SACO RIVER AND CAMP ELLIS BEACH SECTION 111 SHORE DAMAGE MITIGATION STUDY

APPENDIX E DESIGN AND COST ESTIMATES

DESIGN

Design activities for the Section 111 study for Camp Ellis, Saco, ME beach fill involved combining the hydrographic survey done in 2004, a LIDAR survey flown in 2007, and a beach survey performed in 2009. Data from each survey were used to create three dimensional surfaces which were then merged to form a single existing surface providing elevations of both the land forms and the ocean floor. Added to this surface was the city's assessor's maps showing map and lot numbers. Finally, aerial photos were referenced to the drawings.

Quantities of beach fill were calculated based on the Coastal Engineering report (Appendix B) which indicated a healthy beach profile was thought to be similar to the existing profile to the north of the study area. The minimum amount of sand necessary to stabilize the beach without off-shore structures was predicted to be the equivalent of a beach with a 20-30' berm. This berm width provides for the seasonal migration of sand to and from the beach without jeopardizing the structures landward of the beach.

The control line for measuring the berm width was established initially by locating a series of line segments parallel to the existing shoreline either 50' or 60' seaward of arbitrary points on shore. These distances were dictated by Areas "A" and "B" as shown in the Coastal Engineering report. Fillets connecting this series of segments were formed into a smooth single line which was then moved 50' or 60' landward and treated as the "shore line" for beach berm purposes.

For the alternatives of beach fill only and beach fill plus spur (Case 6) a beach berm having width varying from 20 to30' was laid out seaward from this control line and sloped at 1v to 10H at the seaward edge. A shape of the beach berm included the seaward edge, the northern and southern limits of the 3250' study area and an approximation of the 18' MLLW contour of the existing surface. The berm was assigned the elevation 17.39 MLLW based on the Beach Fill Analysis & Risk Comparison report - elevation 12.0 NAVD88 converted to MLLW by adding 5.39.

In order to stay consistent with the Coastal Engineering report's volume calculation methodology for initial fill, a portion of the existing surface that had been shifted the same amount as the proposed berm to the east was added to the beach berm and slope volumes. This shifted surface runs from the toe of the proposed berm slope to approximately 2700' offshore to depth of closure. This shifted surface volume can be seen in Figure 1 as the long thin "tail" running from the toe of slope out to the end of the typical section. As mentioned in the Beach Fill Analysis & Risk Comparison report, sand movement was modeled as deep as -11.6 MLLW (-17 NAVD88) so the extent of any comparison between initial existing surface and the proposed beach berm surface requires examining the surfaces out to a distance of approximately 2700' offshore.

Similar shape building and merging of surfaces were performed for the alternatives 25 and 25A. Each alternative requiring extending a beach berm from the control line either 10' or 20' and the same procedure for the 1V to 10H slope to intersect the "existing" healthy profile.

The amount of sand required for each alternative's initial fill volume were calculated by comparing the three dimensional surfaces. Initial fill volumes are shown as follows:

INITIAL FILL VOLUMES

Alternative InRoads Quantity

Sand Only 233,588 cy

Case 6 233,588 cy

Case25A 198,039 cy

Case 25 169,621 cy

The above quantities are the minimum amounts of sand necessary for the initial fill which would protect against storm induced erosion of the shoreline. There must be additional sand placed seaward of this as sacrificial sand for normal erosion or the above minimum amounts would be worn away thus not providing the desired protection Shifting the proposed initial fill profiles in 10' increments to the east results in adding approximately 32,000 cy for each increment.

The Coastal Engineering report suggested the amount of additional sand required. A trial and error approach to calculate the amount of additional beach berm width required was used. A surface was created using the same 1V to 10H slope but with a wider beach berm and compared to the "existing" profile (i.e. no long thin layer extending far from shore). Within a few attempts the desired additional amount of sand was bracketed and the final beach berm width was established. For the alternatives of sand fill only and Case 6 the final beach berm width seaward of the control line was 88.5' and for Case 25A the beach berm width was 81.5'. Although not calculated it can be inferred that the width of the berm for Case 25 would be in the mid-70's.

The following typical section conveys the concept of the initial fill ,the additional sacrificial layer and the final design berm and slope.

The quantity of rock required for the structures of Cases 6 and 25A were developed from simplified figures of the structures. Geotechnical considerations are discussed elsewhere (Appendix D) resulting in the general design of the structures. For Case 6, the spur jetty, rock for both the new spur and for reinforcement of the existing jetty is needed. The 750' spur would be placed on a double layer of stone mattresses and

consists of armor stone and an underlayer of smaller rock. The 50' head and seaward side of the spur have toe protection. The crest width is about 15' and side slopes are 1V to 2H. In addition to the spur, Case 6 included some reinforcement of the existing north jetty using armor stone on the sides and toe all resting on 2 layers of stone mattress. The quantities of rock necessary for the spur and reinforcement of the existing jetty are shown in the table below.

Case 6 Total Quantities

Material	Weight (tons)	Volume (cy)	Area (sy)
Armor Stone	30,100	21,500	n/a
Underlayer/Core	11,760	8,400	n/a
Toe Stone	6,440	4,600	n/a
Mattress	n/a	n/a	20,100

Case 25A requires rock for existing jetty reinforcement, a shorter spur, and two independent breakwaters. The shorter spur is 500' long having toe protection on the seaward side only with a 50' head having toe protection wrapped around to the landward edge. The main portion of the spur jetty has a crest width of 15' and side slopes of 1V to 2H. Reinforcement of the existing jetty provides 200' of armor stone and toe protection and an additional 200' of just toe protection. The two breakwaters, 410' and 395', have similar characteristics but are placed at different bottom elevations with the northern breakwater being the shorter of the two. Seaward breakwater slopes are 1V to 2H while the beach side slopes are slightly steeper at 1V to 1.5H. The crest width of each is 13.2' and the elevation is 13.4 MLLW (9' NAVD88 + 5.39'). Rock quantities for Case 25A are provided below.

