

**REGIONAL MERCURY LOAD REDUCTION EVALUATION  
CENTRAL VALLEY, CALIFORNIA**

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Prepared for:

**US Environmental Protection Agency Region 9  
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And  
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**COST ESTIMATE SUMMARY TABLES**  
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**COST ESTIMATE SUMMARY TABLES**  
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**COST ESTIMATE SUMMARY TABLES**  
**(continued)**

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- A-S8-1 Cost Estimate For Alternative 8: Dredging, Process Aggregate As A Commodity, And Dispose Of Fines, South Fork Yuba River At Englebright Reservoir
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- A-S8-3 Cost Estimate For Alternative 8: Dredging, Process Aggregate As A Commodity, And Dispose Of Fines, Active Channel And Floodplain Of Feather River Near Confluence With Yuba River
- A-S8-4 Cost Estimate For Alternative 8: Dredging, Process Aggregate As A Commodity, And Dispose Of Fines, Active Channel And Floodplain Of Feather River Near Confluence With Bear River
- A-S8-5 Cost Estimate For Alternative 8: Dredging, Process Aggregate As A Commodity, And Dispose Of Fines, Active Channel And Floodplain Of Yuba River From Nicolaus To Verona

**COST ESTIMATE SUMMARY TABLES**  
**(continued)**

- A-S8-6 Cost Estimate For Alternative 8: Dredging, Process Aggregate As A Commodity, And Dispose Of Fines, Active Channel And Floodplain Of Sacramento River Upstream Of Feather River
- A-S8-7 Cost Estimate For Alternative 8: Excavation, Process Aggregate As A Commodity, And Dispose Of Fines, Active Channel And Floodplain Of Lower Cache Creek From Capay To Yolo
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- A-S8-9 Cost Estimate For Alternative 8: Dredging, Process Aggregate As A Commodity, And Dispose Of Fines, Active Channel And Floodplain Of Sacramento River From Verona To Freeport

**TABLE A-L2-1  
COST ESTIMATE FOR ALTERNATIVE 2: DEVELOP LAND USE CONTROLS TO LIMIT  
DISTURBANCE OF FLOODPLAIN CONTAINING MINE WASTE  
SULPHUR CREEK FLOODPLAIN**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Land Use Plan Review and Revision	1	LS	\$25,000	\$25,000
Stakeholder Meetings	1	LS	\$10,000	\$10,000
Best Management Plan	1	LS	\$25,000	\$25,000
Subtotal Planning Costs				\$60,000
Contingencies		5% of Planning Cost		\$3,000
Agency Oversight		5% of Planning Cost		\$3,000
<b>Total Capital Costs</b>				<b>\$66,000</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	2	Each	\$900	\$1,800
BMP Inspection Activities	0.2	FTE	\$50,000	\$10,000
Subtotal O&M Costs				\$11,800
O&M Contingencies		15%		\$1,770
<b>Total Yearly O&amp;M Costs</b>				<b>\$13,570</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$168,404
<b>Total Present Worth</b>				<b>\$234,404</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement.

**TABLE A-L2-2**  
**COST ESTIMATE FOR ALTERNATIVE 2: DEVELOP LAND USE CONTROLS TO LIMIT**  
**DISTURBANCE OF FLOODPLAIN CONTAINING MINE WASTE**  
**BEAR CREEK FLOODPLAIN**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Land Use Plan Review and Revision	1	LS	\$25,000	\$25,000
Stakeholder Meetings	1	LS	\$10,000	\$10,000
Best Management Plan	1	LS	\$25,000	\$25,000
Subtotal Planning Costs				\$60,000
Contingencies		5% of Planning Cost		\$3,000
Agency Oversight		5% of Planning Cost		\$3,000
<b>Total Capital Costs</b>				<b>\$66,000</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	2	Each	\$900	\$1,800
BMP Inspection Activities	0.2	FTE	\$50,000	\$10,000
Subtotal O&M Costs				\$11,800
O&M Contingencies		15%		\$1,770
<b>Total Yearly O&amp;M Costs</b>				<b>\$13,570</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$168,404
<b>Total Present Worth</b>				<b>\$234,404</b>

**TABLE A-L2-3  
 COST ESTIMATE FOR ALTERNATIVE 2: DEVELOP LAND USE CONTROLS TO LIMIT  
 DISTURBANCE OF FLOODPLAIN CONTAINING MINE WASTE  
 HARLEY GULCH FLOODPLAIN**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Land Use Plan Review and Revision	1	LS	\$25,000	\$25,000
Stakeholder Meetings	1	LS	\$10,000	\$10,000
Best Management Plan	1	LS	\$25,000	\$25,000
Subtotal Planning Costs				\$60,000
Contingencies		5% of Planning Cost		\$3,000
Agency Oversight		5% of Planning Cost		\$3,000
<b>Total Capital Costs</b>				<b>\$66,000</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	2	Each	\$900	\$1,800
BMP Inspection Activities	0.2	FTE	\$50,000	\$10,000
Subtotal O&M Costs				\$11,800
O&M Contingencies		15%		\$1,770
<b>Total Yearly O&amp;M Costs</b>				<b>\$13,570</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$168,404
<b>Total Present Worth</b>				<b>\$234,404</b>

