

This cost estimate is based on several assumptions:

- These types of projects are extremely variable in their costs, depending on biological, political, and logistical issues encountered. Included costs are estimated at the high end of range when there is question. Each project could potentially be completed at 30% less than the estimate provided in this study.
- Economy of scale is an important factor in controlling costs. Projects can be grouped in a variety of ways that may be different than those used in this study.
- Costs on each sheet in this workbook assume that each project will be built separately. The sheet titled "Grouping" provides recommendations on how to combine projects, and calculates the savings realized through the grouping.
- The scope of work for this task did not include searching for additional projects or issues outside of the immediate areas indicated on our site maps. There may be additional work not captured in these cost-estimates.
- This study assumes that all projects with permits will need 5 years of maintenance and monitoring to meet success criteria, and that all projects will be targeting mitigation-quality results.
- Estimates do not include costs associated with endangered species consultation or associate mitigation measures. Project proponent should take all possible
- Any impacts incurred to wetland habitats during implmenetation will be self-mitigated within the proposed project through replacement and expansion of same or similar habitats. The purpose of each project is inherently intended to improve quality and function of natural habitats and systems.

Malibu Creek Subwatershed Cost Estimation

Dry Creek Site 3 (DCC03)

Standard Rough Order of Magnitude Costs

Bid Item	Unit Cost	Units	Quant	Cost
Design Costs				
Field Investigation/Bio Surveying/Mapping	\$ 2,000.00	LS	1	\$ 2,000.00
Field Equipment	\$ 110.00	day	2	\$ 220.00
Topographic Survey	\$ 450.00	acre		\$ -
Base Plan Preparation	\$ 650.00	LS	1	\$ 650.00
Conceptual Restoration Plan (map + narrative)	\$ 5,000.00	LS	1	\$ 5,000.00
Renderings, models or photosimulations	\$ 650.00	each		\$ -
Grading Plan	\$ 2,500.00	LS	1	\$ 2,500.00
Planting Plan	\$ 1,600.00	acre	1	\$ 1,600.00
Irrigation Plan	\$ 3,000.00	acre		\$ -
Erosion Control Plan	\$ 400.00	LS	1	\$ 400.00
Specifications	\$ 2,000.00	LS	1	\$ 2,000.00
Client review and coordination	\$ 800.00	year	1	\$ 800.00
ACOE Nationwide permit	\$ 6,000.00	LS	1	\$ 6,000.00
Water Quality Certification	\$ 3,000.00	LS	1	\$ 3,000.00
DFG 1600 agreement	\$ 3,000.00	LS	1	\$ 3,000.00
Design Total				\$ 27,170.00
Construction Costs				
Preconstruction Surveys (sensitive species)	\$ 600.00	LS	1	\$ 600.00
Mobilization / Demobilization	\$ 6,000.00	LS	1	\$ 6,000.00
Large Tree removal	\$ 650.00	each		\$ -
Clearing and Grubbing	\$ 2,330.00	acre	0.1148	\$ 267.45
Invasive Weed Kill (Arundo, Tamarisk, etc.)	\$ 15,000.00	acre	0.0459	\$ 688.71
Traffic Control	\$ 400.00	day		\$ -
Earthwork (balanced)	\$ 20.00	cyd	50	\$ 1,000.00
Earthwork (imported fill)	\$ 33.00	cyd		\$ -
Earthwork (disposal of cut)	\$ 16.00	cyd		\$ -
In-stream structures (boulders, logs, etc)	\$ 500.00	each		\$ -
Site/Plant Protection (flagging/fencing)	\$ 1,500.00	acre	1	\$ 1,500.00
Seeding: Hydroseeding	\$ 0.10	S.F.	5000	\$ 500.00
Seeding: Imprinting	\$ 0.05	S.F.		\$ -
Seeding: Hand Broadcast	\$ 0.20	S.F.	10000	\$ 2,000.00
Plant Salvage & Replant: Tree Spade		each		\$ -
Plant Salvage & Replant: By Hand	\$ 50.00	each		\$ -
Potted Plantings (1 gal)	\$ 7.00	each	300	\$ 2,100.00
Cuttings Installation	\$ 1.00	each	500	\$ 500.00
Bioengineering Practices	\$ 30.00	LF	100	\$ 3,000.00
Erosion Control Installation	\$ 3,000.00	LS	1	\$ 3,000.00
Construction Monitoring	\$ 3,100.00	week	4	\$ 12,400.00
Construction Total				\$ 33,556.15
Maintenance & Monitoring Costs				
Invasive Weed Eradication maint	\$ 5,000.00	acre/year	0.2296	\$ 1,147.84
Standard Maint (trash, weeds, erosion, etc)	\$ 3,000.00	acre/year	5	\$ 15,000.00
Hand/truck watering	\$ 800.00	acre/visit	15	\$ 12,000.00
LA/Bio monitoring of progress (qual & quan)	\$ 3,500.00	year	5	\$ 17,500.00
Reporting	\$ 800.00	year	5	\$ 4,000.00
M&M Total				\$ 49,647.84
Project Total				\$ 110,373.99

Project Description

Site 03 is roughly 1 acre in size, stretching along roughly 400' of Dry Creek. It is generally located on the outside of a stream meander, where relatively tall and steep banks are typically expected. Subsoils appear to be fractured sandstone, which should withstand erosional forces well. Two very large oak trees are located mid-bank and would not be salvagable if bank recontouring were completed. For these reasons, and because no substantial benefits would be gained from laying back banks, we recommend avoiding major earthwork on this site. Minor bank shaping should be done at the south end of the project. The farming operation on the N and W banks is apparently cutting trees and dumping waste on the banks. Some weeding and planting opportunities exist (arundo, washingtonia, ricinus). Truck access should be possible through the adjacent farm. Foot access is good from Park Sorrento to the South. Stream supports thick overhanging riparian trees, large willow trees, a few walnuts, coast live oaks.

Recommendations

- 1) Do not recontour outside banks of meander.
- 2) Protect large oak trees and their root systems.
- 3) Eradicate ~2000 sqft of Arundo.
- 4) Install rock/willow toe protection on outside bank
- 5) Provide land management buffer on N and W banks
- 6) Planting in bare spots. ~3000 sqft.
- 7) Actively maintain and monitor the site for 3-5 years.
- 8) Lay back banks on ~20' long section of west bank at south end of project.

Assumptions

- 1) Construction drawings and specifications will be necessary.
- 2) Access will be granted from the adjacent farm property

Project Benefits

Water Quality	Moderate
Habitat Improvement	Moderate
Flood conveyance	-
Groundwater recharge	-
Aesthetics	Low
Public Safety	Low
Permitting Difficulty	Low

Site Map and Photos

[Photos\DCC03\DCC03NW2SE.JPG](#)
[Photos\DCC03\DCC03WBANK.JPG](#)
[Photos\DCC03\DCC03Arundo.JPG](#)
[Photos\DCC03\DCC03NBANK.JPG](#)
[Photos\DCC03\DCC03NBANK2.JPG](#)
[Graphics & Figures\Site_Locations\DCC-03.pdf](#)

Malibu Creek Subwatershed Cost Estimation

Dry Creek Site 4 (DCC04)