Case 25A Total Quantities

Material	Weight (tons)	Volume (cy)	Area (sy)
Armor Stone	43,960	31,400	n/a
Underlayer/Core	17,920	12,800	n/a
Toe Stone	10,220	7,300	n/a
Mattress	n/a	n/a	31,200

ypical cross sections of both Cases 6 and 25A components are shown on Figuru 9.	ıres 1

Figure 1

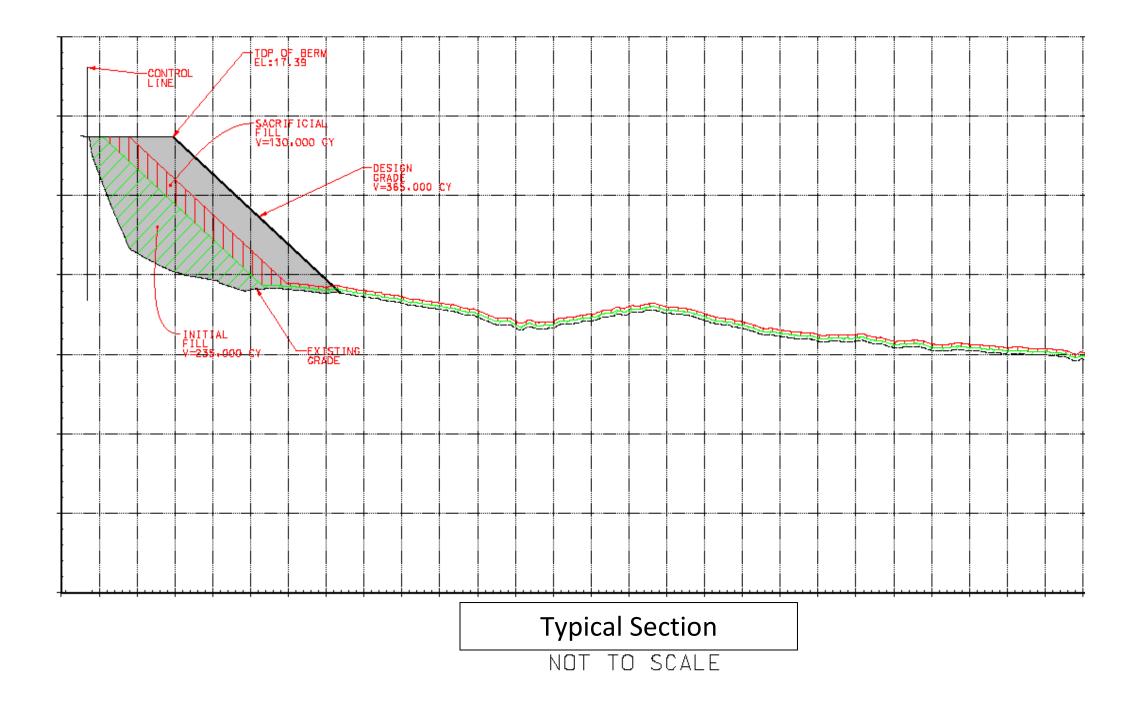




Figure 2



Figure 3



Figure 4

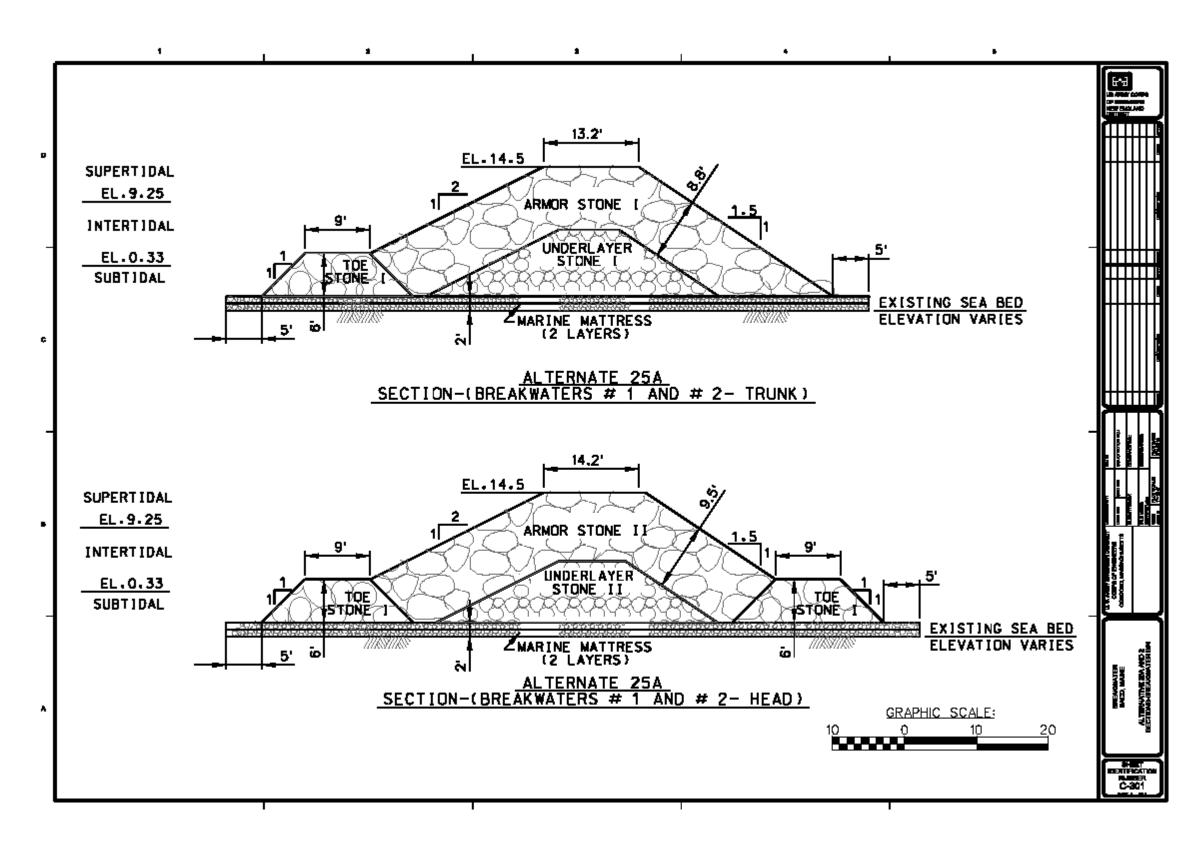


Figure 5

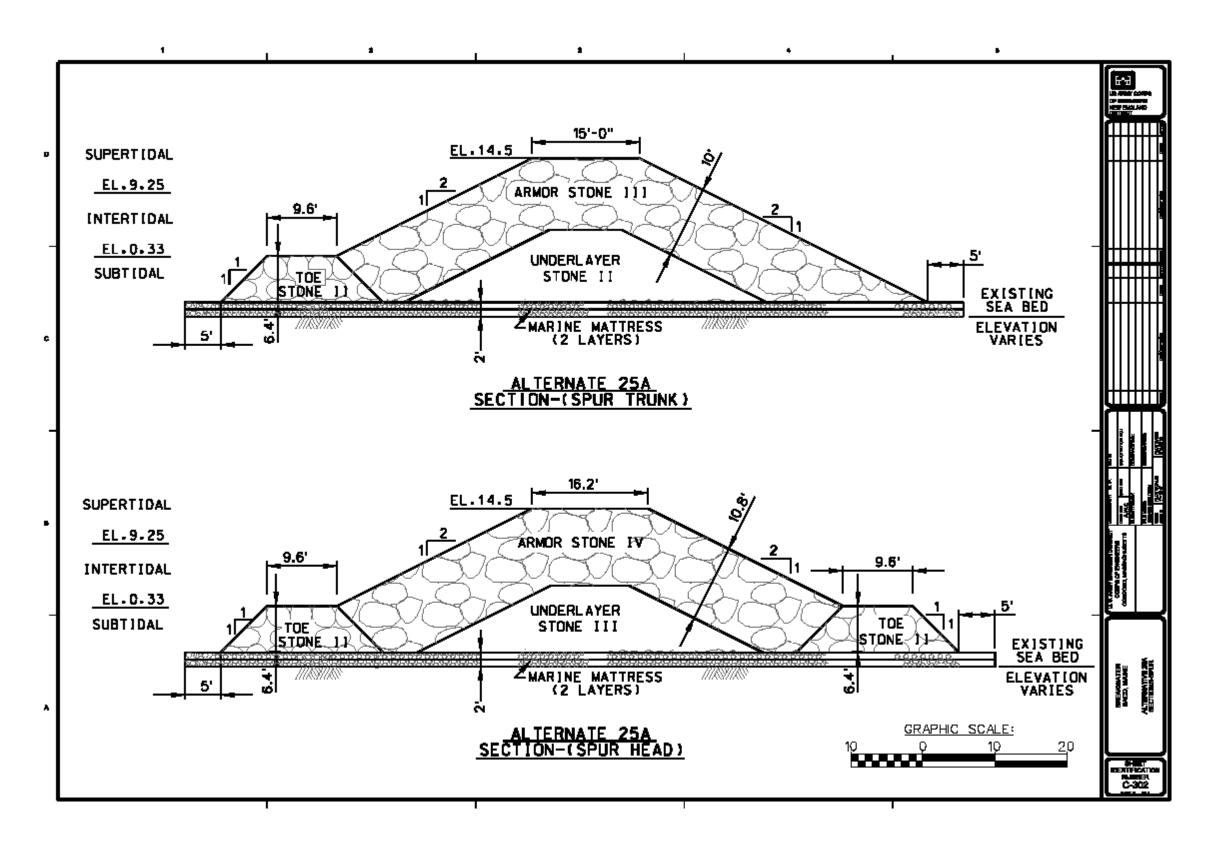


