Malden River Ecosystem Restoration
Detailed Project Report

APPENDIX D

MCACES COST ESTIMATES

US Army Corps
of Engineers®
New England District

TOTAL PROJECT COST SUMMARY

THIS ESTIMATE IS BASED ON THE THE SCOPE CONTAINED IN THE DECISION DOCUMENT DATED: JULY 2007

PROJECT:	MALDEN RIVER ECOSYSTEM RESTORATION	PREPARED BY:	MICHAEL REMY
LOCATION:	MALDEN, MEDFORD & EVERETT. MASSACHUSETTS	P.O.C.:	CHRISTOPHER J LINDSAY, 978-318-8472

		BASELINE ESTIMATE: 23 Feb 2007				AUTHORIZ/BUDGET YEAR: 2008			FULLY FUNDED ESTIMATE		
WORK		EFFECTIVE PRICING LEVEL: 23 Feb 2007				EFFECTIVE PRICING LEVEL: 2008			FY 2008		
BREAKDOWN	FEATURE DESCRIPTION	COST	CNTG	CNTG	TOTAL	COST	CNTG	TOTAL	COST	CNTG	FULL
STRUCTURE		($K)	($K)	(%)	($K)	($K)	($K)	($K)	($K)	($K)	($K)
06.03.73.01	MOB/DEMOB	225	45	20.00%	270	233	46.6	279.6	233	46.6	279.6
06.03.73.02	FISH SUBSTRATE	265	53	20.00%	318	274	54.8	328.8	274	54.8	328.8
06.03.73.03	INVASIVE SPECIES REMOVAL	2141	428.2	20.00%	2569.2	2216	443.2	2659.2	2216	443.2	2659.2
06.03.73.04	NATIVE SPECIES PLANTING	126	25.2	20.00%	151.2	130	26	156	130	26	156
06.03.73.05	WETLAND CREATION - FILL	1282	256.4	20.00%	1538.4	1327	265.4	1592.4	1327	265.4	1592.4
06.03.73.06	DEBRIS REMOVAL	90	18	20.00%	108	93	18.6	111.6	93	18.6	111.6
	TOTAL CONTRUCTION COSTS	**4129**	**825.8**		**4954.8**	**4273**	**854.6**	**5127.6**	**4273**	**854.6**	**5127.6**
01----	REAL ESTATE	500	-	-	500	518	-	518	518	-	518
30----	ENGINEERING AND DESIGN	99	-	-	99	102	-	102	102	-	102
31----	CONSTRUCTION MANAGEMENT	303	-	-	303	314	-	314	314	-	314
	TOTAL PROJECT COSTS	**5031**	**825.8**	20.00%	**5856.8**	**5207**	**854.6**	**6061.6**	**5207**	**854.6**	**6061.6**

TOTAL FEDERAL COSTS	65%	**$3,940**
TOTAL NON-FEDERAL COSTS	35%	**$2,122**

DISTRICT APPROVED: Christopher J. Lindsay CHIEF, COST ENGINEERING
10/23/07

DIVISION APPROVED: _____ CHIEF, COST ENGINEERING

_____ APPROVED DATE:

Malden River Restoration Project
A river restoration project
consisting of debri removal,
wetland restoration and wetland
creation.

Designed By: CENAE
Estimated By: CENAE-MR

Prepared By: CENAE-MR

Preparation Date: 02/23/07
Effective Date of Pricing: 02/23/07
Est Construction Time: 730 Days

Sales Tax: 0.0%

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Revised Notes 2/23/07:

This is a feasibility level estimate for a river way restoration of the lower Malden River. The estimate includes a 20% contingency. There are six sub-areas to be restored. Each of the six sub-areas have various remediation alternatives, such as: invasive species removal (phragmites, brush and trees), wetland restoration (planting), debri removal, wetland creation (filling), and gravel/sand replacement. Costs are based on cost quide references such as Means Construction Cost Guide, MCACES National Cost Book, and historical information.

Removal of shore debri consists of trash, scrap metal parts, abandoned automobiles and various other discarded materials. Some areas from which debri is removed will require installation of a clean gravel/soil cover. Some areas of wetland will be created by filling, grading and planting. The following markups are applied to the estimate:10% overhead, 7% office overhead, 10% profit, 2.0% bond, 15% cost growth/data base correction), 3% escalation (1 year), 20%(feasibility level)contingency, 6% S&A and 2% E&D.

Assumptions:

1. Assume staging area for materials and equipment will be a 2 acre area adjacent to site #3.

2. There are six areas of restoration in this esitmate. There is only one Mob and Demob contract cost included in this estimate and it is shown in area number three.

3. All areas of phragmites will have the roots and soil removed to a depth of 18", and will be hauled to area 5 and used as fill in the wetland creation area. All areas of clearing and grubbing of phragmites will be capped with 12" on new soil.

4. All areas from which brush and trees are removed will be grubbed to remove roots and stumps to a depth of 18", and the existing soils will be regraded. No backfill of new soils will be required.

5. Wetland [planting) consists of grass like plants such sedges and rushes planted equally spaced at 24" OC.

6. Assume wetland creation(filling) consists of installing 1.5' deep phrag stalk, phrag root and soil fill, 1' deep gravel fill and 6" deep topsoil cover.

7. Assume 24 month construction period.

8. Assume all debri/trash removed removed from the site can be disposed of in a non hazardous waste landfill.

9. Assume all brush, trees, stumps and roots will be ground or chipped back on to the upland area and will become mixed into soil during re-grading.

14 AUGUST 2007 UPDATE : CHRIS LINDSAY

Labor cost updated using Gen Wage Decision MA18, dated July 6, 2007. Equipment rates reviewed and factors (fuel especially) updated to current rates. Material cost reviewed and compared with recent State of MA bid data in the region and were judged reflective of current costs. These changes resulted in a significant increase in project costs even after the data base adjustment was removed.