Standard Rough Order of Magnitude Costs

Bid Item	Unit Cost	Units	Quant	Cost
Design Costs				
Field Investigation/Bio Surveying/Mapping	\$ 1,000.00	LS	1	\$ 1,000.00
Field Equipment	\$ 110.00	day	1	\$ 110.00
Topographic Survey	\$ 450.00	acre	1	\$ 450.00
Base Plan Preparation	\$ 650.00	LS	1	\$ 650.00
Conceptual Restoration Plan (map + narrative)	\$ 5,000.00	LS	1	\$ 5,000.00
Renderings, models or photosimulations	\$ 650.00	each		\$ -
Grading Plan	\$ 2,500.00	acre	1	\$ 2,500.00
Planting Plan	\$ 1,600.00	acre	1	\$ 1,600.00
Irrigation Plan	\$ 3,000.00	acre		\$ -
Erosion Control Plan	\$ 400.00	LS	1	\$ 400.00
Specifications	\$ 2,000.00	LS	1	\$ 2,000.00
Client review and coordination	\$ 800.00	year	1	\$ 800.00
ACOE Nationwide permit	\$ 6,000.00	LS	1	\$ 6,000.00
Water Quality Certification	\$ 3,000.00	LS	1	\$ 3,000.00
DFG 1600 agreement	\$ 3,000.00	LS	1	\$ 3,000.00
Design Total				\$ 26,510.00
Construction Costs				
Preconstruction Surveys (sensitive species)	\$ 600.00	LS	1	\$ 600.00
Mobilization / Demobilization	\$ 6,000.00	LS	1	\$ 6,000.00
Large Tree removal	\$ 650.00	each		\$ -
Clearing and Grubbing (selective kill)	\$ 2,330.00	acre	0.4591	\$ 1,069.79
Invasive Weed Kill (Arundo, Tamarisk, etc.)	\$ 15,000.00	acre	0.0459	\$ 688.71
Traffic Control	\$ 400.00	day		\$ -
Earthwork (balanced)	\$ 20.00	cyd	10	\$ 200.00
Earthwork (imported fill)	\$ 33.00	cyd		\$ -
Earthwork (disposal of cut)	\$ 16.00	cyd		\$ -
In-stream structures (boulders, logs, checks)	\$ 500.00	each	10	\$ 5,000.00
Site/Plant Protection (flagging/fencing)	\$ 1,500.00	acre	1	\$ 1,500.00
Seeding: Hydroseeding	\$ 0.10	S.F.	43560	\$ 4,356.00
Seeding: Imprinting	\$ 0.05	S.F.		\$ -
Seeding: Hand Broadcast	\$ 0.20	S.F.		\$ -
Plant Salvage & Replant: Tree Spade		each		\$ -
Plant Salvage & Replant: By Hand	\$ 50.00	each		\$ -
Potted Plantings (1 gal)	\$ 7.00	each	600	\$ 4,200.00
Cuttings Installation	\$ 1.00	each	500	\$ 500.00
Bioengineering Practices	\$ 30.00	LF	150	\$ 4,500.00
Erosion Control Installation	\$ 3,000.00	LS	1	\$ 3,000.00
Construction Monitoring	\$ 3,100.00	week	4	\$ 12,400.00
Construction Total				\$ 44,014.49
Maintenance & Monitoring Costs				
Invasive Weed Eradication maint	\$ 5,000.00	acre/year	0.2296	\$ 1,147.84
Standard Maint (trash, weeds, erosion, etc)	\$ 3,000.00	acre/year	5	\$ 15,000.00
Hand/truck watering	\$ 800.00	acre/visit		\$ -
LA/Bio monitoring of progress (qual & quan)	\$ 3,500.00	year	5	\$ 17,500.00
Reporting	\$ 800.00	year	5	\$ 4,000.00
M&M Total				\$ 37,647.84
Project Total				\$ 108,172.34

Project Description

Site 04 is roughly .75 acre in size, stretching along roughly 400' of Dry Creek. It is located in a straight reach of the floodplain. Left bank is a mix of natural & fill slopes with high quality riparian woodland habitat. Right bank is a crib-wall with generally lower quality habitat. The creek has formed two channels in this reach. The west channel is original and has some erosion problems. City Public Works crews have been clearing weeds in this reach. Options for restoration range from complete re-meandering of the channel to just focused planting/weeding efforts. Equipment access should be possible from Park Sorrento directly into the work area.

Recommendations

This reach needs improvements in channel form and stability. We recommend achieving that goal through strategic planting and minor structural modifications, rather than wholesale recontouring. Structural modifications should be made at key points to stabilize erosion in the channel or reinforce planned meanders. Planting should be used to increase flow roughness (and thus decrease conveyance and velocity) at ground, shrub, and overstory levels and to hold soil in areas that are planned to be floodplain. A converse decrease in roughness should be planned for areas where channel flow is desired. This strategy will allow for minor deformation over time and will minimally disturb existing riparian vegetation. Basic hydrology and hydraulic calculations should be conducted in conjunction with direct observance of high flow conditions to quantify erosive forces.

- 1) Continue arundo, castor bean, washingtonia, and eucalyptus removal efforts.
- 2) Stategic riparian plantings as described above
- 3) Rock/Boulder check dams in left channel to arrest downcutting
- 4) Heavy planting and/or bioengineering on banks of desired channel
- 5) Protect and preserve existing riparian vegetation.
- 6) Actively maintain and monitor the site for 3-5 years.

Assumptions

- 1) Construction drawings and specifications will be necessary.
- 2) Results of hydraulic study are conducive to the approach described above.
- 3) Supplemental watering will not be necessary.

Project Benefits

Water Quality	Moderate
Habitat Improvement	High
Flood conveyance	-
Groundwater recharge	Low
Aesthetics	Moderate
Public Safety	Moderate
Permitting Difficulty	Moderate

Site Map and Photos

[Photos\DCC04\DCC04NorthEndN2S.JPG](#)
[Photos\DCC04\DCC04LeftChannel.JPG](#)
[Photos\DCC04\DCC04RightChannelN2S.JPG](#)
[Photos\DCC04\DCC04SouthEndN2S.JPG](#)
[Graphics & Figures\Site_Locations\DCC-04_05.pdf](#)

Malibu Creek Subwatershed Cost Estimation

Dry Creek Site 5 (DCC05)

