

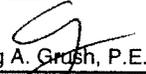
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Low Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 1\Klamath Dams Removal - COPCO 1 - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xls\Road Improvements
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir for Dam Removal. Barge taken from Iron Gate Reservoir. Barge is used to modify diversion tunnel intake structure. Barge is also used to remove spillway gates, piers, bridge and concrete in spillway crest. Barge is located on reservoir for approximately 5 months.	86-68130	1	ls		\$340,000.00
	2	Remove Sediment from Diversion Tunnel Intake to provide access. Requires removing sediment 115 feet deep using clamshell or suction dredge.	86-68130	30	cy	\$1,700.00	\$51,000.00
	3	Furnish, Install, and Remove Large Crane on Right Abutment. Crane used to deliver equipment and materials and to remove waste materials as required. Crane in place for 4 months.	86-68130	1	ls		Included in the mobilization item
	4	Remove Water from behind Tailrace Cofferdam. Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump operating for 1 day.	86-68130	200,000	gals	\$0.01	\$2,000.00
	5	Riprap Protection on Cofferdam. Riprap protects cofferdam from diversion tunnel releases.	86-68130	260	cy	\$120.00	\$31,200.00
	6	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	1	ls		\$30,000.00
SUBTOTAL THIS SHEET							\$454,200.00

QUANTITIES		PRICES	
BY Nick Benk	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Brush, P.E.	CHECKED <i>[Signature]</i> 06-01-11
DATE PREPARED 10/26/10	PEER REVIEW / DATE Tom Hepler P.E. 10/26/10	DATE PREPARED 05/31/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

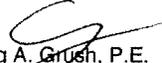
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	7	Remove Current Diversion Tunnel Plug <i>Plug located in the middle of the tunnel</i> <i>Reinforced concrete</i> <i>Tunnel work</i>	86-68130	195	yd3	\$1,400.00	\$273,000.00
	8	Construct Embankment Cofferdam in Tailrace to remove Powerhouse in dry. <i>Assumes 10 ft wide crest with 2:1 side slopes, approximately 250 ft long and up to 12 ft high.</i> <i>Embankment material taken from Iron Gate Dam Removal, approximately 10 mile haul distance.</i>	86-68130	1,700	yd3	\$70.00	\$119,000.00
SUBTOTAL THIS SHEET							\$392,000.00

QUANTITIES		PRICES	
BY Jonathan East	CHECKED Sheena Barnes	BY  Craig A. Grush, P.E.	CHECKED  06-01-11
DATE PREPARED 10/26/10	PEER REVIEW / DATE Rick Benik P.E. 10/26/10	DATE PREPARED 05/31/11	PEER REVIEW / DATE  6/3/11

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Low Dam				Klamath River Northern California/Southern Oregon			
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	10	Remove Concrete Dam down to Elev. 2476	86-68130	36,000	yd3	\$290.00	\$10,440,000.00
		<i>Elev. 2476 represents original streambed channel at downstream face of dam.</i> <i>Concrete in foundation to remain. Spillway crest at Elev. 2593.5.</i> <i>Includes concrete in dam, spillway crest, piers (390 cy), bridge deck (72 cy) and left abutment. Concrete is reinforced.</i> <i>Requires notching of concrete dam under head below approximately Elev. 2536 for a dry water year. Approximately 17,000 cy of concrete in dam above El. 2536.</i> <i>Assume ten notches, 12 ft deep, alternating sides with five on each side for removal of final 60 feet of dam.</i> <i>Each notch overlaps the previous alternating notch in 6 foot lifts.</i> <i>Each notch is approximately 20 ft wide with an average 6 ft thickness to be removed by blasting below reservoir surface.</i>					
	11	Remove Concrete Intake Structure on Right Abutment	86-68130	21,000	yd3	\$340.00	\$7,140,000.00
		<i>Includes concrete in gate houses and headworks for units 1 and 2.</i>					
	12	Remove Structural Steel from Spillway	86-68130	55,000	lbs	\$0.70	\$38,500.00
		<i>Includes rails, misc. steel</i> <i>Does not include spillway gates</i> <i>By barge and crane</i>					
	13	Install Diversion Tunnel Plugs	86-68130	30	yd3	\$1,100.00	\$33,000.00
		<i>Plug upstream (6 cy) and downstream ends</i> <i>Assume 2' thick each</i>					
	14	Remove Diversion Tunnel Control Structure Concrete	86-68130	350	yd3	\$170.00	\$59,500.00
		<i>Includes guide boxes</i> <i>Assume reinforced</i>					
SUBTOTAL THIS SHEET							\$17,711,000.00