** PROJECT OWNER SUMMARY - Feature (Rounded to 100's) **

	QUANTY	UOM	CONTRACT	CONTINGN	E&D	S&A	ESCALATN	TOTAL COST	UNIT
33 Restoration Sub Area 1									
33.21 Gravel/Sand Placement	0.07	ACR	6,800	1,400	200	500	300	9,200	130819
TOTAL Restoration Sub Area 1	1.00	EA	6,800	1,400	200	500	300	9,200	9157.31
35 Restoration Sub Area 3									
35.01 Mob, Demob & Work Storage Yard	1.00	EA	224,900	45,000	5,400	16,500	10,200	302,000	301989
35.02 Invasive Species Removal	1.37	ACR	103,600	20,700	2,500	7,600	4,700	139,100	101545
35.21 Gravel/Sand Placement	0.68	ACR	67,700	13,500	1,600	5,000	3,100	91,000	133767
35.26 Wetland Restoration (Planting)	1.00	EA	17,600	3,500	400	1,300	800	23,600	23622
35.31 Debri Removal, Testing, Misc.	1.37	ACR	27,200	5,400	700	2,000	1,200	36,500	26677
TOTAL Restoration Sub Area 3	1.00	EA	441,000	88,200	10,600	32,400	20,000	592,200	592237
36 Restoration Sub Area 4									
36.02 Invasive Species Removal	6.31	ACR	967,100	193,400	23,200	71,000	43,900	1,298,700	205821
36.19 Wetland Creation (filling)	5.37	ACR	1,282,300	256,500	30,800	94,200	58,200	1,722,000	320667
36.21 Gravel/Sand Placement	0.81	ACR	76,700	15,300	1,800	5,600	3,500	103,000	127162
36.26 Wetland Restoration (Planting)	1.00	EA	69,000	13,800	1,700	5,100	3,100	92,600	92637
36.31 Debri Removal, Testing, Misc.	1.00	EA	34,700	6,900	800	2,600	1,600	46,600	46631
TOTAL Restoration Sub Area 4	1.00	EA	2,429,900	486,000	58,300	178,500	110,300	3,263,000	3262986
37 Restoration Sub Area 5									
37.02 Invasive Species Removal	7.24	ACR	1,070,600	214,100	25,700	78,600	48,600	1,437,600	198570
37.21 Gravel/Sand Placement	0.44	ACR	41,700	8,300	1,000	3,100	1,900	56,000	127167
37.26 Wetland Restoration (Planting)	1.00	EA	39,000	7,800	900	2,900	1,800	52,400	52405
37.31 Debri Removal, Testing, Misc.	1.00	EA	28,200	5,600	700	2,100	1,300	37,800	37809
TOTAL Restoration Sub Area 5	1.00	EA	1,179,400	235,900	28,300	86,600	53,600	1,583,800	1583816
38 Restoration Sub Area 6									
38.21 Gravel/Sand Placement	0.76	ACR	71,900	14,400	1,700	5,300	3,300	96,600	127129
TOTAL Restoration Sub Area 6	1.00	EA	71,900	14,400	1,700	5,300	3,300	96,600	96618
TOTAL Malden River Restoration Project	1.00	EA	4,129,100	825,800	99,100	303,200	187,500	5,544,800	5544814

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		QUANTY	UOM	CONTRACT	CONTINGN	CST GROW	ESCALATN	TOTAL COST	UNIT
33	Restoration Sub Area 1	1.00	EA	26,152	5,230	4,707	1,083	40,191	40191
34	Restoration Sub Area 2	1.00	EA	220,798	44,160	39,744	9,141	339,326	339326
35	Restoration Sub Area 3	1.00	EA	337,142	67,428	60,686	13,958	518,126	518126
36	Restoration Sub Area 4	1.00	EA	1,948,795	389,759	350,783	80,680	2,994,943	2994943
37	Restoration Sub Area 5	1.00	EA	970,948	194,190	174,771	40,197	1,492,170	1492170
38	Restoration Sub Area 6	1.00	EA	1,824,779	364,956	328,460	75,546	2,804,352	2804352
TOTAL	Malden River Restoration Project	1.00	EA	5,328,614	1,065,723	959,151	220,605	8,189,108	8189108

	QUANTY	UOM	CONTRACT	CONTINGN	CST GROW	ESCALATN	TOTAL COST	UNIT
33 Restoration Sub Area 1								
33.21 Gravel/Sand Placement	0.07	ACR	5,688	1,138	1,024	235	8,741	124871
33.26 Debri Removal, Testing, Misc.	1.00	EA	20,464	4,093	3,684	847	31,450	31450
TOTAL Restoration Sub Area 1	1.00	EA	26,152	5,230	4,707	1,083	40,191	40191
34 Restoration Sub Area 2								
34.02 Invasive Species Removal	1.29	ACR	186,420	37,284	33,556	7,718	286,493	222088
34.26 Wetland Restoration (Planting)	1.00	EA	13,914	2,783	2,504	576	21,383	21383
34.30 Debri Removal, Testing, Misc.	1.00	EA	20,464	4,093	3,684	847	31,450	31450
TOTAL Restoration Sub Area 2	1.00	EA	220,798	44,160	39,744	9,141	339,326	339326
35 Restoration Sub Area 3								
35.01 Mob, Demob & Work Storage Yard	1.00	EA	162,163	32,433	29,189	6,714	249,215	249215
35.02 Invasive Species Removal	1.37	ACR	79,221	15,844	14,260	3,280	121,748	88867
35.21 Gravel/Sand Placement	0.68	ACR	53,911	10,782	9,704	2,232	82,851	121839
35.26 Wetland Restoration (Planting)	1.00	EA	14,780	2,956	2,660	612	22,715	22715
35.31 Debri Removal, Testing, Misc.	1.37	ACR	27,067	5,413	4,872	1,121	41,598	30363
TOTAL Restoration Sub Area 3	1.00	EA	337,142	67,428	60,686	13,958	518,126	518126
36 Restoration Sub Area 4								
36.02 Invasive Species Removal	6.31	ACR	792,958	158,592	142,732	32,828	1,218,632	193127
36.19 Wetland Creation (filling)	5.37	ACR	999,278	199,856	179,870	41,370	1,535,708	285979
36.21 Gravel/Sand Placement	0.81	ACR	64,271	12,854	11,569	2,661	98,773	121942
36.26 Wetland Restoration (Planting)	1.00	EA	57,963	11,593	10,433	2,400	89,078	89078
36.31 Debri Removal, Testing, Misc.	1.00	EA	34,326	6,865	6,179	1,421	52,752	52752
TOTAL Restoration Sub Area 4	1.00	EA	1,948,795	389,759	350,783	80,680	2,994,943	2994943
37 Restoration Sub Area 5								
37.02 Invasive Species Removal	7.24	ACR	875,522	175,104	157,594	36,247	1,345,517	185845
37.21 Gravel/Sand Placement	0.44	ACR	34,914	6,983	6,285	1,445	53,656	121946
37.26 Wetland Restoration (Planting)	1.00	EA	32,790	6,558	5,902	1,357	50,392	50392
37.31 Debri Removal, Testing, Misc.	1.00	EA	27,723	5,545	4,990	1,148	42,605	42605
TOTAL Restoration Sub Area 5	1.00	EA	970,948	194,190	174,771	40,197	1,492,170	1492170
38 Restoration Sub Area 6								

