APPENDIX F

PRELIMINARY COST ESTIMATES

Mill River Alternative 2
Remove the existing dam and
obstructions in the river
channel.Stabilize the river
banks with plantings and rip rap

Designed By:
Estimated By: Robert Zwahlen

Prepared By: Robert Zwahlen

Preparation Date: 03/16/04
Effective Date of Pricing: 03/16/04
Est Construction Time: 100 Days

Sales Tax: 0.0%

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Release 1.2

The project consists of an approximate two - mile reach of the Mill River and the 3.5 acre Mill River Park area in the City of Stamford, Connecticut. The goal of the project is to restore the aquatic and riparian resources of the Mill River to a healthy, viable, and self maintaining river system. Option 2 includes river bank stabilization consisting of, planting and rip rap

The following were factored into the estimate :

Field Overhead	-	10.0%
Home Office OH	-	6.0%
Profit	-	10.0%
Bond	-	1.5%
Contingency	-	15.0%

Wages used in the estimate are Davis Bacon for Litchfield County, CT030001 dated 02/06/04

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** PROJECT OWNER SUMMARY - Sub Feat **

	QUANTY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNIT
05 Wetland Creation							
05_ 5 Stormwater wetland							
05_ 5. 5 Earthwork	1.00	EA	78,269	11,740	0	90,010	90010
05_ 5.01 WPC	1.00	EA	4,539	681	0	5,220	5219.88
05_ 5.02 Demolition	1.00	EA	43,215	6,482	0	49,697	49697
05_ 5.10 Planting	1.00	EA	45,767	6,865	0	52,632	52632
05_ 5.15 Drainage	1.00	EA	20,453	3,068	0	23,521	23521
05_ 5.20 Improvements	1.00	EA	54,055	8,108	0	62,163	62163
05_ 5.25 Exotic control			65,324	9,799	0	75,122	
TOTAL Stormwater wetland	1.00	EA	311,622	46,743	0	358,365	358365
05_10 Tidal wetland							
05_10. 5 Earthwork	1.00	EA	55,513	8,327	0	63,839	63839
05_10.01 Water Pollution Control	1.00	EA	5,043	756	0	5,799	5799.26
05_10.10 Planting	1.00	EA	38,590	5,788	0	44,378	44378
05_10.20 Improvements	1.00	EA	70,754	10,613	0	81,367	81367
05_10.25 Exotic control			43,319	6,498	0	49,817	
05_10.30 Single Coir Fascine	600.00	LF	22,958	3,444	0	26,402	44.00
TOTAL Tidal wetland	1.00	EA	236,176	35,426	0	271,603	271603
TOTAL Wetland Creation	1.00	EA	547,798	82,170	0	629,967	629967
08 Mill Pond Park							
08_02 Relocations							
08_02.03 Utilities & Structures			183,178	27,477	0	210,655	
TOTAL Relocations	1.00	EA	183,178	27,477	0	210,655	210655
08_04 Dams							
08_04. 5 Mobilize & Demobilize			12,720	1,908	0	14,628	
08_04.10 Care & Diversion of Water			50,264	7,540	0	57,803	
08_04.15 Dam Removal	1.00	CY	54,531	8,180	0	62,711	62711
TOTAL Dams	1.00	EA	117,515	17,627	0	135,142	135142
08_09 Channels and Canals							

** PROJECT OWNER SUMMARY - Sub Feat **

	QUANTY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNIT
08_09.01 Channels	1.00	EA	2,417,866	362,680	0	2,780,545	2780545
TOTAL Channels and Canals	1.00	EA	2,417,866	362,680	0	2,780,545	2780545
08_14 Recreation Facilities							
08_14. 5 Restoration Planting	1.00	EA	88,916	13,337	0	102,254	102254
08_14.10 Tree Removal/Transplant	1.00	EA	25,986	3,898	0	29,884	29884
08_14.20 Specimen Planting	1.00	EA	60,269	9,040	0	69,309	69309
08_14.30 Turf/Meadow Planting	1.00	EA	6,664	1,000	0	7,664	7663.69
08_14.35 Improvements	1.00	EA	93,280	13,992	0	107,272	107272
08_14.37 Path systems	1.00	EA	118,309	17,746	0	136,055	136055
TOTAL Recreation Facilities	1.00	EA	393,424	59,014	0	452,438	452438
TOTAL Mill Pond Park	1.00	EA	3,111,982	466,797	0	3,578,779	3578779
99 Channel Corridor Enhancement							
99_ 5 Riparian Enhancement	1.00	EA	41,910	6,287	0	48,197	48197
99_10 Remove Concrete Blockage	1.00	EA	130,028	19,504	0	149,532	149532
99_15 Reinforce stone wall			15,622	2,343	0	17,965	
99_20 Riparian Overlook	1.00	EA	9,113	1,367	0	10,480	10480
99_25 Riparian paths	870.00	LF	4,496	674	0	5,171	5.94
TOTAL Channel Corridor Enhancement	1.00	EA	201,170	30,176	0	231,346	231346
TOTAL Mill River Alternative 2	1.00	EA	3,860,950	579,142	0	4,440,092	4440092

** PROJECT INDIRECT SUMMARY - Sub Feat **

	QUANTY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT
05 Wetland Creation								
05_ 5 Stormwater wetland								
05_ 5. 5 Earthwork	1.00 EA	60,122	6,012	3,968	7,010	1,157	78,269	78269
05_ 5.01 WPC	1.00 EA	3,487	349	230	407	67	4,539	4539.03
05_ 5.02 Demolition	1.00 EA	33,195	3,319	2,191	3,871	639	43,215	43215
05_ 5.10 Planting	1.00 EA	35,156	3,516	2,320	4,099	676	45,767	45767
05_ 5.15 Drainage	1.00 EA	15,711	1,571	1,037	1,832	302	20,453	20453
05_ 5.20 Improvements	1.00 EA	41,522	4,152	2,740	4,841	799	54,055	54055
05_ 5.25 Exotic control		50,178	5,018	3,312	5,851	965	65,324	
TOTAL Stormwater wetland	1.00 EA	239,370	23,937	15,798	27,911	4,605	311,622	311622
05_10 Tidal wetland								
05_10. 5 Earthwork	1.00 EA	42,642	4,264	2,814	4,972	820	55,513	55513
05_10.01 Water Pollution Control	1.00 EA	3,874	387	256	452	75	5,043	5042.84
05_10.10 Planting	1.00 EA	29,642	2,964	1,956	3,456	570	38,590	38590
05_10.20 Improvements	1.00 EA	54,349	5,435	3,587	6,337	1,046	70,754	70754
05_10.25 Exotic control		33,275	3,328	2,196	3,880	640	43,319	
05_10.30 Single Coir Fascine	600.00 LF	17,635	1,764	1,164	2,056	339	22,958	38.26
TOTAL Tidal wetland	1.00 EA	181,417	18,142	11,974	21,153	3,490	236,176	236176
TOTAL Wetland Creation	1.00 EA	420,788	42,079	27,772	49,064	8,096	547,798	547798
08 Mill Pond Park								
08_02 Relocations								
08_02.03 Utilities & Structures		140,707	14,071	9,287	16,406	2,707	183,178	
TOTAL Relocations	1.00 EA	140,707	14,071	9,287	16,406	2,707	183,178	183178
08_04 Dams								
08_04. 5 Mobilize & Demobilize		9,771	977	645	1,139	188	12,720	
08_04.10 Care & Diversion of Water		38,610	3,861	2,548	4,502	743	50,264	
08_04.15 Dam Removal	1.00 CY	41,888	4,189	2,765	4,884	806	54,531	54531
TOTAL Dams	1.00 EA	90,268	9,027	5,958	10,525	1,737	117,515	117515
08_09 Channels and Canals								

** PROJECT INDIRECT SUMMARY - Sub Feat **

	QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT
08_09.01 Channels	1.00	EA	1,857,269	185,727	122,580	216,558	35,732	2,417,866	2417866
TOTAL Channels and Canals	1.00	EA	1,857,269	185,727	122,580	216,558	35,732	2,417,866	2417866
08_14 Recreation Facilities									
08_14. 5 Restoration Planting	1.00	EA	68,300	6,830	4,508	7,964	1,314	88,916	88916
08_14.10 Tree Removal/Transplant	1.00	EA	19,961	1,996	1,317	2,327	384	25,986	25986
08_14.20 Specimen Planting	1.00	EA	46,295	4,630	3,055	5,398	891	60,269	60269
08_14.30 Turf/Meadow Planting	1.00	EA	5,119	512	338	597	98	6,664	6664.08
08_14.35 Improvements	1.00	EA	71,652	7,165	4,729	8,355	1,379	93,280	93280
08_14.37 Path systems	1.00	EA	90,878	9,088	5,998	10,596	1,748	118,309	118309
TOTAL Recreation Facilities	1.00	EA	302,206	30,221	19,946	35,237	5,814	393,424	393424
TOTAL Mill Pond Park	1.00	EA	2,390,451	239,045	157,770	278,727	45,990	3,111,982	3111982
99 Channel Corridor Enhancement									
99_ 5 Riparian Enhancement	1.00	EA	32,193	3,219	2,125	3,754	619	41,910	41910
99_10 Remove Concrete Blockage	1.00	EA	99,880	9,988	6,592	11,646	1,922	130,028	130028
99_15 Reinforce stone wall			12,000	1,200	792	1,399	231	15,622	
99_20 Riparian Overlook	1.00	EA	7,000	700	462	816	135	9,113	9112.87
99_25 Riparian paths	870.00	LF	3,454	345	228	403	66	4,496	5.17
TOTAL Channel Corridor Enhancement	1.00	EA	154,528	15,453	10,199	18,018	2,973	201,170	201170
TOTAL Mill River Alternative 2	1.00	EA	2,965,766	296,577	195,741	345,808	57,058	3,860,950	3860950
Contingency								579,142	
TOTAL INCL OWNER COSTS								4,440,092	

** PROJECT DIRECT SUMMARY - Sub Feat **

	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
05 Wetland Creation									
05_ 5 Stormwater wetland									
05_ 5. 5 Earthwork	1.00	EA	874	32,471	26,114	1,537	0	60,122	60122
05_ 5.01 WPC	1.00	EA	44	1,831	1,062	594	0	3,487	3486.63
05_ 5.02 Demolition	1.00	EA	348	14,057	7,438	11,700	0	33,195	33195
05_ 5.10 Planting	1.00	EA	463	17,417	6,018	11,721	0	35,156	35156
05_ 5.15 Drainage	1.00	EA	157	6,059	1,777	7,875	0	15,711	15711
05_ 5.20 Improvements	1.00	EA	373	19,479	893	21,150	0	41,522	41522
05_ 5.25 Exotic control			685	22,417	3,872	23,889	0	50,178	
TOTAL Stormwater wetland	1.00	EA	2,943	113,731	47,174	78,465	0	239,370	239370
05_10 Tidal wetland									
05_10. 5 Earthwork	1.00	EA	497	18,915	13,813	9,914	0	42,642	42642
05_10.01 Water Pollution Control	1.00	EA	90	1,993	1,107	774	0	3,874	3873.63
05_10.10 Planting	1.00	EA	506	19,021	6,602	4,019	0	29,642	29642
05_10.20 Improvements	1.00	EA	451	21,660	1,653	31,036	0	54,349	54349
05_10.25 Exotic control			566	18,608	3,674	10,993	0	33,275	
05_10.30 Single Coir Fascine	600.00	LF	301	8,275	0	9,360	0	17,635	29.39
TOTAL Tidal wetland	1.00	EA	2,410	88,472	26,850	66,095	0	181,417	181417
TOTAL Wetland Creation	1.00	EA	5,353	202,203	74,024	144,560	0	420,788	420788
08 Mill Pond Park									
08_02 Relocations									
08_02.03 Utilities & Structures			693	21,546	10,710	108,451	0	140,707	
TOTAL Relocations	1.00	EA	693	21,546	10,710	108,451	0	140,707	140707
08_04 Dams									
08_04. 5 Mobilize & Demobilize			86	7,681	1,090	1,000	0	9,771	
08_04.10 Care & Diversion of Water			256	12,471	13,161	12,977	0	38,610	
08_04.15 Dam Removal	1.00	CY	66	2,390	1,311	0	38,186	41,888	41888
TOTAL Dams	1.00	EA	408	22,543	15,562	13,977	38,186	90,268	90268
08_09 Channels and Canals									

** PROJECT DIRECT SUMMARY - Sub Feat **

	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
08_09.01 Channels	1.00	EA	9,580	380,830	168,402	690,038	618,000	1,857,269	1857269
TOTAL Channels and Canals	1.00	EA	9,580	380,830	168,402	690,038	618,000	1,857,269	1857269
08_14 Recreation Facilities									
08_14. 5 Restoration Planting	1.00	EA	687	25,866	8,924	33,511	0	68,300	68300
08_14.10 Tree Removal/Transplant	1.00	EA	369	14,476	5,481	4	0	19,961	19961
08_14.20 Specimen Planting	1.00	EA	509	19,209	4,305	22,781	0	46,295	46295
08_14.30 Turf/Meadow Planting	1.00	EA	28	1,166	625	3,328	0	5,119	5118.97
08_14.35 Improvements	1.00	EA	338	13,819	500	50,333	7,000	71,652	71652
08_14.37 Path systems	1.00	EA	540	28,120	2,100	41,200	19,458	90,878	90878
TOTAL Recreation Facilities	1.00	EA	2,471	102,656	21,935	151,158	26,458	302,206	302206
TOTAL Mill Pond Park	1.00	EA	13,152	527,575	216,609	963,623	682,644	2,390,451	2390451
99 Channel Corridor Enhancement									
99_ 5 Riparian Enhancement	1.00	EA	358	12,239	2,575	17,380	0	32,193	32193
99_10 Remove Concrete Blockage	1.00	EA	2,071	83,831	16,050	0	0	99,880	99880
99_15 Reinforce stone wall			0	0	0	0	12,000	12,000	
99_20 Riparian Overlook	1.00	EA	0	0	0	0	7,000	7,000	7000.00
99_25 Riparian paths	870.00	LF	0	1,566	148	1,740	0	3,454	3.97
TOTAL Channel Corridor Enhancement	1.00	EA	2,428	97,635	18,772	19,120	19,000	154,528	154528
TOTAL Mill River Alternative 2	1.00	EA	20,934	827,413	309,406	1,127,303	701,644	2,965,766	2965766

Prime Contractor's Field Overhead	296,577
SUBTOTAL	3,262,342
Prime's Home Office Expense	195,741
SUBTOTAL	3,458,083
Prime Contractor's Profit	345,808
SUBTOTAL	3,803,891
Prime Contractor's Bond	57,058
TOTAL INCL INDIRECTS	3,860,950
Contingency	579,142
TOTAL INCL OWNER COSTS	4,440,092

05. Wetland Creation

05_ 5. Stormwater wetland	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
05_ 5. 5. Earthwork							
Ammend soils, grade, excavation							
L MIL AA <02232 0125 > Excavate & load, hydr excavator,		0.06	2.53	1.63	0.00	0.00	4.16
1.5 CY, wet matl	8067.00 CY	515	20,397	13,149	0	0	33,547
MIL AA <02241 0020 > Loam or topsoil, 200' haul, 6"		0.01	0.61	0.52	0.00	0.00	1.13
deep, 200 HP dozer, remove/pile on site	1613.00 CY	22	983	832	0	0	1,815
MIL AA <02241 0805 > Soil ammendment,mix w/ exstg.,		0.09	3.88	1.44	15.37	0.00	20.69
imported, 6" deep	100.00 CY	9	388	144	1,537	0	2,069
MIL AA <02239 0200 > Spread & compact, slope up to 1		0.02	0.88	0.48	0.00	0.00	1.36
in 4, shape enbankment, w/ machine	4840.00 SY	97	4,252	2,316	0	0	6,568
MIL AA <02234 1115 > Hauling, hwy haulers, 16.5 CY, 6		0.03	0.80	1.20	0.00	0.00	2.00
mi round trip @ 40 MPH (2.1 cyc/hr)	8067.00 CY	231	6,451	9,672	0	0	16,124
TOTAL Earthwork		874	32,471	26,114	1,537	0	60,122
05_ 5.01. WPC (water Pollution Control)							
05_ 5.01.03. Submittals & Implementation Plan							
L HTW AA <01956 1116 > Submittals, tech plans,		1.00	65.00	0.00	0.00	0.00	65.00
pollution control & mitigation	8.00 LS	8	520	0	0	0	520
TOTAL Submittals & Implementation Plan		8	520	0	0	0	520
05_ 5.01.08. WPC							
USR AA < > Turbidity curtain, 3'		0.10	2.70	0.75	3.00	0.00	6.45
	60.00 LF	6	162	45	180	0	387
USR AA < > Add'tl BMP's for EC/WPC		10.00	270.00	100.00	400.00	0.00	770.00
	1.00 LS	10	270	100	400	0	770
L MIL AA <02250 1400 > Stabilized Construction Entrance		20.00	878.54	917.49	13.60	0.00	1809.63
and Removal crushed rock	1.00 EA	20	879	917	14	0	1,810
TOTAL WPC		36	1,311	1,062	594	0	2,967

05. Wetland Creation

05_ 5. Stormwater wetland	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL WPC			44	1,831	1,062	594	0	3,487
05_ 5.02. Demolition								
remove asphalt parking, remove asphalt path								
MIL AA <02046 1710 > Site dml, bituminous, pavement			0.06	2.42	0.99	0.00	0.00	3.41
removal, parking, 3" thick	3388.00	SY	197	8,189	3,349	0	0	11,537
USR AA <02046 1710 > Site dml, bituminous, pavement			0.05	2.06	0.84	0.00	0.00	2.90
removal, path, 3" thick	1875.00	SY	93	3,863	1,580	0	0	5,442
AF AA <02234 4200 > Hauling, w/loading, 12 CY truck,			0.05	1.71	2.15	0.00	0.00	3.86
5 mile haul, rock	585.00	CY	29	1,003	1,255	0	0	2,258
USR AA <02234 4200 > Disposal Fee for Bituminous			0.05	1.71	2.15	20.00	0.00	23.86
	585.00	CY	29	1,003	1,255	11,700	0	13,958
TOTAL Demolition			348	14,057	7,438	11,700	0	33,195
05_ 5.10. Planting								
Assumes-								
- 2 herb. per SY								
- 1 tree at 15' o.c. = 1 tree for every 200 sq. ft. (per kerry, 70 trees)								
- shrubs at 5' o.c., 21.65 sq.ft ea, or 0.4 plants per SY								
AF AA <02976 4930 > Watering, water by truck			0.02	0.45	0.73	0.02	0.00	1.20
	43.50	MSF	1	19	32	1	0	52
B MIL AA <02947 0400 > General planting, local			0.23	8.66	2.98	10.00	0.00	21.64
varieties, 2' - 3', shrubs	389.00	SY	89	3,368	1,159	3,890	0	8,417
B MIL AA <02947 0220 > General planting, local			0.14	5.20	1.79	60.00	0.00	66.99
varieties, trees, 5' - 6'	70.00	EA	10	364	125	4,200	0	4,690
B MIL AA <02947 0020 > General planting, local			0.10	3.76	1.30	1.00	0.00	6.06
varieties, herbaceous	3630.00	SY	363	13,665	4,702	3,630	0	21,997
TOTAL Planting			463	17,417	6,018	11,721	0	35,156
05_ 5.15. Drainage								
Includes 2 fittings, one at end and one at new connection								
MIL AA <02762 2060 > Piping, drainage & sewage, 36"			0.78	30.02	9.04	35.03	0.00	74.09
dia, RCP, class 3, no gaskets	190.00	LF	148	5,704	1,717	6,656	0	14,077
CIV AA <02762 4300 > Piping, drainage & sewage, RCP,			3.19	126.39	6.89	515.50	0.00	648.79
precast end section, 36" dia	2.00	EA	6	253	14	1,031	0	1,298

05. Wetland Creation

05_ 5. Stormwater wetland	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
RSM AA <02270 0100 > Rip-rap, random, machine placed		0.26	10.21	4.62	18.81	0.00	33.64
for slope protection	10.00 CY	3	102	46	188	0	336
TOTAL Drainage		157	6,059	1,777	7,875	0	15,711

05_ 5.20. Improvements

Boardwalk,signage, fence

Assume $32 /1.f for decking (RSM), $15/1.f. for railing (UPB), $30/1.f. for frame and piles = $77/1.f.
(RS MEANS wooden pedestrian bridge = approx. $50 SF in place. For a 6 foot wide bridge, that would cost $300 per 1.f.. Assume 1/3 the cost of the bridge, w/ less heavy support/piles.)