Standard Rough Order of Magnitude Costs

Bid Item	Unit Cost	Units	Quant	Cost
Design Costs				
Field Investigation/Bio Surveying/Mapping	\$ 1,000.00	LS	1	\$ 1,000.00
Field Equipment	\$ 110.00	day	1	\$ 110.00
Topographic Survey	\$ 450.00	acre		\$ -
Base Plan Preparation	\$ 650.00	LS	1	\$ 650.00
Conceptual Restoration Plan (map + narrative)	\$ 5,000.00	LS	1	\$ 5,000.00
Renderings, models or photosimulations	\$ 650.00	each		\$ -
Grading Plan	\$ 2,500.00	acre		\$ -
Planting Plan	\$ 1,600.00	acre	0.5	\$ 800.00
Irrigation Plan	\$ 3,000.00	acre		\$ -
Erosion Control Plan	\$ 400.00	LS	1	\$ 400.00
Specifications	\$ 2,000.00	LS	1	\$ 2,000.00
Client review and coordination	\$ 800.00	year	1	\$ 800.00
ACOE Nationwide permit	\$ 6,000.00	LS	1	\$ 6,000.00
Water Quality Certification	\$ 3,000.00	LS	1	\$ 3,000.00
DFG 1600 agreement	\$ 3,000.00	LS	1	\$ 3,000.00
Design Total				\$ 22,760.00
Construction Costs				
Preconstruction Surveys (sensitive species)	\$ 600.00	LS	1	\$ 600.00
Mobilization / Demobilization	\$ 6,000.00	LS	1	\$ 6,000.00
Large Tree removal	\$ 650.00	each		\$ -
Clearing and Grubbing (selective kill)	\$ 2,330.00	acre	0.5	\$ 1,165.00
Invasive Weed Kill (Arundo, Tamarisk, etc.)	\$ 15,000.00	acre		\$ -
Traffic Control	\$ 400.00	day		\$ -
Earthwork (balanced)	\$ 20.00	cyd		\$ -
Earthwork (imported fill)	\$ 33.00	cyd		\$ -
Earthwork (disposal of cut)	\$ 16.00	cyd		\$ -
In-stream structures (boulders, logs, checks)	\$ 500.00	each		\$ -
Site/Plant Protection (flagging/fencing)	\$ 1,500.00	acre	1	\$ 1,500.00
Seeding: Hydroseeding	\$ 0.10	S.F.	21780	\$ 2,178.00
Seeding: Imprinting	\$ 0.05	S.F.		\$ -
Seeding: Hand Broadcast	\$ 0.20	S.F.		\$ -
Plant Salvage & Replant: Tree Spade		each		\$ -
Plant Salvage & Replant: By Hand	\$ 50.00	each		\$ -
Potted Plantings (1 gal)	\$ 7.00	each	300	\$ 2,100.00
Cuttings Installation	\$ 1.00	each	200	\$ 200.00
Bioengineering Practices	\$ 30.00	LF		\$ -
Erosion Control Installation	\$ 3,000.00	LS	1	\$ 3,000.00
Construction Monitoring	\$ 3,100.00	week	3	\$ 9,300.00
Construction Total				\$ 26,043.00
Maintenance & Monitoring Costs				
Invasive Weed Eradication maint	\$ 5,000.00	acre/year		\$ -
Standard Maint (trash, weeds, erosion, etc)	\$ 3,000.00	acre/year	2.5	\$ 7,500.00
Hand/truck watering	\$ 800.00	acre/visit		\$ -
LA/Bio monitoring of progress (qual & quan)	\$ 3,500.00	year	5	\$ 17,500.00
Reporting	\$ 800.00	year	5	\$ 4,000.00
M&M Total				\$ 29,000.00
Project Total				\$ 77,803.00

Project Description

It is unclear exactly what the master plan is referring to in this area. No major erosion problems were seen. The project is approximately .5 acres located immediately downstream from the Park Ora Rd bridge, which is the end of a long constricted reach. Velocities should inherently slow at this point. The area would benefit from basic weed eradication and riparian habitat creation, which makes it a natural extension of DCC04.

Recommendations

This site should be designed in conjunction with DCC04. If budgets allow, it should also be installed in conjunction with DCC04. Because the main access to sites DCC04 and 06 is from the Park Sorrento entrance at this site, DCC05 should be construction after completion of 04 and 06. We recommend concentrating on heavy riparian plantings in the floodplain and on the channel banks in this project area.

- 1) Continue arundo, castor bean, washingtonia, and eucalyptus removal efforts.
- 2) Riparian plantings in floodplain and along banks.
- 3) Protect and preserve existing riparian vegetation.
- 4) Actively maintain and monitor the site for 3-5 years.

Assumptions

- 1) Construction drawings and specifications will be necessary.
- 3) Supplemental watering will not be necessary.

Project Benefits

Water Quality	-
Habitat Improvement	High
Flood conveyance	-
Groundwater recharge	Low
Aesthetics	Moderate
Public Safety	-
Permitting Difficulty	Low

Site Map and Photos

[Photos\DCC05\DCC05BridgeNorth.JPG](#)
[Photos\DCC05\DCC05NorthEndN2S.JPG](#)
[Graphics & Figures\Site_Locations\DCC-04,05.pdf](#)

Malibu Creek Subwatershed Cost Estimation

Dry Creek Site 6 (DCC06)

Standard Rough Order of Magnitude Costs

Bid Item	Unit Cost	Units	Quant	Cost
Design Costs				
Field Investigation/Bio Surveying/Mapping	\$ 1,000.00	LS	1	\$ 1,000.00
Field Equipment	\$ 110.00	day	1	\$ 110.00
Topographic Survey	\$ 450.00	acre	0.5	\$ 225.00
Base Plan Preparation	\$ 650.00	LS	1	\$ 650.00
Conceptual Restoration Plan (map + narrative)	\$ 5,000.00	LS	1	\$ 5,000.00
Renderings, models or photosimulations	\$ 650.00	each		\$ -
Grading Plan	\$ 2,500.00	acre		\$ -
Planting Plan	\$ 1,600.00	acre	0.5	\$ 800.00
Irrigation Plan	\$ 3,000.00	acre		\$ -
Erosion Control Plan	\$ 400.00	LS	1	\$ 400.00
Specifications	\$ 2,000.00	LS	1	\$ 2,000.00
Client review and coordination	\$ 800.00	year	1	\$ 800.00
ACOE Nationwide permit	\$ 6,000.00	LS	1	\$ 6,000.00
Water Quality Certification	\$ 3,000.00	LS	1	\$ 3,000.00
DFG 1600 agreement	\$ 3,000.00	LS	1	\$ 3,000.00
Design Total				\$ 22,985.00
Construction Costs				
Preconstruction Surveys (sensitive species)	\$ 600.00	LS	1	\$ 600.00
Mobilization / Demobilization	\$ 6,000.00	LS	1	\$ 6,000.00
Large Tree removal	\$ 650.00	each		\$ -
Clearing and Grubbing	\$ 2,330.00	acre	0.5	\$ 1,165.00
Invasive Weed Kill (Arundo, Tamarisk, etc.)	\$ 15,000.00	acre	0.1	\$ 1,500.00
Traffic Control	\$ 400.00	day		\$ -
Earthwork (balanced)	\$ 20.00	cyd		\$ -
Earthwork (imported fill)	\$ 33.00	cyd		\$ -
Earthwork (disposal of cut)	\$ 16.00	cyd		\$ -
In-stream structures (boulders, logs, etc)	\$ 500.00	each	10	\$ 5,000.00
Site/Plant Protection (flagging/fencing)	\$ 1,500.00	acre	0.5	\$ 750.00
Seeding: Hydroseeding	\$ 0.10	S.F.	21780	\$ 2,178.00
Seeding: Imprinting	\$ 0.05	S.F.		\$ -
Seeding: Hand Broadcast	\$ 0.20	S.F.		\$ -
Plant Salvage & Replant: Tree Spade		each		\$ -
Plant Salvage & Replant: By Hand	\$ 50.00	each	10	\$ 500.00
Potted Plantings (1 gal)	\$ 7.00	each	300	\$ 2,100.00
Cuttings Installation	\$ 1.00	each	300	\$ 300.00
Bioengineering Practices	\$ 30.00	LF		\$ -
Erosion Control Installation	\$ 3,000.00	LS	1	\$ 3,000.00
Construction Monitoring	\$ 3,100.00	week	4	\$ 12,400.00
Construction Total				\$ 35,493.00
Maintenance & Monitoring Costs				
Invasive Weed Eradication maint	\$ 5,000.00	acre/year		\$ -
Standard Maint (trash, weeds, erosion, etc)	\$ 4,000.00	acre/year	2.5	\$ 10,000.00
Hand/truck watering	\$ 800.00	acre/visit		\$ -
LA/Bio monitoring of progress (qual & quan)	\$ 3,500.00	year	5	\$ 17,500.00
Reporting	\$ 800.00	year	5	\$ 4,000.00
M&M Total				\$ 31,500.00
Project Total				\$ 89,978.00

Project Description

Site 06 is roughly .5 acre in size, stretching along roughly 500' of Dry Creek to the south of the Park Ora Bridge. It is a straight reach constrained on both sides by crib walls. Existing habitat in the floodplain is sparse and the creek bed is slightly incised. Velocities during high flows are likely to be relatively high. The channel immediately upstream of this section has a step-pool morphology created primarily by tree roots crossing the creek.

