





<b>FEATURE:</b>		<b>PROJECT:</b>	
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Dam		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\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>CIVIL</b>					
		<b>Concrete and Structural Steel Items:</b>					
	5	Remove Spillway Concrete 3000 psi, reinforced and mass concrete. Includes removal of two diversion culverts beneath spillway block 1. Spillway concrete was estimated between dam Sta. 2+19.5 and Sta. 3+36.5. Waste in scour hole	86-68130	2,500	yd3	\$390.00	\$975,000.00
	6	Remove Monorail Structural Steel Components This structure used for installing steel stoplogs in spillway radial gate openings. Assume contains paint with heavy metals.	86-68130	15,000	lbs	\$0.75	\$11,250.00
	7	Remove Fish Ladder Concrete 3000 psi, reinforced concrete. Includes fish ladder intake at upstream end, diffusion box at downstream end, and north abutment wall (which supports dam embankment). This quantity is for concrete to the right of dam Sta. 3+36.5. Waste in scour hole	86-68130	1,600	yd3	\$390.00	\$624,000.00
	8	Remove Gravity Dam Section Concrete 3000 psi, mass concrete. Waste in scour hole	86-68130	600	yd3	\$390.00	\$234,000.00
	9	Remove Timber Equipment Ramp on left side of dam. Timber is creosote pressure treated Douglas Fir assumed to weigh 36 lbs/ft3. Volume of timber to be removed is approximately 290 ft3.	86-68130	10,500	lbs	\$0.70	\$7,350.00
	10	Remove Pressure-Treated Lumber from Footbridge around intake structure. 2 in by 8 in Lumber assumed to weigh 30 lb/ft3. Volume of lumber to be removed is approximately 120 ft3.	86-68130	3,600	lbs	\$0.70	\$2,520.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$1,854,120.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED [Signature] 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE [Signature] 6/3/11

<b>FEATURE:</b> REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Dam	<b>PROJECT:</b> Klamath River Northern California/Southern Oregon <hr/> <b>WOID:</b> AF652 <b>ESTIMATE LEVEL:</b> Feasibility <b>REGION:</b> MP <b>UNIT PRICE LEVEL:</b> July-2010 <b>FILE:</b> C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
---	--

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>CIVIL</b>					
		<b>Concrete and Structural Steel Items:</b>					
	11	Storage Shed located on access road about 440' from left abutment of dam. 48' x 36' wood frame construction.	86-68130	1,728	ft2	\$42.00	\$72,576.00
	12	Warehouse located on access road about 370' from left abutment of dam (Red Barn). 60' x 32' wood frame construction.	86-68130	1,920	ft2	\$42.00	\$80,640.00
	13	Fire System Control Bldg. on left abutment. 15.25'x25.25' concrete block on concrete slab.	86-68130	385	ft2	\$42.00	\$16,170.00
	14	Dam Communication Bldg. on left abutment. 13.5'x24.5' metal building on concrete slab.	86-68130	331	ft2	\$42.00	\$13,902.00
	15	Concrete Slab on left abutment for former Control House. 13'x13' house has been removed. Waste in scour hole	86-68130	6	cy	\$390.00	\$2,340.00
	16	4'x5' Metal Hatch on top of Concrete Pull Box on left abutment. Metal hatch weighs approximately 400 lbs. Waste in scour hole	86-68130	1	cy	\$390.00	\$390.00
	17	Reservoir Level Gauge House on Dam Crest 4'x6' Metal building.	86-68130	24	ft2	\$42.00	\$1,008.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$187,026.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

<b>FEATURE:</b> REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Dam	<b>PROJECT:</b> Klamath River Northern California/Southern Oregon <hr/> <b>WOID:</b> AF652 <b>ESTIMATE LEVEL:</b> Feasibility <b>REGION:</b> MP <b>UNIT PRICE LEVEL:</b> July-2010 <b>FILE:</b> C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
---	--