**TABLE A-L3-1  
COST ESTIMATE FOR ALTERNATIVE 3: SURFACE CONTROLS  
ELGIN MINE**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Waste Rock and Tailings Erosion Controls	1	Racer	\$16,311	\$16,311
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$18,611
Construction Contingencies		15% of Construction Cost		\$2,792
Engineering Design and Construct Oversight		15% of Construction Cost		\$2,792
<b>Total Capital Costs</b>				<b>\$24,194</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$4,500	\$750
Cleanout Sediment Detention Basins (long term)	3	Decade	\$7,500	\$750
Effectiveness Monitoring	1	Yearly	\$750	\$750
Subtotal O&M Costs				\$2,250
O&M Contingencies		15%		\$338
<b>Total Yearly O&amp;M Costs</b>				<b>\$2,588</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$32,111
<b>Total Present Worth</b>				<b>\$56,305</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L3-2  
COST ESTIMATE FOR ALTERNATIVE 3: SURFACE CONTROLS  
MANZANITA MINE**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Immobile Sediment on Floodplain at Toe of Slope	1	Racer	\$20,240	\$20,240
Waste Rock and Tailings Erosion Controls	1	Racer	\$43,845	\$43,845
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$66,385
Construction Contingencies		15% of Construction Cost		\$9,958
Engineering Design and Construct Oversight		15% of Construction Cost		\$9,958
<b>Total Capital Costs</b>				<b>\$86,301</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$4,500	\$750
Cleanout Sediment Detention Basins (long term)	3	Decade	\$7,500	\$750
Effectiveness Monitoring	1	Yearly	\$750	\$750
Subtotal O&M Costs				\$2,250
O&M Contingencies		15%		\$338
<b>Total Yearly O&amp;M Costs</b>				<b>\$2,588</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$32,111
<b>Total Present Worth</b>				<b>\$118,411</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L3-3  
COST ESTIMATE FOR ALTERNATIVE 3: SURFACE CONTROLS  
SULPHUR CREEK FLOODPLAIN**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Stakeholder Meetings	1	LS	\$20,000	\$20,000
Grade and Stabilize Floodplain (Erosion Controls and Reveg)	1	Racer	\$156,180	\$156,180
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$178,480
Construction Contingencies		15% of Construction Cost		\$26,772
Engineering Design and Construct Oversight		15% of Construction Cost		\$26,772
<b>Total Capital Costs</b>				<b>\$232,024</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$12,000	\$2,000
Effectiveness Monitoring	2	Yearly	\$900	\$1,800
Subtotal O&M Costs				\$3,800
O&M Contingencies		15%		\$570
<b>Total Yearly O&amp;M Costs</b>				<b>\$4,370</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$54,232
<b>Total Present Worth</b>				<b>\$286,256</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L3-4  
COST ESTIMATE FOR  
ALTERNATIVE 3: SURFACE CONTROLS  
BEAR CREEK FLOODPLAIN**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Stakeholder Meetings	1	LS	\$20,000	\$20,000
Grade and Stabilize Floodplain (Erosion Controls and Reveg)	1	Racer	\$200,848	\$200,848
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$223,148
Construction Contingencies		15% of Construction Cost		\$33,472
Engineering Design and Construct Oversight		15% of Construction Cost		\$33,472
<b>Total Capital Costs</b>				<b>\$290,092</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$9,600	\$1,600
Effectiveness Monitoring	2	Yearly	\$900	\$1,800
Subtotal O&M Costs				\$3,400
O&M Contingencies		15%		\$510
<b>Total Yearly O&amp;M Costs</b>				<b>\$3,910</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$48,523
<b>Total Present Worth</b>				<b>\$338,616</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L3-5  
COST ESTIMATE FOR ALTERNATIVE 3: SURFACE CONTROLS  
HARLEY GULCH FLOODPLAIN**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Stakeholder Meetings	1	LS	\$20,000	\$20,000
Grade and Stabilize Floodplain (Erosion Controls and Reveg)	1	Racer	\$55,756	\$55,756
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$78,056
Construction Contingencies		15% of Construction Cost		\$11,708
Engineering Design and Construct Oversight		15% of Construction Cost		\$11,708
<b>Total Capital Costs</b>				<b>\$101,473</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$9,600	\$1,600
Effectiveness Monitoring	2	Yearly	\$900	\$1,800
Subtotal O&M Costs				\$3,400
O&M Contingencies		15%		\$510
<b>Total Yearly O&amp;M Costs</b>				<b>\$3,910</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$48,523
<b>Total Present Worth</b>				<b>\$149,996</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L4-1  
COST ESTIMATE FOR ALTERNATIVE 4: CONSOLIDATION AND SURFACE CONTROLS  
ELGIN MINE**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Tailings Excavation, Consolidation, and Cleanup	1	Racer	\$18,913	\$18,913
Waste Rock Excavation and Cleanup	1	Racer	\$40,203	\$40,203
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$61,416
Construction Contingencies		15% of Construction Cost		\$9,212
Engineering Design and Construct Oversight		15% of Construction Cost		\$9,212
<b>Total Capital Costs</b>				<b>\$79,841</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$4,500	\$750
Effectiveness Monitoring	1	Yearly	\$750	\$750
Subtotal O&M Costs				\$1,500
O&M Contingencies		15%		\$225
<b>Total Yearly O&amp;M Costs</b>				<b>\$1,725</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$21,407
<b>Total Present Worth</b>				<b>\$101,248</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L4-2**  
**COST ESTIMATE FOR ALTERNATIVE 4: CONSOLIDATION AND SURFACE CONTROLS**  
**WEST END MINE**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Stakeholder Meetings	1	LS	\$30,000	\$30,000
Prepare Mitigated Negative Declaration	1	LS	\$25,000	\$25,000
Waste Rock Excavation and Consolidation	1	Racer	\$60,979	\$60,979
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$118,279
Construction Contingencies		15% of Construction Cost		\$17,742
Engineering Design and Construct Oversight		15% of Construction Cost		\$17,742
<b>Total Capital Costs</b>				<b>\$153,763</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$4,500	\$750
Effectiveness Monitoring	1	Yearly	\$900	\$900
Subtotal O&M Costs				\$1,650
O&M Contingencies		15%		\$248
<b>Total Yearly O&amp;M Costs</b>				<b>\$1,898</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$23,548
<b>Total Present Worth</b>				<b>\$177,311</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L4-3**  
**COST ESTIMATE FOR ALTERNATIVE 4: CONSOLIDATION AND SURFACE CONTROLS**  
**HARLEY GULCH FLOODPLAIN**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Wetland Delineation	1	LS	\$10,000	\$10,000
Prepare EIS/EIR	1	LS	\$100,000	\$100,000
Excavate Floodplain	1	LS	\$840,000	\$840,000
Haul and Consolidate at Abbott Mine	1	LS	\$600,000	\$600,000
Grading and Cutting New Channel	1	LS	\$138,000	\$138,000
Install Velocity Breaks and Revegetate	1	LS	\$32,100	\$32,100
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$1,762,400
Construction Contingencies		15% of Construction Cost		\$264,360
Engineering Design and Construct Oversight		15% of Construction Cost		\$264,360
<b>Total Capital Costs</b>				<b>\$2,291,120</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$14,400	\$2,400
Effectiveness Monitoring	2	Yearly	\$900	\$1,800
Subtotal O&M Costs				\$4,200
O&M Contingencies		15%		\$630
<b>Total Yearly O&amp;M Costs</b>				<b>\$4,830</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$59,940
<b>Total Present Worth</b>				<b>\$2,351,060</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L5-1**  
**COST ESTIMATE FOR ALTERNATIVE 5: CONSOLIDATION AND CONTAINMENT ELGIN MINE**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Tailings Excavation, Consolidation, and Cleanup	1	Racer	\$18,913	\$18,913
Waste Rock Consolidation and Containment	1	Racer	\$264,272	\$264,272
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$285,485
Construction Contingencies		15% of Construction Cost		\$42,823
Engineering Design and Construct Oversight		15% of Construction Cost		\$42,823
<b>Total Capital Costs</b>				<b>\$371,131</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$4,500	\$750
Effectiveness Monitoring	1	Yearly	\$750	\$750
Subtotal O&M Costs				\$1,500
O&M Contingencies		15%		\$225
<b>Total Yearly O&amp;M Costs</b>				<b>\$1,725</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$21,407
<b>Total Present Worth</b>				<b>\$392,538</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L5-2**  
**COST ESTIMATE FOR ALTERNATIVE 5: CONSOLIDATION AND CONTAINMENT**  
**WEST END MINE**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Stakeholder Meetings	1	LS	\$30,000	\$30,000
Prepare Mitigated Negative Declaration	1	LS	\$25,000	\$25,000
Waste Rock Consolidation and Containment	1	Racer	\$251,438	\$251,438
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$308,738
Construction Contingencies		15% of Construction Cost		\$46,311
Engineering Design and Construct Oversight		15% of Construction Cost		\$46,311
<b>Total Capital Costs</b>				<b>\$401,359</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$4,500	\$750
Effectiveness Monitoring	1	Yearly	\$900	\$900
Subtotal O&M Costs				\$1,650
O&M Contingencies		15%		\$248
<b>Total Yearly O&amp;M Costs</b>				<b>\$1,898</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$23,548
<b>Total Present Worth</b>				<b>\$424,907</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L5-3**  
**COST ESTIMATE FOR ALTERNATIVE 5: CONSOLIDATION AND CONTAINMENT**  
**HARLEY GULCH FLOODPLAIN**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Wetland Delineation	1	LS	\$10,000	\$10,000
Prepare EIS/EIR	1	LS	\$100,000	\$100,000
Excavate Floodplain	1	LS	\$840,000	\$840,000
Haul and Consolidate at Abbott Mine	1	LS	\$600,000	\$600,000
Place Earthen Cover Over Consolidate Waste	1	LS	\$223,776	\$223,776
Grading and Cutting New Channel	1	LS	\$138,000	\$138,000
Install Velocity Breaks and Revegetate	1	LS	\$32,100	\$32,100
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$1,986,176
Construction Contingencies		15% of Construction Cost		\$297,926
Engineering Design and Construct Oversight		15% of Construction Cost		\$297,926
<b>Total Capital Costs</b>				<b>\$2,582,029</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$14,400	\$2,400
Effectiveness Monitoring	2	Yearly	\$900	\$1,800
Subtotal O&M Costs				\$4,200
O&M Contingencies		15%		\$630
<b>Total Yearly O&amp;M Costs</b>				<b>\$4,830</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$59,940
<b>Total Present Worth</b>				<b>\$2,641,969</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L6-1**  
**COST ESTIMATE FOR ALTERNATIVE 6: EXCAVATE FLOODPLAIN SEDIMENT CONTAINING**  
**MINE WASTE, PROCESS AGGREGATE AS A COMMODITY, DISPOSE OF FINES ON SITE**  
**HARLEY GULCH FLOODPLAIN**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Wetland Delineation	1	LS	\$10,000	\$10,000
Prepare EIS/EIR	1	LS	\$100,000	\$100,000
Excavate Floodplain	1	LS	\$840,000	\$840,000
Process Aggregate from Waste Material	1	LS	\$720,000	\$720,000
Haul Fines and Consolidate at Abbott Mine	1	LS	\$150,000	\$150,000
Grading and Cutting New Channel	1	LS	\$138,000	\$138,000
Install Velocity Breaks and Revegetate	1	LS	\$32,100	\$32,100
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$2,032,400
Construction Contingencies		15% of Construction Cost		\$304,860
Engineering Design and Construct Oversight		15% of Construction Cost		\$304,860
<b>Total Capital Costs</b>				<b>\$2,642,120</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$14,400	\$2,400
Effectiveness Monitoring	2	Yearly	\$900	\$1,800
Subtotal O&M Costs				\$4,200
O&M Contingencies		15%		\$630
<b>Total Yearly O&amp;M Costs</b>				<b>\$4,830</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$59,940
<b>Total Present Worth</b>				<b>\$2,702,060</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L7-1**  
**COST ESTIMATE FOR ALTERNATIVE 7: EXCAVATION, AGGREGATE PROCESSING, FIXATION/STABILIZATION OF FINES**  
**ELGIN MINE**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Tailings Excavation, Haul, and Cleanup	1	Racer	\$18,913	\$18,913
Waste Rock Excavation, Haul, and Cleanup	1	Racer	\$40,203	\$40,203
Physical Separation of Aggregate	1	LS	\$113,400	\$113,400
Fixation/Stabilization of Fines	1	LS	\$27,000	\$27,000
Haul and Consolidate Stabilized Fines	1	LS	\$7,500	\$7,500
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$209,316
Construction Contingencies		15% of Construction Cost		\$31,397
Engineering Design and Construct Oversight		15% of Construction Cost		\$31,397
<b>Total Capital Costs</b>				<b>\$272,111</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$4,500	\$750
Effectiveness Monitoring	1	Yearly	\$750	\$750
Subtotal O&M Costs				\$1,500
O&M Contingencies		15%		\$225
<b>Total Yearly O&amp;M Costs</b>				<b>\$1,725</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$21,407
<b>Total Present Worth</b>				<b>\$293,518</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L7-2**  
**COST ESTIMATE FOR ALTERNATIVE 7: EXCAVATION, AGGREGATE PROCESSING, FIXATION/STABILIZATION OF FINES**  
**WEST END MINE**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Stakeholder Meetings	1	LS	\$30,000	\$30,000
Prepare Mitigated Negative Declaration	1	LS	\$25,000	\$25,000
Waste Rock Excavation, Hauling, and Cleanup	1	Racer	\$60,979	\$60,979
Physical Separation of Aggregate	1	LS	\$101,400	\$101,400
Fixation/Stabilization of Fines	1	LS	\$24,800	\$24,800
Haul and Consolidate Stabilized Fines	1	LS	\$6,750	\$6,750
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$251,229
Construction Contingencies		15% of Construction Cost		\$37,684
Engineering Design and Construct Oversight		15% of Construction Cost		\$37,684
<b>Total Capital Costs</b>				<b>\$326,598</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$4,500	\$750
Effectiveness Monitoring	1	Yearly	\$900	\$900
Subtotal O&M Costs				\$1,650
O&M Contingencies		15%		\$248
<b>Total Yearly O&amp;M Costs</b>				<b>\$1,898</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$23,548
<b>Total Present Worth</b>				<b>\$350,146</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L8-1**  
**COST ESTIMATE FOR ALTERNATIVE 8: EXCAVATION, AGGREGATE PROCESSING,**  
**AND OFF-SITE DISPOSAL IN A CLASS I REPOSITORY**  
**ELGIN MINE**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Tailings Excavation, Haul, and Cleanup	1	Racer	\$18,913	\$18,913
Waste Rock Excavation, Haul, and Cleanup	1	Racer	\$40,203	\$40,203
Physical Separation of Aggregate	1	LS	\$113,400	\$113,400
Hauling and Disposal of Fines in Off-Site Class I Repository	1	LS	\$100,000	\$100,000
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$274,816
Construction Contingencies		15% of Construction Cost		\$41,222
Engineering Design and Construct Oversight		15% of Construction Cost		\$41,222
<b>Total Capital Costs</b>				<b>\$357,261</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$4,500	\$750
Effectiveness Monitoring	1	Yearly	\$750	\$750
Subtotal O&M Costs				\$1,500
O&M Contingencies		15%		\$225
<b>Total Yearly O&amp;M Costs</b>				<b>\$1,725</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$21,407
<b>Total Present Worth</b>				<b>\$378,668</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L8-2**  
**COST ESTIMATE FOR ALTERNATIVE 8: EXCAVATION, AGGREGATE PROCESSING,**  
**AND OFF-SITE DISPOSAL IN A CLASS I REPOSITORY**  
**MANZANITA MINE**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Immobile Sediment on Floodplain at Toe of Slope	1	Racer	\$20,240	\$20,240
Waste Rock and Tailings Erosion Controls	1	Racer	\$43,845	\$43,845
Waste Rock Excavation and Hauling	1	Racer	\$3,114	\$3,114
Physical Separation of Aggregate	1	LS	\$18,600	\$18,600
Hauling and Disposal of Fines in Off-Site Class I Repository	1	LS	\$4,000	\$4,000
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$92,099
Construction Contingencies		15% of Construction Cost		\$13,815
Engineering Design and Construct Oversight		15% of Construction Cost		\$13,815
<b>Total Capital Costs</b>				<b>\$119,729</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Cleanout Sediment Detention Basins (long term)	3	10 Years	\$7,000	\$700
Vegetation Maintenance (short term)	1	First 5 Years	\$4,500	\$750
Effectiveness Monitoring	1	Yearly	\$900	\$900
Subtotal O&M Costs				\$2,350
O&M Contingencies		15%		\$353
<b>Total Yearly O&amp;M Costs</b>				<b>\$2,703</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$33,538
<b>Total Present Worth</b>				<b>\$153,267</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L8-3**  
**COST ESTIMATE FOR ALTERNATIVE 8: EXCAVATION, AGGREGATE PROCESSING,**  
**AND OFF-SITE DISPOSAL IN A CLASS I REPOSITORY**  
**WEST END MINE**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Stakeholder Meetings	1	LS	\$30,000	\$30,000
Prepare Mitigated Negative Declaration	1	LS	\$25,000	\$25,000
Waste Rock Excavation, Hauling, and Cleanup	1	Racer	\$60,979	\$60,979
Physical Separation of Aggregate	1	LS	\$101,400	\$101,400
Hauling and Disposal of Fines in Off-Site Class I Repository	1	LS	\$90,000	\$90,000
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$309,679
Construction Contingencies		15% of Construction Cost		\$46,452
Engineering Design and Construct Oversight		15% of Construction Cost		\$46,452
<b>Total Capital Costs</b>				<b>\$402,583</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$4,500	\$750
Effectiveness Monitoring	1	Yearly	\$900	\$900
Subtotal O&M Costs				\$1,650
O&M Contingencies		15%		\$248
<b>Total Yearly O&amp;M Costs</b>				<b>\$1,898</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$23,548
<b>Total Present Worth</b>				<b>\$426,131</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L10-1**  
**COST ESTIMATE FOR ALTERNATIVE 10: CONSTRUCT CHECK DAMS TO CAPTURE ERODING SOLIDS**  
**ELGIN MINE**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Wetland Delineation	1	LS	\$10,000	\$10,000
Prepare EIS/EIR	1	LS	\$100,000	\$100,000
Velocity Breaks and Check Dam with Concrete Weir	1	LS	\$44,360	\$44,360
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$196,660
Construction Contingencies		15% of Construction Cost		\$29,499
Engineering Design and Construct Oversight		15% of Construction Cost		\$29,499
<b>Total Capital Costs</b>				<b>\$255,658</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Cleanout Sediment Detention Basins (long term)	3	10 Years	\$7,000	\$700
Effectiveness Monitoring	1	Yearly	\$750	\$750
Subtotal O&M Costs				\$1,450
O&M Contingencies		15%		\$218
<b>Total Yearly O&amp;M Costs</b>				<b>\$1,668</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$20,694
<b>Total Present Worth</b>				<b>\$276,352</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L10-2**  
**COST ESTIMATE FOR ALTERNATIVE 10: CONSTRUCT SETTLING BASINS TO CAPTURE ERODING SOLIDS**  
**MANZANITA MINE**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Immobile Sediment on Floodplain at Toe of Slope	1	Racer	\$20,240	\$20,240
Waste Rock and Tailings Erosion Controls	1	Racer	\$52,952	\$52,952
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$75,492
Construction Contingencies		15% of Construction Cost		\$11,324
Engineering Design and Construct Oversight		15% of Construction Cost		\$11,324
<b>Total Capital Costs</b>				<b>\$98,140</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Cleanout Sediment Detention Basins (long term)	3	10 Years	\$7,000	\$700
Effectiveness Monitoring	1	Yearly	\$900	\$900
Subtotal O&M Costs				\$1,600
O&M Contingencies		15%		\$240
<b>Total Yearly O&amp;M Costs</b>				<b>\$1,840</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$22,834
<b>Total Present Worth</b>				<b>\$120,974</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