		QUANTY	UOM	CONTRACT	CONTINGN	CST GROW	ESCALATN	TOTAL COST	UNIT
38.02	Invasive Species Removal	15.33	ACR	1,593,708	318,742	286,867	65,980	2,449,238	159768
38.21	Gravel/Sand Placement	0.76	ACR	60,288	12,058	10,852	2,496	92,652	121910
38.26	Wetland Restoration (Planting)	1.00	EA	143,060	28,612	25,751	5,923	219,857	219857
38.31	Debri Removal, Testing, Misc.	1.00	EA	27,723	5,545	4,990	1,148	42,605	42605
TOTAL	Restoration Sub Area 6	1.00	EA	1,824,779	364,956	328,460	75,546	2,804,352	2804352
TOTAL	Malden River Restoration Project	1.00	EA	5,328,614	1,065,723	959,151	220,605	8,189,108	8189108

** PROJECT INDIRECT SUMMARY - Contract **

		QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT
33	Restoration Sub Area 1	1.00	EA	19,803	1,980	1,525	2,331	513	26,152	26152
34	Restoration Sub Area 2	1.00	EA	167,196	16,720	12,874	19,679	4,329	220,798	220798
35	Restoration Sub Area 3	1.00	EA	255,296	25,530	19,658	30,048	6,611	337,142	337142
36	Restoration Sub Area 4	1.00	EA	1,475,696	147,570	113,629	173,689	38,212	1,948,795	1948795
37	Restoration Sub Area 5	1.00	EA	735,236	73,524	56,613	86,537	19,038	970,948	970948
38	Restoration Sub Area 6	1.00	EA	1,381,786	138,179	106,398	162,636	35,780	1,824,779	1824779
TOTAL	Malden River Restoration Project	1.00	EA	4,035,013	403,501	310,696	474,921	104,483	5,328,614	5328614
	Contingency								1,065,723	
	SUBTOTAL								6,394,337	
	Escalation								959,151	
	SUBTOTAL								7,353,487	
									220,605	
	SUBTOTAL								7,574,092	
									454,446	
	SUBTOTAL								8,028,537	
									160,571	
	TOTAL INCL OWNER COSTS								8,189,108	

	QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT
33 Restoration Sub Area 1									
33.21 Gravel/Sand Placement	0.07	ACR	4,307	431	332	507	112	5,688	81253
33.26 Debri Removal, Testing, Misc.	1.00	EA	15,496	1,550	1,193	1,824	401	20,464	20464
TOTAL Restoration Sub Area 1	1.00	EA	19,803	1,980	1,525	2,331	513	26,152	26152
34 Restoration Sub Area 2									
34.02 Invasive Species Removal	1.29	ACR	141,163	14,116	10,870	16,615	3,655	186,420	144511
34.26 Wetland Restoration (Planting)	1.00	EA	10,536	1,054	811	1,240	273	13,914	13914
34.30 Debri Removal, Testing, Misc.	1.00	EA	15,496	1,550	1,193	1,824	401	20,464	20464
TOTAL Restoration Sub Area 2	1.00	EA	167,196	16,720	12,874	19,679	4,329	220,798	220798
35 Restoration Sub Area 3									
35.01 Mob, Demob & Work Storage Yard	1.00	EA	122,796	12,280	9,455	14,453	3,180	162,163	162163
35.02 Invasive Species Removal	1.37	ACR	59,989	5,999	4,619	7,061	1,553	79,221	57825
35.21 Gravel/Sand Placement	0.68	ACR	40,823	4,082	3,143	4,805	1,057	53,911	79280
35.26 Wetland Restoration (Planting)	1.00	EA	11,192	1,119	862	1,317	290	14,780	14780
35.31 Debri Removal, Testing, Misc.	1.37	ACR	20,496	2,050	1,578	2,412	531	27,067	19757
TOTAL Restoration Sub Area 3	1.00	EA	255,296	25,530	19,658	30,048	6,611	337,142	337142
36 Restoration Sub Area 4									
36.02 Invasive Species Removal	6.31	ACR	600,455	60,046	46,235	70,674	15,548	792,958	125667
36.19 Wetland Creation (filling)	5.37	ACR	756,688	75,669	58,265	89,062	19,594	999,278	186085
36.21 Gravel/Sand Placement	0.81	ACR	48,668	4,867	3,747	5,728	1,260	64,271	79347
36.26 Wetland Restoration (Planting)	1.00	EA	43,892	4,389	3,380	5,166	1,137	57,963	57963
36.31 Debri Removal, Testing, Misc.	1.00	EA	25,993	2,599	2,001	3,059	673	34,326	34326
TOTAL Restoration Sub Area 4	1.00	EA	1,475,696	147,570	113,629	173,689	38,212	1,948,795	1948795
37 Restoration Sub Area 5									
37.02 Invasive Species Removal	7.24	ACR	662,976	66,298	51,049	78,032	17,167	875,522	120928
37.21 Gravel/Sand Placement	0.44	ACR	26,438	2,644	2,036	3,112	685	34,914	79350
37.26 Wetland Restoration (Planting)	1.00	EA	24,830	2,483	1,912	2,922	643	32,790	32790
37.31 Debri Removal, Testing, Misc.	1.00	EA	20,993	2,099	1,616	2,471	544	27,723	27723
TOTAL Restoration Sub Area 5	1.00	EA	735,236	73,524	56,613	86,537	19,038	970,948	970948
38 Restoration Sub Area 6									

** PROJECT INDIRECT SUMMARY - Feature **

	QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT
38.02 Invasive Species Removal	15.33	ACR	1,206,811	120,681	92,924	142,042	31,249	1,593,708	103960
38.21 Gravel/Sand Placement	0.76	ACR	45,652	4,565	3,515	5,373	1,182	60,288	79326
38.26 Wetland Restoration (Planting)	1.00	EA	108,330	10,833	8,341	12,750	2,805	143,060	143060
38.31 Debri Removal, Testing, Misc.	1.00	EA	20,993	2,099	1,616	2,471	544	27,723	27723
TOTAL Restoration Sub Area 6	1.00	EA	1,381,786	138,179	106,398	162,636	35,780	1,824,779	1824779
TOTAL Malden River Restoration Project	1.00	EA	4,035,013	403,501	310,696	474,921	104,483	5,328,614	5328614
Contingency								1,065,723	
SUBTOTAL								6,394,337	
Escalation								959,151	
SUBTOTAL								7,353,487	
								220,605	
SUBTOTAL								7,574,092	
								454,446	
SUBTOTAL								8,028,537	
								160,571	
TOTAL INCL OWNER COSTS								8,189,108	

