and Available Cover       1       0         HB. Channel Rissistrate and Available Cover       1       0         H		upstream tributaries. The	H3c. In stream Bottom Topography OR	1	0	harvested as appropriate for use as large woody debris in other portions of the project			
Instable for an leader of leader.       Instable for an leader of leader.       Instable for an leader of leader.         Instable for an existing former MSt segment. Will be replaced by FNSR-RST       Instable for an leader.       Instable for an leader.         Instable for an existing former MSt segment. Will be replaced by FNSR-RST       Instable for an leader.       Instable for an leader.         W013. Bank Stability       3       0         W013. Bank Stability       3       0         W023. Nutrient Enrichment OR Presence of 0       0       0         W024. Composition of Organic Matter       0       0         W025. Land Use Pattern Beyond Immediate       1.5       0         W026. Riparian Zone       With Ifrom stream       1.5       0         W026. Riparian Zone       1.5       0       0         W181. Endower Bottom Status       0       0       0         W182. Epitaunal Substrate and Available Cover       1       0       0         H83. Cream Bottom Substrate       1       0       0       0         H84. Pool Variability       0       0       0       0       0         H85. Channel Flow Status       0       0       0       0       0       0       0         H85. Channel Flow Status       0		presented in separate	Manning's n		-				
Hda. Pools       0       0         Hda. Channel Flow Status       0       0         Hdb. Channel Flow Status       0       0         Hdb. Channel Flow Status       0       0         WQ1b. Channel Bottom Bank Stability QR       3       0         WQ1b. Channel Bottom Bank Stability QR       0       0         WQ1b. Channel Bottom Bank Stability QR       0       0         WQ2b. Water Clarity       0       0         WQ2. Water Clarity       0       0         WQ3. Nutrient Enrichment OR Presence of Rigarian Zone       1.5       0         WQ4. Composition of Organic Matter       0       0         Hd2. Epifaunal Substrate       1.0       0         Hd3. Encor Regina       0.11       0         Hd4. Pool Variability       0       0         Hd5. Channel How Status       0       0         Hd4. Pool Variability       0       0         Hd5. Channel How Status       0 <td></td> <td>table This table for an</td> <td>H3d. Channel Incision</td> <td>0</td> <td>0</td> <td>other portions of the project.</td> <td></td> <td></td>		table This table for an	H3d. Channel Incision	0	0	other portions of the project.			
H4D. Channel How Status       0       0         Bisgment. Will businer       H4D. Channel Isoft (c)       0.06         WQ12. Bank Stability       3       0         WQ12. Mater Clarity       0       0         WQ2. Water Clarity       0       0         WQ2. Water Clarity       0       0         WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation       0       0         WQ4. Subter Clarity       0       0         WQ5. Rapran Zone       1.5       0         WQ68. Riparian Zone       1       0         H81. Flow Regime       1       0         H82. Sediment Deposition and Scouring       0       0         H83. Stream Bottom Substrate       1       0         H84. Pool Variability       0       0         H84. Channel Atteration       0       0         H84. Channel Atteration       0       0         H84. Pool Variability       0       0         H84. Channel Atteration       0       0         H85. Channel Thow Status       0		existing former NSR	H4a. Pools	0	0				
Improvide y SNR-RST         Improvide y Substate Composition         0           W11. Channel Bottom Bank Stability 0R Channel Bediments or Substrate Composition         0         0           W02. Water Clarity         0         0           W02. Water Clarity         0         0           W02. Water Clarity         0         0           W03. Lond Use Pattern Beyond Immediate Riparia Zone         1.5         0           W03. Randow Stability         1.5         0           W04. Composition of Organic Matter         0         0           W04. Composition of Organic Matter         0         0           W04. Suparia Zone         1.5         0           W04. Suparia Zone         1.5         0           W04. Suparia Zone         1         0           W04. Suparia Zone Vegetation         1.5         0           Water Quality Substrate FCI (d)         0.11         0           HB3. Flow Regime         1         0         0           HB3. Flow Regime         1         0         0           HB3. Flow Status         0         0         (l) Prefer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring methodology.           HB3. Channel Alteration         0         0         0 <td></td> <td>segment. Will be</td> <td>H4b. Channel Flow Status</td> <td>0</td> <td>0</td> <td></td> <td></td> <td></td>		segment. Will be	H4b. Channel Flow Status	0	0				
W113. Bork stability       3       0         W113. Bork stability       3       0         W113. Bork stability       0       0         W113. Bork stability       0       0         W123. Stability       0       0         W124. Composition of Organic Matter       0       0         W125. Land Use Pattern Beyond Immediate       1.5       0         Riparian Zone       WQ6a. Riparian Zone Width (from stream edge to field)       1.5       0         W026. Riparian Zone Width (from stream edge to field)       1.5       0       0         W126. Riparian Zone Width (from stream edge to field)       1.5       0       0         W126. Riparian Zone Width (from stream edge to field)       1.5       0       0         W126. Riparian Zone Width (from stream edge to field)       1.5       0       0         W126. Riparian Zone Width (from stream edge to field)       1.5       0       0         W126. Riparian Zone Width (from stream edge to field)       1.5       0       0         W126. Riparian Zone Width (from stream edge to field)       0.0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0<		replaced by FNSR-RST	Hydrology Subtotal FCI (C)	0.06	0				
WQLB. Channel softem stability OK         1         0           Channel Sediments of Substrate Composition         0         0           WQ2. Water Clarity         0         0           WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation         0         0           WQ4. Composition of Organic Mater         0         0           WQ5. Riparian Zone         1.5         0           WQ66. Riparian Zone Width (from stream edge to field)         1.5         0           WQ65. Riparian Zone Vigetation         1.5         0           HB1. Flow Regime         1         0           HB2. Epifaunal Substrate and Available Cover         1         0           HB2. Epifaunal Substrate         0         0           HB3. Stream Bottom Substrate         0         0           HB5. Channel Flow Status         0         0           HB6. Channel Flow Status         0         0           HB7. Channel Sinussity         0         0           HB8. Channel Sinussity         0         0           HB9. Channel Flow Status         0         0           HB7. Channel Miteration         0         0           HB7. Channel Sinussity         0         0           HB8. Channel Flow Status		·····	WQ1a. Bank Stability	3	0				
W02. Water Clarity       0       0         W03. Nutrient Enrichment OR Presence of Aquatic Vegetation       0       0         W04. Composition of Organic Matter       0       0         W05. Land Use Pattern Beyond Immediate Riparian Zone       1.5       0         W06b. Riparian Zone       1.5       0         W06b. Riparian Zone       1.5       0         W06b. Riparian Zone       1.5       0         W046b. Riparian Zone       1.5       0         W046b. Riparian Zone       1.5       0         Water Quality Subtotal FCI (d)       0.11       0         HB1. Flow Regime       1       0         HB2. Epifaunal Substrate and Available Cover       1       0         HB4. Pool Variability       0       0         HB5. Sediment Deposition and Scouring       0       0         HB7. Channel Flow Status       0       0         HB7. Channel Sinussity       0       0       reurest hundredth.         HB8. Channel Sinussity       0       0       0         HB10. Vegetative Protection       1.5       0       reurest hundredth.         HB8. Channel Sinussity       0       0       0       0         HB7. Channel Hateration       0 <td></td> <td rowspan="2"></td> <td>Channel Sediments or Substrate Composition</td> <td>1</td> <td>0</td> <td rowspan="7"></td> <td></td> <td rowspan="3"></td>			Channel Sediments or Substrate Composition	1	0				
WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation       0       0         WQ4. Composition of Organic Matter       0       0         WQ4. Composition of Organic Matter       0       0         WQ5. Land Use Pattern Beyond Immediate Riparian Zone       1.5       0         WQ68. Riparian Zone Width (from stream edge to field)       1.5       0         WQ60. Riparian Zone Vegetation Protection/Completeness       1.5       0         HB1. Flow Regime       1       0         HB2. Epifaunal Substrate and Available Cover       1       0         HB3. Stream Bottom Substrate       1       0         HB4. Pool Variability       0       0         HB5. Sediment Deposition and Scouring HB4. Pool Variability       0       0         HB5. Sediment Deposition and Scouring HB6. Channel Flow Status       0       0         HB7. Channel Alteration       0       0       0         HB8. Channel Sinuosity       0       0       0       0			WQ2. Water Clarity	0	0				
WQ4. Composition of Organic Matter       0       0         WQ5. Land Use Pattern Beyond Immediate Riparian Zone Width (from stream edge to field)       1.5       0         WQ6b. Riparian Zone Width (from stream edge to field)       1.5       0         WQ6b. Riparian Zone Vegetation Protection/Completeness       1.5       0         HB1. Flow Regime       1       0         HB2. Epifaunal Substrate and Available Cover       1       0         HB3. Stream Bottom Substrate       1       0         HB5. Sediment Deposition and Scouring HB4. Pool Variability       0       0         HB6. Channel Flow Status       0       0         HB7. Channel Alteration       0       0         HB7. Channel Alteration       0       0         HB8. Channel Flow Status       0       0         (d) Water Quality Subtotal FCI Score = Sum of individual scores ±100 (highest possible score for Water Quality). HB7. Channel Alteration       0         HB8. Channel Flow Status       0       0       (d) Water Quality Subtotal FCI Score = Sum of individual scores ±100 (highest possible score for Water Quality). HB9. Bank Stability       3       0         HB10. Vegetative Protection       1.5       0       (d) Water Quality Subtotal FCI Score = Sum of individual scores ±100 (highest possible score for Habitat). Shown as rounded to the nearest hundredth. HB11. Riparian Zone </td <td></td> <td></td> <td>WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation</td> <td>0</td> <td>0</td>			WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	0				
WQ5. Land Use Pattern Beyond Immediate Riparian Zone1.50WQ6a. Riparian Zone Width (from stream edge to field)1.50WQ6b. Riparian Zone Vegetation Protection/Completeness1.50Water Quality Subtotal FCI (d)0.110H81. Flow Regime10H82. Epifanual Substrate and Available Cover10H83. Stream Bottom Substrate10H84. Pool Variability00H85. Sediment Deposition and Scouring00H86. Channel Flow Status00H87. Channel Alteration00H88. Channel Sinuostry00H89. Stability30H81. Riparian Zone1.50H81. Riparian Tone00H83. Stream Bottom Stubstrate1H84. Pool Variability00H85. Sediment Deposition and Scouring000(b) "#" "Haydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Functions.H86. Channel Flow Status00(c) Hydrology Subtotal FCI Score = Sum of individual scores +100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth.H89. Bank Stability30H810. Negatina Zone1.50H811. Riparian Zone1.50H812. Riparian Tabitat Condition1.50H813. Riparian Zone1.50H814. Riparian Zone1.50H815. Rottine Channel Coll (p)0.90Cal			WQ4. Composition of Organic Matter	0	0				
WQ6a. Riparian Zone Width (from stream edge to field)1.50WQ6b. Riparian Zone Vegetation Protection/Completeness1.50Water Quality Subtotal FCI (d)0.110HB1. Flow Regime10HB2. Epifaunal Substrate and Available Cover10HB3. Stream Bottom Substrate10HB4. Pool Variability00HB5. Sediment Deposition and Scouring00HB6. Channel Flow Status00HB7. Channel Alteration00HB8. Channel Sinuosity00HB1. Riparian Zone1.50HB1. Riparian Zone1.50HB1. Riparian Zone1.50HB1. Riparian Zone1.50HB1. Riparian Albitat Condition1.50HB1. Riparian Flow Status00HB2. Channel Sinuosity00HB3. Stream Bottom Silverte1.50HB4. Channel Sinuosity00HB5. Channel Sinuosity00HB1. Riparian Zone1.50HB1. Riparian Abitat Condition1.50HB1. Riparian Abitat Condition1.50HB1. Riparian Abitat Condition1.50HB1. Riparian Abitat Condition1.50HB1. Riparian Abitat Condition0.0250HB1. Riparian Habitat Condition0.0250HB1. Riparian Habitat Condition0.0250HB1. Riparian Habitat Condition0.0250HB1			WQ5. Land Use Pattern Beyond Immediate	1.5	0				
WQ6b. Riparian Zone Vegetation Protection/Completeness1.50Water Quality Subtotal FCI (d)0.110HB1. Flow Regime10HB2. Epifaunal Substrate and Available Cover10HB3. Stream Bottom Substrate10HB4. Pool Variability00HB5. Sediment Deposition and Scouring00HB5. Channel Flow Status00HB7. Channel Alteration00HB8. Channel Sinuosity00HB8. Channel Sinuosity00HB8. Channel Sinuosity00HB1. Riparian Zone1.50HB1.			WQ6a. Riparian Zone Width (from stream	1.5	0				
Water Quality Subtotal FCI (d)0.110HB1. Flow Regime10HB2. Epifaunal Substrate and Available Cover10HB3. Stream Bottom Substrate10HB4. Pool Variability00HB5. Sediment Deposition and Scouring00HB6. Channel Flow Status00HB7. Channel Alteration00HB8. Rediment Substrate00HB7. Channel Alteration00HB7. Channel Sinuosity00HB8. Nether Status00HB7. Channel Sinuosity00HB8. Nether Statis00HB7. Channel Sinuosity00HB8. Nether Statis00HB8. Dipiting30HB1. Riparian Zone1.50HB1. Riparian Zone1.50HB1. Riparian Abitat Condition1.50HB1. Riparian Abitat Condition1.50HB1. Riparian FCI (e)0.090COTAL - FCI (f)0.250			WQ6b. Riparian Zone Vegetation	1.5	0				
HB1. Flow Regime10HB2. Epifaunal Substrate and Available Cover10HB2. Epifaunal Substrate and Available Cover10HB3. Stream Bottom Substrate10HB4. Pool Variability00HB5. Sediment Deposition and Scouring00HB5. Channel Flow Status00HB6. Channel Flow Status00HB7. Channel Alteration00HB8. Channel Sinuosity00HB9. Bank Stability30HB1. Riparian Zone1.50HB1. Riparian Habitat Condition1.50HB1. Riparian Habitat Condition1.50HB1. Riparian Habitat Condition1.50HB1. Riparian Zone1.50HB1. Riparian Habitat Condition1.50HB1. Riparian Zone1.50HB1. Riparian Zone1.50HB1. Riparian Condition1.50HB1. Riparian Gone1.50HB1. Riparian Condition1.5			Water Quality Subtotal FCL (d)	0.11	0				
HB2. Epifaunal Substrate and Available Cover10HB2. Epifaunal Substrate10HB3. Stream Bottom Substrate10HB4. Pool Variability00HB5. Sediment Deposition and Scouring00HB6. Channel Flow Status00HB7. Channel Alteration00HB8. Channel Sinuosity00HB9. Bank Stability30HB10. Vegetative Protection1.50HB11. Riparian Zone1.50HB12. Riparian Habitat Condition1.50HB12. Riparian Habitat Condition1.50HB12. Riparian Habitat Condition1.50HB12. Riparian Cone1.50HB12. Riparian Condition1.50HB12. Riparian Habitat Condit			HB1. Flow Regime	1	0				
HB3. Stream Bottom Substrate10HB3. Stream Bottom Substrate10HB4. Pool Variability00HB5. Sediment Deposition and Scouring00HB6. Channel Flow Status00HB7. Channel Alteration00HB8. Channel Sinuosity00HB9. Bank Stability30HB10. Vegetative Protection1.50HB12. Riparian Habitat Condition1.50HB12. Riparian Habitat Condition1.50HB12. Riparian Habitat Subtotal FCI (e)0.090HB12. FICI (f)0.250			HB2. Epifaunal Substrate and Available Cover	1	0	Notas:			
HB4. Pool Variability00HB5. Sediment Deposition and Scouring00HB5. Sediment Deposition and Scouring00HB6. Channel Flow Status00HB7. Channel Alteration00HB8. Channel Sinuosity00HB9. Bank Stability30HB10. Vegetative Protection1.50HB11. Riparian Zone1.50HB12. Riparian Habitat Condition1.50HB12. Riparian Habitat Condition1.50HB12. Riparian Habitat Condition1.50HB12. Riparian Habitat Condition1.50Habitat Subtotal FCI (e)0.090Collard Collard Collard State Stat			HB3. Stream Bottom Substrate	1	0	(a) Refer to SWAMPIM Documenta	tion (included in Annendix C of Prono	sed Mitigation Plan) for scoring	
HB5. Sediment Deposition and Scouring00HB6. Channel Flow Status00HB7. Channel Alteration00HB8. Channel Sinuosity00HB9. Bank Stability30HB10. Vegetative Protection1.50HB11. Riparian Zone1.50HB12. Riparian Habitat Condition1.50HB12. Riparian Habitat Condition1.50Habitat Subtotal FCI (e)0.090Habitat Subtotal FCI (f)0.250			HB4. Pool Variability	0	0	methodology		sea willigation i hany for scoring	
HB6. Channel Flow Status00(c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Shown as rounded to the nearest hundredth.HB7. Channel Alteration00(d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality).HB8. Channel Sinuosity00(d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality).HB9. Bank Stability30(e) Habitat Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Water Quality).HB10. Vegetative Protection1.50(e) Habitat Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.HB11. Riparian Zone1.50(e) Habitat Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.HB12. Riparian Habitat Condition1.50(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.TOTAL - FCI (f)0.250			HB5. Sediment Deposition and Scouring	0	0	(b) "H" = Hydrologic Functions: "W	O" = Water Quality/Biogeochemical F	unctions: "HB" = Habitat Functions.	
HB7. Channel Alteration       0       0       rounded to the nearest hundredth.         HB8. Channel Sinuosity       0       0       (d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality).         HB9. Bank Stability       3       0       Shown as rounded to the nearest hundredth.         HB10. Vegetative Protection       1.5       0       (e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.         HB11. Riparian Zone       1.5       0       (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.         HB12. Riparian Habitat Condition       1.5       0       (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.         TOTAL - FCI (f)       0.25       0			HB6. Channel Flow Status	0	0	(c) Hydrology Subtotal FCI Score = S	Sum of individual scores ÷100 (highest	possible score for Hydrology). Shown as	
HB8. Channel Sinuosity000HB9. Bank Stability30(d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality).HB9. Bank Stability30Shown as rounded to the nearest hundredth.HB10. Vegetative Protection1.50(e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown asHB11. Riparian Zone1.50rounded to the nearest hundredth.HB12. Riparian Habitat Condition1.50(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total isHabitat Subtotal FCI (e)0.090calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.TOTAL - FCI (f)0.250rounded to the subtotal for the			HB7. Channel Alteration	0	0	rounded to the nearest hundredth.		,	
HB9. Bank Stability30Shown as rounded to the nearest hundredth.HB10. Vegetative Protection1.50(e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown asHB11. Riparian Zone1.50rounded to the nearest hundredth.HB12. Riparian Habitat Condition1.50(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total isHabitat Subtotal FCI (e)0.090calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.TOTAL - FCI (f)0.2500			HB8. Channel Sinuosity	0	0	(d) Water Quality Subtotal FCI Scor	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).	
HB10. Vegetative Protection1.50(e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.HB11. Riparian Tone1.50(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.Habitat Subtotal FCI (f)0.250			HB9. Bank Stability	3	0	Shown as rounded to the nearest h	undredth.		
HB11. Riparian Zone1.50rounded to the nearest hundredth.HB12. Riparian Habitat Condition1.50(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total isHabitat Subtotal FCI (e)0.090TOTAL - FCI (f)0.250			HB10. Vegetative Protection	1.5	0	(e) Habitat Subtotal FCI Score = Sur	n of individual scores ÷120 (highest po	ossible score for Habitat). Shown as	
HB12. Riparian Habitat Condition1.50(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total is calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.Habitat Subtotal FCI (p)0.250			HB11. Riparian Zone	1.5	0	0 rounded to the nearest hundredth.			
Habitat Subtotal FCI (e)0.090calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.TOTAL - FCI (f)0.250			HB12. Riparian Habitat Condition	1.5	0	(f) Total FCI = Hydrology Subtotal F	Cl + Water Quality Subtotal FCl + Hab	itat Subtotal FCI. Value for the Total is	
TOTAL - FCI <i>(f)</i> 0.25 0			Habitat Subtotal FCI (e)	0.09	0	calculated using spreadsheet value	eadsheet values for the Subtotals, then rounded to the nearest hundredth.		
			TOTAL - FCI (f)	0.25	0				