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>GEOTECHNICAL</b>					
	18	Upstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	2,220	yd3	\$12.00	\$26,640.00
	19	Downstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	1,850	yd3	\$12.00	\$22,200.00
	20	Miscellaneous Excavation <i>Consists of finer earth fill materials such as Zone 1, Zone 2, Filters and a Waste Rock Zone</i>	86-68313	132,500	yd3	\$12.00	\$1,590,000.00
	21	Cutoff Wall Concrete Demolition <i>The concrete cutoff wall is embedded in the Zone 1 core and is anchored into bedrock. Waste in scour hole</i>	86-68313	70	yd3	\$390.00	\$27,300.00
	22	Cutoff Wall Anchors <i>Cut #8 anchors at top of bedrock</i>  <i>Assume concrete rubble disposed of on site but anchors hauled off site.</i>	86-68313	285	ea	\$12.00	\$3,420.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,669,560.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

<b>FEATURE:</b> REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Dam	<b>PROJECT:</b> Klamath River Northern California/Southern Oregon <hr/> <b>WOID:</b> AF652 <b>ESTIMATE LEVEL:</b> Feasibility <b>REGION:</b> MP <b>UNIT PRICE LEVEL:</b> July-2010 <b>FILE:</b> C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
---	--

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>MECHANICAL</b>					
		<b>Remove and dispose of the following equipment at Dam:</b>					
	23	Hand Rails and Light Poles (Assume contains paint with heavy metals)	86-68420	5,000	lbs	\$0.75	\$3,750.00
	24	Spillway Radial Gates and Hoists 3 radial gates, 3 hoists (Assume contains paint with heavy metals & petroleum products)	86-68420	124,000	lbs	\$0.75	\$93,000.00
	25	Stop Logs and Slots (steel) stop logs slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	92,000	lbs	\$0.75	\$69,000.00
		<b>Remove and dispose of the following equipment at the Fish Ladder Structure:</b>					
	26	24" Slide Gate at Entrance to Fish Ladder Structure (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	4,200	lbs	\$0.75	\$3,150.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$168,900.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

<b>FEATURE:</b> REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Dam	<b>PROJECT:</b> Klamath River Northern California/Southern Oregon <hr/> <b>WOID:</b> AF652 <b>ESTIMATE LEVEL:</b> Feasibility <b>REGION:</b> MP <b>UNIT PRICE LEVEL:</b> July-2010 <b>FILE:</b> C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
---	--

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>ELECTRICAL</b>					
		<b>Remove and dispose of the following equipment at Spillway:</b>					
	27	Spillway gate motor & control panel Total weight approximately: 500 lbs.	86-68430	1	EA	\$700.00	\$700.00
	28	Distribution equipment , panelboards Total weight approximately: 500 lbs.	86-68430	1	EA	\$6,500.00	\$6,500.00
		<b>DAM SUBTOTAL</b>					<b>\$3,886,806.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED  05-19-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

**FEATURE:**  
**REVISION #1**  
**Klamath River Dams Removal**  
**Full Removal Option**  
**JC Boyle Dam & Powerplant Removal**  
**Most Probable High**  
**Powerhouse, Switchyard, and Transmission Line**

**PROJECT:**  
**Klamath River**  
**Northern California/Southern Oregon**

<b>WOID:</b> AF652	<b>ESTIMATE LEVEL:</b> Feasibility
<b>REGION:</b> MP	<b>UNIT PRICE LEVEL:</b> July-2010

**FILE:** C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>CIVIL</b>					
		<b>Concrete and Structural Steel Items:</b>					
	29	Remove Powerhouse Concrete down to Elevation 3324.0 (springline of the turbines). Waste in scour hole	86-68130	1,500	yd3	\$800.00	\$1,200,000.00
	30	Remove Structural Steel Items associated with Powerhouse. Includes only WF beam shapes, crane rails, and penstock sections inside powerhouse. Assume contains paint with heavy metals.	86-68130	94,000	lbs	\$0.75	\$70,500.00
	31	Warehouse near Powerhouse. Large metal building on concrete slab.	86-68130	5,200	ft2	\$42.00	\$218,400.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$1,488,900.00</b>

QUANTITIES		PRICES	
<b>BY</b> Stephen Latham	<b>CHECKED</b> Jonathan East	<b>BY</b> Craig A. Grush, P.E.	<b>CHECKED</b> PW 05-19-11
<b>DATE PREPARED</b> 11/01/10	<b>PEER REVIEW / DATE</b> Rick Benik P.E. 11/1/10	<b>DATE PREPARED</b> 05/19/11	<b>PEER REVIEW / DATE</b> ACD 6/3/11