TABLE A-L10-3

**COST ESTIMATE FOR ALTERNATIVE 10: CONSTRUCT CHECK DAM TO CAPTURE MOBILE AND ERODING FLOODPLAIN SOLIDS  
SULPHUR CREEK**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Scour Analysis	1	LS	\$250,000	\$250,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$250,000	\$250,000
Construct Earthen Dam Below Confluence with Bear Creek	1	LS	\$284,144	\$284,144
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$826,444
Construction Contingencies		15% of Construction Cost		\$123,967
Engineering Design and Construct Oversight		15% of Construction Cost		\$123,967
<b>Total Capital Costs</b>				<b>\$1,074,377</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Cleanout Sediment at Dam Site (long term)	3	10 Years	\$225,000	\$7,500
Effectiveness Monitoring	2	Yearly	\$900	\$1,800
Subtotal O&M Costs				\$9,300
O&M Contingencies		15%		\$1,395
<b>Total Yearly O&amp;M Costs</b>				<b>\$10,695</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$132,725
<b>Total Present Worth</b>				<b>\$1,207,102</b>

Short and long term O&M Costs have been normalized to a yearly basis

TABLE A-L10-4

**COST ESTIMATE FOR ALTERNATIVE 10: CONSTRUCT CHECK DAM TO CAPTURE MOBILE AND ERODING FLOODPLAIN SOLIDS  
BEAR CREEK**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Scour Analysis	1	LS	\$250,000	\$250,000
Wetland Delineation	1	LS	\$20,000	\$20,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$250,000	\$250,000
Construct Earthen Dam on Bear Creek Below Hwy 20	1	LS	\$630,900	\$630,900
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$1,193,200
Construction Contingencies		15% of Construction Cost		\$178,980
Engineering Design and Construct Oversight		15% of Construction Cost		\$178,980
<b>Total Capital Costs</b>				<b>\$1,551,160</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Cleanout Sediment at Dam Site (long term)	3	10 Years	\$450,000	\$15,000
Effectiveness Monitoring	2	Yearly	\$900	\$1,800
Subtotal O&M Costs				\$16,800
O&M Contingencies		15%		\$2,520
<b>Total Yearly O&amp;M Costs</b>				<b>\$19,320</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$239,761
<b>Total Present Worth</b>				<b>\$1,790,921</b>

Short and long term O&M Costs have been normalized to a yearly basis

TABLE A-L10-5

**COST ESTIMATE FOR ALTERNATIVE 10: CONSTRUCT CHECK DAM TO CAPTURE MOBILE AND ERODING FLOODPLAIN SOLIDS HARLEY GULCH**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Scour Analysis	1	LS	\$100,000	\$100,000
Wetland Delineation	1	LS	\$10,000	\$10,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$250,000	\$250,000
Construct Earthen Dam on Harley Gulch at Head of Canyon	1	LS	\$212,400	\$212,400
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$614,700
Construction Contingencies		15% of Construction Cost		\$92,205
Engineering Design and Construct Oversight		15% of Construction Cost		\$92,205
<b>Total Capital Costs</b>				<b>\$799,110</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Cleanout Sediment at Dam Site (long term)	3	10 Years	\$105,000	\$3,500
Effectiveness Monitoring	1	Yearly	\$900	\$900
Subtotal O&M Costs				\$4,400
O&M Contingencies		15%		\$660
<b>Total Yearly O&amp;M Costs</b>				<b>\$5,060</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$62,795
<b>Total Present Worth</b>				<b>\$861,905</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L11-1**  
**COST ESTIMATE FOR ALTERNATIVE 11: INSTALL EROSION AND FLOOD CONTROLS**  
**TO ISOLATE MINE WASTE FROM ACTIVE STREAM CHANNEL**  
**SULPHUR CREEK**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Hydraulic Study and Scour Analysis	1	LS	\$350,000	\$350,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$250,000	\$250,000
Excavate Sediment from Bar at Confluence of Sulphur and Bear Creeks	1	Racer	\$7,247	\$7,247
Stabilize Sulphur Creek Channel Between West End and Central Mines	1	Racer	\$627,803	\$627,803
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$1,277,350
Construction Contingencies		15% of Construction Cost		\$191,603
Engineering Design and Construct Oversight		15% of Construction Cost		\$191,603
<b>Total Capital Costs</b>				<b>\$1,660,555</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$12,000	\$2,000
Repair Energy Dissipators and Riprap	3	Every 10 Years	\$30,000	\$3,000
Effectiveness Monitoring	2	Yearly	\$900	\$1,800
Subtotal O&M Costs				\$6,800
O&M Contingencies		15%		\$1,020
<b>Total Yearly O&amp;M Costs</b>				<b>\$7,820</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$97,046
<b>Total Present Worth</b>				<b>\$1,757,601</b>