## TABLE G-2 (44): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S1-TRIB1- PRE	2.5-5.0'/ Ephemeral/ Channelized reach of	H1. Flow Regime and Groundwater Interaction	1	0	<ul> <li>Creation of meandering tributary channel will involve</li> </ul>	N/A	N/A
	tributary to downstream	H2a. Channel Condition/ Alteration	2	0	fill of historically channelized		
	FNSR channel fragment;	H2b. Channel Capacity to Flow Frequency	2	0	reach of this tributary and		
	Will be replaced by MS-D	H2c. Channel Bank Stability	3	0	grading to create new		
	(TRIB-FNSR-RST)	H3a. Channel Sinuosity	0	0	channel.		
		H3b. Bottom Substrate Composition	1	0	<ul> <li>Existing trees will be</li> </ul>		
		H3c. In stream Bottom Topography OR Manning's n	1	0	harvested as appropriate for use as large woody debris in		
		H3d. Channel Incision	1	0	other portions of the project.		
		H4a. Pools	0	0			
		H4b. Channel Flow Status	0	0			
		Hydrology Subtotal FCI (c)	0.11	0			
		WQ1a. Bank Stability	3	0			
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	0			
		WQ2. Water Clarity	0	0			
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	0			
		WQ4. Composition of Organic Matter	0	0			
		WQ5. Land Use Pattern Beyond Immediate Riparian Zone	1.5	0			
		WQ6a. Riparian Zone Width (from stream edge to field)	1.5	0			
		WQ6b. Riparian Zone Vegetation Protection/Completeness	1.5	0			
		Water Quality Subtotal FCI (d)	0.11	0			
		HB1. Flow Regime	1	0			
		HB2. Epifaunal Substrate and Available Cover	1	0	Notes:		
		HB3. Stream Bottom Substrate	1	0	(a) Refer to SWAMPIM Documenta	tion (included in Appendix C of Propo	sed Mitigation Plan) for scoring
		HB4. Pool Variability	0	0	methodology.	. ,, ,, ,,	5 ,, 5
		HB5. Sediment Deposition and Scouring	0	0	(b) "H" = Hydrologic Functions; "We	Q" = Water Quality/Biogeochemical F	unctions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	0	(c) Hydrology Subtotal FCI Score = S	Sum of individual scores ÷100 (highest	t possible score for Hydrology). Shown as
		HB7. Channel Alteration	2	0	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	0	0	(d) Water Quality Subtotal FCI Scor	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).
		HB9. Bank Stability	3	0	Shown as rounded to the nearest h	undredth.	
		HB10. Vegetative Protection	1.5	0	(e) Habitat Subtotal FCI Score = Sun	n of individual scores ÷120 (highest pe	ossible score for Habitat). Shown as
		HB11. Riparian Zone	1.5	0	rounded to the nearest hundredth.		
		HB12. Riparian Habitat Condition	1.5	0	(f) Total FCI = Hydrology Subtotal F	CI + Water Quality Subtotal FCI + Hab	itat Subtotal FCI. Value for the Total is
		Habitat Subtotal FCI <i>(e)</i>	0.10	0	0 calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.		
		TOTAL - FCI <i>(f)</i>	0.32	0			

## TABLE G-2 (45): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA	
S2-PRE	6-15'/ Ephemeral/	H1. Flow Regime and Groundwater	1	0	Due to depth and eroded     nature of channel, channel	N/A	N/A	
	fragments do not form	H2a, Channel Condition/ Alteration	0	0	restoration in its current			
	contiguous channel but	H2b. Channel Capacity to Flow Frequency	0	0	location is infeasible.			
	function as multiple	H2c. Channel Bank Stability	3	0	Channel segment will be			
	tributaries to NSR in	H3a. Channel Sinuosity	0	0	filled.			
	conjunction with	H3b. Bottom Substrate Composition	1	0	<ul> <li>Existing trees will be</li> </ul>			
	upstream tributaries. The	H3c. In stream Bottom Topography OR			harvested as appropriate for			
	restored NSR channel is	Manning's n	1	0	use as large woody debris in			
	presented in separate	H3d. Channel Incision	0	0	other portions of the project.			
	table. This table is just for	H4a. Pools	0	0				
	an existing FNSR	H4b. Channel Flow Status	0	0				
	segment; Will be	Hydrology Subtotal FCI (c)	0.06	0				
	replaced by FNSR-RST	WQ1a. Bank Stability	3	0				
		WQ1b. Channel Bottom Bank Stability OR	1	0				
		Channel Sediments or Substrate Composition	1	0				
		WQ2. Water Clarity	0	0				
		WQ3. Nutrient Enrichment OR Presence of	0	0				
		Aquatic Vegetation	Ű	Ű				
		WQ4. Composition of Organic Matter	0	0	_			
		WQ5. Land Use Pattern Beyond Immediate	1.5	0				
		Riparian Zone	_					
		WQ6a. Riparian Zone Width (from stream	1.5	0				
		edge to field)						
		WQ6b. Riparian Zone Vegetation	1.5	0				
		Protection/Completeness	0.11	0				
		Water Quality Subtotal FCI (d)	0.11	0				
		HD1. FIUW Kegillie	1	0				
		HB2. Epilauliai Substrate and Available Cover	1	0	Notes:			
		HB4 Pool Variability	0	0	(a) Refer to SWAMPIM Documenta	tion (included in Appendix C of Propo	sea Mitigation Plan) for scoring	
		HB5 Sediment Deposition and Scouring	0	0	h) "H" - Hydrologic Eunctions: "W	O" - Water Quality/Piegeochemical P	Sunctions: "UP" - Unhitat Eurotions	
		HB6 Channel Flow Status	0	0	(b) $H = Hydrologic Functions, W$	G – Water Quality/Biogeochernical P Sum of individual scores ±100 (biabes:	t possible score for Hydrology) Shown as	
		HB7 Channel Alteration	0	0	rounded to the nearest hundredth	Sum of manual scores : 100 (mgnes)	possible score for rightology). Shown us	
		HB8 Channel Sinuosity	0	0	(d) Water Quality Subtotal ECI Scor	e = Sum of individual scores ÷80 (hiał	nest possible score for Water Quality).	
		HB9. Bank Stability	3	0	Shown as rounded to the nearest h	undredth.		
		HB10. Vegetative Protection	1.5	0	(e) Habitat Subtotal FCI Score = Sur	n of individual scores ÷120 (highest p	ossible score for Habitat). Shown as	
		HB11. Riparian Zone	1.5	0	o rounded to the nearest hundredth.			
		HB12. Riparian Habitat Condition	1.5	0	0       (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total Control Contro Control Control Control Control Control Control Control			
		Habitat Subtotal FCI (e)	0.09	0				
		TOTAL - FCI (f)	0.25	0				