Recommendations

Plant the floodplain heavily, but with a pattern of patches that alternate to either side of the channel. The goal is to break up high flows and reduce velocities that are beginning to cause stream downcutting. Establish a step-pool channel pattern that mimics the upstream pattern.

- 1) Protect existing native plant material
- 2) Install rock or log drop structures
- 3) Plant alder near drop structures to encourage a "root drop" over time.
- 4) Plant banks and floodplain with riparian forest species.
- 5) Actively maintain and monitor the site for 3-5 years.

Assumptions

- 1) Construction drawings and specifications will be necessary.
- 2) Access is possible from Park Sorrento at DCC05
- 3) Increased floodplain roughness will not cause flooding problems upstream
- 4) Supplemental watering will not be necessary.

Project Benefits

Water Quality	Moderate
Habitat Improvement	High
Flood conveyance	-
Groundwater recharge	Low
Aesthetics	Moderate
Public Safety	Low
Permitting Difficulty	Moderate

Site Map and Photos

[Photos\DCC06\NorthEndN2S.JPG](#)
[Photos\DCC06\SouthEndS2N.JPG](#)
[Photos\DCC06\MiddleN2S.JPG](#)
[Graphics & Figures\Site_Locations\DCC-06.pdf](#)

Malibu Creek Subwatershed Cost Estimation

Dry Creek Site 8 (DCC08)

Standard Rough Order of Magnitude Costs

Bid Item	Unit Cost	Units	Quant	Cost
Design Costs				
Field Investigation/Bio Surveying/Mapping	\$ 1,000.00	LS	1	\$ 1,000.00
Field Equipment	\$ 110.00	day	1	\$ 110.00
Topographic Survey	\$ 450.00	acre		\$ -
Base Plan Preparation	\$ 650.00	LS		\$ -
Conceptual Restoration Plan (map + narrative)	\$ 5,000.00	LS	1	\$ 5,000.00
Renderings, models or photosimulations	\$ 650.00	each		\$ -
Grading Plan	\$ 2,500.00	acre		\$ -
Planting Plan	\$ 1,600.00	acre		\$ -
Irrigation Plan	\$ 3,000.00	acre		\$ -
Erosion Control Plan	\$ 400.00	LS		\$ -
Specifications	\$ 2,000.00	LS		\$ -
Client review and coordination	\$ 800.00	year	1	\$ 800.00
ACOE Nationwide permit	\$ 6,000.00	LS		\$ -
Water Quality Certification	\$ 3,000.00	LS		\$ -
DFG 1600 agreement	\$ 3,000.00	LS	1	\$ 3,000.00
Design Total				\$ 9,910.00
Construction Costs				
Preconstruction Surveys (sensitive species)	\$ 600.00	LS	1	\$ 600.00
Mobilization / Demobilization	\$ 3,000.00	LS	1	\$ 3,000.00
Large Tree removal	\$ 650.00	each		\$ -
Clearing and Grubbing	\$ 2,330.00	acre	0.5	\$ 1,165.00
Invasive Weed Kill (Arundo, Tamarisk, etc.)	\$ 15,000.00	acre	0.1377	\$ 2,066.12
Traffic Control	\$ 400.00	day		\$ -
Earthwork (balanced)	\$ 20.00	cyd		\$ -
Earthwork (imported fill)	\$ 33.00	cyd		\$ -
Earthwork (disposal of cut)	\$ 16.00	cyd		\$ -
In-stream structures (boulders, logs, etc)	\$ 500.00	each		\$ -
Site/Plant Protection (flagging/fencing)	\$ 1,500.00	acre	0.5	\$ 750.00
Seeding: Hydroseeding	\$ 0.10	S.F.	21780	\$ 2,178.00
Seeding: Imprinting	\$ 0.05	S.F.		\$ -
Seeding: Hand Broadcast	\$ 0.20	S.F.		\$ -
Plant Salvage & Replant: Tree Spade		each		\$ -
Plant Salvage & Replant: By Hand	\$ 50.00	each		\$ -
Potted Plantings (1 gal)	\$ 7.00	each	600	\$ 4,200.00
Cuttings Installation	\$ 1.00	each	500	\$ 500.00
Bioengineering Practices	\$ 30.00	LF		\$ -
Erosion Control Installation	\$ 1,000.00	LS	1	\$ 1,000.00
Construction Monitoring	\$ 3,100.00	week	1.5	\$ 4,650.00
Construction Total				\$ 20,109.12
Maintenance & Monitoring Costs				
Invasive Weed Eradication maint	\$ 5,000.00	acre/year	2.5	\$ 12,500.00
Standard Maint (trash, weeds, erosion, etc)	\$ 4,000.00	acre/year	2.5	\$ 10,000.00
Hand/truck watering	\$ 800.00	acre/visit		\$ -
LA/Bio monitoring of progress (qual & quan)	\$ 3,500.00	year	5	\$ 17,500.00
Reporting	\$ 800.00	year	5	\$ 4,000.00
M&M Total				\$ 44,000.00
Project Total				\$ 74,019.12

Project Description

Site 08 is roughly 1.25 acre in size, on the West side of Old Topanga Canyon Road, where it intersects Wrencrest Drive. There are several patches of arundo on the site (~6000sqft), with the rest of the site being a mix of bare areas and weedy species such as Conzia. An old asphalt road extends to a drainage structure in the creek. DCC08 is in a tight cluster of project points (DCC07, DCC09, and DCC10), which are being investigated by Questa Eng. It will likely be most economical to design and construct this project with the rest of the cluster. There appears to be some existing efforts to control arundo on the site.

Recommendations

This is an excellent opportunity to achieve multiple benefits in the watershed. Work should be designed and constructed in conjunction with DCC07, 09, and 10.

- 1) Protect existing native plant material
- 2) Eradicate arundo and other invasive exotic species.
- 3) Reserve a 8-15' wide access path for maintenance of the drainage structure, if it remains.
- 4) Plant banks and floodplain with riparian forest species.
- 5) Actively maintain and monitor the site for 3-5 years.

Assumptions

- 1) Construction drawings and specifications will not be necessary for site 08
- 2) Access is possible from Old Topanga Road.
- 5) Supplemental watering will not be necessary.

Project Benefits

Water Quality	Moderate
Habitat Improvement	High
Flood conveyance	-
Groundwater recharge	Low
Aesthetics	Moderate to High
Public Safety	Low
Permitting Difficulty	Low

Site Map and Photos

[Photos\DCC08\DCC08PathE2W.JPG](#)
[Photos\DCC08\DCC08ArundoS2N.JPG](#)
[Photos\DCC08\DCC08ArundoAtStreamBankS2N.JPG](#)
[Photos\DCC08\DCC08ArundoAndConziaN2S.JPG](#)
[Photos\DCC08\DCC08ArundoN2S.JPG](#)
[Graphics & Figures\Site_Locations\DCC-08.pdf](#)

Malibu Creek Subwatershed Cost Estimation

Dry Creek Site 13 (DCC13)

