

Draft Work Plan to Comply with Interim Instream Flow Standards (Case No. CCH-MA13-01) - Excluding Taro Streams Already Being Addressed (June 20, 2019)																	
Stream Name	Restoration Status	IIFS Value (cfs)	IIFS Location	Ditch	Diversion ID #	Diversion Name	Diversion Type	Modification Required to Meet IIFS	CWRM SDWPA	CWRM O&M Determination	USACE 404 Exemption	Approvals Required					
												OCCL Conservation District Approval	County SMA Assessment	County Flood Development Permit			
Makapii	Full	n/a	Above Hana Highway														
				Koolau	K-1	Makapii	Major	Sluice gate has been completely removed and the intake windows will be sealed with concrete.	NA	Yes	Yes	SPA	NA	TBD			
				Koolau	K-1a	Makapii 6" pvc pipe intake	Minor	6-inch pipe to be removed; diversion box to remain in tributary.	NA	Yes	NA (no fill)	SPA	NA	TBD			
				Koolau	K-1b	8" aluminum pipe diversion from development tunnel to main ditch	Minor	No modification planned; does not divert Makapii stream. County DWS supply for the Nahiku homeowners.				No Approvals Required					
Hanawi	Connectivity	0.92	Below Hana Highway														
				Koolau	K-2	Hanawi (Awaimakaino Intake)	Major	The sluice gate will be adjusted to create a wetted path.				No Approvals Required					
				Koolau	K-3	Hanawi (Machine Tunnel Gulch Intake)	Major	The sluice gate will be adjusted to create a wetted path.				No Approvals Required					
				Koolau	K-4	Hanawi (Main Hanawi Intake)	Major	The sluice gate will be adjusted to provide for the IIFS. A wetted path already exists on the dam.				No Approvals Required					
				Koolau	K-2a	Hanawi small stream intake	Minor	No modification planned.				No Approvals Required					
				Koolau	K-2b	West Awaimakaino Stream intake - diverted to East	Minor	No modification planned.				No Approvals Required					
				Koolau	K-4a	2" intake pipe East of Main Hanawi Stream off Hana Highway	Minor	No modification planned.				No Approvals Required					
				Koolau	*K-4b	Maul Land & Pine Hanawi dam mauka Hana Hwy. bridge	Minor	No modification planned.				No Approvals Required					
				Koolau	K-4c	8" aluminum pipe intake East of Hanawi	Minor	No modification planned.				No Approvals Required					
				Koolau	K-4d	6" pvc pipe intake East of Hanawi	Minor	No modification planned.				No Approvals Required					
				Koolau	K-4e	4" pvc pipe intake East of Hanawi	Minor	No modification planned.				No Approvals Required					
				Koolau	K-4f	2" driscoe pipe intake to crosscut below Hanawi sluice gate	Minor	No modification planned.				No Approvals Required					
Kapaula	Connectivity	0.56	On diversion at Koolau Ditch														
				Koolau	K-5	Kapaula	Major	A drisco pipe will be installed to create a wetted path.	NA	Yes	Yes	SPA	NA	No			
				Koolau	K-6	Kapaula (Kapaula 15" pvc pipe diversion)	Major	No sluice gate is present. Add drisco pipe to provide wetted path over top of dam. No alteration to this diversion is required to achieve IIFS flow.	NA	Yes	Yes	SPA	NA	No			
				Koolau	K-7	Kapaula (Main Kapaula Intake)	Major	Notch dam to achieve required flow and connectivity.	NA	Yes	NA (no fill)	SPA	NA	TBD			
