

Estimated Cost for RD2107 Grant Project (Scaled Levee of 0.91 Miles)

<b>CAPITAL COSTS</b>		<b>Unit</b>	<b>Unit Cost</b>	<b>Quantity / Percentage</b>	<b>Capital Cost with Markups</b>
<b>Line Items</b>	<b>Scale Factor</b>				
Clear and Grub *	0.91	acre	\$1,000	12.1	\$11,011
Strip Topsoil	0.91	cyd	\$1.50	19600	\$26,754
Exploratory Trench	0.91	cyd	\$4	1760	\$6,406
Fill and Compact Trench	0.91	cyd	\$8	2025	\$14,742
Area Grade and Proof Roll	0.91	syd	\$0.25	58700	\$13,354
Levee Base	0.91	cyd	\$16.70	204800	\$3,112,346
Rip Rap	1.44	lf	\$85.00	5280	\$646,272
Drain Structure	1	ls	\$37,000	1	\$37,000
Ecosystem Restoration *	1	acre	\$5,000	3	\$15,000
Shaded Riverine Habitat Establishment *	1	ea	\$10	190	\$1,900
Degrade Existing Levee	1	ea	\$42,000	3	\$126,000
Subtotal					\$4,010,785
Scope Contingencies (% of construction subtotal)				10%	\$401,000
<b>Construction Total</b>					<b>\$4,411,785</b>
<b>Other Direct Costs</b>					
Engineering Design (% of construction total)				6%	\$265,000
Planning, Permitting and Legal (% of construction total)				10%	\$441,000
Bonding and Insurance (% of construction total)				3%	\$132,000
Construction Oversight (% of construction total)				2.5%	\$110,000
Contractor Profit (% of construction total)				10%	\$441,000
Field and Laboratory Testing (% of construction total)				1.5%	\$66,000
Reporting (% of construction total)				1.5%	\$66,000
Escalation (% of construction total - assumes mid-2004 construction 5%/yr)				5%	\$221,000
Subtotal					\$1,742,000
<b>Total Capital Cost</b>					<b>\$6,153,785</b>

<b>LAND PURCHASE/LEASE</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Quantity / Percentage</b>	<b>Land Cost</b>
<b>Line Items</b>				
Lease	acre	\$3,500	240	\$840,000
<b>Total Land Purchase/Lease Costs</b>				<b>\$840,000</b>

<b>NET PRESENT WORTH</b>		
Capital Costs		\$6,153,785
Purchase/Lease Costs		\$840,000
<b>Total Alternative Cost</b>		<b>\$6,993,785</b>

**Assumptions:**

- >1 mile long x 100 foot wide levee placement area (528,000 sf or 12.1 acres) (SCALED TO 0.91 MILES)
- >Strip top soil 1 foot deep x 100 foot wide (528,000 cf or 19,600 cyd)
- >Exploratory trench 1.5 foot wide x 6 foot deep x 1 mile long (1769 cyd); operator, geologist, and soil sampler
- >Fill and compact 1.5 foot wide trench (2025 cyd assuming 15% expansion)
- >Grade and proof-roll compact levee subgrade (528,000 sf or 58,700 syd)
- >Import, place and compact levee base 15 foot high x 100 foot wide with 25-foot wide top with 1:2 inward side slope and 1:3 outward side slope (937.5 sf section) (183,300 cyd) (\$12.50/cyd delivered and \$4.20/cyd placed and compacted)
- >Import and place rip rap from toe to levee top for new levee and Paradise Cut landward side (45 feet x 5280 feet x 1 foot deep, 8.800 cyds x 1.65 tons/cyd ~ 14,500 tons) (\$25/ton delivered and \$6/ton placed or 14,500 ton x \$31/ton/5,280 feet = \$85.00 lf)
- > Install three 72-inch CMP drain system with flap gate, concrete inlet and outlet structure, trash rack, and rip-rap (72-inch CMP \$90/lf x 50 lf; 72-inch square flap gate \$5000 installed; 8 ft x 16 ft x 1 ft thick concrete structures - 12 cyds reinforced concrete each @\$450/cyd;
- 8' x 12' steel trash rack - \$3500 installed; excavate 10' wide trench - 260 cyd@\$20/cyd; place 1' sand bedding - 30 cyd@\$20/cyd; place 270 cyd native backfill (1.15 expansion factor)@\$10/cyd; 50 lf rip-rap x 2 sides (\$66.50/lf)
- > Plant seedings, develop habitat including establishment of ponds (3 acres @\$5000/acre) \*
- > Create Shaded Riverine Aquatic habitat by planting trees of varying ages along water side of San Joaquin River, 3,800 feet on sinuous line at average 20 feet on center, clustered (\$10 per tree) \*
- > Degrade levee at 3 locations; 10 foot deep x 50 foot wide with 2.5 feet rip-rap from toe to toe and 20 feet on all-around (1250 cyd excavation @\$3/cyd; 750 cyd rip-rap @\$51/cyd each)

\* Work anticipated to be done by California Conservation Corps, at an estimated cost of: **\$27,911**