<b>FEATURE:</b> REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	<b>PROJECT:</b> Klamath River Northern California/Southern Oregon <hr/> <b>WOID:</b> AF652 <b>ESTIMATE LEVEL:</b> Feasibility <b>REGION:</b> MP <b>UNIT PRICE LEVEL:</b> July-2010 <b>FILE:</b> C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
---	--

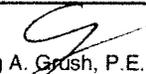
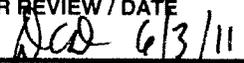
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>MECHANICAL</b>					
		Remove and dispose of the following equipment at the Power House:					
	32	2 - Governor oil systems governor, sump tanks, accumulator tank, piping (Assume contains paint with heavy metals & petroleum products)	86-68420	52,500	lbs	\$0.75	\$39,375.00
	33	Cooling water and bearing oil systems (Assume contains paint with heavy metals & petroleum products)	86-68420	6,500	lbs	\$0.75	\$4,875.00
	34	2 - Francis Turbines (Includes runner, scroll case, draft tube and shaft) (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	560,000	lbs	\$0.75	\$420,000.00
	35	150 Ton crane (Includes crane and embedded steel rail) (Assume contains paint with heavy metals & petroleum products)	86-68420	240,000	lbs	\$0.75	\$180,000.00
	36	Compressed Air systems (Assume contains paint with heavy metals & petroleum products)	86-68420	1,100	lbs	\$0.75	\$825.00
	37	2 - CO2 systems (Assume contains paint with heavy metals & petroleum products)	86-68420	6,600	lbs	\$0.75	\$4,950.00
	38	Plant Water and Fire Protection (Assume contains paint with heavy metals)	86-68420	3,100	lbs	\$0.75	\$2,325.00
	39	Transformer Oil Fire protection (Assume contains paint with heavy metals & petroleum products)	86-68420	6,500	lbs	\$0.75	\$4,875.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$657,225.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11



<b>FEATURE:</b> REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	<b>PROJECT:</b> Klamath River Northern California/Southern Oregon <hr/> <b>WOID:</b> AF652 <b>ESTIMATE LEVEL:</b> Feasibility <hr/> <b>REGION:</b> MP <b>UNIT PRICE LEVEL:</b> July-2010 <hr/> <b>FILE:</b> C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
---	--

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>ELECTRICAL</b>					
		<b>Remove and dispose of the following equipment in the Powerplant:</b>					
	44	Outdoor Vertical AC Generator, Unit 1: 53 MVA (50 MW); Unit 2: 50 MVA (48 MW); 0.95PF, 11,500 V, 277 RPM, 3 Ph, including rotating exciter Total weight each approximately: 657,000 lbs. Stator: 175,000 lbs., Rotor: 290,000 lbs. Heaviest lift: 300,000 lbs.	86-68430	2	EA	\$250,000.00	\$500,000.00
	45	Excitation equipment for 53/50 MVA Generator (5 cabinets)(400 lbs each), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	2	EA	\$13,000.00	\$26,000.00
	46	Surge protection equip. for 53/50 MVA Generator Total weight approximately: 1,500 lbs.	86-68430	2	EA	\$8,000.00	\$16,000.00
	47	Neutral grounding equip. for 53/50 MVA Generator includes transformer Total weight approximately: 500 lbs.	86-68430	2	EA	\$4,000.00	\$8,000.00
	48	Generator Switchgear, 15kV - (6 sections) (750 lbs each), 3 ft x 6ft x 90 inches high Total weight approximately: 4,500 lbs.	86-68430	1	EA	\$21,000.00	\$21,000.00
	49	Station Service Switchgear, 600 volt -(5 sections) (400 lbs each), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$581,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY D. Berk	CHECKED T. Griess	BY 	CHECKED  05-19-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

<b>FEATURE:</b> REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	<b>PROJECT:</b> Klamath River Northern California/Southern Oregon <hr/> <b>WOID:</b> AF652 <b>ESTIMATE LEVEL:</b> Feasibility <b>REGION:</b> MP <b>UNIT PRICE LEVEL:</b> July-2010 <b>FILE:</b> C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
---	--

