

MATILIJA DAM  
Ecosystem Restoration Feasibility Study

Appendix F  
COST ESTIMATES

September 2004

# COST ESTIMATES OF ALTERNATIVES

**FEASIBILITY STUDY OF MATILAJA DAM REMOVAL  
FEASIBILITY ESTIMATE**

Prepared by: Don D. Nguyen  
Date: 25-Jun-04

1. Full Dam Removal/Mechanical Sediment Transport: Dispose Fines, Sell Aggregate

Item No.	Description	Estimated Quantity	UOM	Unit Cost	Estimated Cost	Notes
<b>SITE PREPARATION</b>						
1.0	Mobilization, Demobilization, and Preparation	1	LS	\$5,000,000.00	\$5,000,000	
2.0	Cleaning & Grubbing	134.60	ACR	\$3,000.00	\$403,800	
3.0	Arundo Eradicator					
3.1	Eradication (Reach 7)	118.00	ACR	\$10,000.00	\$1,180,000	1
3.2	Eradication (Reach 8 & 9)	0.40	ACR	\$28,000.00	\$11,200	1a
4.0	Diverson & Control of Water	1	LS	\$100,000.00	\$100,000	2
5.0	Fish Rescue & Relocator	1	LS	\$100,000.00	\$100,000	
<b>MATILAJA RESERVOIR SEDIMENT COMPONENTS</b>						
6.0	Soil Cement Wall	45,551	CY	\$30.00	\$1,366,530	
7.0	Channel Excavation (60-foot wide channel for Matilaja Reservoir sediment)	1,200,000	CY	\$3.00	\$3,600,000	
8.0	Truck Remaining Fines from Delta/Upstream Areas to 94-ac Disposal Site	1,200,000	CY	\$5.00	\$6,000,000	
<b>SLURRY SYSTEM COMPONENTS</b>						
9.0	Import Water from Casitas					
9.1	Cost of Water	4,500	ACR-FT	\$177.00	\$796,500	
9.2	Pipeline Corridor Preparation (24ftx22,000ft)	648,000	SF	\$1.00	\$648,000	
9.3	Real Estate for ROW	0	ACR	\$17,000.00	\$0	11
9.4	Fresh Water Supply Pumps, 800 HP Each, Goulds Vertical Turbines, in Parallel	1	EA	\$106,000.00	\$106,000	
9.5	Power to Pumps from Casitas for 9 Months	3,900,000	KW-HRS	\$0.15	\$585,000	
9.6	Fresh Water Pipeline, 8 Miles Long, 24"x.357" Wall, A53 Cast Iron	42,240	LF	\$15.00	\$633,600	
9.7	Water Storage Tank, 90,000 Gal, 25ftx25ft Carbon Steel	1	EA	\$110,000.00	\$110,000	
9.8	Makeup Water Pumps, 900 HP Each, Goulds Centrifugals, in Series	3	EA	\$94,000.00	\$282,000	
9.9	Makeup Waterline, 1 Mile Long, 24"x.357" Wall, A53 Cast Iron	5,280	LF	\$25.00	\$132,000	
9.10	Power for Makeup System for 9 Months	13,053,000	KW-HRS	\$0.15	\$1,957,950	
10.0	12" Cutter Head Suction Dredge, 9 Months Continuous	2	EA	\$2,700,000.00	\$5,400,000	6
11.0	Slurry System					
11.1	Pipeline Corridor Preparation (24ftx18,000ft)	432,000	SF	\$1.00	\$432,000	
11.2	Real Estate for ROW	10	ACR	\$17,000.00	\$170,000	
11.3	Thickener, 115" Diameter, incl. Flocculant Package, 40 HP Rate Motor	1	EA	\$900,000.00	\$900,000	
11.4	Slurry Pipeline, 7.85 Miles Long, 20" SRD 11, HDPE Pipe, 16.146" ID	41,470	LF	\$24.00	\$995,280	
11.5	Slurry Pumps, 1,200 HP Each, Warman Slurry Pumps in Series	1	EA	\$75,000.00	\$75,000	
11.6	Power for Slurry System for 9 Months	1,934,000	KW-HRS	\$0.15	\$290,100	
12.0	Operation Crew: 4 Operators, 1 Technician, 24hrs x 270 day	26,000	MAN-HRS	\$50.00	\$1,300,000	
13.0	Clear disposal area	94	ACR	\$3,000.00	\$282,000	
14.0	Construct containment dikes (excavation, place & compact in disposal area)	416,000	CY	\$5.00	\$2,080,000	
15.0	Misc. detail at dikes (drainage, grading, imported stone 4600c)	1	LS	\$700,000.00	\$700,000	7
16.0	Dust Abatement	1	LS	\$135,000.00	\$135,000	
17.0	Real Estate for Disposal of Fines	118	ACR	\$2,500.00	\$295,000	10
18.0	Site Restorator	1	LS	\$1,077,500.00	\$1,077,500	8
19.0	Road Repair	2	MILE	\$50,000.00	\$100,000	
20.0	Disposal Site Closure	1	LS	\$200,000.00	\$200,000	
<b>DAM REMOVAL COMPONENTS</b>						
21.0	Excavation & Removal of Concrete Fish Tra	120	CY	\$200.00	\$24,000	
22.0	Excavation & Removal of Concrete Control Hous	70	CY	\$250.00	\$17,500	
23.0	Excavation of Concrete Dam	51,100	CY	\$30.00	\$1,533,000	
24.0	Drilling & Blasting for Dam Removal					3
24.1	Horizontal Rows	9,550	EA	\$16.00	\$152,800	
24.2	Drilling Horizontal Hole:	124,400	LF	\$20.00	\$2,488,000	
24.3	Vertical Holes	7,600	EA	\$16.00	\$121,600	
24.4	Drilling Vertical Holes	122,000	LF	\$20.00	\$2,440,000	
25.0	Process Concrete for Hauling	9,638	CY	\$2.00	\$19,276	
26.0	Haul Concrete to Recycling Plant	72,285	CY	\$27.00	\$1,951,695	4
27.0	Removal & Disposal of Misc. Metal Work	46,513	LB	\$2.00	\$93,026	5
<b>ROBLES DIVERSION DAM COMPONENTS</b>						
28.0	High Flow Sediment Bypass (for project life)					
28.1	Radial Gates (120' section)	1	LS	\$3,400,000.00	\$3,400,000	
28.2	Timber Crib Structure Replacement (210' section)	1	LS	\$1,300,000.00	\$1,300,000	
<b>DOWNSTREAM FLOOD MITIGATION COMPONENTS</b>						
29.0	Real Estate Acquisitions					
29.1	Purchase/Removal of Matilaja Hot Spring	1	LS	\$2,000,000.00	\$2,000,000	
29.2	Purchase/Removal of Camino Cielo Structure	1	LS	\$2,815,000.00	\$2,815,000	
29.3	Meiners Oaks/Robles Area ROW	1	LS	\$2,600.00	\$2,600	
29.4	Live Oaks Levee/Floodwall ROW	1	LS	\$5,300.00	\$5,300	
29.5	Casitas Springs Levee/Floodwall ROW	1	LS	\$390,000.00	\$390,000	
29.6	Santa Ana Bridge	1	LS	\$2,500.00	\$2,500	
30.0	Structural Modifications					
30.1	Remove Existing Camino Cielo Bridge/Replace 150' Long Bridg	1	LS	\$4,400,000.00	\$4,400,000	
30.2	Santa Ana Bridge Modification (75' extensor)	1	LS	\$2,800,000.00	\$2,800,000	
30.3	Meiners Oaks/Robles Levee/Floodwa	1	LS	\$76,000.00	\$76,000	
30.4	Live Oaks Levee/Floodwa	1	LS	\$9,600.00	\$9,600	
30.5	Casitas Springs Levee/Floodwa	1	LS	\$18,000.00	\$18,000	
31.0	Rip Rap for Downstream Slope Protector	1,750	CY	\$30.00	\$52,500	
<b>FOSTER PARK COMPONENTS</b>						
32.0	Wells	2	EA	\$400,000.00	\$800,000	12
<b>DOWNSTREAM ARUNDO ERADICATION</b>						
33.0	Arundo Eradicator					
33.1	Eradication (Reach 1-6) Med-High Densit	123.00	ACR	\$28,000.00	\$3,444,000	9
33.2	Eradication (Reach 1-6) Low Densit	1,059.00	ACR	\$1,500.00	\$1,588,500	9a
<b>O&amp;M COSTS</b>						
34.0	Matilaja Reservoir					
34.1	Road Repair (once/2yr)	10	YR		\$25,000	
35.0	Downstream Features					
35.1	Riprap for Downstream Slope Protection (2cy/yr)	50	YR		\$200	
35.2	Channel Sediment Removal U/S Santa Ana Bridge (500cy/yr)	50	YR		\$5,000	
35.3	Arundo Removal (Reach 1-9)	4	YR		\$950,000	
35.4	Arundo Removal (Reach 1-9)	46	YR		\$100,000	
Subtotal					\$69,389,357	
Contingency					25%	\$17,347,339
Planning, Survey, Engineering and Design					10.00%	\$6,938,936
Engineering During Construction					1.00%	\$693,894

**FEASIBILITY STUDY OF MATILJA DAM REMOVAL  
FEASIBILITY ESTIMATE**

Prepared by:  
Date:

Don D. Nguyen  
25-Jun-04

1. Full Dam Removal/Mechanical Sediment Transport: Dispose Fines, Sell Aggregate

Item No.	Description	Estimated	Quantity	UOM	Unit Cost	Estimated Cost	Notes
	Supervision and Administration					6.50%	\$4,510,308
	<b>TOTAL PROJECT CONSTRUCTION COST FOR Alt 1</b>						<b>\$98,880,000</b>
	Cultural Resources					1%	\$988,800
	Monitoring					2%	\$1,977,600
	Adaptive Management					3%	\$2,966,400
	<b>TOTAL NER PROJECT COST FOR Alt 1</b>						<b>\$104,812,800</b>
	Recreation					LS	\$1,000,000
	<b>TOTAL PROJECT COSTS FOR Alt 1</b>						<b>\$105,812,800</b>

Notes:

1. Arundo will be taken to a disposal site, 6 miles away, and to be mulched
- 1a. Smaller equipment /hand removal. Same disposal as 1.
2. Dike consists of 7,500 CY
3. Each hole: 0.5 lb/ft of explosive, 1 blasting cap and 20 ft of primacore
4. Plant is approx. 28 miles away
5. Consists of misc. piping, valves, trashrack from outlet works and reinforcement and grout piping cut from concrete
6. Assume \$300,000/mon/ea
7. Includes surface drainage systems, dewatering pipes & riprap
8. Consists of hydroseeding & planting
9. Smaller equipment/hand removal; chipping; disposal offsite (slurry disposal/trails)
- 9a. Sparce coverage removal. Same disposal as 10.
10. Slurry disposal site; vicinity of Hwy 150 (Baldwin Road) Bridge
11. Federal land (BoR)
12. Assume need if slurry site is susceptible to erosion

**FEASIBILITY STUDY OF MATILIJA DAM REMOVAL  
FEASIBILITY ESTIMATE**

Prepared by: Don D. Nguyen  
Date: 25-Jun-04

2. Full Dam Removal/Natural Sediment Transport  
2a. Slurry "Reservoir Area" Fines Offsite

Item No.	Description	Estimated Quantity	UOM	Unit Cost	Estimated Cost	Notes
<b>SITE PREPARATION</b>						
1.0	Mobilization, Demobilization, and Preparatory	1	LS	\$5,000,000.00	\$5,000,000	
2.0	Clearing & Grubbing	134.60	ACR	\$3,000.00	\$403,800	
3.0	Arundo Eradication					
3.1	Eradication (Reach 7)	118.00	ACR	\$10,000.00	\$1,180,000	1
3.2	Eradication (Reach 8 & 9)	0.40	ACR	\$28,000.00	\$11,200	1a
4.0	Diversion & Control of Water	1	LS	\$235,000.00	\$235,000	2
5.0	Fish Rescue & Relocation	1	LS	\$100,000.00	\$100,000	
<b>SLURRY SYSTEM COMPONENTS</b>						
6.0	Import Water from Casitas					
6.1	Cost of Water	4,500	ACR-FT	\$177.00	\$796,500	
6.2	Pipeline Corridor Preparation (24ftx22,000ft)	648,000	SF	\$1.00	\$648,000	
6.3	Real Estate for ROW	0	ACR	\$17,000.00	\$0	11
6.4	Fresh Water Supply Pumps, 800 HP Each, Goulds Vertical Turbines, in Parallel	1	EA	\$106,000.00	\$106,000	
6.5	Power to Pumps from Casitas for 9 Months	3,900,000	KW-HRS	\$0.15	\$585,000	
6.6	Fresh Water Pipeline, 8 Miles Long, 24"x.357" Wall, A53 Cast Iron	42,240	LF	\$15.00	\$633,600	
6.7	Water Storage Tank, 90,000 Gal, 25ftx25ft Carbon Steel	1	EA	\$110,000.00	\$110,000	
6.8	Makeup Water Pumps, 900 HP Each, Goulds Centrifugals, in Series	3	EA	\$94,000.00	\$282,000	
6.9	Makeup Waterline, 1 Mile Long, 24"x.357" Wall, A53 Cast Iron	5,280	LF	\$25.00	\$132,000	
6.10	Power for Makeup System for 9 Months	13,053,000	KW-HRS	\$0.15	\$1,957,950	
7.0	12" Cutter Head Suction Dredge, 9 Months Continuous	2	EA	\$2,700,000.00	\$5,400,000	6
8.0	Slurry System					
8.1	Pipeline Corridor Preparation (30ftx41,470ft)	1,244,100	SF	\$1.00	\$1,244,100	
8.2	Real Estate for ROW - River Bottom	10	ACR	\$2,525.00	\$25,250	
8.3	Real Estate for ROW - Private Ownership	3	ACR	\$35,045.00	\$105,135	
8.4	Thickener, 115' Diameter, incl. Flocculant Package, 40 HP Rake Motor	1	EA	\$900,000.00	\$900,000	
8.5	Slurry Pipeline, 7.85 Miles Long, 20" SRD 11, HDPE Pipe, 16.146" ID	41,470	LF	\$24.00	\$995,280	
8.6	Slurry Pumps, 400 HP Each, Warman Slurry Pumps in Series	1	EA	\$75,000.00	\$75,000	
8.7	Power for Slurry System for 9 Months	1,934,000	KW-HRS	\$0.15	\$290,100	
9.0	Operation Crew: 3 Operators, 1 Technician, 24hrs x 270 days	26,000	MAN-HRS	\$50.00	\$1,300,000	
10.0	Construct containment dikes (excavation, place & compact in disposal area)	416,000	CY	\$5.00	\$2,080,000	
11.0	Misc. detail at dikes (drainage, grading, imported stone 4600cy)	1	LS	\$700,000.00	\$700,000	7
12.0	Dust Abatement	1	LS	\$135,000.00	\$135,000	
13.0	Real Estate for Disposal of Fines	94	ACR	\$2,500.00	\$235,000	10
14.0	Site Restoration	1	LS	\$1,077,500.00	\$1,077,500	8
15.0	Road Repair	2	MILE	\$50,000.00	\$100,000	
16.0	Disposal Site Closure	1	LS	\$200,000.00	\$200,000	
<b>DAM REMOVAL COMPONENTS</b>						
17.0	Excavation & Removal of Concrete Fish Trap	120	CY	\$200.00	\$24,000	
18.0	Excavation & Removal of Concrete Control House	70	CY	\$250.00	\$17,500	
19.0	Excavation of Concrete Dam	51,100	CY	\$30.00	\$1,533,000	
20.0	Drilling & Blasting for Dam Removal					3
20.1	Horizontal Rows	9,550	EA	\$16.00	\$152,800	
20.2	Drilling Horizontal Holes	124,400	LF	\$20.00	\$2,488,000	
20.3	Vertical Holes	7,600	EA	\$16.00	\$121,600	
20.4	Drilling Vertical Holes	122,000	LF	\$20.00	\$2,440,000	
21.0	Process Concrete for Hauling	9,638	CY	\$2.00	\$19,276	
22.0	Haul Concrete to Recycling Plant	72,285	CY	\$27.00	\$1,951,695	4
23.0	Removal & Disposal of Misc. Metal Work	46,513	LB	\$2.00	\$93,026	5
<b>ROBLES DIVERSION DAM COMPONENTS</b>						
24.0	High Flow Sediment Bypass (for project life)					
24.1	Radial Gates (120' section)	1	LS	\$3,400,000.00	\$3,400,000	
24.2	Timber Crib Structure Replacement (210' section)	1	LS	\$1,300,000.00	\$1,300,000	
25.0	Desilting Basin	1	LS	\$5,700,000.00	\$5,700,000	
<b>DOWNSTREAM FLOOD MITIGATION COMPONENTS</b>						
26.0	Real Estate Acquisitions					
26.1	Purchase/Removal of Matilija Hot Springs	1	LS	\$2,000,000.00	\$2,000,000	
26.2	Purchase/Removal of Camino Cielo Structures	1	LS	\$2,815,000.00	\$2,815,000	
26.3	Meiners Oaks/Robles Area ROW	1	LS	\$2,600.00	\$2,600	
26.4	Live Oaks Levee/Floodwall ROW	1	LS	\$5,300.00	\$5,300	
26.5	Casitas Springs Levee/Floodwall ROW	1	LS	\$390,000.00	\$390,000	
26.6	Santa Ana Bridge	1	LS	\$2,500.00	\$2,500	
27.0	Structural Modifications					
27.1	Remove Existing Camino Cielo Bridge/Replace 150' Long Bridge	1	LS	\$4,400,000.00	\$4,400,000	
27.2	Santa Ana Bridge Modification (75' extension)	1	LS	\$2,800,000.00	\$2,800,000	
27.3	Meiners Oaks/Robles Levee/Floodwall	1	LS	\$134,000.00	\$134,000	
27.4	Live Oaks Levee/Floodwall	1	LS	\$56,000.00	\$56,000	

**FEASIBILITY STUDY OF MATILAJA DAM REMOVAL  
FEASIBILITY ESTIMATE**

Prepared by: Don D. Nguyen  
Date: 25-Jun-04

2. Full Dam Removal/Natural Sediment Transport  
2a. Slurry "Reservoir Area" Fines Offsite

Item No.	Description	Estimated Quantity	UOM	Unit Cost	Estimated Cost	Notes
27.5	Casitas Springs Levee/Floodwall	1	LS	\$36,000.00	\$36,000	
28.0	Rip Rap for Downstream Slope Protection	6,400	CY	\$30.00	\$192,000	
<b>FOSTER PARK COMPONENTS</b>						
29.0	Wells	2	EA	\$400,000.00	\$800,000	12
<b>DOWNSTREAM ARUNDO ERADICATION</b>						
30.0	Arundo Eradication					
30.1	Eradication (Reach 1-6) Med-High Density	123.00	ACR	\$28,000.00	\$3,444,000	9
30.2	Eradication (Reach 1-6) Low Density	1,059.00	ACR	\$1,500.00	\$1,588,500	9a
<b>O&amp;M COSTS</b>						
31.0	Downstream Features					
31.1	Riprap for Downstream Slope Protection (8cy/yr)	50	YR		\$800	
31.2	Robles Sediment Basin Excavation (14,000cy/yr)	5	YR		\$140,000	
31.3	Robles Canal/Fish Screen (600cy/yr)	10	YR		\$6,000	
31.4	Robles Fishway (2cy/yr)	10	YR		\$100	
31.5	Channel Sediment Removal U/S Santa Ana Bridge (500cy/yr)	50	YR		\$5,000	
31.6	Desilting Basin (16,000cy/yr)	20	YR		\$160,000	
31.7	Arundo Removal (Reach 1-9)	4	YR		\$950,000	
31.8	Arundo Removal (Reach 1-9)	46	YR		\$100,000	
Subtotal					\$64,950,212	
Contingency				25%	\$16,237,553	
Planning, Survey, Engineering and Design				10.00%	\$6,495,021	
Engineering During Construction				1.00%	\$649,502	
Supervision and Administration				6.50%	\$4,221,764	
<b>TOTAL PROJECT CONSTRUCTION COST FOR Ait 2A</b>					<b>\$92,550,000</b>	
Cultural Resources				1%	\$925,500	
Monitoring				2%	\$1,851,000	
Adaptive Management				3%	\$2,776,500	
<b>TOTAL NER PROJECT COST FOR Ait 2A</b>					<b>\$98,103,000</b>	
Recreation				LS	\$1,000,000	
<b>TOTAL PROJECT COSTS FOR Ait 2A</b>					<b>\$99,103,000</b>	

Notes:

- Arundo will be taken to a disposal site, 6 miles away, and to be mulched
  - Smaller equipment /hand removal. Same disposal as 1.
- Consists of 7,500 CY of dike and 45,000 CY of pilot channel
- Each hole: 0.5 lb/ft of explosive, 1 blasting cap and 20 ft of primacore
- Plant is approx. 28 miles away
- Consists of misc. piping, valves, trashrack from outlet works and reinforcement and grout piping cut from concrete
- Assume \$300,000/mon/ea
- Includes surface drainage systems, dewatering pipes & riprap
- Consists of hydroseeding & planting
- Smaller equipment/hand removal; chipping; disposal offsite (slurry disposal/trails)