Standard Rough Order of Magnitude Costs

Bid Item	Unit Cost	Units	Quant	Cost
Design Costs				
Field Investigation/Bio Surveying/Mapping	\$ 1,000.00	LS	1	\$ 1,000.00
Field Equipment	\$ 110.00	day	1	\$ 110.00
Topographic Survey	\$ 450.00	acre		\$ -
Base Plan Preparation	\$ 650.00	LS		\$ -
Conceptual Restoration Plan (map + narrative)	\$ 5,000.00	LS	1	\$ 5,000.00
Renderings, models or photosimulations	\$ 650.00	each		\$ -
Grading Plan	\$ 2,500.00	acre		\$ -
Planting Plan	\$ 1,600.00	acre		\$ -
Irrigation Plan	\$ 3,000.00	acre		\$ -
Erosion Control Plan	\$ 400.00	LS		\$ -
Specifications	\$ 2,000.00	LS		\$ -
Client review and coordination	\$ 800.00	year	1	\$ 800.00
ACOE Nationwide permit	\$ 6,000.00	LS		\$ -
Water Quality Certification	\$ 3,000.00	LS		\$ -
DFG 1600 agreement	\$ 3,000.00	LS	1	\$ 3,000.00
Design Total				\$ 9,910.00
Construction Costs				
Preconstruction Surveys (sensitive species)	\$ 600.00	LS	1	\$ 600.00
Mobilization / Demobilization	\$ 3,000.00	LS	1	\$ 3,000.00
Large Tree removal	\$ 650.00	each		\$ -
Clearing and Grubbing	\$ 2,330.00	acre		\$ -
Invasive Weed Kill (Arundo, Tamarisk, etc.)	\$ 15,000.00	acre		\$ -
Traffic Control	\$ 400.00	day		\$ -
Earthwork (balanced)	\$ 20.00	cyd		\$ -
Earthwork (imported fill)	\$ 33.00	cyd		\$ -
Earthwork (disposal of cut)	\$ 16.00	cyd		\$ -
In-stream structures (boulders, logs, etc)	\$ 500.00	each		\$ -
Site/Plant Protection (flagging/fencing)	\$ 1,500.00	acre	0.1	\$ 150.00
Seeding: Hydroseeding	\$ 0.10	S.F.		\$ -
Seeding: Imprinting	\$ 0.05	S.F.		\$ -
Seeding: Hand Broadcast	\$ 0.20	S.F.		\$ -
Plant Salvage & Replant: Tree Spade		each		\$ -
Plant Salvage & Replant: By Hand	\$ 50.00	each		\$ -
Potted Plantings (1 gal)	\$ 7.00	each	75	\$ 525.00
Cuttings Installation	\$ 1.00	each	50	\$ 50.00
Bioengineering Practices	\$ 30.00	LF		\$ -
Erosion Control Installation	\$ 1,000.00	LS	1	\$ 1,000.00
Construction Monitoring	\$ 3,100.00	week	1	\$ 3,100.00
Construction Total				\$ 8,425.00
Maintenance & Monitoring Costs				
Invasive Weed Eradication maint	\$ 5,000.00	acre/year		\$ -
Standard Maint (trash, weeds, erosion, etc)	\$ 4,000.00	acre/year	0.5	\$ 2,000.00
Hand/truck watering	\$ 800.00	acre/visit		\$ -
LA/Bio monitoring of progress (qual & quan)	\$ 2,000.00	year	5	\$ 10,000.00
Reporting	\$ 800.00	year	5	\$ 4,000.00
M&M Total				\$ 16,000.00
Project Total				\$ 34,335.00

Project Description

Site 13 is roughly .5 acre in size, on the SE side of Mulholland Hwy, just S of its intersection with Old Topanga Canyon Road. Creek supports large overhanging trees, Mule fat, large coast live oak, willow. Existing restoration efforts are in progress to the west of the drainage.

Restoration efforts underway on the west bank (by MRT). Moderate opportunity for expansion of creek. A better site for restoration may be slightly upstream from DC-13, across the road crossing of the stream. Enhancement of riparian vegetation and stream shading may be accomplished there.

Recommendations

Continue expanding riparian habitat to the west of the drainage (30'x100' area). Plant additional 20'x50' area where the road crosses the drainage upstream.

- 1) Protect existing native plant material
- 2) Plant riparian forest species.
- 3) Actively maintain and monitor the site for 3-5 years.

Assumptions

- 1) Construction drawings and specifications will not be necessary.
- 2) Access is possible from Mulholland Hwy and the side road paralleling the project.
- 3) Supplemental watering will not be necessary.
- 4) Planting will be done exclusively through container stock and cuttings.
- 5) No substantial clearing or weeding will be necessary.

Project Benefits

Water Quality	Low
Habitat Improvement	Moderate
Flood conveyance	-
Groundwater recharge	-
Aesthetics	Moderate
Public Safety	-
Permitting Difficulty	Low

Site Map and Photos

- [Photos\DCC13\DCC13PlantingExpansionAreaS2N.JPG](#)
[Photos\DCC13\DCC13UnderOaksN2S.JPG](#)
[Photos\DCC13\DCC13UpstreamPlantingAreaN2S.JPG](#)
[Graphics & Figures\Site_Locations\DCC-13.pdf](#)

Malibu Creek Subwatershed Cost Estimation

Dry Creek Site 14 (DCC14)

Standard Rough Order of Magnitude Costs

Bid Item	Unit Cost	Units	Quant	Cost
Design Costs				
Field Investigation/Bio Surveying/Mapping	\$ 2,000.00	LS	1	\$ 2,000.00
Field Equipment	\$ 110.00	day	2	\$ 220.00
Topographic Survey	\$ 1,000.00	acre	2	\$ 2,000.00
Base Plan Preparation	\$ 650.00	LS	1	\$ 650.00
Conceptual Restoration Plan (map + narrative)	\$ 5,000.00	LS	1	\$ 5,000.00
Renderings, models or photosimulations	\$ 650.00	each	2	\$ 1,300.00
Grading Plan	\$ 2,500.00	acre	1	\$ 2,500.00
Planting Plan	\$ 1,600.00	acre	1	\$ 1,600.00
Irrigation Plan	\$ 3,000.00	acre		\$ -
Erosion Control Plan	\$ 400.00	LS	1	\$ 400.00
Specifications	\$ 2,000.00	LS	1	\$ 2,000.00
Client review and coordination	\$ 800.00	year	1	\$ 800.00
ACOE Nationwide permit	\$ 6,000.00	LS	1	\$ 6,000.00
Water Quality Certification	\$ 3,000.00	LS	1	\$ 3,000.00
DFG 1600 agreement	\$ 3,000.00	LS	1	\$ 3,000.00
Design Total				\$ 30,470.00
Construction Costs				
Preconstruction Surveys (sensitive species)	\$ 600.00	LS	1	\$ 600.00
Mobilization / Demobilization	\$ 6,000.00	LS	1	\$ 6,000.00
Large Tree removal	\$ 650.00	each	8	\$ 5,200.00
Clearing and Grubbing	\$ 2,330.00	acre	1	\$ 2,330.00
Invasive Weed Kill (Arundo, Tamarisk, etc.)	\$ 15,000.00	acre		\$ -
Traffic Control	\$ 400.00	day		\$ -
Earthwork (balanced)	\$ 20.00	cyd	866.67	\$ 17,333.33
Earthwork (imported fill)	\$ 33.00	cyd		\$ -
Earthwork (disposal of cut)	\$ 16.00	cyd	3163	\$ 50,607.41
In-stream structures (boulders, logs, etc)	\$ 500.00	each	5	\$ 2,500.00
Site/Plant Protection (flagging/fencing)	\$ 1,500.00	acre	1	\$ 1,500.00
Seeding: Hydroseeding	\$ 0.10	S.F.	43560	\$ 4,356.00
Seeding: Imprinting	\$ 0.05	S.F.		\$ -
Seeding: Hand Broadcast	\$ 0.20	S.F.		\$ -
Plant Salvage & Replant: Tree Spade/backho	\$ 2,500.00	LS	1	\$ 2,500.00
Plant Salvage & Replant: By Hand	\$ 10.00	each	100	\$ 1,000.00
Potted Plantings (1 gal)	\$ 7.00	each	500	\$ 3,500.00
Cuttings Installation	\$ 1.00	each	2000	\$ 2,000.00
Bioengineering Practices	\$ 30.00	LF	150	\$ 4,500.00
Erosion Control Installation	\$ 2,000.00	LS	1	\$ 2,000.00
Construction Monitoring	\$ 3,100.00	week	3	\$ 9,300.00
Construction Total				\$ 115,226.74
Maintenance & Monitoring Costs				
Invasive Weed Eradication maint	\$ 5,000.00	acre/year		\$ -
Standard Maint (trash, weeds, erosion, etc)	\$ 4,000.00	acre/year	5	\$ 20,000.00
Hand/truck watering	\$ 800.00	acre/visit		\$ -
LA/Bio monitoring of progress (qual & quan)	\$ 3,500.00	year	5	\$ 17,500.00
Reporting	\$ 800.00	year	5	\$ 4,000.00
M&M Total				\$ 41,500.00
Project Total				\$ 187,196.74