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>ELECTRICAL</b>					
		<b>Remove and dispose of the following equipment in the Powerplant:</b>					
	50	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	\$6,000.00	\$6,000.00
	51	Battery system - assume 40 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$9,000.00	\$9,000.00
	52	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	\$12,000.00	\$12,000.00
	53	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	\$7,000.00	\$7,000.00
		<b>Remove and dispose of the following Gantry Crane equipment at the Powerplant:</b>					
	54	5 Gantry Crane motors - hoist (50Hp*), aux hoist (30Hp*), aux hoist trolley (5Hp*), gantry (2-15Hp*) (Hp* Approx.) Total weight approximately: 750 lbs.	86-68430	1	EA	\$3,000.00	\$3,000.00
	55	Gantry Crane control equipment (3 cubicles) Total weight approximately: 900 lbs.	86-68430	1	EA	\$7,000.00	\$7,000.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$44,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

<b>FEATURE:</b> REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	<b>PROJECT:</b> 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\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xls\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>ELECTRICAL</b>					
		<b>Remove and dispose of the following Gantry Crane equipment at the Powerplant:</b>					
	56	Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 100 lin. Ft. power cable from reel, 1000 lin. Ft conduit) Total weight approximately: 8,000 lbs.	86-68430	1	EA	\$11,000.00	\$11,000.00
	57	Exterior Lighting 6 poles with lights (250 lbs. each) Total weight approximately: 1,500 lbs.	86-68430	1	EA	\$3,000.00	\$3,000.00
		<b>Remove and dispose of the following Transmission Lines:</b>					
	58	Transmission Line No. 59 From Boyle Substation to Line Tie 266.8 ACSR, 69-kV	86-68430	1.66	mile	\$30,000.00	\$49,800.00
	59	Transmission Line No. 98 From Boyle Substation to Line Tie on Line 18 #2 AAC, 69-kV	86-68430	0.24	mile	\$30,000.00	\$7,200.00
	60	Transmission Line No. 58 From Boyle Substation to Line Tie 266.8 ACSR, 69-kV  Major substation equipment (transformers, circuit breakers, etc.) to be salvaged by Paciflicorp	86-68430	1.66	mile	\$30,000.00	\$49,800.00
<b>POWERHOUSE, SWITCHYARD, &amp; TRANS LINE SUBTOTAL</b>							<b>\$2,974,425.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

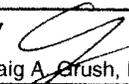
<b>FEATURE:</b> REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Penstock	<b>PROJECT:</b> Klamath River Northern California/Southern Oregon
	WOID: AF652      ESTIMATE LEVEL: Feasibility
	REGION: MP      UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>CIVIL</b>					
		<b>Concrete and Structural Steel Items:</b>					
	61	Remove Intake Structure Concrete 3000 psi, reinforced concrete. Waste in scour hole	86-68130	1,600	yd3	\$390.00	\$624,000.00
	62	Remove Fish Screen Building Building is located on top of intake structure. Wood frame construction, with metal rib roof and metal siding. Some wood is pressure-treated, which may be considered a hazardous material.	86-68130	1,300	ft2	\$42.00	\$54,600.00
	63	Remove 24-inch-dia. Steel Fish Discharge Pipe Pipe is located alongside the 14-ft-dia. steel pipe. Length is estimated to be approx. 340 feet long from Sta. 0+15.25 to the outlet at the Klamath River. Assume contains paint with heavy metals and/or asbestos	86-68130	22,000	lbs	\$0.75	\$16,500.00
	64	Remove Concrete Items associated with the 14-ft-diameter Steel Pipe. Includes anchors for horiz. pipe bends, piers, 14-ft dia. concrete conduit section, outlet transition with newer (2002) headgate vault section, siphon spillway structure, and 22-ft-long spillway flume. Waste in scour hole	86-68130	1,100	yd3	\$390.00	\$429,000.00
	65	Remove Open Concrete Flume. 3000 psi, reinforced concrete. Total flume length = 10,761 feet. Includes both 2-wall and 1-wall flume reaches. Includes 2,300 CY of unreinforced porous concrete (gunite or shotcrete) on 1-wall flume reaches. Waste in scour hole	86-68130	26,000	yd3	\$390.00	\$10,140,000.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$11,264,100.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