USR AA < > Boardwalk		0.50	37.04	0.00	40.00	0.00	77.04
	300.00 LF	150	11,112	0	12,000	0	23,112
MIL AA <02831 6560 > Fence, CL, 6' H, galv line post		0.21	7.91	0.89	7.65	0.00	16.45
@ 10' OC, 9g mesh, 1-5/8" top rail	1000.00 LF	211	7,911	893	7,650	0	16,454
B MIL AA <02842 0570 > Signs, informational, 36" x 60"		4.00	152.07	0.00	500.00	0.00	652.07
w/post,	3.00 EA	12	456	0	1,500	0	1,956
TOTAL Improvements		373	19,479	893	21,150	0	41,522

05_ 5.25. Exotic control

AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	43.00 MSF	1	19	31	1	0	52
B MIL AA <02951 1900 > Mulch, wood chips, 2" deep, hand		0.00	0.13	0.00	0.11	0.00	0.24
spread	2025.00 SF	7	256	0	223	0	479
M MIL AA <02266 0120 > Erosion control, revegetation		0.02	0.61	0.00	1.50	0.00	2.11
mat	4777.00 SY	76	2,906	0	7,166	0	10,071
USR AA < > Invasive removal		320.00	8653.00	200.00	500.00	0.00	9353.00
	1.00 ACR	320	8,653	200	500	0	9,353
B MIL AA <02947 0220 > General planting, local		0.14	5.20	1.79	60.00	0.00	66.99
varieties, trees, 5' - 6'	225.00 EA	31	1,171	403	13,500	0	15,074
B MIL AA <02947 0020 > General planting, local		0.10	3.76	1.30	1.00	0.00	6.06
varieties, herbaceous	2500.00 SY	250	9,412	3,238	2,500	0	15,150
TOTAL Exotic control		685	22,417	3,872	23,889	0	50,178

05. Wetland Creation

05_ 5. Stormwater wetland	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL Stormwater wetland			2,943	113,731	47,174	78,465	0	239,370

05. Wetland Creation

05_10. Tidal wetland	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
05_10. 5. Earthwork								
Ammend soils, assume 6" of ammendments over site = 645 CY								
grade,								
excavation=.8 ac x 3' deep = 3872 CY								
L MIL AA <02232 0125 > Excavate & load, hydr excavator,			0.06	2.53	1.63	0.00	0.00	4.16
1.5 CY, wet matl	3872.00	CY	247	9,792	6,312	0	0	16,104
MIL AA <02241 0020 > Loam or topsoil, 200' haul, 6"			0.01	0.61	0.52	0.00	0.00	1.13
deep, 200 HP dozer, remove/pile	1290.00	CY	18	786	665	0	0	1,451
on site								
MIL AA <02241 0805 > Soil ammendment,mix w/ exstg.,			0.09	3.88	1.44	15.37	0.00	20.69
imported, 6" deep	645.00	CY	57	2,500	931	9,914	0	13,344
MIL AA <02220 5900 > Compaction of backfill,			0.01	0.56	0.35	0.00	0.00	0.91
structural, SP roller, 6" lift	1935.00	CY	25	1,085	671	0	0	1,756
MIL AA <02226 4100 > Excavation, bulk, fine grade, 3			1.00	42.45	15.17	0.00	0.00	57.61
passes w/grader	39.00	CSY	39	1,656	591	0	0	2,247
MIL AA <02234 1115 > Hauling, hwy haulers, 16.5 CY, 6			0.03	0.80	1.20	0.00	0.00	2.00
mi round trip @ 40 MPH (2.1	3872.00	CY	111	3,096	4,643	0	0	7,739
cyc/hr)								
TOTAL Earthwork			497	18,915	13,813	9,914	0	42,642
05_10.01. Water Pollution Control								
05_10.01.03. Submittals & Implementation Plan								
L HTW AA <01956 1116 > Submittals, tech plans,			1.00	65.00	0.00	0.00	0.00	65.00
pollution control & mitigation	8.00	LS	8	520	0	0	0	520
TOTAL Submittals & Implementation Plan			8	520	0	0	0	520
05_10.01.08. Water Pollution Control								
USR AA < > Turbidity curtain, 3'			0.10	2.70	0.75	3.00	0.00	6.45
	120.00	LF	12	324	90	360	0	774
USR AA < > Add'tl BMP's for EC/WPC			50.00	270.00	100.00	400.00	0.00	770.00
	1.00	LS	50	270	100	400	0	770
L MIL AA <02250 1400 > Stabilized Construction Entrance			20.00	878.54	917.49	13.60	0.00	1809.63
and Removal	1.00	EA	20	879	917	14	0	1,810
crushed rock								

05. Wetland Creation

05_10. Tidal wetland	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL Water Pollution Control		82	1,473	1,107	774	0	3,354
TOTAL Water Pollution Control		90	1,993	1,107	774	0	3,874
05_10.10. Planting							
Assumes-							
- 7 herb. per SY							
- 1 tree at 10' o.c. = 1 tree every 40 sq. ft. (9/40=0.22 trees per sy)							
- shrubs at 5' o.c., 21.65 sq.ft ea, or 0.4 plants per SY							
AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	100.00 MSF	2	45	73	2	0	120
B MIL AA <02947 0400 > General planting, local		0.23	8.66	2.98	10.00	0.00	21.64
varieties, 2' - 3', shrubs	1.00 SY	0	9	3	10	0	22
L MIL AA <02947 0220 > General planting, local		0.35	13.17	4.53	135.00	0.00	152.71
varieties, trees, 5' - 6'	1.00 SY	0	13	5	135	0	153
B MIL AA <02947 0020 > General planting, local		0.13	4.90	1.68	1.00	0.00	7.58
varieties, herbaceous	3872.00 SY	504	18,955	6,522	3,872	0	29,348
TOTAL Planting		506	19,021	6,602	4,019	0	29,642
05_10.20. Improvements							
Boardwalk, signage, fence							
Assume $32 /l.f for decking (RSM), $15/l.f. for railing (UPB), $30/l.f. for frame and piles = $75/l.f. (RS MEANS wooden pedestrian bridge = approx. $50 SF in place. For a 6 foot wide bridge, that would cost $300 per l.f.. Assume 1/3 the cost of the bridge, w/ less heavy support/piles.)							
USR AA < > Boardwalk		0.50	27.04	2.00	40.00	0.00	69.04
	700.00 LF	350	18,928	1,400	28,000	0	48,328
USR AA < > Decomposed granite path		0.10	2.70	0.25	3.00	0.00	5.95
	1012.00 SY	101	2,732	253	3,036	0	6,021
TOTAL Improvements		451	21,660	1,653	31,036	0	54,349
05_10.25. Exotic control							
B MIL AA <02951 1900 > Mulch, wood chips, 2" deep, hand		0.00	0.13	0.00	0.11	0.00	0.24
spread	2025.00 SF	7	256	0	223	0	479

05. Wetland Creation

05_10. Tidal wetland	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
M MIL AA <02266 0120 > Erosion control, revegetation		0.02	0.61	0.00	1.50	0.00	2.11
mat	2000.00 SY	32	1,217	0	3,000	0	4,217
USR AA < > Invasive removal		320.00	8653.00	200.00	500.00	0.00	9353.00
	0.80 ACR	256	6,922	160	400	0	7,482
B MIL AA <02947 0220 > General planting, local		0.14	5.20	1.79	60.00	0.00	66.99
varieties, trees, 5' - 6'	34.00 EA	5	177	61	2,040	0	2,278
B MIL AA <02947 0020 > General planting, local		0.10	3.76	1.30	1.00	0.00	6.06
varieties, herbaceous	2000.00 SY	200	7,529	2,591	2,000	0	12,120
B MIL AA <02947 0400 > General planting, local		0.30	11.29	3.89	15.00	0.00	30.18
varieties, 2' - 3', shrubs	222.00 SY	67	2,507	863	3,330	0	6,700
TOTAL Exotic control		566	18,608	3,674	10,993	0	33,275

05_10.30. Single Coir Fascine

Assumes:

-2 laborers can install 4' of CF per hour
-Costs for CF inc. rope and stakes
-2 Duckbill Anchors per 10' of CF
Costs of Duckbill Anchors from Manahan River project
- length = perimeter of .4 acre square

USR AA < > 12" Dia. Coir Fascine w/ Coir		0.00	0.00	0.00	15.00	0.00	15.00
Net outside	600.00 LF	0	0	0	9,000	0	9,000
L MIL AA < > Outside Laborers, (Semi-Skilled)		1.00	27.04	0.00	0.00	0.00	27.04
	300.00 HRS	300	8,113	0	0	0	8,113
USR AA < > Earth Anchor		0.01	2.70	0.00	6.00	0.00	8.70
	60.00 EA	1	162	0	360	0	522
TOTAL Single Coir Fascine		301	8,275	0	9,360	0	17,635
TOTAL Tidal wetland		2,410	88,472	26,850	66,095	0	181,417
TOTAL Wetland Creation		5,353	202,203	74,024	144,560	0	420,788

08_02. Relocations	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
08_02.03. Utilities & Structures								
Assumes-								
Assumes relocation of the existing drain								
08_02.03.18. Utilities								
USR AA < > Replace storm sewer			1.00	28.00	19.00	200.00	0.00	247.00
	500.00	LF	500	14,000	9,500	100,000	0	123,500
RSM AA <02270 0100 > Rip-rap, random, machine placed			0.26	10.21	4.62	18.81	0.00	33.64
for slope protection	30.00	CY	8	306	139	564	0	1,009
CIV AA <02046 2960 > Site dml, pipe removal, 24"			0.20	8.17	0.86	0.00	0.00	9.04
dia,conc, water/sewer, no excava	185.00	LF	37	1,512	160	0	0	1,671
MIL AA <02762 2030 > Piping, drainage & sewage, 18"			0.37	14.62	0.80	12.18	0.00	27.60
dia, RCP, class 3, no gaskets	185.00	LF	68	2,705	148	2,253	0	5,106
MIL AA <03330 3650 > Concrete in place,pump,500psi,			0.80	30.23	7.64	56.33	0.00	94.20
incl forms,reinf,flexural on	100.00	CY	80	3,023	764	5,633	0	9,420
grade								
TOTAL Utilities			693	21,546	10,710	108,451	0	140,707
TOTAL Utilities & Structures			693	21,546	10,710	108,451	0	140,707
TOTAL Relocations			693	21,546	10,710	108,451	0	140,707

08_04. Dams	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
08_04. 5. Mobilize & Demobilize								
Assumes-								
- mobilization costs are for 1 equip. operator for 1 full day								
- assume approx. 1500' of construction road with 4" of gravel at 12' width								
USR AA < > Mobilize /demobilize - General			40.00	6000.00	1000.00	1000.00	0.00	8000.00
	1.00	LS	40	6,000	1,000	1,000	0	8,000
AF AA <01714 0300 > Cleanup, site debris clean up &			9.20	336.22	17.92	0.00	0.00	354.14
removal	5.00	ACR	46	1,681	90	0	0	1,771
TOTAL Mobilize & Demobilize			86	7,681	1,090	1,000	0	9,771
08_04.10. Care & Diversion of Water								
Water pollution control is a critical item in this project, and extensive measures will be taken to ensure that sediment and the most advanced erosion control management practices are implemented, monitored and maintained to the fullest extent practicable.								
08_04.10.03. Submittals & Implementation Plan								
L HTW AA <01956 1111 > Submittals, technology plans,			1.00	75.00	0.00	0.00	0.00	75.00
misc, work plan	20.00	HR	20	1,500	0	0	0	1,500
L HTW AA <01956 1112 > Submittals, tech plans, defines			1.00	75.00	0.00	0.00	0.00	75.00
where samples are taken, well install	20.00	HR	20	1,500	0	0	0	1,500
L HTW AA <01956 1113 > Submittals, tech plans,defines			1.00	75.00	0.00	0.00	0.00	75.00
where samples are taken, soil sampling	20.00	HR	20	1,500	0	0	0	1,500
L HTW AA <01956 1116 > Submittals, tech plans,			1.00	75.00	0.00	0.00	0.00	75.00
pollution control & mitigation	20.00	HR	20	1,500	0	0	0	1,500
TOTAL Submittals & Implementation Plan			80	6,000	0	0	0	6,000
08_04.10.08. Water Pollution Control								
USR AA < > Turbidity curtain, 8'			0.10	2.70	0.75	6.50	0.00	9.95
	120.00	LF	12	324	90	780	0	1,194
USR AA < > Add'tl BMP's for EC/WPC			40.00	1018.00	1000.00	2000.00	0.00	4018.00
	1.00	LS	40	1,018	1,000	2,000	0	4,018

08_04. Dams	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
L MIL AA <02250 1400 > Stabilized Construction Entrance		20.00	878.54	917.49	13.60	0.00	1809.63
and Removal	2.00 EA	40	1,757	1,835	27	0	3,619
crushed rock							
B MIL AA <02704 0300 > 3/4" gravel fill for temporary		0.18	7.54	0.80	25.00	0.00	33.34
construction roads	300.00 CY	55	2,263	239	7,500	0	10,002
TOTAL Water Pollution Control		147	5,362	3,164	10,307	0	18,833
08_04.10.13. Diversion of water							
assumes							
berm is 90' long, 5' high, at 2:1 slope							
RSM AA <02240 0020 > Fill, borrow, for embankments,		0.02	0.81	0.90	5.00	0.00	6.71
load, 1 mile haul, spread	400.00 CY	9	325	359	2,000	0	2,684
w/dozer							
MIL AA <02140 1600 > Dewatering, sump hole, incl		0.02	0.78	0.08	0.67	0.00	1.54
excavation & gravel, pit	1000.00 CF	19	784	83	670	0	1,537
GEN AA < > PUMP, CENTRF, DEWATER, 4" DIA		0.00	0.00	4.74	0.00	0.00	4.74
570GPM(102MM, 2158LPM)@40'HEAD	2016.00 HR	0	0	9,555	0	0	9,555
TOTAL Diversion of water		29	1,109	9,997	2,670	0	13,776
TOTAL Care & Diversion of Water		256	12,471	13,161	12,977	0	38,610

08_04.15. Dam Removal

Assumes:

- dam cross-sectional area is approx. 35.65 sq. ft. = 1.32 CY per sq. ft.
- counterfort cross sectional area = 27 sq. ft= 1 CY ea. x 9 counterforts
- loose boulders are asumed to be present, per note on drawing; to be removed
- assume 3.5 CY of excavation per l.f. of removal, for rock and soils over/around footing.
- length of dam = 128', per drawings

MIL AA <02074 2100 > Foot/fdn dml, walls, remove		0.05	2.03	0.00	0.00	68.68	70.71
damaged block, 12" thick	556.00 CY	30	1,127	0	0	38,186	39,313
MIL AA <02232 0150 > Excavate & load, hydr excavator,		0.04	1.47	1.16	0.00	0.00	2.63
2 CY, blasted rock	556.00 CY	21	818	645	0	0	1,463
MIL AA <02234 1115 > Hauling, hwy haulers, 16.5 CY, 6		0.03	0.80	1.20	0.00	0.00	2.00
mi round trip @ 40 MPH (2.1	556.00 CY	16	445	667	0	0	1,111
cyc/hr)							

08. Mill Pond Park

08_04. Dams	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL Dam Removal			66	2,390	1,311	0	38,186	41,888
TOTAL Dams			408	22,543	15,562	13,977	38,186	90,268

08_09. Channels and Canals	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
08_09.01. Channels							
TOTAL Mobilize, Demobilize & Prepare		0	0	0	0	50,000	50,000
08_09.01.05. Sediment Testing							
USR AA < > Contaminated Sediment Testing		0.00	0.00	0.00	0.00	10000.00	10000.00
	1.00 LS	0	0	0	0	10,000	10,000
TOTAL Sediment Testing		0	0	0	0	10,000	10,000
08_09.01.06. Demolition, retaining wall							
Assumes-							
- 1 l.f. of wall = approx. 1.16 CY of conc. removal							
- approx. 1100 l.f. of wall on either side of river (2200 l.f.) - wall is approx. 15' high from base							
- Total CY for retaining wall removal =2200 CY							
- cost adjusted down 1/3rd for ease of access and open site							
- assume storm sewer is in place,and every 3 l.f. yeilds 1 CY of material to be removed/hauled off							
- amnt of excavation required = 2CY per l.f.							
MIL AA <02228 0374 > Excavate trench, heavy soil,		0.01	0.37	0.29	0.00	0.00	0.66
6'-10' D, 2 CY excavator	4400.00 CY	41	1,634	1,287	0	0	2,922
L MIL AA <02046 2115 > Site dml, conc, 7" to 24" thick,		1.88	76.81	8.12	0.00	0.00	84.93
reinf, w/backhoe	1980.00 CY	3,723	152,089	16,077	0	0	168,166
<*Mod* >							
L CIV AA <02046 3000 > Site dml, pipe removal, 54"		0.35	14.30	1.51	0.00	0.00	15.81
conc. box water/sewer, no excava	1100.00 LF	385	15,728	1,663	0	0	17,390
CIV AA <02234 2320 > Hauling, off hwy haulers, 40 CY,		0.01	0.32	1.35	0.00	0.00	1.67
6 mile RT @ 40 mph (2.1 cyc/hr)	2300.00 CY	26	736	3,111	0	0	3,847
TOTAL Demolition, retaining wall		4,175	170,187	22,138	0	0	192,326
08_09.01.07. Demolition, concrete path							
Assume-							
- 6' wide path at 750' each side of channel=1500 l.f.							
AF AA <02046 2350 > Site dml, sidewalk, conc, mesh		0.16	6.54	0.69	0.00	0.00	7.23
reinforced	1000.00 SY	160	6,537	691	0	0	7,228
CIV AA <02234 2320 > Hauling, off hwy haulers, 40 CY,		0.01	0.32	1.35	0.00	0.00	1.67
6 mile RT @ 40 mph (2.1 cyc/hr)	500.00 CY	6	160	676	0	0	836