RACER costs are based on 2003 MEANS unit costs (updated to 2008 dollars) and best professional judgement. Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-L11-2**  
**COST ESTIMATE FOR ALTERNATIVE 11: INSTALL EROSION AND FLOOD CONTROLS**  
**TO ISOLATE MINE WASTE FROM ACTIVE STREAM CHANNEL**  
**HARLEY GULCH**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Mobilization, Bonding, and Insurance	1	LS	\$1,725	\$1,725
Hydraulic Study and Scour Analysis	1	LS	\$150,000	\$150,000
Wetland Delineation	1	LS	\$10,000	\$10,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$250,000	\$250,000
Excavate Linear Channel Through Floodplain	1	LS	\$126,000	\$126,000
Haul and Consolidate Excavated Material at Abbott Mine	1	LS	\$90,000	\$90,000
Construct Concrete Channel For Harley Gulch	1	LS	\$900,000	\$900,000
Cleanup and Demobilization	1	LS	\$575	\$575
Subtotal Construction Costs				\$1,568,300
Construction Contingencies		15% of Construction Cost		\$235,245
Engineering Design and Construct Oversight		15% of Construction Cost		\$235,245
<b>Total Capital Costs</b>				<b>\$2,038,790</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Vegetation Maintenance (short term)	1	First 5 Years	\$9,600	\$1,600
Effectiveness Monitoring	1	Yearly	\$900	\$900
Subtotal O&M Costs				\$2,500
O&M Contingencies		15%		\$375
<b>Total Yearly O&amp;M Costs</b>				<b>\$2,875</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$35,679
<b>Total Present Worth</b>				<b>\$2,074,469</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S2-1**  
**COST ESTIMATE FOR ALTERNATIVE 2: COORDINATE RESERVOIR STORAGE AND RELEASE MANAGEMENT**  
**SOUTH FORK YUBA RIVER AT ENGLEBRIGHT RESERVOIR**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Solids Settling Study	1	LS	\$250,000	\$250,000
Hydropower Study	1	LS	\$50,000	\$50,000
Fisheries Study (Spawning/Migration)	1	LS	\$100,000	\$100,000
River Scour Study	1	LS	\$500,000	\$500,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$500,000	\$500,000
Revise Reservoir Operations Plan	1	LS	\$200,000	\$200,000
Multi Agency Coordination Meetings	1	FTE	\$75,000	\$75,000
Subtotal Planning Costs				\$1,715,000
Contingencies		5% of Planning Cost		\$85,750
Agency Oversight		5% of Planning Cost		\$85,750
<b>Total Capital Costs</b>				<b>\$1,886,500</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	12	Each	\$610	\$7,320
Scour/Deposition Survey	6	Every 5 years	\$150,000	\$5,000
Fisheries Monitoring	6	Every 5 years	\$300,000	\$10,000
Operations Activities	0.5	FTE	\$75,000	\$37,500
Subtotal O&M Costs				\$59,820
O&M Contingencies		15%		\$8,973
<b>Total Yearly O&amp;M Costs</b>				<b>\$68,793</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$853,721
<b>Total Present Worth</b>				<b>\$2,740,221</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S2-2**  
**COST ESTIMATE FOR ALTERNATIVE 2: COORDINATE RESERVOIR RELEASE AND**  
**IMPROVE CONTROL STRUCTURE MANAGEMENT**  
**ACTIVE CHANNEL AND FLOODPLAIN OF THE YUBA RIVER WITHIN THE YUBA GOLDFIELDS**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Solids Settling Study	1	LS	\$250,000	\$250,000
Hydropower Study	1	LS	\$50,000	\$50,000
Fisheries Study (Spawning/Migration)	1	LS	\$100,000	\$100,000
River Scour Study	1	LS	\$500,000	\$500,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$500,000	\$500,000
Revise Englebright Reservoir Operations Plan	1	LS	\$200,000	\$200,000
Revise Daguerre Point Dam Operations Plan	1	LS	\$100,000	\$100,000
Multi Agency Coordination Meetings	1	FTE	\$75,000	\$75,000
Subtotal Planning Costs				\$1,815,000
Contingencies		5% of Planning Cost		\$90,750
Agency Oversight		5% of Planning Cost		\$90,750
<b>Total Capital Costs</b>				<b>\$1,996,500</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	12	Each	\$610	\$7,320
Scour/Deposition Survey	6	Every 5 years	\$150,000	\$5,000
Fisheries Monitoring	6	Every 5 years	\$300,000	\$10,000
Operations Activities	0.5	FTE	\$75,000	\$37,500
Daguerre Point Maintenance Dredging	3	LS	\$8,400,000	\$280,000
Subtotal O&M Costs				\$339,820
O&M Contingencies		15%		\$50,973
<b>Total Yearly O&amp;M Costs</b>				<b>\$390,793</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$4,849,741
<b>Total Present Worth</b>				<b>\$6,846,241</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S2-3**  
**COST ESTIMATE FOR ALTERNATIVE 2: COORDINATE RESERVOIR RELEASE AND FLOOD CONTROL OPERATIONS**  
**ACTIVE CHANNEL AND FLOODPLAIN OF FEATHER RIVER NEAR CONFLUENCE WITH YUBA RIVER**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Solids Settling Study (Englebright)	1	LS	\$250,000	\$250,000
Hydropower Study	2	LS	\$50,000	\$100,000
Fisheries Study (Spawning/Migration)	2	LS	\$100,000	\$200,000
River Scour Study (Feather River)	1	LS	\$1,000,000	\$1,000,000
River Scour Study (Yuba River)	1	LS	\$500,000	\$500,000
Stakeholder Meetings	2	LS	\$40,000	\$80,000
Prepare EIS/EIR	2	LS	\$500,000	\$1,000,000
Revise Reservoir Operations Plan (Englebright and Oroville)	2	LS	\$200,000	\$400,000
Multi Agency Coordinating Meetings	1.5	FTE	\$75,000	\$112,500
Subtotal Planning Costs				\$3,642,500
Contingencies		5% of Planning Cost		\$182,125
Agency Oversight		5% of Planning Cost		\$182,125
<b>Total Capital Costs</b>				<b>\$4,006,750</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	27	Each	\$610	\$16,470
Scour/Deposition Survey	6	Every 5 years	\$300,000	\$10,000
Fisheries Monitoring	6	Every 5 years	\$600,000	\$20,000
Operations Activities	1	FTE	\$75,000	\$75,000
Subtotal O&M Costs				\$121,470
O&M Contingencies		15%		\$18,221
<b>Total Yearly O&amp;M Costs</b>				<b>\$139,691</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$1,733,559
<b>Total Present Worth</b>				<b>\$5,740,309</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S2-4**  
**COST ESTIMATE FOR ALTERNATIVE 2: COORDINATE RESERVOIR RELEASE AND FLOOD CONTROL OPERATIONS**  
**ACTIVE CHANNEL AND FLOODPLAIN OF FEATHER RIVER NEAR CONFLUENCE WITH BEAR RIVER**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Solids Settling Study (Englebright and Camp Far West)	2	LS	\$250,000	\$500,000
Hydropower Study	2	LS	\$50,000	\$100,000
Fisheries Study (Spawning/Migration)	3	LS	\$100,000	\$300,000
River Scour Study (Upper Feather River)	1	LS	\$1,000,000	\$1,000,000
River Scour Study (Yuba and Bear River)	2	LS	\$500,000	\$1,000,000
Stakeholder Meetings	3	LS	\$40,000	\$120,000
Prepare EIS/EIR	3	LS	\$500,000	\$1,500,000
Revise Reservoir Operations Plan (3 reservoirs)	3	LS	\$200,000	\$600,000
Multi Agency Coordination Meetings	1.5	FTE	\$75,000	\$112,500
Subtotal Planning Costs				\$5,232,500
Contingencies		5% of Planning Cost		\$261,625
Agency Oversight		5% of Planning Cost		\$261,625
<b>Total Capital Costs</b>				<b>\$5,755,750</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	39	Each	\$610	\$23,790
Scour/Deposition Survey	6	Every 5 years	\$450,000	\$15,000
Fisheries Monitoring	6	Every 5 years	\$900,000	\$30,000
Operations Activities	1.5	FTE	\$75,000	\$112,500
Subtotal O&M Costs				\$181,290
O&M Contingencies		15%		\$27,194
<b>Total Yearly O&amp;M Costs</b>				<b>\$208,484</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$2,587,280
<b>Total Present Worth</b>				<b>\$8,343,030</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S2-5**  
**COST ESTIMATE FOR ALTERNATIVE 2: COORDINATE RESERVOIR RELEASE AND FLOOD CONTROL OPERATIONS**  
**ACTIVE CHANNEL AND FLOODPLAIN OF YUBA RIVER FROM NICOLAUS TO VERONA**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Solids Settling Study (Englebright and Camp Far West)	2	LS	\$250,000	\$500,000
Hydropower Study	2	LS	\$50,000	\$100,000
Fisheries Study (Spawning/Migration)	3	LS	\$100,000	\$300,000
River Scour Study (Upper Feather River)	1	LS	\$1,000,000	\$1,000,000
River Scour Study (Yuba and Bear River)	2	LS	\$500,000	\$1,000,000
River Scour Study (Feather from Yuba Confluence to Verona)	1	LS	\$1,500,000	\$1,500,000
Stakeholder Meetings	3	LS	\$40,000	\$120,000
Prepare EIS/EIR	1	LS	\$1,500,000	\$1,500,000
Revise Reservoir Operations Plan (3 reservoirs)	3	LS	\$200,000	\$600,000
Multi Agency Coordination Meetings	1.5	FTE	\$75,000	\$112,500
Subtotal Planning Costs				\$6,732,500
Contingencies		5% of Planning Cost		\$336,625
Agency Oversight		5% of Planning Cost		\$336,625
<b>Total Capital Costs</b>				<b>\$7,405,750</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	48	Each	\$610	\$29,280
Scour/Deposition Survey	6	Every 5 years	\$450,000	\$15,000
Fisheries Monitoring	6	Every 5 years	\$900,000	\$30,000
Operations Activities	1.5	FTE	\$75,000	\$112,500
Subtotal O&M Costs				\$186,780
O&M Contingencies		15%		\$28,017
<b>Total Yearly O&amp;M Costs</b>				<b>\$214,797</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$2,665,631
<b>Total Present Worth</b>				<b>\$10,071,381</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S2-6**  
**COST ESTIMATE FOR ALTERNATIVE 2: COORDINATE RESERVOIR RELEASE AND FLOOD CONTROL OPERATIONS**  
**ACTIVE CHANNEL AND FLOODPLAIN OF SACRAMENTO RIVER UPSTREAM OF FEATHER RIVER**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Solids Settling Study (Englebright and Camp Far West)	2	LS	\$250,000	\$500,000
Hydropower Study	3	LS	\$50,000	\$150,000
Fisheries Study (Spawning/Migration)	4	LS	\$100,000	\$400,000
River Scour Study (Upper Feather River)	1	LS	\$1,000,000	\$1,000,000
River Scour Study (Yuba and Bear River)	2	LS	\$500,000	\$1,000,000
River Scour Study (Feather from Yuba Confluence to Verona)	1	LS	\$1,500,000	\$1,500,000
River Scour Study (Sacramento River above Verona)	1	LS	\$1,500,000	\$1,500,000
Flood Routing Study (Sacramento, Feather Rivers, Bypasses)	1	LS	\$2,500,000	\$2,500,000
Stakeholder Meetings	4	LS	\$40,000	\$160,000
Prepare EIS/EIR	2	LS	\$1,500,000	\$3,000,000
Revise Reservoir Operations Plan (4 reservoirs)	4	LS	\$200,000	\$800,000
Multi Agency Coordination Meetings	3	FTE	\$75,000	\$225,000
Subtotal Planning Costs				\$12,735,000
Contingencies		5% of Planning Cost		\$636,750
Agency Oversight		5% of Planning Cost		\$636,750
<b>Total Capital Costs</b>				<b>\$14,008,500</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	66	Each	\$610	\$40,260
Scour/Deposition Survey	6	Every 5 years	\$600,000	\$20,000
Fisheries Monitoring	6	Every 5 years	\$1,200,000	\$40,000
Operations Activities	2.5	FTE	\$75,000	\$187,500
Subtotal O&M Costs				\$287,760
O&M Contingencies		15%		\$43,164
<b>Total Yearly O&amp;M Costs</b>				<b>\$330,924</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$4,106,767
<b>Total Present Worth</b>				<b>\$18,115,267</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S2-7**  
**COST ESTIMATE FOR ALTERNATIVE 2: COORDINATE RESERVOIR RELEASE**  
**AND IMPROVE FLOOD CONTROL BYPASS MANAGEMENT**  
**YOLO BYPASS BETWEEN FREEMONT WEIR AND PUTAH CREEK**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Solids Settling Study (Englebright, Camp Far West, CCSB, YB)	4	LS	\$250,000	\$1,000,000
Hydropower Study	3	LS	\$50,000	\$150,000
Fisheries Study (Spawning/Migration)	4	LS	\$100,000	\$400,000
River Scour Study (Upper Feather River)	1	LS	\$1,000,000	\$1,000,000
River Scour Study (Yuba and Bear River)	2	LS	\$500,000	\$1,000,000
River Scour Study (Feather from Yuba Confluence to Verona)	1	LS	\$1,500,000	\$1,500,000
River Scour Study (Sacramento River above Verona)	1	LS	\$1,500,000	\$1,500,000
Flood Routing Study (Sacramento, Feather Rivers, Bypasses)	1	LS	\$2,500,000	\$2,500,000
Stakeholder Meetings	4	LS	\$40,000	\$160,000
Prepare EIS/EIR	2	LS	\$1,500,000	\$3,000,000
Revise Reservoir Operations Plan (4 reservoirs, CCSB)	4	LS	\$225,000	\$900,000
Multi Agency Coordination Meetings	3.5	FTE	\$75,000	\$262,500
Subtotal Planning Costs				\$13,372,500
Contingencies		5% of Planning Cost		\$668,625
Agency Oversight		5% of Planning Cost		\$668,625
<b>Total Capital Costs</b>				<b>\$14,709,750</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	78	Each	\$610	\$47,580
Scour/Deposition Survey	6	Every 5 years	\$750,000	\$25,000
Fisheries Monitoring	6	Every 5 years	\$1,200,000	\$40,000
Operations Activities	2.5	FTE	\$75,000	\$187,500
Subtotal O&M Costs				\$300,080
O&M Contingencies		15%		\$45,012
<b>Total Yearly O&amp;M Costs</b>				<b>\$345,092</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$4,282,592
<b>Total Present Worth</b>				<b>\$18,992,342</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S2-8**  
**COST ESTIMATE FOR ALTERNATIVE 2: COORDINATE RESERVOIR RELEASES**  
**LOWER PUTAH CREEK UPSTREAM OF YOLO BYPASS**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Solids Settling Study (Berryessa)	1	LS	\$250,000	\$250,000
Hydropower Study	1	LS	\$50,000	\$50,000
Fisheries Study (Spawning/Migration)	1	LS	\$100,000	\$100,000
River Scour Study	1	LS	\$500,000	\$500,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$500,000	\$500,000
Revise Reservoir Operations Plan (Berryessa)	1	LS	\$200,000	\$200,000
Multi Agency Coordination Meetings	1	FTE	\$75,000	\$75,000
Subtotal Planning Costs				\$1,715,000
Contingencies		5% of Planning Cost		\$85,750
Agency Oversight		5% of Planning Cost		\$85,750
<b>Total Capital Costs</b>				<b>\$1,886,500</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	24	Each	\$610	\$14,640
Scour/Deposition Survey	6	Every 5 years	\$150,000	\$5,000
Fisheries Monitoring	6	Every 5 years	\$300,000	\$10,000
Operations Activities	0.5	FTE	\$75,000	\$37,500
Subtotal O&M Costs				\$67,140
O&M Contingencies		15%		\$10,071
<b>Total Yearly O&amp;M Costs</b>				<b>\$77,211</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$958,189
<b>Total Present Worth</b>				<b>\$2,844,689</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S2-9**  
**COST ESTIMATE FOR ALTERNATIVE 2: COORDINATE RESERVOIR RELEASE AND FLOOD CONTROL OPERATIONS**  
**ACTIVE CHANNEL AND FLOODPLAIN OF SACRAMENTO RIVER FROM VERONA TO FREEPORT**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Solids Settling Study (Englebright, Camp Far West)	2	LS	\$250,000	\$500,000
Hydropower Study	4	LS	\$50,000	\$200,000
Fisheries Study (Spawning/Migration)	6	LS	\$100,000	\$600,000
River Scour Study (Upper Feather River)	1	LS	\$1,000,000	\$1,000,000
River Scour Study (Yuba and Bear River)	2	LS	\$500,000	\$1,000,000
River Scour Study (Feather from Yuba Confluence to Verona)	1	LS	\$1,500,000	\$1,500,000
River Scour Study (Sacramento River above Verona)	1	LS	\$1,500,000	\$1,500,000
River Scour Study (Lower American River)	1	LS	\$500,000	\$500,000
River Scour Study (Sacramento River Verona to Freeport)	1	LS	\$1,500,000	\$1,500,000
Flood Routing Study (All Rivers, Bypasses)	1	LS	\$3,000,000	\$3,000,000
Stakeholder Meetings	5	LS	\$40,000	\$200,000
Prepare EIS/EIR	3	LS	\$1,500,000	\$4,500,000
Revise Reservoir Operations Plan (5 reservoirs)	5	LS	\$200,000	\$1,000,000
Multi Agency Coordination Meetings	3.5	FTE	\$75,000	\$262,500
Subtotal Planning Costs				\$17,262,500
Contingencies		5% of Planning Cost		\$863,125
Agency Oversight		5% of Planning Cost		\$863,125
<b>Total Capital Costs</b>				<b>\$18,988,750</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	93	Each	\$610	\$56,730
Scour/Deposition Survey	6	Every 5 years	\$750,000	\$25,000
Fisheries Monitoring	6	Every 5 years	\$1,200,000	\$40,000
Operations Activities	3	FTE	\$75,000	\$225,000
Subtotal O&M Costs				\$346,730
O&M Contingencies		15%		\$52,010
<b>Total Yearly O&amp;M Costs</b>				<b>\$398,740</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$4,948,357
<b>Total Present Worth</b>				<b>\$23,937,107</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S3-1**  
**COST ESTIMATE FOR ALTERNATIVE 3: MODIFY EXISTING SETTLING BASIN TO IMPROVE CAPTURE EFFICIENCY**  
**CACHE CREEK SETTLING BASIN**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$100,000	\$100,000
Wetland Delineation	1	LS	\$25,000	\$25,000
Fisheries Survey	1	LS	\$100,000	\$100,000
Structure Scour Study	1	LS	\$250,000	\$250,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$250,000	\$250,000
Property Easement	1500	acre	\$5,000	\$7,500,000
Housing Relocation	2	farm	\$750,000	\$1,500,000
Construct Expansion Levee	1	LS	\$21,700,000	\$21,700,000
Install Concrete Weir in Existing Northeastern Levee	1	LS	\$2,700,000	\$2,700,000
Subtotal Construction Costs				\$34,165,000
Construction Contingencies		15% of Construction Cost		\$5,124,750
Engineering Design and Construct Oversight		15% of Construction Cost		\$5,124,750
<b>Total Capital Costs</b>				<b>\$44,414,500</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	12	Each	\$460	\$5,520
Levee and Weir Maintenance	6	Every 5 years	\$250,000	\$8,333
Fisheries Monitoring	5	yearly	\$125,000	\$4,167
Subtotal O&M Costs				\$18,020
O&M Contingencies		15%		\$2,703
<b>Total Yearly O&amp;M Costs</b>				<b>\$20,723</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$257,172
<b>Total Present Worth</b>				<b>\$44,671,672</b>