<b>FEATURE:</b>		<b>PROJECT:</b>	
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Penstock		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\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xls\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>CIVIL</b>					
		<b>Concrete and Structural Steel Items:</b>					
	66	Remove Structural Steel Items associated with the Forebay Trashrack Piers.	86-68130	11,500	lbs	\$0.75	\$8,625.00
		Includes three 16 WF beams, each about 61.3 feet long, that support the trashracks. Assume contains paint with heavy metals.					
	67	Remove Forebay Concrete 3000 psi, reinforced concrete.	86-68130	2,500	yd3	\$390.00	\$975,000.00
		Includes forebay, forebay spillway, forebay sluiceway, and forebay drainage items (man-hole, 12-inch concrete drain pipe). Waste in scour hole					
	68	Place Concrete Plugs at Tunnel Portals 3000 psi, reinforced concrete min., two plugs @ 2-ft thick.	86-68130	30	yd3	\$1,100.00	\$33,000.00
		Upper portal is a concrete-lined horseshoe shape, 16.5 ft high by 15.5 ft wide. Lower portal is a grouted, steel-lined conduit 16 feet in diameter.					
	69	Remove Concrete Items associated with Penstocks D/S from Tunnel.	86-68130	1,800	yd3	\$390.00	\$702,000.00
		Includes surge tank support and anchor block #1, anchor block #2, two anchor blocks at P.I. #3, and all ring girder supports. Waste in scour hole					
	70	Headgate Control Bldg. at Flume Entrance. Concrete block on concrete slab.	86-68130	330	ft2	\$42.00	\$13,860.00
	71	Forebay Spillway Gate House Metal building on wood frame covering forebay spillway radial gates.	86-68130	570	ft2	\$42.00	\$23,940.00
	72	Forebay Control Building. Wood building on metal frame.	86-68130	470	ft2	\$42.00	\$19,740.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$1,776,165.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Stephen Latham	CHECKED Jonathan East	BY  Craig A. Grush, P.E.	CHECKED  05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

**FEATURE:**  
**REVISION #1**  
**Klamath River Dams Removal**  
**Full Removal Option**  
**JC Boyle Dam & Powerplant Removal**  
**Most Probable High**  
**Penstock**

**PROJECT:**  
**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\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>CIVIL</b>					
		<b>Concrete and Structural Steel Items:</b>					
	73	Communication Tower next to Forebay Control Building. Tower made of steel angles on top of concrete footings. Assume contains paint with heavy metals.	86-68130	7,100	lbs	\$0.75	\$5,325.00
	74	Insulated Generator Building next to Forebay Control Building. Metal building on top of concrete footings.	86-68130	72	ft2	\$42.00	\$3,024.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$8,349.00</b>

QUANTITIES		PRICES	
<b>BY</b> Stephen Latham	<b>CHECKED</b> Jonathan East	<b>BY</b> Craig A. Grush, P.E.	<b>CHECKED</b> 05-19-11
<b>DATE PREPARED</b> 11/01/10	<b>PEER REVIEW / DATE</b> Rick Benik P.E. 11/1/10	<b>DATE PREPARED</b> 05/19/11	<b>PEER REVIEW / DATE</b> 6/3/11

**FEATURE:**  
**REVISION #1**  
**Klamath River Dams Removal**  
**Full Removal Option**  
**JC Boyle Dam & Powerplant Removal**  
**Most Probable High**  
**Penstock**

**PROJECT:**  
**Klamath River**  
**Northern California/Southern Oregon**

**WOID:** AF652      **ESTIMATE LEVEL:** Feasibility  
**REGION:** MP      **UNIT PRICE LEVEL:** July-2010

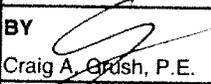
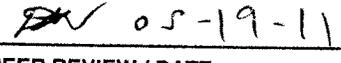
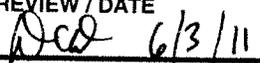
**FILE:** C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>MECHANICAL</b>					
		<b>Remove and dispose of the following equipment at the Fish By-Pass Intake:</b>					
	75	Fixed Wheel Gate Gate, frame and hoist (steel) (Assume contains paint with heavy metals & petroleum products)	86-68420	55,000	lbs	\$0.75	\$41,250.00
	76	Trash rack and trash rake (steel) (Assume contains asbestos)	86-68420	75,000	lbs	\$0.70	\$52,500.00
	77	Stop Logs and slots (steel) stop log slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	136,000	lbs	\$0.75	\$102,000.00
	78	Traveling Water Screen 4 traveling water screens 4 spraywater pumps (Assume contains petroleum products and/or asbestos)	86-68420	124,000	lbs	\$0.75	\$93,000.00
	79	Fish By-Pass and Supports (steel), 4-Pronged Inlet to Forebay, Spillway, Deer Escape Flume (Assume contains paint with heavy metals and/or asbestos)	86-68420	610,000	lbs	\$0.75	\$457,500.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$746,250.00</b>