08_09. Channels and Canals	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL Demolition, concrete path		166	6,697	1,367	0	0	8,064
08_09.01.08. Sediment Removal							
CIV AA <02234 2420 > Hauling, hwy haulers,16 CY, 80		0.01	0.19	0.83	0.00	30.00	31.02
mile RT @ 40 mph (2.1 cyc/hr)	18600 CY	126	3,560	15,468	0	558,000	577,028
L MIL AA <02232 0125 > Excavate & load, hydr excavator,		0.06	2.52	1.62	0.00	0.00	4.14
1.5 CY, wet matl	18600 CY	1,185	46,859	30,208	0	0	77,067
USR AA <02232 0125 > Tipping Fee, Manchester, CT		0.02	0.97	0.63	30.00	0.00	31.60
	18600 CY	458	18,111	11,675	558,000	0	587,786
TOTAL Sediment Removal		1,769	68,530	57,351	558,000	558,000	1,241,881

08_09.01.10. Earthwork

Assume-

- 726 l.f. of the reach (2/3rds) has 840 sq. ft. of cut, and = fill
- 726 l.f. x 840 sq. ft. = 609,840 cu. ft., or 22,587 CY cut, 22,587 fill

- 374 l.f. of the reach (1/3) has 260 sq. ft. of cut, 260 sq. ft. of fill
- 374 x 260 = 97240 cu. ft., or 3601 CY of cut, 3601 CY of fill

total = 22,587 + 3601 cut = 26188 CY cut (and same # for fill)

L MIL AA <02232 0250 > Excavate & load, wheeled loader,		0.06	2.48	1.67	0.00	0.00	4.15
3 CY, wet rock	26188 CY	1,480	65,017	43,792	0	0	108,809
CIV AA <02234 2420 > Hauling, off hwy haulers, 65 CY,		0.01	0.19	0.83	0.00	0.00	1.02
6 mile RT @ 40 mph (2.1 cyc/hr)	500.00 CY	3	96	416	0	0	512
AF AA <02240 0030 > Fill, spread borrow w/dozer		0.01	0.53	0.45	0.00	0.00	0.97
	26188 CY	314	13,804	11,682	0	0	25,486
MIL AA <02241 0015 > Loam or topsoil, 200' haul, 4"		0.03	1.33	1.13	0.00	0.00	2.46
deep, 200 HP dozer, remove/pile	1800.00 CY	55	2,402	2,033	0	0	4,435
on site							
MIL AA <02241 0400 > Loam or topsoil, frtn loader,		0.06	2.64	0.98	0.00	0.00	3.62
1.5 CY, spread from pile to	1800.00 CY	108	4,744	1,766	0	0	6,510
finish grade							
MIL AA <02241 0805 > Amm,endment, furnish & place,		0.09	3.88	1.44	15.37	0.00	20.69
imported, 6" deep	1800.00 CY	159	6,977	2,597	27,666	0	37,240
MIL AA <02226 4100 > Excavation, bulk, fine grade, 3		1.00	42.45	15.17	0.00	0.00	57.61
passes w/grader	290.00 CSY	290	12,310	4,398	0	0	16,708

08_09. Channels and Canals	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL Earthwork		2,409	105,349	66,684	27,666	0	199,699
08_09.01.15. Bank Stabilization							
08_09.01.15_ 5. Bank Stabilization Assumes: Avg depth of riprap @ approx 18"- 24" Length of riprap = 2200 l.f. (both banks, entire run) 4' face feet of banks (from cross sectional sketches) 4 x 2200 x 2 = 651CY of riprap, 977 SY of filter fabric							
RSM AA <02270 0100 > Rip-rap, random, machine placed		0.26	10.21	4.62	18.81	0.00	33.64
for slope protection	651.00 CY	168	6,646	3,007	12,245	0	21,897
CIV AA <02250 2130 > Geotextile fabric, 60 mil thick,		0.02	0.55	0.08	0.60	0.00	1.23
non-woven polypropylene	977.00 SY	16	535	78	586	0	1,199
USR AA < > Boulder Placement Increased by		2.00	30.00	50.00	120.00	0.00	200.00
PM from 100 to 300 .	300.00 EA	600	9,000	15,000	36,000	0	60,000
TOTAL Bank Stabilization		784	16,181	18,084	48,832	0	83,097
TOTAL Bank Stabilization		784	16,181	18,084	48,832	0	83,097
08_09.01.22. Bed Stabilization							
USR AA < > Cobble, river run, imported, D50		0.10	5.00	1.00	20.00	0.00	26.00
= 2"	2777.00 CY	278	13,885	2,777	55,540	0	72,202
TOTAL Bed Stabilization		278	13,885	2,777	55,540	0	72,202
TOTAL Channels		9,580	380,830	168,402	690,038	618,000	1,857,269
TOTAL Channels and Canals		9,580	380,830	168,402	690,038	618,000	1,857,269

08_14. Recreation Facilities	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
08_14. 5. Restoration Planting							
ground cover is @ 1 plant per SY (approx 3' o.c.)							
shrubs are @ 10' o.c.							
Trees are spaced for 1 tree per 250 sq. ft (more than 15' o.c.)							
Plugs are at 2'-3' o.c., avg.							
B MIL AA <02947 0020 > General planting, local		0.10	3.76	1.30	4.00	0.00	9.06
varieties, gnd cover, 12" spread	2322.00 SY	232	8,742	3,008	9,288	0	21,037
B MIL AA <02947 0400 > General planting, local		0.30	11.29	3.89	15.00	0.00	30.18
varieties, 2' - 3', shrubs	464.00 SY	139	5,240	1,803	6,960	0	14,003
B MIL AA <02947 0220 > General planting, local		0.50	18.82	6.48	90.00	0.00	115.30
varieties, trees, 5' - 6'	166.00 EA	83	3,124	1,075	14,940	0	19,139
AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	42.00 MSF	1	19	31	1	0	50
B MIL AA <02947 0020 > General planting, local		0.10	3.76	1.30	1.00	0.00	6.06
varieties, herbaceous	2322.00 SY	232	8,741	3,008	2,322	0	14,071
TOTAL Restoration Planting		687	25,866	8,924	33,511	0	68,300
08_14.10. Tree Removal/Transplant							
AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	200.00 MSF	3	90	146	4	0	240
CIV AA <02109 7330 > Clear & grub, tree rmv, cutting		6.00	237.97	92.85	0.00	0.00	330.81
& chipping, 24" - 36" dia	50.00 EA	300	11,898	4,642	0	0	16,541
MIL AA <02116 1405 > Selective clearing, heavy		0.03	1.24	0.35	0.00	0.00	1.59
cutting, pole line constr, tree trimming	2000.00 LF	66	2,488	693	0	0	3,181
TOTAL Tree Removal/Transplant		369	14,476	5,481	4	0	19,961
08_14.20. Specimen Planting							
Assume 100 trees planted							
MIL AA <02911 1400 > Tree guying, w/stakes, 8"		1.78	67.59	0.00	87.50	0.00	155.09
anchors, guy wire & wrap, 8" caliper	100.00 EA	178	6,759	0	8,750	0	15,509
MIL AA <02951 1900 > Mulch, wood chips, 2" deep, hand		0.00	0.15	0.00	0.18	0.00	0.33
spread	2000.00 SF	8	307	0	360	0	667

08. Mill Pond Park

08_14. Recreation Facilities	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
RSM AA <02957 1600 > Trees, deciduous, 1.5" caliper,		3.20	120.45	41.44	136.67	0.00	298.56
in beds, B&B, 8'-10'	100.00 EA	320	12,045	4,144	13,667	0	29,856
AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	220.00 MSF	4	99	161	4	0	264
TOTAL Specimen Planting		509	19,209	4,305	22,781	0	46,295
08_14.30. Turf/Meadow Planting							
MIL AA <02932 0320 > Seeding, athletic field mix,		4.26	198.03	67.54	549.50	0.00	815.07
mechanical seeding, 450#/acre	5.00 ACR	21	990	338	2,748	0	4,075
AF AA <02932 7020 > Seeding, apply fertilizer, 1#		0.03	0.80	1.30	2.64	0.00	4.74
nitrogen/MSF, spray from truck	220.00 MSF	6	176	287	581	0	1,044
TOTAL Turf/Meadow Planting		28	1,166	625	3,328	0	5,119
08_14.35. Improvements							
B MIL AA <02842 0570 > Signs, informational, 36" x 60"		4.00	152.07	0.00	500.00	0.00	652.07
w/post,	20.00 EA	80	3,041	0	10,000	0	13,041
MIL AA <02871 0720 > Benches, steel supports,		4.00	152.07	0.00	579.00	0.00	731.07
w/backs, wood slats, 8' long	40.00 EA	160	6,083	0	23,160	0	29,243
CIV AA <02876 5060 > Trash receptacle, 22 gal		0.46	17.38	0.00	379.33	0.00	396.71
capacity, circular, KD wood,	40.00 EA	18	695	0	15,173	0	15,868
steel frame							
USR AA < > Kiosk		80.00	4000.00	500.00	2000.00	0.00	6500.00
	1.00 EA	80	4,000	500	2,000	0	6,500
USR AA < > Wooden Overlook Structure		0.00	0.00	0.00	0.00	7000.00	7000.00
	1.00	0	0	0	0	7,000	7,000
TOTAL Improvements		338	13,819	500	50,333	7,000	71,652

08_14. Recreation Facilities	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
08_14.37. Path systems							
Per RS MEANS 025 104							
- 6' wide + 10% for wider areas							
- 6" gravel base course @ $3.77/SY							
- 2" binder course @ $ 5.05/SY							
- 1" wearing course @ $1.99/SY							
- Total = $10.81							
Assume $32 /1.f for decking (RSM), $15/1.f. for railing (UPB), $30/1.f. for frame and piles = $75/1.f. (RS MEANS wooden pedestrian bridge = approx. $50 SF in place. For a 12 foot wide bridge, that would cost $600/1.f. per 1.f.. Assume 1/3 the cost of the bridge, w/ less heavy support/piles.)							
USR AA < > Decomposed granite path		0.10	2.70	0.25	3.00	0.00	5.95
	400.00 SY	40	1,080	100	1,200	0	2,380
USR AA < > Boardwalk		0.50	27.04	2.00	40.00	0.00	69.04
	1000.00 LF	500	27,040	2,000	40,000	0	69,040
USR AA < > Bituminous pavement-pedestrian		0.00	0.00	0.00	0.00	10.81	10.81
	1800.00 SY	0	0	0	0	19,458	19,458
TOTAL Path systems		540	28,120	2,100	41,200	19,458	90,878
TOTAL Recreation Facilities		2,471	102,656	21,935	151,158	26,458	302,206
TOTAL Mill Pond Park		13,152	527,575	216,609	963,623	682,644	2,390,451

99. Channel Corridor Enhancement

99_ 5. Riparian Enhancement	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	157.00 MSF	3	70	115	3	0	188
MIL AA <02266 0120 > Erosion control, revegetation		0.02	0.61	0.00	4.71	0.00	5.32
mat, webbed	1736.00 SY	28	1,056	0	8,177	0	9,233
M MIL AA <02266 0120 > Erosion control, revegetation		0.02	0.61	0.00	1.50	0.00	2.11
mat	1736.00 SY	28	1,056	0	2,604	0	3,660
USR AA < > Invasive removal		320.00	8653.00	200.00	500.00	0.00	9353.00
	0.36 ACR	115	3,115	72	180	0	3,367
B MIL AA <02947 0220 > General planting, local		0.14	5.20	1.79	60.00	0.00	66.99
varieties, trees, 5' - 6'	78.00 EA	11	406	140	4,680	0	5,226
B MIL AA <02947 0020 > General planting, local		0.10	3.76	1.30	1.00	0.00	6.06
varieties, herbaceous	1736.00 SY	174	6,535	2,249	1,736	0	10,520
TOTAL Riparian Enhancement		358	12,239	2,575	17,380	0	32,193

99. Channel Corridor Enhancement

99_10. Remove Concrete Blockage	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
L MIL AA <02046 2115 > Site dml, conc, 7" to 24" thick,			3.56	145.45	15.38	0.00	0.00	160.82
reinf, w/backhoe	556.00	CY	1,979	80,870	8,549	0	0	89,418
L CIV AA <02234 2320 > Hauling, off hwy haulers, 40 CY,			0.10	2.81	11.87	0.00	0.00	14.67
6 mile RT @ 40 mph (2.1 cyc/hr)	556.00	CY	56	1,560	6,598	0	0	8,158
L MIL AA <02232 0125 > Excavate & load, hydr excavator,			0.06	2.52	1.62	0.00	0.00	4.14
1.5 CY, wet matl	556.00	CY	35	1,401	903	0	0	2,304
TOTAL Remove Concrete Blockage			2,071	83,831	16,050	0	0	99,880

99. Channel Corridor Enhancement

99_15. Reinforce stone wall	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
USR AA < > Reinforce stone wall			0.00	0.00	0.00	0.00	12000.00	12000.00
	1.00	LS	0	0	0	0	12,000	12,000
TOTAL Reinforce stone wall			0	0	0	0	12,000	12,000

99. Channel Corridor Enhancement

99_20. Riparian Overlook	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
USR AA < > Wooden Overlook Structure			0.00	0.00	0.00	0.00	7000.00	7000.00
	1.00		0	0	0	0	7,000	7,000
TOTAL Riparian Overlook			0	0	0	0	7,000	7,000

99. Channel Corridor Enhancement

99_25. Riparian paths	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL Riparian paths	870	LF	0	1,566	148	1,740	0	3,454
TOTAL Channel Corridor Enhancement			2,428	97,635	18,772	19,120	19,000	154,528
TOTAL Mill River Alternative 2			20,934	827,413	309,406	1,127,303	701,644	2,965,766

Mill River Alternative 3
Remove the existing dam and
obstructions in the river
channel. Add six step pools and
retaining walls.

Designed By:
Estimated By: Robert Zwahlen

Prepared By: Robert Zwahlen

Preparation Date: 03/16/04
Effective Date of Pricing: 03/16/04
Est Construction Time: 200 Days

Sales Tax: 0.0%

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The project consists of an approximate two - mile reach of the Mill River and the 3.5 acre Mill river Park area in the City of Stamford, Connecticut. The goal of the project is to restore the aquatic and riparian resources of the Mill River to a healthy, viable, and self maintaining river system. Option 3 - includes Step Pools and Concrete Walls

The following were factored into the estimate :

Field Overhead	-	10.0%
Home Office OH	-	6.0%
Profit	-	10.0%
Bond	-	1.5%
Contingency	-	15.0%

Wages used in the estimate are Davis Bacon wages, for Litchfield County, CT030001 dated 02/06/04

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No Backup Reports...

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** PROJECT OWNER SUMMARY - Sub Feat **

	QUANTY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNIT
05 Wetland Creation							
05_ 5 Stormwater wetland							
05_ 5. 5 Earthwork	1.00	EA	78,268	11,740	0	90,009	90009
05_ 5.01 WPC	1.00	EA	4,539	681	0	5,220	5219.88
05_ 5.02 Demolition	1.00	SY	43,215	6,482	0	49,697	49697
05_ 5.10 Planting	1.00	AC	45,767	6,865	0	52,632	52632
05_ 5.15 Drainage	1.00	LF	20,453	3,068	0	23,521	23521
05_ 5.20 Improvements	1.00	EA	54,055	8,108	0	62,163	62163
05_ 5.25 Exotic control			65,324	9,799	0	75,122	
TOTAL Stormwater wetland	1.00	EA	311,621	46,743	0	358,364	358364
05_10 Tidal wetland							
05_10. 5 Earthwork	1.00	CY	55,510	8,326	0	63,836	63836
05_10.01 WPC	1.00	EA	5,043	756	0	5,799	5799.26
05_10.10 Planting	1.00	SY	38,590	5,788	0	44,378	44378
05_10.20 Improvements	1.00	EA	70,754	10,613	0	81,367	81367
05_10.25 Exotic control			43,319	6,498	0	49,817	
05_10.30 Single Coir Fascine	600.00	LF	22,958	3,444	0	26,402	44.00
TOTAL Tidal wetland	1.00	EA	236,173	35,426	0	271,599	271599
TOTAL Wetland Creation	1.00	EA	547,794	82,169	0	629,963	629963
08 Mill Pond Park							
08_02 Relocations							
08_02.03 Utilities & Structures			183,178	27,477	0	210,655	
TOTAL Relocations	1.00	EA	183,178	27,477	0	210,655	210655
08_04 Dams							
08_04. 5 Mobilize & Demobilize			12,720	1,908	0	14,628	
08_04.10 Care & Diversion of Water			50,264	7,540	0	57,803	
08_04.15 Dam Removal	1.00	CY	54,531	8,180	0	62,711	62711
TOTAL Dams	1.00	EA	117,515	17,627	0	135,142	135142
08_09 Channels and Canals							

** PROJECT OWNER SUMMARY - Sub Feat **

	QUANTY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNIT
08_09.01 Channels	1.00	EA	2,470,229	370,534	0	2,840,764	2840764
TOTAL Channels and Canals	1.00	EA	2,470,229	370,534	0	2,840,764	2840764
08_14 Recreation Facilities							
08_14. 5 Restoration Planting	1.00	EA	88,916	13,337	0	102,254	102254
08_14.10 Tree Removal/Transplant	1.00	EA	25,986	3,898	0	29,884	29884
08_14.20 Specimen Planting	1.00	EA	60,269	9,040	0	69,309	69309
08_14.30 Turf/Meadow Planting	1.00	EA	6,664	1,000	0	7,664	7663.69
08_14.35 Improvements	1.00	EA	93,280	13,992	0	107,272	107272
08_14.37 Path systems	1.00	EA	118,309	17,746	0	136,055	136055
TOTAL Recreation Facilities	1.00	EA	393,424	59,014	0	452,438	452438
TOTAL Mill Pond Park	1.00	EA	3,164,346	474,652	0	3,638,998	3638998
99 Channel Corridor Enhancement							
99_ 5 Riparian Enhancement	1.00	EA	41,910	6,287	0	48,197	48197
99_10 Remove Concrete Blockage	1.00	EA	130,028	19,504	0	149,532	149532
99_15 Reinforce stone wall			15,622	2,343	0	17,965	
99_20 Riparian Overlook	1.00	EA	9,113	1,367	0	10,480	10480
99_25 Riparian paths	1.00	EA	5,159	0	0	5,159	5159.45
TOTAL Channel Corridor Enhancement	1.00	EA	201,833	29,501	0	231,334	231334
9E 6 Step Pools	6.00	EA	57,802	8,670	0	66,472	11079
TOTAL Mill River Alternative 3	1.00	EA	3,971,774	594,992	0	4,566,766	4566766