				Koolau	K-8	No Name (Jack's Flume Intake)	Major	No further modification required after implementing modifications to Main Kapaula Intake (K-7).				No Approvals Required					
				Koolau	K-6a	East Kapaula 5" pvc pipe intake diverted to K-6	Minor	No modification planned.				No Approvals Required					
				Koolau	K-6b	East Kapaula old 6" aluminum pipe intake diverted to K-6	Minor	No modification planned.				No Approvals Required					
				Koolau	K-7a	East Kapaula 2" driscoe pipe intake diverted to main Kapaula	Minor	No modification planned.				No Approvals Required					
				Koolau	K-7b	East Kapaula 5" pvc pipe intake to main Kapaula	Minor	No modification planned.				No Approvals Required					
				Koolau	K-7c	Kapaula 2" galvanized pipe intake below main intake	Minor	No modification planned.				No Approvals Required					
				Koolau	K-7d	3" pipe intake in Old Kapaula intake tunnel	Minor	No modification planned.				No Approvals Required					
				Koolau	K-7e	Old Kapaula intake	Minor	No modification planned.				No Approvals Required					
Waiaaka	None	0.77	Above Hana Highway														
Pa'akea	Connectivity	0.18	At Hana Highway														
				Koolau	K-9	Waiaaka	Major	Adjust sluice gate as needed to meet IIFS.				No Approvals Required					
				Koolau	K-10	Paakea	Major	Sluice gate will be opened to meet the IIFS. A drisco pipe will be installed to create a wetted path.	NA	Yes	Yes	SPA	NA	No			
				Koolau	K-10a	Paakea Stream 3" pvc pipe intake	Minor	No modification planned. Gate on intake from pool is shut, so there is no flow to ditch.				No Approvals Required					
Waiohue	Full	n/a	At Hana Highway														
				Koolau	K-12	Waiohue (East Waiohue Intake)	Major	Bypass gate is closed. Sluice gate at chute ditch settling basin has been completely removed.				No Approvals Required					
				Koolau	K-13	Waiohue (West Waiohue Intake)	Major	Intake gates are completely closed and sluice gate is removed. All water remains in the stream.				No Approvals Required					
				Koolau	K-12a	Waiohue concrete channel intake	Minor	No modification planned.				No Approvals Required					
				Koolau	K-12b	East Waiohue concrete channel intake	Minor	No modification planned.				No Approvals Required					
				Koolau	K-12c	East Waiohue concrete V channel intake	Minor	No modification planned.				No Approvals Required					
				Koolau	K-12d	East Waiohue 8" concrete intake	Minor	No modification planned.				No Approvals Required					
Pua'aka'a	Connectivity	0.2	Above Hana Highway														
				Koolau	K-13a	Cut stone run-off intake by Pua'aka overflow	Minor	Install drisco pipe for wetted path.	NA	Yes	Yes	SPA	NA	No			
Kopiliula	H90	3.2	Below Hana Highway														
				Koolau	K-14	East Kopiliula (West Fork Intake)	Major	Install drisco pipe to provide wetted path.	NA	Yes	Yes	SPA	NA	No			
				Koolau	K-15	West Kopiliula (Main Kopiliula Intake)	Major	Sluice gate can be adjusted to provide for both the IIFS and connectivity. May need to add drisco pipe for wetted path (approvals required only for installation of pipe).	NA	Yes	Yes	SPA	NA	No			