Project Description

Site 14 is roughly .75 acre in size, on the North side of Mulholland Hwy, near the intersection with Old Topanga Canyon Road, on MRT property. The creek has been straightened through the property and pushed against the north bank, where it is causing erosion. MRT has conceptual plans for future uses of the area, which will require planning coordination. The exact extent of the masterplan's intentions for this project are unclear. We are assuming a substantial reconstruction to near-original creek morphology is desired.

Recommendations

Remeander and recontour banks roughly as shown on the project site map. Revegetate the entire area with riparian forest habitat. Accurate topographic survey and hydrology data will be essential design elements. Will require salvage or removal of ~4000k of riparian vegetation.

- 1) Protect existing native plant material along edges of the project.
- 2) Salvage willow cuttings and clumps from areas to be impacted by grading.
- 3) Remeander roughly 200' section upstream from house yard.
- 4) Establish "inside bend" topography on roughly 200' upstream section.
- 5) Plant banks and floodplain with riparian forest species.
- 6) Protect toe of outside bends with rock/willow applications.
- 7) Actively maintain and monitor the site for 3-5 years.

Assumptions

- 1) Construction drawings and specifications will be necessary.
- 2) Access is possible from Mulholland Hwy.
- 3) Property acquisition costs are not included.
- 4) Earthwork cannot be completely balanced on-site.
- 5) Supplemental watering will not be necessary.

Project Benefits

Water Quality	Moderate
Habitat Improvement	High
Flood conveyance	Moderate
Groundwater recharge	Moderate
Aesthetics	Moderate
Public Safety	Low
Permitting Difficulty	High

Site Map and Photos

[Photos\DCC14\DCC14StartOfmeanderSE2NW.JPG](#)
[Photos\DCC14\DCC14PathOfNewMeanderNW2SE.JPG](#)
[Photos\DCC14\DCC14MeanderEndN2S.JPG](#)
[Photos\DCC14\DCC14OverviewOfMeander.JPG](#)
[Graphics & Figures\Site Locations\DCC-14-16.pdf](#)

Malibu Creek Subwatershed Cost Estimation

Dry Creek Site 15 (DCC15)

Standard Rough Order of Magnitude Costs

Bid Item	Unit Cost	Units	Quant	Cost
Design Costs				
Field Investigation/Bio Surveying/Mapping	\$ 400.00	LS	1	\$ 400.00
Field Equipment	\$ 110.00	day	1	\$ 110.00
Topographic Survey	\$ 450.00	acre		\$ -
Base Plan Preparation	\$ 650.00	LS		\$ -
Conceptual Restoration Plan (map + narrative)	\$ 2,000.00	LS	1	\$ 2,000.00
Renderings, models or photosimulations	\$ 650.00	each		\$ -
Grading Plan	\$ 2,500.00	acre		\$ -
Planting Plan	\$ 1,600.00	acre		\$ -
Irrigation Plan	\$ 3,000.00	acre		\$ -
Erosion Control Plan	\$ 400.00	LS		\$ -
Specifications	\$ 2,000.00	LS		\$ -
Client review and coordination	\$ 800.00	year	1	\$ 800.00
ACOE Nationwide permit	\$ 6,000.00	LS		\$ -
Water Quality Certification	\$ 3,000.00	LS		\$ -
DFG 1600 agreement	\$ 1,000.00	LS	1	\$ 1,000.00
Design Total				\$ 4,310.00
Construction Costs				
Preconstruction Surveys (sensitive species)	\$ 600.00	LS	1	\$ 600.00
Mobilization / Demobilization	\$ 1,000.00	LS	1	\$ 1,000.00
Large Tree removal	\$ 650.00	each		\$ -
Clearing and Grubbing	\$ 2,330.00	acre		\$ -
Invasive Weed Kill (Arundo, Tamarisk, etc.)	\$ 15,000.00	acre		\$ -
Traffic Control	\$ 400.00	day		\$ -
Earthwork (balanced)	\$ 20.00	cyd		\$ -
Earthwork (imported fill)	\$ 33.00	cyd		\$ -
Earthwork (disposal of cut)	\$ 16.00	cyd		\$ -
In-stream structures (boulders, logs, etc)	\$ 500.00	each		\$ -
Site/Plant Protection (flagging/fencing)	\$ 1,500.00	acre	0.05	\$ 75.00
Seeding: Hydroseeding	\$ 0.10	S.F.		\$ -
Seeding: Imprinting	\$ 0.05	S.F.		\$ -
Seeding: Hand Broadcast	\$ 0.20	S.F.		\$ -
Plant Salvage & Replant: Tree Spade		each		\$ -
Plant Salvage & Replant: By Hand	\$ 50.00	each		\$ -
Potted Plantings (1 gal)	\$ 7.00	each	75	\$ 525.00
Cuttings Installation	\$ 1.00	each	50	\$ 50.00
Bioengineering Practices	\$ 30.00	LF		\$ -
Erosion Control Installation	\$ 1,000.00	LS	1	\$ 1,000.00
Construction Monitoring	\$ 3,100.00	week	1	\$ 3,100.00
Construction Total				\$ 6,350.00
Maintenance & Monitoring Costs				
Invasive Weed Eradication maint	\$ 5,000.00	acre/year		\$ -
Standard Maint (trash, weeds, erosion, etc)	\$ 4,000.00	acre/year	0.5	\$ 2,000.00
Hand/truck watering	\$ 800.00	acre/visit		\$ -
LA/Bio monitoring of progress (qual & quan)	\$ 2,000.00	year	5	\$ 10,000.00
Reporting	\$ 800.00	year	5	\$ 4,000.00
M&M Total				\$ 16,000.00
Project Total				\$ 26,660.00

Project Description

Site 15 is roughly .1 acre in size, on the N side of Mulholland Hwy, just W of its intersection with Old Topanga Canyon Road S. The area contains a concrete drainage ditch paralleling the road. A clear area roughly 50'x50' surrounds it. The adjacent creek supports healthy riparian forest.

Recommendations

- 1) Protect existing native plant material
- 2) Plant riparian forest species.
- 3) Actively maintain and monitor the site for 3-5 years.

Assumptions

- 1) Construction drawings and specifications will not be necessary.
- 2) Access is possible from Mulholland Hwy via a farm driveway.
- 3) Supplemental watering will not be necessary.
- 4) Planting will be done exclusively through container stock and cuttings.
- 5) No substantial clearing or weeding will be necessary.