** PROJECT INDIRECT SUMMARY - Sub Feat **

	QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT
05 Wetland Creation									
05_ 5 Stormwater wetland									
05_ 5. 5 Earthwork	1.00	EA	60,121	6,012	3,968	7,010	1,157	78,268	78268
05_ 5.01 WPC	1.00	EA	3,487	349	230	407	67	4,539	4539.03
05_ 5.02 Demolition	1.00	SY	33,195	3,319	2,191	3,871	639	43,215	43215
05_ 5.10 Planting	1.00	AC	35,156	3,516	2,320	4,099	676	45,767	45767
05_ 5.15 Drainage	1.00	LF	15,711	1,571	1,037	1,832	302	20,453	20453
05_ 5.20 Improvements	1.00	EA	41,522	4,152	2,740	4,841	799	54,055	54055
05_ 5.25 Exotic control			50,178	5,018	3,312	5,851	965	65,324	
TOTAL Stormwater wetland	1.00	EA	239,370	23,937	15,798	27,910	4,605	311,621	311621
05_10 Tidal wetland									
05_10. 5 Earthwork	1.00	CY	42,639	4,264	2,814	4,972	820	55,510	55510
05_10.01 WPC	1.00	EA	3,874	387	256	452	75	5,043	5042.84
05_10.10 Planting	1.00	SY	29,642	2,964	1,956	3,456	570	38,590	38590
05_10.20 Improvements	1.00	EA	54,349	5,435	3,587	6,337	1,046	70,754	70754
05_10.25 Exotic control			33,275	3,328	2,196	3,880	640	43,319	
05_10.30 Single Coir Fascine	600.00	LF	17,635	1,764	1,164	2,056	339	22,958	38.26
TOTAL Tidal wetland	1.00	EA	181,415	18,141	11,973	21,153	3,490	236,173	236173
TOTAL Wetland Creation	1.00	EA	420,784	42,078	27,772	49,063	8,095	547,794	547794
08 Mill Pond Park									
08_02 Relocations									
08_02.03 Utilities & Structures			140,707	14,071	9,287	16,406	2,707	183,178	
TOTAL Relocations	1.00	EA	140,707	14,071	9,287	16,406	2,707	183,178	183178
08_04 Dams									
08_04. 5 Mobilize & Demobilize			9,771	977	645	1,139	188	12,720	
08_04.10 Care & Diversion of Water			38,610	3,861	2,548	4,502	743	50,264	
08_04.15 Dam Removal	1.00	CY	41,888	4,189	2,765	4,884	806	54,531	54531
TOTAL Dams	1.00	EA	90,268	9,027	5,958	10,525	1,737	117,515	117515
08_09 Channels and Canals									

** PROJECT INDIRECT SUMMARY - Sub Feat **

	QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT
08_09.01 Channels	1.00	EA	1,897,492	189,749	125,234	221,248	36,506	2,470,229	2470229
TOTAL Channels and Canals	1.00	EA	1,897,492	189,749	125,234	221,248	36,506	2,470,229	2470229
08_14 Recreation Facilities									
08_14. 5 Restoration Planting	1.00	EA	68,300	6,830	4,508	7,964	1,314	88,916	88916
08_14.10 Tree Removal/Transplant	1.00	EA	19,961	1,996	1,317	2,327	384	25,986	25986
08_14.20 Specimen Planting	1.00	EA	46,295	4,630	3,055	5,398	891	60,269	60269
08_14.30 Turf/Meadow Planting	1.00	EA	5,119	512	338	597	98	6,664	6664.08
08_14.35 Improvements	1.00	EA	71,652	7,165	4,729	8,355	1,379	93,280	93280
08_14.37 Path systems	1.00	EA	90,878	9,088	5,998	10,596	1,748	118,309	118309
TOTAL Recreation Facilities	1.00	EA	302,206	30,221	19,946	35,237	5,814	393,424	393424
TOTAL Mill Pond Park	1.00	EA	2,430,674	243,067	160,424	283,417	46,764	3,164,346	3164346
99 Channel Corridor Enhancement									
99_ 5 Riparian Enhancement	1.00	EA	32,193	3,219	2,125	3,754	619	41,910	41910
99_10 Remove Concrete Blockage	1.00	EA	99,880	9,988	6,592	11,646	1,922	130,028	130028
99_15 Reinforce stone wall			12,000	1,200	792	1,399	231	15,622	
99_20 Riparian Overlook	1.00	EA	7,000	700	462	816	135	9,113	9112.87
99_25 Riparian paths	1.00	EA	3,963	396	262	462	76	5,159	5159.45
TOTAL Channel Corridor Enhancement	1.00	EA	155,037	15,504	10,232	18,077	2,983	201,833	201833
9E 6 Step Pools	6.00	EA	44,400	4,440	2,930	5,177	854	57,802	9633.61
TOTAL Mill River Alternative 3	1.00	EA	3,050,895	305,090	201,359	355,734	58,696	3,971,774	3971774
Contingency								594,992	
TOTAL INCL OWNER COSTS								4,566,766	

** PROJECT DIRECT SUMMARY - Sub Feat **

	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
05 Wetland Creation									
05_ 5 Stormwater wetland									
05_ 5. 5 Earthwork	1.00	EA	874	32,470	26,114	1,537	0	60,121	60121
05_ 5.01 WPC	1.00	EA	44	1,831	1,062	594	0	3,487	3486.63
05_ 5.02 Demolition	1.00	SY	348	14,057	7,438	11,700	0	33,195	33195
05_ 5.10 Planting	1.00	AC	463	17,417	6,018	11,721	0	35,156	35156
05_ 5.15 Drainage	1.00	LF	157	6,059	1,777	7,875	0	15,711	15711
05_ 5.20 Improvements	1.00	EA	373	19,479	893	21,150	0	41,522	41522
05_ 5.25 Exotic control			685	22,417	3,872	23,889	0	50,178	
TOTAL Stormwater wetland	1.00	EA	2,943	113,730	47,174	78,465	0	239,370	239370
05_10 Tidal wetland									
05_10. 5 Earthwork	1.00	CY	497	18,913	13,813	9,914	0	42,639	42639
05_10.01 WPC	1.00	EA	90	1,993	1,107	774	0	3,874	3873.63
05_10.10 Planting	1.00	SY	506	19,021	6,602	4,019	0	29,642	29642
05_10.20 Improvements	1.00	EA	451	21,660	1,653	31,036	0	54,349	54349
05_10.25 Exotic control			566	18,608	3,674	10,993	0	33,275	
05_10.30 Single Coir Fascine	600.00	LF	301	8,275	0	9,360	0	17,635	29.39
TOTAL Tidal wetland	1.00	EA	2,410	88,471	26,849	66,095	0	181,415	181415
TOTAL Wetland Creation	1.00	EA	5,353	202,201	74,023	144,560	0	420,784	420784
08 Mill Pond Park									
08_02 Relocations									
08_02.03 Utilities & Structures			693	21,546	10,710	108,451	0	140,707	
TOTAL Relocations	1.00	EA	693	21,546	10,710	108,451	0	140,707	140707
08_04 Dams									
08_04. 5 Mobilize & Demobilize			86	7,681	1,090	1,000	0	9,771	
08_04.10 Care & Diversion of Water			256	12,471	13,161	12,977	0	38,610	
08_04.15 Dam Removal	1.00	CY	66	2,390	1,311	0	38,186	41,888	41888
TOTAL Dams	1.00	EA	408	22,543	15,562	13,977	38,186	90,268	90268
08_09 Channels and Canals									

** PROJECT DIRECT SUMMARY - Sub Feat **

	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
08_09.01 Channels	1.00	EA	10,193	417,596	178,243	683,653	618,000	1,897,492	1897492
TOTAL Channels and Canals	1.00	EA	10,193	417,596	178,243	683,653	618,000	1,897,492	1897492
08_14 Recreation Facilities									
08_14. 5 Restoration Planting	1.00	EA	687	25,866	8,924	33,511	0	68,300	68300
08_14.10 Tree Removal/Transplant	1.00	EA	369	14,476	5,481	4	0	19,961	19961
08_14.20 Specimen Planting	1.00	EA	509	19,209	4,305	22,781	0	46,295	46295
08_14.30 Turf/Meadow Planting	1.00	EA	28	1,166	625	3,328	0	5,119	5118.97
08_14.35 Improvements	1.00	EA	338	13,819	500	50,333	7,000	71,652	71652
08_14.37 Path systems	1.00	EA	540	28,120	2,100	41,200	19,458	90,878	90878
TOTAL Recreation Facilities	1.00	EA	2,471	102,656	21,935	151,158	26,458	302,206	302206
TOTAL Mill Pond Park	1.00	EA	13,766	564,341	226,450	957,239	682,644	2,430,674	2430674
99 Channel Corridor Enhancement									
99_ 5 Riparian Enhancement	1.00	EA	358	12,239	2,575	17,380	0	32,193	32193
99_10 Remove Concrete Blockage	1.00	EA	2,071	83,831	16,050	0	0	99,880	99880
99_15 Reinforce stone wall			0	0	0	0	12,000	12,000	
99_20 Riparian Overlook	1.00	EA	0	0	0	0	7,000	7,000	7000.00
99_25 Riparian paths	1.00	EA	0	1,036	1,188	1,740	0	3,963	3963.20
TOTAL Channel Corridor Enhancement	1.00	EA	2,428	97,105	19,812	19,120	19,000	155,037	155037
9E 6 Step Pools	6.00	EA	240	2,400	18,000	24,000	0	44,400	7400.00
TOTAL Mill River Alternative 3	1.00	EA	21,787	866,047	338,285	1,144,919	701,644	3,050,895	3050895
Prime Contractor's Field Overhead								305,090	
SUBTOTAL								3,355,985	
Prime's Home Office Expense								201,359	
SUBTOTAL								3,557,344	
Prime Contractor's Profit								355,734	
SUBTOTAL								3,913,078	
Prime Contractor's Bond								58,696	
TOTAL INCL INDIRECTS								3,971,774	
Contingency								594,992	
TOTAL INCL OWNER COSTS								4,566,766	

05. Wetland Creation

05_ 5. Stormwater wetland	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
05_ 5. 5. Earthwork								
Ammend soils, grade, excavation								
L MIL AA <02232 0125 > Excavate & load, hydr excavator,			0.06	2.53	1.63	0.00	0.00	4.16
1.5 CY, wet matl	8067.00	CY	515	20,397	13,149	0	0	33,546
MIL AA <02241 0020 > Loam or topsoil, 200' haul, 6"			0.01	0.61	0.52	0.00	0.00	1.13
deep, 200 HP dozer, remove/pile on site	1613.00	CY	22	983	832	0	0	1,815
MIL AA <02241 0805 > Soil ammendment,mix w/ exstg.,			0.09	3.88	1.44	15.37	0.00	20.69
imported, 6" deep	100.00	CY	9	388	144	1,537	0	2,069
MIL AA <02239 0200 > Spread & compact, slope up to 1			0.02	0.88	0.48	0.00	0.00	1.36
in 4, shape enbankment, w/ machine	4840.00	SY	97	4,252	2,316	0	0	6,568
MIL AA <02234 1115 > Hauling, hwy haulers, 16.5 CY, 6			0.03	0.80	1.20	0.00	0.00	2.00
mi round trip @ 40 MPH (2.1 cyc/hr)	8067.00	CY	231	6,451	9,672	0	0	16,124
TOTAL Earthwork			874	32,470	26,114	1,537	0	60,121
05_ 5.01. WPC								
05_ 5.01.03. Submittals & Implementation Plan								
L HTW AA <01956 1116 > Submittals, tech plans,			1.00	65.00	0.00	0.00	0.00	65.00
pollution control & mitigation	8.00	LS	8	520	0	0	0	520
TOTAL Submittals & Implementation Plan			8	520	0	0	0	520
05_ 5.01.08. WPC								
USR AA < > Turbidity curtain, 3'			0.10	2.70	0.75	3.00	0.00	6.45
	60.00	LF	6	162	45	180	0	387
USR AA < > Add'tl BMP's for EC/WPC			10.00	270.00	100.00	400.00	0.00	770.00
	1.00	LS	10	270	100	400	0	770
L MIL AA <02250 1400 > Stabilized Construction Entrance			20.00	878.54	917.49	13.60	0.00	1809.63
and Removal crushed rock	1.00	EA	20	879	917	14	0	1,810
TOTAL WPC			36	1,311	1,062	594	0	2,967

05. Wetland Creation

05_ 5. Stormwater wetland	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL WPC			44	1,831	1,062	594	0	3,487
05_ 5.02. Demolition								
remove asphalt parking, remove asphalt path								
MIL AA <02046 1710 > Site dml, bituminous, pavement			0.06	2.42	0.99	0.00	0.00	3.41
removal, parking, 3" thick	3388.00	SY	197	8,189	3,349	0	0	11,537
USR AA <02046 1710 > Site dml, bituminous, pavement			0.05	2.06	0.84	0.00	0.00	2.90
removal, path, 3" thick	1875.00	SY	93	3,863	1,580	0	0	5,442
AF AA <02234 4200 > Hauling, w/loading, 12 CY truck,			0.05	1.71	2.15	0.00	0.00	3.86
5 mile haul, rock	585.00	CY	29	1,003	1,255	0	0	2,258
USR AA <02234 4200 > Disposal of bituminous			0.05	1.71	2.15	20.00	0.00	23.86
	585.00	CY	29	1,003	1,255	11,700	0	13,958
TOTAL Demolition			348	14,057	7,438	11,700	0	33,195
05_ 5.10. Planting								
Assumes-								
- 2 herb. per SY								
- 1 tree at 15' o.c. = 1 tree for every 200 sq. ft. (per kerry, 70 trees)								
- shrubs at 5' o.c., 21.65 sq.ft ea, or 0.4 plants per SY								
AF AA <02976 4930 > Watering, water by truck			0.02	0.45	0.73	0.02	0.00	1.20
	43.50	MSF	1	19	32	1	0	52
B MIL AA <02947 0400 > General planting, local			0.23	8.66	2.98	10.00	0.00	21.64
varieties, 2' - 3', shrubs	389.00	SY	89	3,368	1,159	3,890	0	8,417
B MIL AA <02947 0220 > General planting, local			0.14	5.20	1.79	60.00	0.00	66.99
varieties, trees, 5' - 6'	70.00	EA	10	364	125	4,200	0	4,690
B MIL AA <02947 0020 > General planting, local			0.10	3.76	1.30	1.00	0.00	6.06
varieties, herbaceous	3630.00	SY	363	13,665	4,702	3,630	0	21,997
TOTAL Planting			463	17,417	6,018	11,721	0	35,156
05_ 5.15. Drainage								
Includes 2 fittings, one at end and one at new connection								
MIL AA <02762 2060 > Piping, drainage & sewage, 36"			0.78	30.02	9.04	35.03	0.00	74.09
dia, RCP, class 3, no gaskets	190.00	LF	148	5,704	1,717	6,656	0	14,077
CIV AA <02762 4300 > Piping, drainage & sewage, RCP,			3.19	126.39	6.89	515.50	0.00	648.79
precast end section, 36" dia	2.00	EA	6	253	14	1,031	0	1,298

05. Wetland Creation

05_ 5. Stormwater wetland	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
RSM AA <02270 0100 > Rip-rap, random, machine placed		0.26	10.21	4.62	18.81	0.00	33.64
for slope protection	10.00 CY	3	102	46	188	0	336
TOTAL Drainage		157	6,059	1,777	7,875	0	15,711

05_ 5.20. Improvements
Boardwalk,signage, fence

Assume $32 /1.f for decking (RSM), $15/1.f. for railing (UPB), $30/1.f. for frame and piles = $75/1.f.
(RS MEANS wooden pedestrian bridge = approx. $50 SF in place. For a 6 foot wide bridge, that would cost $300 per 1.f.. Assume 1/3 the cost of the bridge, w/ less heavy support/piles.)

USR AA < > Boardwalk		0.50	37.04	0.00	40.00	0.00	77.04
	300.00 LF	150	11,112	0	12,000	0	23,112
MIL AA <02831 6560 > Fence, CL, 6' H, galv line post		0.21	7.91	0.89	7.65	0.00	16.45
@ 10' OC, 9g mesh, 1-5/8" top rail	1000.00 LF	211	7,911	893	7,650	0	16,454
B MIL AA <02842 0570 > Signs, informational, 36" x 60"		4.00	152.07	0.00	500.00	0.00	652.07
w/post,	3.00 EA	12	456	0	1,500	0	1,956
TOTAL Improvements		373	19,479	893	21,150	0	41,522

05_ 5.25. Exotic control

AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	43.00 MSF	1	19	31	1	0	52
B MIL AA <02951 1900 > Mulch, wood chips, 2" deep, hand		0.00	0.13	0.00	0.11	0.00	0.24
spread	2025.00 SF	7	256	0	223	0	479
M MIL AA <02266 0120 > Erosion control, revegetation		0.02	0.61	0.00	1.50	0.00	2.11
mat	4777.00 SY	76	2,906	0	7,166	0	10,071
USR AA < > Invasive removal		320.00	8653.00	200.00	500.00	0.00	9353.00
	1.00 ACR	320	8,653	200	500	0	9,353
B MIL AA <02947 0220 > General planting, local		0.14	5.20	1.79	60.00	0.00	66.99
varieties, trees, 5' - 6'	225.00 EA	31	1,171	403	13,500	0	15,074
B MIL AA <02947 0020 > General planting, local		0.10	3.76	1.30	1.00	0.00	6.06
varieties, herbaceous	2500.00 SY	250	9,412	3,238	2,500	0	15,150
TOTAL Exotic control		685	22,417	3,872	23,889	0	50,178

05. Wetland Creation

05_ 5. Stormwater wetland	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL Stormwater wetland			2,943	113,730	47,174	78,465	0	239,370