**FEASIBILITY STUDY OF MATILJA DAM REMOVAL**

Prepared by: Don D. Nguyen

**FEASIBILITY ESTIMATE**

Date: 25-Jun-04

2. Full Dam Removal/Natural Sediment Transport  
2b. Natural Transport of "Reservoir Fines"

Item No.	Description	Estimated Quantity	UOM	Unit Cost	Estimated Cost	Notes
<b>SITE PREPARATION</b>						
1.0	Mobilization, Demobilization, and Preparatory	1	LS	\$5,000,000.00	\$5,000,000	
2.0	Clearing & Grubbing	134.60	ACR	\$3,000.00	\$403,800	
3.0	Arundo Eradication					
3.1	Eradication (Reach 7)	118.00	ACR	\$10,000.00	\$1,180,000	1
3.2	Eradication (Reach 8 & 9)	0.40	ACR	\$28,000.00	\$11,200	1a
4.0	Diversion & Control of Water	1	LS	\$300,000.00	\$300,000	2
5.0	Unwatering Reservoir	550	ACR-FT	\$177.00	\$97,350	
6.0	Fish Rescue & Relocation	1	LS	\$100,000.00	\$100,000	
<b>DAM REMOVAL COMPONENTS</b>						
7.0	Excavation & Removal of Concrete Fish Trap	120	CY	\$200.00	\$24,000	
8.0	Excavation & Removal of Concrete Control House	70	CY	\$250.00	\$17,500	
9.0	Excavation of Concrete Dam	51,100	CY	\$30.00	\$1,533,000	
10.0	Drilling & Blasting for Dam Removal					3
10.1	Horizontal Rows	9,550	EA	\$16.00	\$152,800	
10.2	Drilling Horizontal Holes	124,400	LF	\$20.00	\$2,488,000	
10.3	Vertical Holes	7,600	EA	\$16.00	\$121,600	
10.4	Drilling Vertical Holes	122,000	LF	\$20.00	\$2,440,000	
11.0	Process Concrete for Hauling	9,638	CY	\$2.00	\$19,276	
12.0	Haul Concrete to Recycling Plant	72,285	CY	\$27.00	\$1,951,695	4
13.0	Removal & Disposal of Misc. Metal Work	46,513	LB	\$2.00	\$93,026	5
14.0	Excavate Fine Sediments					
14.1	Excavation	520,000	CY	\$6.00	\$3,120,000	
14.2	Transportation	520,000	CY	\$2.00	\$1,040,000	
14.3	Stockpile	520,000	CY	\$3.00	\$1,560,000	
15.0	Dust Abatement	1	LS	\$135,000.00	\$135,000	
16.0	Real Estate for Disposal of Arundo	5	ACR	\$1,300.00	\$6,500	
17.0	Site Restoration	1	LS	\$1,077,500.00	\$1,077,500	8
18.0	Road Repair	2	MILE	\$50,000.00	\$100,000	
<b>ROBLES DIVERSION DAM COMPONENTS</b>						
19.0	High Flow Sediment Bypass (for project life)					
19.1	Radial Gates (120' section)	1	LS	\$3,400,000.00	\$3,400,000	
19.2	Timber Crib Structure Replacement (210' section)	1	LS	\$1,300,000.00	\$1,300,000	
<b>DOWNSTREAM FLOOD MITIGATION COMPONENTS</b>						
20.0	Real Estate Acquisitions					
20.1	Purchase/Removal of Matilija Hot Springs	1	LS	\$2,000,000.00	\$2,000,000	
20.2	Purchase/Removal of Camino Cielo Structures	1	LS	\$2,815,000.00	\$2,815,000	
20.3	Meiners Oaks/Robles Area ROW	1	LS	\$2,600.00	\$2,600	
20.4	Live Oaks Levee/Floodwall ROW	1	LS	\$5,300.00	\$5,300	
20.5	Casitas Springs Levee/Floodwall ROW	1	LS	\$390,000.00	\$390,000	
20.6	Santa Ana Bridge	1	LS	\$2,500.00	\$2,500	
21.0	Structural Modifications					
21.1	Remove Existing Camino Cielo Bridge/Replace 150' Long Bridge	1	LS	\$4,400,000.00	\$4,400,000	
21.2	Santa Ana Bridge Modification (75' extension)	1	LS	\$2,800,000.00	\$2,800,000	
21.3	Meiners Oaks/Robles Levee/Floodwall	1	LS	\$134,000.00	\$134,000	
21.4	Live Oaks Levee/Floodwall	1	LS	\$56,000.00	\$56,000	
21.5	Casitas Springs Levee/Floodwall	1	LS	\$36,000.00	\$36,000	
22.0	Rip Rap for Downstream Slope Protection	6,400	CY	\$30.00	\$192,000	
23.0	Contingency Due to Risk	1	LS	\$2,480,445.00	\$2,480,445	
<b>FOSTER PARK COMPONENTS</b>						
24.0	Wells	2	EA	\$400,000.00	\$800,000	12
<b>DOWNSTREAM ARUNDO ERADICATION</b>						
25.0	Arundo Eradication					
26.1	Eradication (Reach 1-6) Med-High Density	123.00	ACR	\$28,000.00	\$3,444,000	9
26.2	Eradication (Reach 1-6) Low Density	1,059.00	ACR	\$1,500.00	\$1,588,500	9a
<b>RESTITUTION DUE TO LOSS OF WATER AT ROBLES</b>						
27.0	Water loss	48,000	ACR-FT	\$650.00	\$31,200,000	

**FEASIBILITY STUDY OF MATILJA DAM REMOVAL  
FEASIBILITY ESTIMATE**

Prepared by: Don D. Nguyen  
Date: 25-Jun-04

2. Full Dam Removal/Natural Sediment Transport  
2b. Natural Transport of "Reservoir Fines"

Item No.	Description	Estimated Quantity	UOM	Unit Cost	Estimated Cost	Notes
<b>O&amp;M COSTS</b>						
28.0	Downstream Features					
28.1	Riprap for Downstream Slope Protection (8cy/yr)	50	YR		\$800	
28.2	Robles Sediment Basin Excavation (14,000cy/yr)	5	YR		\$140,000	
28.3	Channel Sediment Removal U/S Santa Ana Bridge (500cy/yr)	50	YR		\$5,000	
28.4	Arundo Removal (Reach 1-9)	4	YR		\$950,000	
28.5	Arundo Removal (Reach 1-9)	46	YR		\$100,000	
Subtotal					\$80,018,592	
Contingency					25%	\$20,004,648
Planning, Survey, Engineering and Design					10.00%	\$8,001,859
Engineering During Construction					1.00%	\$800,186
Supervision and Administration					6.50%	\$5,201,208
<b>TOTAL PROJECT CONSTRUCTION COST FOR Ait 2B</b>						<b>\$114,030,000</b>
Cultural Resources					1%	\$1,140,300
Monitoring					2%	\$2,280,600
Adaptive Management					3%	\$3,420,900
<b>TOTAL NER PROJECT COST FOR Ait 2B</b>						<b>\$120,871,800</b>
Recreation					LS	\$1,000,000
<b>TOTAL PROJECT COSTS FOR Ait 2B</b>						<b>\$121,871,800</b>

Notes:

1. Arundo will be taken to a disposal site, 6 miles away, and to be mulched
- 1a. Smaller equipment /hand removal. Same disposal as 1.
2. Consists of 45,000 CY of pilot channel; 8,000 CY of cofferdam and 2,000 lf of 36" pipe
3. Each hole: 0.5 lb/ft of explosive, 1 blasting cap and 20 ft of primacore
4. Plant is approx. 28 miles away
5. Consists of misc. piping, valves, trashrack from outlet works and reinforcement and grout piping cut from concrete
8. Consists of hydroseeding & planting
9. Smaller equipment/hand removal; chipping; disposal offsite (slurry disposal/trails)
- 9a. Sparse coverage removal. Same disposal as 10.
12. Assume need if slurry site is susceptible to erosion



**FEASIBILITY STUDY OF MATILIJA DAM REMOVAL**

Prepared by: Don D. Nguyen

**FEASIBILITY ESTIMATE**

Date: 25-Jun-04

**3. Incremental Dam Removal/Natural Sediment Transport**  
**3a. Slurry "Reservoir Area" Fines Offsite**

Item No.	Description	Estimated Quantity	UOM	Unit Cost	Estimated Cost	Notes
<b>SITE PREPARATION</b>						
1.0	Mobilization, Demobilization, and Preparatory (Phase 1)	1	LS	\$5,000,000.00	\$5,000,000	
2.0	Mobilization, Demobilization, and Preparatory (Phase 2)	1	LS	\$2,500,000.00	\$2,500,000	
3.0	Cleaning & Grubbing	134.60	ACR	\$3,000.00	\$403,800	
4.0	Arundo Eradication					
4.1	Eradication (Reach 7)	118.00	ACR	\$10,000.00	\$1,180,000	1
4.2	Eradication (Reach 8 & 9)	0.40	ACR	\$28,000.00	\$11,200	1a
5.0	Diversion & Control of Water (Phase 1)	1	LS	\$235,000.00	\$235,000	2
6.0	Diversion & Control of Water (Phase 2)	1	LS	\$235,000.00	\$235,000	2
7.0	Fish Rescue & Relocation	1	LS	\$100,000.00	\$100,000	
<b>MATILIJA RESERVOIR SEDIMENT COMPONENTS</b>						
8.0	Excavate Sediments Behind Dam (Phase 2)					6,7
8.1	Excavation	25,000	CY	\$5.00	\$125,000	
8.2	Transportation	25,000	CY	\$2.00	\$50,000	
8.3	Stockpile	25,000	CY	\$3.00	\$75,000	
9.0	Dust Abatement	1	LS	\$135,000.00	\$135,000	
<b>SLURRY SYSTEM COMPONENTS</b>						
10.0	Import Water from Casitas					
10.1	Cost of Water	4,500	ACR-FT	\$177.00	\$796,500	
10.2	Pipeline Corridor Preparation (24ftx22,000ft)	648,000	SF	\$1.00	\$648,000	
10.3	Real Estate for ROW	0	ACR	\$17,000.00	\$0	11
10.4	Fresh Water Supply Pumps, 800 HP Each, Goulds Vertical Turbines, in Parallel	1	EA	\$106,000.00	\$106,000	
10.5	Power to Pumps from Casitas for 9 Months	3,900,000	KW-HRS	\$0.15	\$585,000	
10.6	Fresh Water Pipeline, 8 Miles Long, 24"x.357" Wall, A53 Cast Iron	42,240	LF	\$15.00	\$633,600	
10.7	Water Storage Tank, 90,000 Gal, 25ftx25ft Carbon Steel	1	EA	\$110,000.00	\$110,000	
10.8	Makeup Water Pumps, 900 HP Each, Goulds Centrifugals, in Series	3	EA	\$94,000.00	\$282,000	
10.9	Makeup Waterline, 1 Mile Long, 24"x.357" Wall, A53 Cast Iron	5,280	LF	\$25.00	\$132,000	
10.10	Power for Makeup System for 9 Months	13,053,000	KW-HRS	\$0.15	\$1,957,950	
11.0	12" Cutter Head Suction Dredge, 9 Months Continuous	2	EA	\$2,700,000.00	\$5,400,000	
12.0	Slurry System					
12.1	Pipeline Corridor Preparation (30ftx41,470ft)	1,244,100	SF	\$1.00	\$1,244,100	
12.2	Real Estate for ROW - River Bottom	10	ACR	\$2,525.00	\$25,250	
12.3	Real Estate for ROW - Private Ownership	3	ACR	\$35,045.00	\$105,135	
12.4	Thickener, 115' Diameter, incl. Flocculant Package, 40 HP Rake Motor	1	EA	\$900,000.00	\$900,000	
12.5	Slurry Pipeline, 7.85 Miles Long, 20" SRD 11, HDPE Pipe, 16.146" ID	41,470	LF	\$24.00	\$995,280	
12.6	Slurry Pumps, 400 HP Each, Warman Slurry Pumps in Series	1	EA	\$75,000.00	\$75,000	
12.7	Power for Slurry System for 9 Months	1,934,000	KW-HRS	\$0.15	\$290,100	
13.0	Operation Crew: 3 Operators, 1 Technician, 24hrs x 270 days	26,000	MAN-HRS	\$50.00	\$1,300,000	
14.0	Construct containment dikes (excavation, place & compact in disposal area)	416,000	CY	\$5.00	\$2,080,000	
15.0	Misc. detail at dikes (drainage, grading, imported stone 4600cy)	1	LS	\$700,000.00	\$700,000	7a
16.0	Real Estate for Disposal of Fines	94	ACR	\$2,500.00	\$235,000	10
17.0	Site Restoration	1	LS	\$1,077,500.00	\$1,077,500	8
18.0	Road Repair	2	MILE	\$50,000.00	\$100,000	
19.0	Disposal Site Closure	1	LS	\$200,000.00	\$200,000	
<b>DAM REMOVAL COMPONENTS</b>						
20.0	Excavation & Removal of Concrete Fish Trap	120	CY	\$200.00	\$24,000	
21.0	Excavation & Removal of Concrete Control House	70	CY	\$250.00	\$17,500	
22.0	Excavation of Concrete Dam	51,100	CY	\$30.00	\$1,533,000	
23.0	Drilling & Blasting for Dam Removal					3
23.1	Horizontal Rows	9,550	EA	\$16.00	\$152,800	
23.2	Drilling Horizontal Holes	124,400	LF	\$20.00	\$2,488,000	
23.3	Vertical Holes	7,600	EA	\$16.00	\$121,600	
23.4	Drilling Vertical Holes	122,000	LF	\$20.00	\$2,440,000	
24.0	Process Concrete for Hauling	9,638	CY	\$2.00	\$19,276	
25.0	Haul Concrete to Recycling Plant	72,285	CY	\$27.00	\$1,951,695	4
26.0	Removal & Disposal of Misc. Metal Work	46,513	LB	\$2.00	\$93,026	5
<b>ROBLES DIVERSION DAM COMPONENTS</b>						
27.0	High Flow Sediment Bypass (for project life)					
27.1	Radial Gates (120' section)	1	LS	\$3,400,000.00	\$3,400,000	
27.2	Timber Crib Structure Replacement (210' section)	1	LS	\$1,300,000.00	\$1,300,000	
28.0	Desilting Basin	1	LS	\$5,700,000.00	\$5,700,000	
<b>DOWNSTREAM FLOOD MITIGATION COMPONENTS</b>						
29.0	Real Estate Acquisitions					
29.1	Purchase/Removal of Matilija Hot Springs	1	LS	\$2,000,000.00	\$2,000,000	
29.2	Purchase/Removal of Camino Cielo Structures	1	LS	\$2,815,000.00	\$2,815,000	
29.3	Meiners Oaks/Robles Area ROW	1	LS	\$2,600.00	\$2,600	
29.4	Live Oaks Levee/Floodwall ROW	1	LS	\$5,300.00	\$5,300	
29.5	Casitas Springs Levee/Floodwall ROW	1	LS	\$390,000.00	\$390,000	
29.6	Santa Ana Bridge	1	LS	\$2,500.00	\$2,500	
30.0	Structural Modifications					
30.1	Remove Existing Camino Cielo Bridge/Replace 150' Long Bridge	1	LS	\$4,400,000.00	\$4,400,000	
30.2	Santa Ana Bridge Modification (75' extension)	1	LS	\$2,800,000.00	\$2,800,000	
30.3	Meiners Oaks/Robles Levee/Floodwall	1	LS	\$134,000.00	\$134,000	
30.4	Live Oaks Levee/Floodwall	1	LS	\$56,000.00	\$56,000	
30.5	Casitas Springs Levee/Floodwall	1	LS	\$36,000.00	\$36,000	
31.0	Rip Rap for Downstream Slope Protection	6,400	CY	\$30.00	\$192,000	

**FEASIBILITY STUDY OF MATILIJA DAM REMOVAL**

**FEASIBILITY ESTIMATE**

3. Incremental Dam Removal/Natural Sediment Transport  
 3a. Slurry "Reservoir Area" Fines Offsite

Prepared by: Don D. Nguyen

Date: 25-Jun-04

Item No.	Description	Estimated Quantity	UOM	Unit Cost	Estimated Cost	Notes
<b>FOSTER PARK COMPONENTS</b>						
32.0	Wells	2	EA	\$400,000.00	\$800,000	12
<b>DOWNSTREAM ARUNDO ERADICATION</b>						
33.0	Arundo Eradication					
33.1	Eradication (Reach 1-6) Med-High Density	123.00	ACR	\$28,000.00	\$3,444,000	9
33.2	Eradication (Reach 1-6) Low Density	1,059.00	ACR	\$1,500.00	\$1,588,500	9a
<b>O&amp;M COSTS</b>						
34.0	Downstream Features					
34.1	Riprap for Downstream Slope Protection (8cy/yr)	50	YR		\$800	
34.2	Robles Sediment Basin Excavation (14,000cy/yr)	5	YR		\$140,000	
34.3	Robles Canal/Fish Screen (600cy/yr)	10	YR		\$6,000	
34.4	Robles Fishway (2cy/yr)	10	YR		\$100	
34.5	Channel Sediment Removal U/S Santa Ana Bridge (500cy/yr)	50	YR		\$5,000	
34.6	Desilting Basin (16,000cy/yr)	20	YR		\$160,000	
34.7	Arundo Removal (Reach 1-9)	4	YR		\$950,000	
34.8	Arundo Removal (Reach 1-9)	46	YR		\$100,000	
Subtotal					\$67,935,212	
Contingency					25%	\$16,983,803
Planning, Survey, Engineering and Design					10.00%	\$6,793,521
Engineering During Construction					1.00%	\$679,352
Supervision and Administration					6.50%	\$4,415,789
<b>TOTAL PROJECT CONSTRUCTION COST FOR Ait 3A</b>					<b>\$96,810,000</b>	
Cultural Resources					1%	\$968,100
Monitoring					2%	\$1,936,200
Adaptive Management					3%	\$2,904,300
<b>TOTAL NER PROJECT COST FOR Ait 3A</b>					<b>\$102,618,600</b>	
Recreation					LS	\$1,000,000
<b>TOTAL PROJECT COSTS FOR Ait 3A</b>					<b>\$103,618,600</b>	

Notes:

1. Arundo will be taken to a disposal site, 6 miles away, and to be mulched
  - 1a. Smaller equipment /hand removal. Same disposal as 1.
2. Consists of 7,500 CY of dike and 45,000 CY of pilot channel
3. Each hole: 0.5 lb/ft of explosive, 1 blasting cap and 20 ft of primacore
4. Plant is approx. 28 miles away
5. Consists of misc. piping, valves, trashrack from outlet works and reinforcement and grout piping cut from concrete
6. Assumes material is ex'd using clamshell and transported via barge to disposal site near reservoir.
7. Primarily coarse material ex'd from behind dam during 2nd mobilization
- 7a. Includes surface drainage systems, dewatering pipes & riprap
8. Consists of hydroseeding & planting
9. Smaller equipment/hand removal; chipping; disposal offsite (slurry disposal/trails)
- 9a. Sparce coverage removal. Same disposal as 10.
10. Slurry disposal site: vicinity of Hwy 150 (Baldwin Road) Bridge
11. Federal land (BoR)
12. Assume need if slurry site is susceptible to erosion

FEASIBILITY STUDY OF MATILIJA DAM REMOVAL

Prepared by: Don D. Nguyen

FEASIBILITY ESTIMATE

Date: 25-Jun-04

3. Incremental Dam Removal/Natural Sediment Transport

3b. Natural Transport of "Reservoir Fines"

Item No.	Description	Estimated Quantity	UOM	Unit Cost	Estimated Cost	Notes
<b>SITE PREPARATION</b>						
1.0	Mobilization, Demobilization, and Preparatory (Phase 1)	1	LS	\$4,000,000.00	\$4,000,000	
2.0	Mobilization, Demobilization, and Preparatory (Phase 2)	1	LS	\$2,000,000.00	\$2,000,000	
3.0	Clearing & Grubbing	134.60	ACR	\$3,000.00	\$403,800	
4.0	Arundo Eradication					
4.1	Eradication (Reach 7)	118.00	ACR	\$10,000.00	\$1,180,000	1
4.2	Eradication (Reach 8 & 9)	0.40	ACR	\$28,000.00	\$11,200	1a
5.0	Diversion & Control of Water (Phase 1)	1	LS	\$300,000.00	\$300,000	2
6.0	Diversion & Control of Water (Phase 2)	1	LS	\$135,000.00	\$135,000	3
7.0	Unwatering Reservoir	550	ACR-FT	\$177.00	\$97,350	
8.0	Fish Rescue & Relocation	1	LS	\$100,000.00	\$100,000	
<b>MATILIJA RESERVOIR SEDIMENT COMPONENTS</b>						
9.0	Excavate Fine Sediments (Phase 1)					7,8
9.1	Excavation	300,000	CY	\$6.00	\$1,800,000	
9.2	Transportation	300,000	CY	\$2.00	\$600,000	
9.3	Stockpile	300,000	CY	\$3.00	\$900,000	
10.0	Excavate Fine Sediments (Phase 2)					9
10.1	Excavation	320,000	CY	\$6.00	\$1,920,000	
10.2	Transportation	320,000	CY	\$2.00	\$640,000	
10.3	Stockpile	320,000	CY	\$3.00	\$960,000	
11.0	Dust Abatement	1	LS	\$135,000.00	\$135,000	
12.0	Site Restoration	1	LS	\$1,077,500.00	\$1,077,500	10
13.0	Road Repair	2	MILE	\$50,000.00	\$100,000	
<b>DAM REMOVAL COMPONENTS</b>						
14.0	Excavation & Removal of Concrete Fish Trap	120	CY	\$200.00	\$24,000	
15.0	Excavation & Removal of Concrete Control House	70	CY	\$250.00	\$17,500	
16.0	Excavation of Concrete Dam	51,100	CY	\$30.00	\$1,533,000	
17.0	Drilling & Blasting for Dam Removal					4
17.1	Horizontal Rows	9,550	EA	\$16.00	\$152,800	
17.2	Drilling Horizontal Holes	124,400	LF	\$20.00	\$2,488,000	
17.3	Vertical Holes	7,600	EA	\$16.00	\$121,600	
17.4	Drilling Vertical Holes	122,000	LF	\$20.00	\$2,440,000	
18.0	Process Concrete for Hauling	9,638	CY	\$2.00	\$19,276	
19.0	Haul Concrete to Recycling Plant	72,285	CY	\$27.00	\$1,951,695	5
20.0	Removal & Disposal of Misc. Metal Work	46,513	LB	\$2.00	\$93,026	6
21.0	Excavate Fine Sediments (Phase 1)					7,8
<b>ROBLES DIVERSION DAM COMPONENTS</b>						
22.0	High Flow Sediment Bypass (for project life)					
22.1	Radial Gates (120' section)	1	LS	\$3,400,000.00	\$3,400,000	
22.2	Timber Crib Structure Replacement (210' section)	1	LS	\$1,300,000.00	\$1,300,000	
<b>DOWNSTREAM FLOOD MITIGATION COMPONENTS</b>						
23.0	Real Estate Acquisitions					
23.1	Purchase/Removal of Matilija Hot Springs	1	LS	\$2,000,000.00	\$2,000,000	
23.2	Purchase/Removal of Camino Cielo Structures	1	LS	\$2,815,000.00	\$2,815,000	
23.3	Meiners Oaks/Robles Area ROW	1	LS	\$2,600.00	\$2,600	
23.4	Live Oaks Levee/Floodwall ROW	1	LS	\$5,300.00	\$5,300	
23.5	Casitas Springs Levee/Floodwall ROW	1	LS	\$390,000.00	\$390,000	
23.6	Santa Ana Bridge	1	LS	\$2,500.00	\$2,500	
24.0	Structural Modifications					
24.1	Remove Existing Camino Cielo Bridge/Replace 150' Long Bridge	1	LS	\$4,400,000.00	\$4,400,000	
24.2	Santa Ana Bridge Modification (75' extension)	1	LS	\$2,800,000.00	\$2,800,000	
24.3	Meiners Oaks/Robles Levee/Floodwall	1	LS	\$134,000.00	\$134,000	
24.4	Live Oaks Levee/Floodwall	1	LS	\$56,000.00	\$56,000	
24.5	Casitas Springs Levee/Floodwall	1	LS	\$36,000.00	\$36,000	
25.0	Rip Rap for Downstream Slope Protection	6,400	CY	\$30.00	\$192,000	
27.0	Contingency Due to Risk	1	LS	\$1,144,440.00	\$1,144,440	
<b>FOSTER PARK COMPONENTS</b>						
28.0	Wells	2	EA	\$400,000.00	\$800,000	12
<b>DOWNSTREAM ARUNDO ERADICATION</b>						
29.0	Arundo Eradication					
29.1	Eradication (Reach 1-6) Med-High Density	123.00	ACR	\$28,000.00	\$3,444,000	11
29.2	Eradication (Reach 1-6) Low Density	1,059.00	ACR	\$1,500.00	\$1,588,500	11a