## TABLE G-2 (46): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

S2-PRE     6-15/f Sphemeral/ Explored by PMS hand     H. How Regime and Groundwater Interaction     1     0     Interaction     N/A       S2-PRE     C-15/f Sphemeral/ Explored by PMS hand     H. How Regime and Groundwater Interaction     0     0       H. How Regime and Groundwater Interaction     0     0     0       H. How Regime and Groundwater Interaction     0     0       H. How Regime and Groundwater Interaction     0     0       H. How Regime and Groundwater Interaction     0     0       H. How Regime and Groundwater Interaction in Interaction i	ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA	
Integrences on to Itom     Haza Channel Condition Alteration     0     0       Itable Construction as multiple     Haza Channel Condition Alteration     0     0       Haza Channel Isons Stability     6     0       Haza Channel Isons Stability     1     0       Haza Channel Isons Stability     0     0       Haza Channel Isons Stability     0     0       Haza Channel Isons Stability     0     0       Haza Channel Isons     0     0       Watta Stability     6     0       Watta Stability     0     0       Watta Stability Constant Matter     5     0       Maza Channel Isons     0     0       Haza Channel Isons     0     0       Maza Channel Isonstan Stability Constrea	S2-PRE	6-15'/ Ephemeral/ Existing FNSR channel	H1. Flow Regime and Groundwater Interaction	1	0	• Due to depth and eroded nature of channel, channel	N/A	N/A	
contiguous channel but futuraties to NS in conjunction with upstream tributaries. The restored MSK channel Bank Stability OR 130. Channel Issuestatic tributaries to NS in in conjunction with upstream tributaries. The restored MSK channel Substrate Composition 143. Dottome Issuestatic table. In stream Issuestatic table. Channel substrate Composition 143. Dottome Issuestate table. This table is just for an existing FNSR segment, Will be replaced by FNSR-RST.The Channel Indision 143. Dottome Issuestate table. Channel substrate Composition 143. Dottome Issuestate table. Channel substrate Composition 143. Dottome Issuestate W020. Channel Stability OR Channel Stability OR 		fragments do not form	H2a. Channel Condition/ Alteration	0	0	restoration in its current			
Iunction as multiple       H2. Channel Band Stability       6       0         H3. Channel Band Stability       1       0         H3. Channel Simustity       6       0         H3. Channel Simustity       1       0         H3. Channel Simustity       1       0         H3. Channel Simustity       0       0         H3. Channel Rom Stability OR       0       0         H3. Channel Simustity       0       0         H3. Channel Solutity       0       0         H3. Channel Solutity       0       0         H3. Channel Solutity       0       0         W21. Channel Solutity       0       0         W22. Water Calmity       0       0         W33. Nutrent. Intrihment OR Presence of so       0       0         W34. Composition of Organic Anew Wolft (from stream edge to field)       0       0         W34. Composition and Scouring       0       0       0         W34. Longostion and Scouring       0       0       0         W34. Longostion and Scouring       0		contiguous channel but	H2b. Channel Capacity to Flow Frequency	0	0	location is infeasible.			
tributaries to NSI in upstream tributaries. The protected NSR channel Sinousity     1     0       H3B. Bottom Substrate Composition     1     0       Manning's on     H3B. Strate Composition     0       an existing FNSR segment. Will be replaced by FNSR RST     H3B. Channel Flow Status     0     0       W1B. Channel Flow Status     0     0     0       W2B. Channel Flow Status     0     0     0       W2B. Channel Flow Status     0     0       W2B. Channel Stability     6     0       W2B. Channel Stability     0     0 <td></td> <td>function as multiple</td> <td>H2c. Channel Bank Stability</td> <td>6</td> <td>0</td> <td>Channel segment will be</td> <td></td> <td></td>		function as multiple	H2c. Channel Bank Stability	6	0	Channel segment will be			
conjunction with upstream tributines. He restored NSR channel is present in statules is just for an existing FNSR segment; Will be replaced by FNSR-RST.       H3E. Channel Incision       0       0         H3E. Channel Incision       0       0       0       0       0         H3E. Channel Incision       0       0       0       0       0       0         H3E. Channel Incision       0		tributaries to NSR in	H3a. Channel Sinuosity	1	0	filled.			
upstream tributaries. The restored NSR channel inseparate table. This table is proble       Manning's n       4       0         Manning's n       Manning's n       0       0         Hard, Channel Incision       0       0         resting FNSR segment: Will be replaced by FNSR-RST.       Hat, Channel Rottom Bank Stability OR (WGLb, Channel Rottom Bank Stability OR Ochannel Substrate Composition of Organic Matter       0       0         WQ2. Water Clarity       0       0       0         WQ3. Land Use Platern Beyond Immediate Reparation Composition of Organic Matter       5       0         WQ5. Land Use Platern Beyond Immediate Reparation Composition of Organic Matter       6       0         WQ5. Rippiana Cone (edge to field)       0.044       0         HB2. Eprimaria Substrate and Available Cover       4       0         HB2. Stream Bottom Substrate       0       0         HB3. Sediment Despition of Craganic Matter       0       0         HB3. Eprimaria Substrate and Available Cover       4       0         HB3. Sediment Despition and Scouring       0       0       0		conjunction with	H3b. Bottom Substrate Composition	1	0	<ul> <li>Existing trees will be</li> </ul>			
presented in separate table. This table is just for an existing FNSR segment: will be replaced by FNSR-RST.       Had. Channel Inoxion       0       0         WQ1b. Channel Flow Status       0       0       0         WQ1b. Channel Flow Status       0       0       0         WQ1b. Channel Bottom Bank Stability OR Channel Sediments 07: Substrate Composition       1       0         WQ1b. Channel Bottom Bank Stability OR Channel Sediments 07: Substrate Composition       1       0         WQ2. Water Clarity       0       0       0         WQ2. Mutrient Enrichment OR Presence of Aquatic Vegetation       5       0         WQ3. Engraina Zone       6       0         WQ4. Composition of Organic Matter       5       0         WQ4. Engraina Zone       6       0         WQ4. Engraina Zone       6       0         WQ4. Engraina Zone       1       0         WQ4. Engraina Zone       6       0         WH41. Flow Regime       1       0         WH42. English Registration and Available Cover       4       0         H83. Ensame Bottom Substrate       0       0         H84. Pool Variability       0       0         H85. Channel Heros Status       0       0         H84. Pool Variability	u r	upstream tributaries. The restored NSR channel is	H3c. In stream Bottom Topography OR Manning's n	4	0	harvested as appropriate for use as large woody debris in			
table. This table is just for an existing FNSR segment; Will be replaced by FNSR-RST. WQ1.a sank stability WQ1.b chamel Flow Status WQ2.a sank stability WQ2.b chamel Flow Status WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation WQ4. Composition of Organic Matter Solution of Organic Matter WQ5. Riparian Zone edge to field) WQ6.b. Riparian Zone Vegetation Protection/Completeness WQ6.b. Riparian Zone Vegetation HQ2. Epifauni Stubstrate and Available Cover HQ3. Substrate and Available Cover HQ3. Enrichment OR Protection HQ3. Composition of Organic Matter Solution WQ6.b. Riparian Zone Vegetation HQ3. Figurian Zone Vegetation HQ3. Enrichment OR Protection HQ3. Enric		presented in separate	H3d. Channel Incision	0	0	other portions of the project.			
an existing PASR segment: Will be replaced by FNSR-RST. Hydrology Subtotal FCI (c) WC11. Eank Stability OR Channel Forw Status WC12. Channel Rottom Bank Stability OR Channel Rottom Bank Stability OR WC12. Channel Rottom OR Presence of WC12. Longostition of Organic Matter WC12. Longostition and Scouring H13. Flow Regime H13. Flow Regime H13. Flow Regime H14. Pool Variability H14. Pool Variability H14. Pool Variability H148. Channel Rottom Substrate H148. Channel Rottom Rottom Rottom H148. Channel Rottom H149. Chan		table. This table is just for	H4a. Pools	0	0				
segment, Will be replaced by FNSR-RST.       Hydrology Subtotal FCI (c)       0.13       0         WQ1a. Bank Stability       6       0         WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition       1       0         WQ2. Channel Sediments or Substrate Composition       0       0         WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation       5       0         WQ4. Composition of Organic Matter       5       0         WQ5. Stand Use Pattern Beyond Immediate Biparian Zone       6       0         WQ65. Riparian Zone Width (from stream edge to field)       6       0         WQ65. Riparian Zone Vigetation Protection/Completeness       6       0         H82. Epifanul Substrate and Available Cover       4       0         H83. Stream Bottom Substrate       1       0       0         H84. Pool Variability       0       0       0         H85. Sediment Deposition and Scouring       0       0       0         H84. Pool Variability       6       0       0         H84. Pool Variability       0       0       0         H84. Pool Variability       0       0       0         H84. Pool Variability       6       0       0         H85. Sediment Deposition an		an existing FNSR	H4b. Channel Flow Status	0	0				
replaced by FNSR-RST.       WQ1a. Bank Stability       6       0         WQ1b. Channel Bottom Bank Stability OR       1       0         WQ2b. Channel Sediments or Substrate Composition       1       0         WQ2. Water Clarity       0       0         WQ3b. Stutient Enrichment OR Presence of Aquatic Vegetation       5       0         WQ4b. Composition of Organic Matter       5       0         WQ5. Land Use Pattern Beyond Immediate       6       0         WQ4b. Riparian Zone Vegetation       6       0         WQ6a. Riparian Zone Vegetation       6       0         WQ6a. Riparian Zone Vegetation       6       0         WQ6a. Riparian Zone Vegetation       6       0         H92. Epifuanal Substrate and Available Cover       4       0         H92. Epifuanal Substrate and Available Cover       4       0         H93. Stream Bottom Substrate       1       0         H94. Epifuanal Substrate and Available Cover       4       0         H93. Stream Bottom Substrate       1       0         H94. Epifuanal Substrate and Available Cover       4       0         H95. Channel Alteration       0       0       (1) Ward Substrate Code Substrate Substrate Substrate Substrate Code Proposed Mitigation Plan) for scoring methodology.		segment; Will be	Hydrology Subtotal FCI (c)	0.13	0				
W01b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition W02. Water Clarity00W03. Nutrient Enrichment OR Presence of Aquatic Vegetation50W04. Composition of Organic Matter50W04. Composition of Organic Matter50W05. Land Use Pattern Beyond Immediate edge to field)60W060. Riparian Zone60W051. Stand Use Pattern Beyond Immediate edge to field)00W052. Matter Quality Subtotal FCI (d)0.440H81. Flow Regime10H82. Stream Bottom Substrate10H83. Stream Bottom Substrate10H962. Channel Alexand00H85. Sediment Deposition and Scauring H86. Channel Flow Status00H85. Channel Sinusity100H85. Steam Sinusity100H85. Channel Alteration60H85. Channel Sinusity100H85. Channel Sinusity100H85. Steam Sinusity100H85. Channel Sinusity100H85. Chann		replaced by FNSR-RST.	WQ1a. Bank Stability	6	0				
WQ2. Water Clarity       0       0         WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation       5       0         WQ4. Composition of Organic Matter       5       0         WQ5. Stand Use Pattern Beyond Immediate Riparian Zone       6       0         WQ66a. Riparian Zone Width (from stream edge to field)       6       0         WQ65b. Riparian Zone Vegetation Protection/Completeness       6       0         Water Quality Subtotal FCI (d)       0.444       0         HB1. Flow Regime       1       0         HB2. Stream Bottom Substrate       1       0         HB3. Stream Bottom Substrate       0       0         HB4. Soud Variability       0       0         HB5. Sediment Deposition and Scouring       0       0         HB5. Sediment Deposition and Scouring       0       0         HB6. Channel Flow Status       0       0         HB7. Channel Alteration       0       0         HB8. Channel Sinuosity       1       0         HB8. Channel Sinuosity       1       0         HB7. Channel Sinuosity       1       0         HB8. Channel Sinuosity       1       0         HB8. Channel Sinuosity       1       0         HB8.			WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	0				
W03. Nutrient Enrichment OR Presence of Aquatic Vegetation       5       0         W04. Composition of Organic Matter       5       0         W04. Composition of Organic Matter       5       0         W05. Land Use Pattern Beyond Immediate Riparian Zone       6       0         W06b. Riparian Zone Width (from stream edge to field)       6       0         W06b. Riparian Zone Vegetation Protection/Completeness       6       0         HB1. Flow Regime       1       0         HB2. Epifaunal Substrate and Available Cover       4       0         HB3. Stream Bottom Substrate       1       0         HB4. Pool Variability       0       0         HB5. Channel Flow Status       0       0         HB7. Channel Alteration       0       0         HB8. Channel Flow Status       0       0         HB9. Bank Stability       6       0         HB1. Riparian Zone       6       0         HB1. Riparian Zone       6       0         HB3. Channel Shuosty       1       0         HB3. Channel Alteration       0       0         HB3. Row masslinity       6       0         HB3. Row masslinity       6       0         HB3. Row masslinity <td< td=""><td></td><td></td><td>WQ2. Water Clarity</td><td>0</td><td>0</td><td rowspan="7"></td><td rowspan="3"></td></td<>			WQ2. Water Clarity	0	0				
WQ4. Composition of Organic Matter50WQ5. Land Use Pattern Beyond Immediate60WQ5. Riparian Zone60WQ6. Riparian Zone Width (from stream edge to field)60WQ6b. Riparian Zone Vegetation Protection/Completeness60Water Quality Subtotal FCI (d)0.440HB2. Epifaunal Substrate and Available Cover40HB3. Stream Bottom Substrate10HB5. Sediment Deposition and Scouring00HB6. Channel Flow Status00HB7. Channel Alteration00HB8. Channel Sinuosity10HB8. Channel Sinuosity00HB1. Riow Regime10HB2. Sediment Deposition and Scouring00(c) Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Function (c) Hydrologic Subtatal FCI Score = Sum of individual scores +100 (highest possible score for Hydrology). ShHB7. Channel Alteration00HB8. Channel Sinuosity10HB1. Ngparian Zone60HB1. Ngparian Zone60HB1. Riparian Zone60HB1. Riparian Zone60HB1. Riparian Zone60HB1. Riparian Zone60HB2. Riparian Zone60HB2. Riparian Zone60HB3. Riparian Zone60HB3. Riparian Zone60HB3. Riparian Zone60HB3. R			WQ3. Nutrient Enrichment OR Presence of	5	0				
WQS. Land Use Pattern Beyond Immediate       6       0         Riparian Zone       6       0         WQGB. Riparian Zone Width (from stream edge to field)       6       0         WQGB. Riparian Zone Vegetation Protection/Completeness       6       0         Water Quality Subtotal FCI (d)       0.44       0         HB2. Epifaunal Substrate and Available Cover       4       0         HB2. Epifaunal Substrate and Available Cover       4       0         HB3. Stream Bottom Substrate       1       0         HB4. Pool Variability       0       0         HB5. Sediment Deposition and Scouring HB6. Channel Flow Status       0       0         HB7. Channel Alteration       0       0         HB8. Channel Sinuosity       1       0         HB8. Channel Sinuosity       1       0         HB8. Channel Sinuosity       1       0         HB7. Sediment Deposition and Scouring       0       0         HB8. Channel Sinuosity       1       0         HB8. Channel Sinuosity       1       0         HB8. Channel Sinuosity       1       0         HB9. Bank Stability       6       0         HB1. Riparian Zone       6       0         HB1. Riparian Ra			WO4. Composition of Organic Matter	5	0				
Riparian Zone       6       0         WQ6a. Riparian Zone Width (from stream edge to field)       6       0         WQ6b. Riparian Zone Vegetation Protection/Completeness       6       0         Water Quality Subtotal FCI (d)       0.44       0         HB1. Flow Regime       1       0         HB2. Epifaunal Substrate and Available Cover       4       0         HB3. Stream Bottom Substrate       1       0         HB4. Polo Variability       0       0         HB5. Sediment Deposition and Scouring       0       0         (b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Function         HB6. Channel Alteration       0       0         HB7. Channel Alteration       0       0         HB8. Channel Alteration       0       0         HB9. Bank Stability       1       0         HB1. Riow Potection       6       0         HB1. Riparian Zone       6       0         HB1. Riparian Zone       6       0         HB1. Riparian Zone       6       0         HB1. Riparian Habitat Condition       6       0         HB1. Riparian Teol (e)       0.26       0         HB2. Channel Sinuosity       1			WQ5. Land Use Pattern Bevond Immediate						
WQ6a. Riparian Zone Width (from stream edge to field)       6       0         WQ6b. Riparian Zone Vegetation Protection/Completeness       6       0         Water Quality Subtotal FCI (d)       0.44       0         HB1. Flow Regime       1       0         HB2. Epifaunal Substrate and Available Cover       4       0         HB3. Stream Bottom Substrate       1       0         HB4. Pool Variability       0       0         HB5. Sediment Deposition and Scouring       0       0         HB7. Channel Alteration       0       0         HB8. Channel Sinuosity       1       0         HB8. Channel Sinuosity       1       0         HB7. Channel Alteration       0       0         HB8. Channel Sinuosity       1       0         HB9. Bank Stability       6       0         HB10. Vegetative Protection       6       0         HB10. Vegetative Protection       6       0         HB12. Riparian Labitat Condition       6       0         HB12. Riparian Habitat Condition       6       0         HB2. Channel Flow Status       6       0         HB2. Channel Alteration       0       0         HB2. Channel Alteration       0       <			Riparian Zone	6	0				
WQ6b. Riparian Zone Vegetation Protection/Completeness60Water Quality Subtotal FCI (d)0.440HB1. Flow Regime10HB2. Epifaunal Substrate and Available Cover40HB3. Stream Bottom Substrate10HB4. Pool Variability00HB5. Sediment Deposition and Scouring00HB5. Channel Flow Status00HB6. Channel Flow Status00HB7. Channel Alteration00HB8. Channel Sinuosity10HB9. Bank Stability60HB10. Vegetative Protection60HB11. Riparian Zone60HB12. Riparian Habitat Condition60HB12. Riparian Habitat Condition60HB12. Riparian Habitat Condition60HB12. HC16/J0.880HB12. Riparian Habitat Condition60HB12. HC16/J0.880HB12. HC16/J0.880HB12. HC16/J0.880HB12. HC16/J0.880HB12. HC16/J0.88HB12. HC16/J0.88 <td< td=""><td></td><td></td><td>WQ6a. Riparian Zone Width (from stream edge to field)</td><td>6</td><td>0</td><td></td></td<>			WQ6a. Riparian Zone Width (from stream edge to field)	6	0				
Water Quality Subtotal FCI (d)0.440HB1. Flow Regime10HB2. Epifaunal Substrate and Available Cover40HB3. Stream Bottom Substrate10HB4. Pool Variability00HB5. Sediment Deposition and Scouring00HB6. Channel Flow Status00HB7. Channel Alteration00HB9. Bank Stability10HB9. Bank Stability10HB9. Bank Stability60HB9. Bank Stability60HB10. Vegetative Protection60HB11. Riparian Zone60HB12. Riparian Habitat Condition60HB12. Riparian Habitat Condition60HB12. Riparian Habitat Condition60HB12. Riparian Habitat Condition60HB12. Riparian Habitat Condition60Habitat Subtotal FCI (e)0.260HB12. F(f)0.830			WQ6b. Riparian Zone Vegetation Protection/Completeness	6	0				
HB1. Flow Regime10HB2. Epifaunal Substrate and Available Cover40HB3. Stream Bottom Substrate10HB4. Pool Variability00HB5. Sediment Deposition and Scouring00HB6. Channel Flow Status00HB7. Channel Alteration00HB8. Channel Sinuosity10HB9. Bank Stability60HB1. Riparian Zone60HB11. Riparian Zone60HB12. Riparian Habitat Condition60HB12. Riparian Habitat Condition60HB12. Riparian Habitat Condition60HB12. Riparian Habitat Condition60HB12. Riparian Habitat Condition00HB12. Riparian Habitat Condition60HB12. Riparian Habitat Condition60HB12. Riparian Habitat Condition00HB12. Riparian Habitat Condition60HB12. Riparian Habitat FCI (e)0.260HB12. Riparian Habitat Condition60HB12. Ripa			Water Quality Subtotal FCI (d)	0.44	0				
HB2. Epifaunal Substrate and Available Cover40Notes:HB3. Stream Bottom Substrate10HB4. Pool Variability00HB5. Sediment Deposition and Scouring00HB6. Channel Flow Status00HB7. Channel Alteration00HB8. Channel Sinuosity10HB9. Bank Stability60HB1. Negetative Protection60HB1. Riparian Zone60HB1. Riparian Kotali FCI (e)0.26HB1. Riparian Contition60HB1. Riparian Zone60HB1. Riparian Zone60HB1. Riparian Zone60HB1. Riparian Zone60HB1. Riparian Zone60HB1. Riparian Zone60HB1. Riparian Zone <td></td> <td></td> <td>HB1. Flow Regime</td> <td>1</td> <td>0</td> <td></td> <td></td> <td></td>			HB1. Flow Regime	1	0				
HB3. Stream Bottom Substrate10(a) Refer to SWAMPIM Documentation (included in Appendix C of Proposed Mitigation Plan) for scoring methodology.HB4. Pool Variability000methodology.HB5. Sediment Deposition and Scouring00(b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Function (c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Sh rounded to the nearest hundredth.HB8. Channel Alteration00HB9. Bank Stability60HB10. Vegetative Protection60HB12. Riparian Zone60HB12. Riparian Habitat Condition60HB12. Riparian Habitat Condition60HB12. Riparian Habitat Condition60HB12. FIG1(f)0.880			HB2. Epifaunal Substrate and Available Cover	4	0	Notes:			
HB4. Pool Variability       0       0       methodology.         HB5. Sediment Deposition and Scouring       0       0       (b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Function         HB6. Channel Flow Status       0       0       (c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Sh         HB7. Channel Alteration       0       0       rounded to the nearest hundredth.         HB8. Channel Sinuosity       1       0       (d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality Bescore for Water Quality Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown is rounded to the nearest hundredth.         HB10. Vegetative Protection       6       0       (e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown is rounded to the nearest hundredth.         HB11. Riparian Zone       6       0       (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the To rounded to the nearest hundredth.         HB12. Riparian Habitat Condition       6       0       (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the To calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.         HB12. Riparian Habitat Condition       6       0       (f) Total FCI = Hydrology Subtotal FCI +			HB3. Stream Bottom Substrate	1	0	(a) Refer to SWAMPIM Documenta	tion (included in Appendix C of Propo	sed Mitigation Plan) for scoring	
HB5. Sediment Deposition and Scouring       0       0       (b) "H" = Hydrologic Functions; "WQ" = Water Quality/Biogeochemical Functions; "HB" = Habitat Function         HB6. Channel Flow Status       0       0       (c) Hydrology Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Hydrology). Sh         HB7. Channel Alteration       0       0       (d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality Biogeochemical Functions; "HB" = Habitat Function         HB8. Channel Sinuosity       1       0       (d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Habitat Quality Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Habitat Quality Subtotal FCI Score = Sum of individual scores ÷100 (highest possible score for Habitat Quality Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown is rounded to the nearest hundredth.         HB1. Riparian Zone       6       0         HB12. Riparian Habitat Condition       6       0         Habitat Subtotal FCI (e)       0.26       0         TOTAL - FCI (f)       0.83       0			HB4. Pool Variability	0	0	methodology.			
HB6. Channel Flow Status       0 </td <td></td> <td></td> <td>HB5. Sediment Deposition and Scouring</td> <td>0</td> <td>0</td> <td>(b) "H" = Hydrologic Functions; "W</td> <td>Q" = Water Quality/Biogeochemical F</td> <td>Functions; "HB" = Habitat Functions.</td>			HB5. Sediment Deposition and Scouring	0	0	(b) "H" = Hydrologic Functions; "W	Q" = Water Quality/Biogeochemical F	Functions; "HB" = Habitat Functions.	
HB7. Channel Alteration00rounded to the nearest hundredth.HB8. Channel Sinuosity10(d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.HB10. Vegetative Protection60HB11. Riparian Zone60HB12. Riparian Habitat Condition60HB12. Riparian Habitat Condition60Habitat Subtotal FCI (e)0.260TOTAL - FCI (f)0.830			HB6. Channel Flow Status	0	0	(c) Hydrology Subtotal FCI Score = S	Sum of individual scores ÷100 (highes	t possible score for Hydrology). Shown as	
HB8. Channel Sinuosity       1       0       (d) Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality Subtotal FCI Score = Sum of individual scores ÷80 (highest possible score for Water Quality Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.         HB10. Vegetative Protection       6       0       (e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown as rounded to the nearest hundredth.         HB11. Riparian Zone       6       0       rounded to the nearest hundredth.         HB12. Riparian Habitat Condition       6       0       (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total FCI (f)         Habitat Subtotal FCI (f)       0.83       0			HB7. Channel Alteration	0	0	rounded to the nearest hundredth.			
HB9. Bank Stability       6       0       Shown as rounded to the nearest hundredth.         HB10. Vegetative Protection       6       0       (e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown         HB11. Riparian Zone       6       0       rounded to the nearest hundredth.         HB12. Riparian Habitat Condition       6       0       (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total rounded to the nearest hundredth.         Habitat Subtotal FCI (e)       0.26       0       calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.         TOTAL - FCI (f)       0.83       0			HB8. Channel Sinuosity	1	0	(d) Water Quality Subtotal FCI Scor	e = Sum of individual scores ÷80 (higł	nest possible score for Water Quality).	
HB10. Vegetative Protection       6       0       (e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown rounded to the nearest hundredth.         HB11. Riparian Zone       6       0       rounded to the nearest hundredth.         HB12. Riparian Habitat Condition       6       0       (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Total FCI = Hydrology Subtotal FCI + Habitat Subtotal FCI. Value for the Total FCI (f)         TOTAL - FCI (f)       0.83       0			HB9. Bank Stability	6	0	Shown as rounded to the nearest h	undredth.		
HB11. Riparian Zone       6       0       rounded to the nearest hundredth.         HB12. Riparian Habitat Condition       6       0       (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the TC         Habitat Subtotal FCI (e)       0.26       0       calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.         TOTAL - FCI (f)       0.83       0			HB10. Vegetative Protection	6	0	(e) Habitat Subtotal FCI Score = Sur	n of individual scores ÷120 (highest p	ossible score for Habitat). Shown as	
HB12. Riparian Habitat Condition       6       0       (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Tc         Habitat Subtotal FCI (e)       0.26       0       calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.         TOTAL - FCI (f)       0.83       0			HB11. Riparian Zone	6	0	0 rounded to the nearest hundredth.			
Habitat Subtotal FCI (e)0.260TOTAL - FCI (f)0.830			HB12. Riparian Habitat Condition	6	0	(f) Total FCI = Hydrology Subtotal F	CI + Water Quality Subtotal FCI + Hab	nitat Subtotal FCI. Value for the Total is	
TOTAL - FCI <i>(f)</i> 0.83 0			Habitat Subtotal FCI <i>(e)</i>	0.26	0 calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth.				
			TOTAL - FCI <i>(f)</i>	0.83	0				