Figure 6

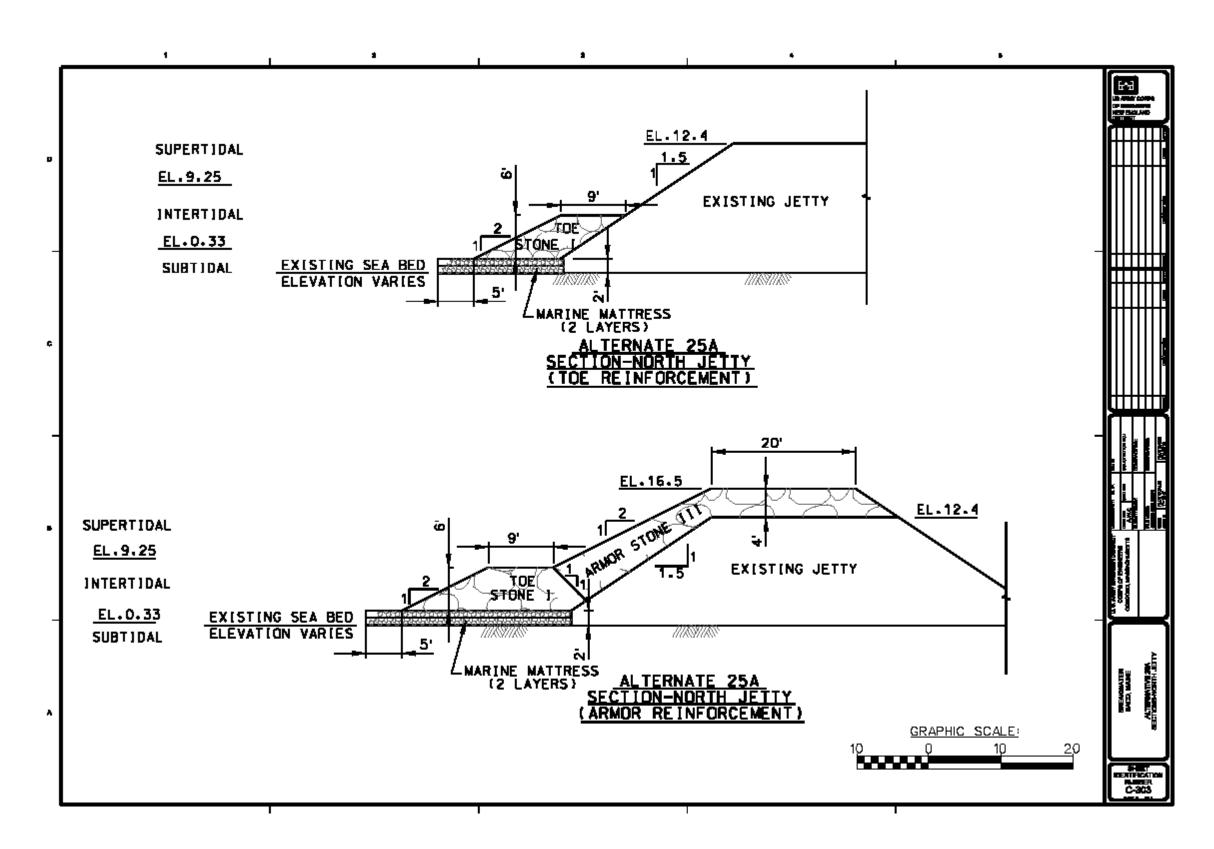


Figure 7

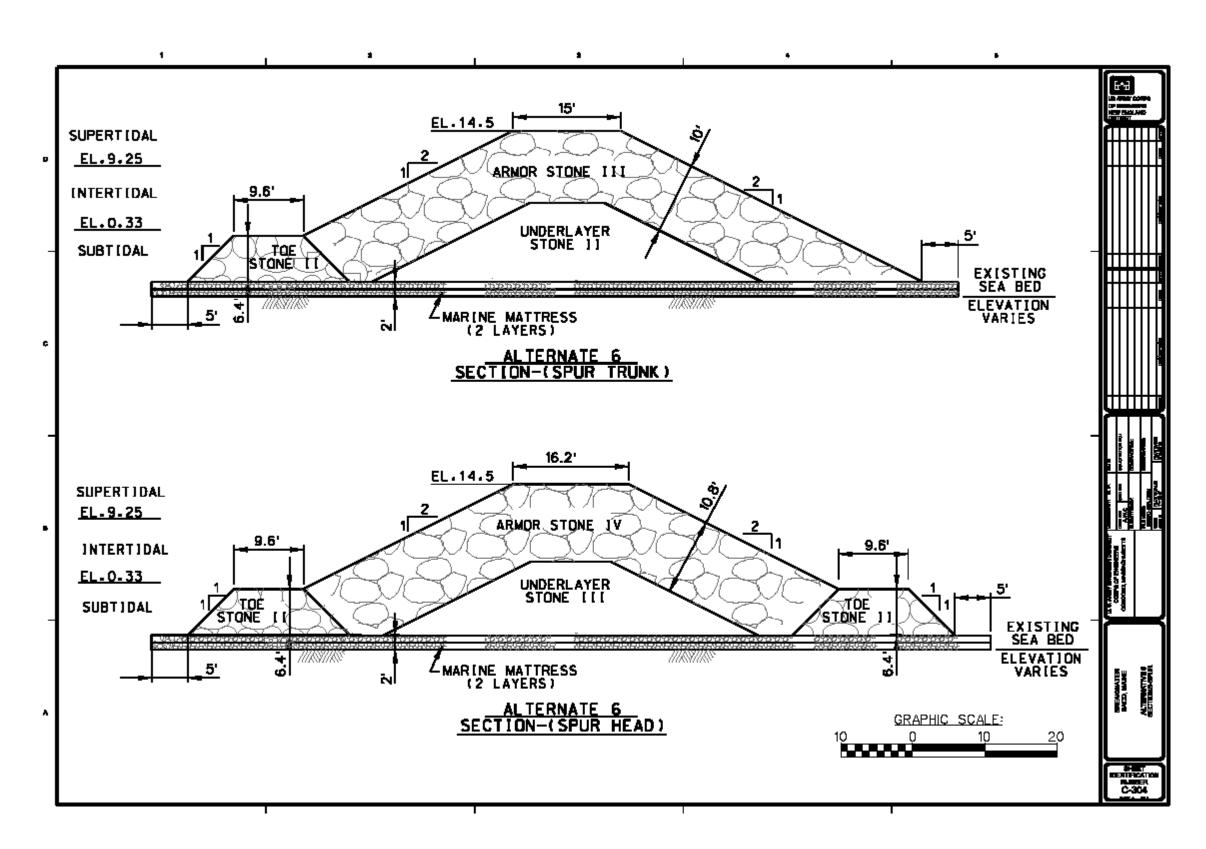


Figure 8

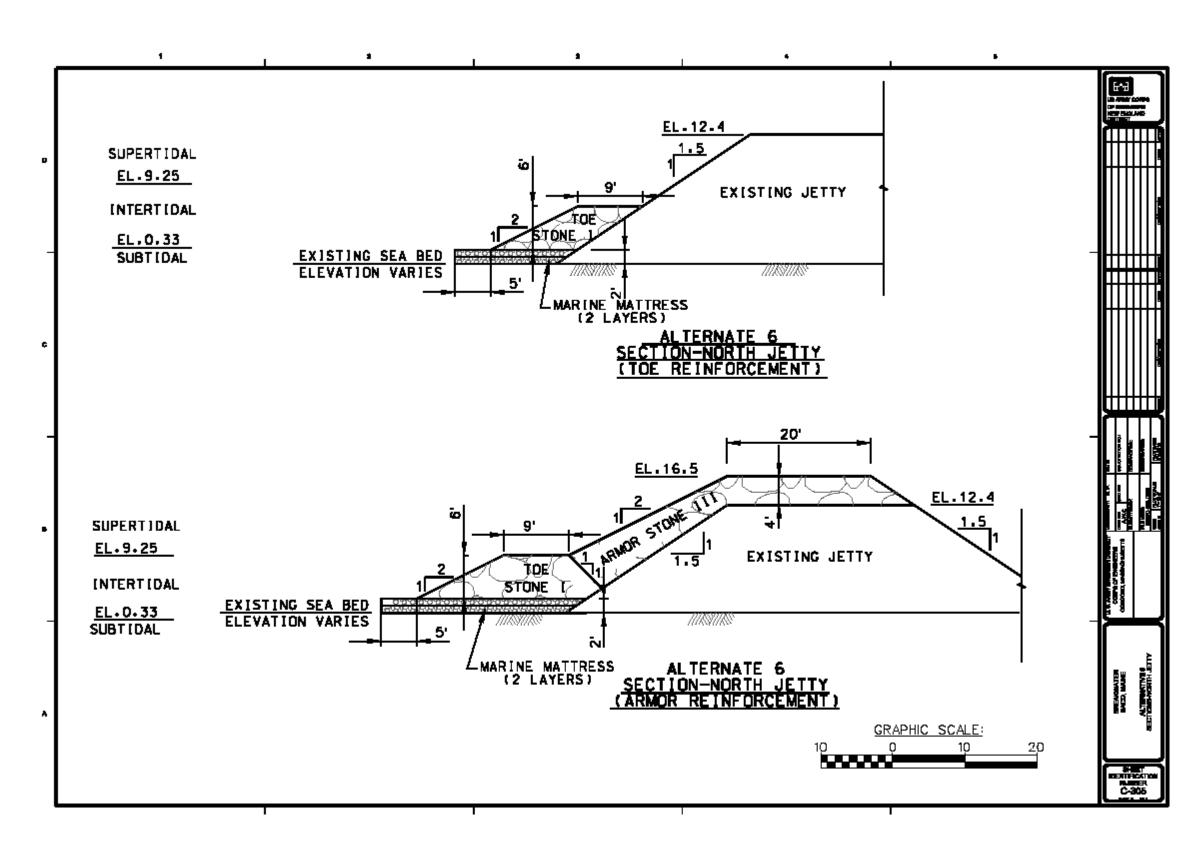
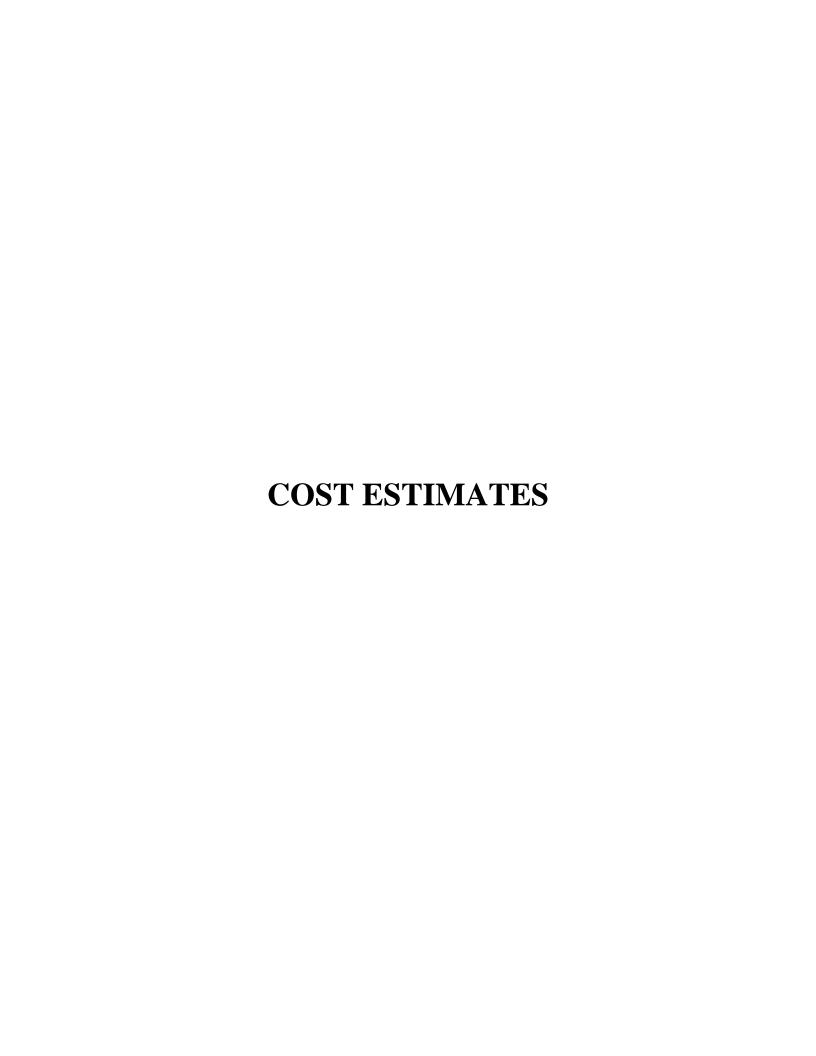