** PROJECT DIRECT SUMMARY - Contract **

	QUANTY	UOM	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
33 Restoration Sub Area 1	1.00	EA	2,271	2,230	2,302	13,000	19,803	19803
34 Restoration Sub Area 2	1.00	EA	48,586	39,667	65,942	13,000	167,196	167196
35 Restoration Sub Area 3	1.00	EA	121,806	65,920	49,570	18,000	255,296	255296
36 Restoration Sub Area 4	1.00	EA	478,627	395,105	580,964	21,000	1,475,696	1475696
37 Restoration Sub Area 5	1.00	EA	198,900	171,377	348,959	16,000	735,236	735236
38 Restoration Sub Area 6	1.00	EA	406,597	309,175	650,014	16,000	1,381,786	1381786
TOTAL Malden River Restoration Project	1.00	EA	1256787	983,475	1,697,750	97,000	4,035,013	4035013
Prime Contractor's Field Overhead							403,501	
SUBTOTAL							4,438,514	
Prime's Home Office Expense							310,696	
SUBTOTAL							4,749,210	
Prime Contractor's Profit							474,921	
SUBTOTAL							5,224,131	
Prime Contractor's Bond							104,483	
TOTAL INCL INDIRECTS							5,328,614	
Contingency							1,065,723	
SUBTOTAL							6,394,337	
Escalation							959,151	
SUBTOTAL							7,353,487	
							220,605	
SUBTOTAL							7,574,092	
							454,446	
SUBTOTAL							8,028,537	
							160,571	
TOTAL INCL OWNER COSTS							8,189,108	

	QUANTY	UOM	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
33 Restoration Sub Area 1								
33.21 Gravel/Sand Placement	0.07	ACR	1,025	980	2,302	0	4,307	61528
33.26 Debri Removal, Testing, Misc.	1.00	EA	1,246	1,250	0	13,000	15,496	15496
TOTAL Restoration Sub Area 1	1.00	EA	2,271	2,230	2,302	13,000	19,803	19803
34 Restoration Sub Area 2								
34.02 Invasive Species Removal	1.29	ACR	40,316	38,417	62,430	0	141,163	109429
34.26 Wetland Restoration (Planting)	1.00	EA	7,024	0	3,512	0	10,536	10536
34.30 Debri Removal, Testing, Misc.	1.00	EA	1,246	1,250	0	13,000	15,496	15496
TOTAL Restoration Sub Area 2	1.00	EA	48,586	39,667	65,942	13,000	167,196	167196
35 Restoration Sub Area 3								
35.01 Mob, Demob & Work Storage Yard	1.00	EA	71,832	36,100	14,864	0	122,796	122796
35.02 Invasive Species Removal	1.37	ACR	28,480	16,989	14,520	0	59,989	43787
35.21 Gravel/Sand Placement	0.68	ACR	12,786	11,582	16,455	0	40,823	60034
35.26 Wetland Restoration (Planting)	1.00	EA	7,462	0	3,731	0	11,192	11192
35.31 Debri Removal, Testing, Misc.	1.37	ACR	1,246	1,250	0	18,000	20,496	14961
TOTAL Restoration Sub Area 3	1.00	EA	121,806	65,920	49,570	18,000	255,296	255296
36 Restoration Sub Area 4								
36.02 Invasive Species Removal	6.31	ACR	155,134	145,172	300,150	0	600,455	95159
36.19 Wetland Creation (filling)	5.37	ACR	280,453	236,675	239,560	0	756,688	140910
36.21 Gravel/Sand Placement	0.81	ACR	11,286	10,759	26,624	0	48,668	60084
36.26 Wetland Restoration (Planting)	1.00	EA	29,261	0	14,631	0	43,892	43892
36.31 Debri Removal, Testing, Misc.	1.00	EA	2,493	2,500	0	21,000	25,993	25993
TOTAL Restoration Sub Area 4	1.00	EA	478,627	395,105	580,964	21,000	1,475,696	1475696
37 Restoration Sub Area 5								
37.02 Invasive Species Removal	7.24	ACR	173,724	163,032	326,220	0	662,976	91571
37.21 Gravel/Sand Placement	0.44	ACR	6,131	5,845	14,463	0	26,438	60086
37.26 Wetland Restoration (Planting)	1.00	EA	16,553	0	8,277	0	24,830	24830
37.31 Debri Removal, Testing, Misc.	1.00	EA	2,493	2,500	0	16,000	20,993	20993
TOTAL Restoration Sub Area 5	1.00	EA	198,900	171,377	348,959	16,000	735,236	735236
38 Restoration Sub Area 6								

	QUANTY	UOM	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
38.02 Invasive Species Removal	15.33	ACR	321,298	296,583	588,930	0	1,206,811	78722
38.21 Gravel/Sand Placement	0.76	ACR	10,587	10,092	24,974	0	45,652	60069
38.26 Wetland Restoration (Planting)	1.00	EA	72,220	0	36,110	0	108,330	108330
38.31 Debri Removal, Testing, Misc.	1.00	EA	2,493	2,500	0	16,000	20,993	20993
TOTAL Restoration Sub Area 6	1.00	EA	406,597	309,175	650,014	16,000	1,381,786	1381786
TOTAL Malden River Restoration Project	1.00	EA	1256787	983,475	1,697,750	97,000	4,035,013	4035013
Prime Contractor's Field Overhead							403,501	
SUBTOTAL							4,438,514	
Prime's Home Office Expense							310,696	
SUBTOTAL							4,749,210	
Prime Contractor's Profit							474,921	
SUBTOTAL							5,224,131	
Prime Contractor's Bond							104,483	
TOTAL INCL INDIRECTS							5,328,614	
Contingency							1,065,723	
SUBTOTAL							6,394,337	
Escalation							959,151	
SUBTOTAL							7,353,487	
							220,605	
SUBTOTAL							7,574,092	
							454,446	
SUBTOTAL							8,028,537	
							160,571	
TOTAL INCL OWNER COSTS							8,189,108	