Maintenance involving sediment removal from the expanded basin will not occur within 30 year project period.  
Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S3-2**  
**COST ESTIMATE FOR ALTERNATIVE 3: INSTALL SEDIMENT CONTROL STRUCTURES**  
**IN YOLO BYPASS TO IMPROVE SEDIMENT CAPTURE EFFICIENCY**  
**YOLO BYPASS FROM FREEMONT WEIR TO PUTAH CREEK**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$100,000	\$100,000
Wetland Delineation	1	LS	\$25,000	\$25,000
Fisheries Survey	1	LS	\$100,000	\$100,000
Flood Routing Study	1	LS	\$1,000,000	\$1,000,000
Structure Scour Study	1	LS	\$500,000	\$500,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$500,000	\$500,000
Property Acquisition	5	acres	\$20,000	\$100,000
Install Concrete Capped Sediment Control Barrier	4	LS	\$8,560,000	\$34,240,000
Subtotal Construction Costs				\$36,605,000
Construction Contingencies		15% of Construction Cost		\$5,490,750
Engineering Design and Construct Oversight		15% of Construction Cost		\$5,490,750
<b>Total Capital Costs</b>				<b>\$47,586,500</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	30	Each	\$460	\$13,800
Levee and Weir Maintenance	6	Every 5 years	\$250,000	\$8,333
Fisheries Monitoring	5	yearly	\$125,000	\$4,167
Subtotal O&M Costs				\$26,300
O&M Contingencies		15%		\$3,945
<b>Total Yearly O&amp;M Costs</b>				<b>\$30,245</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$375,340
<b>Total Present Worth</b>				<b>\$47,961,840</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S3-3**  
**COST ESTIMATE FOR ALTERNATIVE 3: MODIFY EXISTING**  
**SEDIMENT CONTROL STRUCTURES TO IMPROVE SEDIMENT CAPTURE EFFICIENCY**  
**LOWER PUTAH CREEK UPSTREAM OF YOLO BYPASS**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$75,000	\$75,000
Wetland Delineation	1	LS	\$20,000	\$20,000
Fisheries Survey	1	LS	\$100,000	\$100,000
Structure Scour Study	1	LS	\$250,000	\$250,000
Flood Routing Study	1	LS	\$500,000	\$500,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$500,000	\$500,000
Property Easement	800	acre	\$5,000	\$4,000,000
Property Acquisition	50	acre	\$20,000	\$1,000,000
Housing Relocation	1	farm	\$750,000	\$750,000
Construct Expansion Levees	1	LS	\$8,400,000	\$8,400,000
Install Concrete Weir in Existing New Levee	1	LS	\$3,000,000	\$3,000,000
Subtotal Construction Costs				\$18,635,000
Construction Contingencies		15% of Construction Cost		\$2,795,250
Engineering Design and Construct Oversight		15% of Construction Cost		\$2,795,250
<b>Total Capital Costs</b>				<b>\$24,225,500</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	15	Each	\$460	\$6,900
Levee and Weir Maintenance	6	Every 5 years	\$250,000	\$8,333
Fisheries Monitoring	5	yearly	\$125,000	\$4,167
Subtotal O&M Costs				\$19,400
O&M Contingencies		15%		\$2,910
<b>Total Yearly O&amp;M Costs</b>				<b>\$22,310</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$276,867
<b>Total Present Worth</b>				<b>\$24,502,367</b>