QUANTITIES		PRICES	
BY Jonathan East	CHECKED Sheena Barnes	BY  Craig A. Grush, P.E.	CHECKED  06-01-11
DATE PREPARED 10/26/10	PEER REVIEW / DATE Rick Benik P.E. 10/26/10	DATE PREPARED 05/31/11	PEER REVIEW / DATE  6/3/11

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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at Dam:					
	15	Hand Rails By barge and crane	86-68420	11,000	lb	\$0.70	\$7,700.00
	16	Radial Gates 13 radial gates, wall and sillplates and 3-hoists By barge and crane	86-68420	140,500	lb	\$0.70	\$98,350.00
				Revised 8.26.10 TJJ			
	17	Radial Gate stoplogs 8 stop logs and 13 sets of guides By barge and crane	86-68420	18,000	lb	\$0.70	\$12,600.00
	18	Stoplog hoist, track and supports By barge and crane	86-68420	26,000	lb	\$0.70	\$18,200.00
		Remove and dispose of the following equipment at the waste tunnel:	86-68420				
	19	3 sections of 23' of 72"Ø steel lining (embedded)	86-68420	54,000	lb	\$0.60	\$32,400.00
	20	3 - 72" butterfly valves (embedded)	86-68420	55,000	lb	\$0.60	\$33,000.00
	21	3-72" flapper valves with remote mechanical control (embedded) Removal requires a dive depth of 115 ft.	86-68420	78,000	lb	\$2.50	\$195,000.00
SUBTOTAL THIS SHEET							\$397,250.00

QUANTITIES				PRICES			
BY	K. Converse	CHECKED	T Turnage	BY	<i>[Signature]</i>	CHECKED	<i>[Signature]</i> 06-01-11
DATE PREPARED	10/28/10	PEER REVIEW / DATE	Dan Drake 10/29/2010	DATE PREPARED	05/31/11	PEER REVIEW / DATE	<i>[Signature]</i> 6/3/11

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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at Spillway:					
	22	Spillway gate motor & control panel Total weight approximately: 500 lbs.	86-68430	1	EA	\$900.00	\$900.00
	23	Distribution equipment , panelboards Total weight approximately: 500 lbs.	86-68430	1	EA	\$5,000.00	\$5,000.00
		DAM SUBTOTAL					\$18,114,150.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-01-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 05/31/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	24	Remove Powerhouse Concrete down to top of rock under the PH, Elev. 2482.75 (USGS datum). Local datum is converted to USGS datum by adding 2411 feet. (Elev. 71.75 + 2411 = Elev. 2482.75.) All concrete is reinforced. Includes all exterior & interior walls, columns, & beams, and concrete in foundations for transformers	86-68130	3,100	yd3	\$270.00	\$837,000.00
	25	Remove Powerhouse Structural Steel Roof truss members, purlins, and crane rail	86-68130	110,000	lbs	\$0.60	\$66,000.00
SUBTOTAL THIS SHEET							\$903,000.00

QUANTITIES		PRICES	
BY Jonathan East	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED 06-01-11
DATE PREPARED 10/26/10	PEER REVIEW / DATE Rick Benik P.E. 10/26/10	DATE PREPARED 05/31/11	PEER REVIEW / DATE 4/3/11