**FEASIBILITY STUDY OF MATILJA DAM REMOVAL**

Prepared by: Don D. Nguyen

**FEASIBILITY ESTIMATE**

Date: 25-Jun-04

3. Incremental Dam Removal/Natural Sediment Transport

3b. Natural Transport of "Reservoir Fines"

Item No.	Description	Estimated Quantity	UOM	Unit Cost	Estimated Cost	Notes
<b>RESTITUTION DUE TO LOSS OF WATER AT ROBLES</b>						
30.0	Water loss	48,000	ACR-FT	\$650.00	\$31,200,000	
<b>O&amp;M COSTS</b>						
31.0 Downstream Features						
31.1	Riprap for Downstream Slope Protection (8cy/yr)	50	YR		\$800	
31.2	Robles Sediment Basin Excavation (14,000cy/yr)	5	YR		\$140,000	
31.3	Channel Sediment Removal U/S Santa Ana Bridge (500cy/yr)	50	YR		\$5,000	
31.4	Arundo Removal (Reach 1-9)	4	YR		\$950,000	
31.5	Arundo Removal (Reach 1-9)	46	YR		\$100,000	
Subtotal					\$80,911,087	
Contingency				25%	\$20,227,772	
Planning, Survey, Engineering and Design				10.00%	\$8,091,109	
Engineering During Construction				1.00%	\$809,111	
Supervision and Administration				6.50%	\$5,259,221	
<b>TOTAL PROJECT CONSTRUCTION COST FOR AIt 3B</b>					<b>\$115,300,000</b>	
Cultural Resources				1%	\$1,153,000	
Monitoring				2%	\$2,306,000	
Adaptive Management				3%	\$3,459,000	
<b>TOTAL NER PROJECT COST FOR AIt 3B</b>					<b>\$122,218,000</b>	
Recreation				LS	\$1,000,000	
<b>TOTAL PROJECT COSTS FOR AIt 3B</b>					<b>\$123,218,000</b>	

Notes:

1. Arundo will be taken to a disposal site, 6 miles away, and to be mulched
2. Consists of 45,000 CY of pilot channel; 8,000 CY of cofferdam and 2,000 lf of 36" pipe
3. Consists of 45,000 CY of pilot channel
4. Each hole: 0.5 lb/ft of explosive, 1 blasting cap and 20 ft of primacore
5. Plant is approx. 28 miles away
6. Consists of misc. piping, valves, trashrack from outlet works and reinforcement and grout piping cut from concrete
7. Assumes material is ex'd using clamshell and transported via barge to disposal site near reservoir.
8. Assumes half as much ex as per 2b
9. Assumes material is ex'd using dragline and transported via barge to disposal site near reservoir.
10. Consists of hydroseeding & planting
11. Smaller equipment/hand removal; chipping; disposal offsite (slurry disposal/trails)
- 11a. Sparce coverage removal. Same disposal as 10.
12. Assume need if slurry site is susceptible to erosion

**FEASIBILITY STUDY OF MATILIJA DAM REMOVAL  
FEASIBILITY ESTIMATE**

Prepared by: Don D. Nguyen  
Date: 25-Jun-04

4. Full Dam Removal/Sediment Stabilization on Site  
4a. Long-Term Transport

Item No.	Description	Estimated Quantity	UOM	Unit Cost	Estimated Cost	Notes
<b>SITE PREPARATION</b>						
1.0	Mobilization, Demobilization & Prep Work around Damsite	1	LS	\$5,000,000.00	\$5,000,000	
2.0	Arundo Eradication at Matilija Dam Deposition					
2.1	Eradication (Reach 7)	118.00	ACR	\$10,000.00	\$1,180,000	1
2.2	Eradication (Reach 8 & 9)	0.40	ACR	\$28,000.00	\$11,200	1a
3.0	Clearing & Grubbing	134.60	ACR	\$3,000.00	\$403,800	
4.0	Diversion & Control of Water	1	LS	\$100,000.00	\$100,000	2
5.0	Fish Rescue & Relocation	1	LS	\$100,000.00	\$100,000	
<b>MATILIJA RESERVOIR SEDIMENT COMPONENTS</b>						
6.0	Excavate Sands & Coarse Sediments (Construct Channel)	1,300,000	CY	\$3.00	\$3,900,000	
7.0	Place & Compact Sands & Coarse Sediments	1,000,000	CY	\$2.00	\$2,000,000	
8.0	Dust Abatement	1	LS	\$340,000.00	\$340,000	
9.0	Rip Rap for Channel	111,750	CY	\$30.00	\$3,352,500	13
10.0	Site Restoration	107	ACR	\$10,000.00	\$1,070,000	8
11.0	Road Repair	2	MILE	\$50,000.00	\$100,000	
<b>SLURRY SYSTEM COMPONENTS</b>						
12.0	Import Water from Casitas					
12.1	Cost of Water	4,500	ACR-FT	\$177.00	\$796,500	
12.2	Pipeline Corridor Preparation (24ftx22,000ft)	528,000	SF	\$1.00	\$528,000	
12.3	Real Estate for ROW	0	ACR	\$17,000.00	\$0	11
12.4	Fresh Water Supply Pumps, 800 HP Each, Goulds Vertical Turbines, in Parallel	1	EA	\$106,000.00	\$106,000	
12.5	Power to Pumps from Casitas for 9 Months	3,900,000	KW-HRS	\$0.15	\$585,000	
12.6	Fresh Water Pipeline, 8 Miles Long, 24"x.357" Wall, A53 Cast Iron	42,240	LF	\$15.00	\$633,600	
12.7	Water Storage Tank, 90,000 Gal, 25ftx25ft Carbon Steel	1	EA	\$110,000.00	\$110,000	
12.8	Makeup Water Pumps, 900 HP Each, Goulds Centrifugals, in Series	3	EA	\$94,000.00	\$282,000	
12.9	Makeup Waterline, 1 Mile Long, 24"x.357" Wall, A53 Cast Iron	5,280	LF	\$25.00	\$132,000	
12.10	Power for Makeup System for 9 Months	13,053,000	KW-HRS	\$0.15	\$1,957,950	
13.0	12" Cutter Head Suction Dredge, 9 Months Continuous	2	EA	\$2,700,000.00	\$5,400,000	6
14.0	Slurry System					
14.1	Pipeline Corridor Preparation (30ftx41,470ft)	1,244,100	SF	\$1.00	\$1,244,100	
14.2	Real Estate for ROW - River Bottom	10	ACR	\$2,625.00	\$25,250	
14.3	Real Estate for ROW - Private Ownership	3	ACR	\$35,045.00	\$105,135	
14.4	Thickener, 115" Diameter, incl. Flocculant Package, 40 HP Rake Motor	1	EA	\$900,000.00	\$900,000	
14.5	Slurry Pipeline, 7.85 Miles Long, 20" SRD 11, HDPE Pipe, 16.146" ID	41,470	LF	\$24.00	\$995,280	
14.6	Slurry Pumps, 1,200 HP Each, Warman Slurry Pumps in Series	1	EA	\$75,000.00	\$75,000	
14.7	Power for Slurry System for 9 Months	1,934,000	KW-HRS	\$0.15	\$290,100	
15.0	Operation Crew: 4 Operators, 1 Technician, 24hrs x 270 days	26,000	MAN-HRS	\$50.00	\$1,300,000	
16.0	Clear disposal area	94	ACR	\$3,000.00	\$282,000	
17.0	Construct containment dikes (excavation, place & compact in disposal area)	416,000	CY	\$5.00	\$2,080,000	
18.0	Misc. detail at dikes (drainage, grading, imported stone 4600cy)	1	LS	\$700,000.00	\$700,000	7a
19.0	Real Estate for Disposal of Fines	94	ACR	\$2,500.00	\$235,000	10
20.0	Disposal Site Closure	1	LS	\$200,000.00	\$200,000	
<b>DAM REMOVAL COMPONENTS</b>						
21.0	Excavation & Removal of Concrete Fish Trap	120	CY	\$200.00	\$24,000	
22.0	Excavation & Removal of Concrete Control House	70	CY	\$250.00	\$17,500	
23.0	Excavation of Concrete Dam	51,100	CY	\$30.00	\$1,533,000	
24.0	Drilling & Blasting for Dam Removal					3
24.1	Horizontal Rows	9,550	EA	\$16.00	\$152,800	
24.2	Drilling Horizontal Holes	124,400	LF	\$20.00	\$2,488,000	
24.3	Vertical Holes	7,600	EA	\$16.00	\$121,600	
24.4	Drilling Vertical Holes	122,000	LF	\$20.00	\$2,440,000	
25.0	Process Concrete	9,638	CY	\$2.00	\$19,276	6
26.0	Haul Concrete to Recycling Plant	72,285	CY	\$27.00	\$1,951,695	4
27.0	Remove & Dispose of Misc. Steel	46,513	LB	\$2.00	\$93,026	7
<b>ROBLES DIVERSION DAM COMPONENTS</b>						
28.0	High Flow Sediment Bypass (for project life)					
28.1	Radial Gates (120' section)	1	LS	\$3,400,000.00	\$3,400,000	
28.2	Timber Crib Structure Replacement (210' section)	1	LS	\$1,300,000.00	\$1,300,000	
<b>DOWNSTREAM FLOOD MITIGATION COMPONENTS</b>						
29.0	Real Estate Acquisitions					
29.1	Purchase/Removal of Matilija Hot Springs	1	LS	\$2,000,000.00	\$2,000,000	
29.2	Purchase/Removal of Camino Cielo Structures	1	LS	\$2,815,000.00	\$2,815,000	
29.3	Meiners Oaks/Robles Area ROW	1	LS	\$2,600.00	\$2,600	
29.4	Live Oaks Levee/Floodwall ROW	1	LS	\$5,300.00	\$5,300	
29.5	Casitas Springs Levee/Floodwall ROW	1	LS	\$390,000.00	\$390,000	
29.6	Santa Ana Bridge	1	LS	\$2,500.00	\$2,500	
30.0	Structural Modifications					
30.1	Remove Existing Camino Cielo Bridge/Replace 150' Long Bridge	1	LS	\$4,400,000.00	\$4,400,000	
30.2	Santa Ana Bridge Modification (75' extension)	1	LS	\$2,800,000.00	\$2,800,000	

**FEASIBILITY STUDY OF MATILJA DAM REMOVAL  
FEASIBILITY ESTIMATE**

Prepared by: Don D. Nguyen  
Date: 25-Jun-04

4. Full Dam Removal/Sediment Stabilization on Site  
4a. Long-Term Transport

Item No.	Description	Estimated Quantity	UOM	Unit Cost	Estimated Cost	Notes
30.3	Meiners Oaks/Robles Levee/Floodwall	1	LS	\$76,000.00	\$76,000	
30.4	Live Oaks Levee/Floodwall	1	LS	\$9,600.00	\$9,600	
30.5	Casitas Springs Levee/Floodwall	1	LS	\$18,000.00	\$18,000	
31.0	Rip Rap for Downstream Slope Protection	1,750	CY	\$30.00	\$52,500	
<b>FOSTER PARK COMPONENTS</b>						
32.0	Wells	2	EA	\$400,000.00	\$800,000	12
<b>DOWNSTREAM ARUNDO ERADICATION</b>						
33.0	Arundo Eradication					
33.1	Eradication (Reach 1-6) Med-High Density	123.00	ACR	\$28,000.00	\$3,444,000	9
33.2	Eradication (Reach 1-6) Low Density	1,059.00	ACR	\$1,500.00	\$1,588,500	9a
<b>O&amp;M COSTS</b>						
34.0	Downstream Features					
34.1	Riprap for Downstream Slope Protection (2cy/yr)	50	YR		\$200	
34.2	Channel Sediment Removal U/S Santa Ana Bridge (500cy/yr)	50	YR		\$5,000	
34.3	Arundo Removal (Reach 1-9)	4	YR		\$950,000	
34.4	Arundo Removal (Reach 1-9)	46	YR		\$100,000	
Subtotal					\$68,465,312	
Contingency				25%	\$17,116,328	
Planning, Survey, Engineering and Design				10.00%	\$6,846,531	
Engineering During Construction				1.00%	\$684,653	
Supervision and Administration				6.50%	\$4,450,245	
<b>TOTAL PROJECT CONSTRUCTION COST FOR Ait 4A</b>					<b>\$97,560,000</b>	
Cultural Resources				1%	\$975,600	
Monitoring				2%	\$1,951,200	
Adaptive Management				3%	\$2,926,800	
<b>TOTAL NER PROJECT COST FOR Ait 4A</b>					<b>\$103,413,600</b>	
Recreation				LS	\$1,000,000	
<b>TOTAL PROJECT COSTS FOR Ait 4A</b>					<b>\$104,413,600</b>	

Notes:

1. Arundo will be taken to a disposal site, 6 miles away, and to be mulched
- 1a. Smaller equipment /hand removal. Same disposal as 1.
2. Consists of 8,000 CY of dike and 45,000 CY of pilot channel
3. Each hole: 0.5 lb/ft of explosive, 1 blasting cap and 20 ft of primacore
4. Plant is approx. 28 miles away
6. Concrete will be incorporated into the fill upstream of the dam
7. Consists of misc. piping, valves, trashrack from outlet works and reinforcement and grout piping cut from concrete
- 7a. Includes surface drainage systems, dewatering pipes & riprap
8. Consists of hydroseeding & planting
9. Smaller equipment/hand removal; chipping; disposal offsite (slurry disposal/trails)
- 9a. Sparse coverage removal. Same disposal as 10.
10. Slurry disposal site: vicinity of Hwy 150 (Baldwin Road) Bridge
11. Federal land (BoR)
12. Assume need if slurry site is susceptible to erosion
13. Rock will come from reservoir & from Schmidt located approx. 5 miles from the dam

**FEASIBILITY STUDY OF MATILIJA DAM REMOVAL**

Prepared by: Don D. Nguyen

**FEASIBILITY ESTIMATE**

Date: 25-Jun-04

4. Full Dam Removal/Sediment Stabilization on Site  
4b. Short-Term Transport

Item No.	Description	Estimated Quantity	UOM	Unit Cost	Estimated Cost	Notes
<b>SITE PREPARATION</b>						
1.0	Mobilization, Demobilization, and Preparatory	1	LS	\$5,000,000.00	\$5,000,000	
2.0	Cleaning & Grubbing	134.60	ACR	\$3,000.00	\$403,800	
3.0	Arundo Eradication					
3.1	Eradication (Reach 7)	118.00	ACR	\$10,000.00	\$1,180,000	1
3.2	Eradication (Reach 8 & 9)	0.40	ACR	\$28,000.00	\$11,200	1a
4.0	Diversion & Control of Water	1	LS	\$100,000.00	\$100,000	2
5.0	Fish Rescue & Relocation	1	LS	\$100,000.00	\$100,000	
<b>MATILIJA RESERVOIR SEDIMENT COMPONENTS</b>						
6.0	Disposal Site Closure	1	LS	\$200,000.00	\$200,000	
7.0	Soil Cement Wall	62,900	CY	\$30.00	\$1,887,000	
8.0	Channel Excavation	1,113,000	CY	\$3.00	\$3,339,000	
<b>SLURRY SYSTEM COMPONENTS</b>						
9.0	Import Water from Casitas					
9.1	Cost of Water	4,500	ACR-FT	\$177.00	\$796,500	
9.2	Pipeline Corridor Preparation (24ftx22,000ft)	648,000	SF	\$1.00	\$648,000	
9.3	Real Estate for ROW	0	ACR	\$17,000.00	\$0	11
9.4	Fresh Water Supply Pumps, 800 HP Each, Goulds Vertical Turbines, in Parallel	1	EA	\$106,000.00	\$106,000	
9.5	Power to Pumps from Casitas for 9 Months	3,900,000	KW-HRS	\$0.15	\$585,000	
9.6	Fresh Water Pipeline, 8 Miles Long, 24"x.357" Wall, A53 Cast Iron	42,240	LF	\$15.00	\$633,600	
9.7	Water Storage Tank, 90,000 Gal, 25ftx25ft Carbon Steel	1	EA	\$110,000.00	\$110,000	
9.8	Makeup Water Pumps, 900 HP Each, Goulds Centrifugals, in Series	3	EA	\$94,000.00	\$282,000	
9.9	Makeup Waterline, 1 Mile Long, 24"x.357" Wall, A53 Cast Iron	5,280	LF	\$25.00	\$132,000	
9.10	Power for Makeup System for 9 Months	13,053,000	KW-HRS	\$0.15	\$1,957,950	
10.0	12" Cutter Head Suction Dredge, 9 Months Continuous	2	EA	\$2,700,000.00	\$5,400,000	6
11.0	Slurry System					
11.1	Pipeline Corridor Preparation (30ftx41,470ft)	1,244,100	SF	\$1.00	\$1,244,100	
11.2	Real Estate for ROW - River Bottom	10	ACR	\$2,525.00	\$25,250	
11.3	Real Estate for ROW - Private Ownership	3	ACR	\$35,045.00	\$105,135	
11.4	Thickener, 115' Diameter, incl. Flocculant Package, 40 HP Rake Motor	1	EA	\$900,000.00	\$900,000	
11.5	Slurry Pipeline, 7.85 Miles Long, 20" SRD 11, HDPE Pipe, 16.146" ID	41,470	LF	\$24.00	\$995,280	
11.6	Slurry Pumps, 1,200 HP Each, Warman Slurry Pumps in Series	1	EA	\$75,000.00	\$75,000	
11.7	Power for Slurry System for 9 Months	1,934,000	KW-HRS	\$0.15	\$290,100	
12.0	Operation Crew: 4 Operators, 1 Technician, 24hrs x 270 days	26,000	MAN-HRS	\$50.00	\$1,300,000	
13.0	Clear disposal area	94	ACR	\$3,000.00	\$282,000	
14.0	Construct containment dikes (excavation, place & compact in disposal area)	416,000	CY	\$5.00	\$2,080,000	
15.0	Misc. detail at dikes (drainage, grading, imported stone 4600cy)	1	LS	\$700,000.00	\$700,000	7
16.0	Dust Abatement	1	LS	\$135,000.00	\$135,000	
17.0	Real Estate for Disposal of Fines	94	ACR	\$2,500.00	\$235,000	10
18.0	Site Restoration	1	LS	\$1,077,500.00	\$1,077,500	8
19.0	Road Repair	2	MILE	\$50,000.00	\$100,000	
<b>DAM REMOVAL COMPONENTS</b>						
20.0	Excavation & Removal of Concrete Fish Trap	120	CY	\$200.00	\$24,000	
21.0	Excavation & Removal of Concrete Control House	70	CY	\$250.00	\$17,500	
22.0	Excavation of Concrete Dam	51,100	CY	\$30.00	\$1,533,000	
23.0	Drilling & Blasting for Dam Removal					3
23.1	Horizontal Rows	9,550	EA	\$16.00	\$152,800	
23.2	Drilling Horizontal Holes	124,400	LF	\$20.00	\$2,488,000	
23.3	Vertical Holes	7,600	EA	\$16.00	\$121,600	
23.4	Drilling Vertical Holes	122,000	LF	\$20.00	\$2,440,000	
24.0	Process Concrete for Hauling	9,638	CY	\$2.00	\$19,276	
25.0	Haul Concrete to Recycling Plant	72,285	CY	\$27.00	\$1,951,695	4
26.0	Removal & Disposal of Misc. Metal Work	46,513	LB	\$2.00	\$93,026	5
<b>ROBLES DIVERSION DAM COMPONENTS</b>						
27.0	High Flow Sediment Bypass (for project life)					
27.1	Radial Gates (120' section)	1	LS	\$3,400,000.00	\$3,400,000	
27.2	Timber Crib Structure Replacement (210' section)	1	LS	\$1,300,000.00	\$1,300,000	
<b>DOWNSTREAM FLOOD MITIGATION COMPONENTS</b>						
28.0	Real Estate Acquisitions					
28.1	Purchase/Removal of Matilija Hot Springs	1	LS	\$2,000,000.00	\$2,000,000	
28.2	Purchase/Removal of Camino Cielo Structures	1	LS	\$2,815,000.00	\$2,815,000	
28.3	Meiners Oaks/Robles Area ROW	1	LS	\$2,600.00	\$2,600	
28.4	Live Oaks Levee/Floodwall ROW	1	LS	\$5,300.00	\$5,300	
28.5	Casitas Springs Levee/Floodwall ROW	1	LS	\$390,000.00	\$390,000	
28.6	Santa Ana Bridge	1	LS	\$2,500.00	\$2,500	
29.0	Structural Modifications					
29.1	Remove Existing Camino Cielo Bridge/Replace 150' Long Bridge	1	LS	\$4,400,000.00	\$4,400,000	
29.2	Santa Ana Bridge Modification (75' extension)	1	LS	\$2,800,000.00	\$2,800,000	
29.3	Meiners Oaks/Robles Levee/Floodwall	1	LS	\$134,000.00	\$134,000	
29.4	Live Oaks Levee/Floodwall	1	LS	\$56,000.00	\$56,000	
29.5	Casitas Springs Levee/Floodwall	1	LS	\$36,000.00	\$36,000	
30.0	Rip Rap for Downstream Slope Protection	6,400	CY	\$30.00	\$192,000	
<b>FOSTER PARK COMPONENTS</b>						
31.0	Wells	2	EA	\$400,000.00	\$800,000	12
<b>DOWNSTREAM ARUNDO ERADICATION</b>						

**FEASIBILITY STUDY OF MATILJA DAM REMOVAL**

Prepared by: Don D. Nguyen

**FEASIBILITY ESTIMATE**

Date: 25-Jun-04

4. Full Dam Removal/Sediment Stabilization on Site  
4b. Short-Term Transport

Item No.	Description	Estimated Quantity	UOM	Unit Cost	Estimated Cost	Notes
32.0	Arundo Eradication					
32.1	Eradication (Reach 1-6) Med-High Density	123.00	ACR	\$28,000.00	\$3,444,000	9
32.2	Eradication (Reach 1-6) Low Density	1,059.00	ACR	\$1,500.00	\$1,588,500	9a
<b>O&amp;M COSTS</b>						
33.0	Matilja Reservoir					
33.1	Grading Behind SC Revetment (2,000cy/yr)	10	YR			13 \$10,000
34.0	Downstream Features					
34.1	Riprap for Downstream Slope Protection (8cy/yr)	50	YR			\$800
34.2	Robles Sediment Basin Excavation (14,000cy/yr)	5	YR			\$140,000
34.3	Robles Canal/Fish Screen (600cy/yr)	10	YR			\$6,000
34.4	Robles Fishway (2cy/yr)	10	YR			\$100
34.5	Channel Sediment Removal U/S Santa Ana Bridge (500cy/yr)	50	YR			\$5,000
34.6	Arundo Removal (Reach 1-9)	4	YR			\$950,000
34.7	Arundo Removal (Reach 1-9)	46	YR			\$100,000
Subtotal					\$64,623,212	
Contingency					25%	\$16,155,803
Planning, Survey, Engineering and Design					10.00%	\$6,462,321
Engineering During Construction					1.00%	\$646,232
Supervision and Administration					6.50%	\$4,200,509
<b>TOTAL PROJECT CONSTRUCTION COST FOR Ait 4B</b>						<b>\$92,090,000</b>
Cultural Resources					1%	\$920,900
Monitoring					2%	\$1,841,800
Adaptive Management					3%	\$2,762,700
<b>TOTAL NER PROJECT COSTS FOR Ait 4B</b>						<b>\$97,615,400</b>
Desilting Basin (Betterment)					LS	\$5,700,000
Recreation					LS	\$1,000,000
<b>TOTAL PROJECT COSTS FOR Ait 4B</b>						<b>\$104,315,400</b>