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

<b>FEATURE:</b> REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Penstock	<b>PROJECT:</b> 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\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>MECHANICAL</b>					
		Remove and dispose of the following equipment at the Forebay, Spillway, Deer Escape Flume:					
	80	Radial Gates and Hoists 2 radial gates, 2 hoists (Assume contains paint with heavy metals & petroleum products)	86-68420	16,500	lbs	\$0.75	\$12,375.00
	81	Trash rack and trash rake (steel) (Assumes contains asbestos)	86-68420	43,500	lbs	\$0.70	\$30,450.00
	82	Stop Logs and slots (steel) stop log slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	14,500	lbs	\$0.75	\$10,875.00
		Remove and dispose of the following equipment at the Penstock Intake:					
	83	Penstocks and bifurcation (steel) Some portions embedded in natural rock, includes pipe, expansion joints, and support rings (Assume contains paint with heavy metals and/or asbestos)	86-68420	1,600,000	lbs	\$0.75	\$1,200,000.00
	84	Surge Tank (steel) (Assume contains paint with heavy metals and/or asbestos)	86-68420	79,000	lbs	\$0.75	\$59,250.00
	85	2 - 108" Butterfly valves (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	148,000	lbs	\$0.75	\$111,000.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,423,950.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY T. J. Turnage	CHECKED K. Converse	BY  Craig A. Grish, P.E.	CHECKED  05-19-11
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

**FEATURE:**  
**REVISION #1**  
**Klamath River Dams Removal**  
**Full Removal Option**  
**JC Boyle Dam & Powerplant Removal**  
**Most Probable High**  
**Penstock**

**PROJECT:**  
**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\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>MECHANICAL</b>					
		Remove and dispose of the following equipment at the Head Gate Structure:					
	86	Gate, Stem and Frame (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	28,000	lbs	\$0.75	\$21,000.00
	87	Steel Transition Manifolds on Upstream and Downstream (Assume contains asbestos)	86-68420	250,000	lbs	\$0.70	\$175,000.00
		<b>PENSTOCK SUBTOTAL</b>					<b>\$15,414,814.00</b>

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Orush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED October 20, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11



<b>FEATURE:</b> REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Reservoir Vegetative Restoration	<b>PROJECT:</b> Klamath River Northern California/Southern Oregon <hr/> <b>WOID:</b> AF652 <b>ESTIMATE LEVEL:</b> Feasibility <hr/> <b>REGION:</b> MP <b>UNIT PRICE LEVEL:</b> July-2010 <hr/> <b>FILE:</b> C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Road Improvements
--	--

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>WATER AND ENVIRONMENTAL</b>					
	89	SPRING GROUND SEEDING:	86-68220	0	Acres	\$4,000.00	
	90	<del>SPRING BARGE SEEDING:</del>	<del>86-68220</del>		<del>Acres</del>		<del>DELETED</del>
<b>SUBTOTAL THIS SHEET</b>							

<b>QUANTITIES</b>		<b>PRICES</b>	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/2011	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-25-11
DATE PREPARED 02/03/11	PEER REVIEW / DATE	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

<b>FEATURE:</b>				<b>PROJECT:</b>			
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Reservoir Vegetative Restoration				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\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Road Improvements			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>WATER AND ENVIRONMENTAL</b>					
	91	<b>SPRING AERIAL SEEDING:</b>	86-68220	247	Acres	\$15,000.00	\$3,705,000.00
		Idaho fescue (Festuca idahoensis)	988	lbs PLS			
		Blue wildrye (Elymus glaucus)	988	lbs PLS			
		Small fescue (Vulpia microstachys)	988	lbs PLS			
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1482	lbs PLS			
		Sandberg bluegrass (Poa secunda)	124	lbs PLS			
		Spike bentgrass (Agrostis exarata)	62	lbs PLS			
		Wood mulch	494000	lbs			
		Tackifier	29640	lbs			
	92	<b>FALL GROUND SEEDING:</b>	86-68220	185	Acres	\$4,000.00	\$740,000.00
		Idaho fescue (Festuca idahoensis)	741	lbs PLS			
		Blue wildrye (Elymus glaucus)	741	lbs PLS			
		Small fescue (Vulpia microstachys)	741	lbs PLS			
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1112	lbs PLS			
		Sandberg bluegrass (Poa secunda)	93	lbs PLS			
		Spike bentgrass (Agrostis exarata)	46	lbs PLS			
		Wood mulch	57000	lbs			
		Tackifier	3420	lbs			
<b>SUBTOTAL THIS SHEET</b>							<b>\$4,445,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/2011	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-25-11
DATE PREPARED 02/03/11	PEER REVIEW / DATE	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