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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Power House:					
	26	2 - Governor oil systems governor, sump tanks, accumulator tank, piping	86-68420	38,000	lb	\$0.60	\$22,800.00
	27	Cooling water and bearing oil systems (encased in concrete)	86-68420	11,000	lb	\$0.60	\$6,600.00
	28	4 - Horizontal Tandem Francis Turbines (includes runner, scroll case, draft tube and shaft)	86-68420	452,000	lb	\$0.60	\$271,200.00
	29	2 - 40 Ton indoor cranes Includes crane and rail, not steel rail base	86-68420	140,000	lb	\$0.60	\$84,000.00
	30	Compressed Air system	86-68420	1,000	lb	\$0.60	\$600.00
	31	2 - CO2 systems	86-68420	3,100	lb	\$0.60	\$1,860.00
	32	Plant Water and Fire Protection	86-68420	2,600	lb	\$0.60	\$1,560.00
SUBTOTAL THIS SHEET							\$388,620.00

QUANTITIES		PRICES	
BY K. Converse	CHECKED T Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 10/28/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/31/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	36	Horizontal AC Generator, Indoor Open Frame Unit 1 & 2 ea: 12.5 MVA (10 MW); 0.8PF, 2,300V, 200 RPM, 3 Ph, including rotating exciter Total weight each approximately: 123,500 lbs. Stator: 32,250 lbs., Rotor: 55,000 lbs. Base: 17,000 lbs., Exciter Assembly: 7,550 lbs. Heaviest lift: 55,000 lbs.	86-68430	2	EA	\$30,000.00	\$60,000.00
	37	Excitation equipment for 12.5 MVA Generator (2 sections) Total weight approximately: 1,000 lbs.	86-68430	2	EA	\$5,000.00	\$10,000.00
	38	Surge protection equip. for 12.5 MVA Generator Total weight approximately: 800 lbs.	86-68430	2	EA	\$1,500.00	\$3,000.00
	39	Neutral grounding equip. for 12.5 MVA Generator includes transformer Total weight approximately: 500 lbs.	86-68430	2	EA	\$1,500.00	\$3,000.00
	40	Generator Switchgear, 5kV- includes unit breakers (6 Sections @ 400 lbs each section) 3 ft x 3 ft x 90 inches high Total weight approximately: 2,400 lbs.	86-68430	1	EA	\$15,000.00	\$15,000.00
	41	Station Service Switchgear, 600 volt -(5 sections) (400 lbs each section), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$15,000.00	\$15,000.00
SUBTOTAL THIS SHEET							\$106,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>CG</i> Craig A. Grish, P.E.	CHECKED <i>DC</i> 06-01-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 05/31/11	PEER REVIEW / DATE <i>DC</i> 6/3/11