Notes:

- Arundo will be taken to a disposal site, 6 miles away, and to be mulched
- Smaller equipment /hand removal. Same disposal as 1.
- Dike consists of 7,500 CY
- Each hole: 0.5 lb/ft of explosive, 1 blasting cap and 20 ft of primacore
- Plant is approx. 28 miles away
- Consists of misc. piping, valves, trashrack from outlet works and reinforcement and grout piping cut from concrete
- Assume \$300,000/mon/ea
- Includes surface drainage systems, dewatering pipes & riprap
- Consists of hydroseeding & planting
- Smaller equipment/hand removal; chipping; disposal offsite (slurry disposal/trails)
- Sparse coverage removal. Same disposal as 10.
- Slurry disposal site: vicinity of Hwy 150 (Baldwin Road) Bridge
- Federal land (BoR)
- Assume need if slurry site is susceptible to erosion
- Costs are incurred from years 11-20 after adaptive management phase



UPDATED COST ESTIMATE FOR  
RECOMMENDED PLAN

**FEASIBILITY STUDY OF MATILJA DAM REMOVAL**

Prepared by: Don D. Nguyen

**FEASIBILITY ESTIMATE**

Date: 10-Sep-04

4. Full Dam Removal/Sediment Stabilization on Site

4b. Short-Term Transport

Item No.	Description	Estimated Quantity	UOM	Unit Cost	Estimated Cost	Notes
<b>REAL ESTATE</b>						
1.0	LERRDS					
1.1	Non-Federal Sponsor Owned Land, Easements & ROW	1	LS	\$872,500	\$872,500	
1.2	Land, Easements & ROW to be Acquired by Non-Fed Sponsor					
1.2.1	Fee	1	LS	\$5,570,000	\$5,570,000	
1.2.2	Permanent Easement (including Arundo removal)	1	LS	\$80,500	\$80,500	
1.2.3	Temporary Easement	1	LS	\$150	\$150	
1.3	PL 91-646 Relocation Assistance	1	LS	\$750,000	\$750,000	
1.4	Facility/Utility Relocation	1	LS	\$4,570,000	\$4,570,000	
1.5	Non-Federal Sponsor Admin Cost	1	LS	\$500,000	\$500,000	
1.6	Remove Existing Camino Cielo Bridge/Replace 150' Long Bridge	1	LS	\$5,100,000.00	\$5,100,000	
1.7	Santa Ana Bridge Modification (75' extension)	1	LS	\$2,800,000.00	\$2,800,000	
2.0	Federal Admin Cost	1	LS	\$35,000	\$35,000	
<b>SITE PREPARATION</b>						
3.0	Mobilization, Demobilization, and Preparatory	1	LS	\$5,000,000.00	\$5,000,000	
4.0	Clearing & Grubbing	134.60	ACR	\$3,800.00	\$511,480	
5.0	Arundo Eradication					
5.1	Eradication (Reach 7)	118.00	ACR	\$10,000.00	\$1,180,000	1
5.2	Eradication (Reach 8 & 9)	0.40	ACR	\$28,000.00	\$11,200	1a
6.0	Diversion & Control of Water	1	LS	\$100,000.00	\$100,000	2
7.0	Fish Rescue & Relocation	1	LS	\$100,000.00	\$100,000	
<b>MATILJA RESERVOIR SEDIMENT COMPONENTS</b>						
8.0	Diposal Site Closure	1	LS	\$200,000.00	\$200,000	
9.0	Soil Cement Wall	62,900	CY	\$30.00	\$1,887,000	
10.0	Channel Excavation	1,113,000	CY	\$3.00	\$3,339,000	
<b>SLURRY SYSTEM COMPONENTS</b>						
11.0	Import Water from Casitas					
11.1	Cost of Water	4,500	ACR-FT	\$171.00	\$769,500	
11.2	Pipeline Corridor Preparation (24ftx22,000ft)	648,000	SF	\$1.00	\$648,000	
11.3	Fresh Water Supply Pumps, 800 HP Each, Goulds Vertical Turbines, in Parallel	1	EA	\$125,000.00	\$125,000	
11.4	Power to Pumps from Casitas for 9 Months	3,900,000	KW-HRS	\$0.15	\$585,000	
11.5	Fresh Water Pipeline, 8 Miles Long, 24"x.357" Wall, A53 Cast Iron	42,240	LF	\$15.00	\$633,600	
11.6	Water Storage Tank, 90,000 Gal, 25ftx25ft Carbon Steel	1	EA	\$130,000.00	\$130,000	
11.7	Makeup Water Pumps, 900 HP Each, Goulds Centrifugals, in Series	3	EA	\$112,000.00	\$336,000	
11.8	Makeup Waterline, 1 Mile Long, 24"x.357" Wall, A53 Cast Iron	5,280	LF	\$26.00	\$137,280	
11.9	Power for Makeup System for 9 Months	13,053,000	KW-HRS	\$0.15	\$1,957,950	
12.0	12" Cutter Head Suction Dredge, 9 Months Continuous	2	EA	\$3,150,000.00	\$6,300,000	6
13.0	Slurry System					
13.1	Pipeline Corridor Preparation (30ftx41,470ft)	1,244,100	SF	\$1.00	\$1,244,100	
13.2	Thickener, 115' Diameter, incl. Flocculant Package, 40 HP Rake Motor	1	EA	\$1,100,000.00	\$1,100,000	
13.3	Slurry Pipeline, 7.85 Miles Long, 20" SRD 11, HDPE Pipe, 16.146" ID	41,470	LF	\$23.00	\$953,810	
13.4	Slurry Pumps, 1,200 HP Each, Warman Slurry Pumps in Series	1	EA	\$88,000.00	\$88,000	
13.5	Power for Slurry System for 9 Months	1,934,000	KW-HRS	\$0.15	\$290,100	
14.0	Operation Crew: 4 Operators, 1 Technician, 24hrs x 270 days	26,000	MAN-HRS	\$54.00	\$1,404,000	
15.0	Clear disposal area	97	ACR	\$4,300.00	\$417,100	
16.0	Construct containment dikes (excavation, place & compact in disposal area)	416,000	CY	\$5.00	\$2,080,000	
17.0	Misc. detail at dikes (drainage, grading, imported stone 4600cy)	1	LS	\$671,000.00	\$671,000	7
18.0	Dust Abatement	1	LS	\$135,000.00	\$135,000	
19.0	Site Restoration	1	LS	\$1,037,500.00	\$1,037,500	8
20.0	Road Repair	2	MILE	\$61,300.00	\$122,600	
<b>DAM REMOVAL COMPONENTS</b>						
21.0	Excavation & Removal of Concrete Fish Trap	120	CY	\$245.00	\$29,400	
22.0	Excavation & Removal of Concrete Control House	70	CY	\$300.00	\$21,000	
23.0	Excavation of Concrete Dam	51,100	CY	\$36.00	\$1,839,600	
24.0	Drilling & Blasting for Dam Remova					3
24.1	Blasting Horizontal Rows	9,550	EA	\$18.00	\$171,900	
24.2	Drilling Horizontal Holes	124,400	LF	\$28.00	\$3,483,200	
24.3	Blasting Vertical Holes	7,600	EA	\$19.00	\$144,400	
24.4	Drilling Vertical Holes	122,000	LF	\$23.00	\$2,806,000	
25.0	Process Concrete for Hauling	9,638	CY	\$2.00	\$19,276	
26.0	Haul Concrete to Recycling Plant	72,285	CY	\$25.00	\$1,807,125	4
27.0	Removal & Disposal of Misc. Metal Work	46,513	LB	\$2.50	\$116,283	5
<b>ROBLES DIVERSION DAM COMPONENTS</b>						
28.0	High Flow Sediment Bypass (for project life)					
28.1	Radial Gates (120' section)	1	LS	\$3,300,000.00	\$3,300,000	
28.2	Timber Crib Structure Replacement (210' section)	1	LS	\$1,350,000.00	\$1,350,000	
<b>DOWNSTREAM FLOOD MITIGATION COMPONENTS</b>						
29.0	Levees/Floodwalls					
1.8	Meiners Oaks/Robles Levee/Floodwall	1	LS	\$1,100,000.00	\$1,100,000	
1.9	Live Oaks Levee/Floodwall	1	LS	\$1,300,000.00	\$1,300,000	
2.0	Casitas Springs Levee/Floodwall	1	LS	\$413,000.00	\$413,000	
<b>FOSTER PARK COMPONENTS</b>						
30.0	Wells	2	EA	\$400,000.00	\$800,000	12
<b>DOWNSTREAM ARUNDO ERADICATION</b>						

**FEASIBILITY STUDY OF MATILJA DAM REMOVAL  
FEASIBILITY ESTIMATE**

Prepared by: Don D. Nguyen  
Date: 10-Sep-04

4. Full Dam Removal/Sediment Stabilization on Site  
4b. Short-Term Transport

Item No.	Description	Estimated Quantity	UOM	Unit Cost	Estimated Cost	Notes
31.0	Arundo Control					
31.1	Control (Reach 1-6) Med-High Density	123.00	ACR	\$28,000.00	\$3,444,000	9
31.2	Control (Reach 1-6) Low Density	1,059.00	ACR	\$1,500.00	\$1,588,500	9a
	Subtotal				\$77,506,054	
	Contingency			25%	\$19,376,513	
	Planning, Survey, Engineering and Design			10.00%	\$7,750,605	
	Engineering During Construction			1.00%	\$775,061	
	Supervision and Administration			6.50%	\$5,037,893	
	<b>TOTAL PROJECT CONST. COST FOR RECOMMENDED PLAN</b>				<b>\$110,450,000</b>	
	Cultural Resources			1%	\$1,104,500	
	Monitoring			2%	\$2,209,000	
	Adaptive Management			3%	\$3,313,500	
	<b>TOTAL NER PROJECT COSTS FOR RECOMMENDED PLAN</b>				<b>\$117,077,000</b>	
	Desilting Basin (Associated Feature)			LS	\$5,700,000	
	Recreation			LS	\$1,000,000	
	<b>TOTAL PROJECT COSTS FOR RECOMMENDED PLAN</b>				<b>\$123,777,000</b>	

Notes:

1. Arundo will be taken to a diposal site, 6 miles away, and to be mulched
- 1a. Smaller equipment /hand removal. Same disposal as 1
2. Dike consists of 7,500 CY
3. Each hole: 0.5 lb/ft of explosive, 1 blasting cap and 20 ft of primacore
4. Plant is approx. 28 miles away
5. Consists of misc. piping, valves, trashrack from outlet works and reinforcement and grout piping cut from concrete
6. Assume \$300,000/mon/ea
7. Includes surface drainage systems, dewatering pipes & riprap
8. Consists of hydroseeding & planting
9. Smaller equipment/hand removal; chipping; disposal offsite (slurry disposal/trails)
- 9a. Sparce coverage removal. Same disposal as 10.
12. Assume need if slurry site is susceptible to erosior
13. Costs are incurred from years 11-20 after adaptive management phase

MCACES COST ESTIMATE FOR THE  
RECOMMENDED PLAN

Tue 14 Sep 2004  
Eff. Date 09/14/04

Tri-Service Automated Cost Engineering System (TRACES)  
PROJECT MATXXX: Matijila Dam Removal Feasibility - Ventura County, California  
FEASIBILITY ESTIMATE  
\*\* PROJECT OWNER SUMMARY - Scope \*\*

TIME 10:22:24  
SUMMARY PAGE 1

	QUANTITY	UOM	CONTRACT	CONTINGN	PED	EDC	S&A	TOTAL COST	UNIT COST
01 Real Estate			12,378,150	3,094,538	1,237,815	123,782	804,580	17,638,864	
09 Construction			64,804,495	16201124	6,480,450	648,045	4,212,292	92,346,406	
TOTAL Matijila Dam Removal Feasibility	1.00	EA	77,182,645	19295661	7,718,265	771,826	5,016,872	109,985,270	109985270

	QUANTITY	UOM	CONTRACT	CONTINGN	PED	EDC	S&A	TOTAL COST	UNIT COST
01 Real Estate									
01.01 LERRD									
01.01.001			872,500	218,125	87,250	8,725	56,713	1,243,313	
			-----	-----	-----	-----	-----	-----	
			872,500	218,125	87,250	8,725	56,713	1,243,313	
01.01.002 Land, Easement & ROW Acqr'd by									
01.01.002.001			5,570,000	1,392,500	557,000	55,700	362,050	7,937,250	
01.01.002.002			80,500	20,125	8,050	805	5,233	114,713	
01.01.002.003			150	38	15	2	10	214	
			-----	-----	-----	-----	-----	-----	
			5,650,650	1,412,663	565,065	56,507	367,292	8,052,176	
01.01.003			750,000	187,500	75,000	7,500	48,750	1,068,750	
01.01.004			4,570,000	1,142,500	457,000	45,700	297,050	6,512,250	
01.01.005			500,000	125,000	50,000	5,000	32,500	712,500	
			-----	-----	-----	-----	-----	-----	
			12,343,150	3,085,788	1,234,315	123,432	802,305	17,588,989	
01.02			35,000	8,750	3,500	350	2,275	49,875	
			-----	-----	-----	-----	-----	-----	
			12,378,150	3,094,538	1,237,815	123,782	804,580	17,638,864	
09 Construction									
09.01 Site Preparation									
09.01.001			4,881,965	1,220,491	488,197	48,820	317,328	6,956,801	
09.01.002	134.60	ACR	516,087	129,022	51,609	5,161	33,546	735,425	5463.78
09.01.003 Arundo Eradication									
09.01.003.001 Eradication (Reach 7)									
09.01.003.001.001	118.00	ACR	407,681	101,920	40,768	4,077	26,499	580,945	4923.27
09.01.003.001.002	95230.00	CY	511,658	127,915	51,166	5,117	33,258	729,113	7.66
09.01.003.001.003	95230.00	CY	254,766	63,692	25,477	2,548	16,560	363,042	3.81
			-----	-----	-----	-----	-----	-----	
			1,174,106	293,526	117,411	11,741	76,317	1,673,100	14178.82
09.01.003.002 Eradication (Reach 8 & 9)									
09.01.003.002.001	0.40	ACR	8,333	2,083	833	83	542	11,874	29684.78
09.01.003.002.002	325.00	CY	1,746	437	175	17	114	2,488	7.66

Tri-Service Automated Cost Engineering System (TRACES)  
 PROJECT MATXXX: Matijila Dam Removal Feasibility - Ventura County, California  
 FEASIBILITY ESTIMATE  
 \*\* PROJECT OWNER SUMMARY - Assm Cat \*\*

		QUANTITY	UOM	CONTRACT	CONTINGN	PED	EDC	S&A	TOTAL COST	UNIT COST
09.01.003.002.003	Mulching & Stockpiling	325.00	CY	869	217	87	9	57	1,239	3.81
	TOTAL Eradication (Reach 8 & 9)	0.40	ACR	10,948	2,737	1,095	109	712	15,601	39003.03
	TOTAL Arundo Eradication			1,185,054	296,263	118,505	11,851	77,028	1,688,702	
09.01.004	Diversion & Control of Water			97,639	24,410	9,764	976	6,347	139,136	
09.01.005	Fish Rescue & Relocation			97,639	24,410	9,764	976	6,347	139,136	
	TOTAL Site Preparation			6,778,385	1,694,596	677,839	67,784	440,595	9,659,199	
09.02	Matilija Reservoir Sediment Comp									
09.02.001	Disposal Site Closure			195,279	48,820	19,528	1,953	12,693	278,272	
09.02.002	Soil Cement Wall	62900.00	CY	1,860,080	465,020	186,008	18,601	120,905	2,650,614	42.14
09.02.003	Channel Excavation	1113000	CY	3,336,247	834,062	333,625	33,362	216,856	4,754,152	4.27
	TOTAL Matilija Reservoir Sediment Comp			5,391,606	1,347,901	539,161	53,916	350,454	7,683,038	
09.03	Slurry System Components									
09.03.001	Import Water from Casitas									
09.03.001.001	Cost of water	4500.00	A-F	768,910	192,227	76,891	7,689	49,979	1,095,696	243.49
09.03.001.002	Pipeline corridor preparation	648000.00	SF	630,805	157,701	63,080	6,308	41,002	898,897	1.39
09.03.001.003	Fresh water supply pump, 800HP	1.00	EA	125,000	31,250	12,500	1,250	8,125	178,125	178124.85
09.03.001.004	Power to pump from Casitas	3900000	K-H	571,190	142,797	57,119	5,712	37,127	813,946	0.21
09.03.001.005	Fresh water pipeline	42240.00	LF	615,451	153,863	61,545	6,155	40,004	877,018	20.76
09.03.001.006	Water storage tank, 90000 gal	1.00	EA	129,737	32,434	12,974	1,297	8,433	184,875	184874.79
09.03.001.007	Make-up water pump, 900HP	3.00	EA	334,816	83,704	33,482	3,348	21,763	477,113	159037.67
09.03.001.008	Make-up waterline 1-mi long	5280.00	LF	135,197	33,799	13,520	1,352	8,788	192,655	36.49
09.03.001.009	Power for make-up system	13053000	K-H	1,911,729	477,932	191,173	19,117	124,262	2,724,214	0.21
	TOTAL Import Water from Casitas			5,222,834	1,305,708	522,283	52,228	339,484	7,442,538	
09.03.002	12" Cutter Head Suction Dredge	2.00	EA	6,302,072	1,575,518	630,207	63,021	409,635	8,980,453	4490227
09.03.003	Slurry System									
09.03.003.001	Pipeline corridor preparation	1244100	SF	1,211,086	302,772	121,109	12,111	78,721	1,725,798	1.39
09.03.003.002	Thickener, 115' dia.	1.00	EA	1,060,205	265,051	106,021	10,602	68,913	1,510,793	1510793
09.03.003.003	Slurry Pipeline, 20" SRD11	41470.00	LF	957,759	239,440	95,776	9,578	62,254	1,364,807	32.91
09.03.003.004	Slurry Pump, 1200HP	1.00	EA	88,441	22,110	8,844	884	5,749	126,028	126028.08
09.03.003.005	Power for Slurry System	1934000	K-H	283,252	70,813	28,325	2,833	18,411	403,634	0.21
	TOTAL Slurry System			3,600,744	900,186	360,074	36,007	234,048	5,131,060	
09.03.004	Operation Crew	26000.00	HR	1,403,163	350,791	140,316	14,032	91,206	1,999,508	76.90
09.03.005	Clear Disposal Area	94.00	ACR	406,971	101,743	40,697	4,070	26,453	579,933	6169.50

Tri-Service Automated Cost Engineering System (TRACES)  
 PROJECT MATXXX: Matijila Dam Removal Feasibility - Ventura County, California  
 FEASIBILITY ESTIMATE  
 \*\* PROJECT OWNER SUMMARY - Assm Cat \*\*

		QUANTITY	UOM	CONTRACT	CONTINGN	PED	EDC	S&A	TOTAL COST	UNIT COST
09.03.006	Construct Containment Dikes	416000.00	CY	2,119,235	529,809	211,924	21,192	137,750	3,019,910	7.26
09.03.007	Misc Detail at Dike			671,270	167,818	67,127	6,713	43,633	956,560	
09.03.008	Dust Abatement			134,254	33,564	13,425	1,343	8,727	191,312	
09.03.009	Site Restoration			1,037,418	259,354	103,742	10,374	67,432	1,478,320	
09.03.010	Road Repair	2.00	MI	123,007	30,752	12,301	1,230	7,995	175,285	87642.61
TOTAL Slurry System Components				21,020,968	5,255,242	2,102,097	210,210	1,366,363	29,954,879	
09.04 Dam Removal Components										
09.04.001	Removal of Concrete Fish Trap	120.00	CY	29,430	7,358	2,943	294	1,913	41,938	349.49
09.04.002	Removal of Concrete Contr House	70.00	CY	21,174	5,293	2,117	212	1,376	30,172	431.03
09.04.003	Removal of Concrete Dam	51100.00	CY	1,854,806	463,701	185,481	18,548	120,562	2,643,098	51.72
09.04.004 Drilling & Blasting for Dam Rem										
09.04.004.001	Drilling Horizontal Holes	124400.00	LF	3,517,542	879,385	351,754	35,175	228,640	5,012,497	40.29
09.04.004.002	Blasting Horizontal Holes	9550.00	EA	173,422	43,356	17,342	1,734	11,272	247,127	25.88
09.04.004.003	Drilling Vertical Holes	122000.00	LF	2,805,201	701,300	280,520	28,052	182,338	3,997,411	32.77
09.04.004.004	Blasting Vertical Holes	7600.00	EA	141,673	35,418	14,167	1,417	9,209	201,884	26.56
TOTAL Drilling & Blasting for Dam Rem				6,637,838	1,659,459	663,784	66,378	431,459	9,458,919	
09.04.005	Process Concrete for Hauling	9638.00	TON	18,604	4,651	1,860	186	1,209	26,511	2.75
09.04.006	Haul Concrete to Recycling Plant	72285.00	TON	1,797,103	449,276	179,710	17,971	116,812	2,560,872	35.43
09.04.007	Rem & Disp of Misc Metal Work	46513.00	LB	108,446	27,111	10,845	1,084	7,049	154,535	3.32
TOTAL Dam Removal Components				10,467,401	2,616,850	1,046,740	104,674	680,381	14,916,046	
09.05 Robles Diversion Dam Components										
09.05.001 High Flow Sediment Bypass										
09.05.001.001	Radial Gate (120' section)			3,295,327	823,832	329,533	32,953	214,196	4,695,840	
09.05.001.002	Timber Crib Struct Replacement			1,342,540	335,635	134,254	13,425	87,265	1,913,120	
TOTAL High Flow Sediment Bypass				4,637,867	1,159,467	463,787	46,379	301,461	6,608,961	
TOTAL Robles Diversion Dam Components				4,637,867	1,159,467	463,787	46,379	301,461	6,608,961	
09.06 Downstream Flood Mitigation										
09.06.001 Structural Modifications										
09.06.001.001	Removal of Camino Cielo Bridge			5,128,160	1,282,040	512,816	51,282	333,330	7,307,627	
09.06.001.002	Sanata Ana Bridge Modification			2,746,106	686,526	274,611	27,461	178,497	3,913,200	
09.06.001.003	Meiners Oaks Levee/Floodwall									