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					Koolau K-14a	East Kopiliula - East Fork #8 aluminum pipe intake	Minor	No modification planned.				No Approvals Required			
					Koolau K-14b	East Kopiliula - West Fork 2" driscoe pipe intake	Minor	No modification planned.				No Approvals Required			
					Koolau K-14c	Kopiliula 3" driscoe pipe intake	Minor	No modification planned.				No Approvals Required			
					Koolau K-14d	Kopiliula concrete channel intake by Hana Highway	Minor	No modification planned.				No Approvals Required			
					Koolau K-15a	West Kopiliula diversion ditch on top of bank by Control house	Minor	No modification planned.				No Approvals Required			
					Koolau K-15b	West Kopiliula 2" pipe intake from wall	Minor	No modification planned.				No Approvals Required			
					Koolau K-15c	West Kopiliula diversion ditch by wall	Minor	No modification planned.				No Approvals Required			
East Waiuluai	H90	3.7	At Hana Highway												
					Koolau K-16	East Waiuluai-iki	Major	Existing drisco pipe provides for a wetted path. Sluice gate will be adjusted to provide for IIFS.				No Approvals Required			
					Koolau K-16a	East Waiuluai-iki steel pipe intake	Minor	No modification planned.				No Approvals Required			
					Koolau K-16b	8" steel pipe intake West of East Waiuluai-iki intake (#1 intake)	Minor	No modification planned.				No Approvals Required			
					Koolau K-16c	8" steel pipe intake West of East Waiuluai-iki intake (#2 intake)	Minor	No modification planned.				No Approvals Required			
					Koolau K-16d	8" steel pipe intake West of East Waiuluai-iki intake (#3 intake)	Minor	No modification planned.				No Approvals Required			
					Koolau K-16e	8" steel pipe intake West of East Waiuluai-iki intake (#4 intake)	Minor	No modification planned.				No Approvals Required			
					Koolau K-16f	8" steel pipe intake West of East Waiuluai-iki intake (#5 intake)	Minor	No modification planned.				No Approvals Required			
					Koolau K-16g	8" steel pipe intake West of East Waiuluai-iki intake (#6 intake)	Minor	No modification planned.				No Approvals Required			
					Koolau K-17a	8" concrete pipe intake East of Main West Waiuluai-iki intake	Minor	No modification planned.				No Approvals Required			
West Waiuluai	Full	n/a	Above Hana Highway												
					Koolau K-17	West Waiuluai-iki	Major	Existing drisco pipe provides for a wetted path. Sluice gate is open and will be completely removed. The intake tunnel will be sealed with concrete to keep water from bypassing the stream.	NA	Yes	Yes	SPA	NA	TBD	
Nuaailua	Connectivity	2.2	To be determined												
					Spreckels S-1	Nuaailua	Major	Remove dam and seal intake with concrete.	TBD	TBD	Yes	SPA	NA	TBD	
					Spreckels S-1a	East Nuaailua small stream intake (#1 intake)	Minor	Evaluating removal of all four diversions and associated pipe to eliminate ongoing maintenance for this diversion.	TBD	TBD	Yes	SPA	NA	TBD	
					Spreckels S-1b	East Nuaailua small stream intake (#2 intake)	Minor	Evaluating removal of all four diversions and associated pipe to eliminate ongoing maintenance for this diversion.	TBD	TBD	Yes	SPA	NA	TBD	
					Spreckels S-1c	East Nuaailua small stream intake (#3 intake)	Minor	Evaluating removal of all four diversions and associated pipe to eliminate ongoing maintenance for this diversion.	TBD	TBD	Yes	SPA	NA	TBD	
					Spreckels S-1d	West Nuaailua small ditch intake	Minor	Evaluating removal of all four diversions and associated pipe to eliminate ongoing maintenance for this diversion.	TBD	TBD	Yes	SPA	NA	TBD	
Honomanu	H90	4.2	Above Hana Highway												
					Spreckels S-2	Honomanu (Banana intake)	Major	Adjust sluice gate to provide for both the IIFS and connectivity.				No Approvals Required			
					Spreckels S-3	Honomanu (Center Honomanu intake)	Major	Adjust sluice gate to provide for both the IIFS and connectivity.				No Approvals Required			
					Spreckels S-4	Honomanu (Main Honomanu intake)	Major	Adjust sluice gate to provide for both the IIFS and connectivity.				No Approvals Required			
					Spreckels S-5	Honomanu (High Falls intake)	Major	Adjust sluice gate to provide for both the IIFS and connectivity.				No Approvals Required			
					Spreckels S-6	Uluini	Major	Adjust sluice gate to provide for the IIFS. Install a drisco pipe to create a wetted path on the dam.	NA	Yes	Yes	SPA	NA	No	
					Spreckels S-2a	East Honomanu 2" driscoe pipe intake	Minor	No modification planned.				No Approvals Required			
					Spreckels S-5a	West Honomanu 2" pvc pipe intake	Minor	No modification planned.				No Approvals Required			
					Spreckels S-6a	Uluini 2" driscoe and pvc pipe intake diversion to Uluini intake	Minor	No modification planned.				No Approvals Required			
Punalau/Kolea	H90	2.9	Above Hana Highway												
					Koolau K-32	Kolea	Major	Powerhouse intake. Adjust sluice gate to provide for the IIFS. Install a drisco pipe to create a wetted path on the dam.	NA	Yes	Yes	SPA	NA	No	
					Koolau K-32a	Uluini Stream diversion to Kolea Stream	Minor	No modification planned.				No Approvals Required			
					Koolau K-32b	Kolea 4" pipe intake	Minor	No modification planned.				No Approvals Required			
					Spreckels S-7	Kolea	Major	Close gate to ditch to Haipuna; take no water at this diversion.				No Approvals Required			