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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	42	Unit and plant control switchboard 5 cubicles (200 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 1,000 lbs.	86-68430	1	EA	\$14,000.00	\$14,000.00
	43	Battery system - assume 60 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$9,000.00	\$9,000.00
	44	Raceways, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 200 lin. Ft. cabletray) Total weight approximately: 8,000 lbs.	86-68430	1	EA	\$14,000.00	\$14,000.00
	45	Misc. power & control boards 10 boards (50 lbs each) 3ft x 2 ft x 9 in Total weight approximately: 500 lbs.	86-68430	1	EA	\$4,000.00	\$4,000.00
	46	Step-up Transformers, indoor, oil-filled, 1-phase, 5,000 kVA, 2,300/72,000 volt Total weight approximately each: 31,500 lbs.	86-68430	3	EA	\$40,000.00	\$120,000.00
	47	Step-up Transformers, indoor, oil-filled, 1-phase, 4,165 kVA, 2,300/72,000 volt Total weight approximately each: 31,500 lbs.	86-68430	3	EA	\$40,000.00	\$120,000.00
	48	Seven 40-Ton Travelling Crane motors - hoist (2-30Hp*), hoist trolley (7.5Hp*), gantry (4-15Hp*) (Hp* Approx.) Total weight approximately: 600 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
		SUBTOTAL THIS SHEET					\$283,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-01-11
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		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	49	40-Ton Travelling Crane control equipment (5 cubicles), Total weight approximately: 500 lbs.	86-68430	1	EA	\$9,000.00	\$9,000.00
	50	40-Ton Travelling Crane Festoon Cable (approx. 200 lin. Ft. cable) Total weight approximately: 800 lbs.	86-68430	1	EA	\$1,000.00	\$1,000.00
	51	Four 15-Ton Overhead Crane motors - hoist (10Hp*), hoist trolley (5Hp*), gantry (2-5Hp*) (Hp* Approx.) Total weight approximately: 350 lbs.	86-68430	1	EA	\$900.00	\$900.00
	52	15-Ton Overhead Crane control equipment (1 cubicle), Total weight approximately: 100 lbs.	86-68430	1	EA	\$250.00	\$250.00
	53	15-Ton Overhead Crane Festoon Cable (approx. 100 lin. Ft. cable) Total weight approximately: 250 lbs.	86-68430	1	EA	\$400.00	\$400.00
SUBTOTAL THIS SHEET							\$11,550.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-01-11
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Switchyard:					
		All equipment is on wood-pole structures					
	54	69-kV circuit breakers, oil-filled, PCB	86-68430	2	EA	\$2,500.00	\$5,000.00
	55	69-kV disconnect switches, group-operated	86-68430	2	EA	\$1,000.00	\$2,000.00
	56	60-foot wood poles	86-68430	12	EA	\$900.00	\$10,800.00
	57	30-foot wood crossarms	86-68430	24	EA	\$400.00	\$9,600.00
	58	69-kV insulator strings	86-68430	12	EA	\$300.00	\$3,600.00
		Remove and dispose of the following wood-pole transmission lines:					
	59	Transmission Line No. 3 From Copco No. 1 switchyard to Fall Creek 266.8 ACSR, 69-kV	86-68430	1.66	mile	\$25,000.00	\$41,500.00
	60	Transmission Line No. 15 From Copco No. 1 switchyard to Copco No. 2 266.8 ACSR, 69-kV	86-68430	1.23	mile	\$25,000.00	\$30,750.00
	61	Transmission Line No. 26-1 From Copco No. 1 powerhouse to Copco No. 1 switchyard 2/0 copper, 69-kV	86-68430	0.07	mile	\$25,000.00	\$1,750.00
	62	Transmission Line No. 26-2 From Copco No. 1 powerhouse to Copco No. 1 switchyard 2/0 copper, 69-kV	86-68430	0.07	mile	\$25,000.00	\$1,750.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$1,821,360.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-01-11
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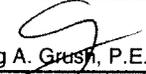
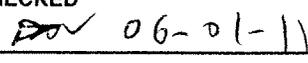
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	63	Remove gate house #1 from top of dam	86-68130	570	ft2	\$55.00	\$31,350.00
	64	Remove gate house #2 from top of dam	86-68130	690	ft2	\$55.00	\$37,950.00
	65	Remove Concrete Items associated with 10-foot diameter Penstocks, concrete is reinforced	86-68130	1,050	yd3	\$170.00	\$178,500.00
	66	Plug 14-foot diameter penstock with concrete Plug upstream and downstream ends Assume 2' thick each	86-68130	23	yd3	\$1,100.00	\$25,300.00
		SUBTOTAL THIS SHEET					\$273,100.00

QUANTITIES		PRICES	
BY Jonathan East	CHECKED Sheena Barnes	BY Craig A. Grish, P.E.	CHECKED 06-01-11
DATE PREPARED 10/26/10	PEER REVIEW / DATE Rick Benik P.E. 10/26/10	DATE PREPARED 05/31/11	PEER REVIEW / DATE 6/3/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 1\Klamath Dams Removal - COPCO 1 - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx]Road Improvements
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		MECHANICAL						
		Remove and dispose of the following equipment at the intake:						
	67	8 screens	86-68420	18,000	lb	\$0.60	\$10,800.00	
	68	8 Water Gates	86-68420	18,000	lb	\$0.60	\$10,800.00	
	69	3 - 30"Ø x 25' stand pipes	86-68420	6,000	lb	\$0.60	\$3,600.00	
	70	14' Ø penstock pipe	86-68420	256,000	lb	\$0.60	\$153,600.00	
		(includes encased and open air intake up to underground portion-Revised 9/14/2010)						
	71	10' Ø penstock pipe	86-68420	270,000	lb	\$0.60	\$162,000.00	
		(includes intake and main conduit)						
		PENSTOCK SUBTOTAL					\$613,900.00	