Maintenance involving sediment removal from the expanded basin will not occur within 30 year project period.  
Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S4-1**  
**COST ESTIMATE FOR ALTERNATIVE 4: STABILIZE STREAM BANKS AND FLOODPLAIN SURFACES**  
**ACTIVE CHANNEL AND FLOODPLAIN OF THE YUBA RIVER WITHIN THE YUBA GOLDFIELDS**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$150,000	\$150,000
Fisheries Study (Spawning/Migration)	1	LS	\$100,000	\$100,000
Wetland Delineation	1	LS	\$50,000	\$50,000
Flood Routing Study	1	LS	\$500,000	\$500,000
Scour Study	1	LS	\$500,000	\$500,000
Stakeholder Meetings	1	LS	\$60,000	\$60,000
Prepare EIS/EIR	1	LS	\$750,000	\$750,000
Property Easement	5	roads	\$30,000	\$150,000
Streambank Grading, RipRap, Revegetation	1	LS	\$41,050,000	\$41,050,000
Install Wing Dams	1	LS	\$700,000	\$700,000
Floodplain Grading	1	LS	\$3,200,000	\$3,200,000
Floodplain Revegetation	1	LS	\$830,000	\$830,000
Subtotal Construction Costs				\$48,040,000
Construction Contingencies		15% of Construction Cost		\$7,206,000
Engineering Design and Construct Oversight		15% of Construction Cost		\$7,206,000
<b>Total Capital Costs</b>				<b>\$62,452,000</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	30	Each	\$460	\$13,800
Revegetation of Stream Banks and Floodplain	1	10 Years	\$192,000	\$6,400
Fisheries Monitoring	1	5 Years	\$250,000	\$8,333
Subtotal O&M Costs				\$28,533
O&M Contingencies		15%		\$4,280
<b>Total Yearly O&amp;M Costs</b>				<b>\$32,813</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$407,209
<b>Total Present Worth</b>				<b>\$62,859,209</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S4-2**  
**COST ESTIMATE FOR ALTERNATIVE 4: STABILIZE STREAM BANKS AND FLOODPLAIN SURFACES**  
**ACTIVE CHANNEL AND FLOODPLAIN OF FEATHER RIVER NEAR CONFLUENCE WITH YUBA RIVER**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$75,000	\$75,000
Wetland Delineation	1	LS	\$20,000	\$20,000
Fisheries Survey	1	LS	\$100,000	\$100,000
Flood Routing Study	1	LS	\$500,000	\$500,000
Scour Study	1	LS	\$500,000	\$500,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$500,000	\$500,000
Streambank Grading, RipRap, Revegetation	1	LS	\$3,846,000	\$3,846,000
Install Wing Dams	1	LS	\$166,000	\$166,000
Floodplain Grading	1	LS	\$300,000	\$300,000
Floodplain Revegetation	1	LS	\$78,000	\$78,000
Subtotal Construction Costs				\$6,125,000
Construction Contingencies		15% of Construction Cost		\$918,750
Engineering Design and Construct Oversight		15% of Construction Cost		\$918,750
<b>Total Capital Costs</b>				<b>\$7,962,500</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	15	Each	\$460	\$6,900
Revegetation of Stream Banks and Floodplain	1	10 Years	\$36,000	\$1,200
Fisheries Monitoring	1	5 Years	\$250,000	\$8,333
Subtotal O&M Costs				\$16,433
O&M Contingencies		15%		\$2,465
<b>Total Yearly O&amp;M Costs</b>				<b>\$18,898</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$234,524
<b>Total Present Worth</b>				<b>\$8,197,024</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S4-3**  
**COST ESTIMATE FOR ALTERNATIVE 4: STABILIZE STREAM BANKS AND FLOODPLAIN SURFACES**  
**ACTIVE CHANNEL AND FLOODPLAIN OF FEATHER RIVER NEAR CONFLUENCE WITH BEAR RIVER**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$75,000	\$75,000
Wetland Delineation	1	LS	\$20,000	\$20,000
Fisheries Survey	1	LS	\$100,000	\$100,000
Flood Routing Study	1	LS	\$500,000	\$500,000
Scour Study	1	LS	\$500,000	\$500,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$500,000	\$500,000
Property Easement	3	roads	\$20,000	\$60,000
Streambank Grading, RipRap, Revegetation	1	LS	\$7,692,000	\$7,692,000
Install Wing Dams	1	LS	\$70,000	\$70,000
Floodplain Grading	1	LS	\$1,600,000	\$1,600,000
Floodplain Revegetation	1	LS	\$411,840	\$411,840
Subtotal Construction Costs				\$11,568,840
Construction Contingencies		15% of Construction Cost		\$1,735,326
Engineering Design and Construct Oversight		15% of Construction Cost		\$1,735,326
<b>Total Capital Costs</b>				<b>\$15,039,492</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	15	Each	\$460	\$6,900
Revegetation of Stream Banks and Floodplain	1	10 Years	\$96,000	\$3,200
Fisheries Monitoring	1	5 Years	\$250,000	\$8,333
Subtotal O&M Costs				\$18,433
O&M Contingencies		15%		\$2,765
<b>Total Yearly O&amp;M Costs</b>				<b>\$21,198</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$263,067
<b>Total Present Worth</b>				<b>\$15,302,559</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S4-4**  
**COST ESTIMATE FOR ALTERNATIVE 4: STABILIZE STREAM BANKS AND FLOODPLAIN SURFACES**  
**ACTIVE CHANNEL AND FLOODPLAIN OF YUBA RIVER FROM NICOLAUS TO VERONA**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$75,000	\$75,000
Wetland Delineation	1	LS	\$20,000	\$20,000
Flood Routing Study	1	LS	\$500,000	\$500,000
Scour Study	1	LS	\$500,000	\$500,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$500,000	\$500,000
Property Easement	3	roads	\$20,000	\$60,000
Streambank Grading	1	LS	\$5,400,000	\$5,400,000
Streambank Revegetation	1	LS	\$42,000	\$42,000
Floodplain Grading	1	LS	\$6,432,000	\$6,432,000
Floodplain Revegetation	1	LS	\$2,496,000	\$2,496,000
Subtotal Construction Costs				\$16,065,000
Construction Contingencies		15% of Construction Cost		\$2,409,750
Engineering Design and Construct Oversight		15% of Construction Cost		\$2,409,750
<b>Total Capital Costs</b>				<b>\$20,884,500</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	10	Each	\$460	\$4,600
Revegetation of Stream Banks and Floodplain	1	10 Years	\$192,000	\$6,400
Subtotal O&M Costs				\$11,000
O&M Contingencies		15%		\$1,650
<b>Total Yearly O&amp;M Costs</b>				<b>\$12,650</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$156,987
<b>Total Present Worth</b>				<b>\$21,041,487</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S4-5**  
**COST ESTIMATE FOR ALTERNATIVE 4: STABILIZE STREAM BANKS AND FLOODPLAIN SURFACES**  
**ACTIVE CHANNEL AND FLOODPLAIN OF LOWER CACHE CREEK FROM CAPAY TO YOLO**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$175,000	\$175,000
Fisheries Study (Spawning/Migration)	1	LS	\$200,000	\$200,000
Flood Routing Study	1	LS	\$500,000	\$500,000
Scour Study	1	LS	\$500,000	\$500,000
Stakeholder Meetings	1	LS	\$60,000	\$60,000
Prepare EIS/EIR	1	LS	\$750,000	\$750,000
Property Easement	10	roads	\$20,000	\$200,000
Install Wing Dams	1	LS	\$2,112,000	\$2,112,000
Floodplain Grading	1	LS	\$22,000,000	\$22,000,000
Floodplain Revegetation	1	LS	\$5,720,000	\$5,720,000
Subtotal Construction Costs				\$32,217,000
Construction Contingencies		15% of Construction Cost		\$4,832,550
Engineering Design and Construct Oversight		15% of Construction Cost		\$4,832,550
<b>Total Capital Costs</b>				<b>\$41,882,100</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	30	Each	\$460	\$13,800
Revegetation of Stream Banks and Floodplain	1	Yearly	\$1,250,000	\$41,666
Fisheries Monitoring	1	10 Years	\$500,000	\$16,666
Subtotal O&M Costs				\$72,132
O&M Contingencies		15%		\$10,820
<b>Total Yearly O&amp;M Costs</b>				<b>\$82,952</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$1,029,432
<b>Total Present Worth</b>				<b>\$42,911,532</b>

Short and long term O&M Costs have been normalized to a yearly basis

TABLE A-S5-1

**COST ESTIMATE FOR ALTERNATIVE 5: CONSTRUCT FLOOD CONTROL BYPASS TO PROMOTE SOLIDS SETTLING  
ACTIVE CHANNEL AND FLOODPLAIN OF YUBA RIVER WITHIN THE YUBA GOLDFIELDS**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$250,000	\$250,000
Wetland Delineation	1	LS	\$100,000	\$100,000
Fisheries Study (Spawning/Migration)	1	LS	\$100,000	\$100,000
Flood Routing Study	1	LS	\$500,000	\$500,000
Scour Study	1	LS	\$500,000	\$500,000
Stakeholder Meetings	1	LS	\$120,000	\$120,000
Prepare EIS/EIR	1	LS	\$1,500,000	\$1,500,000
Property Easement	1900	acre	\$5,000	\$9,500,000
Property Acquisition	200	acre	\$20,000	\$4,000,000
Bypass Hydraulic Control Levees	1	LS	\$80,600,000	\$80,600,000
Inlet and Outlet Weirs	1	LS	\$7,600,000	\$7,600,000
Bypass Grading	1	LS	\$10,400,000	\$10,400,000
Subtotal Construction Costs				\$115,170,000
Construction Contingencies		15% of Construction Cost		\$17,275,500
Engineering Design and Construct Oversight		15% of Construction Cost		\$17,275,500
<b>Total Capital Costs</b>				<b>\$149,721,000</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	18	Each	\$460	\$8,280
Revegetation of Bypass Surface	5	yearly	\$200,000	\$6,666
Levee and Weir Maintenance	6	Every 5 years	\$1,000,000	\$33,333
Fisheries Monitoring	10	yearly	\$250,000	\$8,333
Subtotal O&M Costs				\$56,612
O&M Contingencies		15%		\$8,492
<b>Total Yearly O&amp;M Costs</b>				<b>\$65,104</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$807,938
<b>Total Present Worth</b>				<b>\$150,528,938</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S5-2**  
**COST ESTIMATE FOR ALTERNATIVE 5: CONSTRUCT FLOOD CONTROL BYPASS TO PROMOTE SOLIDS SETTLING**  
**ACTIVE CHANNEL AND FLOODPLAIN OF LOWER CACHE CREEK FROM CAPAY TO YOLO**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$275,000	\$275,000
Wetland Delineation	1	LS	\$125,000	\$125,000
Fisheries Study (Spawning/Migration)	1	LS	\$200,000	\$200,000
Flood Routing Study	1	LS	\$1,000,000	\$1,000,000
Scour Study	1	LS	\$1,000,000	\$1,000,000
Stakeholder Meetings	1	LS	\$120,000	\$120,000
Prepare EIS/EIR	1	LS	\$1,500,000	\$1,500,000
Property Easement	2250	acre	\$5,000	\$11,250,000
Property Acquisition	250	acre	\$20,000	\$5,000,000
Home and Farm Relocation (23 properties)	1	LS	\$34,000,000	\$34,000,000
Bypass Hydraulic Control Levees	1	LS	\$148,800,000	\$148,800,000
Inlet and Outlet Weirs	1	LS	\$3,600,000	\$3,600,000
Bypass Grading	1	LS	\$960,000	\$960,000
Subtotal Construction Costs				\$207,830,000
Construction Contingencies		15% of Construction Cost		\$31,174,500
Engineering Design and Construct Oversight		15% of Construction Cost		\$31,174,500
<b>Total Capital Costs</b>				<b>\$270,179,000</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	18	Each	\$460	\$8,280
Revegetation of Bypass Surface	5	yearly	\$250,000	\$8,333
Levee and Weir Maintenance	6	Every 5 years	\$2,000,000	\$66,666
Fisheries Monitoring	10	yearly	\$500,000	\$16,666
Subtotal O&M Costs				\$99,945
O&M Contingencies		15%		\$14,992
<b>Total Yearly O&amp;M Costs</b>				<b>\$114,937</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$1,426,365
<b>Total Present Worth</b>				<b>\$271,605,365</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S6-1**  
**COST ESTIMATE FOR ALTERNATIVE 6: CONSTRUCT SETBACK LEVEES TO ISOLATE**  
**YUBA GOLDFIELD SEDIMENT FROM ADJACENT YUBA RIVER**  
**ACTIVE CHANNEL AND FLOODPLAIN OF YUBA RIVER WITHIN THE YUBA GOLDFIELDS**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$150,000	\$150,000
Fisheries Study (Spawning/Migration)	1	LS	\$100,000	\$100,000
Flood Routing Study	1	LS	\$500,000	\$500,000
Scour Study	1	LS	\$500,000	\$500,000
Stakeholder Meetings	1	LS	\$60,000	\$60,000
Prepare EIS/EIR	1	LS	\$750,000	\$750,000
Property Easement	5	roads	\$30,000	\$150,000
Setback Levee Construction	1	LS	\$140,200,000	\$140,200,000
Subtotal Construction Costs				\$142,410,000
Construction Contingencies		15% of Construction Cost		\$21,361,500
Engineering Design and Construct Oversight		15% of Construction Cost		\$21,361,500
<b>Total Capital Costs</b>				<b>\$185,133,000</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	30	Each	\$460	\$13,800
Revegetation of Stream Banks	10	yearly	\$150,000	\$5,000
Levee Maintenance	6	Every 5 years	\$750,000	\$25,000
Fisheries Monitoring	10	yearly	\$250,000	\$8,333
Subtotal O&M Costs				\$52,133
O&M Contingencies		15%		\$7,820
<b>Total Yearly O&amp;M Costs</b>				<b>\$59,953</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$744,016
<b>Total Present Worth</b>				<b>\$185,877,016</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S6-2**  
**COST ESTIMATE FOR ALTERNATIVE 6: CONSTRUCT SETBACK LEVEES TO ISOLATE**  
**FLOODPLAIN SEDIMENT FROM ADJACENT CACHE CREEK**  
**ACTIVE CHANNEL AND FLOODPLAIN OF LOWER CACHE CREEK FROM CAPAY TO YOLO**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$175,000	\$175,000
Fisheries Study (Spawning/Migration)	1	LS	\$200,000	\$200,000
Flood Routing Study	1	LS	\$500,000	\$500,000
Scour Study	1	LS	\$1,000,000	\$1,000,000
Stakeholder Meetings	1	LS	\$60,000	\$60,000
Prepare EIS/EIR	1	LS	\$750,000	\$750,000
Property Easement	10	roads	\$20,000	\$200,000
Setback Levee Construction	1	LS	\$209,800,000	\$209,800,000
Subtotal Construction Costs				\$212,685,000
Construction Contingencies		15% of Construction Cost		\$31,902,750
Engineering Design and Construct Oversight		15% of Construction Cost		\$31,902,750
<b>Total Capital Costs</b>				<b>\$276,490,500</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	30	Each	\$460	\$13,800
Revegetation of Stream Banks and Floodplain	1	yearly	\$1,250,000	\$41,666
Setback Levee Maintenance	6	Every 5 years	\$3,000,000	\$100,000
Fisheries Monitoring	10	yearly	\$500,000	\$16,666
Subtotal O&M Costs				\$172,132
O&M Contingencies		15%		\$25,820
<b>Total Yearly O&amp;M Costs</b>				<b>\$197,952</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$2,456,582
<b>Total Present Worth</b>				<b>\$278,947,082</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S7-1**  
**COST ESTIMATE FOR ALTERNATIVE 7: CAPTURE SEDIMENT USING LOW DAM ON LOWER BEAR RIVER**  
**ACTIVE CHANNEL AND FLOODPLAIN FEATHER RIVER NEAR CONFLUENCE WITH BEAR RIVER**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$75,000	\$75,000
Wetland Delineation	1	LS	\$20,000	\$20,000
Fisheries Survey	1	LS	\$100,000	\$100,000
Flood Routing Study	1	LS	\$500,000	\$500,000
Scour Study	1	LS	\$250,000	\$250,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$250,000	\$250,000
Property Easement	2	roads	\$20,000	\$40,000
Property Acquisition	3	acres	\$20,000	\$60,000
Install Low Dam on Lower Bear River	1	LS	\$2,530,000	\$2,530,000
Subtotal Construction Costs				\$3,865,000
Construction Contingencies		15% of Construction Cost		\$579,750
Engineering Design and Construct Oversight		15% of Construction Cost		\$579,750
<b>Total Capital Costs</b>				<b>\$5,024,500</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	10	Each	\$460	\$4,600
Dam and Weir Maintenance	6	Every 5 years	\$300,000	\$10,000
Maintenance Dredging and Disposal	3	Every 10 years	\$4,800,000	\$160,000
Fisheries Monitoring	10	yearly	\$250,000	\$8,333
Subtotal O&M Costs				\$182,933
O&M Contingencies		15%		\$27,440
<b>Total Yearly O&amp;M Costs</b>				<b>\$210,373</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$2,610,728
<b>Total Present Worth</b>				<b>\$7,635,228</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S7-2**  
**COST ESTIMATE FOR ALTERNATIVE 7: CAPTURE SEDIMENT USING LOW DAM ON LOWER CACHE CREEK**  
**ACTIVE CHANNEL AND FLOODPLAIN LOWER CACHE CREEK BETWEEN CAPAY AND YOLO**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$100,000	\$100,000
Fisheries Study (Spawning/Migration)	1	LS	\$200,000	\$200,000
Flood Routing Study	1	LS	\$500,000	\$500,000
Scour Study	1	LS	\$750,000	\$750,000
Stakeholder Meetings	1	LS	\$60,000	\$60,000
Prepare EIS/EIR	1	LS	\$750,000	\$750,000
Property Easement	10	roads	\$20,000	\$200,000
Property Acquisition	7	acres	\$20,000	\$140,000
Install Three Low Dams on Lower Cache Creek	1	LS	\$7,700,000	\$7,700,000
Subtotal Construction Costs				\$10,400,000
Construction Contingencies		15% of Construction Cost		\$1,560,000
Engineering Design and Construct Oversight		15% of Construction Cost		\$1,560,000
<b>Total Capital Costs</b>				<b>\$13,520,000</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	30	Each	\$460	\$13,800
Dam and Weir Maintenance	6	Every 5 years	\$1,800,000	\$60,000
Maintenance Dredging and Disposal	3	Every 10 years	\$240,000,000	\$8,000,000
Fisheries Monitoring	10	yearly	\$500,000	\$16,666
Subtotal O&M Costs				\$8,090,466
O&M Contingencies		15%		\$1,213,570
<b>Total Yearly O&amp;M Costs</b>				<b>\$9,304,036</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$115,463,086
<b>Total Present Worth</b>				<b>\$128,983,086</b>