R2029: Malden River Restoration No Crew Database - No Crew Summaries or Reprice

* * * END OF ERROR REPORT * * *

Gravel/Sand Placement	QUANTY UOM	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
Restoration Sub Area 1							
Changes made 12/13/05 per Todd Randall Request. Remove wetland fill from Sub Area 3 and change fill in Sub Area 4 to 4.75 acre area (3.84 acres originally in SA 4 plus 1.53 acr from SA 3 minus .6 acres in SA 3).							
Gravel/Sand Placement							
Costs to install sand/gravel in area of the river after removal of sediments.							
Base course, sand, washed &		2.17	1.67	20.37	0.00	24.22	
graded, compacted, small areas, assume 1' depth required.	113.00 CY	246	189	2,302	0	2,737	24.22
Hauling, hwy haulers, 12 CY, 24		6.90	7.00	0.00	0.00	13.90	
mile round trip @ base wide rate	113.00 CY	779	791	0	0	1,570	13.90
TOTAL Gravel/Sand Placement	0.07 ACR	1,025	980	2,302	0	4,307	61528
Debri Removal, Testing, Misc.							
Costs for debri removal from river and shorline areas. Though not identified at this time some costs may be incurred to test dredge sediments and removed debri prior to disposal.							
Misc. existing trash/rubbish		20.00	20.00	0.00	60.00	100.00	
removed from river and disposal fees at landfill. Includes loading and transportation.	50.00 TON	1,000	1,000	0	3,000	5,000	100.00
Possible misc. testing costs for		0.00	0.00	0.00	10000.00	10000.00	
sediments and trash .	1.00 LS	0	0	0	10,000	10,000	10000
Hauling, hwy haulers, 12 CY,		9.85	10.00	0.00	0.00	19.85	
load and haul, 24 mile round trip.	25.00 CY	246	250	0	0	496	19.85
TOTAL Debri Removal, Testing, Misc.	1.00 EA	1,246	1,250	0	13,000	15,496	15496
TOTAL Restoration Sub Area 1	1.00 EA	2,271	2,230	2,302	13,000	19,803	19803
Restoration Sub Area 2							
Invasive Species Removal							
Costs for removal of phragmites stalks, grubbing and removal of stubs and roots. Top 1.5' foot of soil to be removed and disposed of. Assume all invasive species in this area are Phragmites.							
Clear & grub, chipping stumps,		14.10	5.27	0.00	0.00	19.36	
to 18" deep, 12" dia- assume material will be used as fill	100.00 EA	1,410	527	0	0	1,936	19.36

Invasive Species Removal	QUANTY	UOM	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
on site.								
Grading for grubbed areas, bulk, semi-grade, 2 passes w/grader			29.17	10.11	0.00	0.00	39.28	
	62.00	CSY	1,809	627	0	0	2,436	39.28
Topsoil/sand material, delivery and installation, graded to 1'D, cap entire area of invasive species/phrag removal			5.19	4.00	30.00	0.00	39.19	
	2081.00	CY	10,808	8,324	62,430	0	81,562	39.19
Clearing, phragmites and other udesirable plants, wet area.			800.02	509.66	0.00	0.00	1309.68	
	1.29	ACR	1,032	657	0	0	1,689	1309.68
Hauling, hwy haulers, 12 CY, haul phrag stalkes, 3 mi round trip, dump onsite for fill.			4.93	5.00	0.00	0.00	9.93	
	562.00	CY	2,769	2,810	0	0	5,579	9.93
Clear & grub, grubbing of phragmites stubs and roots, 11			0.59	0.90	0.00	0.00	1.48	
	4320.00	CY	2,534	3,872	0	0	6,406	1.48
Hauling, hwy haulers 12 CY, 3 mile round trip- grubbed phrag roots and soil, load and haul to onsite location to be used as fill.			4.62	5.00	0.00	0.00	9.62	
	4320.00	CY	19,955	21,600	0	0	41,555	9.62
TOTAL Invasive Species Removal	1.29	ACR	40,316	38,417	62,430	0	141,163	109429
Wetland Restoration (Planting)								
assume sedges or rushes seedlings at 24" OC spacing.								
sedges or rushes-individual seedlings at 24" OC			0.50	0.00	0.25	0.00	0.75	
	14048	EA	7,024	0	3,512	0	10,536	0.75
TOTAL Wetland Restoration (Planting)	1.00	EA	7,024	0	3,512	0	10,536	10536
Debri Removal, Testing, Misc.								
Debri removal from shorline and river, and disposal in landfill.								
Misc. existing trash/rubbish removed from shore and river and disposal fees at landfill. Includes loading and transportation.			20.00	20.00	0.00	60.00	100.00	
	50.00	TON	1,000	1,000	0	3,000	5,000	100.00
Possible misc. testing costs for sediments, trash and grubbed materials.			0.00	0.00	0.00	10000.00	10000.00	
	1.00	LS	0	0	0	10,000	10,000	10000

Debri Removal, Testing, Misc.	QUANTY UOM	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
Hauling, hwy haulers, 12 CY,		9.85	10.00	0.00	0.00	19.85	
load and haul, 24 mile round trip.	25.00 CY	246	250	0	0	496	19.85
TOTAL Debri Removal, Testing, Misc.	1.00 EA	1,246	1,250	0	13,000	15,496	15496
TOTAL Restoration Sub Area 2	1.00 EA	48,586	39,667	65,942	13,000	167,196	167196

Restoration Sub Area 3

Mob, Demob & Work Storage Yard

Changes made 12/13/05 per Todd Randall Request. Remove wetland fill from Sub Area 3 and change fill in Sub Area 4 to 4.75 acre area (3.84 acres originally in SA 4 plus 1.53 acr from SA 3 minus .6 acres in SA 3.

1/26/07 PM requests changes to project, include only one M&D in just area #3, instead of one in each of the 6 areas. This results in increase to the one M&D because of requirements change.