QUANTITIES		PRICES	
BY K. Converse	CHECKED T Turnage	BY 	CHECKED  06-01-11
DATE PREPARED 10/28/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/31/11	PEER REVIEW / DATE  6/3/11

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Low Reservoir Vegetative Restoration				Klamath River Northern California/Southern Oregon			
WOID:		AF484		ESTIMATE LEVEL:		Feasibility	
REGION:		MP		UNIT PRICE LEVEL:		July-2010	
FILE:				C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 1\Klamath Dams Removal - COPCO 1 - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Res Revag			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	73	SPRING GROUND SEEDING:	86-68220	420	Acres	\$3,000.00	\$1,260,000.00
		Idaho fescue (Festuca idahoensis)	1680	lbs PLS			
		Blue wildrye (Elymus glaucus)	1680	lbs PLS			
		Small fescue (Vulpia microstachys)	1680	lbs PLS			
		Bluebunch wheatgrass (Pseudoroegneria spicata)	2520	lbs PLS			
		Sandberg bluegrass (Poa secunda)	210	lbs PLS			
		Spike bentgrass (Agrostis exarata)	105	lbs PLS			
		Western needlegrass (Achnatherum occidentale)	1680	lbs PLS			
		California brome (Bromus carinatus)	3360	lbs PLS			
		Squirreltail (Elymus elymoides)	1680	lbs PLS			
		Wood mulch	840000	lbs			
		Tackifier	50400	lbs			
	74	SPRING BARGE SEEDING:	86-68220	82	Acres	\$5,000.00	\$410,000.00
		Idaho fescue (Festuca idahoensis)	328	lbs PLS			
		Blue wildrye (Elymus glaucus)	328	lbs PLS			
		Small fescue (Vulpia microstachys)	328	lbs PLS			
		Bluebunch wheatgrass (Pseudoroegneria spicata)	492	lbs PLS			
		Sandberg bluegrass (Poa secunda)	41	lbs PLS			
		Spike bentgrass (Agrostis exarata)	21	lbs PLS			
		Western needlegrass (Achnatherum occidentale)	328	lbs PLS			
		California brome (Bromus carinatus)	656	lbs PLS			
		Squirreltail (Elymus elymoides)	328	lbs PLS			
		Wood mulch	164000	lbs			
		Tackifier	9840	lbs			
SUBTOTAL THIS SHEET							\$1,670,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-01-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 05/31/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Low Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 1\Klamath Dams Removal - COPCO 1 - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Res Reveg
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	75	SPRING AERIAL SEEDING:	86-68220	300	Acres	\$6,500.00	\$1,950,000.00
		Idaho fescue (Festuca idahoensis)	1200	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1200	lbs	PLS		
		Small fescue (Vulpia microstachys)	1200	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1800	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	150	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	75	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1200	lbs	PLS		
		California brome (Bromus carinatus)	2400	lbs	PLS		
		Squirreltail (Elymus elymoides)	1200	lbs	PLS		
		Wood mulch	600000	lbs			
		Tackifier	36000	lbs			
	76	FALL GROUND SEEDING:	86-68220	201	Acres	\$3,000.00	\$603,000.00
		Idaho fescue (Festuca idahoensis)	802	lbs	PLS		
		Blue wildrye (Elymus glaucus)	802	lbs	PLS		
		Small fescue (Vulpia microstachys)	802	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1203	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	100	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	50	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	802	lbs	PLS		
		California brome (Bromus carinatus)	1604	lbs	PLS		
		Squirreltail (Elymus elymoides)	802	lbs	PLS		
		Wood mulch	61692	lbs			
		Tackifier	3702	lbs			
SUBTOTAL THIS SHEET							\$2,553,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 06-01-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 05/31/11	PEER REVIEW / DATE <i>[Signature]</i> 4/3/11