Figure 9





**** TOTAL PROJECT COST SUMMARY ****

Printed:11/6/2012 Page 1 of 5

PREPARED: 7/22/2011

DISTRICT: NAE POC: CHIEF, COST ENGINEERING, xxx

This Estimate reflects the scope and schedule in report;

Camp Ellis Shore Damage Mitigation Saco, ME

PROJECT: LOCATION:

						Prog	Program Year (Budget EC): Effective Price Level Date:		2012 1 OCT 11		YFUNDE	FILLLY FLINDED PROJECT ESTIMATE	FSTIMATE	
				œ.	BASE COST	i			FIRST COST	Spent Thru:	5			
WBS	Civil Works	COST	CNTG	CNTG	TOTAL	ESC	COST	CNTG	TOTAL	21-Jul-11		COST	CNTG	FULL
NUMBER A	Feature & Sub-Feature Description. B	ပ	(\$K)	(%) E	(\$K F	8 8	(§ K)	(\$K)	(\$K)	× (SK)	7	(\$K)	(\$K)	(\$K)
10	BREAKWATER & SEAWALLS	\$9,413	\$2,353	25%	\$11,766	%6:0	\$9.497	\$2.374	\$11.871			969.6\$	\$2.424	\$12,120
17	BEACH REPLENISHMENT	\$4,549	\$682	15%	\$5,231	%6:0	\$4,589	\$688	\$5,278			\$4,745	\$712	\$5,457
	4/N# #/N##		' '											
	#N/#		ı			1								
	CONSTRUCTION ESTIMATE TOTALS:	\$13,962	\$3,036	'	\$16,998	. %6:0	\$14,086	\$3,063	\$17,149			\$14,441	\$3,136	\$17,576
10	LANDS AND DAMAGES	\$345	\$52	15%	\$397	%6:0	\$348	\$52	\$400	a a		\$351	\$53	\$403
21	RECONNAISSANCE STUDY (CAP)									\$648				
22	FEASIBILITY STUDY (CAP)								u.	\$400				
30	PLANNING, ENGINEERING & DESIGN	\$885	\$18	2%	\$903	1.6%	\$899	\$18	\$917	\$2,220		\$923	\$18	\$3,162
31	CONSTRUCTION MANAGEMENT	\$543	\$54	10%	\$597	1.6%	\$552	\$55	\$607			\$588	\$59	\$647
	PROJECT COST TOTALS:	\$15,735	\$3,159	50%	\$18,894	0.9%	\$15,885	\$3,188	\$19,073	\$3,268		\$16,303	\$3,266	\$22,837
		CHIEF, COST ENGINEERING, xxx	ENGINEER	NG, xxx						i i	((((
		PROJECT MANAGER, xxx	NAGER, xxx						ш	ESTIMATED FEDERAL COST: ESTIMATED NON-FEDERAL COST:	FEDER	AL COST: AL COST:	100%	\$22,837
		CHIEF, REAL ESTATE, xxx	ESTATE, xx	~					EST	ESTIMATED TOTAL PROJECT COST:	. PROJEC	CT COST:	l	\$22,837
		CHIEF, PLANNING, xxx	NING,xxx											
		CHIEF, ENGINEERING, xxx	VEERING, xx	×										
	SECTION SOLD SHAFE SHE CALLED	CHIEF, OPERATIONS, xxx	ATIONS, xxx											
		CHIEF, CONSTRUCTION, xxx	STRUCTION,	XXX										
	Manager's constraint	CHIEF, CONTRACTING,xxx	'RACTING,xx	×								!		
		CHIEF, PM-PB, xxxx	B, xxxx						O&M OUT	O&M OUTSIDE OF TOTAL PROJECT COST:	PROJEC	CT COST:		

Filename: TPCS Camp Ellis Recommended Plan AFB Rev Oct 12.xlsx TPCS

CHIEF, DPM, xxx

**** CONTRACT COST SUMMARY ****

PROJECT: Camp Ellis Shore Damage Mitigation LOCATION: Saco, ME
This Estimate reflects the scope and schedule in report;

PREPARED: 7/22/2011 DISTRICT: NAE POC: CHIEF, COST ENGINEERING, xxx

STIMATE	CNTG FULL (\$K) 0	\$2,424 \$12,120	\$2,424 \$12,120	0\$	\$7			\$1 \$53		\$1 \$29			\$39 \$429	\$2,475 \$13,174
FULLY FUNDED PROJECT ESTIMATE	COST (\$K)	969'6\$	969'6\$	0\$	\$111	\$103	\$290	\$52	\$28	\$29			\$390	\$10,698
JLLY FUNDE	ESC (%)	2.1%	ı	1.2%	%8.0	%8.0	%8.0	%8.0	%8.0	2.0%			2.0%	1
<u>к</u>	Mid-Point Date P	2013Q2		2012Q4	201202	2012Q2	2012Q2	2012Q2	2012Q2	2013Q2			2013Q2	
2012 1 OCT 11	TOTAL (\$K)	\$11,871	\$11,871	\$	\$112	\$105	\$293	\$53	\$28	\$28			\$409	\$12,898
udget EC): evel Date:	CNTG (\$K)	\$2,374	\$2,374	0\$	\$2	\$2	\$6	\$1	\$1	\$1			\$37	\$2,423
Program Year (Budget EC): Effective Price Level Date:	COST (\$K)	\$9,497	\$9,497	0\$	\$110	\$103	\$287	\$52	\$27	\$27			\$372	\$10,475
Prog	ESC (%)	%6: 0		%6:0	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%		-	1.6%	
	TOTAL (\$K)	\$11,766	\$11,766	0\$	\$110	\$103	\$289	\$52	\$28	\$28			\$403	\$12,778
RISK BASED	CNTG (%)	25%	25%	%0	2%	2%	2%	2%	2%	2%	%0		10%	ı
α.	CNTG (\$K)	\$2,353	\$2,353	0\$	\$2	\$2	\$6	\$1	\$1	\$1			\$37	\$2,402
21-Jul-11 21-Jul-11	COST (\$K)	\$9,413	\$9,413	0\$	\$108	\$101	\$283	\$51	\$27	\$27			\$366	\$10,376
Estimate Prepared: Effective Price Level:	Civil Works Feature & Sub-Feature Description B	BREAKWATER & SEAWALLS BEACH REPLENISHMENT #N/A #N/A #N/A	CONSTRUCTION ESTIMATE TOTALS:	LANDS AND DAMAGES	PLANNING, ENGINEERING & DESIGN Project Management				6 Contracting & Reprographics	6 Engineering During Construction	Planning During Construction Project Operations	CONSTRUCTION MANAGEMENT	Construction Management Project Operation: Project Management	CONTRACT COST TOTALS:
	WBS NUMBER A	10		10	30	1.1%	3.0%	0.5%	0.3%	0.3%	0.0%	31	3.9%	