## TABLE G-2 (47): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S2-TRIB1-	6-15'/ Ephemeral/	H1. Flow Regime and Groundwater	1	0	Creation of meandering     tributany channel will involve	N/A	N/A
	tributary to middle FNSR	H2a, Channel Condition/ Alteration	0	0	fill of historically channelized		
	channel fragment: Will	H2b. Channel Capacity to Elow Frequency	0	0	reach of tributary and grading		
	be replaced by MS-F	H2c. Channel Bank Stability	3	0	to create new channel.		
	(TRIB-FNSR-RST).	H3a, Channel Sinuosity	0	0	<ul> <li>Existing trees will be</li> </ul>		
		H3b. Bottom Substrate Composition	1	0	harvested as appropriate for		
		H3c. In stream Bottom Topography OR			use as large woody debris in		
		Manning's n	1	0	other portions of the project.		
		H3d. Channel Incision	0	0			
		H4a. Pools	0	0			
		H4b. Channel Flow Status	0	0			
		Hydrology Subtotal FCI (c)	0.06	0			
		WQ1a. Bank Stability	3	0			
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	0			
		WQ2. Water Clarity	0	0			
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	0			
		WQ4. Composition of Organic Matter	0	0			
		WQ5. Land Use Pattern Beyond Immediate Riparian Zone	1.5	0			
		WQ6a. Riparian Zone Width (from stream edge to field)	1.5	0			
		WQ6b. Riparian Zone Vegetation Protection/Completeness	1.5	0			
		Water Quality Subtotal FCI (d)	0.11	0			
		HB1. Flow Regime	1	0			
		HB2. Epifaunal Substrate and Available Cover	1	0	Notes:		
		HB3. Stream Bottom Substrate	1	0	(a) Refer to SWAMPIM Documental	tion (included in Appendix C of Propos	ed Mitigation Plan) for scoring
		HB4. Pool Variability	0	0	methodology.		5 ,, 5
		HB5. Sediment Deposition and Scouring	0	0	(b) "H" = Hydrologic Functions; "WC	Q" = Water Quality/Biogeochemical F	unctions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	0	(c) Hydrology Subtotal FCI Score = S	um of individual scores ÷100 (highest	possible score for Hydrology). Shown as
		HB7. Channel Alteration	0	0	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	0	0	(d) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).
		HB9. Bank Stability	3	0	Shown as rounded to the nearest h	undredth.	
		HB10. Vegetative Protection	1.5	0	(e) Habitat Subtotal FCI Score = Sun	n of individual scores ÷120 (highest po	ossible score for Habitat). Shown as
		HB11. Riparian Zone	1.5	0	rounded to the nearest hundredth.		
		HB12. Riparian Habitat Condition	1.5	0	(f) Total FCI = Hydrology Subtotal FC	CI + Water Quality Subtotal FCI + Hab	itat Subtotal FCI. Value for the Total is
		Habitat Subtotal FCI <i>(e)</i>	0.09	0	calculated using spreadsheet values	s for the Subtotals, then rounded to th	he nearest hundredth.
		TOTAL - FCI <i>(f)</i>	0.25	0			

## TABLE G-2 (48): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S2-TRIB2- PRE	2.5-5.0'/ Ephemeral/ Channelized reach of S2-	H1. Flow Regime and Groundwater Interaction	1	0	<ul> <li>Creation of meandering tributary channel will involve</li> </ul>	N/A	N/A
	TRIB2; Will be replaced	H2a. Channel Condition/ Alteration	2	0	fill of historically channelized		
	by MS-H (TRIB-FNSR-	H2b. Channel Capacity to Flow Frequency	2	0	reach of this tributary and		
	RST).	H2c. Channel Bank Stability	3	0	grading to create new		
		H3a. Channel Sinuosity	0	0	channel.		
		H3b. Bottom Substrate Composition	1	0	<ul> <li>Existing trees will be</li> </ul>		
		H3c. In stream Bottom Topography OR Manning's n	1	0	harvested as appropriate for use as large woody debris in		
		H3d. Channel Incision	1	0	other portions of the project.		
		H4a. Pools	0	0			
		H4b. Channel Flow Status	0	0			
		Hydrology Subtotal FCI (c)	0.11	0			
		WQ1a. Bank Stability	3	0			
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	0			
		WQ2. Water Clarity	0	0			
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	0			
		WQ4. Composition of Organic Matter	0	0			
		WQ5. Land Use Pattern Beyond Immediate Riparian Zone	1.5	0			
		WQ6a. Riparian Zone Width (from stream edge to field)	1.5	0			
		WQ6b. Riparian Zone Vegetation Protection/Completeness	1.5	0			
		Water Quality Subtotal FCI (d)	0.11	0			
		HB1. Flow Regime	1	0			
		HB2. Epifaunal Substrate and Available Cover	1	0	Notes:		
		HB3. Stream Bottom Substrate	1	0	(a) Refer to SWAMPIM Documenta	ition (included in Appendix C of Prop	osed Mitigation Plan) for scoring
		HB4. Pool Variability	0	0	methodology.		5 ,, 5
		HB5. Sediment Deposition and Scouring	0	0	(b) "H" = Hydrologic Functions; "W	'Q" = Water Quality/Biogeochemical	Functions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	0	(c) Hydrology Subtotal FCI Score = S	Sum of individual scores ÷100 (highe	st possible score for Hydrology). Shown as
		HB7. Channel Alteration	2	0	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	0	0	(d) Water Quality Subtotal FCI Scor	re = Sum of individual scores ÷80 (hig	ghest possible score for Water Quality).
		HB9. Bank Stability	3	0	Shown as rounded to the nearest h	undredth.	
		HB10. Vegetative Protection	1.5	0	(e) Habitat Subtotal FCI Score = Sur	m of individual scores ÷120 (highest j	possible score for Habitat). Shown as
		HB11. Riparian Zone	1.5	0	p rounded to the nearest hundredth.		
		HB12. Riparian Habitat Condition	1.5	0	(f) Iotal FCI = Hydrology Subtotal F	CI + Water Quality Subtotal FCI + Ha	abitat Subtotal FCI. Value for the Total is
		Habitat Subtotal FCI (e)	0.10	0	calculated using spreadsheet value	es for the Subtotals, then rounded to	the nearest hundreath.
		IUIAL - FUI (J)	0.32	U			