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Low Reservoir Vegetative Restoration				Klamath River Northern California/Southern Oregon			
		WOID: AF484		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
FILE:				C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 1\Klamath Dams Removal - COPCO 1 - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xls\Res Reveg			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	77	RIPARIAN POLE PLANTING: (400 ea/acre)	86-68220	170	Acres	\$4,000.00	\$680,000.00
		Narrowleaf willow (<i>Salix exigua</i>)	40800	cutting			
		Arroyo willow (<i>Salix lasiolepis</i>)	6800	cutting			
		Shining willow (<i>Salix lucida</i>)	6800	cutting			
		Three-leaf sumac (<i>Rhus trilobata</i>)	6800	cutting			
		Western serviceberry (<i>Amelanchier alnifolia</i>)	3400	cutting			
		Chokecherry (<i>Prunus virginiana</i>)	3400	transplant			
		Herbivore screen	68000	each			
		Chemical herbivore deterrent	1360	gal			
		Polymer	214	lbs			
	78	WEED MANAGEMENT:	86-68220	201	Acres	\$1,000.00	\$201,000.00
		Herbicide, post-emergent	401	lbs AI			
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION					
	79	FALL GROUND SEEDING:	86-68220	321	Acres	\$3,000.00	\$963,000.00
		Idaho fescue (<i>Festuca idahoensis</i>)	1283	lbs PLS			
		Blue wildrye (<i>Elymus glaucus</i>)	1283	lbs PLS			
		Small fescue (<i>Vulpia microstachys</i>)	1283	lbs PLS			
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	1925	lbs PLS			
		Sandberg bluegrass (<i>Poa secunda</i>)	160	lbs PLS			
		Spike bentgrass (<i>Agrostis exarata</i>)	80	lbs PLS			
		Western needlegrass (<i>Achnatherum occidentale</i>)	1283	lbs PLS			
		California brome (<i>Bromus carinatus</i>)	2566	lbs PLS			
		Squirreltail (<i>Elymus elymoides</i>)	1283	lbs PLS			
		Wood mulch	641600	lbs			
		Tackifier	38496	lbs			
	80	WEED MANAGEMENT:	86-68220	321	Acres	\$1,000.00	\$321,000.00
		Herbicide, post-emergent	30	lbs AI			
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL					\$6,808,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-01-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 05/31/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Low Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 1\Klamath Dams Removal - COPCO 1 - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Road Improvements
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to prepare a disposal site and improve the haul road to the disposal site for Copco 1 and Copco 2. In addition it provides the length of county road required to be repaired after construction.					
		General Sitework Copco 1 And Copco 2					
	81	Clear and Grub Disposal Area Estimated haul distance 1 mile. Disposed concrete estimated to be 10' deep and traffic compacted (50% bulking factor). For Copco 1 and Copco 2	86-68313	7	acre	\$5,000.00	\$35,000.00
	82	Soil Cover for Disposal Area	86-68313	23,000	yd3	\$45.00	\$1,035,000.00
		Access/Haul Road Improvements maximum 12% grades 4 reaches required improvement					
	83	Soil Excavation	86-68313	4,500	yd3	\$12.00	\$54,000.00
	84	Rock Excavation	86-68313	4,500	yd3	\$35.00	\$157,500.00
	85	Soil Backfill	86-68313	16,000	yd3	\$45.00	\$720,000.00
	86	4" Gravel Surfacing 50% contingency for excavation 100% contingency for backfill	86-68313	0	ton	\$80.00	
		County Road Improvements					
	87	Asphalt Overlay Repair - Juniper Road	86-68313	3	mi	\$35,000.00	\$105,000.00
	88	Asphalt Overlay Repair - Copco Road Assume the 2 lane county road from I-5 to the Copco Dams will be overlayed after construction with chip seal.	86-68313	19	mi	\$35,000.00	\$665,000.00
		ROAD IMPROVEMENTS SUBTOTAL					\$2,771,500.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED 06-01-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 05/31/11	PEER REVIEW / DATE 6/3/11