Outside Electricians		40.18	0.00	0.00	0.00	40.18	
	80.00 HR	3,215	0	0	0	3,215	40.18
Outside Equip. Operators, Medium		35.24	0.00	0.00	0.00	35.24	
	80.00 HR	2,819	0	0	0	2,819	35.24
Outside Carpenters		35.83	0.00	0.00	0.00	35.83	
	40.00 HR	1,433	0	0	0	1,433	35.83
Outside Laborers, (Semi-Skilled)		27.04	0.00	0.00	0.00	27.04	
	320.00 HR	8,654	0	0	0	8,654	27.04
Outside Truck Drivers, Heavy		27.99	0.00	0.00	0.00	27.99	
	80.00 HR	2,239	0	0	0	2,239	27.99
Cleanup, site debris clean up &		670.11	34.45	0.00	0.00	704.56	
removal- clean up storage and stagging areas.	2.00 ACR	1,340	69	0	0	1,409	704.56
Fencing, 11 ga, chain link, 6'		12.00	1.49	3.28	0.00	16.77	
high-install temp fencing and remove it after project completion.	1200.00 LF	14,400	1,788	3,936	0	20,124	16.77
Office trailer, rent per month,		0.00	0.00	295.00	0.00	295.00	
furnished, no hookups, 50' x 10'	24.00 MO	0	0	7,080	0	7,080	295.00
Toilet, portable chemical, rent		0.00	0.00	80.17	0.00	80.17	
per month-assume two on the job	48.00 EA	0	0	3,848	0	3,848	80.17

Mob, Demob & Work Storage Yard	QUANTY	UOM	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
Hauling, hwy hauler 12 CY, 24			6.46	6.56	0.00	0.00	13.02	
mile round trip-for disposal of	3227.00	CY	20,852	21,162	0	0	42,015	13.02
Excavating, bulk, dozer, large			3.81	1.33	0.00	0.00	5.14	
area, open site, shaping w/small dozer	3227.00	CY	12,306	4,286	0	0	16,593	5.14
Clear & grub, cut & chip medium			2286.16	1237.98	0.00	0.00	3524.13	
trees, 10" dia	2.00	ACR	4,572	2,476	0	0	7,048	3524.13
TRK,HWY, 46,000 GVW, 6X4, 3 AXLE			0.00	35.40	0.00	0.00	35.40	
	80.00	HR	0	2,832	0	0	2,832	35.40
LDR,FE, WH, 3.00 - 3.25 CY			0.00	33.07	0.00	0.00	33.07	
	80.00	HR	0	2,645	0	0	2,645	33.07
TRAILER, LOWBOY, 75T (68.0MT)			0.00	10.51	0.00	0.00	10.51	
3 AXLE (ADD TOWING TRUCK)	80.00	HR	0	841	0	0	841	10.51
TOTAL Mob, Demob & Work Storage Yard	1.00	EA	71,832	36,100	14,864	0	122,796	122796
Invasive Species Removal								
Clearing, phragmites, wet area,			800.02	509.66	0.00	0.00	1309.68	
disposal, hand cut small areas	0.30	ACR	240	153	0	0	393	1309.68
Hauling, hwy haulers, 12 CY, 3			4.93	5.00	0.00	0.00	9.93	
mi round trip - load and haul phrag stalks and dump on site as fill.	131.00	CY	645	655	0	0	1,300	9.93
Clear & grub, grubbing shrub and			0.59	0.90	0.00	0.00	1.48	
tree roots, 11 CY scraper - 1.07 acres, 18" deep.	2589.00	CY	1,518	2,321	0	0	3,839	1.48
Clearing, brush w/dozer & brush			300.04	191.14	0.00	0.00	491.19	
rake, medium brush-- adjusted to triple original unit cost because of small quanitity in urban area.	1.07	ACR	321	205	0	0	526	491.19
Clear & grub, tree rmv, cutting			119.77	46.42	0.00	0.00	166.19	
& chipping, 6" - 12" dia	131.00	EA	15,690	6,082	0	0	21,771	166.19
Clear & grub, grubbing of			0.59	0.90	0.00	0.00	1.48	
phragmites stubs and roots, 11	726.00	CY	426	651	0	0	1,077	1.48

Invasive Species Removal	QUANTY UOM	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
Hauling, hwy haulers, 12 cy -3 mile round trip, load and haul phrag roots and dump onsite as fill.	726.00 CY	4.62 3,354	5.00 3,630	0.00 0	0.00 0	9.62 6,984	9.62
Topsoil/sand material, delivery and installation, graded to 1'D, cap entire area of invasive species/phrag removal	484.00 CY	5.19 2,514	4.00 1,936	30.00 14,520	0.00 0	39.19 18,970	39.19
Grading for grubbed areas, bulk, semi-grade, 2 passes w/grader	66.00 CSY	29.17 1,925	10.11 667	0.00 0	0.00 0	39.28 2,593	39.28
Clear & grub, chipping stumps, to 18" deep, 12" dia average.	131.00 EA	14.10 1,847	5.27 690	0.00 0	0.00 0	19.36 2,537	19.36
TOTAL Invasive Species Removal	1.37 ACR	28,480	16,989	14,520	0	59,989	43787
Gravel/Sand Placement							
Base course, sand, washed & graded, compacted, 6"D, large areas	1097.00 CY	5.19 5,697	4.00 4,388	15.00 16,455	0.00 0	24.19 26,540	24.19
Hauling, hwy haulers, 12 CY, 24 mile round trip @ base wide rate	1097.00 CY	6.46 7,089	6.56 7,194	0.00 0	0.00 0	13.02 14,283	13.02
TOTAL Gravel/Sand Placement	0.68 ACR	12,786	11,582	16,455	0	40,823	60034
Wetland Restoration (Planting)							
sedges or rushes-individual seedlings at 24" OC	14923 EA	0.50 7,462	0.00 0	0.25 3,731	0.00 0	0.75 11,192	0.75
TOTAL Wetland Restoration (Planting)	1.00 EA	7,462	0	3,731	0	11,192	11192
Debri Removal, Testing, Misc.							
Misc. existing trash/rubbish removed from shore and river and diposal fees at landfill. Includes loading and transportation.	50.00 TON	20.00 1,000	20.00 1,000	0.00 0	60.00 3,000	100.00 5,000	100.00
Possible misc. testing costs for sediments, trash and grubbed materials.	1.00 LS	0.00 0	0.00 0	0.00 0	15000.00 15,000	15000.00 15,000	15000