		QUANTITY	UOM	CONTRACT	CONTINGN	PED	EDC	S&A	TOTAL COST	UNIT COST
09.06.001.003.001	Clear Site & Remove Obstruction	7.00	ACR	25,732	6,433	2,573	257	1,673	36,668	5238.26
09.06.001.003.002	6" Stripping	1333.00	CY	4,171	1,043	417	42	271	5,944	4.46
09.06.001.003.003	Excavation & Compacted Backfill	19759.00	CY	220,731	55,183	22,073	2,207	14,348	314,542	15.92
09.06.001.003.004	Compacted Fill Levee	9589.00	CY	72,940	18,235	7,294	729	4,741	103,939	10.84
09.06.001.003.005	Rip Rap, 30" Thick	5566.00	TON	221,413	55,353	22,141	2,214	14,392	315,514	56.69
09.06.001.003.006	Gravel Blankket, 6" Thick	1105.00	TON	36,622	9,156	3,662	366	2,380	52,187	47.23
09.06.001.003.007	Geotextile Fabrics	4174.00	SY	7,019	1,755	702	70	456	10,002	2.40
09.06.001.003.008	Concrete Floodwall	1996.00	TON	242,920	60,730	24,292	2,429	15,790	346,162	173.43
09.06.001.003.009	Rebar, Floodwall	120.00	TON	244,362	61,090	24,436	2,444	15,884	348,216	2901.80
09.06.001.003.010	6" ABC for O&M Roads	2083.00	TON	45,015	11,254	4,502	450	2,926	64,147	30.80
TOTAL Meiners Oaks Levee/Floodwall				1,120,926	280,231	112,093	11,209	72,860	1,597,319	
09.06.001.004 Live Oaks Levee/Floodwall										
09.06.001.004.001	Clear Site & Remove Obstruction	2.00	ACR	7,352	1,838	735	74	478	10,477	5238.26
09.06.001.004.002	6" Stripping	1175.00	CY	3,677	919	368	37	239	5,239	4.46
09.06.001.004.003	Excavation & Compacted Backfill	8418.00	CY	94,039	23,510	9,404	940	6,113	134,005	15.92
09.06.001.004.004	Compacted Fill Levee	22293.00	CY	294,273	73,568	29,427	2,943	19,128	419,338	18.81
09.06.001.004.005	Rip Rap, 30" Thick	7554.00	TON	309,032	77,258	30,903	3,090	20,087	440,370	58.30
09.06.001.004.006	Gravel Blankket, 6" Thick	1500.00	TON	49,713	12,428	4,971	497	3,231	70,841	47.23
09.06.001.004.007	Geotextile Fabrics	5658.00	SY	9,514	2,379	951	95	618	13,558	2.40
09.06.001.004.008	Concrete Floodwall	1852.00	TON	238,932	59,733	23,893	2,389	15,531	340,477	183.84
09.06.001.004.009	Rebar, Floodwall	111.00	TON	226,035	56,509	22,603	2,260	14,692	322,099	2901.80
09.06.001.004.010	6" ABC for O&M Roads	1688.00	TON	36,479	9,120	3,648	365	2,371	51,983	30.80
TOTAL Live Oaks Levee/Floodwall				1,269,045	317,261	126,904	12,690	82,488	1,808,389	
09.06.001.005 Casistas Springs Levee										
09.06.001.005.001	Clear Site & Remove Obstruction	1.00	ACR	3,676	919	368	37	239	5,238	5238.26
09.06.001.005.002	6" Stripping	1855.00	CY	5,805	1,451	580	58	377	8,271	4.46
09.06.001.005.004	Compacted Fill Levee	12013.00	CY	192,175	48,044	19,217	1,922	12,491	273,849	22.80
09.06.001.005.005	Rip Rap, 30" Thick	3292.00	TON	140,521	35,130	14,052	1,405	9,134	200,242	60.83
09.06.001.005.006	Gravel Blankket, 6" Thick	1046.00	TON	34,661	8,665	3,466	347	2,253	49,392	47.22
09.06.001.005.010	6" ABC for O&M Roads	1688.00	TON	36,479	9,120	3,648	365	2,371	51,983	30.80
TOTAL Casistas Springs Levee				413,316	103,329	41,332	4,133	26,866	588,976	
TOTAL Structural Modifications				10,677,552	2,669,388	1,067,755	106,776	694,041	15,215,511	
TOTAL Downstream Flood Mitigation				10,677,552	2,669,388	1,067,755	106,776	694,041	15,215,511	
09.07 Foster Park Components										
09.07.001	Wells	2.00	EA	793,319	198,330	79,332	7,933	51,566	1,130,480	565240.06
TOTAL Foster Park Components				793,319	198,330	79,332	7,933	51,566	1,130,480	

Tue 14 Sep 2004  
 Eff. Date 09/14/04

Tri-Service Automated Cost Engineering System (TRACES)  
 PROJECT MATXXX: Matijila Dam Removal Feasibility - Ventura County, California  
 FEASIBILITY ESTIMATE  
 \*\* PROJECT OWNER SUMMARY - Assm Cat \*\*

TIME 10:22:24  
 SUMMARY PAGE 6

		QUANTITY	UOM	CONTRACT	CONTINGN	PED	EDC	S&A	TOTAL COST	UNIT COST
-----										
09.08 Downstream Arundo Eradication										
09.08.001 Eradication (Reach 1-6)										
09.08.001.001	Removal	123.00	ACR	2,562,265	640,566	256,227	25,623	166,547	3,651,228	29684.78
09.08.001.002	Hauling	99260.00	CY	533,311	133,328	53,331	5,333	34,665	759,968	7.66
09.08.001.003	Mulching & Stockpiling	99260.00	CY	265,548	66,387	26,555	2,655	17,261	378,405	3.81
TOTAL Eradication (Reach 1-6)		123.00	ACR	3,361,124	840,281	336,112	33,611	218,473	4,789,602	38939.85
-----										
09.08.002 Eradication (Reach 1-6)										
09.08.002.001	Removal	1059.00	ACR	534,242	133,561	53,424	5,342	34,726	761,295	718.88
09.08.002.002	Hauling	141900.00	CY	762,410	190,603	76,241	7,624	49,557	1,086,435	7.66
09.08.002.003	Mulching & Stockpiling	141900.00	CY	379,621	94,905	37,962	3,796	24,675	540,960	3.81
TOTAL Eradication (Reach 1-6)		1059.00	ACR	1,676,274	419,068	167,627	16,763	108,958	2,388,690	2255.61
TOTAL Downstream Arundo Eradication				5,037,398	1,259,349	503,740	50,374	327,431	7,178,292	
TOTAL Construction				64,804,495	16201124	6,480,450	648,045	4,212,292	92,346,406	
TOTAL Matijila Dam Removal Feasibility		1.00	EA	77,182,645	19295661	7,718,265	771,826	5,016,872	109,985,270	109985270
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	QUANTITY	UOM	CONTRACT	CONTINGN	PED	EDC	S&A	TOTAL COST	UNIT COST
-----									
01 Real Estate									
01.01 LERRD									
01.01.001 Non-Fed Land, Easement & ROW			872,500	218,125	87,250	8,725	56,713	1,243,313	
TOTAL Non-Fed Land, Easement & ROW			872,500	218,125	87,250	8,725	56,713	1,243,313	
01.01.002 Land, Easement & ROW Acqr'd by									
01.01.002.001 Fee (163.01 acres)			5,570,000	1,392,500	557,000	55,700	362,050	7,937,250	
01.01.002.002 Perm Easement (incl Arundo Rem)			80,500	20,125	8,050	805	5,233	114,713	
01.01.002.003 Temp Easement (0.06 acres)			150	38	15	2	10	214	
TOTAL Land, Easement & ROW Acqr'd by			5,650,650	1,412,663	565,065	56,507	367,292	8,052,176	
01.01.003 PL 91-646 Relocation Assist. #			750,000	187,500	75,000	7,500	48,750	1,068,750	
01.01.004 Facility/Utility Relocation			4,570,000	1,142,500	457,000	45,700	297,050	6,512,250	
01.01.005 Non_Fed Sponsor Admin Acq Cost			500,000	125,000	50,000	5,000	32,500	712,500	
TOTAL LERRD			12,343,150	3,085,788	1,234,315	123,432	802,305	17,588,989	
01.02 Federal Admin Cost			35,000	8,750	3,500	350	2,275	49,875	
TOTAL Real Estate			12,378,150	3,094,538	1,237,815	123,782	804,580	17,638,864	
-----									
09 Construction									
09.01 Site Preparation									
09.01.001 Mobilization & Demobilization			4,881,965	1,220,491	488,197	48,820	317,328	6,956,801	
09.01.002 Clearing & Grubbing	134.60	ACR	516,087	129,022	51,609	5,161	33,546	735,425	5463.78
09.01.003 Arundo Eradication									
09.01.003.001 Eradication (Reach 7)									
09.01.003.001.001 Removal	118.00	ACR	407,681	101,920	40,768	4,077	26,499	580,945	4923.27
09.01.003.001.002 Hauling	95230.00	CY	511,658	127,915	51,166	5,117	33,258	729,113	7.66
09.01.003.001.003 Mulching & Stockpiling	95230.00	CY	254,766	63,692	25,477	2,548	16,560	363,042	3.81
TOTAL Eradication (Reach 7)	118.00	ACR	1,174,106	293,526	117,411	11,741	76,317	1,673,100	14178.82
09.01.003.002 Eradication (Reach 8 & 9)									
09.01.003.002.001 Removal	0.40	ACR	8,333	2,083	833	83	542	11,874	29684.78
09.01.003.002.002 Hauling	325.00	CY	1,746	437	175	17	114	2,488	7.66

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		QUANTITY	UOM	CONTRACT	CONTINGN	PED	EDC	S&A	TOTAL COST	UNIT COST
09.01.003.002.003	Mulching & Stockpiling	325.00	CY	869	217	87	9	57	1,239	3.81
	TOTAL Eradication (Reach 8 & 9)	0.40	ACR	10,948	2,737	1,095	109	712	15,601	39003.03
	TOTAL Arundo Eradication			1,185,054	296,263	118,505	11,851	77,028	1,688,702	
09.01.004	Diversion & Control of Water			97,639	24,410	9,764	976	6,347	139,136	
09.01.005	Fish Rescue & Relocation			97,639	24,410	9,764	976	6,347	139,136	
	TOTAL Site Preparation			6,778,385	1,694,596	677,839	67,784	440,595	9,659,199	
09.02 Matilija Reservoir Sediment Comp										
09.02.001	Disposal Site Closure			195,279	48,820	19,528	1,953	12,693	278,272	
09.02.002	Soil Cement Wall	62900.00	CY	1,860,080	465,020	186,008	18,601	120,905	2,650,614	42.14
09.02.003	Channel Excavation	1113000	CY	3,336,247	834,062	333,625	33,362	216,856	4,754,152	4.27
	TOTAL Matilija Reservoir Sediment Comp			5,391,606	1,347,901	539,161	53,916	350,454	7,683,038	
09.03 Slurry System Components										
09.03.001 Import Water from Casitas										
09.03.001.001	Cost of water	4500.00	A-F	768,910	192,227	76,891	7,689	49,979	1,095,696	243.49
09.03.001.002	Pipeline corridor preparation	648000.00	SF	630,805	157,701	63,080	6,308	41,002	898,897	1.39
09.03.001.003	Fresh water supply pump, 800HP	1.00	EA	125,000	31,250	12,500	1,250	8,125	178,125	178124.85
09.03.001.004	Power to pump from Casitas	3900000	K-H	571,190	142,797	57,119	5,712	37,127	813,946	0.21
09.03.001.005	Fresh water pipeline	42240.00	LF	615,451	153,863	61,545	6,155	40,004	877,018	20.76
09.03.001.006	Water storage tank, 90000 gal	1.00	EA	129,737	32,434	12,974	1,297	8,433	184,875	184874.79
09.03.001.007	Make-up water pump, 900HP	3.00	EA	334,816	83,704	33,482	3,348	21,763	477,113	159037.67
09.03.001.008	Make-up waterline 1-mi long	5280.00	LF	135,197	33,799	13,520	1,352	8,788	192,655	36.49
09.03.001.009	Power for make-up system	13053000	K-H	1,911,729	477,932	191,173	19,117	124,262	2,724,214	0.21
	TOTAL Import Water from Casitas			5,222,834	1,305,708	522,283	52,228	339,484	7,442,538	
09.03.002	12" Cutter Head Suction Dredge	2.00	EA	6,302,072	1,575,518	630,207	63,021	409,635	8,980,453	4490227
09.03.003 Slurry System										
09.03.003.001	Pipeline corridor preparation	1244100	SF	1,211,086	302,772	121,109	12,111	78,721	1,725,798	1.39
09.03.003.002	Thickener, 115' dia.	1.00	EA	1,060,205	265,051	106,021	10,602	68,913	1,510,793	1510793
09.03.003.003	Slurry Pipeline, 20" SRD11	41470.00	LF	957,759	239,440	95,776	9,578	62,254	1,364,807	32.91
09.03.003.004	Slurry Pump, 1200HP	1.00	EA	88,441	22,110	8,844	884	5,749	126,028	126028.08
09.03.003.005	Power for Slurry System	1934000	K-H	283,252	70,813	28,325	2,833	18,411	403,634	0.21
	TOTAL Slurry System			3,600,744	900,186	360,074	36,007	234,048	5,131,060	
09.03.004	Operation Crew	26000.00	HR	1,403,163	350,791	140,316	14,032	91,206	1,999,508	76.90
09.03.005	Clear Disposal Area	94.00	ACR	406,971	101,743	40,697	4,070	26,453	579,933	6169.50

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		QUANTITY	UOM	CONTRACT	CONTINGN	PED	EDC	S&A	TOTAL COST	UNIT COST
09.03.006	Construct Containment Dikes	416000.00	CY	2,119,235	529,809	211,924	21,192	137,750	3,019,910	7.26
09.03.007	Misc Detail at Dike			671,270	167,818	67,127	6,713	43,633	956,560	
09.03.008	Dust Abatement			134,254	33,564	13,425	1,343	8,727	191,312	
09.03.009	Site Restoration			1,037,418	259,354	103,742	10,374	67,432	1,478,320	
09.03.010	Road Repair	2.00	MI	123,007	30,752	12,301	1,230	7,995	175,285	87642.61
TOTAL Slurry System Components				21,020,968	5,255,242	2,102,097	210,210	1,366,363	29,954,879	
09.04 Dam Removal Components										
09.04.001	Removal of Concrete Fish Trap	120.00	CY	29,430	7,358	2,943	294	1,913	41,938	349.49
09.04.002	Removal of Concrete Contr House	70.00	CY	21,174	5,293	2,117	212	1,376	30,172	431.03
09.04.003	Removal of Concrete Dam	51100.00	CY	1,854,806	463,701	185,481	18,548	120,562	2,643,098	51.72
09.04.004 Drilling & Blasting for Dam Rem										
09.04.004.001	Drilling Horizontal Holes	124400.00	LF	3,517,542	879,385	351,754	35,175	228,640	5,012,497	40.29
09.04.004.002	Blasting Horizontal Holes	9550.00	EA	173,422	43,356	17,342	1,734	11,272	247,127	25.88
09.04.004.003	Drilling Vertical Holes	122000.00	LF	2,805,201	701,300	280,520	28,052	182,338	3,997,411	32.77
09.04.004.004	Blasting Vertical Holes	7600.00	EA	141,673	35,418	14,167	1,417	9,209	201,884	26.56
TOTAL Drilling & Blasting for Dam Rem				6,637,838	1,659,459	663,784	66,378	431,459	9,458,919	
09.04.005	Process Concrete for Hauling	9638.00	TON	18,604	4,651	1,860	186	1,209	26,511	2.75
09.04.006	Haul Concrete to Recycling Plant	72285.00	TON	1,797,103	449,276	179,710	17,971	116,812	2,560,872	35.43
09.04.007	Rem & Disp of Misc Metal Work	46513.00	LB	108,446	27,111	10,845	1,084	7,049	154,535	3.32
TOTAL Dam Removal Components				10,467,401	2,616,850	1,046,740	104,674	680,381	14,916,046	
09.05 Robles Diversion Dam Components										
09.05.001 High Flow Sediment Bypass										
09.05.001.001	Radial Gate (120' section)			3,295,327	823,832	329,533	32,953	214,196	4,695,840	
09.05.001.002	Timber Crib Struct Replacement			1,342,540	335,635	134,254	13,425	87,265	1,913,120	
TOTAL High Flow Sediment Bypass				4,637,867	1,159,467	463,787	46,379	301,461	6,608,961	
TOTAL Robles Diversion Dam Components				4,637,867	1,159,467	463,787	46,379	301,461	6,608,961	
09.06 Downstream Flood Mitigation										
09.06.001 Structural Modifications										
09.06.001.001	Removal of Camino Cielo Bridge			5,128,160	1,282,040	512,816	51,282	333,330	7,307,627	
09.06.001.002	Sanata Ana Bridge Modification			2,746,106	686,526	274,611	27,461	178,497	3,913,200	
09.06.001.003	Meiners Oaks Levee/Floodwall									

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		QUANTITY	UOM	CONTRACT	CONTINGN	PED	EDC	S&A	TOTAL COST	UNIT COST
09.06.001.003.001	Clear Site & Remove Obstruction	7.00	ACR	25,732	6,433	2,573	257	1,673	36,668	5238.26
09.06.001.003.002	6" Stripping	1333.00	CY	4,171	1,043	417	42	271	5,944	4.46
09.06.001.003.003	Excavation & Compacted Backfill	19759.00	CY	220,731	55,183	22,073	2,207	14,348	314,542	15.92
09.06.001.003.004	Compacted Fill Levee	9589.00	CY	72,940	18,235	7,294	729	4,741	103,939	10.84
09.06.001.003.005	Rip Rap, 30" Thick									
09.06.001.003.005.001	Transportation	5566.00	TON	173,680	43,420	17,368	1,737	11,289	247,494	44.47
09.06.001.003.005.002	Placement	5566.00	TON	47,733	11,933	4,773	477	3,103	68,020	12.22
	TOTAL Rip Rap, 30" Thick	5566.00	TON	221,413	55,353	22,141	2,214	14,392	315,514	56.69
09.06.001.003.006	Gravel Blankket, 6" Thick	1105.00	TON	36,622	9,156	3,662	366	2,380	52,187	47.23
09.06.001.003.007	Geotextile Fabrics	4174.00	SY	7,019	1,755	702	70	456	10,002	2.40
09.06.001.003.008	Concrete Floodwall	1996.00	TON	242,920	60,730	24,292	2,429	15,790	346,162	173.43
09.06.001.003.009	Rebar, Floodwall	120.00	TON	244,362	61,090	24,436	2,444	15,884	348,216	2901.80
09.06.001.003.010	6" ABC for O&M Roads									
09.06.001.003.010.001	Transportation	2083.00	TON	29,748	7,437	2,975	297	1,934	42,391	20.35
09.06.001.003.010.002	Placement	2083.00	TON	15,267	3,817	1,527	153	992	21,756	10.44
	TOTAL 6" ABC for O&M Roads	2083.00	TON	45,015	11,254	4,502	450	2,926	64,147	30.80
	TOTAL Meiners Oaks Levee/Floodwall			1,120,926	280,231	112,093	11,209	72,860	1,597,319	
09.06.001.004	Live Oaks Levee/Floodwall									
09.06.001.004.001	Clear Site & Remove Obstruction	2.00	ACR	7,352	1,838	735	74	478	10,477	5238.26
09.06.001.004.002	6" Stripping	1175.00	CY	3,677	919	368	37	239	5,239	4.46
09.06.001.004.003	Excavation & Compacted Backfill	8418.00	CY	94,039	23,510	9,404	940	6,113	134,005	15.92
09.06.001.004.004	Compacted Fill Levee	22293.00	CY	294,273	73,568	29,427	2,943	19,128	419,338	18.81
09.06.001.004.005	Rip Rap, 30" Thick									
09.06.001.004.005.001	Transportation	7554.00	TON	244,250	61,062	24,425	2,442	15,876	348,056	46.08
09.06.001.004.005.002	Placement	7554.00	TON	64,782	16,195	6,478	648	4,211	92,314	12.22
	TOTAL Rip Rap, 30" Thick	7554.00	TON	309,032	77,258	30,903	3,090	20,087	440,370	58.30
09.06.001.004.006	Gravel Blankket, 6" Thick	1500.00	TON	49,713	12,428	4,971	497	3,231	70,841	47.23
09.06.001.004.007	Geotextile Fabrics	5658.00	SY	9,514	2,379	951	95	618	13,558	2.40
09.06.001.004.008	Concrete Floodwall	1852.00	TON	238,932	59,733	23,893	2,389	15,531	340,477	183.84
09.06.001.004.009	Rebar, Floodwall	111.00	TON	226,035	56,509	22,603	2,260	14,692	322,099	2901.80
09.06.001.004.010	6" ABC for O&M Roads									
09.06.001.004.010.001	Transportation	1688.00	TON	24,107	6,027	2,411	241	1,567	34,352	20.35
09.06.001.004.010.002	Placement	1688.00	TON	12,372	3,093	1,237	124	804	17,631	10.44

		QUANTITY	UOM	CONTRACT	CONTINGN	PED	EDC	S&A	TOTAL COST	UNIT COST
TOTAL 6" ABC for O&M Roads		1688.00	TON	36,479	9,120	3,648	365	2,371	51,983	30.80
TOTAL Live Oaks Levee/Floodwall				1,269,045	317,261	126,904	12,690	82,488	1,808,389	
09.06.001.005 Casistas Springs Levee										
09.06.001.005.001	Clear Site & Remove Obstruction	1.00	ACR	3,676	919	368	37	239	5,238	5238.26
09.06.001.005.002	6" Stripping	1855.00	CY	5,805	1,451	580	58	377	8,271	4.46
09.06.001.005.004	Compacted Fill Levee	12013.00	CY	192,175	48,044	19,217	1,922	12,491	273,849	22.80
09.06.001.005.005 Rip Rap, 30" Thick										
09.06.001.005.005.001	Transportation	3292.00	TON	112,289	28,072	11,229	1,123	7,299	160,012	48.61
09.06.001.005.005.002	Placement	3292.00	TON	28,232	7,058	2,823	282	1,835	40,230	12.22
TOTAL Rip Rap, 30" Thick		3292.00	TON	140,521	35,130	14,052	1,405	9,134	200,242	60.83
09.06.001.005.006	Gravel Blankket, 6" Thick	1046.00	TON	34,661	8,665	3,466	347	2,253	49,392	47.22
09.06.001.005.010 6" ABC for O&M Roads										
09.06.001.005.010.001	Transportation	1688.00	TON	24,107	6,027	2,411	241	1,567	34,352	20.35
09.06.001.005.010.002	Placement	1688.00	TON	12,372	3,093	1,237	124	804	17,631	10.44
TOTAL 6" ABC for O&M Roads		1688.00	TON	36,479	9,120	3,648	365	2,371	51,983	30.80
TOTAL Casistas Springs Levee				413,316	103,329	41,332	4,133	26,866	588,976	
TOTAL Structural Modifications				10,677,552	2,669,388	1,067,755	106,776	694,041	15,215,511	
TOTAL Downstream Flood Mitigation				10,677,552	2,669,388	1,067,755	106,776	694,041	15,215,511	
09.07 Foster Park Components										
09.07.001	Wells	2.00	EA	793,319	198,330	79,332	7,933	51,566	1,130,480	565240.06
TOTAL Foster Park Components				793,319	198,330	79,332	7,933	51,566	1,130,480	
09.08 Downstream Arundo Eradication										
09.08.001 Eradication (Reach 1-6)										
09.08.001.001	Removal	123.00	ACR	2,562,265	640,566	256,227	25,623	166,547	3,651,228	29684.78
09.08.001.002	Hauling	99260.00	CY	533,311	133,328	53,331	5,333	34,665	759,968	7.66
09.08.001.003	Mulching & Stockpiling	99260.00	CY	265,548	66,387	26,555	2,655	17,261	378,405	3.81
TOTAL Eradication (Reach 1-6)		123.00	ACR	3,361,124	840,281	336,112	33,611	218,473	4,789,602	38939.85