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				Spreckels	S-7a	East Kolea small stream intake	Minor	None required.							
				Spreckels	S-7b	Middle Kolea small stream intake	Minor	None required.							
				Spreckels	S-7c	West Kolea small stream intake	Minor	None required.							
				Manuel Luis	ML-1	Manuel Luis Kolea intake	Major	Dam will be notched to provide for both the IIFS and connectivity.	NA	Yes	NA (no fill)	SPA	NA	TBD	
				Manuel Luis	ML-1a	Kolea crosscut puka intake	Minor	No modification planned.							
				Manuel Luis	ML-1b	Kolea small hole intake	Minor	No modification planned.							
Ha'ipua'ena	Connectivity	1.36	Below Hana Highway												
				Koolau	K-32c	Haipuaena 3" pipe intake	Minor	No modification planned.							
				Koolau	K-32d	Haipuaena 3" steel pipe intake	Minor	No modification planned.							
				Koolau	K-32e	Haipuaena 3" pvc pipe intake	Minor	No modification planned.							
				Spreckels	S-8	Haipuaena	Major	Road across stream acts as dam. Install modified culvert (pipe or grated channel) in road to pass flow to meet IIFS; modify intake gate to include a weir.	NA	Yes	Yes	SPA	NA	TBD	
				Spreckels	S-8a	Haipuaena small stream intake	Minor	No modification planned.							
				Spreckels	S-8b	East Haipuaena small stream intake	Minor	No modification planned.							
				Spreckels	S-8c	Middle Haipuaena small stream intake	Minor	No modification planned.							
				Spreckels	S-8d	West Haipuaena small stream intake	Minor	No modification planned.							
				Spreckels	S-8e	Haipuaena stream diversion to Kolea stream	Minor	No modification planned.							
				Manuel Luis	ML-2	Haipuaena	Major	Dam will be notched to provide for both the IIFS and connectivity.	NA	Yes	NA (no fill)	SPA	NA	TBD	
				Manuel Luis	ML-2a	East Haipuaena small stream intake	Minor	No modification planned.							
Puohokamoa	Connectivity	1.1	Below Hana Highway												
				Koolau	K-33	Puohokamoa	Major	Raise the height of the intake dam nearest the tunnel intake to reduce flow into tunnel and provide for IIFS and connectivity. Seal holes in dam with concrete.	NA	Yes	Yes	SPA	NA	TBD	
				Koolau	K-33a	Puohokamoa sluice gate 6" steel pipe intake	Minor	No modification planned.							
				Spreckels	S-9	Puohokamoa	Major	Dam will be notched to provide for both the IIFS and connectivity.	NA	Yes	NA (no fill)	SPA	NA	TBD	
				Spreckels	S-9a	East Puohokamoa small stream intake	Minor	No modification planned.							
				Spreckels	S-9b	Middle Puohokamoa small stream intake	Minor	No modification planned.							
				Spreckels	S-9c	West Puohokamoa small stream intake	Minor	No modification planned.							
				Manuel Luis	ML-3	Puohokamoa	Major	Dam will be notched to provide for both the IIFS and connectivity.	NA	Yes	NA (no fill)	SPA	NA	TBD	
				Manuel Luis	ML-4	West Puohokamoa (Pakaka intake)	Major	Dam will be notched to provide for both the IIFS and connectivity.	NA	Yes	NA (no fill)	SPA	NA	TBD	
				Manuel Luis	ML-4a	West Puohokamoa small stream intake	Minor	No modification planned.							
Wahinepe'e	None	0.9	Above Hana Highway												
				Spreckels	S-9d	East Wahinepee small stream intake	Minor	No modification planned.							
				Spreckels	S-9e	West Wahinepee small stream intake	Minor	No modification planned.							
				Manuel Luis	ML-5	Wahinepee	Major	Dam will be notched to provide for both the IIFS and connectivity.	NA	Yes	NA (no fill)	SPA	NA	TBD	
				Manuel Luis	ML-5a	East Wahinepee small stream intake (1 intake)	Minor	No modification planned.							
				Manuel Luis	ML-5b	East Wahinepee small stream intake (2 intake)	Minor	No modification planned.							
				Manuel Luis	ML-5c	East Wahinepee small stream intake (3 intake)	Minor	No modification planned.							
				Manuel Luis	ML-5d	East Wahinepee small stream intake (4 intake)	Minor	No modification planned.							
				Manuel Luis	ML-5e	East Wahinepee waterfall intake	Minor	No modification planned.							
				Manuel Luis	ML-5f	West Wahinepee small stream intake	Minor	No modification planned.							
Waikamoi	H90	3.8	Above Hana Highway												
				Wailoa	W-2	Waikamoi	Major	Dam will be notched to provide for both the IIFS and connectivity.	NA	Yes	NA (no fill)	SPA	NA	TBD	
				Wailoa	W-2a	Waikamoi 4" pipe intake	Minor	No modification planned.							
				Wailoa	W-2b	Waikamoi 2" pipe intake	Minor	No modification planned.							
				Spreckels	S-10	Waikamoi Stream diversion tunnel to Kolea Stream	Major	Skimming Dam will be notched to provide for both the IIFS and connectivity.	NA	Yes	NA (no fill)	SPA	NA	TBD	
				Spreckels	S-9f	East Waikamoi small stream intake	Minor	No modification planned.							
				Spreckels	S-9g	West Waikamoi small stream intake	Minor	No modification planned.							
				Center	C-1	Waikamoi	Major	Sluice gate to be adjusted to provide for both the IIFS and connectivity.							

Note: At present, no permanent abandonments of diversions are planned. It is anticipated that all work on existing diversions will be conducted as operations and maintenance necessary for the diversions to achieve the IIFS.

Civil No. 19-1-0019-01 (JPC)

Defendant A&B/EMI's Exhibit AB-37

FOR IDENTIFICATION _____

RECEIVED IN EVIDENCE _____

CLERK _____