Short and long term O&M Costs have been normalized to a yearly basis

**TABLE A-S7-3**  
**COST ESTIMATE FOR ALTERNATIVE 7: CAPTURE SEDIMENT USING LOW DAM ON LOWER PUTAH CREEK**  
**LOWER PUTAH CREEK UPSTREAM OF YOLO BYPASS**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$75,000	\$75,000
Wetland Delineation	1	LS	\$20,000	\$20,000
Fisheries Survey	1	LS	\$100,000	\$100,000
Flood Routing Study	1	LS	\$500,000	\$500,000
Scour Study	1	LS	\$500,000	\$500,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$500,000	\$500,000
Property Easement	2	roads	\$30,000	\$60,000
Property Acquisition	12	acres	\$20,000	\$240,000
Install Two Low Dams on Lower Putah Creek	1	LS	\$10,700,000	\$10,700,000
Subtotal Construction Costs				\$12,735,000
Construction Contingencies		15% of Construction Cost		\$1,910,250
Engineering Design and Construct Oversight		15% of Construction Cost		\$1,910,250
<b>Total Capital Costs</b>				<b>\$16,555,500</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	20	Each	\$460	\$9,200
Dam and Weir Maintenance	6	Every 5 years	\$600,000	\$20,000
Maintenance Dredging and Disposal	1	Every 10 years	\$19,200,000	\$640,000
Fisheries Monitoring	10	yearly	\$250,000	\$8,333
Subtotal O&M Costs				\$677,533
O&M Contingencies		15%		\$101,630
<b>Total Yearly O&amp;M Costs</b>				<b>\$779,163</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$9,669,412
<b>Total Present Worth</b>				<b>\$26,224,912</b>

Short and long term O&M Costs have been normalized to a yearly basis

TABLE A-S8-1

**COST ESTIMATE FOR ALTERNATIVE 8: DREDGING, PROCESS AGGREGATE AS A COMMODITY, AND DISPOSE OF FINES  
SOUTH FORK YUBA RIVER AT ENGLEBRIGHT RESERVOIR**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Fisheries Study (Spawning/Migration)	1	LS	\$100,000	\$100,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$500,000	\$500,000
Property Easement for Sediment Disposal	300	acre	\$5,000	\$1,500,000
Reservoir Dredging Including Aggregate Recovery	8,000,000	CY	\$3.50	\$28,000,000
Disposal Site Preparation	2,000,000	CY	\$10	\$20,000,000
Hauling and Disposal of Fines	2,000,000	CY	\$25	\$50,000,000
Subtotal Construction Costs				\$100,140,000
Construction Contingencies		15% of Construction Cost		\$15,021,000
<b>Total Capital Costs</b>				<b>\$115,161,000</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	12	Each	\$460	\$5,520
Revegetation of Disposal Site	5	Years	\$15,000	\$500
Fisheries Monitoring	5	Years	\$250,000	\$8,333
Subtotal O&M Costs				\$14,353
O&M Contingencies		15%		\$2,153
<b>Total Yearly O&amp;M Costs</b>				<b>\$16,506</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$204,839
<b>Total Present Worth</b>				<b>\$115,365,839</b>

Short and long term O&M Costs have been normalized to a yearly basis  
No maintenance excavation or dredging will occur within 30 year project period

**TABLE A-S8-2**

**COST ESTIMATE FOR ALTERNATIVE 2: DREDGING, PROCESS AGGREGATE AS A COMMODITY, AND DISPOSE OF FINES  
ACTIVE CHANNEL AND FLOODPLAIN OF THE YUBA RIVER WITHIN THE YUBA GOLDFIELDS**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Fisheries Study (Spawning/Migration)	1	LS	\$100,000	\$100,000
Flood Routing Study (Yuba River)	1	LS	\$750,000	\$750,000
River Scour Study (Yuba River)	1	LS	\$500,000	\$500,000
Stakeholder Meetings	1	LS	\$120,000	\$120,000
Prepare EIS/EIR	1	LS	\$1,500,000	\$1,500,000
Property Easement for Sediment Disposal	570	acre	\$5,000	\$2,850,000
Dredging Including Aggregate Recovery	15,500,000	CY	\$3.00	\$46,500,000
Disposal Site Preparation	3,875,000	CY	\$10	\$38,750,000
Hauling and Disposal of Fines	3,875,000	CY	\$6	\$23,250,000
Subtotal Construction Costs				\$114,320,000
Construction Contingencies		15% of Construction Cost		\$17,148,000
<b>Total Capital Costs</b>				<b>\$131,468,000</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	12	Each	\$460	\$5,520
Revegetation of Disposal Site	5	Years	\$28,500	\$950
Fisheries Monitoring	5	Years	\$250,000	\$8,333
Subtotal O&M Costs				\$14,803
O&M Contingencies		15%		\$2,220
<b>Total Yearly O&amp;M Costs</b>				<b>\$17,023</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$211,261
<b>Total Present Worth</b>				<b>\$131,679,261</b>

Short and long term O&M Costs have been normalized to a yearly basis  
 No maintenance excavation or dredging will occur within 30 year project period

**TABLE A-S8-3**

**COST ESTIMATE FOR ALTERNATIVE 8: DREDGING, PROCESS AGGREGATE AS A COMMODITY, AND DISPOSE OF FINES  
ACTIVE CHANNEL AND FLOODPLAIN OF FEATHER RIVER NEAR CONFLUENCE WITH YUBA RIVER**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Fisheries Study (Spawning/Migration)	1	LS	\$100,000	\$100,000
Flood Routing Study (Feather and Yuba River)	2	LS	\$750,000	\$1,500,000
River Scour Study (Feather River)	1	LS	\$1,000,000	\$1,000,000
River Scour Study (Yuba River)	1	LS	\$500,000	\$500,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$500,000	\$500,000
Property Easement for Sediment Disposal	150	acre	\$5,000	\$750,000
Dredging Including Aggregate Recovery	4,000,000	CY	\$2.50	\$10,000,000
Disposal Site Preparation	1,000,000	CY	\$10	\$10,000,000
Hauling and Disposal of Fines	1,000,000	CY	\$15	\$15,000,000
Subtotal Construction Costs				\$39,390,000
Construction Contingencies		15% of Construction Cost		\$5,908,500
<b>Total Capital Costs</b>				<b>\$45,298,500</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	18	Each	\$460	\$8,280
Revegetation of Disposal Site	5	Years	\$7,500	\$250
Fisheries Monitoring	5	Years	\$250,000	\$8,333
Subtotal O&M Costs				\$16,863
O&M Contingencies		15%		\$2,529
<b>Total Yearly O&amp;M Costs</b>				<b>\$19,392</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$240,660
<b>Total Present Worth</b>				<b>\$45,539,160</b>