05. Wetland Creation

05_10. Tidal wetland	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
05_10. 5. Earthwork								
Ammend soils, assume 6" of ammendments over site = 645 CY								
grade,								
excavation=.8 ac x 3' deep = 3872 CY								
L MIL AA <02232 0125 > Excavate & load, hydr excavator,			0.06	2.53	1.63	0.00	0.00	4.16
1.5 CY, wet matl	3872.00	CY	247	9,790	6,311	0	0	16,101
MIL AA <02241 0020 > Loam or topsoil, 200' haul, 6"			0.01	0.61	0.52	0.00	0.00	1.13
deep, 200 HP dozer, remove/pile	1290.00	CY	18	786	665	0	0	1,451
on site								
MIL AA <02241 0805 > Soil ammendment,mix w/ exstg.,			0.09	3.88	1.44	15.37	0.00	20.69
imported, 6" deep	645.00	CY	57	2,500	931	9,914	0	13,344
MIL AA <02220 5900 > Compaction of backfill,			0.01	0.56	0.35	0.00	0.00	0.91
structural, SP roller, 6" lift	1935.00	CY	25	1,085	671	0	0	1,756
MIL AA <02226 4100 > Excavation, bulk, fine grade, 3			1.00	42.45	15.17	0.00	0.00	57.61
passes w/grader	39.00	CSY	39	1,656	591	0	0	2,247
MIL AA <02234 1115 > Hauling, hwy haulers, 16.5 CY, 6			0.03	0.80	1.20	0.00	0.00	2.00
mi round trip @ 40 MPH (2.1	3872.00	CY	111	3,096	4,643	0	0	7,739
cyc/hr)								
TOTAL Earthwork			497	18,913	13,813	9,914	0	42,639
05_10.01. WPC								
05_10.01.03. Submittals & Implementation Plan								
L HTW AA <01956 1116 > Submittals, tech plans,			1.00	65.00	0.00	0.00	0.00	65.00
pollution control & mitigation	8.00	LS	8	520	0	0	0	520
TOTAL Submittals & Implementation Plan			8	520	0	0	0	520
05_10.01.08. WPC								
USR AA < > Turbidity curtain, 3'			0.10	2.70	0.75	3.00	0.00	6.45
	120.00	LF	12	324	90	360	0	774
USR AA < > Add'tl BMP's for EC/WPC			50.00	270.00	100.00	400.00	0.00	770.00
	1.00	LS	50	270	100	400	0	770
L MIL AA <02250 1400 > Stabilized Construction Entrance			20.00	878.54	917.49	13.60	0.00	1809.63
and Removal	1.00	EA	20	879	917	14	0	1,810
crushed rock								

05. Wetland Creation

05_10. Tidal wetland	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL WPC		82	1,473	1,107	774	0	3,354
TOTAL WPC		90	1,993	1,107	774	0	3,874

05_10.10. Planting
Assumes-

- 7 herb. per SY
- 1 tree at 10' o.c. = 1 tree every 40 sq. ft. (9/40=0.22 trees per sy)
- shrubs at 5' o.c., 21.65 sq.ft ea, or 0.4 plants per SY

AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	100.00 MSF	2	45	73	2	0	120
B MIL AA <02947 0400 > General planting, local		0.23	8.66	2.98	10.00	0.00	21.64
varieties, 2' - 3', shrubs	1.00 SY	0	9	3	10	0	22
L MIL AA <02947 0220 > General planting, local		0.35	13.17	4.53	135.00	0.00	152.71
varieties, trees, 5' - 6'	1.00 SY	0	13	5	135	0	153
B MIL AA <02947 0020 > General planting, local		0.13	4.90	1.68	1.00	0.00	7.58
varieties, herbaceous	3872.00 SY	504	18,955	6,522	3,872	0	29,348
TOTAL Planting		506	19,021	6,602	4,019	0	29,642

05_10.20. Improvements
Boardwalk, signage, fence

Assume $32 /1.f for decking (RSM), $15/1.f. for railing (UPB), $30/1.f. for frame and piles = $75/1.f. (RS MEANS wooden pedestrian bridge = approx. $50 SF in place. For a 6 foot wide bridge, that would cost $300 per 1.f.. Assume 1/3 the cost of the bridge, w/ less heavy support/piles.)

USR AA < > Boardwalk		0.50	27.04	2.00	40.00	0.00	69.04
	700.00 LF	350	18,928	1,400	28,000	0	48,328
USR AA < > Decomposed granite path		0.10	2.70	0.25	3.00	0.00	5.95
	1012.00 SY	101	2,732	253	3,036	0	6,021
TOTAL Improvements		451	21,660	1,653	31,036	0	54,349

05_10.25. Exotic control

B MIL AA <02951 1900 > Mulch, wood chips, 2" deep, hand		0.00	0.13	0.00	0.11	0.00	0.24
spread	2025.00 SF	7	256	0	223	0	479

05. Wetland Creation

05_10. Tidal wetland	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
M MIL AA <02266 0120 > Erosion control, revegetation		0.02	0.61	0.00	1.50	0.00	2.11
mat	2000.00 SY	32	1,217	0	3,000	0	4,217
USR AA < > Invasive removal		320.00	8653.00	200.00	500.00	0.00	9353.00
	0.80 ACR	256	6,922	160	400	0	7,482
B MIL AA <02947 0220 > General planting, local		0.14	5.20	1.79	60.00	0.00	66.99
varieties, trees, 5' - 6'	34.00 EA	5	177	61	2,040	0	2,278
B MIL AA <02947 0020 > General planting, local		0.10	3.76	1.30	1.00	0.00	6.06
varieties, herbaceous	2000.00 SY	200	7,529	2,591	2,000	0	12,120
B MIL AA <02947 0400 > General planting, local		0.30	11.29	3.89	15.00	0.00	30.18
varieties, 2' - 3', shrubs	222.00 SY	67	2,507	863	3,330	0	6,700
TOTAL Exotic control		566	18,608	3,674	10,993	0	33,275

05_10.30. Single Coir Fascine

Assumes:

-2 laborers can install 4' of CF per hour
-Costs for CF inc. rope and stakes
-2 Duckbill Anchors per 10' of CF
Costs of Duckbill Anchors from Manahan River project
- length = perimeter of .4 acre square

USR AA < > 12" Dia. Coir Fascine w/ Coir		0.00	0.00	0.00	15.00	0.00	15.00
Net outside	600.00 LF	0	0	0	9,000	0	9,000
L MIL AA < > Outside Laborers, (Semi-Skilled)		1.00	27.04	0.00	0.00	0.00	27.04
	300.00 HRS	300	8,113	0	0	0	8,113
USR AA < > Earth Anchor		0.01	2.70	0.00	6.00	0.00	8.70
	60.00 EA	1	162	0	360	0	522
TOTAL Single Coir Fascine		301	8,275	0	9,360	0	17,635
TOTAL Tidal wetland		2,410	88,471	26,849	66,095	0	181,415
TOTAL Wetland Creation		5,353	202,201	74,023	144,560	0	420,784

08_02. Relocations	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
08_02.03. Utilities & Structures							
Assumes replacement of the existing drian.							
08_02.03.18. Utilities							
USR AA < > Replace storm sewer		1.00	28.00	19.00	200.00	0.00	247.00
	500.00 LF	500	14,000	9,500	100,000	0	123,500
RSM AA <02270 0100 > Rip-rap, random, machine placed		0.26	10.21	4.62	18.81	0.00	33.64
for slope protection	30.00 CY	8	306	139	564	0	1,009
CIV AA <02046 2960 > Site dml, pipe removal, 24"		0.20	8.17	0.86	0.00	0.00	9.04
dia,conc, water/sewer, no excava	185.00 LF	37	1,512	160	0	0	1,671
MIL AA <02762 2030 > Piping, drainage & sewage, 18"		0.37	14.62	0.80	12.18	0.00	27.60
dia, RCP, class 3, no gaskets	185.00 LF	68	2,705	148	2,253	0	5,106
MIL AA <03330 3650 > Concrete in place,pump,500psi,		0.80	30.23	7.64	56.33	0.00	94.20
incl forms,reinf,flexural on grade	100.00 CY	80	3,023	764	5,633	0	9,420
TOTAL Utilities		693	21,546	10,710	108,451	0	140,707
TOTAL Utilities & Structures		693	21,546	10,710	108,451	0	140,707
TOTAL Relocations		693	21,546	10,710	108,451	0	140,707

08_04. Dams	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
08_04. 5. Mobilize & Demobilize							
Assumes-							
- mobilization costs are for 1 equip. operator for 1 full day							
- assume approx. 1500' of construction road with 4" of gravel at 12' width							
USR AA < > Mobilize /demobilize - General		40.00	6000.00	1000.00	1000.00	0.00	8000.00
	1.00 LS	40	6,000	1,000	1,000	0	8,000
AF AA <01714 0300 > Cleanup, site debris clean up &		9.20	336.22	17.92	0.00	0.00	354.14
removal	5.00 ACR	46	1,681	90	0	0	1,771
TOTAL Mobilize & Demobilize		86	7,681	1,090	1,000	0	9,771
08_04.10. Care & Diversion of Water							
Water pollution control is a critical item in this project, and extensive measures will be taken to ensure that sediment and the most advanced erosion control management practices are implemented, monitored and maintained to the fullest extent practicable.							
08_04.10.03. Submittals & Implementation Plan							
L HTW AA <01956 1111 > Submittals, technology plans,		1.00	75.00	0.00	0.00	0.00	75.00
misc, work plan	20.00 HR	20	1,500	0	0	0	1,500
L HTW AA <01956 1112 > Submittals, tech plans, defines		1.00	75.00	0.00	0.00	0.00	75.00
where samples are taken, well install	20.00 HR	20	1,500	0	0	0	1,500
L HTW AA <01956 1113 > Submittals, tech plans,defines		1.00	75.00	0.00	0.00	0.00	75.00
where samples are taken, soil sampling	20.00 HR	20	1,500	0	0	0	1,500
L HTW AA <01956 1116 > Submittals, tech plans,		1.00	75.00	0.00	0.00	0.00	75.00
pollution control & mitigation	20.00 HR	20	1,500	0	0	0	1,500
TOTAL Submittals & Implementation Plan		80	6,000	0	0	0	6,000
08_04.10.08. WPC							
USR AA < > Turbidity curtain, 8'		0.10	2.70	0.75	6.50	0.00	9.95
	120.00 LF	12	324	90	780	0	1,194
USR AA < > Add'tl BMP's for EC/WPC		40.00	1018.00	1000.00	2000.00	0.00	4018.00
	1.00 LS	40	1,018	1,000	2,000	0	4,018

08. Mill Pond Park

08_04. Dams	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
L MIL AA <02250 1400 > Stabilized Construction Entrance		20.00	878.54	917.49	13.60	0.00	1809.63
and Removal	2.00 EA	40	1,757	1,835	27	0	3,619
crushed rock							
B MIL AA <02704 0300 > 3/4" gravel fill for temporary		0.18	7.54	0.80	25.00	0.00	33.34
construction roads	300.00 CY	55	2,263	239	7,500	0	10,002
TOTAL WPC		147	5,362	3,164	10,307	0	18,833

08_04.10.13. Diversion of water
assumes

berm is 90' long, 5' high, at 2:1 slope

RSM AA <02240 0020 > Fill, borrow, for embankments,		0.02	0.81	0.90	5.00	0.00	6.71
load, 1 mile haul, spread	400.00 CY	9	325	359	2,000	0	2,684
w/dozer							
MIL AA <02140 1600 > Dewatering, sump hole, incl		0.02	0.78	0.08	0.67	0.00	1.54
excavation & gravel, pit	1000.00 CF	19	784	83	670	0	1,537
GEN AA < > PUMP, CENTRF, DEWATER, 4" DIA		0.00	0.00	4.74	0.00	0.00	4.74
570GPM(102MM, 2158LPM)@40'HEAD	2016.00 HR	0	0	9,555	0	0	9,555
TOTAL Diversion of water		29	1,109	9,997	2,670	0	13,776
TOTAL Care & Diversion of Water		256	12,471	13,161	12,977	0	38,610

08_04.15. Dam Removal
Assumes:

- dam cross-sectional area is approx. 35.65 sq. ft. = 1.32 CY per sq. ft.
- counterfort cross sectional area = 27 sq. ft= 1 CY ea. x 9 counterforts
- loose boulders are asumed to be present, per note on drawing; to be removed
- assume 3.5 CY of excavation per 1.f. of removal, for rock and soils over/around footing.
- length of dam = 128', per drawings

MIL AA <02074 2100 > Foot/fdn dml, walls, remove		0.05	2.03	0.00	0.00	68.68	70.71
damaged block, 12" thick	556.00 CY	30	1,127	0	0	38,186	39,313
MIL AA <02232 0150 > Excavate & load, hydr excavator,		0.04	1.47	1.16	0.00	0.00	2.63
2 CY, blasted rock	556.00 CY	21	818	645	0	0	1,463
MIL AA <02234 1115 > Hauling, hwy haulers, 16.5 CY, 6		0.03	0.80	1.20	0.00	0.00	2.00
mi round trip @ 40 MPH (2.1	556.00 CY	16	445	667	0	0	1,111
cyc/hr)							

08. Mill Pond Park

08_04. Dams	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL Dam Removal		66	2,390	1,311	0	38,186	41,888
TOTAL Dams		408	22,543	15,562	13,977	38,186	90,268

08_09. Channels and Canals	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
08_09.01. Channels							
08_09.01. 5. Mobilize, Demobilize & Prepare							
USR AA < > Mobilize/demobilize, cleanup		0.00	0.00	0.00	0.00	50000.00	50000.00
	1.00 LS	0	0	0	0	50,000	50,000
AF AA <01714 0300 > Cleanup, site debris clean up &		9.20	336.22	17.92	0.00	0.00	354.14
removal	5.00 ACR	46	1,681	90	0	0	1,771
TOTAL Mobilize, Demobilize & Prepare		46	1,681	90	0	50,000	51,771
08_09.01.05. Sediment Testing							
USR AA < > Contaminated Sediment Testing		0.00	0.00	0.00	0.00	10000.00	10000.00
	1.00 LS	0	0	0	0	10,000	10,000
TOTAL Sediment Testing		0	0	0	0	10,000	10,000
08_09.01.06. Demolition, retaining wall							

Assumes-

- 1 l.f. of wall = approx. 1.16 CY of conc. removal
- approx. 1100 l.f. of wall on either side of river (2200 l.f.) - wall is approx. 15' high from base
- Total CY for retaining wall removal =2200 CY
- cost adjusted down 1/3rd for ease of access and open site
- assume storm sewer is in place,and every 3 l.f. yeilds 1 CY of material to be removed/hauled off
- amnt of excavation required = 2CY per 1.f.

MIL AA <02228 0374 > Excavate trench, heavy soil,		0.01	0.37	0.29	0.00	0.00	0.66
6'-10' D, 2 CY excavator	4400.00 CY	41	1,634	1,287	0	0	2,922
L MIL AA <02046 2115 > Site dml, conc, 7" to 24" thick,		1.88	76.81	8.12	0.00	0.00	84.93
reinf, w/backhoe	1980.00 CY	3,723	152,089	16,077	0	0	168,166
<*Mod* >							
L CIV AA <02046 3000 > Site dml, pipe removal, 54"		0.35	14.30	1.51	0.00	0.00	15.81
conc. box water/sewer, no excava	1100.00 LF	385	15,728	1,663	0	0	17,390
CIV AA <02234 2320 > Hauling, off hwy haulers, 40 CY,		0.01	0.32	1.35	0.00	0.00	1.67
6 mile RT @ 40 mph (2.1 cyc/hr)	2300.00 CY	26	736	3,111	0	0	3,847
TOTAL Demolition, retaining wall		4,175	170,187	22,138	0	0	192,326

08_09. Channels and Canals	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
08_09.01.07. Demolition, concrete path							
Assume-							
- 6' wide path at 750' each side of channel=1500 l.f.							
AF AA <02046 2350 > Site dml, sidewalk, conc, mesh		0.16	6.54	0.69	0.00	0.00	7.23
reinforced	1000.00 SY	160	6,537	691	0	0	7,228
CIV AA <02234 2320 > Hauling, off hwy haulers, 40 CY,		0.01	0.32	1.35	0.00	0.00	1.67
6 mile RT @ 40 mph (2.1 cyc/hr)	500.00 CY	6	160	676	0	0	836
TOTAL Demolition, concrete path		166	6,697	1,367	0	0	8,064
08_09.01.08. Sediment Removal							
CIV AA <02234 2420 > Hauling, hwy haulers,16 CY, 80		0.01	0.19	0.83	0.00	30.00	31.02
mile RT @ 40 mph (2.1 cyc/hr)	18600 CY	126	3,560	15,468	0	558,000	577,028
L MIL AA <02232 0125 > Excavate & load, hydr excavator,		0.06	2.53	1.63	0.00	0.00	4.16
1.5 CY, wet matl	18600 CY	1,189	47,030	30,320	0	0	77,350
USR AA <02232 0125 > Tipping Fee, Manchester, CT		0.02	0.97	0.63	30.00	0.00	31.60
	18600 CY	458	18,111	11,675	558,000	0	587,786
TOTAL Sediment Removal		1,773	68,701	57,463	558,000	558,000	1,242,164
08_09.01.10. Earthwork							
Assume-							
- 726 l.f. of the reach (2/3rds) has 840 sq. ft. of cut, and = fill							
- 726 l.f. x 840 sq. ft. = 609,840 cu. ft., or 22,587 CY cut, 22,587 fill							
- 374 l.f. of the reach (1/3) has 260 sq. ft. of cut, 260 sq. ft. of fill							
- 374 x 260 = 97240 cu. ft., or 3601 CY of cut, 3601 CY of fill							
total = 22,587 + 3601 cut = 26188 CY cut (and same # for fill)							
L MIL AA <02232 0250 > Excavate & load, wheeled loader,		0.06	2.48	1.67	0.00	0.00	4.15
3 CY, wet rock	26188 CY	1,480	64,946	43,744	0	0	108,691
CIV AA <02234 2420 > Hauling, off hwy haulers, 65 CY,		0.01	0.19	0.83	0.00	0.00	1.02
6 mile RT @ 40 mph (2.1 cyc/hr)	500.00 CY	3	96	416	0	0	512
AF AA <02240 0030 > Fill, spread borrow w/dozer		0.01	0.53	0.45	0.00	0.00	0.97
	26188 CY	314	13,804	11,682	0	0	25,486
MIL AA <02241 0015 > Loam or topsoil, 200' haul, 4"		0.03	1.33	1.13	0.00	0.00	2.46
deep, 200 HP dozer, remove/pile	1800.00 CY	55	2,402	2,033	0	0	4,435
on site							

08_09. Channels and Canals	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
MIL AA <02241 0400 > Loam or topsoil, frtn loader,		0.06	2.64	0.98	0.00	0.00	3.62
1.5 CY, spread from pile to finish grade	1800.00 CY	108	4,744	1,766	0	0	6,510
MIL AA <02241 0805 > Amm,endment, furnish & place,		0.09	3.88	1.44	15.37	0.00	20.69
imported, 6" deep	1800.00 CY	159	6,977	2,597	27,666	0	37,240
MIL AA <02226 4100 > Excavation, bulk, fine grade, 3		1.00	42.45	15.17	0.00	0.00	57.61
passes w/grader	290.00 CSY	290	12,310	4,398	0	0	16,708
TOTAL Earthwork		2,409	105,279	66,637	27,666	0	199,581

08_09.01.15. Bank Stabilization

08_09.01.15_ 5. Bank Stabilization
Assumes:

Avg depth of riprap @ approx 18"- 24"
Length of riprap = 2200 l.f. (both banks, entire run)
4' face feet of banks (from cross sectional sketches)
4 x 2200 x 2 = 651CY of riprap, 977 SY of filter fabric

RSM AA <02270 0100 > Rip-rap, random, machine placed		0.26	10.21	4.62	18.81	0.00	33.64
for slope protection	651.00 CY	168	6,646	3,007	12,245	0	21,897
CIV AA <02250 2130 > Geotextile fabric, 60 mil thick,		0.02	0.55	0.08	0.60	0.00	1.23
non-woven polypropylene	977.00 SY	16	535	78	586	0	1,199
USR AA < > Boulder Placement		2.00	85.00	75.00	40.00	0.00	200.00
	300.00 EA	600	25,500	22,500	12,000	0	60,000
TOTAL Bank Stabilization		784	32,681	25,584	24,832	0	83,097
TOTAL Bank Stabilization		784	32,681	25,584	24,832	0	83,097