## TABLE G-2 (49): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S2-TRIB3- A1-PRE	6-15'/ Ephemeral/ FNSR segment that	H1. Flow Regime and Groundwater Interaction	1	0	<ul> <li>Due to depth and eroded nature of channel, channel</li> </ul>	N/A	N/A
	functions as tributary to	H2a. Channel Condition/ Alteration	0	0	restoration in its current		
	S2-TRIB3; Will be	H2b. Channel Capacity to Flow Frequency	0	0	location is infeasible. Channel		
	replaced by FNSR-RST	H2c. Channel Bank Stability	6	0	segment will be filled.		
		H3a. Channel Sinuosity	1	0	<ul> <li>Existing trees will be</li> </ul>		
		H3b. Bottom Substrate Composition	1	0	harvested as appropriate for use as large woody debris in other portions of the project.		
		H3c. In stream Bottom Topography OR Manning's n	4	0			
		H3d. Channel Incision	0	0			
		H4a. Pools	0	0			
		H4b. Channel Flow Status	0	0			
		Hydrology Subtotal FCI (c)	0.13	0			
		WQ1a. Bank Stability	6	0			
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	0			
		WQ2. Water Clarity	0	0			
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	5	0			
		WQ4. Composition of Organic Matter	5	0			
		WQ5. Land Use Pattern Beyond Immediate Riparian Zone	6	0			
		WQ6a. Riparian Zone Width (from stream edge to field)	6	0			
		WQ6b. Riparian Zone Vegetation Protection/Completeness	6	0			
		Water Quality Subtotal FCI (d)	0.44	0			
		HB1. Flow Regime	1	0			
		HB2. Epifaunal Substrate and Available Cover	4	0	Notes:		
		HB3. Stream Bottom Substrate	1	0	(a) Refer to SWAMPIM Documenta	tion (included in Appendix C of Propos	ed Mitigation Plan) for scoring
		HB4. Pool Variability	0	0	methodology.		
		HB5. Sediment Deposition and Scouring	0	0	(b) "H" = Hydrologic Functions; "W(	Q" = Water Quality/Biogeochemical F	unctions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	0	(c) Hydrology Subtotal FCI Score = S	Sum of individual scores ÷100 (highest	possible score for Hydrology). Shown as
		HB7. Channel Alteration	0	0	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	1	0	(d) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).
		HB9. Bank Stability	6	0	Shown as rounded to the nearest h	undredth.	
		HB10. Vegetative Protection	6	0	(e) Habitat Subtotal FCI Score = Sun	n of individual scores ÷120 (highest po	ossible score for Habitat). Shown as
		HB11. Riparian Zone	6	0 rounded to the nearest hundredth.			
		HB12. Riparian Habitat Condition	6	(f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the			
		Habitat Subtotal FCI <i>(e)</i>	0.26	0	calculated using spreadsheet values	s for the Subtotals, then rounded to th	he nearest hundredth.
		TOTAL - FCI <i>(f)</i>	0.83	0			

## TABLE G-2 (50): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S2-TRIB3- A2-PRF	6-15'/ Ephemeral/ ENSR segment that	H1. Flow Regime and Groundwater	1	0	Due to depth and eroded     pature of channel, channel	N/A	N/A
	functions as tributary to	H2a. Channel Condition/ Alteration	0	0	restoration in its current		
	S2-TRIB3; Will be	H2b. Channel Capacity to Flow Frequency	0	0	location is infeasible. Channel		
	replaced by FNSR-RST.	H2c. Channel Bank Stability	6	0	segment will be filled.		
		H3a. Channel Sinuosity	1	0	• Existing trees will be		
		H3b. Bottom Substrate Composition	1	0	harvested as appropriate for		
		H3c. In stream Bottom Topography OR Manning's n	4	0	use as large woody debris in other portions of the project.		
		H3d. Channel Incision	0	0			
		H4a. Pools	0	0	1		
		H4b. Channel Flow Status	0	0			
		Hydrology Subtotal FCI (c)	0.13	0			
		WQ1a. Bank Stability	6	0	1		
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	0			
		WQ2. Water Clarity	0	0	1		
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	5	0			
		WQ4. Composition of Organic Matter	5	0			
		WQ5. Land Use Pattern Beyond Immediate Riparian Zone	6	0			
		WQ6a. Riparian Zone Width (from stream edge to field)	6	0			
		WQ6b. Riparian Zone Vegetation Protection/Completeness	6	0			
		Water Quality Subtotal FCI (d)	0.44	0	1		
		HB1. Flow Regime	1	0			
		HB2. Epifaunal Substrate and Available Cover	4	0	Notes:		
		HB3. Stream Bottom Substrate	1	0	(a) Refer to SWAMPIM Documentat	tion (included in Appendix C of Prop	oosed Mitigation Plan) for scoring
		HB4. Pool Variability	0	0	methodology.		
		HB5. Sediment Deposition and Scouring	0	0	(b) "H" = Hydrologic Functions; "Wo	Q" = Water Quality/Biogeochemica	l Functions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	0	(c) Hydrology Subtotal FCI Score = S	um of individual scores ÷100 (highe	est possible score for Hydrology). Shown as
		HB7. Channel Alteration	0	0	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	1	0	(d) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (hig	ghest possible score for Water Quality).
		HB9. Bank Stability	6	0	Shown as rounded to the nearest hi	Indreath.	
		HB10. Vegetative Protection	6	0	(e) Habitat Subtotal FCI Score = Sun	n oj inalviaŭal scores ÷120 (nighest	possible score for Habitat). Showh as
		HB11. Riparian Zone	6	0	(f) Total ECI - Hydrology Subtotal EC	CL+ Water Quality Subtatal ECL + U	abitat Subtotal ECL Value for the Total is
		HB12. Riparian Habitat Condition	6	0	()) Total FCI - Hydrology Subtolal FC	s for the Subtotals then rounded to	the nearest hundredth
		Habitat Subtotal FCI <i>(e)</i>	0.26	0			י נווב וובטובאנ וועוועובענוו.
		TOTAL - FCI <i>(f)</i>	0.83	0		1	

## TABLE G-2 (51): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S2-TRIB3- A3-PRF	6-15'/ Ephemeral/ ENSR segment that	H1. Flow Regime and Groundwater	1	0	Due to depth and eroded     nature of channel, channel	N/A	N/A
	functions as tributary to	H2a. Channel Condition/ Alteration	0	0	restoration in its current		
	, S2-TRIB3; Will be	H2b. Channel Capacity to Flow Frequency	0	0	location is infeasible. Channel		
	replaced by FNSR-RST.	H2c. Channel Bank Stability	6	0	segment will be filled.		
		H3a. Channel Sinuosity	1	0	<ul> <li>Existing trees will be</li> </ul>		
		H3b. Bottom Substrate Composition	1	0	harvested as appropriate for		
		H3c. In stream Bottom Topography OR	4	0	use as large woody debris in other portions of the project.		
		H2d Channel Incision	0	0			
			0	0			
		H/h Channel Flow Status	0	0			
		Hydrology Subtotal FCL (c)	0.13	0			
		WO1a Bank Stability	6	0			
		WO1b, Channel Bottom Bank Stability OB	Ŭ	0			
		Channel Sediments or Substrate Composition	1	0			
		WQ2. Water Clarity	0	0			
		WQ3. Nutrient Enrichment OR Presence of	5	0			
		WO4. Composition of Organic Matter	5	0			
		WQ5. Land Use Pattern Bevond Immediate					
		Riparian Zone	6	0			
		WQ6a. Riparian Zone Width (from stream	C	0			
		edge to field)	6	0			
		WQ6b. Riparian Zone Vegetation	G	0			
		Protection/Completeness	0	0			
		Water Quality Subtotal FCI (d)	0.44	0			
		HB1. Flow Regime	1	0			
		HB2. Epifaunal Substrate and Available Cover	4	0	Notes:		
		HB3. Stream Bottom Substrate	1	0	(a) Refer to SWAMPIM Documenta	tion (included in Appendix C of Propo	osed Mitigation Plan) for scoring
		HB4. Pool Variability	0	0	methodology.		
		HB5. Sediment Deposition and Scouring	0	0	(b) "H" = Hydrologic Functions; "W(	Q" = Water Quality/Biogeochemical	Functions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	0	(c) Hydrology Subtotal FCI Score = S	ium of individual scores ÷100 (highes	t possible score for Hydrology). Shown as
		HB7. Channel Alteration	0	0	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	1	0	(d) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (hig	hest possible score for Water Quality).
		HB9. Bank Stability	6	0	Shown as rounded to the nearest h	undredth.	
		HB10. Vegetative Protection	6	0	0       (e) Habitat Subtotal FCI Score = Sum of individual scores ÷120 (highest possible score for Habitat). Shown of rounded to the nearest hundredth.         0       (i) The head of the nearest hundredth.		
		HB11. Riparian Zone	6	0			
		HB12. Riparian Habitat Condition	6	$_{0}$ (f) Total FCI = Hydrology Subtotal FCI + Water Quality Subtotal FCI + Habitat Subtotal FCI. Value for the Tot			bilal Subtotal FCI. Value for the Total IS
		Habitat Subtotal FCI (e)	0.26	0 calculated using spredusneet values for the subtotals, then rounded to the nearest hundreath.		וויב וויבערפגר וועווערפענוו.	
		TOTAL - FCI <i>(f)</i>	0.83	0		·	

## TABLE G-2 (52): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S2-TRIB3- A4-PRE	0.5-2.0′/ Ephemeral/ Ditch conveying flow	H1. Flow Regime and Groundwater Interaction	0	0	Due to depth and eroded     nature of channel, channel	N/A	N/A
	from Hedrick Branch to	H2a. Channel Condition/ Alteration	2	0	restoration in its current		
	FNSR segment	H2b. Channel Capacity to Flow Frequency	2	0	location is infeasible. Channel		
	Will be replaced by FNSR-	H2c. Channel Bank Stability	3	0	segment will be filled.		
	RST.	H3a. Channel Sinuosity	0	0	<ul> <li>Existing trees will be</li> </ul>		
		H3b. Bottom Substrate Composition	1	0	harvested as appropriate for		
		H3c. In stream Bottom Topography OR Manning's n	1	0	use as large woody debris in other portions of the project.		
		H3d. Channel Incision	1	0			
		H4a. Pools	0	0			
		H4b. Channel Flow Status	0	0			
		Hydrology Subtotal FCI (c)	0.10	0			
		WQ1a. Bank Stability	3	0			
		WQ1b. Channel Bottom Bank Stability OR Channel Sediments or Substrate Composition	1	0			
		WQ2. Water Clarity	0	0			
		WQ3. Nutrient Enrichment OR Presence of Aquatic Vegetation	0	0			
		WQ4. Composition of Organic Matter	0	0			
		WQ5. Land Use Pattern Beyond Immediate Riparian Zone	1.5	0			
		WQ6a. Riparian Zone Width (from stream edge to field)	1.5	0			
		WQ6b. Riparian Zone Vegetation Protection/Completeness	1.5	0			
		Water Quality Subtotal FCI (d)	0.11	0			
		HB1. Flow Regime	0	0			
		HB2. Epifaunal Substrate and Available Cover	1	0	Notes:		
		HB3. Stream Bottom Substrate	1	0	(a) Refer to SWAMPIM Documentat	tion (included in Appendix C of Propo	sed Mitigation Plan) for scoring
		HB4. Pool Variability	0	0	methodology.		
		HB5. Sediment Deposition and Scouring	0	0	(b) "H" = Hydrologic Functions; "W(	Q" = Water Quality/Biogeochemical F	Functions; "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	0	(c) Hydrology Subtotal FCI Score = S	um of individual scores ÷100 (highes	t possible score for Hydrology). Shown as
		HB7. Channel Alteration	2	0	rounded to the nearest hundredth.		
		HB8. Channel Sinuosity	5	0	(d) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (high	nest possible score for Water Quality).
		HB9. Bank Stability	3	0	Shown as rounded to the nearest h	undredth.	
		HB10. Vegetative Protection	1.5	0	(e) Habitat Subtotal FCI Score = Sun	n of individual scores ÷120 (highest p	ossible score for Habitat). Shown as
		HB11. Riparian Zone	1.5	0	rounded to the nearest hundredth.		
		HB12. Riparian Habitat Condition	1.5	0	(f) Iotal FCI = Hydrology Subtotal F(	CI + Water Quality Subtotal FCI + Hab	bitat Subtotal FCI. Value for the Total is
		Habitat Subtotal FCI <i>(e)</i>	0.14	0	calculated using spreadsheet values	s for the Subtotals, then rounded to t	ne nearest hundreath.
		TOTAL - FCI <i>(f)</i>	0.34	0			

## TABLE G-2 (53): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S2-TRIB3-	6-15'/ Ephemeral/	H1. Flow Regime and Groundwater	1	0	Portion of existing tributary	N/A	N/A
PRE	Downstream portion of	Interaction	1	0	that discharges to		
	existing tributary that	H2a. Channel Condition/ Alteration	0	0	channelized reach of FNSR.		
	discharges to channelized	H2b. Channel Capacity to Flow Frequency	0	0	Channel segment will be		
	reach of FNSR; Section	H2c. Channel Bank Stability	6	0	filled.		
	within fragmented	H3a. Channel Sinuosity	1	0	<ul> <li>Grading to construct new</li> </ul>		
	wooded riparian zone;	H3b. Bottom Substrate Composition	1	0	channel segment (MS-I) to		
	Will be replaced by MS-I	H3c. In stream Bottom Topography OR	4	0	connect upstream tributaries		
	(TRIB-FNSR-RST).	Manning's n		0	to FNSR-RST based on natural		
		H3d. Channel Incision	0	0	channel design.		
		H4a. Pools	0	0	• Existing trees in fill areas will		
		H4b. Channel Flow Status	0	0	be harvested as appropriate		
		Hydrology Subtotal FCI (c)	0.13	0	for use as large woody debris		
		WQ1a. Bank Stability	6	0	In other porions of the		
		WQ1b. Channel Bottom Bank Stability OR	1	0	project.		
		Channel Sediments or Substrate Composition	-	<u> </u>	4		
		WQ2. Water Clarity	0	0	-		
		WQ3. Nutrient Enrichment OR Presence of	5	0			
	-	Aquatic Vegetation	_				
		WQ4. Composition of Organic Matter	5	0	-		
		WQ5. Land Use Pattern Beyond Immediate	6	0			
		Riparian Zone			-		
		wQ6a. Riparian Zone width (from stream	6	0			
		WO6h Piparian Zone Vegetation			-		
		Protection/Completeness	6	0			
		Water Quality Subtotal ECL (d)	0.44	0	-		
		HB1 Flow Regime	1	0			
		HB2. Epifaunal Substrate and Available Cover	4	0	Notos	1	1
		HB3. Stream Bottom Substrate	1	0	(a) Refer to SWAARIAA Documenter	tion (included in Annandix C of Propa	sed Mitigation Plan) for scoring
		HB4 Pool Variability	0	0	(d) Rejer to SWAMPIM Documental	tion (included in Appendix C of Propos	sed willigation Plan, for scoring
		HB5. Sediment Deposition and Scouring	0	0	(h) "H" - Hydrologic Eunctions: "W(	0" – Water Quality/Biogeochemical E	unctions: "HB" - Habitat Functions
		HB6. Channel Flow Status	0	0	(c) Hydrology Subtotal ECI Score = S	um of individual scores ±100 (highes)	t nossible score for Hydrology) Shown as
		HB7. Channel Alteration	0	0	rounded to the nearest hundredth		possible score for right ology). Shown as
		HB8. Channel Sinuosity	1	0	(d) Water Quality Subtotal FCI Score	e = Sum of individual scores ÷80 (hiał	nest possible score for Water Quality)
		HB9. Bank Stability	6	0	Shown as rounded to the nearest h	undredth.	
		HB10. Vegetative Protection	6	0	(e) Habitat Subtotal FCI Score = Sun	n of individual scores ÷120 (highest p	ossible score for Habitat). Shown as
		HB11. Riparian Zone	6	0	rounded to the nearest hundredth.		, ,
		HB12. Riparian Habitat Condition	6	0	(f) Total FCI = Hydrology Subtotal F	CI + Water Quality Subtotal FCI + Hab	itat Subtotal FCI. Value for the Total is
		Habitat Subtotal FCI <i>(e)</i>	0.26	0	calculated using spreadsheet values	s for the Subtotals, then rounded to t	he nearest hundredth.
		TOTAL - FCI (f)	0.83	0			
L	I				1		