Debri Removal, Testing, Misc.	QUANTY	UOM	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
Hauling, hwy haulers, 12 CY, load and haul, 24 mile round trip.	25.00	CY	9.85 246	10.00 250	0.00 0	0.00 0	19.85 496	19.85
TOTAL Debri Removal, Testing, Misc.	1.37	ACR	1,246	1,250	0	18,000	20,496	14961
TOTAL Restoration Sub Area 3	1.00	EA	121,806	65,920	49,570	18,000	255,296	255296
Restoration Sub Area 4								
Invasive Species Removal								
Clear & grub, chipping stumps, to 18" deep, 12" dia average	100.00	EA	14.10 1,410	5.27 527	0.00 0	0.00 0	19.36 1,936	19.36
Topsoil/sand material, delivery and installation, graded to 1'D, cap entire area of invasive species/phrag removal	10005	CY	5.19 51,961	4.00 40,021	30.00 300,150	0.00 0	39.19 392,132	39.19
Clearing, phragmites, wet area, disposal, hand cut small areas	6.31	ACR	800.02 5,048	509.66 3,216	0.00 0	0.00 0	1309.68 8,264	1309.68
Hauling, hwy haulers, 12 CY, 3 mi round trip, load phag stalks and haul and dump onsite for fill.	1373.00	CY	4.93 6,764	5.00 6,865	0.00 0	0.00 0	9.93 13,629	9.93
Clear & grub area frome which shrubs and trees removed 11 CY scraper.	1210.00	CY	0.59 710	0.90 1,085	0.00 0	0.00 0	1.48 1,794	1.48
Clearing, brush w/dozer & brush rake, medium brush-assume 50% of acreage is brush and tree covered - adjusted to triple original unit cost because of small quanitity in urban area.	0.50	ACR	300.04 150	191.14 96	0.00 0	0.00 0	491.19 246	491.19
Clear & grub, grubbing of phragmites stubs and roots to depth of 18".	15270	CY	0.59 8,956	0.90 13,687	0.00 0	0.00 0	1.48 22,642	1.48
Hauling, hwy haulers, load and haul 3 mile round trip 12 CY of phrag roots and soil and dump as fill.	15270	CY	4.62 70,537	5.00 76,350	0.00 0	0.00 0	9.62 146,887	9.62

Invasive Species Removal	QUANTY	UOM	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
Grading for grubbed areas, bulk,			29.17	10.11	0.00	0.00	39.28	
semi-grade, 2 passes w/grader	329.00	CSY	9,598	3,326	0	0	12,925	39.28
TOTAL Invasive Species Removal	6.31	ACR	155,134	145,172	300,150	0	600,455	95159

Wetland Creation (filling)

12/13/05 Change per Todd Randall request: Remove wetland fill from Sub Area 3 and change fill in Sub Area 4 to 4.75 acre area (3.84 acres originally in SA 4 plus 1.53 acr from SA 3 minus .6 acres in SA 3).

12/13/05 Change per Todd Randall request: Depth of wetland creation fill changed from 1.5' to 3'. Assume double quantities of excavation, hauling and gravel fill will make the proper adjustment.

Excavate & load, wheeled loader,			0.76	0.27	0.00	0.00	1.04	
1.5 CY bucket, lt , - excavate	25991	CY	19,823	7,085	0	0	26,908	1.04
to depth of 3'.								
Loam or topsoil, frtn loader,			8.40	3.00	20.00	0.00	31.40	
1.5 CY, spread from pile, 6"	4332.00	CY	36,368	12,996	86,640	0	136,004	31.40
deep finish grade- material								
and delivery included								
Hauling excavated earth, hwy			6.90	7.00	0.00	0.00	13.90	
haulers, 12 CY, 3 mi round	25991	CY	179,265	181,937	0	0	361,202	13.90
trip, load and haul offsite.								
Base course, gravel delivered,			5.19	4.00	17.65	0.00	26.84	
bank run, 1' D, incl grading	8664.00	CY	44,996	34,657	152,920	0	232,573	26.84
TOTAL Wetland Creation (filling)	5.37	ACR	280,453	236,675	239,560	0	756,688	140910

Gravel/Sand Placement

Base course, sand, washed &			2.17	1.67	20.37	0.00	24.22	
graded, compacted, 12 "D, large	1307.00	CY	2,840	2,188	26,624	0	31,652	24.22
areas - includes material and								
delivery								
Hauling, hwy haulers, 12 CY, 24			6.46	6.56	0.00	0.00	13.02	
mile round trip @ base wide rate	1307.00	CY	8,446	8,571	0	0	17,017	13.02
TOTAL Gravel/Sand Placement	0.81	ACR	11,286	10,759	26,624	0	48,668	60084

Wetland Restoration (Planting)	QUANTY	UOM	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
Wetland Restoration (Planting)								
sedges or rushes-individual			0.50	0.00	0.25	0.00	0.75	
seedlings at 24" OC	58522	EA	29,261	0	14,631	0	43,892	0.75
TOTAL Wetland Restoration (Planting)	1.00	EA	29,261	0	14,631	0	43,892	43892
Debri Removal, Testing, Misc.								
Misc. existing trash/rubbish			20.00	20.00	0.00	60.00	100.00	
removed from shore and river	100.00	TON	2,000	2,000	0	6,000	10,000	100.00
and diposal fees at landfill. Includes loading and transportation.								
Possible misc. testing costs for			0.00	0.00	0.00	15000.00	15000.00	
sediments, trash and grubbed materials.	1.00	LS	0	0	0	15,000	15,000	15000
Hauling, hwy haulers, 12 CY,			9.85	10.00	0.00	0.00	19.85	
load and haul, 24 mile round trip.	50.00	CY	493	500	0	0	993	19.85
TOTAL Debri Removal, Testing, Misc.	1.00	EA	2,493	2,500	0	21,000	25,993	25993
TOTAL Restoration Sub Area 4	1.00	EA	478,627	395,105	580,964	21,000	1,475,696	1475696
Restoration Sub Area 5								
Invasive Species Removal								
Clear & grub, chipping stumps,			14.10	5.27	0.00	0.00	19.36	
to 18" deep, 12" dia- assume	100.00	EA	1,410	527	0	0	1,936	19.36
Clearing, phragmites, wet area,			800.02	509.66	0.00	0.00	1309.68	
disposal, hand cut small areas	6.74	ACR	5,392	3,435	0	0	8,827	1309.68
Hauling, hwy haulers, 12 CY, 3			4.93	5.00	0.00	0.00	9.93	
mi round trip, load and haul phrag stalks, dump onsite for fill.	2936.00	CY	14,465	14,680	0	0	29,145	9.93
Clear & grub, grubbing, tree and			0.59	0.90	0.00	0.00	1.48	
brush area, 11 CY scraper-3.57	1210.00	CY	710	1,085	0	0	1,794	1.48
Clearing, brush w/dozer & brush			300.04	191.14	0.00	0.00	491.19	
rake, medium brush-adjusted to	0.50	ACR	150	96	0	0	246	491.19

