Erosion Control Delayed / Avoided Costs

Eddie Axner Construction Work on Site (Terraces & Access Road)

Disturbed Land Area (Acres)	3.8 from SHN Erosion Control Plan

Cost table below generated using California Stormwater BMP Handbook Portal Construction, 2011 (www.casqua.org)

Erosion Control Method / BMPs	Application	Total Cost	
		Low Range	High Range
Hydroseeding $1900 - $4000 per acre[1]	3.8 Acres	$7,220.00	$15,200.00
Straw Mulch, crimped or punched $1823 - $5375 per acre[1]	3.8 Acres	$6,927.40	$20,425.00
Rolled Erosion Control Products $20 - $30 per 25ft roll[1]	700 Feet	$14,000.00	$21,000.00
Silt Fence (6 month useful life) $7 per linear foot[1]	170 Feet	$1,190.00	$1,190.00
Erosion Control Blankets, Jute Mesh $6000-$7000 per Acre[2]	1 Acre	$6,000.00	$7,000.00
Rock Check Dams $50 per device (based on cost of rock in Redding area)	4 Check Dams	$200.00	$200.00
Straw Bales $5-$7 each[1]	24 Bales	$120.00	$168.00
Velocity Dissipation Devices $150 per device[1]	2 Devices	$300.00	$300.00
Slope Drains (12 inch diameter) $19.60 per linear foot[1]	50 Linear Feet	$980.00	$980.00
Total Cost For Adequate Erosion Control		**$36,937.40**	**$66,463.00**

Based on estmated costs from the following resources:

[1]Caltrans Soil Stabilization BMP Research for Erosion and Sediment Controls, July 2007

[2]Erosion Control Pilot Study Report, Caltrans, June 2000

Storm Water Construction Annual Fee	
4 Acres	$715

SWPPP Preparation and Implementation Costs	Number of Events	Individual Cost	Total Cost
SWPPP Development	1	$2,000	$2,000.00
Annual Report	1	$800	$800.00
Weekly Inspections during Construction	2[1]	$150	$300.00
Rain Event Action Plan Inspections (REAP)[2]	12	$150	$1,800.00

Sampling Events[3]	4	$50	$200.00
Total Cost for SWPPP Preparation and Implementation			**$5,100.00**

[1]During then After Construction
[2]Inspections conducted before, during, and after rain events
[3]Sample collection conducted during rain events in conjuction with REAP inspection during event

TOTAL AVOIDED/DELAYED COSTS*
$72,278.00
Used High Range due to difficult terrain and highly erodible nature of the soils on this Site

The above Best Management Practices (or other BMPs very similar to those above) would have been needed to prevent erosion of disturbed areas on the Site and to prevent sediment from the Site from discharging to Waters of the State/Nation. The above BMPs should have been implemented during and immediately after construction was complete in June of 2013. The above BMPs will be implemented on or before 1 November 2015 in accordance with Cleanup and Abatement Order No. R5-2015-0701. Costs associated with BMP implementation are to be considered **Delayed Costs**.

The annual cost for enrolling in the General Construction Stormwater Permit during Fiscal Year 2013/2014 for activities conducted by Eddie Axner Construction in June of 2013 was $715. This cost is considered to be an **Avoided Cost**.

A SWPPP should have been developed and implemented by a QSD, in conjunction with construction planning and construction on the Site in June of 2013. The above SWPPP Preparation and Implementation Costs are costs associated with hiring a QSD to develop the SWPPP and hiring a QSP to conduct Weekly and REAP inspections with associated sampling when needed, and to write and submit an Annual Report. These costs are considered **Avoided Costs**.

Erosion Control & Permitting Delayed / Avoided Costs

Newly Constructed Road with Two Watercourse Crossings

Disturbed Land Area (Acres)	2.1 (from SHN Erosion Control Plan)

Cost table below generated using California Stormwater BMP Handbook Portal Construction, 2011 (www.casqua.org)

Erosion Control Method	Application	Total Cost	
		Low Range	High Range
Hydroseeding $1900 - $4000 per acre[1]	2.1 Acres	$3,990.00	$8,400.00
Straw Mulch, crimped or punched $1823 - $5375 per acre[1]	2.1 Acres	$3,828.30	$11,287.50
Water Bars $2.50 - $6.50 per linear ft[1]	960 Feet	$2,400.00	$6,240.00
Straw Bales $5-$7 each[1]	24 Bales	$120.00	$168.00
Velocity Dissipation Devices $150 per device[1]	8 Devices	$1,200.00	$1,200.00
Rocked Fords with Geotextile Fabric $60,000 per acre[1]	0.05 Acres	$3,000.00	$3,000.00
Total Cost For Adequate Erosion Control		**$14,538.30**	**$30,295.50**

Based on estmated costs from the following resources:

[1]Caltrans Soil Stabilization BMP Research for Erosion and Sediment Controls, July 2007

Storm Water Construction Annual Fee	
6 Acres	$745

SWPPP Preparation and Implementation Costs	Number of Events	Individual Cost	Total Cost
SWPPP Development	1	$2,000	$2,000.00
Annual Report	1	$800	$800.00
Weekly Inspections during Construction	2[1]	$150	$300.00
Rain Event Action Plan Inspections (REAP)[2]	21	$150	$3,150.00
Sampling Events[3]	7	$50	$350.00
Total Cost for SWPPP Preparation and Implementation			**$6,600.00**

[1]During then After Construction

[2]Inspections conducted before, during, and after rain events

[3]Sample collection conducted during rain events in conjuction with REAP inspection during event

401 Certification Fees	
Low Impact Discharges (Flat Rate)	**$1,097**

TOTAL AVOIDED/DELAYED COSTS*
$38,737.50
Used High Range due to difficult terrain and highly erodible nature of the soils on this Site

The above Best Management Practices (or other BMPs very similar to those above) would have been needed to prevent erosion of disturbed areas on the Site and to prevent sediment from the Site from discharging to Waters of the State/Nation. The above BMPs should have been implemented during and immediately after construction of the road was complete in the Late Spring or Early Summer of 2014. The above BMPs will be implemented on or before 1 November 2015 in accordance with Cleanup and Abatement Order No. R5-2015-0701. Costs associated with BMP implementation are to be considered **Delayed Costs**.

The annual cost for enrolling in the General Construction Stormwater Permit during Fiscal Year 2014/2015 for activities conducted by Mr. Cordes' lessee plus the areas of constuction conducted a year earlier by Eddie Axner Construction is $745. This cost is considered to be an **Avoided Cost**.

A SWPPP should have been developed and implemented by a QSD, in conjunction with construction planning and construction of the road in Late Spring or Early Summer of 2014. The above SWPPP Preparation and Implementation Costs are costs associated with hiring a QSD to develop the SWPPP and hiring a QSP to conduct Weekly and REAP inspections with associated sampling when needed, and to write and submit an Annual Report. These costs are considered **Avoided Costs**.

A Water Quality and 401 Certification would have been required for the creation of the two watercourse crossings located on the new road. The minimum cost for a 401 Certification is $1097. This cost is to be considered an **Avoided Cost**.