## TABLE G-2 (54): MITIGATION SUMMARY TABLE – SWAMPIM PRE- AND POST-PROJECT STREAM SCORES AND MITIGATION INFORMATION

ID_NAME	WIDTH OHWM/ CLASSIFICATION/DESC.	SWAMPIM METRICS (a, b)	BASELINE (EXISTING) SCORES	PROJECTED SCORES	MITIGATION ACTIVITIES/WORK PERFORMED	RATIONALE FOR LIFT	SUCCESS CRITERIA
S2-TRIB3- PRE	6-15'/ Ephemeral/ Downstream portion of	H1. Flow Regime and Groundwater	1	0	Channelized reach of FNSR     will be filled	N/A	N/A
	existing tributary that	H2a. Channel Condition/ Alteration	0	0	<ul> <li>Existing trees will be</li> </ul>		
	discharges to channelized	H2b. Channel Capacity to Flow Frequency	0	0	harvested as appropriate for		
	reach of FNSR; Section	H2c. Channel Bank Stability	3	0	use as large woody debris in		
	within cropland; Will be	H3a. Channel Sinuosity	0	0	other portions of the project.		
	replaced by MS-I (TRIB-	H3b. Bottom Substrate Composition	1	0			
	FNSR-RST).	H3c. In stream Bottom Topography OR	1	0			
		Manning's n	1	U			
		H3d. Channel Incision	0	0			
		H4a. Pools	0	0			
		H4b. Channel Flow Status	0	0			
		Hydrology Subtotal FCI (c)	0.06	0			
		WQ1a. Bank Stability	3	0			
		WQ1b. Channel Bottom Bank Stability OR	1	0			
		Channel Sediments or Substrate Composition	0	0			
		WQ2. Water Clarity	0	0			
		Aquatic Vegetation	0	0			
		WO4 Composition of Organic Matter	0	0			
		WQ4. composition of organic Matter	0	0			
		Riparian Zone	1.5	0			
		WO6a, Riparian Zone Width (from stream					
		edge to field)	1.5	0			
		WQ6b. Riparian Zone Vegetation		_			
		Protection/Completeness	1.5	0			
		Water Quality Subtotal FCI (d)	0.11	0			
		HB1. Flow Regime	1	0			
		HB2. Epifaunal Substrate and Available Cover	1	0	Notes:		
		HB3. Stream Bottom Substrate	1	0	(a) Refer to SWAMPIM Documenta	tion (included in Appendix C of Propo	sed Mitigation Plan) for scoring
		HB4. Pool Variability	0	0	methodology.		sea winigation rany for searing
		HB5. Sediment Deposition and Scouring	0	0	(b) "H" = Hydrologic Functions: "W	O" = Water Quality/Biogeochemical F	unctions: "HB" = Habitat Functions.
		HB6. Channel Flow Status	0	0	(c) Hydrology Subtotal FCI Score = S	Sum of individual scores ÷100 (highest	possible score for Hydrology). Shown as
		HB7. Channel Alteration	0	0	rounded to the nearest hundredth.	,	, , , ,
		HB8. Channel Sinuosity	0	0	(d) Water Quality Subtotal FCI Scor	e = Sum of individual scores ÷80 (high	est possible score for Water Quality).
		HB9. Bank Stability	3	0	Shown as rounded to the nearest h	undredth.	
		HB10. Vegetative Protection	1.5	0	(e) Habitat Subtotal FCI Score = Sur	n of individual scores ÷120 (highest po	ossible score for Habitat). Shown as
		HB11. Riparian Zone	1.5	0	rounded to the nearest hundredth.		
		HB12. Riparian Habitat Condition	1.5	0	(f) Total FCI = Hydrology Subtotal F	Cl + Water Quality Subtotal FCl + Hab	itat Subtotal FCI. Value for the Total is
		Habitat Subtotal FCI <i>(e)</i>	0.09	0	0 calculated using spreadsheet values for the Subtotals, then rounded to the nearest hundredth	he nearest hundredth.	
		TOTAL - FCI (f)	0.25	0			

**APPENDIX H** 

WATER USE PERMIT NO.: 5821

## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



#### WATER USE PERMIT

Permit No. 5821

Type §§ 11.121, 11.085

Permittee:	Upper Trinity Regional Water District	Address:	P.O. Drawer 305 Lewisville, Texas 75067
Filed:	August 13, 2004	Granted:	DEC 1 1 2013
Purposes:	Municipal, Industrial, Agricultural, and Recreation	Counties:	Fannin, Collin, Cooke, Dallas, Denton, Grayson, and Wise
Watercourse: North Sulphur River, Tributary of the Sulphur River		Watershed:	Sulphur and Trinity River Basins

WHEREAS, Upper Trinity Regional Water District (UTRWD, Applicant or Permittee) applied for a water use permit to construct and maintain a dam and reservoir (Lake Ralph Hall) with a maximum capacity of 180,000 acre-feet of water and a surface area of approximately 8,500 acres, on the North Sulphur River, tributary of the Sulphur River, Sulphur River Basin in Fannin County for recreation purposes; and

WHEREAS, Applicant seeks to divert and use not to exceed 45,000 acre-feet of water per year from the perimeter of Lake Ralph Hall for municipal, industrial, and agricultural purposes at a maximum combined diversion rate of 205 cfs (92,000 gpm); and

WHEREAS, Applicant indicates that diversions from the reservoir may be "overdrafted" as a part of the system operation with existing UTRWD supplies from other basins to achieve maximum conservation of limited water resources; and

WHEREAS, Applicant indicates that of the 45,000 acre-feet of water per year requested, 34,082 acre-feet of water per year is available on a firm basis; and

WHEREAS, Applicant seeks to use the water within its service area in all or parts of Collin, Cooke, Dallas, Denton, Fannin, Grayson, and Wise Counties and also seeks authorization for the interbasin transfer of water to those counties in the Trinity River Basin pursuant to Texas Water Code (TWC) ' 11.085; and

WHEREAS, the proposed Lake Ralph Hall is located 22.5 miles in a southeast direction from City of Bonham and 4.8 miles in a northeast direction from City of Ladonia. Station 70+00 on the centerline of the proposed dam is S 32E W, 1,600 feet from the northeast corner of H. McMillian Survey, Abstract No. 713, in Fannin County, Texas also being at 33.463E N Latitude, 95.901E W Longitude; and

WHEREAS, to the extent that return flows exist, they will be returned to various streams in the Trinity River Basin and the Sulphur River Basin; and

WHEREAS, the Texas Commission on Environmental Quality (TCEQ) finds that jurisdiction over the application is established; and

WHEREAS, Applicant submitted the Conceptual Design and Analysis of the Proposed North Sulphur River Riparian Habitat Mitigation Area for Lake Ralph Hall, which was accepted and approved by the Executive Director; and

WHEREAS, Applicant submitted the *Lake Ralph Hall Accounting Plan*, which was accepted and approved by the Executive Director; and

WHEREAS, the Executive Director performed a water availability analysis and determined that 34,082 acre-feet of water per year is available on a firm basis from the proposed reservoir; and

WHEREAS, the Executive Director recommends that special conditions be included in the permit to protect instream uses, water quality conditions, and senior and superior water rights; and

WHEREAS, notice of the application was mailed and published, and public meetings were held on March 27, 2006 and March 28, 2006; and

WHEREAS, numerous requests for a contested case hearing were received for this application; and

WHEREAS, the Commission has complied with the requirements of the Texas Water Code and Rules of the Texas Commission on Environmental Quality in issuing this water use permit;

NOW, THEREFORE, this Water Use Permit No. 5821 is issued to Upper Trinity Regional Water District subject to the following terms and conditions:

## 1. IMPOUNDMENT

Permittee is authorized to construct and maintain a dam and reservoir (Lake Ralph Hall) with a maximum capacity of 180,000 acre-feet of water on the North Sulphur River, tributary of the Sulphur River, Sulphur River Basin in Fannin County. Station 70+00 on the centerline of the dam will be located S 32E W, 1,600 feet from the northeast corner of H. McMillian Survey, Abstract No. 713 in Fannin County, at 33.463E N Latitude, 95.901E W Longitude, 22.5 miles in a southeast direction from City of Bonham, and 4.8 miles in a northeast direction from City of Ladonia in Fannin County, Texas.

#### 2. USE

- A. Permittee is authorized to use the impounded water for recreation purposes.
- B. Permittee is authorized to divert and use not to exceed 45,000 acre-feet of water per year, of which 34,082 acre-feet of water per year is available on a firm basis, for municipal, industrial, and agricultural purposes.
- C. Permittee is authorized an interbasin transfer to use the authorized water within its service area in all or parts of Fannin, Collin, Cooke, Dallas, Denton, Grayson, and Wise Counties within the Sulphur and Trinity River Basins.

#### 3. DIVERSION

- A. Permittee is authorized to divert the authorized water from any point on the perimeter of Lake Ralph Hall.
- B. Permittee is authorized to divert the authorized water at a maximum combined diversion rate of 205 cfs (92,000 gpm).

## 4. TIME PRIORITY

The time priority for this right is August 13, 2004.

## 5. CONSERVATION

Permittee shall implement water conservation plans that provide for the utilization of those practices, techniques, and technologies that will reduce or maintain the consumption of water, prevent or reduce the loss or waste of water, maintain or improve the efficiency in the use of water, increase the recycling and reuse of water, and prevent the pollution of water, so that a water supply is made available for future or alternative uses. Permittee shall develop, submit, and implement water conservation plans as required by law. Each water conservation plan submitted to the Executive Director shall comply with relevant state conservation standards and shall be designed to result in the highest practicable levels of water conservation. Such plans shall include a requirement that in every wholesale water contract entered into, on or after the effective date of this permit, including any contract extension or renewal, each successive wholesale customer will develop and implement conservation and efficiency in

order to comply with TWC § 11.085 (l)(2). If Permittee authorizes the resale of water by a customer, then the contract for resale must have water conservation requirements so that each successive wholesale customer in the resale of the water will be required to implement water conservation measures.

## 6. SPECIAL CONDITIONS

- Permittee shall only impound and divert water authorized by this permit A. in accordance with the most recently approved Lake Ralph Hall Accounting Plan. Permittee shall maintain said plan in electronic format and make the data available to the Executive Director upon request. Any modifications to the Lake Ralph Hall Accounting Plan shall be approved by the Executive Director. Only such modification that changes the permit terms must be in the form of an amendment to the permit. Should Permittee fail to maintain the accounting plan or notify the Executive Director of any modifications to the plan, Permittee shall immediately cease impoundments and diversions authorized in Paragraph 1. IMPOUNDMENT and Paragraph 2. USE, and either apply to amend the permit, or voluntarily forfeit the permit. If Permittee fails to amend the accounting plan or forfeit the permit, the Commission shall be notified immediately by Permittee upon modification of the accounting plan and provided with the appropriate documents effectuating such changes.
- B. All mitigation plans and monitoring required herein shall comply with conditions set forth in 33 United States Code, § 1341, commonly known as the federal Clean Water Act (CWA) § 401 and Title 30 TAC § 279. Mitigation and monitoring plans shall also comply with § 404 of the CWA.
- C. Following deliberate impoundment of water in Lake Ralph Hall to elevation 510 feet mean sea level (MSL), Permittee shall complete and maintain the restored channel mitigation area with stored water released from Lake Ralph Hall as described in the *Conceptual Design and Analysis of the Proposed North Sulphur River Riparian Habitat Mitigation Area for Lake Ralph Hall (revised March 18, 2010)* and documented in the *Lake Ralph Hall Accounting Plan.* Prior to operation of the recirculation pump system in the restored channel mitigation area, Permittee shall obtain the appropriate authorizations under § 11.042 of the Texas Water Code.
- D. As identified in the *Conceptual Design and Analysis of the Proposed North Sulphur River Riparian Habitat Mitigation Area for Lake Ralph Hall*, Permittee shall construct approximately 14,500 linear feet of riparian habitat along a segment of the abandoned channel of the original North Sulphur River (the restored channel mitigation area) located on the south bank of the existing river channel immediately downstream of the proposed dam for Lake Ralph Hall.

- E. Impoundment of water and diversions under this permit are contingent upon commencement of construction of the approved *Conceptual Design and Analysis of the Proposed North Sulphur River Riparian Habitat Mitigation Area for Lake Ralph Hall.* Modifications or changes to this design must be approved by the Executive Director. Only such modification that changes the permit terms must be in the form of an amendment to the permit.
- F. Permittee shall install flow measurement devices to measure flow associated with the recirculation pump system identified in the *Conceptual Design and Analysis of the Proposed North Sulphur River Riparian Habitat Mitigation Area for Lake Ralph Hall.* Those measurement devices shall be connected to the SCADA system as required by Special Condition G.
- Permittee shall install multiple water quality and water level logger G. instrumentation in the deeper pool habitats, as identified in the Conceptual Design and Analysis of the Proposed North Sulphur River Riparian Habitat Mitigation Area for Lake Ralph Hall, in the restored channel mitigation area to continuously monitor dissolved oxygen, temperature, and water level within the pools. Permittee shall connect the monitoring instruments to a supervisory control and data acquisition (SCADA) system to detect a measurement below the Texas Surface Water Quality Standards (Title 30 Texas Administrative Code (TAC) § 307) for Segment 0305 for a period of greater than 24 hours or detect if the water surface in the pools drops more than one foot below its normal level. The instrumentation and SCADA system shall be maintained in good working order throughout the term of the permit. Permittee shall maintain records of the SCADA system data for a period of not less than five years after its collection and shall make it available to the Executive Director upon request.
- H. In the event that the above mentioned water level and/or water quality parameters within the restored channel mitigation area drop below the Water Quality Standards for Segment 0305 for a period greater than 24 hours, Permittee shall release water from Lake Ralph Hall, and/or utilize the recirculation pump system to provide flow through the mitigation area in order to restore the water level or help ensure compliance with the Water Quality Standards.
- I. Upon completion of the construction and enhancement of the restored channel mitigation area, Permittee shall establish and maintain an appropriate fish community representative of the aquatic life use designation for Segment 0305 of the *Texas Surface Water Quality Standards* (Title 30 TAC § 307). If available, the initial fish stocking shall be composed of, at a minimum, fish species listed in the *Conceptual Design and Analysis of the Proposed North Sulphur River Riparian*

*Habitat Mitigation Area for Lake Ralph Hall.* Permittee shall obtain the fish to be stocked in the restored channel from local sources if available.