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		QUANTITY	UOM	CONTRACT	CONTINGN	PED	EDC	S&A	TOTAL COST	UNIT COST
-----										
09.08.002 Eradication (Reach 1-6)										
09.08.002.001	Removal	1059.00	ACR	534,242	133,561	53,424	5,342	34,726	761,295	718.88
09.08.002.002	Hauling	141900.00	CY	762,410	190,603	76,241	7,624	49,557	1,086,435	7.66
09.08.002.003	Mulching & Stockpiling	141900.00	CY	379,621	94,905	37,962	3,796	24,675	540,960	3.81
TOTAL Eradication (Reach 1-6)		1059.00	ACR	1,676,274	419,068	167,627	16,763	108,958	2,388,690	2255.61
TOTAL Downstream Arundo Eradication				5,037,398	1,259,349	503,740	50,374	327,431	7,178,292	
TOTAL Construction				64,804,495	16201124	6,480,450	648,045	4,212,292	92,346,406	
TOTAL Matijila Dam Removal Feasibility		1.00	EA	77,182,645	19295661	7,718,265	771,826	5,016,872	109,985,270	109985270



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	QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
01 Real Estate			12,378,150	0	0	0	0	12,378,150	
09 Construction			53,097,054	5,309,705	1,752,203	4,211,127	434,406	64,804,495	
TOTAL Matijila Dam Removal Feasibility	1.00	EA	65,475,204	5,309,705	1,752,203	4,211,127	434,406	77,182,645	77182645
CONTINGENCY (25%)								19,295,661	
SUBTOTAL								96,478,307	
PED (10%)								7,718,265	
SUBTOTAL								104,196,571	
EDC (1%)								771,826	
SUBTOTAL								104,968,398	
S&A (6.5%)								5,016,872	
TOTAL INCL OWNER COSTS								109,985,270	

		QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
-----										
01 Real Estate										
01.01 LERRD										
01.01.001	Non-Fed Land, Easement & ROW			872,500	0	0	0	0	872,500	
TOTAL Non-Fed Land, Easement & ROW				872,500	0	0	0	0	872,500	
01.01.002 Land, Easement & ROW Acqr'd by										
01.01.002.001	Fee (163.01 acres)			5,570,000	0	0	0	0	5,570,000	
01.01.002.002	Perm Easement (incl Arundo Rem)			80,500	0	0	0	0	80,500	
01.01.002.003	Temp Easement (0.06 acres)			150	0	0	0	0	150	
TOTAL Land, Easement & ROW Acqr'd by				5,650,650	0	0	0	0	5,650,650	
01.01.003	PL 91-646 Relocation Assist. #			750,000	0	0	0	0	750,000	
01.01.004	Facility/Utility Relocation			4,570,000	0	0	0	0	4,570,000	
01.01.005	Non_Fed Sponsor Admin Acq Cost			500,000	0	0	0	0	500,000	
TOTAL LERRD				12,343,150	0	0	0	0	12,343,150	
01.02	Federal Admin Cost			35,000	0	0	0	0	35,000	
TOTAL Real Estate				12,378,150	0	0	0	0	12,378,150	
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09 Construction										
09.01 Site Preparation										
09.01.001	Mobilization & Demobilization			4,000,000	400,000	132,000	317,240	32,725	4,881,965	
09.01.002	Clearing & Grubbing	134.60	ACR	422,852	42,285	13,954	33,536	3,460	516,087	3834.23
09.01.003 Arundo Eradication										
09.01.003.001 Eradication (Reach 7)										
09.01.003.001.001	Removal	118.00	ACR	334,030	33,403	11,023	26,492	2,733	407,681	3454.92
09.01.003.001.002	Hauling	95230.00	CY	419,223	41,922	13,834	33,249	3,430	511,658	5.37
09.01.003.001.003	Mulching & Stockpiling	95230.00	CY	208,741	20,874	6,888	16,555	1,708	254,766	2.68
TOTAL Eradication (Reach 7)		118.00	ACR	961,994	96,199	31,746	76,296	7,870	1,174,106	9950.05
09.01.003.002 Eradication (Reach 8 & 9)										
09.01.003.002.001	Removal	0.40	ACR	6,827	683	225	541	56	8,333	20831.43
09.01.003.002.002	Hauling	325.00	CY	1,431	143	47	113	12	1,746	5.37

		QUANTITY UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
09.01.003.002.003	Mulching & Stockpiling	325.00 CY	712	71	24	56	6	869	2.68
	TOTAL Eradication (Reach 8 & 9)	0.40 ACR	8,970	897	296	711	73	10,948	27370.55
	TOTAL Arundo Eradication		970,965	97,096	32,042	77,007	7,944	1,185,054	
09.01.004	Diversion & Control of Water		80,000	8,000	2,640	6,345	655	97,639	
09.01.005	Fish Rescue & Relocation		80,000	8,000	2,640	6,345	655	97,639	
	TOTAL Site Preparation		5,553,817	555,382	183,276	440,473	45,438	6,778,385	
09.02	Matilija Reservoir Sediment Comp								
09.02.001	Disposal Site Closure		160,000	16,000	5,280	12,690	1,309	195,279	
09.02.002	Soil Cement Wall	62900.00 CY	1,524,042	152,404	50,293	120,872	12,469	1,860,080	29.57
09.02.003	Channel Excavation	1113000 CY	2,733,528	273,353	90,206	216,796	22,364	3,336,247	3.00
	TOTAL Matilija Reservoir Sediment Comp		4,417,570	441,757	145,780	350,357	36,142	5,391,606	
09.03	Slurry System Components								
09.03.001	Import Water from Casitas								
09.03.001.001	Cost of water	4500.00 A-F	630,000	63,000	20,790	49,965	5,154	768,910	170.87
09.03.001.002	Pipeline corridor preparation	648000.00 SF	516,845	51,684	17,056	40,991	4,228	630,805	0.97
09.03.001.003	Fresh water supply pump, 800HP	1.00 EA	102,418	10,242	3,380	8,123	838	125,000	124999.89
09.03.001.004	Power to pump from Casitas	3900000 K-H	468,000	46,800	15,444	37,117	3,829	571,190	0.15
09.03.001.005	Fresh water pipeline	42240.00 LF	504,265	50,427	16,641	39,993	4,126	615,451	14.57
09.03.001.006	Water storage tank, 90000 gal	1.00 EA	106,299	10,630	3,508	8,431	870	129,737	129736.70
09.03.001.007	Make-up water pump, 900HP	3.00 EA	274,329	27,433	9,053	21,757	2,244	334,816	111605.38
09.03.001.008	Make-up waterline 1-mi long	5280.00 LF	110,772	11,077	3,655	8,785	906	135,197	25.61
09.03.001.009	Power for make-up system	13053000 K-H	1,566,360	156,636	51,690	124,228	12,815	1,911,729	0.15
	TOTAL Import Water from Casitas		4,279,288	427,929	141,216	339,390	35,010	5,222,834	
09.03.002	12" Cutter Head Suction Dredge	2.00 EA	5,163,553	516,355	170,397	409,521	42,245	6,302,072	3151036
09.03.003	Slurry System								
09.03.003.001	Pipeline corridor preparation	1244100 SF	992,294	99,229	32,746	78,699	8,118	1,211,086	0.97
09.03.003.002	Thickener, 115' dia.	1.00 EA	868,671	86,867	28,666	68,894	7,107	1,060,205	1060205
09.03.003.003	Slurry Pipeline, 20" SRD11	41470.00 LF	784,733	78,473	25,896	62,237	6,420	957,759	23.10
09.03.003.004	Slurry Pump, 1200HP	1.00 EA	72,463	7,246	2,391	5,747	593	88,441	88440.76
09.03.003.005	Power for Slurry System	1934000 K-H	232,080	23,208	7,659	18,406	1,899	283,252	0.15
	TOTAL Slurry System		2,950,241	295,024	97,358	233,984	24,137	3,600,744	
09.03.004	Operation Crew	26000.00 HR	1,149,671	114,967	37,939	91,180	9,406	1,403,163	53.97
09.03.005	Clear Disposal Area	94.00 ACR	333,448	33,345	11,004	26,446	2,728	406,971	4329.47

		QUANTITY UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
09.03.006	Construct Containment Dikes	416000.00 CY	1,736,379	173,638	57,300	137,712	14,206	2,119,235	5.09
09.03.007	Misc Detail at Dike		550,000	55,000	18,150	43,621	4,500	671,270	
09.03.008	Dust Abatement		110,000	11,000	3,630	8,724	900	134,254	
09.03.009	Site Restoration		850,000	85,000	28,050	67,414	6,954	1,037,418	
09.03.010	Road Repair	2.00 MI	100,785	10,078	3,326	7,993	825	123,007	61503.58
	TOTAL Slurry System Components		17,223,365	1,722,336	568,371	1,365,985	140,910	21,020,968	
09.04 Dam Removal Components									
09.04.001	Removal of Concrete Fish Trap	120.00 CY	24,114	2,411	796	1,912	197	29,430	245.25
09.04.002	Removal of Concrete Contr House	70.00 CY	17,348	1,735	572	1,376	142	21,174	302.48
09.04.003	Removal of Concrete Dam	51100.00 CY	1,519,721	151,972	50,151	120,529	12,433	1,854,806	36.30
09.04.004 Drilling & Blasting for Dam Rem									
09.04.004.001	Drilling Horizontal Holes	124400.00 LF	2,882,070	288,207	95,108	228,577	23,579	3,517,542	28.28
09.04.004.002	Blasting Horizontal Holes	9550.00 EA	142,092	14,209	4,689	11,269	1,163	173,422	18.16
09.04.004.003	Drilling Vertical Holes	122000.00 LF	2,298,419	229,842	75,848	182,288	18,804	2,805,201	22.99
09.04.004.004	Blasting Vertical Holes	7600.00 EA	116,079	11,608	3,831	9,206	950	141,673	18.64
	TOTAL Drilling & Blasting for Dam Rem		5,438,660	543,866	179,476	431,340	44,496	6,637,838	
09.04.005	Process Concrete for Hauling	9638.00 TON	15,243	1,524	503	1,209	125	18,604	1.93
09.04.006	Haul Concrete to Recycling Plant	72285.00 TON	1,472,442	147,244	48,591	116,779	12,047	1,797,103	24.86
09.04.007	Rem & Disp of Misc Metal Work	46513.00 LB	88,854	8,885	2,932	7,047	727	108,446	2.33
	TOTAL Dam Removal Components		8,576,382	857,638	283,021	680,193	70,166	10,467,401	
09.05 Robles Diversion Dam Components									
09.05.001 High Flow Sediment Bypass									
09.05.001.001	Radial Gate (120' section)		2,700,000	270,000	89,100	214,137	22,090	3,295,327	
09.05.001.002	Timber Crib Struct Replacement		1,100,000	110,000	36,300	87,241	8,999	1,342,540	
	TOTAL High Flow Sediment Bypass		3,800,000	380,000	125,400	301,378	31,089	4,637,867	
	TOTAL Robles Diversion Dam Components		3,800,000	380,000	125,400	301,378	31,089	4,637,867	
09.06 Downstream Flood Mitigation									
09.06.001 Structural Modifications									
09.06.001.001	Removal of Camino Cielo Bridge		4,201,717	420,172	138,657	333,238	34,376	5,128,160	
09.06.001.002	Sanata Ana Bridge Modification		2,250,000	225,000	74,250	178,448	18,408	2,746,106	
09.06.001.003	Meiners Oaks Levee/Floodwall								

		QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
09.06.001.003.001	Clear Site & Remove Obstruction	7.00	ACR	21,083	2,108	696	1,672	172	25,732	3675.97
09.06.001.003.002	6" Stripping	1333.00	CY	3,418	342	113	271	28	4,171	3.13
09.06.001.003.003	Excavation & Compacted Backfill	19759.00	CY	180,854	18,085	5,968	14,344	1,480	220,731	11.17
09.06.001.003.004	Compacted Fill Levee	9589.00	CY	59,762	5,976	1,972	4,740	489	72,940	7.61
09.06.001.003.005	Rip Rap, 30" Thick	5566.00	TON	181,413	18,141	5,987	14,388	1,484	221,413	39.78
09.06.001.003.006	Gravel Blankket, 6" Thick	1105.00	TON	30,006	3,001	990	2,380	245	36,622	33.14
09.06.001.003.007	Geotextile Fabrics	4174.00	SY	5,751	575	190	456	47	7,019	1.68
09.06.001.003.008	Concrete Floodwall	1996.00	TON	199,035	19,903	6,568	15,785	1,628	242,920	121.70
09.06.001.003.009	Rebar, Floodwall	120.00	TON	200,216	20,022	6,607	15,879	1,638	244,362	2036.35
09.06.001.003.010	6" ABC for O&M Roads	2083.00	TON	36,883	3,688	1,217	2,925	302	45,015	21.61
TOTAL Meiners Oaks Levee/Floodwall				918,422	91,842	30,308	72,840	7,514	1,120,926	
09.06.001.004 Live Oaks Levee/Floodwall										
09.06.001.004.001	Clear Site & Remove Obstruction	2.00	ACR	6,024	602	199	478	49	7,352	3675.97
09.06.001.004.002	6" Stripping	1175.00	CY	3,013	301	99	239	25	3,677	3.13
09.06.001.004.003	Excavation & Compacted Backfill	8418.00	CY	77,050	7,705	2,543	6,111	630	94,039	11.17
09.06.001.004.004	Compacted Fill Levee	22293.00	CY	241,110	24,111	7,957	19,122	1,973	294,273	13.20
09.06.001.004.005	Rip Rap, 30" Thick	7554.00	TON	253,203	25,320	8,356	20,082	2,072	309,032	40.91
09.06.001.004.006	Gravel Blankket, 6" Thick	1500.00	TON	40,732	4,073	1,344	3,230	333	49,713	33.14
09.06.001.004.007	Geotextile Fabrics	5658.00	SY	7,796	780	257	618	64	9,514	1.68
09.06.001.004.008	Concrete Floodwall	1852.00	TON	195,767	19,577	6,460	15,526	1,602	238,932	129.01
09.06.001.004.009	Rebar, Floodwall	111.00	TON	185,200	18,520	6,112	14,688	1,515	226,035	2036.35
09.06.001.004.010	6" ABC for O&M Roads	1688.00	TON	29,889	2,989	986	2,370	245	36,479	21.61
TOTAL Live Oaks Levee/Floodwall				1,039,782	103,978	34,313	82,465	8,507	1,269,045	
09.06.001.005 Casistas Springs Levee										
09.06.001.005.001	Clear Site & Remove Obstruction	1.00	ACR	3,012	301	99	239	25	3,676	3675.97
09.06.001.005.002	6" Stripping	1855.00	CY	4,756	476	157	377	39	5,805	3.13
09.06.001.005.004	Compacted Fill Levee	12013.00	CY	157,457	15,746	5,196	12,488	1,288	192,175	16.00
09.06.001.005.005	Rip Rap, 30" Thick	3292.00	TON	115,135	11,513	3,799	9,131	942	140,521	42.69
09.06.001.005.006	Gravel Blankket, 6" Thick	1046.00	TON	28,399	2,840	937	2,252	232	34,661	33.14
09.06.001.005.010	6" ABC for O&M Roads	1688.00	TON	29,889	2,989	986	2,370	245	36,479	21.61
TOTAL Casistas Springs Levee				338,647	33,865	11,175	26,858	2,771	413,316	
TOTAL Structural Modifications				8,748,568	874,857	288,703	693,849	71,575	10,677,552	
TOTAL Downstream Flood Mitigation				8,748,568	874,857	288,703	693,849	71,575	10,677,552	
09.07 Foster Park Components										
09.07.001	Wells	2.00	EA	650,000	65,000	21,450	51,552	5,318	793,319	396659.69
TOTAL Foster Park Components				650,000	65,000	21,450	51,552	5,318	793,319	

		QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
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09.08 Downstream Arundo Eradication										
09.08.001 Eradication (Reach 1-6)										
09.08.001.001	Removal	123.00	ACR	2,099,372	209,937	69,279	166,501	17,176	2,562,265	20831.43
09.08.001.002	Hauling	99260.00	CY	436,964	43,696	14,420	34,656	3,575	533,311	5.37
09.08.001.003	Mulching & Stockpiling	99260.00	CY	217,574	21,757	7,180	17,256	1,780	265,548	2.68
TOTAL Eradication (Reach 1-6)		123.00	ACR	2,753,911	275,391	90,879	218,413	22,531	3,361,124	27326.21
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09.08.002 Eradication (Reach 1-6)										
09.08.002.001	Removal	1059.00	ACR	437,727	43,773	14,445	34,716	3,581	534,242	504.48
09.08.002.002	Hauling	141900.00	CY	624,675	62,467	20,614	49,543	5,111	762,410	5.37
09.08.002.003	Mulching & Stockpiling	141900.00	CY	311,040	31,104	10,264	24,669	2,545	379,621	2.68
TOTAL Eradication (Reach 1-6)		1059.00	ACR	1,373,442	137,344	45,324	108,928	11,237	1,676,274	1582.88
TOTAL Downstream Arundo Eradication				4,127,352	412,735	136,203	327,340	33,767	5,037,398	
TOTAL Construction				53,097,054	5,309,705	1,752,203	4,211,127	434,406	64,804,495	
TOTAL Matijila Dam Removal Feasibility		1.00	EA	65,475,204	5,309,705	1,752,203	4,211,127	434,406	77,182,645	77182645
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CONTINGENCY (25%)									19,295,661	
SUBTOTAL									96,478,307	
PED (10%)									7,718,265	
SUBTOTAL									104,196,571	
EDC (1%)									771,826	
SUBTOTAL									104,968,398	
S&A (6.5%)									5,016,872	
TOTAL INCL OWNER COSTS									109,985,270	

		QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
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01 Real Estate										
01.01 LERRD										
01.01.001	Non-Fed Land, Easement & ROW			872,500	0	0	0	0	872,500	
TOTAL Non-Fed Land, Easement & ROW				872,500	0	0	0	0	872,500	
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01.01.002 Land, Easement & ROW Acqr'd by										
01.01.002.001	Fee (163.01 acres)			5,570,000	0	0	0	0	5,570,000	
01.01.002.002	Perm Easement (incl Arundo Rem)			80,500	0	0	0	0	80,500	
01.01.002.003	Temp Easement (0.06 acres)			150	0	0	0	0	150	
TOTAL Land, Easement & ROW Acqr'd by				5,650,650	0	0	0	0	5,650,650	
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01.01.003	PL 91-646 Relocation Assist. #			750,000	0	0	0	0	750,000	
01.01.004	Facility/Utility Relocation			4,570,000	0	0	0	0	4,570,000	
01.01.005	Non_Fed Sponsor Admin Acq Cost			500,000	0	0	0	0	500,000	
TOTAL LERRD				12,343,150	0	0	0	0	12,343,150	
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01.02	Federal Admin Cost			35,000	0	0	0	0	35,000	
TOTAL Real Estate				12,378,150	0	0	0	0	12,378,150	
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09 Construction										
09.01 Site Preparation										
09.01.001	Mobilization & Demobilization			4,000,000	400,000	132,000	317,240	32,725	4,881,965	
09.01.002	Clearing & Grubbing	134.60	ACR	422,852	42,285	13,954	33,536	3,460	516,087	3834.23
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09.01.003 Arundo Eradication										
09.01.003.001 Eradication (Reach 7)										
09.01.003.001.001	Removal	118.00	ACR	334,030	33,403	11,023	26,492	2,733	407,681	3454.92
09.01.003.001.002	Hauling	95230.00	CY	419,223	41,922	13,834	33,249	3,430	511,658	5.37
09.01.003.001.003	Mulching & Stockpiling	95230.00	CY	208,741	20,874	6,888	16,555	1,708	254,766	2.68
TOTAL Eradication (Reach 7)		118.00	ACR	961,994	96,199	31,746	76,296	7,870	1,174,106	9950.05
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09.01.003.002 Eradication (Reach 8 & 9)										
09.01.003.002.001	Removal	0.40	ACR	6,827	683	225	541	56	8,333	20831.43
09.01.003.002.002	Hauling	325.00	CY	1,431	143	47	113	12	1,746	5.37

		QUANTITY UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
09.01.003.002.003	Mulching & Stockpiling	325.00 CY	712	71	24	56	6	869	2.68
	TOTAL Eradication (Reach 8 & 9)	0.40 ACR	8,970	897	296	711	73	10,948	27370.55
	TOTAL Arundo Eradication		970,965	97,096	32,042	77,007	7,944	1,185,054	
09.01.004	Diversion & Control of Water		80,000	8,000	2,640	6,345	655	97,639	
09.01.005	Fish Rescue & Relocation		80,000	8,000	2,640	6,345	655	97,639	
	TOTAL Site Preparation		5,553,817	555,382	183,276	440,473	45,438	6,778,385	
09.02	Matilija Reservoir Sediment Comp								
09.02.001	Disposal Site Closure		160,000	16,000	5,280	12,690	1,309	195,279	
09.02.002	Soil Cement Wall	62900.00 CY	1,524,042	152,404	50,293	120,872	12,469	1,860,080	29.57
09.02.003	Channel Excavation	1113000 CY	2,733,528	273,353	90,206	216,796	22,364	3,336,247	3.00
	TOTAL Matilija Reservoir Sediment Comp		4,417,570	441,757	145,780	350,357	36,142	5,391,606	
09.03	Slurry System Components								
09.03.001	Import Water from Casitas								
09.03.001.001	Cost of water	4500.00 A-F	630,000	63,000	20,790	49,965	5,154	768,910	170.87
09.03.001.002	Pipeline corridor preparation	648000.00 SF	516,845	51,684	17,056	40,991	4,228	630,805	0.97
09.03.001.003	Fresh water supply pump, 800HP	1.00 EA	102,418	10,242	3,380	8,123	838	125,000	124999.89
09.03.001.004	Power to pump from Casitas	3900000 K-H	468,000	46,800	15,444	37,117	3,829	571,190	0.15
09.03.001.005	Fresh water pipeline	42240.00 LF	504,265	50,427	16,641	39,993	4,126	615,451	14.57
09.03.001.006	Water storage tank, 90000 gal	1.00 EA	106,299	10,630	3,508	8,431	870	129,737	129736.70
09.03.001.007	Make-up water pump, 900HP	3.00 EA	274,329	27,433	9,053	21,757	2,244	334,816	111605.38
09.03.001.008	Make-up waterline 1-mi long	5280.00 LF	110,772	11,077	3,655	8,785	906	135,197	25.61
09.03.001.009	Power for make-up system	13053000 K-H	1,566,360	156,636	51,690	124,228	12,815	1,911,729	0.15
	TOTAL Import Water from Casitas		4,279,288	427,929	141,216	339,390	35,010	5,222,834	
09.03.002	12" Cutter Head Suction Dredge	2.00 EA	5,163,553	516,355	170,397	409,521	42,245	6,302,072	3151036
09.03.003	Slurry System								
09.03.003.001	Pipeline corridor preparation	1244100 SF	992,294	99,229	32,746	78,699	8,118	1,211,086	0.97
09.03.003.002	Thickener, 115' dia.	1.00 EA	868,671	86,867	28,666	68,894	7,107	1,060,205	1060205
09.03.003.003	Slurry Pipeline, 20" SRD11	41470.00 LF	784,733	78,473	25,896	62,237	6,420	957,759	23.10
09.03.003.004	Slurry Pump, 1200HP	1.00 EA	72,463	7,246	2,391	5,747	593	88,441	88440.76
09.03.003.005	Power for Slurry System	1934000 K-H	232,080	23,208	7,659	18,406	1,899	283,252	0.15
	TOTAL Slurry System		2,950,241	295,024	97,358	233,984	24,137	3,600,744	
09.03.004	Operation Crew	26000.00 HR	1,149,671	114,967	37,939	91,180	9,406	1,403,163	53.97
09.03.005	Clear Disposal Area	94.00 ACR	333,448	33,345	11,004	26,446	2,728	406,971	4329.47



		QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
09.03.006	Construct Containment Dikes	416000.00	CY	1,736,379	173,638	57,300	137,712	14,206	2,119,235	5.09
09.03.007	Misc Detail at Dike			550,000	55,000	18,150	43,621	4,500	671,270	
09.03.008	Dust Abatement			110,000	11,000	3,630	8,724	900	134,254	
09.03.009	Site Restoration			850,000	85,000	28,050	67,414	6,954	1,037,418	
09.03.010	Road Repair	2.00	MI	100,785	10,078	3,326	7,993	825	123,007	61503.58
TOTAL Slurry System Components				17,223,365	1,722,336	568,371	1,365,985	140,910	21,020,968	
09.04 Dam Removal Components										
09.04.001	Removal of Concrete Fish Trap	120.00	CY	24,114	2,411	796	1,912	197	29,430	245.25
09.04.002	Removal of Concrete Contr House	70.00	CY	17,348	1,735	572	1,376	142	21,174	302.48
09.04.003	Removal of Concrete Dam	51100.00	CY	1,519,721	151,972	50,151	120,529	12,433	1,854,806	36.30
09.04.004 Drilling & Blasting for Dam Rem										
09.04.004.001	Drilling Horizontal Holes	124400.00	LF	2,882,070	288,207	95,108	228,577	23,579	3,517,542	28.28
09.04.004.002	Blasting Horizontal Holes	9550.00	EA	142,092	14,209	4,689	11,269	1,163	173,422	18.16
09.04.004.003	Drilling Vertical Holes	122000.00	LF	2,298,419	229,842	75,848	182,288	18,804	2,805,201	22.99
09.04.004.004	Blasting Vertical Holes	7600.00	EA	116,079	11,608	3,831	9,206	950	141,673	18.64
TOTAL Drilling & Blasting for Dam Rem				5,438,660	543,866	179,476	431,340	44,496	6,637,838	
09.04.005	Process Concrete for Hauling	9638.00	TON	15,243	1,524	503	1,209	125	18,604	1.93
09.04.006	Haul Concrete to Recycling Plant	72285.00	TON	1,472,442	147,244	48,591	116,779	12,047	1,797,103	24.86
09.04.007	Rem & Disp of Misc Metal Work	46513.00	LB	88,854	8,885	2,932	7,047	727	108,446	2.33
TOTAL Dam Removal Components				8,576,382	857,638	283,021	680,193	70,166	10,467,401	
09.05 Robles Diversion Dam Components										
09.05.001 High Flow Sediment Bypass										
09.05.001.001	Radial Gate (120' section)			2,700,000	270,000	89,100	214,137	22,090	3,295,327	
09.05.001.002	Timber Crib Struct Replacement			1,100,000	110,000	36,300	87,241	8,999	1,342,540	
TOTAL High Flow Sediment Bypass				3,800,000	380,000	125,400	301,378	31,089	4,637,867	
TOTAL Robles Diversion Dam Components				3,800,000	380,000	125,400	301,378	31,089	4,637,867	
09.06 Downstream Flood Mitigation										
09.06.001 Structural Modifications										
09.06.001.001	Removal of Camino Cielo Bridge			4,201,717	420,172	138,657	333,238	34,376	5,128,160	
09.06.001.002	Sanata Ana Bridge Modification			2,250,000	225,000	74,250	178,448	18,408	2,746,106	
09.06.001.003	Meiners Oaks Levee/Floodwall									

		QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
09.06.001.003.001	Clear Site & Remove Obstruction	7.00	ACR	21,083	2,108	696	1,672	172	25,732	3675.97
09.06.001.003.002	6" Stripping	1333.00	CY	3,418	342	113	271	28	4,171	3.13
09.06.001.003.003	Excavation & Compacted Backfill	19759.00	CY	180,854	18,085	5,968	14,344	1,480	220,731	11.17
09.06.001.003.004	Compacted Fill Levee	9589.00	CY	59,762	5,976	1,972	4,740	489	72,940	7.61
09.06.001.003.005 Rip Rap, 30" Thick										
09.06.001.003.005.001	Transportation	5566.00	TON	142,304	14,230	4,696	11,286	1,164	173,680	31.20
09.06.001.003.005.002	Placement	5566.00	TON	39,110	3,911	1,291	3,102	320	47,733	8.58
TOTAL Rip Rap, 30" Thick		5566.00	TON	181,413	18,141	5,987	14,388	1,484	221,413	39.78
09.06.001.003.006	Gravel Blankket, 6" Thick	1105.00	TON	30,006	3,001	990	2,380	245	36,622	33.14
09.06.001.003.007	Geotextile Fabrics	4174.00	SY	5,751	575	190	456	47	7,019	1.68
09.06.001.003.008	Concrete Floodwall	1996.00	TON	199,035	19,903	6,568	15,785	1,628	242,920	121.70
09.06.001.003.009	Rebar, Floodwall	120.00	TON	200,216	20,022	6,607	15,879	1,638	244,362	2036.35
09.06.001.003.010 6" ABC for O&M Roads										
09.06.001.003.010.001	Transportation	2083.00	TON	24,374	2,437	804	1,933	199	29,748	14.28
09.06.001.003.010.002	Placement	2083.00	TON	12,509	1,251	413	992	102	15,267	7.33
TOTAL 6" ABC for O&M Roads		2083.00	TON	36,883	3,688	1,217	2,925	302	45,015	21.61
TOTAL Meiners Oaks Levee/Floodwall				918,422	91,842	30,308	72,840	7,514	1,120,926	
09.06.001.004 Live Oaks Levee/Floodwall										
09.06.001.004.001	Clear Site & Remove Obstruction	2.00	ACR	6,024	602	199	478	49	7,352	3675.97
09.06.001.004.002	6" Stripping	1175.00	CY	3,013	301	99	239	25	3,677	3.13
09.06.001.004.003	Excavation & Compacted Backfill	8418.00	CY	77,050	7,705	2,543	6,111	630	94,039	11.17
09.06.001.004.004	Compacted Fill Levee	22293.00	CY	241,110	24,111	7,957	19,122	1,973	294,273	13.20
09.06.001.004.005 Rip Rap, 30" Thick										
09.06.001.004.005.001	Transportation	7554.00	TON	200,124	20,012	6,604	15,872	1,637	244,250	32.33
09.06.001.004.005.002	Placement	7554.00	TON	53,079	5,308	1,752	4,210	434	64,782	8.58
TOTAL Rip Rap, 30" Thick		7554.00	TON	253,203	25,320	8,356	20,082	2,072	309,032	40.91
09.06.001.004.006	Gravel Blankket, 6" Thick	1500.00	TON	40,732	4,073	1,344	3,230	333	49,713	33.14
09.06.001.004.007	Geotextile Fabrics	5658.00	SY	7,796	780	257	618	64	9,514	1.68
09.06.001.004.008	Concrete Floodwall	1852.00	TON	195,767	19,577	6,460	15,526	1,602	238,932	129.01
09.06.001.004.009	Rebar, Floodwall	111.00	TON	185,200	18,520	6,112	14,688	1,515	226,035	2036.35
09.06.001.004.010 6" ABC for O&M Roads										
09.06.001.004.010.001	Transportation	1688.00	TON	19,752	1,975	652	1,567	162	24,107	14.28
09.06.001.004.010.002	Placement	1688.00	TON	10,137	1,014	335	804	83	12,372	7.33

	QUANTITY UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
TOTAL 6" ABC for O&M Roads	1688.00 TON	29,889	2,989	986	2,370	245	36,479	21.61
TOTAL Live Oaks Levee/Floodwall		1,039,782	103,978	34,313	82,465	8,507	1,269,045	
09.06.001.005 Casistas Springs Levee								
09.06.001.005.001 Clear Site & Remove Obstruction	1.00 ACR	3,012	301	99	239	25	3,676	3675.97
09.06.001.005.002 6" Stripping	1855.00 CY	4,756	476	157	377	39	5,805	3.13
09.06.001.005.004 Compacted Fill Levee	12013.00 CY	157,457	15,746	5,196	12,488	1,288	192,175	16.00
09.06.001.005.005 Rip Rap, 30" Thick								
09.06.001.005.005.001 Transportation	3292.00 TON	92,003	9,200	3,036	7,297	753	112,289	34.11
09.06.001.005.005.002 Placement	3292.00 TON	23,131	2,313	763	1,835	189	28,232	8.58
TOTAL Rip Rap, 30" Thick	3292.00 TON	115,135	11,513	3,799	9,131	942	140,521	42.69
09.06.001.005.006 Gravel Blankket, 6" Thick	1046.00 TON	28,399	2,840	937	2,252	232	34,661	33.14
09.06.001.005.010 6" ABC for O&M Roads								
09.06.001.005.010.001 Transportation	1688.00 TON	19,752	1,975	652	1,567	162	24,107	14.28
09.06.001.005.010.002 Placement	1688.00 TON	10,137	1,014	335	804	83	12,372	7.33
TOTAL 6" ABC for O&M Roads	1688.00 TON	29,889	2,989	986	2,370	245	36,479	21.61
TOTAL Casistas Springs Levee		338,647	33,865	11,175	26,858	2,771	413,316	
TOTAL Structural Modifications		8,748,568	874,857	288,703	693,849	71,575	10,677,552	
TOTAL Downstream Flood Mitigation		8,748,568	874,857	288,703	693,849	71,575	10,677,552	
09.07 Foster Park Components								
09.07.001 Wells	2.00 EA	650,000	65,000	21,450	51,552	5,318	793,319	396659.69
TOTAL Foster Park Components		650,000	65,000	21,450	51,552	5,318	793,319	
09.08 Downstream Arundo Eradication								
09.08.001 Eradication (Reach 1-6)								
09.08.001.001 Removal	123.00 ACR	2,099,372	209,937	69,279	166,501	17,176	2,562,265	20831.43
09.08.001.002 Hauling	99260.00 CY	436,964	43,696	14,420	34,656	3,575	533,311	5.37
09.08.001.003 Mulching & Stockpiling	99260.00 CY	217,574	21,757	7,180	17,256	1,780	265,548	2.68
TOTAL Eradication (Reach 1-6)	123.00 ACR	2,753,911	275,391	90,879	218,413	22,531	3,361,124	27326.21

Tue 14 Sep 2004  
 Eff. Date 09/14/04

Tri-Service Automated Cost Engineering System (TRACES)  
 PROJECT MATXXX: Matijila Dam Removal Feasibility - Ventura County, California  
 FEASIBILITY ESTIMATE  
 \*\* PROJECT INDIRECT SUMMARY - Assembly \*\*

TIME 10:22:24  
 SUMMARY PAGE 24

		QUANTITY	UOM	DIRECT	OVERHEAD	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT COST
-----										
09.08.002	Eradication (Reach 1-6)									
09.08.002.001	Removal	1059.00	ACR	437,727	43,773	14,445	34,716	3,581	534,242	504.48
09.08.002.002	Hauling	141900.00	CY	624,675	62,467	20,614	49,543	5,111	762,410	5.37
09.08.002.003	Mulching & Stockpiling	141900.00	CY	311,040	31,104	10,264	24,669	2,545	379,621	2.68
	TOTAL Eradication (Reach 1-6)	1059.00	ACR	1,373,442	137,344	45,324	108,928	11,237	1,676,274	1582.88
	TOTAL Downstream Arundo Eradication			4,127,352	412,735	136,203	327,340	33,767	5,037,398	
	TOTAL Construction			53,097,054	5,309,705	1,752,203	4,211,127	434,406	64,804,495	
	TOTAL Matijila Dam Removal Feasibility	1.00	EA	65,475,204	5,309,705	1,752,203	4,211,127	434,406	77,182,645	77182645
	CONTINGENCY (25%)								19,295,661	
	SUBTOTAL								96,478,307	
	PED (10%)								7,718,265	
	SUBTOTAL								104,196,571	
	EDC (1%)								771,826	
	SUBTOTAL								104,968,398	
	S&A (6.5%)								5,016,872	
	TOTAL INCL OWNER COSTS								109,985,270	

	QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
01 Real Estate			0	0	0	012378150		12,378,150	
09 Construction			338,476	16191028	8077907	354968525278434		53,097,054	
TOTAL Matijila Dam Removal Feasibility	1.00	EA	338,476	16191028	8077907	354968537656584		65,475,204	65475204
OVERHEAD								5,309,705	
SUBTOTAL								70,784,910	
HOME OFC								1,752,203	
SUBTOTAL								72,537,112	
PROFIT								4,211,127	
SUBTOTAL								76,748,240	
BOND								434,406	
TOTAL INCL INDIRECTS								77,182,645	
CONTINGENCY (25%)								19,295,661	
SUBTOTAL								96,478,307	
PED (10%)								7,718,265	
SUBTOTAL								104,196,571	
EDC (1%)								771,826	
SUBTOTAL								104,968,398	
S&A (6.5%)								5,016,872	
TOTAL INCL OWNER COSTS								109,985,270	

		QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
-----										
01	Real Estate									
01.01	LERRD									
01.01.001	Non-Fed Land, Easement & ROW			0	0	0	0	872,500	872,500	
	TOTAL Non-Fed Land, Easement & ROW			0	0	0	0	872,500	872,500	
01.01.002	Land, Easement & ROW Acqr'd by									
01.01.002.001	Fee (163.01 acres)			0	0	0	0	5570000	5,570,000	
01.01.002.002	Perm Easement (incl Arundo Rem)			0	0	0	0	80,500	80,500	
01.01.002.003	Temp Easement (0.06 acres)			0	0	0	0	150	150	
	TOTAL Land, Easement & ROW Acqr'd by			0	0	0	0	5650650	5,650,650	
01.01.003	PL 91-646 Relocation Assist. #			0	0	0	0	750,000	750,000	
01.01.004	Facility/Utility Relocation			0	0	0	0	4570000	4,570,000	
01.01.005	Non_Fed Sponsor Admin Acq Cost			0	0	0	0	500,000	500,000	
	TOTAL LERRD			0	0	0	0	12343150	12,343,150	
01.02	Federal Admin Cost			0	0	0	0	35,000	35,000	
	TOTAL Real Estate			0	0	0	0	12378150	12,378,150	
-----										
09	Construction									
09.01	Site Preparation									
09.01.001	Mobilization & Demobilization			0	0	0	0	4000000	4,000,000	
09.01.002	Clearing & Grubbing	134.60	ACR	1,354	71,815	73,078	0	277,960	422,852	3141.55
09.01.003	Arundo Eradication									
09.01.003.001	Eradication (Reach 7)									
09.01.003.001.001	Removal	118.00	ACR	4,720	229,616	104,414	0	0	334,030	2830.76
09.01.003.001.002	Hauling	95230.00	CY	3,809	200,030	219,193	0	0	419,223	4.40
09.01.003.001.003	Mulching & Stockpiling	95230.00	CY	2,597	143,774	64,966	0	0	208,741	2.19
	TOTAL Eradication (Reach 7)	118.00	ACR	11,126	573,421	388,573	0	0	961,994	8152.49
09.01.003.002	Eradication (Reach 8 & 9)									
09.01.003.002.001	Removal	0.40	ACR	120	5,838	990	0	0	6,827	17068.06
09.01.003.002.002	Hauling	325.00	CY	13	683	748	0	0	1,431	4.40

		QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
09.01.003.002.003	Mulching & Stockpiling	325.00	CY	9	491	222	0	0	712	2.19
	TOTAL Eradication (Reach 8 & 9)	0.40	ACR	142	7,011	1,959	0	0	8,970	22425.84
	TOTAL Arundo Eradication			11,268	580,432	390,533	0	0	970,965	
09.01.004	Diversion & Control of Water			0	0	0	0	80,000	80,000	
09.01.005	Fish Rescue & Relocation			0	0	0	0	80,000	80,000	
	TOTAL Site Preparation			12,622	652,247	463,611	0	4437960	5,553,817	
09.02	Matilija Reservoir Sediment Comp									
09.02.001	Disposal Site Closure			0	0	0	0	160,000	160,000	
09.02.002	Soil Cement Wall	62900.00	CY	29,028	1158712	230,723	134,606	0	1,524,042	24.23
09.02.003	Channel Excavation	1113000	CY	29,606	1420299	1313229	0	0	2,733,528	2.46
	TOTAL Matilija Reservoir Sediment Comp			58,634	2579012	1543952	134,606	160,000	4,417,570	
09.03	Slurry System Components									
09.03.001	Import Water from Casitas									
09.03.001.001	Cost of water	4500.00	A-F	0	0	0	0	630,000	630,000	140.00
09.03.001.002	Pipeline corridor preparation	648000.00	SF	12,247	485,546	31,298	0	0	516,845	0.80
09.03.001.003	Fresh water supply pump, 800HP	1.00	EA	263	14,184	6,247	81,987	0	102,418	102417.68
09.03.001.004	Power to pump from Casitas	3900000	K-H	0	0	0	0	468,000	468,000	0.12
09.03.001.005	Fresh water pipeline	42240.00	LF	5,081	230,825	0	273,441	0	504,265	11.94
09.03.001.006	Water storage tank, 90000 gal	1.00	EA	105	5,673	2,499	98,127	0	106,299	106298.74
09.03.001.007	Make-up water pump, 900HP	3.00	EA	788	42,551	18,740	213,038	0	274,329	91442.99
09.03.001.008	Make-up waterline 1-mi long	5280.00	LF	635	28,853	0	81,919	0	110,772	20.98
09.03.001.009	Power for make-up system	13053000	K-H	0	0	0	0	1566360	1,566,360	0.12
	TOTAL Import Water from Casitas			19,119	807,632	58,784	748,512	2664360	4,279,288	
09.03.002	12" Cutter Head Suction Dredge	2.00	EA	0	0	0	0	5163553	5,163,553	2581777
09.03.003	Slurry System									
09.03.003.001	Pipeline corridor preparation	1244100	SF	23,513	932,204	60,090	0	0	992,294	0.80
09.03.003.002	Thickener, 115' dia.	1.00	EA	1,050	56,734	24,987	786,950	0	868,671	868670.90
09.03.003.003	Slurry Pipeline, 20" SRD11	41470.00	LF	5,478	230,071	0	554,661	0	784,733	18.92
09.03.003.004	Slurry Pump, 1200HP	1.00	EA	263	14,184	6,247	52,033	0	72,463	72463.24
09.03.003.005	Power for Slurry System	1934000	K-H	0	0	0	0	232,080	232,080	0.12
	TOTAL Slurry System			30,304	1233193	91,324	1393644	232,080	2,950,241	
09.03.004	Operation Crew	26000.00	HR	26,460	1149671	0	0	0	1,149,671	44.22
09.03.005	Clear Disposal Area	94.00	ACR	1,597	70,286	73,752	0	189,410	333,448	3547.32

Tri-Service Automated Cost Engineering System (TRACES)  
 PROJECT MATXXX: Matijila Dam Removal Feasibility - Ventura County, California  
 FEASIBILITY ESTIMATE  
 \*\* PROJECT DIRECT SUMMARY - Assm Cat \*\*

		QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
09.03.006	Construct Containment Dikes	416000.00	CY	19,429	925,651	739,508	71,219	0	1,736,379	4.17
09.03.007	Misc Detail at Dike			0	0	0	0	550,000	550,000	
09.03.008	Dust Abatement			0	0	0	0	110,000	110,000	
09.03.009	Site Restoration			0	0	0	0	850,000	850,000	
09.03.010	Road Repair	2.00	MI	283	16,128	10,969	73,689	0	100,785	50392.48
TOTAL Slurry System Components				97,193	4202561	974,337	2287064	9759403	17,223,365	
09.04 Dam Removal Components										
09.04.001	Removal of Concrete Fish Trap	120.00	CY	389	19,885	4,229	0	0	24,114	200.95
09.04.002	Removal of Concrete Contr House	70.00	CY	280	14,306	3,042	0	0	17,348	247.83
09.04.003	Removal of Concrete Dam	51100.00	CY	24,528	1253201	266,520	0	0	1,519,721	29.74
09.04.004 Drilling & Blasting for Dam Rem										
09.04.004.001	Drilling Horizontal Holes	124400.00	LF	27,842	1590554	1285271	6,245	0	2,882,070	23.17
09.04.004.002	Blasting Horizontal Holes	9550.00	EA	955	44,222	10,607	87,263	0	142,092	14.88
09.04.004.003	Drilling Vertical Holes	122000.00	LF	22,180	1267127	1031292	0	0	2,298,419	18.84
09.04.004.004	Blasting Vertical Holes	7600.00	EA	760	35,192	8,441	72,445	0	116,079	15.27
TOTAL Drilling & Blasting for Dam Rem				51,736	2937095	2335611	165,954	0	5,438,660	
09.04.005	Process Concrete for Hauling	9638.00	TON	241	10,539	4,705	0	0	15,243	1.58
09.04.006	Haul Concrete to Recycling Plant	72285.00	TON	16,063	702,568	769,874	0	0	1,472,442	20.37
09.04.007	Rem & Disp of Misc Metal Work	46513.00	LB	1,744	83,576	5,278	0	0	88,854	1.91
TOTAL Dam Removal Components				94,982	5021170	3389259	165,954	0	8,576,382	
09.05 Robles Diversion Dam Components										
09.05.001 High Flow Sediment Bypass										
09.05.001.001	Radial Gate (120' section)			0	0	0	0	2700000	2,700,000	
09.05.001.002	Timber Crib Struct Replacement			0	0	0	0	1100000	1,100,000	
TOTAL High Flow Sediment Bypass				0	0	0	0	3800000	3,800,000	
TOTAL Robles Diversion Dam Components				0	0	0	0	3800000	3,800,000	
09.06 Downstream Flood Mitigation										
09.06.001 Structural Modifications										
09.06.001.001	Removal of Camino Cielo Bridge			0	0	0	0	4201717	4,201,717	
09.06.001.002	Sanata Ana Bridge Modification			0	0	0	0	2250000	2,250,000	
09.06.001.003	Meiners Oaks Levee/Floodwall									



		QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
09.06.001.003.001	Clear Site & Remove Obstruction	7.00	ACR	70	3,735	3,800	0	13,548	21,083	3011.88
09.06.001.003.002	6" Stripping	1333.00	CY	53	2,476	941	0	0	3,418	2.56
09.06.001.003.003	Excavation & Compacted Backfill	19759.00	CY	2,189	103,824	77,030	0	0	180,854	9.15
09.06.001.003.004	Compacted Fill Levee	9589.00	CY	648	29,040	30,722	0	0	59,762	6.23
09.06.001.003.005	Rip Rap, 30" Thick	5566.00	TON	846	37,457	24,844	119,112	0	181,413	32.59
09.06.001.003.006	Gravel Blankket, 6" Thick	1105.00	TON	41	1,994	1,668	26,344	0	30,006	27.15
09.06.001.003.007	Geotextile Fabrics	4174.00	SY	67	2,615	412	2,724	0	5,751	1.38
09.06.001.003.008	Concrete Floodwall	1996.00	TON	1,533	66,251	11,375	121,409	0	199,035	99.72
09.06.001.003.009	Rebar, Floodwall	120.00	TON	1,280	82,850	0	117,366	0	200,216	1668.47
09.06.001.003.010	6" ABC for O&M Roads	2083.00	TON	197	10,664	6,504	19,715	0	36,883	17.71
TOTAL Meiners Oaks Levee/Floodwall				6,925	340,906	157,298	406,670	13,548	918,422	
09.06.001.004 Live Oaks Levee/Floodwall										
09.06.001.004.001	Clear Site & Remove Obstruction	2.00	ACR	20	1,067	1,086	0	3,871	6,024	3011.88
09.06.001.004.002	6" Stripping	1175.00	CY	47	2,183	830	0	0	3,013	2.56
09.06.001.004.003	Excavation & Compacted Backfill	8418.00	CY	933	44,232	32,818	0	0	77,050	9.15
09.06.001.004.004	Compacted Fill Levee	22293.00	CY	2,622	116,265	124,845	0	0	241,110	10.82
09.06.001.004.005	Rip Rap, 30" Thick	7554.00	TON	1,225	54,173	37,375	161,656	0	253,203	33.52
09.06.001.004.006	Gravel Blankket, 6" Thick	1500.00	TON	55	2,707	2,265	35,760	0	40,732	27.15
09.06.001.004.007	Geotextile Fabrics	5658.00	SY	91	3,545	558	3,693	0	7,796	1.38
09.06.001.004.008	Concrete Floodwall	1852.00	TON	1,540	66,826	10,555	118,385	0	195,767	105.71
09.06.001.004.009	Rebar, Floodwall	111.00	TON	1,184	76,636	0	108,563	0	185,200	1668.47
09.06.001.004.010	6" ABC for O&M Roads	1688.00	TON	160	8,642	5,271	15,976	0	29,889	17.71
TOTAL Live Oaks Levee/Floodwall				7,876	376,276	215,602	444,034	3,871	1,039,782	
09.06.001.005 Casistas Springs Levee										
09.06.001.005.001	Clear Site & Remove Obstruction	1.00	ACR	10	534	543	0	1,935	3,012	3011.88
09.06.001.005.002	6" Stripping	1855.00	CY	74	3,446	1,310	0	0	4,756	2.56
09.06.001.005.004	Compacted Fill Levee	12013.00	CY	1,713	75,788	81,669	0	0	157,457	13.11
09.06.001.005.005	Rip Rap, 30" Thick	3292.00	TON	586	25,894	18,792	70,449	0	115,135	34.97
09.06.001.005.006	Gravel Blankket, 6" Thick	1046.00	TON	38	1,887	1,579	24,933	0	28,399	27.15
09.06.001.005.010	6" ABC for O&M Roads	1688.00	TON	160	8,642	5,271	15,976	0	29,889	17.71
TOTAL Casistas Springs Levee				2,582	116,190	109,164	111,358	1,935	338,647	
TOTAL Structural Modifications				17,383	833,372	482,063	962,062	6471071	8,748,568	
TOTAL Downstream Flood Mitigation				17,383	833,372	482,063	962,062	6471071	8,748,568	
09.07 Foster Park Components										
09.07.001	Wells	2.00	EA	0	0	0	0	650,000	650,000	325000.00
TOTAL Foster Park Components				0	0	0	0	650,000	650,000	

		QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
-----										
09.08 Downstream Arundo Eradication										
09.08.001 Eradication (Reach 1-6)										
09.08.001.001	Removal	123.00	ACR	36,900	1795092	304,280	0	0	2,099,372	17068.06
09.08.001.002	Hauling	99260.00	CY	3,970	208,495	228,469	0	0	436,964	4.40
09.08.001.003	Mulching & Stockpiling	99260.00	CY	2,707	149,859	67,716	0	0	217,574	2.19
TOTAL Eradication (Reach 1-6)		123.00	ACR	43,577	2153446	600,464	0	0	2,753,911	22389.52
-----										
09.08.002 Eradication (Reach 1-6)										
09.08.002.001	Removal	1059.00	ACR	4,539	236,926	200,801	0	0	437,727	413.34
09.08.002.002	Hauling	141900.00	CY	5,676	298,061	326,614	0	0	624,675	4.40
09.08.002.003	Mulching & Stockpiling	141900.00	CY	3,870	214,235	96,805	0	0	311,040	2.19
TOTAL Eradication (Reach 1-6)		1059.00	ACR	14,085	749,221	624,220	0	0	1,373,442	1296.92
TOTAL Downstream Arundo Eradication				57,662	2902668	1224684	0	0	4,127,352	
TOTAL Construction				338,476	16191028	8077907	354968525278434		53,097,054	
TOTAL Matijila Dam Removal Feasibility		1.00	EA	338,476	16191028	8077907	354968537656584		65,475,204	65475204
-----										
OVERHEAD									5,309,705	
SUBTOTAL HOME OFC									70,784,910	
SUBTOTAL PROFIT									1,752,203	
SUBTOTAL BOND									72,537,112	
TOTAL INCL INDIRECTS CONTINGENCY (25%)									4,211,127	
SUBTOTAL PED (10%)									76,748,240	
SUBTOTAL EDC (1%)									434,406	
SUBTOTAL S&A (6.5%)									77,182,645	
TOTAL INCL OWNER COSTS									19,295,661	
									96,478,307	
									7,718,265	
									104,196,571	
									771,826	
									104,968,398	
									5,016,872	
									109,985,270	

		QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
-----										
01	Real Estate									
01.01	LERRD									
01.01.001	Non-Fed Land, Easement & ROW			0	0	0	0	872,500	872,500	
	TOTAL Non-Fed Land, Easement & ROW			0	0	0	0	872,500	872,500	
01.01.002	Land, Easement & ROW Acqr'd by									
01.01.002.001	Fee (163.01 acres)			0	0	0	0	5570000	5,570,000	
01.01.002.002	Perm Easement (incl Arundo Rem)			0	0	0	0	80,500	80,500	
01.01.002.003	Temp Easement (0.06 acres)			0	0	0	0	150	150	
	TOTAL Land, Easement & ROW Acqr'd by			0	0	0	0	5650650	5,650,650	
01.01.003	PL 91-646 Relocation Assist. #			0	0	0	0	750,000	750,000	
01.01.004	Facility/Utility Relocation			0	0	0	0	4570000	4,570,000	
01.01.005	Non_Fed Sponsor Admin Acq Cost			0	0	0	0	500,000	500,000	
	TOTAL LERRD			0	0	0	0	12343150	12,343,150	
01.02	Federal Admin Cost			0	0	0	0	35,000	35,000	
	TOTAL Real Estate			0	0	0	0	12378150	12,378,150	
-----										
09	Construction									
09.01	Site Preparation									
09.01.001	Mobilization & Demobilization			0	0	0	0	4000000	4,000,000	
09.01.002	Clearing & Grubbing	134.60	ACR	1,354	71,815	73,078	0	277,960	422,852	3141.55
09.01.003	Arundo Eradication									
09.01.003.001	Eradication (Reach 7)									
09.01.003.001.001	Removal	118.00	ACR	4,720	229,616	104,414	0	0	334,030	2830.76
09.01.003.001.002	Hauling	95230.00	CY	3,809	200,030	219,193	0	0	419,223	4.40
09.01.003.001.003	Mulching & Stockpiling	95230.00	CY	2,597	143,774	64,966	0	0	208,741	2.19
	TOTAL Eradication (Reach 7)	118.00	ACR	11,126	573,421	388,573	0	0	961,994	8152.49
09.01.003.002	Eradication (Reach 8 & 9)									
09.01.003.002.001	Removal	0.40	ACR	120	5,838	990	0	0	6,827	17068.06
09.01.003.002.002	Hauling	325.00	CY	13	683	748	0	0	1,431	4.40

		QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
09.01.003.002.003	Mulching & Stockpiling	325.00	CY	9	491	222	0	0	712	2.19
	TOTAL Eradication (Reach 8 & 9)	0.40	ACR	142	7,011	1,959	0	0	8,970	22425.84
	TOTAL Arundo Eradication			11,268	580,432	390,533	0	0	970,965	
09.01.004	Diversion & Control of Water			0	0	0	0	80,000	80,000	
09.01.005	Fish Rescue & Relocation			0	0	0	0	80,000	80,000	
	TOTAL Site Preparation			12,622	652,247	463,611	0	4437960	5,553,817	
09.02	Matilija Reservoir Sediment Comp									
09.02.001	Disposal Site Closure			0	0	0	0	160,000	160,000	
09.02.002	Soil Cement Wall	62900.00	CY	29,028	1158712	230,723	134,606	0	1,524,042	24.23
09.02.003	Channel Excavation	1113000	CY	29,606	1420299	1313229	0	0	2,733,528	2.46
	TOTAL Matilija Reservoir Sediment Comp			58,634	2579012	1543952	134,606	160,000	4,417,570	
09.03	Slurry System Components									
09.03.001	Import Water from Casitas									
09.03.001.001	Cost of water	4500.00	A-F	0	0	0	0	630,000	630,000	140.00
09.03.001.002	Pipeline corridor preparation	648000.00	SF	12,247	485,546	31,298	0	0	516,845	0.80
09.03.001.003	Fresh water supply pump, 800HP	1.00	EA	263	14,184	6,247	81,987	0	102,418	102417.68
09.03.001.004	Power to pump from Casitas	3900000	K-H	0	0	0	0	468,000	468,000	0.12
09.03.001.005	Fresh water pipeline	42240.00	LF	5,081	230,825	0	273,441	0	504,265	11.94
09.03.001.006	Water storage tank, 90000 gal	1.00	EA	105	5,673	2,499	98,127	0	106,299	106298.74
09.03.001.007	Make-up water pump, 900HP	3.00	EA	788	42,551	18,740	213,038	0	274,329	91442.99
09.03.001.008	Make-up waterline 1-mi long	5280.00	LF	635	28,853	0	81,919	0	110,772	20.98
09.03.001.009	Power for make-up system	13053000	K-H	0	0	0	0	1566360	1,566,360	0.12
	TOTAL Import Water from Casitas			19,119	807,632	58,784	748,512	2664360	4,279,288	
09.03.002	12" Cutter Head Suction Dredge	2.00	EA	0	0	0	0	5163553	5,163,553	2581777
09.03.003	Slurry System									
09.03.003.001	Pipeline corridor preparation	1244100	SF	23,513	932,204	60,090	0	0	992,294	0.80
09.03.003.002	Thickener, 115' dia.	1.00	EA	1,050	56,734	24,987	786,950	0	868,671	868670.90
09.03.003.003	Slurry Pipeline, 20" SRD11	41470.00	LF	5,478	230,071	0	554,661	0	784,733	18.92
09.03.003.004	Slurry Pump, 1200HP	1.00	EA	263	14,184	6,247	52,033	0	72,463	72463.24
09.03.003.005	Power for Slurry System	1934000	K-H	0	0	0	0	232,080	232,080	0.12
	TOTAL Slurry System			30,304	1233193	91,324	1393644	232,080	2,950,241	
09.03.004	Operation Crew	26000.00	HR	26,460	1149671	0	0	0	1,149,671	44.22
09.03.005	Clear Disposal Area	94.00	ACR	1,597	70,286	73,752	0	189,410	333,448	3547.32

		QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
09.03.006	Construct Containment Dikes	416000.00	CY	19,429	925,651	739,508	71,219	0	1,736,379	4.17
09.03.007	Misc Detail at Dike			0	0	0	0	550,000	550,000	
09.03.008	Dust Abatement			0	0	0	0	110,000	110,000	
09.03.009	Site Restoration			0	0	0	0	850,000	850,000	
09.03.010	Road Repair	2.00	MI	283	16,128	10,969	73,689	0	100,785	50392.48
TOTAL Slurry System Components				97,193	4202561	974,337	2287064	9759403	17,223,365	
09.04 Dam Removal Components										
09.04.001	Removal of Concrete Fish Trap	120.00	CY	389	19,885	4,229	0	0	24,114	200.95
09.04.002	Removal of Concrete Contr House	70.00	CY	280	14,306	3,042	0	0	17,348	247.83
09.04.003	Removal of Concrete Dam	51100.00	CY	24,528	1253201	266,520	0	0	1,519,721	29.74
09.04.004 Drilling & Blasting for Dam Rem										
09.04.004.001	Drilling Horizontal Holes	124400.00	LF	27,842	1590554	1285271	6,245	0	2,882,070	23.17
09.04.004.002	Blasting Horizontal Holes	9550.00	EA	955	44,222	10,607	87,263	0	142,092	14.88
09.04.004.003	Drilling Vertical Holes	122000.00	LF	22,180	1267127	1031292	0	0	2,298,419	18.84
09.04.004.004	Blasting Vertical Holes	7600.00	EA	760	35,192	8,441	72,445	0	116,079	15.27
TOTAL Drilling & Blasting for Dam Rem				51,736	2937095	2335611	165,954	0	5,438,660	
09.04.005	Process Concrete for Hauling	9638.00	TON	241	10,539	4,705	0	0	15,243	1.58
09.04.006	Haul Concrete to Recycling Plant	72285.00	TON	16,063	702,568	769,874	0	0	1,472,442	20.37
09.04.007	Rem & Disp of Misc Metal Work	46513.00	LB	1,744	83,576	5,278	0	0	88,854	1.91
TOTAL Dam Removal Components				94,982	5021170	3389259	165,954	0	8,576,382	
09.05 Robles Diversion Dam Components										
09.05.001 High Flow Sediment Bypass										
09.05.001.001	Radial Gate (120' section)			0	0	0	0	2700000	2,700,000	
09.05.001.002	Timber Crib Struct Replacement			0	0	0	0	1100000	1,100,000	
TOTAL High Flow Sediment Bypass				0	0	0	0	3800000	3,800,000	
TOTAL Robles Diversion Dam Components				0	0	0	0	3800000	3,800,000	
09.06 Downstream Flood Mitigation										
09.06.001 Structural Modifications										
09.06.001.001	Removal of Camino Cielo Bridge			0	0	0	0	4201717	4,201,717	
09.06.001.002	Sanata Ana Bridge Modification			0	0	0	0	2250000	2,250,000	
09.06.001.003	Meiners Oaks Levee/Floodwall									

		QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
09.06.001.003.001	Clear Site & Remove Obstruction	7.00	ACR	70	3,735	3,800	0	13,548	21,083	3011.88
09.06.001.003.002	6" Stripping	1333.00	CY	53	2,476	941	0	0	3,418	2.56
09.06.001.003.003	Excavation & Compacted Backfill	19759.00	CY	2,189	103,824	77,030	0	0	180,854	9.15
09.06.001.003.004	Compacted Fill Levee	9589.00	CY	648	29,040	30,722	0	0	59,762	6.23
09.06.001.003.005	Rip Rap, 30" Thick									
09.06.001.003.005.001	Transportation	5566.00	TON	253	11,066	12,126	119,112	0	142,304	25.57
09.06.001.003.005.002	Placement	5566.00	TON	593	26,391	12,718	0	0	39,110	7.03
	TOTAL Rip Rap, 30" Thick	5566.00	TON	846	37,457	24,844	119,112	0	181,413	32.59
09.06.001.003.006	Gravel Blankket, 6" Thick	1105.00	TON	41	1,994	1,668	26,344	0	30,006	27.15
09.06.001.003.007	Geotextile Fabrics	4174.00	SY	67	2,615	412	2,724	0	5,751	1.38
09.06.001.003.008	Concrete Floodwall	1996.00	TON	1,533	66,251	11,375	121,409	0	199,035	99.72
09.06.001.003.009	Rebar, Floodwall	120.00	TON	1,280	82,850	0	117,366	0	200,216	1668.47
09.06.001.003.010	6" ABC for O&M Roads									
09.06.001.003.010.001	Transportation	2083.00	TON	42	2,223	2,436	19,715	0	24,374	11.70
09.06.001.003.010.002	Placement	2083.00	TON	156	8,441	4,068	0	0	12,509	6.01
	TOTAL 6" ABC for O&M Roads	2083.00	TON	197	10,664	6,504	19,715	0	36,883	17.71
	TOTAL Meiners Oaks Levee/Floodwall			6,925	340,906	157,298	406,670	13,548	918,422	
09.06.001.004	Live Oaks Levee/Floodwall									
09.06.001.004.001	Clear Site & Remove Obstruction	2.00	ACR	20	1,067	1,086	0	3,871	6,024	3011.88
09.06.001.004.002	6" Stripping	1175.00	CY	47	2,183	830	0	0	3,013	2.56
09.06.001.004.003	Excavation & Compacted Backfill	8418.00	CY	933	44,232	32,818	0	0	77,050	9.15
09.06.001.004.004	Compacted Fill Levee	22293.00	CY	2,622	116,265	124,845	0	0	241,110	10.82
09.06.001.004.005	Rip Rap, 30" Thick									
09.06.001.004.005.001	Transportation	7554.00	TON	420	18,355	20,114	161,656	0	200,124	26.49
09.06.001.004.005.002	Placement	7554.00	TON	805	35,817	17,261	0	0	53,079	7.03
	TOTAL Rip Rap, 30" Thick	7554.00	TON	1,225	54,173	37,375	161,656	0	253,203	33.52
09.06.001.004.006	Gravel Blankket, 6" Thick	1500.00	TON	55	2,707	2,265	35,760	0	40,732	27.15
09.06.001.004.007	Geotextile Fabrics	5658.00	SY	91	3,545	558	3,693	0	7,796	1.38
09.06.001.004.008	Concrete Floodwall	1852.00	TON	1,540	66,826	10,555	118,385	0	195,767	105.71
09.06.001.004.009	Rebar, Floodwall	111.00	TON	1,184	76,636	0	108,563	0	185,200	1668.47
09.06.001.004.010	6" ABC for O&M Roads									
09.06.001.004.010.001	Transportation	1688.00	TON	34	1,801	1,974	15,976	0	19,752	11.70
09.06.001.004.010.002	Placement	1688.00	TON	126	6,841	3,297	0	0	10,137	6.01

		QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
TOTAL 6" ABC for O&M Roads		1688.00	TON	160	8,642	5,271	15,976	0	29,889	17.71
TOTAL Live Oaks Levee/Floodwall				7,876	376,276	215,602	444,034	3,871	1,039,782	
09.06.001.005 Casistas Springs Levee										
09.06.001.005.001	Clear Site & Remove Obstruction	1.00	ACR	10	534	543	0	1,935	3,012	3011.88
09.06.001.005.002	6" Stripping	1855.00	CY	74	3,446	1,310	0	0	4,756	2.56
09.06.001.005.004	Compacted Fill Levee	12013.00	CY	1,713	75,788	81,669	0	0	157,457	13.11
09.06.001.005.005 Rip Rap, 30" Thick										
09.06.001.005.005.001	Transportation	3292.00	TON	235	10,285	11,270	70,449	0	92,003	27.95
09.06.001.005.005.002	Placement	3292.00	TON	351	15,609	7,522	0	0	23,131	7.03
TOTAL Rip Rap, 30" Thick		3292.00	TON	586	25,894	18,792	70,449	0	115,135	34.97
09.06.001.005.006	Gravel Blankket, 6" Thick	1046.00	TON	38	1,887	1,579	24,933	0	28,399	27.15
09.06.001.005.010 6" ABC for O&M Roads										
09.06.001.005.010.001	Transportation	1688.00	TON	34	1,801	1,974	15,976	0	19,752	11.70
09.06.001.005.010.002	Placement	1688.00	TON	126	6,841	3,297	0	0	10,137	6.01
TOTAL 6" ABC for O&M Roads		1688.00	TON	160	8,642	5,271	15,976	0	29,889	17.71
TOTAL Casistas Springs Levee				2,582	116,190	109,164	111,358	1,935	338,647	
TOTAL Structural Modifications				17,383	833,372	482,063	962,062	6471071	8,748,568	
TOTAL Downstream Flood Mitigation				17,383	833,372	482,063	962,062	6471071	8,748,568	
09.07 Foster Park Components										
09.07.001	Wells	2.00	EA	0	0	0	0	650,000	650,000	325000.00
TOTAL Foster Park Components				0	0	0	0	650,000	650,000	
09.08 Downstream Arundo Eradication										
09.08.001 Eradication (Reach 1-6)										
09.08.001.001	Removal	123.00	ACR	36,900	1795092	304,280	0	0	2,099,372	17068.06
09.08.001.002	Hauling	99260.00	CY	3,970	208,495	228,469	0	0	436,964	4.40
09.08.001.003	Mulching & Stockpiling	99260.00	CY	2,707	149,859	67,716	0	0	217,574	2.19
TOTAL Eradication (Reach 1-6)		123.00	ACR	43,577	2153446	600,464	0	0	2,753,911	22389.52

		QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
09.08.002 Eradication (Reach 1-6)										
09.08.002.001	Removal	1059.00	ACR	4,539	236,926	200,801	0	0	437,727	413.34
09.08.002.002	Hauling	141900.00	CY	5,676	298,061	326,614	0	0	624,675	4.40
09.08.002.003	Mulching & Stockpiling	141900.00	CY	3,870	214,235	96,805	0	0	311,040	2.19
TOTAL Eradication (Reach 1-6)		1059.00	ACR	14,085	749,221	624,220	0	0	1,373,442	1296.92
TOTAL Downstream Arundo Eradication				57,662	2902668	1224684	0	0	4,127,352	
TOTAL Construction				338,476	16191028	8077907	354968525278434		53,097,054	
TOTAL Matijila Dam Removal Feasibility		1.00	EA	338,476	16191028	8077907	354968537656584		65,475,204	65475204
OVERHEAD									5,309,705	
SUBTOTAL HOME OFC									70,784,910	
SUBTOTAL PROFIT									1,752,203	
SUBTOTAL BOND									72,537,112	
TOTAL INCL INDIRECTS CONTINGENCY (25%)									4,211,127	
SUBTOTAL PED (10%)									76,748,240	
SUBTOTAL EDC (1%)									434,406	
SUBTOTAL S&A (6.5%)									77,182,645	
TOTAL INCL OWNER COSTS									19,295,661	
									96,478,307	
									7,718,265	
									104,196,571	
									771,826	
									104,968,398	
									5,016,872	
									109,985,270	