Filename: TPCS Camp Ellis Recommended Plan AFB Rev Oct 12.xlsx TPCS

**** TOTAL PROJECT COST SUMMARY ****

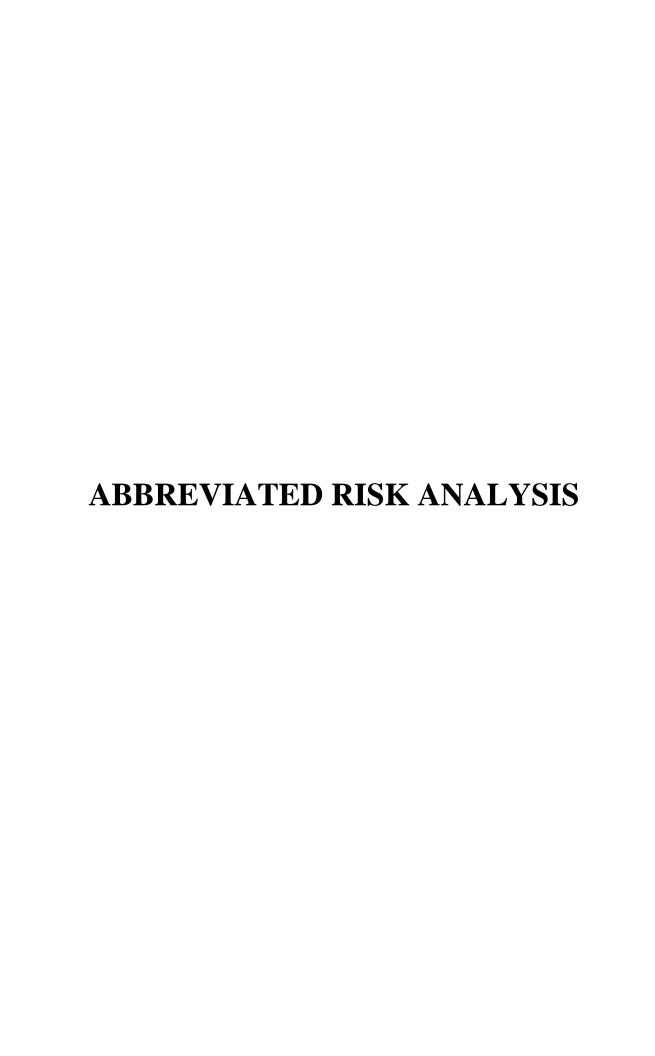
**** CONTRACT COST SUMMARY ****

PROJECT: Camp Ellis Shore Damage Mitigation LOCATION: Saco, ME
This Estimate reflects the scope and schedule in report;

PREPARED: 7/22/2011 DISTRICT: NAE POC: CHIEF, COST ENGINEERING, xxx

Estimate Prepared: Effective Price Level:	28-Mar-11 1 OCT 11				Progr Effe	Program Year (Budget EC): Effective Price Level Date:		2012 1 OCT 11		FULLY FUNDED PROJECT ESTIMATE	D PROJECT	. ESTIMATE	
Civil Works Feature & Sub-Feature Description B	COST (\$K)	CNTG (\$K)_ D	CNTG (%)	TOTAL (\$K)_ F	ESC (%)	COST (\$K)	CNTG (\$K)	TOTAL (\$K)	Mid-Point Date P	ESC (%)	COST (\$K)	CNTG (\$K)	FULL (\$K)
BREAKWATER & SEAWALLS BEACH REPLENISHMENT #NJA #NJA #NJA #NJA	\$4,549	\$682	15%	\$5,231	%6.0 %6.0	\$0	\$688	\$5,278	2013Q1 2014Q1	3.4%	\$4,745	\$0 \$712	\$0 \$5,457
CONSTRUCTION ESTIMATE TOTALS:	\$4,549	\$682	15%	\$5,231	'	\$4,589	\$688	\$5,278		'	\$4,745	\$712	\$5,457
LANDS AND DAMAGES	\$345	\$52	15%	\$397	%6.0	\$348	\$52	\$400	2012Q3	0.8%	\$351	\$53	\$403
PLANNING, ENGINEERING & DESIGN Project Management	\$52	8	2%	\$53	1.6%	\$53	\$	\$54	2013Q3	9.0%	\$56	\$1	\$57
Planning & Environmental Compliance	\$49	\$1	2%	\$50	1.6%	\$50	\$1	\$51	2013Q3	%0.9	\$53	\$1	\$54
Engineering & Design Enaineerina Tech Review ITR & VE	\$137 \$24	\$3 \$0	2%	\$140	1.6%	\$139 \$24	&3 &	\$142	2013Q3	%0.9 %0.9	\$148	\$3	\$150 \$26
Contracting & Reprographics	\$13	\$0	2%	\$13	1.6%	\$13	\$	\$13	2013Q3	%0.9	\$14	\$0\$	\$14
Engineering During Construction	\$13	\$0	2%	\$13	1.6%	\$13	\$0	\$13	2014Q3	10.2%	\$15	\$0	\$15
Planning During Construction Project Operations			%0										
CONSTRUCTION MANAGEMENT Construction Management	\$177	818	10%	305	16%	\$180	6 2	86	201403	10 2%	€. 000	\$20	¢218
Project Operation: Project Management		2	%00) }			2)		2 1 2		0	
CONTRACT COST TOTALS:	\$5,359	\$758		\$6,117	1	\$5,410	\$764	\$6,174		!	\$5,605	\$790	\$6,395

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"Saco River and Camp Ellis Beach, Shore Damage Mitigation Project " -