- J. Permittee shall visit the restored channel mitigation area at a minimum of once per month for a period of five years following deliberate impoundment of water in Lake Ralph Hall and completion of the mitigation area to inspect and observe the condition of the mitigation area and take any appropriate action, such as initiate reservoir releases or engage the recirculation pump system, so as to ensure compliance with the *Conceptual Design and Analysis of the Proposed North Sulphur River Riparian Habitat Mitigation Area for Lake Ralph Hall.*
- In consultation with the Executive Director, Permittee shall conduct К. monitoring of the restored channel mitigation area twice a year for a period of five years following deliberate impoundment of water in Lake Ralph Hall and completion of the mitigation area. Monitoring shall include discharge measurements, assessment of fish and macroinvertebrate communities, physical habitat assessment, and documenting survival success of the planted vegetation within the restored channel riparian area. All aquatic biological monitoring and physical habitat assessments shall take place in the index period (March 15 – October 15) with at least one of the twice a year monitoring events taking place in the critical period (July 1 – September 15). Aquatic biological monitoring and habitat characterization shall follow TCEQ protocols set forth in the Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Community and Habitat Data. (TCEO 2005).
- L. Permittee shall submit a report to the Executive Director every two years summarizing the twice a year monitoring activities in Special Condition K. Permittee shall also submit a final report at the end of the five-year monitoring period summarizing the monitoring efforts. The report shall include an assessment of the fish and macroinvertebrate communities and the biological metric scoring criteria used to assess aquatic life uses. In the event that aquatic life is not meeting the water quality standards for Segment 0305, the report shall identify and outline remedial management strategies to be implemented to meet the designated aquatic life use.
- M. Permittee shall establish and maintain a riparian buffer zone of permanent vegetation around the perimeter of the reservoir averaging at least 50 feet in width with the exception of reasonable access areas and the area of the dam and spillway. Permittee shall also establish and maintain riparian buffer zones 25 to 50 feet wide at or below elevation 560 feet MSL along Bear Creek, Brushy Creek, Pickle Creek, Davis Creek, Leggets Branch, Bralley Pool Creek, Merrill Creek, the North Sulphur River, and along unnamed tributaries within the area of the reservoir project. The buffer zone shall be planted with native vegetation as necessary to ensure

complete coverage at maturity.

- N. Permittee shall implement measures to minimize impacts to aquatic resources due to entrainment or impingement including, but not limited to, the installation of screens at the diversion facilities.
- O. Permittee shall install and maintain measuring devices which account for, within 5% accuracy, the quantity of water diverted from the points authorized above in Paragraph 3. DIVERSION and maintain measurement records. Permittee shall allow representatives of the TCEQ reasonable access to the property to inspect the measuring device and records.

## 7. TIME LIMITATIONS

- A. Construction of the dam and reservoir shall be in accordance with plans approved by the Executive Director. Construction of the dam without final approval of the construction plans is a violation of this authorization.
- B. Construction shall begin within two years of issuance of this permit and be completed within ten years of the issuance of this permit, unless Permittee applies for and is subsequently granted an extension of time before the expiration of these time limitations.

This water use permit is issued subject to all superior and senior water rights in the Sulphur River Basin.

Permittee agrees to be bound by the terms, conditions, and provisions contained herein and such agreement is a condition precedent to the granting of this permit.

All other matters requested in the application which are not specifically granted by this water use permit are denied.

This water use permit is issued subject to the Rules of the Texas Commission on Environmental Quality and to the right of continuing supervision of State resources exercised by the Commission.

Commission

ISSUED: DEC 1 1 2013

Appendix M

Draft Programmatic Agreement

#### <u>AMONG</u> <u>THE UNITED STATES ARMY, CORPS OF ENGINEERS, FORT WORTH DISTRICT,</u> <u>THE TEXAS STATE HISTORIC PRESERVATION OFFICER,</u> <u>THE UPPER TRINITY REGIONAL WATER DISTRICT,</u> <u>REGARDING COMPLIANCE WITH SECTION 106 OF THE NATIONAL HISTORIC</u> <u>PRESERVATION ACT OF 1966 (AS AMENDED)</u> <u>FOR THE PROPOSED LAKE RALPH HALL</u> <u>TO BE LOCATED NORTH OF THE CITY OF LADONIA, FANNIN COUNTY, TEXAS</u> <u>AND REQUIRING AN INDIVIDUAL PERMIT ISSUED UNDER SECTION 404 UNDER</u> <u>THE CLEAN WATER ACT</u>

## Permit Number: SWF-2003-00336

**WHEREAS**, the United States Army Corps of Engineers, Fort Worth District (USACE), the lead Federal agency, is reviewing a permit application under Section 404 of the Clean Water Act for construction of the Lake Ralph Hall by the Upper Trinity Regional Water District (UTRWD); and

**WHEREAS,** the UTRWD has proposed to construct the Lake Ralph Hall (Project), which will be located on the North Sulphur River north of Ladonia, Fannin County, Texas (see attached map); and

**WHEREAS**, construction of the Lake Ralph Hall will require a permit in order to comply with Section 404 of the Clean Water Act; and

**WHEREAS,** issuing a permit pursuant to Section 404 of the Clean Water Act requires review of the undertaking under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended); and

WHEREAS, the USACE, in consultation with the Texas State Historic Preservation Officer (SHPO), considered the potential effects of the Project as provided in 36 CFR 800 and 33 CFR 325 and established an Area of Potential Effects (APE) for direct and indirect effects that encompasses the entire area covered by the terms of the Environmental Impact Statement (EIS), which includes the 8,500-acre area comprising the conservation pool (elevation 551 feet msl, 7,568 acres) and the 100-year storm event (elevation of 554 feet msl, 932 acres), all areas ancillary facilities, all areas of the mitigation plan, all roads, and pipeline rights-of-way; and

**WHEREAS**, the APE shall cover the entire 100-year storm event elevation of the proposed Lake Ralph Hall reservoir, associated ancillary facilities such as pump stations, pipelines and associated workspace and facilities for pipelines, areas determined as mitigation land for the Project's impacts to waters of the U.S., public

roads to be impacted, new roads to be built as a result of the Project, and public roads that require expansion or upgrades as a result of the Project; and

WHEREAS, the USACE has determined that the proposed Project has the potential to adversely affect historic properties that are eligible for listing in the National Register of Historic Places (National Register), and has consulted with the SHPO, pursuant to the Advisory Council on Historic Preservation (ACHP) regulations, *Protection of Historic Properties* (36 CFR 800), implementing Section 106 of the National Historic Preservation Act (54 USC 300101); 33 CFR 325 (Appendix C) *Procedures for the Protection of Historic Properties*; Revised Interim Guidance for Implementing Appendix C of 33 CFR 325 with the ACHP regulations at 36 CFR 800 (2005); and

**WHEREAS,** UTRWD is a political subdivision of the State of Texas, and as such, is subject to compliance with the Antiquities Code of Texas (Title 9, Chapter 191 of the Texas Natural Resources Code); and

WHEREAS, the Texas Historical Commission (THC) is the agency that administers the Antiquities Code of Texas (Title 9, Chapter 191 of the Texas Natural Resources Code) and issues state Antiquities permits for archeological studies in accordance with that statute, and also has responsibilities under the Chapter 711 of the Texas Health and Safety Code regarding the discovery and disposal of abandoned or unknown cemeteries; and

**WHEREAS**, the Executive Director of the THC serves as the SHPO for Texas and has the authority to enter into Section 106 agreements; and

**WHEREAS**, the USACE and the SHPO agreed to accomplish compliance with Section 106 through the development and execution of this Programmatic Agreement (PA), and to streamline compliance with the regulations by developing procedures to satisfactorily take into account the effects of this Project on historic properties, and to increase flexibility in applying the regulations and reduce redundant documentation in a manner that will allow the UTRWD to proceed with construction in an expeditious manner; and

**WHEREAS**, the USACE has consulted with the Caddo Nation of Oklahoma, Choctaw Nation of Oklahoma, Comanche Nation of Oklahoma, Tonkawa Tribe of Oklahoma, and Wichita and Affiliated Tribes, and invited them to sign this agreement by letter dated May 2, 2017; and

**WHEREAS**, the Caddo Nation of Oklahoma, the Choctaw Nation of Oklahoma, and the Comanche Nation have requested consulting party status by phone, and the USACE invited the Caddo Nation of Oklahoma, the Choctaw Nation of Oklahoma, and the Comanche Nation to be Consulting Parties to this PA; and

**WHEREAS**, the UTRWD and other consulting parties have been notified and provided an opportunity to comment on and participate in consultation on this Project; and

**WHEREAS**, the USACE has invited the ACHP to participate in consultation for this Project, and the ACHP has chosen not to participate in development of this PA; and

**NOW, THEREFORE**; the USACE, the SHPO, and UTRWD agree that the Project shall be implemented in accordance with the following stipulations in order to take into account the effect of the Project on historic properties to satisfy the USACE's Section 106 responsibilities for this Project.

## STIPULATIONS

The USACE will ensure that the following stipulations are carried out by UTRWD to identify historic properties and address adverse effects to such properties that will result from construction of Lake Ralph Hall.

## I. FRAMEWORK

- A. All work conducted under the PA will be performed in a manner that is consistent with the Secretary of Interior's (SOI's) "Standards and Guidelines for Archeology and Historic Preservation" (48 FR 44716-44740; September 23, 1983) as amended, or the SOI's "Standards for the Treatment of Historic Properties" (36 CFR 68) as appropriate.
- B. Critical steps in the identification process include a literature review, tribal consultation (as appropriate), historical and archival research, consultation with other knowledgeable parties, and field investigations.

## **II. LITERATURE REVIEW AND RESEARCH DESIGN**

- A. UTRWD prepared a report summarizing and synthesizing all previous archeological and architectural studies conducted at the proposed reservoir. A 15 percent sample survey was conducted to assist in planning for the survey of the remainder of the lake and a report of results was prepared in 2005. The background research and sample survey results are needed to plan the research design (RD) that will guide the survey strategy for the remainder of the reservoir and will assist in the preparation of the scope-of-work required for the Antiquities permit. The RD will guide the survey strategy for the direct and indirect APE. The report shall contain:
  - 1. Full references to all previous investigations.
  - 2. Complete list of sites identified in prior work, including National Register of Historic Places and State Antiquities Landmark status.
  - 3. Separate tabular listings for archeological sites and above-ground architecture.
  - 4. Summary of any identified Traditional Cultural Properties (TCPs) or Traditional Cultural Landscapes.
  - 5. Maps of areas where historic properties have been identified.

- 6. Maps of areas where historic properties have not been fully inventoried.
- 7. Maps of the proposed reservoir, any proposed recreation areas, mitigation areas, roads to be impacted or constructed, associated ancillary facilities, and pipelines associated with the Project.
- B. UTRWD shall prepare a draft RD that shall be submitted to the SHPO, Tribes, consulting parties and USACE. The RD may be revised based on the comments received within 30 days. The USACE shall be responsible for final comments and acceptance before implementation of the final RD. A copy of the final RD shall be made available to all signatories and concurring parties.
- C. The RD will identify research questions of importance to the region that can be reasonably addressed by resources that are likely to be encountered within the proposed reservoir and will set forth procedures for the identification and evaluation of these resources. These will include methods for finding and documenting archeological sites and architectural resources, analysis of data, and the curation of artifacts.

## **III. IDENTIFICATION OF HISTORIC PROPERTIES**

Identification efforts should follow the ACHP's Section 106 Archaeology Guidance, the SOI's Standards and Guidelines for Archeology and Historic Preservation, the SOI's Standards and Guidelines for Federal Agency Historic Preservation Programs Pursuant to the National Historic Preservation Act. This includes standards defined by the Council of Texas Archeologists. For all archaeological activities and architectural assessments resulting in a written report, the SHPO, Tribes, and consulting parties will be afforded 30 days after receipt of any document to submit comments. Documents may then be revised considering the comments received. The USACE shall be responsible for final comments.

- A. Phase I (Survey)
  - 1. For the proposed reservoir, recreation facilities, associated ancillary facilities, areas used for mitigation, roads to be impacted or constructed, or pipelines defined in the final RD, UTRWD will complete a pedestrian survey, including shovel-testing, augering, and backhoe trenches (as necessary) to identify archeological sites.
    - a. All archeological sites and above ground architecture recorded will be assessed, if possible, for eligibility to the NRHP. This will consist of the categorization of all sites as NRHP eligible, listed, not eligible, or unevaluated. Archival research will be necessary to assess standing architecture and historic sites. Sites that cannot be determined ineligible for the NRHP will be assessed by more detailed work in Phase II.

- b. A draft report shall follow reporting standards developed by the Council of Texas Archeologists, as per Texas Administrative Code, Title 13, Part 2, Chapter 26.16.
- c. The draft report shall be distributed to all signatories for a 30day period of review and comment. The USACE shall ensure that comments are addressed in a final report and distributed to all signatories.
- B. Phase II (Testing)
  - A testing plan that complies with Texas Administrative Code, Title 13, Part 2, Chapter 26, shall be developed in consultation with the Tribes and consulting parties. Work may include remote sensing, additional shovel tests, hand-excavated test units, and mechanical excavation as necessary. The plan must include at the minimum:
    - a. Criteria for assessing eligibility to the NRHP under 36 CFR 60.4 and State Antiquities Landmarks (SALs) under Texas Administrative Code, Title 13, Part 2, Chapter 26, that can be applied to every site tested.
    - b. A draft report shall follow reporting standards developed by the Council of Texas Archeologists as per Texas Administrative Code, Title 13, Part 2, Chapter 26.16. This report shall consist of the categorization of all sites as NRHP eligible, or not eligible. For all sites determined eligible, the report should also document the effect of the Project on the resource, noting whether it will be adverse or not.
    - c. The draft report shall be distributed to all signatories for a 30 day period of review and comment. The USACE shall ensure that comments are incorporated into a final report and distributed to all signatories.

The USACE will determine the NRHP eligibility of all archeological and historical resources identified within the APE of the Project in consultation with the SHPO and the Tribes. If the USACE and the SHPO concur on eligibility, the USACE will proceed to a determination of effect. If the USACE and the SHPO disagree on NRHP eligibility, the matter will be referred to the Keeper of the Register in the Department of the Interior, as per 36 CFR 63. The resource will be treated as if it is eligible for inclusion in the NRHP until a decision is rendered by the Keeper. If the Keeper determines that the resource is eligible, the USACE will proceed to an assessment of adverse effect. If the USACE cannot evaluate the NRHP eligibility of a property due to lack of access, the property will be treated as eligible for listing in the NRHP.