08_09.01.22. Bed Stabilization

USR AA < > Cobble, river run, imported, D50		0.10	5.00	1.00	20.00	0.00	26.00
= 2"	2777.00 CY	278	13,885	2,777	55,540	0	72,202
TOTAL Bed Stabilization		278	13,885	2,777	55,540	0	72,202

08. Mill Pond Park

08_09. Channels and Canals	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
08_09.01.27. Step pool walls							
TOTAL Step pool walls		563	18,485	2,187	17,616	0	38,287
TOTAL Step pool walls		563	18,485	2,187	17,616	0	38,287
TOTAL Channels		10,193	417,596	178,243	683,653	618,000	1,897,492
TOTAL Channels and Canals		10,193	417,596	178,243	683,653	618,000	1,897,492

08_14. Recreation Facilities	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
08_14. 5. Restoration Planting							
ground cover is @ 1 plant per SY (approx 3' o.c.)							
shrubs are @ 10' o.c.							
Trees are spaced for 1 tree per 250 sq. ft (more than 15' o.c.)							
Plugs are at 2'-3' o.c., avg.							
B MIL AA <02947 0020 > General planting, local		0.10	3.76	1.30	4.00	0.00	9.06
varieties, gnd cover, 12" spread	2322.00 SY	232	8,742	3,008	9,288	0	21,037
B MIL AA <02947 0400 > General planting, local		0.30	11.29	3.89	15.00	0.00	30.18
varieties, 2' - 3', shrubs	464.00 SY	139	5,240	1,803	6,960	0	14,003
B MIL AA <02947 0220 > General planting, local		0.50	18.82	6.48	90.00	0.00	115.30
varieties, trees, 5' - 6'	166.00 EA	83	3,124	1,075	14,940	0	19,139
AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	42.00 MSF	1	19	31	1	0	50
B MIL AA <02947 0020 > General planting, local		0.10	3.76	1.30	1.00	0.00	6.06
varieties, herbaceous	2322.00 SY	232	8,741	3,008	2,322	0	14,071
TOTAL Restoration Planting		687	25,866	8,924	33,511	0	68,300
08_14.10. Tree Removal/Transplant							
AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	200.00 MSF	3	90	146	4	0	240
CIV AA <02109 7330 > Clear & grub, tree rmv, cutting		6.00	237.97	92.85	0.00	0.00	330.81
& chipping, 24" - 36" dia	50.00 EA	300	11,898	4,642	0	0	16,541
MIL AA <02116 1405 > Selective clearing, heavy		0.03	1.24	0.35	0.00	0.00	1.59
cutting, pole line constr, tree trimming	2000.00 LF	66	2,488	693	0	0	3,181
TOTAL Tree Removal/Transplant		369	14,476	5,481	4	0	19,961
08_14.20. Specimen Planting							
Assume 100 trees planted							
MIL AA <02911 1400 > Tree guying, w/stakes, 8"		1.78	67.59	0.00	87.50	0.00	155.09
anchors, guy wire & wrap, 8" caliper	100.00 EA	178	6,759	0	8,750	0	15,509
MIL AA <02951 1900 > Mulch, wood chips, 2" deep, hand		0.00	0.15	0.00	0.18	0.00	0.33
spread	2000.00 SF	8	307	0	360	0	667

08. Mill Pond Park

08_14. Recreation Facilities	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
RSM AA <02957 1600 > Trees, deciduous, 1.5" caliper,		3.20	120.45	41.44	136.67	0.00	298.56
in beds, B&B, 8'-10'	100.00 EA	320	12,045	4,144	13,667	0	29,856
AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	220.00 MSF	4	99	161	4	0	264
TOTAL Specimen Planting		509	19,209	4,305	22,781	0	46,295
08_14.30. Turf/Meadow Planting							
MIL AA <02932 0320 > Seeding, athletic field mix,		4.26	198.03	67.54	549.50	0.00	815.07
mechanical seeding, 450#/acre	5.00 ACR	21	990	338	2,748	0	4,075
AF AA <02932 7020 > Seeding, apply fertilizer, 1#		0.03	0.80	1.30	2.64	0.00	4.74
nitrogen/MSF, spray from truck	220.00 MSF	6	176	287	581	0	1,044
TOTAL Turf/Meadow Planting		28	1,166	625	3,328	0	5,119
08_14.35. Improvements							
B MIL AA <02842 0570 > Signs, informational, 36" x 60"		4.00	152.07	0.00	500.00	0.00	652.07
w/post,	20.00 EA	80	3,041	0	10,000	0	13,041
MIL AA <02871 0720 > Benches, steel supports,		4.00	152.07	0.00	579.00	0.00	731.07
w/backs, wood slats, 8' long	40.00 EA	160	6,083	0	23,160	0	29,243
CIV AA <02876 5060 > Trash receptacle, 22 gal		0.46	17.38	0.00	379.33	0.00	396.71
capacity, circular, KD wood,	40.00 EA	18	695	0	15,173	0	15,868
steel frame							
USR AA < > Kiosk		80.00	4000.00	500.00	2000.00	0.00	6500.00
	1.00 EA	80	4,000	500	2,000	0	6,500
USR AA < > Wooden Overlook Structure		0.00	0.00	0.00	0.00	7000.00	7000.00
	1.00	0	0	0	0	7,000	7,000
TOTAL Improvements		338	13,819	500	50,333	7,000	71,652

08_14. Recreation Facilities	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
08_14.37. Path systems								
Per RS MEANS 025 104								
- 6' wide + 10% for wider areas								
- 6" gravel base course @ $3.77/SY								
- 2" binder course @ $ 5.05/SY								
- 1" wearing course @ $1.99/SY								
- Total = $10.81								
Assume $32 /1.f for decking (RSM), $15/1.f. for railing (UPB), $30/1.f. for frame and piles = $75/1.f. (RS MEANS wooden pedestrian bridge = approx. $50 SF in place. For a 12 foot wide bridge, that would cost $600/1.f. per 1.f.. Assume 1/3 the cost of the bridge, w/ less heavy support/piles.)								
USR AA < > Decomposed granite path			0.10	2.70	0.25	3.00	0.00	5.95
	400.00	SY	40	1,080	100	1,200	0	2,380
USR AA < > Boardwalk			0.50	27.04	2.00	40.00	0.00	69.04
	1000.00	LF	500	27,040	2,000	40,000	0	69,040
USR AA < > Bituminous pavement-pedestrian			0.00	0.00	0.00	0.00	10.81	10.81
	1800.00	SY	0	0	0	0	19,458	19,458
TOTAL Path systems			540	28,120	2,100	41,200	19,458	90,878
TOTAL Recreation Facilities			2,471	102,656	21,935	151,158	26,458	302,206
TOTAL Mill Pond Park			13,766	564,341	226,450	957,239	682,644	2,430,674

99. Channel Corridor Enhancement

99_ 5. Riparian Enhancement	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	157.00 MSF	3	70	115	3	0	188
MIL AA <02266 0120 > Erosion control, revegetation		0.02	0.61	0.00	4.71	0.00	5.32
mat, webbed	1736.00 SY	28	1,056	0	8,177	0	9,233
M MIL AA <02266 0120 > Erosion control, revegetation		0.02	0.61	0.00	1.50	0.00	2.11
mat	1736.00 SY	28	1,056	0	2,604	0	3,660
USR AA < > Invasive removal		320.00	8653.00	200.00	500.00	0.00	9353.00
	0.36 ACR	115	3,115	72	180	0	3,367
B MIL AA <02947 0220 > General planting, local		0.14	5.20	1.79	60.00	0.00	66.99
varieties, trees, 5' - 6'	78.00 EA	11	406	140	4,680	0	5,226
B MIL AA <02947 0020 > General planting, local		0.10	3.76	1.30	1.00	0.00	6.06
varieties, herbaceous	1736.00 SY	174	6,535	2,249	1,736	0	10,520
TOTAL Riparian Enhancement		358	12,239	2,575	17,380	0	32,193

99. Channel Corridor Enhancement

99_10. Remove Concrete Blockage	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
L MIL AA <02046 2115 > Site dml, conc, 7" to 24" thick,		3.56	145.45	15.38	0.00	0.00	160.82
reinf, w/backhoe	556.00 CY	1,979	80,870	8,549	0	0	89,418
L CIV AA <02234 2320 > Hauling, off hwy haulers, 40 CY,		0.10	2.81	11.87	0.00	0.00	14.67
6 mile RT @ 40 mph (2.1 cyc/hr)	556.00 CY	56	1,560	6,598	0	0	8,158
L MIL AA <02232 0125 > Excavate & load, hydr excavator,		0.06	2.52	1.62	0.00	0.00	4.14
1.5 CY, wet matl	556.00 CY	35	1,401	903	0	0	2,304
TOTAL Remove Concrete Blockage		2,071	83,831	16,050	0	0	99,880

99. Channel Corridor Enhancement

99_15. Reinforce stone wall	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
USR AA < > Reinforce stone wall		0.00	0.00	0.00	0.00	12000.00	12000.00
	1.00 LS	0	0	0	0	12,000	12,000
TOTAL Reinforce stone wall		0	0	0	0	12,000	12,000

99. Channel Corridor Enhancement

99_20. Riparian Overlook	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
USR AA < > Wooden Overlook Structure			0.00	0.00	0.00	0.00	7000.00	7000.00
	1.00		0	0	0	0	7,000	7,000
TOTAL Riparian Overlook			0	0	0	0	7,000	7,000

99. Channel Corridor Enhancement

99_25. Riparian paths	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL Riparian paths		0	1,036	1,188	1,740	0	3,963
TOTAL Channel Corridor Enhancement		2,428	97,105	19,812	19,120	19,000	155,037

9E. 6 Step Pools

	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL 6 Step Pools			240	2,400	18,000	24,000	0	44,400
TOTAL Mill River Alternative 3			21,787	866,047	338,285	1,144,919	701,644	3,050,895

Mill River Alternative 4
Leave the existing dam in place,
remove the obstructions, and
install a fish ladder in
the existing dam.

Designed By:
Estimated By: Robert Zwahlen

Prepared By: Robert Zwahlen

Preparation Date: 03/16/04
Effective Date of Pricing: 03/16/04
Est Construction Time: 100 Days

Sales Tax: 0.0%

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Release 1.2

The project consists of an approximate two - mile reach of the Mill River and the 3.5 acre Mill river Park area in the City of Stamford, Connecticut. The goal of the project is to restore the aquatic and riparian resources of the Mill River to a healthy, viable, and self maintaining river system. Option 4 includes leaving the existing dam in place, removing the obstructions in the river channel and installing a fish ladder.

The following were factored into the estimate :

Field Overhead	-	10.0%
Home Office OH	-	6.0%
Profit	-	10.0%
Bond	-	1.5%
Contingency	-	15.0%

Wages used in the estimate are Davis Bacon wages, For Litchfield County, CT030001 dated 02/06/04

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	QUANTY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNIT
05 Wetland Creation							
05_ 5 Stormwater wetland							
05_ 5. 5 Earthwork	1.00	EA	78,270	11,741	0	90,011	90011
05_ 5.01 Water Pollution Control	1.00	EA	4,539	681	0	5,220	5219.88
05_ 5.02 Demolition	1.00	EA	43,221	6,483	0	49,705	49705
05_ 5.10 Planting	1.00	AC	45,767	6,865	0	52,632	52632
05_ 5.15 Drainage	1.00	EA	20,453	3,068	0	23,521	23521
05_ 5.20 Improvements	1.00	EA	50,931	7,640	0	58,570	58570
05_ 5.25 Exotic control			65,324	9,799	0	75,122	
TOTAL Stormwater wetland	1.00	EA	308,505	46,276	0	354,781	354781
05_10 Tidal wetland							
05_10. 5 Earthwork	1.00	EA	55,511	8,327	0	63,837	63837
05_10.01 WPC	1.00	EA	5,043	756	0	5,799	5799.26
05_10.10 Planting	1.00	EA	38,590	5,788	0	44,378	44378
05_10.20 Improvements	1.00	EA	70,754	10,613	0	81,367	81367
05_10.25 Exotic control			43,319	6,498	0	49,817	
05_10.30 Single Coir Fascine	600.00	LF	22,958	3,444	0	26,402	44.00
TOTAL Tidal wetland	1.00	EA	236,174	35,426	0	271,600	271600
TOTAL Wetland Creation	1.00	EA	544,679	81,702	0	626,381	626381
08 Mill Pond Park							
08_02 Relocations							
08_02.03 Utilities & Structures			183,178	27,477	0	210,655	
TOTAL Relocations	1.00	EA	183,178	27,477	0	210,655	210655
08_09 Channels and Canals							
08_09.01 Channels	1.00	EA	2,344,230	351,635	0	2,695,865	2695865
TOTAL Channels and Canals	1.00	EA	2,344,230	351,635	0	2,695,865	2695865
08_14 Recreation Facilities							
08_14. 5 Restoration Planting	1.00	EA	88,916	13,337	0	102,254	102254
08_14.10 Tree Removal/Transplant	1.00	EA	25,986	3,898	0	29,884	29884
08_14.20 Specimen Planting	1.00	EA	60,269	9,040	0	69,309	69309

** PROJECT OWNER SUMMARY - Sub Feat **

		QUANTY	UOM	CONTRACT	CONTINGN	ESCALATN	TOTAL COST	UNIT
08_14.30	Turf/Meadow Planting	1.00	EA	6,664	1,000	0	7,664	7663.69
08_14.35	Improvements	1.00	EA	93,280	13,992	0	107,272	107272
08_14.37	Path systems	1.00	EA	118,309	17,746	0	136,055	136055
	TOTAL Recreation Facilities	1.00	EA	393,424	59,014	0	452,438	452438
	TOTAL Mill Pond Park	1.00	EA	2,920,832	438,125	0	3,358,957	3358957
99	Channel Corridor Enhancement							
99_ 5	Riparian Enhancement	1.00	EA	41,910	6,287	0	48,197	48197
99_10	Remove Concrete Blockage	1.00	EA	130,028	19,504	0	149,532	149532
99_15	Reinforce stone wall			15,622	2,343	0	17,965	
99_20	Riparian Overlook	1.00	EA	9,113	1,367	0	10,480	10480
99_25	Riparian paths	870.00	LF	4,493	674	0	5,167	5.94
	TOTAL Channel Corridor Enhancement	1.00	EA	201,166	30,175	0	231,341	231341
9E	Fish Ladder	1.00	EA	126,198	0	0	126,198	126198
	TOTAL Mill River Alternative 4	1.00	EA	3,792,875	550,002	0	4,342,877	4342877

** PROJECT INDIRECT SUMMARY - Sub Feat **

	QUANTY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT
05 Wetland Creation								
05_ 5 Stormwater wetland								
05_ 5. 5 Earthwork	1.00 EA	60,123	6,012	3,968	7,010	1,157	78,270	78270
05_ 5.01 Water Pollution Control	1.00 EA	3,487	349	230	407	67	4,539	4539.03
05_ 5.02 Demolition	1.00 EA	33,200	3,320	2,191	3,871	639	43,221	43221
05_ 5.10 Planting	1.00 AC	35,156	3,516	2,320	4,099	676	45,767	45767
05_ 5.15 Drainage	1.00 EA	15,711	1,571	1,037	1,832	302	20,453	20453
05_ 5.20 Improvements	1.00 EA	39,122	3,912	2,582	4,562	753	50,931	50931
05_ 5.25 Exotic control		50,178	5,018	3,312	5,851	965	65,324	
TOTAL Stormwater wetland	1.00 EA	236,976	23,698	15,640	27,631	4,559	308,505	308505
05_10 Tidal wetland								
05_10. 5 Earthwork	1.00 EA	42,640	4,264	2,814	4,972	820	55,511	55511
05_10.01 WPC	1.00 EA	3,874	387	256	452	75	5,043	5042.84
05_10.10 Planting	1.00 EA	29,642	2,964	1,956	3,456	570	38,590	38590
05_10.20 Improvements	1.00 EA	54,349	5,435	3,587	6,337	1,046	70,754	70754
05_10.25 Exotic control		33,275	3,328	2,196	3,880	640	43,319	
05_10.30 Single Coir Fascine	600.00 LF	17,635	1,764	1,164	2,056	339	22,958	38.26
TOTAL Tidal wetland	1.00 EA	181,416	18,142	11,973	21,153	3,490	236,174	236174
TOTAL Wetland Creation	1.00 EA	418,392	41,839	27,614	48,785	8,049	544,679	544679
08 Mill Pond Park								
08_02 Relocations								
08_02.03 Utilities & Structures		140,707	14,071	9,287	16,406	2,707	183,178	
TOTAL Relocations	1.00 EA	140,707	14,071	9,287	16,406	2,707	183,178	183178
08_09 Channels and Canals								
08_09.01 Channels	1.00 EA	1,800,707	180,071	118,847	209,962	34,644	2,344,230	2344230
TOTAL Channels and Canals	1.00 EA	1,800,707	180,071	118,847	209,962	34,644	2,344,230	2344230
08_14 Recreation Facilities								
08_14. 5 Restoration Planting	1.00 EA	68,300	6,830	4,508	7,964	1,314	88,916	88916
08_14.10 Tree Removal/Transplant	1.00 EA	19,961	1,996	1,317	2,327	384	25,986	25986
08_14.20 Specimen Planting	1.00 EA	46,295	4,630	3,055	5,398	891	60,269	60269

** PROJECT INDIRECT SUMMARY - Sub Feat **

	QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT
08_14.30 Turf/Meadow Planting	1.00	EA	5,119	512	338	597	98	6,664	6664.08
08_14.35 Improvements	1.00	EA	71,652	7,165	4,729	8,355	1,379	93,280	93280
08_14.37 Path systems	1.00	EA	90,878	9,088	5,998	10,596	1,748	118,309	118309
TOTAL Recreation Facilities	1.00	EA	302,206	30,221	19,946	35,237	5,814	393,424	393424
TOTAL Mill Pond Park	1.00	EA	2,243,620	224,362	148,079	261,606	43,165	2,920,832	2920832
99 Channel Corridor Enhancement									
99_ 5 Riparian Enhancement	1.00	EA	32,193	3,219	2,125	3,754	619	41,910	41910
99_10 Remove Concrete Blockage	1.00	EA	99,880	9,988	6,592	11,646	1,922	130,028	130028
99_15 Reinforce stone wall			12,000	1,200	792	1,399	231	15,622	
99_20 Riparian Overlook	1.00	EA	7,000	700	462	816	135	9,113	9112.87
99_25 Riparian paths	870.00	LF	3,451	345	228	402	66	4,493	5.16
TOTAL Channel Corridor Enhancement	1.00	EA	154,525	15,452	10,199	18,018	2,973	201,166	201166
9E Fish Ladder	1.00	EA	96,938	9,694	6,398	11,303	1,865	126,198	126198
TOTAL Mill River Alternative 4	1.00	EA	2,913,475	291,347	192,289	339,711	56,052	3,792,875	3792875
Contingency								550,002	
TOTAL INCL OWNER COSTS								4,342,877	