Short and long term O&M Costs have been normalized to a yearly basis  
 No maintenance excavation or dredging will occur within 30 year project period

**TABLE A-S8-4**

**COST ESTIMATE FOR ALTERNATIVE 8: DREDGING, PROCESS AGGREGATE AS A COMMODITY, AND DISPOSE OF FINES  
ACTIVE CHANNEL AND FLOODPLAIN OF FEATHER RIVER NEAR CONFLUENCE WITH BEAR RIVER**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Fisheries Study (Spawning/Migration)	1	LS	\$100,000	\$100,000
Flood Routing Study (Feather River)	1	LS	\$750,000	\$750,000
River Scour Study (Yuba and Bear River)	2	LS	\$500,000	\$1,000,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$500,000	\$500,000
Property Easement for Sediment Disposal	570	acre	\$5,000	\$2,850,000
Dredging Including Aggregate Recovery	15,430,000	CY	\$2.50	\$38,575,000
Disposal Site Preparation	3,900,000	CY	\$10	\$39,000,000
Pumping and Disposal of Fines	3,900,000	CY	\$6	\$23,400,000
Subtotal Construction Costs				\$106,215,000
Construction Contingencies		15% of Construction Cost		\$15,932,250
<b>Total Capital Costs</b>				<b>\$122,147,250</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	18	Each	\$460	\$8,280
Revegetation of Disposal Site	5	Years	\$28,500	\$950
Fisheries Monitoring	5	Years	\$250,000	\$8,333
Subtotal O&M Costs				\$17,563
O&M Contingencies		15%		\$2,634
<b>Total Yearly O&amp;M Costs</b>				<b>\$20,197</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$250,650
<b>Total Present Worth</b>				<b>\$122,397,900</b>

Short and long term O&M Costs have been normalized to a yearly basis  
 No maintenance excavation or dredging will occur within 30 year project period

TABLE A-S8-5

**COST ESTIMATE FOR ALTERNATIVE 8: DREDGING, PROCESS AGGREGATE AS A COMMODITY, AND DISPOSE OF FINES ACTIVE CHANNEL AND FLOODPLAIN OF YUBA RIVER FROM NICOLAUS TO VERONA**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Fisheries Study (Spawning/Migration)	1	LS	\$100,000	\$100,000
Flood Routing Study (Feather River)	1	LS	\$750,000	\$750,000
River Scour Study (Feather from Yuba Confluence to Verona)	1	LS	\$1,500,000	\$1,500,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$500,000	\$500,000
Property Easement for Sediment Disposal	1230	acre	\$5,000	\$6,150,000
Dredging Including Aggregate Recovery	32,700,000	CY	\$2.50	\$81,750,000
Disposal Site Preparation	8,200,000	CY	\$10	\$82,000,000
Pumping and Disposal of Fines	8,200,000	CY	\$6	\$49,200,000
Subtotal Construction Costs				\$221,990,000
Construction Contingencies		15% of Construction Cost		\$33,298,500
<b>Total Capital Costs</b>				<b>\$255,288,500</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	12	Each	\$460	\$5,520
Revegetation of Disposal Site	5	Years	\$61,500	\$2,050
Fisheries Monitoring	5	Years	\$250,000	\$8,333
Subtotal O&M Costs				\$15,903
O&M Contingencies		15%		\$2,385
<b>Total Yearly O&amp;M Costs</b>				<b>\$18,288</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$226,960
<b>Total Present Worth</b>				<b>\$255,515,460</b>

Short and long term O&M Costs have been normalized to a yearly basis  
 No maintenance excavation or dredging will occur within 30 year project period

TABLE A-S8-6

**COST ESTIMATE FOR ALTERNATIVE 8: DREDGING, PROCESS AGGREGATE AS A COMMODITY, AND DISPOSE OF FINES  
ACTIVE CHANNEL AND FLOODPLAIN OF SACRAMENTO RIVER UPSTREAM OF FEATHER RIVER**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Fisheries Study (Spawning/Migration)	1	LS	\$100,000	\$100,000
Flood Routing Study (Sacramento, Feather Rivers, Bypasses)	1	LS	\$2,500,000	\$2,500,000
River Scour Study (Sacramento River above Verona)	1	LS	\$1,500,000	\$1,500,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$500,000	\$500,000
Property Easement for Sediment Disposal	125	acre	\$5,000	\$625,000
Dredging Including Aggregate Recovery	3,300,000	CY	\$2.50	\$8,250,000
Disposal Site Preparation	825,000	CY	\$10	\$8,250,000
Pumping and Disposal of Fines	825,000	CY	\$6	\$4,950,000
Subtotal Construction Costs				\$26,715,000
Construction Contingencies		15% of Construction Cost		\$4,007,250
<b>Total Capital Costs</b>				<b>\$30,722,250</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	12	Each	\$460	\$5,520
Revegetation of Disposal Site	5	Years	\$6,250	\$208
Fisheries Monitoring	5	Years	\$250,000	\$8,333
Subtotal O&M Costs				\$14,061
O&M Contingencies		15%		\$2,109
<b>Total Yearly O&amp;M Costs</b>				<b>\$16,170</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$200,672
<b>Total Present Worth</b>				<b>\$30,922,922</b>

Short and long term O&M Costs have been normalized to a yearly basis  
 No maintenance excavation or dredging will occur within 30 year project period

TABLE A-S8-7

**COST ESTIMATE FOR ALTERNATIVE 8: EXCAVATION, PROCESS AGGREGATE AS A COMMODITY, AND DISPOSE OF FINES ACTIVE CHANNEL AND FLOODPLAIN OF LOWER CACHE CREEK FROM CAPAY TO YOLO**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$175,000	\$175,000
Fisheries Study (Spawning/Migration)	1	LS	\$200,000	\$200,000
Flood Routing Study	1	LS	\$500,000	\$500,000
Scour Study	1	LS	\$1,000,000	\$1,000,000
Stakeholder Meetings	1	LS	\$120,000	\$120,000
Prepare EIS/EIR	1	LS	\$1,500,000	\$1,500,000
Property Easement	10	roads	\$20,000	\$200,000
Property Easement for Sediment Disposal	900	acre	\$5,000	\$4,500,000
Excavation and Hauling for Aggregate Recovery	23,900,000	CY	\$14	\$334,600,000
Hauling and Disposal of Fines	6,000,000	CY	\$10	\$60,000,000
Subtotal Construction Costs				\$402,795,000
Construction Contingencies		15% of Construction Cost		\$60,419,250
<b>Total Capital Costs</b>				<b>\$463,214,250</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	36	Each	\$460	\$16,560
Revegetation of Stream Banks and Floodplain	1	yearly	\$1,250,000	\$41,666
Revegetation of Disposal Site	5	Years	\$45,000	\$1,500
Fisheries Monitoring	10	yearly	\$500,000	\$16,666
Subtotal O&M Costs				\$76,392
O&M Contingencies		15%		\$11,459
<b>Total Yearly O&amp;M Costs</b>				<b>\$87,851</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$1,090,228
<b>Total Present Worth</b>				<b>\$464,304,478</b>

Short and long term O&M Costs have been normalized to a yearly basis  
 No maintenance excavation or dredging will occur within 30 year project period

TABLE A-S8-8

**COST ESTIMATE FOR ALTERNATIVE 8: EXCAVATION, PROCESS AGGREGATE AS A COMMODITY, AND DISPOSE OF FINES  
CACHE CREEK SETTLING BASIN**

Cost Item	Quantity	Unit	Unit Cost	Cost
<b>Capital Costs</b>				
Habitat Survey	1	LS	\$100,000	\$100,000
Wetland Delineation	1	LS	\$25,000	\$25,000
Stakeholder Meetings	1	LS	\$40,000	\$40,000
Prepare EIS/EIR	1	LS	\$500,000	\$500,000
Property Easement for Sediment Disposal	265	acre	\$5,000	\$1,325,000
Excavation and Hauling for Aggregate Recovery	7,000,000	CY	\$10	\$70,000,000
On-Site Aggregate Processing	1	LS	\$21,075,000	\$21,075,000
Hauling and Disposal of Fines	1,750,000	CY	\$6	\$10,500,000
Subtotal Construction Costs				\$103,565,000
Construction Contingencies		15% of Construction Cost		\$15,534,750
<b>Total Capital Costs</b>				<b>\$119,099,750</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	12	Each	\$460	\$5,520
Revegetation of Settling Basin and Disposal Site	5	Years	\$57,000	\$1,900
Subtotal O&M Costs				\$7,420
O&M Contingencies		15%		\$1,113
<b>Total Yearly O&amp;M Costs</b>				<b>\$8,533</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$105,895
<b>Total Present Worth</b>				<b>\$119,205,645</b>

Short and long term O&M Costs have been normalized to a yearly basis  
 No maintenance excavation or dredging will occur within 30 year project period

**TABLE A-S8-9**

**COST ESTIMATE FOR ALTERNATIVE 8: DREDGING, PROCESS AGGREGATE AS A COMMODITY, AND DISPOSE OF FINES  
ACTIVE CHANNEL AND FLOODPLAIN OF SACRAMENTO RIVER FROM VERONA TO FREEPORT**

<b>Cost Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
<b>Capital Costs</b>				
Fisheries Study (Spawning/Migration)	1	LS	\$100,000	\$100,000
Flood Routing Study (Sacramento, Feather Rivers, Bypasses)	1	LS	\$2,500,000	\$2,500,000
River Scour Study (Sacramento River Verona to Freeport)	1	LS	\$1,500,000	\$1,500,000
Stakeholder Meetings	1	LS	\$120,000	\$120,000
Prepare EIS/EIR	1	LS	\$1,500,000	\$1,500,000
Property Easement for Sediment Disposal	1400	acre	\$5,000	\$7,000,000
Dredging Including Aggregate Recovery	37,600,000	CY	\$2.50	\$94,000,000
Disposal Site Preparation	9,400,000	CY	\$10	\$94,000,000
Pumping and Disposal of Fines	9,400,000	CY	\$6	\$56,400,000
Subtotal Construction Costs				\$257,120,000
Construction Contingencies		15% of Construction Cost		\$38,568,000
<b>Total Capital Costs</b>				<b>\$295,688,000</b>
<b>Yearly Operation and Maintenance (O&amp;M) Costs</b>				
Monitoring	30	Each	\$460	\$13,800
Revegetation of Disposal Site	5	Years	\$70,000	\$2,333
Fisheries Monitoring	5	Years	\$500,000	\$16,666
Subtotal O&M Costs				\$32,799
O&M Contingencies		15%		\$4,920
<b>Total Yearly O&amp;M Costs</b>				<b>\$37,719</b>
Present Worth of O&M Costs Based on 30 Year Life @ 7%		PF Factor = 12.41		\$468,091
<b>Total Present Worth</b>				<b>\$296,156,091</b>

Short and long term O&M Costs have been normalized to a yearly basis  
 No maintenance excavation or dredging will occur within 30 year project period