Project Development Stage: Feasibility Abbreviated Risk Analysis

Project Manager:

Richard Heidebrecht

Meeting Date:

25-Mar-11

PDT Members

(Typical Recommended)

Project Management:

Richard Heidebrecht

Contracting:

Evamarie D'Antuono

Real Estate:

Nor Required

Relocations:

Not Required

Engineering & Design:

Robert Meader

Cost Engineering:

Michael Remy and Christopher Lindsay

Construction:

Sean Dolan and Christine Johnson

Operations:

N/A

"Saco River and Camp Ellis Beach, Shore Damage Mitigation Project " - PROJECT < \$40M Project Development Stage: Feasibility
Abbreviated Risk Analysis

WBS	<u>Item</u>		Conti	Contract Cost	%	% Contingency	8	\$ Contingency		Total
1 10 BREAKWATERS AND SEAWALLS	Spur Jetty (Contract 1)	0	↔	9,413,000		25.00%	49	2,353,250.00	↔	11,766,250.00
2 17 BEACH REPLENISHMENT	Beach Nourishment (Contract 2)	Contract 2)	\$	4,549,000		14.58%	8	663,395.83	↔	5,212,395.83
3	Item Name		₩.			0.00%	69		49	
4	Item Name		\$			0.00%	49		↔	,
5	Item Name		\$			0.00%	49	1	↔	
9	Item Name		49			%00.0	49		49	
7	Item Name		\$			0.00%	€		€	
8	Item Name		₩.			0.00%	49		↔	
0	Item Name		49			%00.0	49		49	
10	Item Name		↔			%00.0	49		↔	1
11	Item Name		€			0.00%	€		69	
12	Remaining Construction Items	(Total Const. Contract Cost minus Σ of items #1-11)	↔		%0:0	%00.0	↔		↔	r
13 30 PLANNING, ENGINEERING, AND DESIGN	Planning, Engineering, & Design	g, & Design	₩.	885,000		2.08%	69	18,437.50	49	903,437.50
14 31 CONSTRUCTION MANAGEMENT	Construction Manage	gement	↔	543,000		10.42%	69	56,562.50	₩	599,562.50
	Tot	Total Construction Estimate \$ Total Planning, Engineering & Design \$ Total Construction Management \$ Total Construction Management \$	8 8 8 8 0 C T =	13,962,000 885,000 543,000 15,390,000			60 60 60 60 60 60	3,016,646 18,438 56,563 3,091,646	60 60 60 60 60 60	16,978,646 903,438 599,563 18,481,646

21.6% 2.1% 10.4%

H H H

Weighted Construction Contingency Planning, Engineering & Design Contingency Construction Management Contingency

"Saco River and Camp Ellis Beach, Shore Damage Mitigation Project " - PROJECT < \$40M Project Development Stage: Feasibility Abbreviated Risk Analysis

Risk Level

		Meeting Date: 25-Mar-11	Very Likely Likely Unlikely Very Unlikely	2 3 4 1 2 0 1 3 0 0 0 1 1 Negligible Marginal Significant	4 5 4 5 3 3 3 1 2 2 Significant Critical	5 5 4 4 A Crisis
Risk	Affected WBS Item	Concerns	PDT Discussions & Conclusions (Include logic & justification for choice of Likelihood & Impact)	Likelihood	Impact	Risk
Project Scope	9000					
PS-1	Spur Jetty (Contract 1)	Level of detail in design. Opportnities for scope change.	Spur design was based on extensive field work and design analysis. This included surveys, subsurface investigations, detailed wave analysis, coastal modeling, and extensive geotechnical analysis. No scope changes are anticipated.	Very Unlikely	Significant	-
PS-2	Beach Nourishment (Contract 2)	Beach Nourishment (Contract 2) Designer confidence in scope of work. Opportunities for scope change	The beach nourishment design was based on detailed coastal modeling. As this alternative is likely the most accurately modeled alternative, beach fill performance is expected to closely match modeled results.	Unlikely	Negligible	0
PS-3	Item Name			Very Unlikely	Negligible	0
PS-4	Item Name			Very Unlikely	Marginal	0
P.S5	Item Name			Very Unlikely	Negligible	0
E-11%	Item Name			Very Unlikely	Negligible	0
PS-7	Item Name			Very Unlikely	Negligible	0
P.S-8	Item Name			Very Unlikely	Negligible	0
PS-9	Item Name			Very Unlikely	Negligible	0
PS-10	Item Name			Very Unlikely	Negligible	0
PS-11	Item Name			Very Unlikely	Negligible	0
PS-12	Remaining Construction Items			Very Unlikely	Negligible	0
PS-13	Planning, Engineering, & Design Potential Changes in design	Potential Changes in design	Changes in design could increase design costs. This is unlikely,	Unlikely	Marginal	-
PS-14	Construction Management	Potential change in scope	Quantities could increase. This is unlikely but impact could be significant.	Very Unlikely	Significant	-

Acquisition	Acquisition Strategy					
AS-1	Spur Jetty (Contract 1)	Contracting plan unclear. Potential for small business contractor.	Based on the size of the contract and amount of specialized equipment and skilled operators needed, it is unlikely that a small business set-aside contractor would be able to do the work. Contract should end up being advertised as unrestricted.	Very Unlikely	Marginal	0
AS-2	Beach Nourishment (Contract 2)	Contracting Pplan unclear. Potential for small business contractor. Degree of subcontracting uncertain and depends on the method of procurement.	It is likely that the construction contract will be some sort of small business setaside.	LIKELY	Marginal	2
AS-3	Item Name			Very Unlikely	Negligible	0
AS-4	Item Name			Very Unlikely	Negligible	0
AS-5	Item Name			Very Unlikely	Negligible	0
AS-6	Item Name			Very Unlikely	Negligible	0
AS-7	Item Name			Very Unlikely	Negligible	0
AS-8	Item Name			Very Unlikely	Negligible	0
AS-9	Item Name			Very Unlikely	Negligible	0
-12 ⁰ -	Item Name			Very Unlikely	Negligible	0
AS-11	Item Name			Very Unlikely	Negligible	0
AS-12	Remaining Construction Items			Very Unlikely	Negligible	0
AS-13	Planning, Engineering, & Design No concerns	No concerns		Very Unlikely	Negligible	0
AS-14	Construction Management	Contracting plan unclear, Potential for small business contractor.	The beach fill contract could be some sort of small business set-aside. This could increase management efforts.	LIKELY	Negligible	-