Invasive Species Removal	QUANTY UOM	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
Topsoil/sand material, delivery		5.19	4.00	30.00	0.00	39.19	
and installation, graded to 1'D, cap entire area of invasive species/phrag removal	10874 CY	56,474	43,497	326,220	0	426,191	39.19
Clear & grub, grubbing of		0.59	0.90	0.00	0.00	1.48	
phragmites stubs and roots to a depth of 18".	16311 CY	9,566	14,620	0	0	24,186	1.48
Hauling, hwy haulers, 12 CY load		4.62	5.00	0.00	0.00	9.62	
and haul phrag roots and soil , 3 miles roundtrip and dumped on site as fill.	16311 CY	75,345	81,555	0	0	156,900	9.62
Grading for grubbed areas, bulk,		29.17	10.11	0.00	0.00	39.28	
semi-grade, 2 passes w/grader	350.00 CSY	10,211	3,539	0	0	13,750	39.28
TOTAL Invasive Species Removal	7.24 ACR	173,724	163,032	326,220	0	662,976	91571
Gravel/Sand Placement							
Base course, sand, washed &		2.17	1.67	20.37	0.00	24.22	
graded, compacted, 6"D, large areas	710.00 CY	1,543	1,188	14,463	0	17,194	24.22
Hauling, hwy haulers, 12 CY, 24		6.46	6.56	0.00	0.00	13.02	
mile round trip @ base wide rate	710.00 CY	4,588	4,656	0	0	9,244	13.02
TOTAL Gravel/Sand Placement	0.44 ACR	6,131	5,845	14,463	0	26,438	60086
Wetland Restoration (Planting)							
sedges or rushes-individual		0.50	0.00	0.25	0.00	0.75	
seedlings at 24" OC	33106 EA	16,553	0	8,277	0	24,830	0.75
TOTAL Wetland Restoration (Planting)	1.00 EA	16,553	0	8,277	0	24,830	24830
Debri Removal, Testing, Misc.							
Misc. existing trash/rubbish		20.00	20.00	0.00	60.00	100.00	
removed from shore and river and diposal fees at landfill. Includes loading and transportation.	100.00 TON	2,000	2,000	0	6,000	10,000	100.00

Debri Removal, Testing, Misc.	QUANTY UOM	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
Possible misc. testing costs for sediments, trash and grubbed materials.	1.00 LS	0.00 0	0.00 0	0.00 0	10000.00 10,000	10000.00 10,000	10000
Hauling, hwy haulers, 12 CY, load and haul, 24 mile round trip.	50.00 CY	9.85 493	10.00 500	0.00 0	0.00 0	19.85 993	19.85
TOTAL Debri Removal, Testing, Misc.	1.00 EA	2,493	2,500	0	16,000	20,993	20993
TOTAL Restoration Sub Area 5	1.00 EA	198,900	171,377	348,959	16,000	735,236	735236

Restoration Sub Area 6

Invasive Species Removal

Clear & grub, chipping stumps, to 18" deep, 12" dia- assume	500.00 EA	14.10 7,048	5.27 2,634	0.00 0	0.00 0	19.36 9,682	19.36
Clearing, phragmites, wet area, disposal, hand cut small areas (see sub-area 2 for formula for quantities)	12.18 ACR	800.02 9,744	509.66 6,208	0.00 0	0.00 0	1309.68 15,952	1309.68
Hauling, hwy haulers, 12 CY, 3 mi round trip, load and haul phrag stalks, dump onsite as fill.	5300.00 CY	4.93 26,112	5.00 26,500	0.00 0	0.00 0	9.93 52,612	9.93
Clear & grub, grubbing, 11 CY scraper-3.57 x 43560=155509sf/27=5760/2(6") = 2879cy	984.00 CY	0.59 577	0.90 882	0.00 0	0.00 0	1.48 1,459	1.48
Clearing, brush w/dozer & brush rake, medium brush- adjusted to triple original unit cost because of small quanitity in urban area.	3.05 ACR	300.04 915	191.14 583	0.00 0	0.00 0	491.19 1,498	491.19
Hauling, hwy haulers, 12 CY of grubbed phrag root and soil, load and haul, 3 mile round trip, dump onsite as fill.	29476 CY	4.62 136,158	5.00 147,380	0.00 0	0.00 0	9.62 283,538	9.62
Topsoil/sand material, delivery and installation, graded to 1'D, cap entire area of invasive species/phrag removal	19631 CY	5.19 101,954	4.00 78,526	30.00 588,930	0.00 0	39.19 769,410	39.19

Invasive Species Removal	QUANTY UOM	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
Clear & grub, grubbing of		0.59	0.90	0.00	0.00	1.48	
phragmites stubs and roots to depth of 18".	29476 CY	17,288	26,419	0	0	43,707	1.48
Grading for grubbed areas, bulk,		29.17	10.11	0.00	0.00	39.28	
semi-grade, 2 passes w/grader	737.00 CSY	21,501	7,451	0	0	28,953	39.28
TOTAL Invasive Species Removal	15.33 ACR	321,298	296,583	588,930	0	1,206,811	78722
Gravel/Sand Placement							
Base course, sand, washed &		2.17	1.67	20.37	0.00	24.22	
graded, compacted, 6"D, large areas	1226.00 CY	2,664	2,052	24,974	0	29,690	24.22
Hauling, hwy haulers, 12 CY, 24		6.46	6.56	0.00	0.00	13.02	
mile round trip @ base wide rate	1226.00 CY	7,922	8,040	0	0	15,962	13.02
TOTAL Gravel/Sand Placement	0.76 ACR	10,587	10,092	24,974	0	45,652	60069
Wetland Restoration (Planting)							
sedges or rushes-individual		0.50	0.00	0.25	0.00	0.75	
seedlings at 24" OC	144440 EA	72,220	0	36,110	0	108,330	0.75
TOTAL Wetland Restoration (Planting)	1.00 EA	72,220	0	36,110	0	108,330	108330
Debri Removal, Testing, Misc.							
Misc. existing trash/rubbish		20.00	20.00	0.00	60.00	100.00	
removed from shore and disposal fees at landfill. Includes loading and transportation.	100.00 TON	2,000	2,000	0	6,000	10,000	100.00
Testing for trash, debris and		0.00	0.00	0.00	10000.00	10000.00	
grubbed materials materials.	1.00 LS	0	0	0	10,000	10,000	10000
Hauling, hwy haulers, 12 CY,		9.85	10.00	0.00	0.00	19.85	
load and haul, 24 mile round trip.	50.00 CY	493	500	0	0	993	19.85
TOTAL Debri Removal, Testing, Misc.	1.00 EA	2,493	2,500	0	16,000	20,993	20993
TOTAL Restoration Sub Area 6	1.00 EA	406,597	309,175	650,014	16,000	1,381,786	1381786

Debri Removal, Testing, Misc.	QUANTY	UOM	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
TOTAL Malden River Restoration Project	1.00	EA	1256787	983,475	1,697,750	97,000	4,035,013	4035013