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Low Recreational Facilities to be Removed				Klamath River Northern California/Southern Oregon			
WOID:		AF652		ESTIMATE LEVEL:		Feasibility	
REGION:		MP		UNIT PRICE LEVEL:		July-2010	
FILE:				C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 1\Klamath Dams Removal - COPCO 1 - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xls\Road Improvements			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mallard Cove					
	89	Concrete total	BLM	106	CY	\$200.00	\$21,200.00
		Boat ramp: 100'x25'x1' (93 CY)					
		Dock abutment: 6'x8'x3' (6 CY)					
		8 Concrete wheel stops (0.5 CY)					
		4 Campfire ring foundations (1 CY)					
		6 Concrete sign bases (3 CY)					
		3 Concrete fire rings (2 CY)					
	90	25'x5' Dock made of composite decking and poly floats	BLM	1	EA	\$2,000.00	\$2,000.00
	91	20'x5' Gangway w/ aluminum frame and railings	BLM	1	EA	\$1,500.00	\$1,500.00
	92	Signs to be removed and hauled away	BLM	6	EA	\$250.00	\$1,500.00
	93	Wood plank tables to be removed and hauled away	BLM	8	EA	\$90.00	\$720.00
	94	Parking area to be regraded, ripped, seeded and planted this area is made of fill about 6 ft deep	BLM	2.5	ACRE	\$20,000.00	\$50,000.00
		Copco Cove					
	95	Concrete total	BLM	84	CY	\$200.00	\$16,800.00
		Boat ramp: 80'x25'x1' (74 CY)					
		Dock abutment: 14'x5'x3' (8 CY)					
		6 Concrete sign bases (2 CY)					
	96	Dock abutment railing made of 2.5" dia. steel pipe	BLM	25	LF	\$35.00	\$875.00
	97	Signs to be removed and hauled away	BLM	6	EA	\$250.00	\$1,500.00
	98	Wood plank tables to be removed and hauled away	BLM	2	EA	\$90.00	\$180.00
	99	Regrade, rip, seed and plant disturbed areas	BLM	2.3	ACRE	\$20,000.00	\$46,000.00

RECREATIONAL FACILITIES REMOVAL SUBTOTAL THIS SHEET \$142,275.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-01-11
DATE PREPARED 10/26/10	PEER REVIEW / DATE Rick Benik P.E. 10/26/10	DATE PREPARED 05/31/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Copco No. 1 Dam & Powerplant Removal Most Probable Low SUMMARY	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Copco 1\Klamath Dams Removal - COPCO 1 - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		1,453,800	CY	\$0.00	\$0.00
		Diversion and Care					\$1,332,200.00
		Dam Removal					\$18,114,150.00
		Powerhouse/Switchyard/Transmission Line Removal					\$1,821,360.00
		Penstock Removal					\$613,900.00
		Reservoir Vegetative Restoration					\$6,808,000.00
		Road Improvements					\$2,771,500.00
		Recreational Facilities to be Removed					\$142,275.00
		Subtotal					\$31,603,385.00
		Mobilization	5%	+/-			\$1,600,000.00
		Subtotal 1 with Mobilization					\$33,203,385.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 1.5%/yr compounding over 10 years)					\$5,330,499.00
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$38,533,884.00
		Design Contingencies	8%	+/-			\$3,466,116.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$42,000,000.00
		Construction Contingencies	18%	+/-			\$7,000,000.00
		FIELD COST					\$49,000,000.00
		Non-Contract Costs: (Environmental & Cultural Resources Mitigation ~ 35%, Design Data Collection ~ 1%, Engineering Design ~ 3%, Permitting ~ 2%, Procurement ~ 1%, Construction Management ~ 9%, and Closeout ~ 1%)	52%	+/-			\$25,000,000.00
		CONSTRUCTION COST					\$74,000,000.00
Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.							

QUANTITIES		PRICES	
37	CHECKED Refer to Previous Sheets	BY Craig A. Brush, P.E.	CHECKED <i>DM</i> 06-01-11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 05/31/11	PEER REVIEW / DATE <i>DCD</i> 6/3/11