<b>FEATURE:</b>				<b>PROJECT:</b>			
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Reservoir Vegetative Restoration				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\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Road Improvements			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>WATER AND ENVIRONMENTAL</b>					
	93	RIPARIAN POLE PLANTING:	86-68220	54	Acres	\$10,000.00	\$540,000.00
		Narrowleaf willow ( <i>Salix exigua</i> )	37800	cutting			
		Arroyo willow ( <i>Salix lasiolepis</i> )	5400	cutting			
		Shining willow ( <i>Salix lucida</i> )	5400	cutting			
		Western serviceberry ( <i>Amelanchier alnifolia</i> )	2700	cutting			
		Chokecherry ( <i>Prunus virginiana</i> )	2700	transplant			
		Herbivore screen	54000	each			
		Chemical herbivore deterrent	1080	gal			
		Polymer	170	lbs			
	94	WEED MANAGEMENT:	86-68220	185	Acres	\$2,000.00	\$370,000.00
		Herbicide, post-emergent	371	lbs AI			
MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION							
	95	FALL GROUND SEEDING:	86-68220	99	Acres	\$4,000.00	\$396,000.00
		Idaho fescue ( <i>Festuca idahoensis</i> )	395	lbs PLS			
		Blue wildrye ( <i>Elymus glaucus</i> )	395	lbs PLS			
		Small fescue ( <i>Vulpia microstachys</i> )	395	lbs PLS			
		Bluebunch wheatgrass ( <i>Pseudoroegneria spicata</i> )	593	lbs PLS			
		Sandberg bluegrass ( <i>Poa secunda</i> )	49	lbs PLS			
		Spike bentgrass ( <i>Agrostis exarata</i> )	25	lbs PLS			
		Wood mulch	197600	lbs			
		Tackifier	11856	lbs			
	96	WEED MANAGEMENT:	86-68220	99	Acres	\$2,000.00	\$198,000.00
		Herbicide, post-emergent	9	lbs AI			
<b>RESERVOIR VEGETATIVE RESTORATION SUBTOTAL</b>							<b>\$6,149,000.00</b>

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY Craig A. Grush, P.E.	CHECKED 05-25-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE Greimann, Blair P 4/12/2011	DATE PREPARED 05/25/11	PEER REVIEW / DATE ACD 6/3/11

<b>FEATURE:</b>				<b>PROJECT:</b>			
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Road Improvements				Klamath River Northern California/Southern Oregon			
<b>WOID:</b>		AF652		<b>ESTIMATE LEVEL:</b>		Feasibility	
<b>REGION:</b>		MP		<b>UNIT PRICE LEVEL:</b>		July-2010	
<b>FILE:</b>				C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Road Improvements			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>GEOTECHNICAL</b>					
		These quantities represent the work required to prepare disposal sites and remove the earth fill embankment and concrete cutoff wall of J. C. Boyle Dam to original ground surface.					
		<b>General Sitework</b>					
	97	Clear and Grub Disposal Area (Embankment) Estimated haul distance 1/2 mile. Disposed fill estimated to be 10' deep and traffic compacted (15% bulking factor). Prepare Haul Road (For Embankment) - 0.5 mi 2 way traffic - off road dumps or scrapers	86-68313	7	acre	\$6,000.00	\$42,000.00
	98	Clear and grub, 40' width	86-68313	2.4	acre	\$6,000.00	\$14,400.00
	99	4" thick gravel surfacing	86-68313	2,150	ton	\$40.00	\$86,000.00
	100	Clear and Grub Disposal Area (For Concrete) Estimated haul distance 3/10 mile. Disposed fill estimated to be 10' deep and traffic compacted (50% bulking factor). Prepare Haul Road (For Concrete) - 0.3 mi 1 way traffic - off road dumps	86-68313	0	acre	\$6,000.00	
	101	Clear and grub, 20' width	86-68313	0	acres	\$6,000.00	
	102	4" thick gravel surfacing	86-68313	650	ton		DELETED
	103	Soil Cover over Concrete Rubble Assume 2' thick cover from embankment - 2.75 mile haul.	86-68313	0	yd3	\$150.00	
<b>SUBTOTAL THIS SHEET</b>							<b>\$142,400.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-25-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