## IV. ASSESSMENT OF ADVERSE EFFECT

- A. For all resources determined eligible for inclusion in the NRHP, the USACE will apply the Criteria of Adverse Effect (36 CFR 800.5(a)) to assess whether or not adverse effects will occur to historic properties as a result of the Project. In consultation with the SHPO, Tribes, and other consulting parties, the USACE shall make a determination of effect.
- B. Finding of no Adverse Effect (NAE). USACE, in consultation with, the SHPO, and consulting parties, shall apply the criteria of adverse effect to historic properties within the APE in accordance with 36 CFR 800.5. Historic properties determined to have NAE shall be avoided and or protected from all potential current and future impacts by the UTRWD. Historic properties with NAE designation that may be adversely affected by use or design changes in the Project will require re-assessment of effects.
- C. Finding of Adverse Effect. The signatories to this agreement concur that all eligible historic properties identified within the APE that do not have a final determination of NAE are presumed to be adversely affected by the Project. UTRWD, in consultation with the USACE, the SHPO, the Tribes, and other consulting parties, shall apply the criteria within the APE on a case-by-case basis in accordance with 36 CFR 800.5. For all historic properties that will be adversely affected, an avoidance plan or mitigation plan will be developed in consultation with all consulting parties in accordance with Stipulation V. The draft mitigation plan shall be distributed to the SHPO, the UTRWD, the Tribes, and the other consulting parties for a 30 day period of review and comment. The USACE shall ensure that comments are incorporated into a final data recovery plan and distributed to all signatories.
- D. *Public Involvement.* Public notice for the Project was sent in 2008. Public meetings were held in both 2010 and 2011 for discussion of potential adverse effects on cultural resources within the Project. Additional opportunities involving the public will be available including commenting on the EIS and invitations sent to consulting parties to participate in this PA.

## V. RESOLUTION OF ADVERSE EFFECT

A. UTRWD and the USACE, shall consult with the SHPO, the Tribe(s) and other consulting parties to resolve adverse effects in accordance with 36 CFR 800.6. For archeological sites, the mitigation plan will specify the problems set forth in the RD that can be addressed by data from the site being excavated, the areas to be excavated, the excavation methods to be used, special samples to be collected, the specialists who will conduct specialized analyses, and include reporting methods and curation of artifacts and records. For architectural resources, adaptive reuse shall be considered whenever possible. For buildings

and structures that will be destroyed by the Project, the mitigation plan will specify the level of HABS-HAER drawings and photographs that will be necessary to document the resources.

- B. All work conducted to treat adverse effects will be described in a draft report that shall follow reporting standards developed by the Council of Texas Archeologists as per Texas Administrative Code, Title 13, Part 2, Chapter 26.16.
- C. The draft report shall be distributed to all signatories for a 30-day period of review and comment.
- D. If the USACE, SHPO, UTRWD, the Tribes, and consulting parties fail to agree on how adverse effects will be resolved, the USACE shall request that the ACHP join the consultation and provide the ACHP and all consulting parties with documentation pursuant to 36 CFR 800.11 (g).

# VI. CURATION AND DISPOSITION OF RECOVERED MATERIALS, RECORDS AND REPORTS

- A. Curation. UTRWD materials and associated records are considered Held-in-Trust Collections by the State of Texas (Texas Administrative Code, Title 13, Part 2, Chapter 29, Rules of Management and Care of Artifacts and Collections). Therefore, UTRWD shall ensure that all such materials and records that result from identification, evaluation, and treatment efforts conducted under this PA are accessioned into a curatorial facility that has been certified, or granted provisional status, by the THC in accordance with Chapter 29.6, except as specified for human remains in Stipulation VII.
- B. *Reports.* UTRWD shall provide copies of final technical reports of investigations to the signatories and consulting parties. The signatories and consulting parties shall withhold from the public all site location information and other data that may be of a confidential or sensitive nature pursuant to 36 CFR 800.11(c).

## **VII. TREATMENT OF HUMAN REMAINS**

A. TREATMENT PLAN. UTRWD shall develop a treatment plan for discovery of human remains in consultation with the USACE, SHPO, the Tribes, and other consulting parties. The plan will comport with the ACHP Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects as well as any requirements under Chapter 711 of the Texas Health and Safety Code. USACE shall ensure that Tribes and other consulting parties are afforded a reasonable opportunity to identify concerns, advise on identification and evaluation, and determination of the ultimate disposition of human remains and associated funerary artifacts. B. INADVERTENT DISCOVERY. Immediately upon the inadvertent discovery of human remains during historic properties investigations or construction activities conducted pursuant to this PA, UTRWD shall ensure that all ground disturbing activities cease in the vicinity of the human remains and any associated grave goods, and that the site is secured from further disturbance or vandalism. UTRWD will be responsible for immediately notifying local law enforcement officials and a medical examiner or coroner, and if the archeologist is reasonably certain that the human remains are archeological in nature, he will discuss the matter with the medical examiner or coroner and be on site when they or their designees (e.g., police officers) are examining the remains to prevent disturbance to the remains resulting from unscientific excavation methods. Within 48 hours of the discovery, UTRWD shall be responsible for initiating consultation with the USACE, the SHPO, the Tribes, and consulting parties to develop a plan for resolving the adverse effects. The course of action shall comport with Title 13, Part II, Chapter 22, Cemeteries, which are the rules regarding abandoned cemeteries and the disinterment of graves, as well as any other requirements under Chapter 711 of the Texas Health and Safety Code.

## **VIII. INADVERTENT DISCOVERIES OF HISTORIC PROPERTIES**

The UTRWD recognizes the possibility that inadvertent effects may occur to a recorded or previously unidentified historic property or unevaluated cultural resource. Upon such a discovery, the UTRWD will use the following procedures:

- A. The USACE, the SHPO, the Tribes, and other consulting parties will be notified by the UTRWD immediately upon discovery that a protected or previously unidentified cultural resource has been, or could be, inadvertently affected by the Project.
- B. If the Project has not been completed at the time the effect is discovered, all activities in the vicinity (minimum of 50 meters) of the discovery shall cease, and reasonable efforts shall be taken to avoid or minimize harm to the cultural resource.
- C. The Principal Investigator will evaluate the discovery, assess the effects, develop possible treatment recommendations and implement additional protection measures as necessary to prevent further harm to the cultural resource.
- D. Within seven (7) days of this evaluation, the UTRWD will initiate consultation with the USACE, the SHPO, the Tribes and other consulting parties to determine if the resource is a historic property and, if so, to develop a treatment plan to mitigate any adverse effects.
- E. If the Project has already been concluded when an effect to a property has been discovered, the UTRWD shall provide the SHPO, the Tribes and other consulting

parties with a report describing the Project, the circumstances surrounding the effects, and the results of treatment plan implementation.

- F. Within six months (or an alternate agreed upon schedule), of the discovery of the inadvertent effect, the UTRWD shall provide the SHPO, USACE, Tribes and other consulting parties with a report describing the Project, the circumstances surrounding the effects, and the results of treatment plan implementation.
- G. For discoveries on non-Indian, non-Federal lands or State lands, applicable laws and regulation of the State of Texas statutes shall be followed, including the Antiquities Code of Texas (Title 9, Chapter 191 of the Texas Natural Resources Code). In the event unknown or abandoned cemeteries are discovered, a Notice of Existence should be filed. The Texas Health and Safety Code 711 and the Texas Administrative Code 22.5 should be referenced for requirements on documenting unknown or abandoned cemeteries on projects permitted under the Antiquities Code of Texas.

## IX. PROFESSIONAL QUALIFICATIONS

All historic preservation-related investigations specified in this Agreement shall be carried out by Principal Investigators meeting the pertinent professional qualifications of the SOI's *Professional Qualification Standards (*36 CFR Part 61) in a discipline appropriate for the task and the nature of the historic properties. Since this project will be conducted on land controlled by the UTRWD, principal investigators must also meet the professional qualification standards found in Title 13, Part II, Chapter 26, Rules of Practice and Procedure, and must be eligible to receive an Antiquities Permit.

## X. DISPUTE RESOLUTION

Should any signatory or concurring party to this Agreement object at any time to any actions proposed or the manner in which the terms of this Agreement are implemented, the objector is encouraged to consult the other signatories in resolving the objection. If the objector determines that such objection cannot be resolved, USACE shall perform the following tasks.

- A. CONSULT ACHP. Forward all documentation relevant to the dispute, including the USACE's proposed resolution, to the ACHP. The ACHP shall provide the USACE with its advice on the resolution of the objection within 30 days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the USACE shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. The USACE will then proceed according to its final decision.
- B. FINAL DECISION. If the ACHP does not provide its advice regarding the dispute within the 30-day time period, the USACE may make a final decision on the

dispute and proceed accordingly. Prior to reaching such a final decision, the USACE shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the Agreement, and provide them and the ACHP with a copy of such written response.

C. Carry out all other actions subject to the terms of this PA that are not the subject of the dispute.

## XI. DURATION, AMENDMENT, AND TERMINATION:

- A. DURATION. Unless terminated or amended as outlined below, this Agreement shall remain in effect for a period of 10 years from the date the Agreement goes into effect and may be extended for a second ten-year (10) term with the written consent of all the signatories.
- B. AMENDMENT. This Agreement may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.
- C. TERMINATION. If any signatory to this Agreement determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment. If within 30 calendar days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the Agreement upon written notification to the other signatories.

Once the Agreement is terminated, and prior to work continuing on any historic property work defined by the EIS, the USACE must either (a) execute a Memorandum of Agreement pursuant to 36 CFR 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR 800.7. The USACE shall notify the signatories as to the course of action it will pursue.

## XII. REPORTING AND MONITORING:

Each year following the execution of the PA until it expires or it is terminated, UTRWD shall provide all parties to this PA a summary report detailing work undertaken pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in the UTRWD's efforts to carry out the terms of the PA.

## XIII. EXECUTION:

Signature of this Agreement by the USACE, the SHPO, UTRWD, and implementation of its terms evidence that the USACE has taken into account the effects of this Project on historic properties and afforded the ACHP an opportunity to comment. Pursuant to 36

CFR 800.6(b)(1)(iv) this Agreement will go into effect when a fully executed version is received by the ACHP.

#### AMONG THE UNITED STATES ARMY, CORPS OF ENGINEERS, FORT WORTH DISTRICT, THE TEXAS STATE HISTORIC PRESERVATION OFFICER, THE UPPER TRINITY REGIONAL WATER DISTRICT, REGARDING COMPLIANCE WITH SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT OF 1966 (AS AMENDED) FOR THE PROPOSED LAKE RALPH HALL TO BE LOCATED NORTH OF THE CITY OF LADONIA, FANNIN COUNTY, TEXAS AND REQUIRING AN INDIVIDUAL PERMIT ISSUED UNDER SECTION 404 UNDER THE CLEAN WATER ACT

Permit Number: SWF-2003-00336

## SIGNATORY:

United States Army, Corps of Engineers, Fort Worth District

Date \_\_\_\_\_

Stephen L Brooks, Chief, Regulatory Division

#### AMONG THE UNITED STATES ARMY, CORPS OF ENGINEERS, FORT WORTH DISTRICT, THE TEXAS STATE HISTORIC PRESERVATION OFFICER, THE UPPER TRINITY REGIONAL WATER DISTRICT, REGARDING COMPLIANCE WITH SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT OF 1966 (AS AMENDED) FOR THE PROPOSED LAKE RALPH HALL TO BE LOCATED NORTH OF THE CITY OF LADONIA, FANNIN COUNTY, TEXAS AND REQUIRING AN INDIVIDUAL PERMIT ISSUED UNDER SECTION 404 UNDER THE CLEAN WATER ACT

Permit Number: SWF-2003-00336

Date

## SIGNATORY:

Texas State Historic Preservation Officer

Mark Wolfe, State Historic Preservation Officer

#### AMONG THE UNITED STATES ARMY, CORPS OF ENGINEERS, FORT WORTH DISTRICT, THE TEXAS STATE HISTORIC PRESERVATION OFFICER, THE UPPER TRINITY REGIONAL WATER DISTRICT, REGARDING COMPLIANCE WITH SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT OF 1966 (AS AMENDED) FOR THE PROPOSED LAKE RALPH HALL TO BE LOCATED NORTH OF THE CITY OF LADONIA, FANNIN COUNTY, TEXAS AND REQUIRING AN INDIVIDUAL PERMIT ISSUED UNDER SECTION 404 UNDER THE CLEAN WATER ACT

Permit Number: SWF-2003-00336

## SIGNATORY:

**Upper Trinity Regional Water District** 

Larry N. Patterson, Deputy Executive Director

Date \_\_\_\_\_

#### AMONG THE UNITED STATES ARMY, CORPS OF ENGINEERS, FORT WORTH DISTRICT, THE TEXAS STATE HISTORIC PRESERVATION OFFICER, THE UPPER TRINITY REGIONAL WATER DISTRICT, REGARDING COMPLIANCE WITH SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT OF 1966 (AS AMENDED) FOR THE PROPOSED LAKE RALPH HALL TO BE LOCATED NORTH OF THE CITY OF LADONIA, FANNIN COUNTY, TEXAS AND REQUIRING AN INDIVIDUAL PERMIT ISSUED UNDER SECTION 404 UNDER THE CLEAN WATER ACT

Permit Number: SWF-2003-00336

## **CONSULTING PARTY CONCURRING IN MOA:**

Choctaw Nation of Oklahoma

Date \_\_\_\_\_

Gary Batton, Chief
# PROGRAMMATIC AGREEMENT

#### AMONG THE UNITED STATES ARMY, CORPS OF ENGINEERS, FORT WORTH DISTRICT, THE TEXAS STATE HISTORIC PRESERVATION OFFICER, THE UPPER TRINITY REGIONAL WATER DISTRICT, REGARDING COMPLIANCE WITH SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT OF 1966 (AS AMENDED) FOR THE PROPOSED LAKE RALPH HALL TO BE LOCATED NORTH OF THE CITY OF LADONIA, FANNIN COUNTY, TEXAS AND REQUIRING AN INDIVIDUAL PERMIT ISSUED UNDER SECTION 404 UNDER THE CLEAN WATER ACT

Permit Number: SWF-2003-00336

## **CONSULTING PARTY CONCURRING IN MOA:**

Caddo Nation of Oklahoma

Date \_\_\_\_\_

Tamara Francis, Chairman

# PROGRAMMATIC AGREEMENT

#### AMONG THE UNITED STATES ARMY, CORPS OF ENGINEERS, FORT WORTH DISTRICT, THE TEXAS STATE HISTORIC PRESERVATION OFFICER, THE UPPER TRINITY REGIONAL WATER DISTRICT, REGARDING COMPLIANCE WITH SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT OF 1966 (AS AMENDED) FOR THE PROPOSED LAKE RALPH HALL TO BE LOCATED NORTH OF THE CITY OF LADONIA, FANNIN COUNTY, TEXAS AND REQUIRING AN INDIVIDUAL PERMIT ISSUED UNDER SECTION 404 UNDER THE CLEAN WATER ACT

Permit Number: SWF-2003-00336

## **CONSULTING PARTY CONCURRING IN MOA:**

Comanche Nation

William Nelson Sr., Chairman

Date \_\_\_\_\_