Project Benefits

Water Quality	Moderate
Habitat Improvement	Moderate
Flood conveyance	-
Groundwater recharge	Low
Aesthetics	Low
Public Safety	-
Permitting Difficulty	Low

Site Map and Photos

[Photos\DCC15\DSC02809.JPG](#)

[Graphics & Figures\Site_Locations\DCC-14-16.pdf](#)

Malibu Creek Subwatershed Cost Estimation

Dry Creek Site 16 (DCC16)

Standard Rough Order of Magnitude Costs

Bid Item	Unit Cost	Units	Quant	Cost
Design Costs				
Field Investigation/Bio Surveying/Mapping	\$ 1,000.00	LS	1	\$ 1,000.00
Field Equipment	\$ 110.00	day	1	\$ 110.00
Topographic Survey	\$ 450.00	acre		\$ -
Base Plan Preparation	\$ 650.00	LS		\$ -
Conceptual Restoration Plan (map + narrative)	\$ 5,000.00	LS	1	\$ 5,000.00
Renderings, models or photosimulations	\$ 650.00	each		\$ -
Grading Plan	\$ 2,500.00	acre		\$ -
Planting Plan	\$ 1,600.00	acre		\$ -
Irrigation Plan	\$ 3,000.00	acre		\$ -
Erosion Control Plan	\$ 400.00	LS		\$ -
Specifications	\$ 2,000.00	LS		\$ -
Client review and coordination	\$ 800.00	year	1	\$ 800.00
ACOE Nationwide permit	\$ 6,000.00	LS		\$ -
Water Quality Certification	\$ 3,000.00	LS		\$ -
DFG 1600 agreement	\$ 1,000.00	LS	1	\$ 1,000.00
Design Total				\$ 7,910.00
Construction Costs				
Preconstruction Surveys (sensitive species)	\$ 600.00	LS	1	\$ 600.00
Mobilization / Demobilization	\$ 3,000.00	LS	1	\$ 3,000.00
Large Tree removal	\$ 650.00	each		\$ -
Clearing and Grubbing	\$ 2,330.00	acre		\$ -
Invasive Weed Kill (Arundo, Tamarisk, etc.)	\$ 15,000.00	acre	0.15	\$ 2,250.00
Traffic Control	\$ 400.00	day		\$ -
Earthwork (balanced)	\$ 20.00	cyd		\$ -
Earthwork (imported fill)	\$ 33.00	cyd		\$ -
Earthwork (disposal of cut)	\$ 16.00	cyd		\$ -
In-stream structures (boulders, logs, etc)	\$ 500.00	each		\$ -
Site/Plant Protection (flagging/fencing)	\$ 1,500.00	acre	0.15	\$ 225.00
Seeding: Hydroseeding	\$ 0.10	S.F.	2178	\$ 217.80
Seeding: Imprinting	\$ 0.05	S.F.		\$ -
Seeding: Hand Broadcast	\$ 0.20	S.F.		\$ -
Plant Salvage & Replant: Tree Spade		each		\$ -
Plant Salvage & Replant: By Hand	\$ 50.00	each		\$ -
Potted Plantings (1 gal)	\$ 7.00	each	60	\$ 420.00
Cuttings Installation	\$ 1.00	each	50	\$ 50.00
Bioengineering Practices	\$ 30.00	LF		\$ -
Erosion Control Installation	\$ 1,000.00	LS	1	\$ 1,000.00
Construction Monitoring	\$ 3,100.00	week	1	\$ 3,100.00
Construction Total				\$ 10,862.80
Maintenance & Monitoring Costs				
Invasive Weed Eradication maint	\$ 5,000.00	acre/year		\$ -
Standard Maint (trash, weeds, erosion, etc)	\$ 4,000.00	acre/year	0.75	\$ 3,000.00
Hand/truck watering	\$ 800.00	acre/visit		\$ -
LA/Bio monitoring of progress (qual & quan)	\$ 2,500.00	year	5	\$ 12,500.00
Reporting	\$ 800.00	year	5	\$ 4,000.00
M&M Total				\$ 19,500.00
Project Total				\$ 38,272.80

Project Description

Site 15 is roughly .25 acre (130'x50') in size, on the S side of Mulholland Hwy, just W of its intersection with Old Topanga Canyon Road S. The project area is a deeply channeled segment of creek with riprap side slopes at roughly 2:1 slope, 20' long. It is flanked by a horse riding arena on one side and a dirt parking area on the other. In-stream habitat consists of very good growth of narrow-leaved cattails, willows, etc. However, some growth of castor beans, exotic vine species on west side. Area appears to be stable. The site would benefit from increased plantings and a planted buffer to intercept sediments and pollutants from adjacent uses.

Recommendations

- 1) Protect existing native plant material
- 2) Plant riparian forest species in riprap voids.
- 3) Establish a minimum 20' planted buffer at top of slope.
- 4) Actively maintain and monitor the site for 3-5 years.

Assumptions

- 1) Construction drawings and specifications will not be necessary.
- 2) Access is possible from Old Topanga Road. Staging is possible in the dirt parking area.
- 3) Supplemental watering will not be necessary.
- 4) Monitoring will include water quality measurements to evaluate effectiveness of buffer

Project Benefits

Water Quality	High
Habitat Improvement	Moderate
Flood conveyance	-
Groundwater recharge	-
Aesthetics	Moderate
Public Safety	-
Permitting Difficulty	Low

Site Map and Photos

[Photos\DCC16\DCC16ChannelBottom.JPG](#)
[Photos\DCC16\DCC16CulvertW2E.JPG](#)
[Photos\DCC16\DCC16W2E.JPG](#)
[Graphics & Figures\Site_Locations\DCC-14-16.pdf](#)

Malibu Creek Subwatershed Cost Estimation

Dry Creek Site 17 (DCC17)

Standard Rough Order of Magnitude Costs

Bid Item	Unit Cost	Units	Quant	Cost
Design Costs				
Field Investigation/Bio Surveying/Mapping	\$ 500.00	LS	1	\$ 500.00
Field Equipment	\$ 110.00	day	1	\$ 110.00
Topographic Survey	\$ 450.00	acre		\$ -
Base Plan Preparation	\$ 650.00	LS		\$ -
Conceptual Restoration Plan (map + narrative)	\$ 2,000.00	LS	1	\$ 2,000.00
Renderings, models or photosimulations	\$ 650.00	each		\$ -
Grading Plan	\$ 2,500.00	acre		\$ -
Planting Plan	\$ 1,600.00	acre		\$ -
Irrigation Plan	\$ 3,000.00	acre		\$ -
Erosion Control Plan	\$ 400.00	LS		\$ -
Specifications	\$ 2,000.00	LS		\$ -
Client review and coordination	\$ 800.00	year	1	\$ 800.00
ACOE Nationwide permit	\$ 6,000.00	LS		\$ -
Water Quality Certification	\$ 3,000.00	LS		\$ -
DFG 1600 agreement	\$ 1,000.00	LS	1	\$ 1,000.00
Design Total				\$ 4,410.00
Construction Costs				
Preconstruction Surveys (sensitive species)	\$ 600.00	LS	1	\$ 600.00
Mobilization / Demobilization	\$ 3,000.00	LS	1	\$ 3,000.00
Large Tree removal	\$ 650.00	each		\$ -
Clearing and Grubbing	\$ 2,330.00	acre		\$ -
Invasive Weed Kill (Arundo, Tamarisk, etc.)	\$ 15,000.00	acre	0.5	\$ 7,500.00
Traffic Control	\$ 400.00	day		\$ -
Earthwork (balanced)	\$ 20.00	cyd		\$ -
Earthwork (imported fill)	\$ 33.00	cyd		\$ -
Earthwork (disposal of cut)	\$ 16.00	cyd		\$ -
In-stream structures (boulders, logs, etc)	\$ 500.00	each		\$ -
Site/Plant Protection (flagging/fencing)	\$ 1,500.00	acre	0.5	\$ 750.00
Seeding: Hydroseeding	\$ 0.10	S.F.		\$ -
Seeding: Imprinting	\$ 0.05	S.F.		\$ -
Seeding: Hand Broadcast	\$ 0.20	S.F.		\$ -
Plant Salvage & Replant: Tree Spade		each		\$ -
Plant Salvage & Replant: By Hand	\$ 50.00	each		\$ -
Potted Plantings (1 gal)	\$ 7.00	each		\$ -
Cuttings Installation	\$ 1.00	each		\$ -
Bioengineering Practices	\$ 30.00	LF		\$ -
Erosion Control Installation	\$ 1,000.00	LS	1	\$ 1,000.00
Construction Monitoring	\$ 500.00	week	1	\$ 500.00
Construction Total				\$ 13,350.00
Maintenance & Monitoring Costs				
Invasive Weed Eradication maint	\$ 5,000.00	acre/year	2.5	\$ 12,500.00
Standard Maint (trash, weeds, erosion, etc)	\$ 1,000.00	acre/year	2.5	\$ 2,500.00
Hand/truck watering	\$ 800.00	acre/visit		\$ -
LA/Bio monitoring of progress (qual & quan)	\$ 2,500.00	year	5	\$ 12,500.00
Reporting	\$ 800.00	year	5	\$ 4,000.00
M&M Total				\$ 31,500.00
Project Total				\$ 49,260.00