<b>FEATURE:</b> REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Road Improvements	<b>PROJECT:</b> 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\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>GEOTECHNICAL</b>					
		<b>Disposal of Concrete Rubble in Wasteway (Forebay) Scour Hole</b>					
	104	Rubble from Dam Haul distance 2.75 miles (across dam). A 30 percent bulking factor was applied.	86-68313	9,700	yd3		Included in concrete removal items
	105	Rubble from Flume/Forebay Haul distance 1.0 mile (midpoint of flume). A 30 percent bulking factor was applied.	86-68313	37,000	yd3		Included in concrete removal items
	106	Rubble from Power House Haul distance 1.75 miles. A 30 percent bulking factor was applied.	86-68313	4,300	yd3		Included in concrete removal items
	107	Embankment Fill in Wasteway (Forebay) Scour Hole To restore scour hole to original contours.	86-68313	41,000	yd3	\$150.00	\$6,150,000.00
		<b>ROAD IMPROVEMENTS SUBTOTAL</b>					<b>\$6,292,400.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11



<b>FEATURE:</b> REVISION #1 Klamath River Dams Removal Full Removal Option JC Bolye Dam & Powerplant Removal Most Probable High <b>SUMMARY</b>	<b>PROJECT:</b> Klamath River Northern California/Southern Oregon <hr/> <b>WOID:</b> AF652 <b>ESTIMATE LEVEL:</b> Feasibility <b>REGION:</b> MP <b>UNIT PRICE LEVEL:</b> July-2010 <b>FILE:</b> C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
--	--

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		555,400	CY	\$0.00	\$0.00
		Diversion and Care					\$378,300.00
		Dam Removal					\$3,886,806.00
		Powerhouse/Switchyard/Transmission Line Removal					\$2,974,425.00
		Penstock Removal					\$15,414,814.00
		Reservoir Vegetative Restoration					\$6,149,000.00
		Road Improvements					\$6,292,400.00
		Recreational Facilities to be Removed					\$104,000.00
		<b>Subtotal</b>					<b>\$35,199,745.00</b>
		Mobilization	5%	+/-			\$1,750,000.00
		<b>Subtotal 1 with Mobilization</b>					<b>\$36,949,745.00</b>
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 4.375%/yr compounding over 10 years)					\$19,749,377.00
		<b>Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP</b>					<b>\$56,699,122.00</b>
		Design Contingencies	15%	+/-			\$8,996,798.00
		Allowance for Procurement Strategies (APS)	2%	+/-			\$1,304,080.00
		Type of solicitation assumed is: Competitive RFP					
		<b>CONTRACT COST</b>					<b>\$67,000,000.00</b>
		Construction Contingencies	25%	+/-			\$16,000,000.00
		<b>FIELD COST</b>					<b>\$83,000,000.00</b>
		Non-Contract Costs: (Environmental & Cultural Resources Mitigation ~ 35%, Design Data Collection ~ 2%, Engineering Design ~ 6%, Permitting ~ 4%, Procurement ~ 2%, Construction Management ~ 11%, and Closeout ~ 1%)	61%	+/-			\$52,000,000.00
		<b>CONSTRUCTION COST</b>					<b>\$135,000,000.00</b>
		Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.					

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Refer to Previous Sheets	<b>CHECKED</b> Refer to Previous Sheets	<b>BY</b> <i>[Signature]</i> Craig A. Grush, P.E.	<b>CHECKED</b> <i>[Signature]</i> 05-19-11
<b>DATE PREPARED</b>	<b>PEER REVIEW / DATE</b> Refer to Previous Sheets	<b>DATE PREPARED</b> 05/19/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 6/3/11