** PROJECT DIRECT SUMMARY - Sub Feat **

	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
05 Wetland Creation									
05_ 5 Stormwater wetland									
05_ 5. 5 Earthwork	1.00	EA	874	32,471	26,115	1,537	0	60,123	60123
05_ 5.01 Water Pollution Control	1.00	EA	44	1,831	1,062	594	0	3,487	3486.63
05_ 5.02 Demolition	1.00	EA	348	14,059	7,441	11,700	0	33,200	33200
05_ 5.10 Planting	1.00	AC	463	17,417	6,018	11,721	0	35,156	35156
05_ 5.15 Drainage	1.00	EA	157	6,059	1,777	7,875	0	15,711	15711
05_ 5.20 Improvements	1.00	EA	373	16,479	1,493	21,150	0	39,122	39122
05_ 5.25 Exotic control			685	22,417	3,872	23,889	0	50,178	
TOTAL Stormwater wetland	1.00	EA	2,943	110,733	47,778	78,465	0	236,976	236976
05_10 Tidal wetland									
05_10. 5 Earthwork	1.00	EA	497	18,914	13,813	9,914	0	42,640	42640
05_10.01 WPC	1.00	EA	90	1,993	1,107	774	0	3,874	3873.63
05_10.10 Planting	1.00	EA	506	19,021	6,602	4,019	0	29,642	29642
05_10.20 Improvements	1.00	EA	451	21,660	1,653	31,036	0	54,349	54349
05_10.25 Exotic control			566	18,608	3,674	10,993	0	33,275	
05_10.30 Single Coir Fascine	600.00	LF	301	8,275	0	9,360	0	17,635	29.39
TOTAL Tidal wetland	1.00	EA	2,410	88,471	26,850	66,095	0	181,416	181416
TOTAL Wetland Creation	1.00	EA	5,353	199,204	74,628	144,560	0	418,392	418392
08 Mill Pond Park									
08_02 Relocations									
08_02.03 Utilities & Structures			693	21,546	10,710	108,451	0	140,707	
TOTAL Relocations	1.00	EA	693	21,546	10,710	108,451	0	140,707	140707
08_09 Channels and Canals									
08_09.01 Channels	1.00	EA	9,262	376,528	168,627	637,552	618,000	1,800,707	1800707
TOTAL Channels and Canals	1.00	EA	9,262	376,528	168,627	637,552	618,000	1,800,707	1800707
08_14 Recreation Facilities									
08_14. 5 Restoration Planting	1.00	EA	687	25,866	8,924	33,511	0	68,300	68300
08_14.10 Tree Removal/Transplant	1.00	EA	369	14,476	5,481	4	0	19,961	19961
08_14.20 Specimen Planting	1.00	EA	509	19,209	4,305	22,781	0	46,295	46295

** PROJECT DIRECT SUMMARY - Sub Feat **

	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
08_14.30 Turf/Meadow Planting	1.00	EA	28	1,166	625	3,328	0	5,119	5118.97
08_14.35 Improvements	1.00	EA	338	13,819	500	50,333	7,000	71,652	71652
08_14.37 Path systems	1.00	EA	540	28,120	2,100	41,200	19,458	90,878	90878
TOTAL Recreation Facilities	1.00	EA	2,471	102,656	21,935	151,158	26,458	302,206	302206
TOTAL Mill Pond Park	1.00	EA	12,426	500,730	201,272	897,161	644,458	2,243,620	2243620
99 Channel Corridor Enhancement									
99_ 5 Riparian Enhancement	1.00	EA	358	12,239	2,575	17,380	0	32,193	32193
99_10 Remove Concrete Blockage	1.00	EA	2,071	83,831	16,050	0	0	99,880	99880
99_15 Reinforce stone wall			0	0	0	0	12,000	12,000	
99_20 Riparian Overlook	1.00	EA	0	0	0	0	7,000	7,000	7000.00
99_25 Riparian paths	870.00	LF	58	1,566	145	1,740	0	3,451	3.97
TOTAL Channel Corridor Enhancement	1.00	EA	2,486	97,635	18,770	19,120	19,000	154,525	154525
9E Fish Ladder	1.00	EA	0	35,000	35,000	26,938	0	96,938	96938
TOTAL Mill River Alternative 4	1.00	EA	20,266	832,570	329,669	1,087,779	663,458	2,913,475	2913475

Prime Contractor's Field Overhead	291,347
SUBTOTAL	3,204,822
Prime's Home Office Expense	192,289
SUBTOTAL	3,397,112
Prime Contractor's Profit	339,711
SUBTOTAL	3,736,823
Prime Contractor's Bond	56,052
TOTAL INCL INDIRECTS	3,792,875
Contingency	550,002
TOTAL INCL OWNER COSTS	4,342,877

05. Wetland Creation

05_ 5. Stormwater wetland	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
05_ 5. 5. Earthwork								
Ammend soils, grade, excavation								
L MIL AA <02232 0125 > Excavate & load, hydr excavator,			0.06	2.53	1.63	0.00	0.00	4.16
1.5 CY, wet matl	8067.00	CY	515	20,397	13,150	0	0	33,547
MIL AA <02241 0020 > Loam or topsoil, 200' haul, 6"			0.01	0.61	0.52	0.00	0.00	1.13
deep, 200 HP dozer, remove/pile on site	1613.00	CY	22	983	832	0	0	1,815
MIL AA <02241 0805 > Soil ammendment,mix w/ exstg.,			0.09	3.88	1.44	15.37	0.00	20.69
imported, 6" deep	100.00	CY	9	388	144	1,537	0	2,069
MIL AA <02239 0200 > Spread & compact, slope up to 1			0.02	0.88	0.48	0.00	0.00	1.36
in 4, shape enbankment, w/ machine	4840.00	SY	97	4,252	2,316	0	0	6,568
MIL AA <02234 1115 > Hauling, hwy haulers, 16.5 CY, 6			0.03	0.80	1.20	0.00	0.00	2.00
mi round trip @ 40 MPH (2.1 cyc/hr)	8067.00	CY	231	6,451	9,672	0	0	16,124
TOTAL Earthwork			874	32,471	26,115	1,537	0	60,123
05_ 5.01. Water Pollution Control								
05_ 5.01.03. Submittals & Implementation Plan								
L HTW AA <01956 1116 > Submittals, tech plans,			1.00	65.00	0.00	0.00	0.00	65.00
pollution control & mitigation	8.00	LS	8	520	0	0	0	520
TOTAL Submittals & Implementation Plan			8	520	0	0	0	520
05_ 5.01.08. Water Pollution Control								
USR AA < > Turbidity curtain, 3'			0.10	2.70	0.75	3.00	0.00	6.45
	60.00	LF	6	162	45	180	0	387
USR AA < > Add'tl BMP's for EC/WPC			10.00	270.00	100.00	400.00	0.00	770.00
	1.00	LS	10	270	100	400	0	770
L MIL AA <02250 1400 > Stabilized Construction Entrance			20.00	878.54	917.49	13.60	0.00	1809.63
and Removal crushed rock	1.00	EA	20	879	917	14	0	1,810
TOTAL Water Pollution Control			36	1,311	1,062	594	0	2,967

05_ 5. Stormwater wetland	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL Water Pollution Control			44	1,831	1,062	594	0	3,487
05_ 5.02. Demolition								
remove asphalt parking, remove asphalt path								
MIL AA <02046 1710 > Site dml, bituminous, pavement			0.06	2.42	0.99	0.00	0.00	3.41
removal, parking, 3" thick	3388.00	SY	197	8,189	3,349	0	0	11,537
USR AA <02046 1710 > Site dml, bituminous, pavement			0.05	2.06	0.84	0.00	0.00	2.90
removal, path, 3" thick	1875.00	SY	93	3,863	1,580	0	0	5,442
AF AA <02234 4200 > Hauling, w/loading, 12 CY truck,			0.05	1.71	2.15	0.00	0.00	3.86
5 mile haul, rock	585.00	CY	29	1,003	1,255	0	0	2,258
USR AA <02234 4200 > Disposal Fee			0.05	1.72	2.15	20.00	0.00	23.87
	585.00	CY	29	1,005	1,258	11,700	0	13,963
TOTAL Demolition			348	14,059	7,441	11,700	0	33,200
05_ 5.10. Planting								
Assumes-								
- 2 herb. per SY								
- 1 tree at 15' o.c. = 1 tree for every 200 sq. ft. (per kerry, 70 trees)								
- shrubs at 5' o.c., 21.65 sq.ft ea, or 0.4 plants per SY								
AF AA <02976 4930 > Watering, water by truck			0.02	0.45	0.73	0.02	0.00	1.20
	43.50	MSF	1	19	32	1	0	52
B MIL AA <02947 0400 > General planting, local			0.23	8.66	2.98	10.00	0.00	21.64
varieties, 2' - 3', shrubs	389.00	SY	89	3,368	1,159	3,890	0	8,417
B MIL AA <02947 0220 > General planting, local			0.14	5.20	1.79	60.00	0.00	66.99
varieties, trees, 5' - 6'	70.00	EA	10	364	125	4,200	0	4,690
B MIL AA <02947 0020 > General planting, local			0.10	3.76	1.30	1.00	0.00	6.06
varieties, herbaceous	3630.00	SY	363	13,665	4,702	3,630	0	21,997
TOTAL Planting			463	17,417	6,018	11,721	0	35,156
05_ 5.15. Drainage								
Includes 2 fittings, one at end and one at new connection								
MIL AA <02762 2060 > Piping, drainage & sewage, 36"			0.78	30.02	9.04	35.03	0.00	74.09
dia, RCP, class 3, no gaskets	190.00	LF	148	5,704	1,717	6,656	0	14,077
CIV AA <02762 4300 > Piping, drainage & sewage, RCP,			3.19	126.39	6.89	515.50	0.00	648.79
precast end section, 36" dia	2.00	EA	6	253	14	1,031	0	1,298

05. Wetland Creation

05_ 5. Stormwater wetland	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
RSM AA <02270 0100 > Rip-rap, random, machine placed		0.26	10.21	4.62	18.81	0.00	33.64
for slope protection	10.00 CY	3	102	46	188	0	336
TOTAL Drainage		157	6,059	1,777	7,875	0	15,711

05_ 5.20. Improvements

Boardwalk,signage, fence

Assume $32 /1.f for decking (RSM), $15/1.f. for railing (UPB), $30/1.f. for frame and piles = $75/1.f.
(RS MEANS wooden pedestrian bridge = approx. $50 SF in place. For a 6 foot wide bridge, that would cost $300 per 1.f.. Assume 1/3 the cost of the bridge, w/ less heavy support/piles.)

USR AA < > Boardwalk		0.50	27.04	2.00	40.00	0.00	69.04
	300.00 LF	150	8,112	600	12,000	0	20,712
MIL AA <02831 6560 > Fence, CL, 6' H, galv line post		0.21	7.91	0.89	7.65	0.00	16.45
@ 10' OC, 9g mesh, 1-5/8" top rail	1000.00 LF	211	7,911	893	7,650	0	16,454
B MIL AA <02842 0570 > Signs, informational, 36" x 60"		4.00	152.07	0.00	500.00	0.00	652.07
w/post,	3.00 EA	12	456	0	1,500	0	1,956
TOTAL Improvements		373	16,479	1,493	21,150	0	39,122

05_ 5.25. Exotic control

AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	43.00 MSF	1	19	31	1	0	52
B MIL AA <02951 1900 > Mulch, wood chips, 2" deep, hand		0.00	0.13	0.00	0.11	0.00	0.24
spread	2025.00 SF	7	256	0	223	0	479
M MIL AA <02266 0120 > Erosion control, revegetation		0.02	0.61	0.00	1.50	0.00	2.11
mat	4777.00 SY	76	2,906	0	7,166	0	10,071
USR AA < > Invasive removal		320.00	8653.00	200.00	500.00	0.00	9353.00
	1.00 ACR	320	8,653	200	500	0	9,353
B MIL AA <02947 0220 > General planting, local		0.14	5.20	1.79	60.00	0.00	66.99
varieties, trees, 5' - 6'	225.00 EA	31	1,171	403	13,500	0	15,074
B MIL AA <02947 0020 > General planting, local		0.10	3.76	1.30	1.00	0.00	6.06
varieties, herbaceous	2500.00 SY	250	9,412	3,238	2,500	0	15,150
TOTAL Exotic control		685	22,417	3,872	23,889	0	50,178

05. Wetland Creation

05_ 5. Stormwater wetland	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL Stormwater wetland			2,943	110,733	47,778	78,465	0	236,976

05. Wetland Creation

05_10. Tidal wetland	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
05_10. 5. Earthwork							
Ammend soils, assume 6" of ammendments over site = 645 CY							
grade,							
excavation=.8 ac x 3' deep = 3872 CY							
L MIL AA <02232 0125 > Excavate & load, hydr excavator,		0.06	2.53	1.63	0.00	0.00	4.16
1.5 CY, wet matl	3872.00 CY	247	9,790	6,312	0	0	16,102
MIL AA <02241 0020 > Loam or topsoil, 200' haul, 6"		0.01	0.61	0.52	0.00	0.00	1.13
deep, 200 HP dozer, remove/pile	1290.00 CY	18	786	665	0	0	1,451
on site							
MIL AA <02241 0805 > Soil ammendment,mix w/ exstg.,		0.09	3.88	1.44	15.37	0.00	20.69
imported, 6" deep	645.00 CY	57	2,500	931	9,914	0	13,344
MIL AA <02220 5900 > Compaction of backfill,		0.01	0.56	0.35	0.00	0.00	0.91
structural, SP roller, 6" lift	1935.00 CY	25	1,085	671	0	0	1,756
MIL AA <02226 4100 > Excavation, bulk, fine grade, 3		1.00	42.45	15.17	0.00	0.00	57.61
passes w/grader	39.00 CSY	39	1,656	591	0	0	2,247
MIL AA <02234 1115 > Hauling, hwy haulers, 16.5 CY, 6		0.03	0.80	1.20	0.00	0.00	2.00
mi round trip @ 40 MPH (2.1	3872.00 CY	111	3,096	4,643	0	0	7,739
cyc/hr)							
TOTAL Earthwork		497	18,914	13,813	9,914	0	42,640
05_10.01. WPC							
05_10.01.03. Submittals & Implementation Plan							
L HTW AA <01956 1116 > Submittals, tech plans,		1.00	65.00	0.00	0.00	0.00	65.00
pollution control & mitigation	8.00 LS	8	520	0	0	0	520
TOTAL Submittals & Implementation Plan		8	520	0	0	0	520
05_10.01.08. WPC							
USR AA < > Turbidity curtain, 3'		0.10	2.70	0.75	3.00	0.00	6.45
	120.00 LF	12	324	90	360	0	774
USR AA < > Add'tl BMP's for EC/WPC		50.00	270.00	100.00	400.00	0.00	770.00
	1.00 LS	50	270	100	400	0	770
L MIL AA <02250 1400 > Stabilized Construction Entrance		20.00	878.54	917.49	13.60	0.00	1809.63
and Removal	1.00 EA	20	879	917	14	0	1,810
crushed rock							

05. Wetland Creation

05_10. Tidal wetland	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL WPC		82	1,473	1,107	774	0	3,354
TOTAL WPC		90	1,993	1,107	774	0	3,874

05_10.10. Planting

Assumes-

- 7 herb. per SY
- 1 tree at 10' o.c. = 1 tree every 40 sq. ft. (9/40=0.22 trees per sy)
- shrubs at 5' o.c., 21.65 sq.ft ea, or 0.4 plants per SY

AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	100.00 MSF	2	45	73	2	0	120
B MIL AA <02947 0400 > General planting, local		0.23	8.66	2.98	10.00	0.00	21.64
varieties, 2' - 3', shrubs	1.00 SY	0	9	3	10	0	22
L MIL AA <02947 0220 > General planting, local		0.35	13.17	4.53	135.00	0.00	152.71
varieties, trees, 5' - 6'	1.00 SY	0	13	5	135	0	153
B MIL AA <02947 0020 > General planting, local		0.13	4.90	1.68	1.00	0.00	7.58
varieties, herbaceous	3872.00 SY	504	18,955	6,522	3,872	0	29,348
TOTAL Planting		506	19,021	6,602	4,019	0	29,642

05_10.20. Improvements

Boardwalk, signage, fence

Assume $32 /1.f for decking (RSM), $15/1.f. for railing (UPB), $30/1.f. for frame and piles = $75/1.f. (RS MEANS wooden pedestrian bridge = approx. $50 SF in place. For a 6 foot wide bridge, that would cost $300 per 1.f.. Assume 1/3 the cost of the bridge, w/ less heavy support/piles.)