Project Description
Site 17 is roughly .5 acre (400'x50') in size, on the W side of Old Topanga Road, 1/4 mile S of its intersection with Mulholland Hwy. Streambed width approx. 10 feet. Flow rather stagnant. East bank covered with Vinca major. Excellent stream-side shading of willow, coast live oak, walnut. Debris on southwest area of the bank, including an old out-building.

Recommendations
<ol style="list-style-type: none"> 1) Protect existing native plant material 2) Eradicate Vinca (roughly .5 acre) 3) Remove debris and structure. 4) Actively maintain and monitor the site for 3-5 years.

Assumptions
<ol style="list-style-type: none"> 1) Construction drawings and specifications will not be necessary. 2) Access is possible from Old Topanga Road. Parking along side of the road, but is dangerous 3) Planting will not be necessary.

Project Benefits	
Water Quality	-
Habitat Improvement	Moderate
Flood conveyance	-
Groundwater recharge	-
Aesthetics	Low
Public Safety	-
Permitting Difficulty	Low

Site Map and Photos
Photos\DCC17\DCC17LowerEndS2N.JPG
Photos\DCC17\DCC17MiddleN2S.JPG
Photos\DCC17\DCC17MiddleS2N.JPG
Photos\DCC17\DSC02818.JPG
Graphics & Figures\Site_Locations\DCC-17.pdf

Malibu Creek Subwatershed Cost Estimation

Dry Creek Site 19 (DCC19)

Standard Rough Order of Magnitude Costs

Bid Item	Unit Cost	Units	Quant	Cost
Design Costs				
Field Investigation/Bio Surveying/Mapping	\$ 3,000.00	LS	1	\$ 3,000.00
Field Equipment	\$ 110.00	day	2	\$ 220.00
Topographic Survey	\$ 450.00	acre	3	\$ 1,350.00
Base Plan Preparation	\$ 650.00	LS	1	\$ 650.00
Conceptual Restoration Plan (map + narrative)	\$ 5,000.00	LS	1	\$ 5,000.00
Renderings, models or photosimulations	\$ 650.00	each		\$ -
Grading Plan	\$ 2,500.00	acre		\$ -
Planting Plan	\$ 1,600.00	acre		\$ -
Irrigation Plan	\$ 3,000.00	acre		\$ -
Erosion Control Plan	\$ 400.00	LS		\$ -
Specifications	\$ 2,000.00	LS		\$ -
Client review and coordination	\$ 800.00	year	1	\$ 800.00
ACOE Nationwide permit	\$ 6,000.00	LS		\$ -
Water Quality Certification	\$ 3,000.00	LS		\$ -
DFG 1600 agreement	\$ 1,000.00	LS		\$ -
Design Total				\$ 11,020.00
Construction Costs				
Preconstruction Surveys (sensitive species)	\$ 600.00	LS		\$ -
Mobilization / Demobilization	\$ 3,000.00	LS		\$ -
Large Tree removal	\$ 650.00	each		\$ -
Clearing and Grubbing	\$ 2,330.00	acre		\$ -
Invasive Weed Kill (Arundo, Tamarisk, etc.)	\$ 15,000.00	acre		\$ -
Traffic Control	\$ 400.00	day		\$ -
Earthwork (balanced)	\$ 20.00	cyd		\$ -
Earthwork (imported fill)	\$ 33.00	cyd		\$ -
Earthwork (disposal of cut)	\$ 16.00	cyd		\$ -
In-stream structures (boulders, logs, etc)	\$ 500.00	each		\$ -
Site/Plant Protection (flagging/fencing)	\$ 1,500.00	acre		\$ -
Seeding: Hydroseeding	\$ 0.10	S.F.		\$ -
Seeding: Imprinting	\$ 0.05	S.F.		\$ -
Seeding: Hand Broadcast	\$ 0.20	S.F.		\$ -
Plant Salvage & Replant: Tree Spade		each		\$ -
Plant Salvage & Replant: By Hand	\$ 50.00	each		\$ -
Potted Plantings (1 gal)	\$ 7.00	each		\$ -
Cuttings Installation	\$ 1.00	each		\$ -
Bioengineering Practices	\$ 30.00	LF		\$ -
Erosion Control Installation	\$ 1,000.00	LS		\$ -
Construction Monitoring	\$ 500.00	week		\$ -
Construction Total				\$ -
Maintenance & Monitoring Costs				
Invasive Weed Eradication maint	\$ 5,000.00	acre/year		\$ -
Standard Maint (trash, weeds, erosion, etc)	\$ 1,000.00	acre/year		\$ -
Hand/truck watering	\$ 800.00	acre/visit		\$ -
LA/Bio monitoring of progress (qual & quan)	\$ 2,500.00	year		\$ -
Reporting	\$ 800.00	year		\$ -
M&M Total				\$ -
Project Total				\$ 11,020.00

Project Description

We were unable to locate DCC19 during our field investigations. The reach of stream noted in the masterplan mapping is a straight, channelized section pinched between the road and some rural/residential landuses to the west. Dense stream associated vegetation- willow riparian with a few walnut. Stream channel width approx. 15 feet (bed). Left bank approx. 10 feet high, rith bank apprx. 5 feet high. Rip rap on west bank, flow less than approx. 2 cfs. The entire reach would benefit from increased riparian width, increased bank stability, and re-establishing meanders. This reach would require substantially more field investigation to get a realistic view of the project feasibility.

Recommendations

Investigate the area further to better document existing conditions and needs, and to investigate opportunities and constraints, particularly with regard to adjacent land uses.

Assumptions

1) Costs shown only for further investigation and conceptual design.

Project Benefits

Water Quality	unknown
Habitat Improvement	unknown
Flood conveyance	unknown
Groundwater recharge	unknown
Aesthetics	unknown
Public Safety	unknown
Permitting Difficulty	unknown

Site Map and Photos

[Photos\DCC19\DCC19E2W.JPG](#)
[Graphics & Figures\Site_Locations\DCC-19.pdf](#)