USR AA < > Boardwalk		0.50	27.04	2.00	40.00	0.00	69.04
	700.00 LF	350	18,928	1,400	28,000	0	48,328
USR AA < > Decomposed granite path		0.10	2.70	0.25	3.00	0.00	5.95
	1012.00 SY	101	2,732	253	3,036	0	6,021
TOTAL Improvements		451	21,660	1,653	31,036	0	54,349

05_10.25. Exotic control

B MIL AA <02951 1900 > Mulch, wood chips, 2" deep, hand		0.00	0.13	0.00	0.11	0.00	0.24
spread	2025.00 SF	7	256	0	223	0	479

05. Wetland Creation

05_10. Tidal wetland	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
M MIL AA <02266 0120 > Erosion control, revegetation		0.02	0.61	0.00	1.50	0.00	2.11
mat	2000.00 SY	32	1,217	0	3,000	0	4,217
USR AA < > Invasive removal		320.00	8653.00	200.00	500.00	0.00	9353.00
	0.80 ACR	256	6,922	160	400	0	7,482
B MIL AA <02947 0220 > General planting, local		0.14	5.20	1.79	60.00	0.00	66.99
varieties, trees, 5' - 6'	34.00 EA	5	177	61	2,040	0	2,278
B MIL AA <02947 0020 > General planting, local		0.10	3.76	1.30	1.00	0.00	6.06
varieties, herbaceous	2000.00 SY	200	7,529	2,591	2,000	0	12,120
B MIL AA <02947 0400 > General planting, local		0.30	11.29	3.89	15.00	0.00	30.18
varieties, 2' - 3', shrubs	222.00 SY	67	2,507	863	3,330	0	6,700
TOTAL Exotic control		566	18,608	3,674	10,993	0	33,275

05_10.30. Single Coir Fascine

Assumes:

-2 laborers can install 4' of CF per hour
-Costs for CF inc. rope and stakes
-2 Duckbill Anchors per 10' of CF
Costs of Duckbill Anchors from Manahan River project
- length = perimeter of .4 acre square

USR AA < > 12" Dia. Coir Fascine w/ Coir		0.00	0.00	0.00	15.00	0.00	15.00
Net outside	600.00 LF	0	0	0	9,000	0	9,000
L MIL AA < > Outside Laborers, (Semi-Skilled)		1.00	27.04	0.00	0.00	0.00	27.04
	300.00 HRS	300	8,113	0	0	0	8,113
USR AA < > Earth Anchor		0.01	2.70	0.00	6.00	0.00	8.70
	60.00 EA	1	162	0	360	0	522
TOTAL Single Coir Fascine		301	8,275	0	9,360	0	17,635
TOTAL Tidal wetland		2,410	88,471	26,850	66,095	0	181,416
TOTAL Wetland Creation		5,353	199,204	74,628	144,560	0	418,392

08. Mill Pond Park

08_02. Relocations	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
08_02.03. Utilities & Structures							
08_02.03.18. Utilities							
USR AA < > Replace storm sewer		1.00	28.00	19.00	200.00	0.00	247.00
	500.00 LF	500	14,000	9,500	100,000	0	123,500
RSM AA <02270 0100 > Rip-rap, random, machine placed		0.26	10.21	4.62	18.81	0.00	33.64
for slope protection	30.00 CY	8	306	139	564	0	1,009
CIV AA <02046 2960 > Site dml, pipe removal, 24"		0.20	8.17	0.86	0.00	0.00	9.04
dia,conc, water/sewer, no excava	185.00 LF	37	1,512	160	0	0	1,671
MIL AA <02762 2030 > Piping, drainage & sewage, 18"		0.37	14.62	0.80	12.18	0.00	27.60
dia, RCP, class 3, no gaskets	185.00 LF	68	2,705	148	2,253	0	5,106
MIL AA <03330 3650 > Concrete in place,pump,500psi,		0.80	30.23	7.64	56.33	0.00	94.20
incl forms,reinf,flexural on grade	100.00 CY	80	3,023	764	5,633	0	9,420
TOTAL Utilities		693	21,546	10,710	108,451	0	140,707
TOTAL Utilities & Structures		693	21,546	10,710	108,451	0	140,707
TOTAL Relocations		693	21,546	10,710	108,451	0	140,707

08_09. Channels and Canals	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
08_09.01. Channels							
08_09.01. 5. Mobilize, Demobilize & Prepare							
USR AA < > Mobilize/demobilize, cleanup		0.00	0.00	0.00	0.00	50000.00	50000.00
	1.00 LS	0	0	0	0	50,000	50,000
AF AA <01714 0300 > Cleanup, site debris clean up &		9.20	336.22	17.92	0.00	0.00	354.14
removal	5.00 ACR	46	1,681	90	0	0	1,771
TOTAL Mobilize, Demobilize & Prepare		46	1,681	90	0	50,000	51,771
08_09.01.05. Sediment Testing							
USR AA < > Contaminated Sediment Testing		0.00	0.00	0.00	0.00	10000.00	10000.00
	1.00 LS	0	0	0	0	10,000	10,000
TOTAL Sediment Testing		0	0	0	0	10,000	10,000

08_09.01.06. Demolition, retaining wall

Assumes-

- 1 l.f. of wall = approx. 1.16 CY of conc. removal
- approx. 1100 l.f. of wall on either side of river (2200 l.f.) - wall is approx. 15' high from base
- Total CY for retaining wall removal =2200 CY
- cost adjusted down 1/3rd for ease of access and open site
- assume storm sewer is in place,and every 3 l.f. yeilds 1 CY of material to be removed/hauled off
- amnt of excavation required = 2CY per l.f.

MIL AA <02228 0374 > Excavate trench, heavy soil,		0.01	0.37	0.29	0.00	0.00	0.66
6'-10' D, 2 CY excavator	4400.00 CY	41	1,634	1,287	0	0	2,922
L MIL AA <02046 2115 > Site dml, conc, 7" to 24" thick,		1.88	76.81	8.12	0.00	0.00	84.93
reinf, w/backhoe	1980.00 CY	3,723	152,089	16,077	0	0	168,166
<*Mod* >							
L CIV AA <02046 3000 > Site dml, pipe removal, 54"		0.35	14.30	1.51	0.00	0.00	15.81
conc. box water/sewer, no excava	1100.00 LF	385	15,728	1,663	0	0	17,390
CIV AA <02234 2320 > Hauling, off hwy haulers, 40 CY,		0.01	0.32	1.35	0.00	0.00	1.67
6 mile RT @ 40 mph (2.1 cyc/hr)	2300.00 CY	26	736	3,111	0	0	3,847
MIL AA <02069 0825 > Saw cutting, conc walls, rod		0.29	10.47	3.60	0.42	0.00	14.49
reinforcing, per inch of depth	600.00 LF	171	6,281	2,159	252	0	8,692

08_09. Channels and Canals	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL Demolition, retaining wall		4,347	176,468	24,298	252	0	201,018
08_09.01.07. Demolition, concrete path							
Assume-							
- 6' wide path at 750' each side of channel=1500 l.f.							
AF AA <02046 2350 > Site dml, sidewalk, conc, mesh		0.16	6.54	0.69	0.00	0.00	7.23
reinforced	1000.00 SY	160	6,537	691	0	0	7,228
CIV AA <02234 2320 > Hauling, off hwy haulers, 40 CY,		0.01	0.32	1.35	0.00	0.00	1.67
6 mile RT @ 40 mph (2.1 cyc/hr)	500.00 CY	6	160	676	0	0	836
TOTAL Demolition, concrete path		166	6,697	1,367	0	0	8,064
08_09.01.08. Sediment Removal							
CIV AA <02234 2420 > Hauling, hwy haulers,16 CY, 80		0.01	0.19	0.83	0.00	30.00	31.02
mile RT @ 40 mph (2.1 cyc/hr)	18600 CY	126	3,560	15,468	0	558,000	577,028
L MIL AA <02232 0125 > Excavate & load, hydr excavator,		0.06	2.53	1.63	0.00	0.00	4.16
1.5 CY, wet matl	18600 CY	1,189	47,030	30,320	0	0	77,350
USR AA <02232 0125 > Tipping Fee, Manchester, CT		0.02	0.97	0.63	30.00	0.00	31.60
	18600 CY	458	18,111	11,675	558,000	0	587,786
TOTAL Sediment Removal		1,773	68,701	57,463	558,000	558,000	1,242,164
08_09.01.10. Earthwork							
Assume-							
- 726 l.f. of the reach (2/3rds) has 840 sq. ft. of cut, and = fill							
- 726 l.f. x 840 sq. ft. = 609,840 cu. ft., or 22,587 CY cut, 22,587 fill							
- 374 l.f. of the reach (1/3) has 260 sq. ft. of cut, 260 sq. ft. of fill							
- 374 x 260 = 97240 cu. ft., or 3601 CY of cut, 3601 CY of fill							
total = 22,587 + 3601 cut = 26188 CY cut (and same # for fill)							
L MIL AA <02232 0250 > Excavate & load, wheeled loader,		0.06	2.48	1.67	0.00	0.00	4.15
3 CY, wet rock	26188 CY	1,480	64,946	43,744	0	0	108,691
CIV AA <02234 2420 > Hauling, off hwy haulers, 65 CY,		0.01	0.19	0.83	0.00	0.00	1.02
6 mile RT @ 40 mph (2.1 cyc/hr)	500.00 CY	3	96	416	0	0	512
AF AA <02240 0030 > Fill, spread borrow w/dozer		0.01	0.53	0.45	0.00	0.00	0.97
	26188 CY	314	13,804	11,682	0	0	25,486

08_09. Channels and Canals		QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
MIL AA <02241 0015 >	Loam or topsoil, 200' haul, 4"		0.03	1.33	1.13	0.00	0.00	2.46
	deep, 200 HP dozer, remove/pile on site	1800.00 CY	55	2,402	2,033	0	0	4,435
MIL AA <02241 0400 >	Loam or topsoil, frtn loader,		0.06	2.64	0.98	0.00	0.00	3.62
	1.5 CY, spread from pile to finish grade	1800.00 CY	108	4,744	1,766	0	0	6,510
MIL AA <02241 0805 >	Amm,endment, furnish & place,		0.09	3.88	1.44	15.37	0.00	20.69
	imported, 6" deep	1800.00 CY	159	6,977	2,597	27,666	0	37,240
MIL AA <02226 4100 >	Excavation, bulk, fine grade, 3		1.00	42.45	15.17	0.00	0.00	57.61
	passes w/grader	290.00 CSY	290	12,310	4,398	0	0	16,708
TOTAL	Earthwork		2,409	105,279	66,637	27,666	0	199,581

08_09.01.15. Bank Stabilization

08_09.01.15_ 5. Bank Stabilization
Assumes:

Avg depth of riprap @ approx 18"- 24"
Length of riprap = 2200 l.f. (both banks, entire run)
4' face feet of banks (from cross sectional sketches)
4 x 2200 x 2 = 651CY of riprap, 977 SY of filter fabric

RSM AA <02270 0100 >	Rip-rap, random, machine placed		0.26	10.21	4.62	18.81	0.00	33.64
	for slope protection	800.00 CY	206	8,167	3,695	15,048	0	26,909
CIV AA <02250 2130 >	Geotextile fabric, 60 mil thick,		0.02	0.55	0.08	0.60	0.00	1.23
	non-woven polypropylene	977.00 SY	16	535	78	586	0	1,199
USR AA < >	Boulder Placement		1.00	30.00	50.00	120.00	0.00	200.00
		300.00 EA	300	9,000	15,000	36,000	0	60,000
TOTAL	Bank Stabilization		522	17,702	18,772	51,634	0	88,109
TOTAL	Bank Stabilization		522	17,702	18,772	51,634	0	88,109
TOTAL	Channels		9,262	376,528	168,627	637,552	618,000	1,800,707
TOTAL	Channels and Canals		9,262	376,528	168,627	637,552	618,000	1,800,707

08_14. Recreation Facilities	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
08_14. 5. Restoration Planting							
ground cover is @ 1 plant per SY (approx 3' o.c.)							
shrubs are @ 10' o.c.							
Trees are spaced for 1 tree per 250 sq. ft (more than 15' o.c.)							
Plugs are at 2'-3' o.c., avg.							
B MIL AA <02947 0020 > General planting, local		0.10	3.76	1.30	4.00	0.00	9.06
varieties, gnd cover, 12" spread	2322.00 SY	232	8,742	3,008	9,288	0	21,037
B MIL AA <02947 0400 > General planting, local		0.30	11.29	3.89	15.00	0.00	30.18
varieties, 2' - 3', shrubs	464.00 SY	139	5,240	1,803	6,960	0	14,003
B MIL AA <02947 0220 > General planting, local		0.50	18.82	6.48	90.00	0.00	115.30
varieties, trees, 5' - 6'	166.00 EA	83	3,124	1,075	14,940	0	19,139
AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	42.00 MSF	1	19	31	1	0	50
B MIL AA <02947 0020 > General planting, local		0.10	3.76	1.30	1.00	0.00	6.06
varieties, herbaceous	2322.00 SY	232	8,741	3,008	2,322	0	14,071
TOTAL Restoration Planting		687	25,866	8,924	33,511	0	68,300
08_14.10. Tree Removal/Transplant							
AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	200.00 MSF	3	90	146	4	0	240
CIV AA <02109 7330 > Clear & grub, tree rmv, cutting		6.00	237.97	92.85	0.00	0.00	330.81
& chipping, 24" - 36" dia	50.00 EA	300	11,898	4,642	0	0	16,541
MIL AA <02116 1405 > Selective clearing, heavy		0.03	1.24	0.35	0.00	0.00	1.59
cutting, pole line constr, tree trimming	2000.00 LF	66	2,488	693	0	0	3,181
TOTAL Tree Removal/Transplant		369	14,476	5,481	4	0	19,961
08_14.20. Specimen Planting							
Assume 100 trees planted							
MIL AA <02911 1400 > Tree guying, w/stakes, 8"		1.78	67.59	0.00	87.50	0.00	155.09
anchors, guy wire & wrap, 8" caliper	100.00 EA	178	6,759	0	8,750	0	15,509
MIL AA <02951 1900 > Mulch, wood chips, 2" deep, hand		0.00	0.15	0.00	0.18	0.00	0.33
spread	2000.00 SF	8	307	0	360	0	667

08. Mill Pond Park

08_14. Recreation Facilities	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
RSM AA <02957 1600 > Trees, deciduous, 1.5" caliper,		3.20	120.45	41.44	136.67	0.00	298.56
in beds, B&B, 8'-10'	100.00 EA	320	12,045	4,144	13,667	0	29,856
AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	220.00 MSF	4	99	161	4	0	264
TOTAL Specimen Planting		509	19,209	4,305	22,781	0	46,295
08_14.30. Turf/Meadow Planting							
MIL AA <02932 0320 > Seeding, athletic field mix,		4.26	198.03	67.54	549.50	0.00	815.07
mechanical seeding, 450#/acre	5.00 ACR	21	990	338	2,748	0	4,075
AF AA <02932 7020 > Seeding, apply fertilizer, 1#		0.03	0.80	1.30	2.64	0.00	4.74
nitrogen/MSF, spray from truck	220.00 MSF	6	176	287	581	0	1,044
TOTAL Turf/Meadow Planting		28	1,166	625	3,328	0	5,119
08_14.35. Improvements							
B MIL AA <02842 0570 > Signs, informational, 36" x 60"		4.00	152.07	0.00	500.00	0.00	652.07
w/post,	20.00 EA	80	3,041	0	10,000	0	13,041
MIL AA <02871 0720 > Benches, steel supports,		4.00	152.07	0.00	579.00	0.00	731.07
w/backs, wood slats, 8' long	40.00 EA	160	6,083	0	23,160	0	29,243
CIV AA <02876 5060 > Trash receptacle, 22 gal		0.46	17.38	0.00	379.33	0.00	396.71
capacity, circular, KD wood,	40.00 EA	18	695	0	15,173	0	15,868
steel frame							
USR AA < > Kiosk		80.00	4000.00	500.00	2000.00	0.00	6500.00
	1.00 EA	80	4,000	500	2,000	0	6,500
USR AA < > Wooden Overlook Structure		0.00	0.00	0.00	0.00	7000.00	7000.00
	1.00 EA	0	0	0	0	7,000	7,000
TOTAL Improvements		338	13,819	500	50,333	7,000	71,652

08. Mill Pond Park

08_14. Recreation Facilities	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
08_14.37. Path systems							
Per RS MEANS 025 104							
- 6' wide + 10% for wider areas							
- 6" gravel base course @ $3.77/SY							
- 2" binder course @ $ 5.05/SY							
- 1" wearing course @ $1.99/SY							
- Total = $10.81							
Assume $32 /1.f for decking (RSM), $15/1.f. for railing (UPB), $30/1.f. for frame and piles = $75/1.f. (RS MEANS wooden pedestrian bridge = approx. $50 SF in place. For a 12 foot wide bridge, that would cost $600/1.f. per 1.f.. Assume 1/3 the cost of the bridge, w/ less heavy support/piles.)							
USR AA < > Decomposed granite path		0.10	2.70	0.25	3.00	0.00	5.95
	400.00 SY	40	1,080	100	1,200	0	2,380
USR AA < > Boardwalk		0.50	27.04	2.00	40.00	0.00	69.04
	1000.00 LF	500	27,040	2,000	40,000	0	69,040
USR AA < > Bituminous pavement-pedestrian		0.00	0.00	0.00	0.00	10.81	10.81
	1800.00 SY	0	0	0	0	19,458	19,458
TOTAL Path systems		540	28,120	2,100	41,200	19,458	90,878
TOTAL Recreation Facilities		2,471	102,656	21,935	151,158	26,458	302,206
TOTAL Mill Pond Park		12,426	500,730	201,272	897,161	644,458	2,243,620

99. Channel Corridor Enhancement

99_ 5. Riparian Enhancement	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
AF AA <02976 4930 > Watering, water by truck		0.02	0.45	0.73	0.02	0.00	1.20
	157.00 MSF	3	70	115	3	0	188
MIL AA <02266 0120 > Erosion control, revegetation		0.02	0.61	0.00	4.71	0.00	5.32
mat, webbed	1736.00 SY	28	1,056	0	8,177	0	9,233
M MIL AA <02266 0120 > Erosion control, revegetation		0.02	0.61	0.00	1.50	0.00	2.11
mat	1736.00 SY	28	1,056	0	2,604	0	3,660
USR AA < > Invasive removal		320.00	8653.00	200.00	500.00	0.00	9353.00
	0.36 ACR	115	3,115	72	180	0	3,367
B MIL AA <02947 0220 > General planting, local		0.14	5.20	1.79	60.00	0.00	66.99
varieties, trees, 5' - 6'	78.00 EA	11	406	140	4,680	0	5,226
B MIL AA <02947 0020 > General planting, local		0.10	3.76	1.30	1.00	0.00	6.06
varieties, herbaceous	1736.00 SY	174	6,535	2,249	1,736	0	10,520
TOTAL Riparian Enhancement		358	12,239	2,575	17,380	0	32,193

99. Channel Corridor Enhancement

99_10. Remove Concrete Blockage	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
L MIL AA <02046 2115 > Site dml, conc, 7" to 24" thick,			3.56	145.45	15.38	0.00	0.00	160.82
reinf, w/backhoe	556.00	CY	1,979	80,870	8,549	0	0	89,418
L CIV AA <02234 2320 > Hauling, off hwy haulers, 40 CY,			0.10	2.81	11.87	0.00	0.00	14.67
6 mile RT @ 40 mph (2.1 cyc/hr)	556.00	CY	56	1,560	6,598	0	0	8,158
L MIL AA <02232 0125 > Excavate & load, hydr excavator,			0.06	2.52	1.62	0.00	0.00	4.14
1.5 CY, wet matl	556.00	CY	35	1,401	903	0	0	2,304
TOTAL Remove Concrete Blockage			2,071	83,831	16,050	0	0	99,880

99. Channel Corridor Enhancement

99_15. Reinforce stone wall	QUANTY UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
USR AA < > Reinforce stone wall		0.00	0.00	0.00	0.00	12000.00	12000.00
	1.00 LS	0	0	0	0	12,000	12,000
TOTAL Reinforce stone wall		0	0	0	0	12,000	12,000

99. Channel Corridor Enhancement

99_20. Riparian Overlook	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
USR AA < > Wooden Overlook Structure			0.00	0.00	0.00	0.00	7000.00	7000.00
	1.00		0	0	0	0	7,000	7,000
TOTAL Riparian Overlook			0	0	0	0	7,000	7,000

99. Channel Corridor Enhancement

99_25. Riparian paths	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
USR AA < > Riparian Paths			58.00	1566.00	145.00	1740.00	0.00	3451.00
	1.00	EA	58	1,566	145	1,740	0	3,451
TOTAL Riparian paths			58	1,566	145	1,740	0	3,451
TOTAL Channel Corridor Enhancement			2,486	97,635	18,770	19,120	19,000	154,525

9E. Fish Ladder

	QUANTY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST
TOTAL Fish Ladder			0	35,000	35,000	26,938	0	96,938
TOTAL Mill River Alternative 4			20,266	832,570	329,669	1,087,779	663,458	2,913,475