Constructi	Construction Complexity			-		
00-1	Spur Jetty (Contract 1)	Availability of equipment operators experienced in jetty construction.	Equipment operators skilled in jetty construction are uncommon. Lack of availability of operators with this skill set is likely. However, low production rates have been used in the cost estimate to account for some on the job training. The overall impact on construction is expected to be significant.	LIKELY	Critical	ω
6-00	Beach Nourishment (Contract 2)			LIKELY	Marginal	2
				vioxini vov	driving	c
CC-3	Item Name			Very Officery		
CC-4	Item Name			Very Unlikely	Negligible	0
00-5	Item Name			Very Unlikely	Negligible	0
9-7-2	Item Name			Very Unlikely	Negligible	0
CC-7	Item Name			Very Unlikely	Negligible	0
8-00	Item Name			Very Unlikely	Negligible	0
E-¶	Item Name			Very Unlikely	Negligible	0
3 5	Item Name			Very Unlikely	Negligible	0
				Very Unlikely	Nealiaible	0
5	Item Name					
CC-12	Remaining Construction Items			Very Unlikely	Negligible	0
CC-13	Planning, Engineering, & Design Not applicable	Not applicable		Very Unlikely	Negligible	0
CC-14	Construction Management	Selection of experienced contractor.	The skill level of the contractor will directly impact management efforts. It is expected that someon the job training will be required to get the contractor operating efficiently.	LIKELY	Marginal	2

Volatile Co	Volatile Commodities					
VC-1	Spur Jetty (Contract 1)	Escalation of fuel prices	It is likely that fuel prices will change, but the impact will be negligible	LIKELY	Negligible	-
VC-2	Beach Nourishment (Contract 2) Escalation of fuel prices	Escalation of fuel prices	It is likely that fuel prices will change, but the impact will be negligible	LIKELY	Negligible	-
VC-3	Item Name			Very Unlikely	Negligible	0
VC-4	Item Name			Very Unlikely	Negligible	0
VC-5	Item Name			Very Unlikely	Negligible	0
VC-6	Item Name			Very Unlikely	Negligible	0
VC-7	Item Name			Very Unlikely	Negligible	0
VC-8	Item Name			Very Unlikely	Negligible	0
6-O/	Item Name			Very Unlikely	Negligible	0
E-§	Item Name			Very Unlikely	Negligible	0
4 17 A	Item Name			Very Unlikely	Negligible	0
VC-12	Remaining Construction Items			Very Unlikely	Negligible	0
VC-13	Planning, Engineering, & Design Not applicable	Not applicable		Very Unlikely	Negligible	0
VC-14	Construction Management	Not Applicable		Very Unlikely	Negligible	0

۵- ۵	Spur Jetty (Contract 1)	Change in volume of armor and toe stone	Placement accuracy and difficulty may result in some increase in rock volume, Increase in volume should be minor.	LIKELY	Marginal	2
	C	observed in wall man of several fill	No major increases in sand volume are expected as this alternative is likely the most accurately modeled alternative. PDT agreed that it is unlikely that there will be any appreciable change in sand volume.	Unlikely	Nealigible	0
2-2	סממכון אסמוואוווופוו (כסווומכן ב)	Crange III volante di sana fili				
Q-3	Item Name			Very Unlikely	Negligible	0
Q-4	Item Name			Very Unlikely	Negligible	0
	Item Name			Very Unlikely	Negligible	0
	Item Name			Very Unlikely	Negligible	0
	Item Name			Very Unlikely	Negligible	0
	Item Name	,		Very Unlikely	Negligible	0
	Item Name			Very Unlikely	Negligible	0
	Item Name			Very Unlikely	Negligible	0
	Item Name			Very Unlikely	Negligible	0
	Remaining Construction Items			Very Unlikely	Negligible	0
	Planning. Engineering. & Design Not Applicable	Not Applicable		Very Unlikely	Negligible	0
	Construction Management	Not Applicable		Very Unlikely	Negligible	0

Fabricatio	Fabrication & Project Installed Equipment		-	_	
FI-1	Spur Jetty (Contract 1)	Not Applicable	Very Unlikely	Negligible	0
FI-2	Beach Nourishment (Contract 2) Not Applicable	Not Applicable	Very Unikely	Negligible	0
FI-3	Item Name		Very Unlikely	Negligible	0
FI-4	Item Name		Very Unitkely	Negligible	0
FI-5	Item Name		Very Unlikely	Negligible	0
FI-6	Item Name		Very Unlikely	Negligible	0
FI-7	Item Name		Very Unlikely	Negligible	0
FI-8	Item Name		Very Unlikely	Negligible	0
E _r	Item Name		Very Unlikely	Negligible	0
16 문	Item Name		Very Unlikely	Negligible	0
FI-11	Item Name		Very Unlikely	Negligible	0
FI-12	Remaining Construction Items		Very Unlikely	Negligible	0
FI-13	Planning, Engineering, & Design Not Applicable	Not Applicable	Very Unlikely	Negligible	0
FI-14	Construction Management	Not Applicable	Very Unlikely	Negligible	0

			Quotes were based on rock specifications, but specific sources must be			
	Spring letty (Contract 1)	Palability of minks and transmort of rock	approved based on hardness, etc. It's unlikely that there would be a problem finding acceptable stone in Maine, but this could have a small impact on pricing	Unikely	Marginal	-
		Trenability of quotes and transport of focs.	promig.			
CE-2	Beach Nourishment (Contract 2) None.		Cost estimate is based on reliable quotes. Project area is very accessible.	Very Unlikely	Negligible	0
CE-3	Item Name			Very Unlikely	Negligible	0
	Item Name			Very Unlikely	Negligible	0
	Tem Name			Very Unlikely	Negligible	0
	Item Name			Very Unlikely	Negligible	0
	Item Name			Very Unlikely	Negligible	0
	Item Name			Very Unlikely	Negligible	0
	Item Name			Very Unlikely	Negligible	0
	Same Same			Very Unlikely	Negligible	0
	Item Name			Very Unlikely	Negligible	0
	Remaining Construction Items			Very Unlikely	Negligible	0
T						c
CE-13	Planning, Engineering, & Design Not Applicable	Not Applicable		Very Unlikely	Negligible	
CE-14	Construction Management	Not Applicable		Very Unlikely	Negligible	0

External P	External Project Risks					
EX-1	Spur Jetty (Contract 1)	Affect of adverse wealther on project.	Adverse weather could delay project. Reduced production rates have been factored into the cost estimate so it is unlikely that there would be additional delay.	Unlikely	Marginal	-
FX.2	Reach Noirishment (Contract 2)	Adverse weather could impact placement of sand and cause loss of sand	PDT agreed that there is the potential for loss of sand, but expected losses should be minor as the spur, which will be constructed first, reduces reflected	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
		ממונונו לא ססופג ממנסנונ.	ware energy.		Margina	7
EX-3	Item Name			Very Unlikely	Negligible	0
EX-4	Item Name			Very Unlikely	Negligible	0
EX-5	Item Name			Very Unlikely	N edioin edioin	C
я 9-	tem Name			Ven Halikalv		
2 >	tem Name			A CONTRACTOR OF THE CONTRACTOR		
1-4-1				Very Original States	and	
EX-8	Item Name			Very Unlikely	Negligible	
EX-9	Item Name			Very Unlikely	Negligible	0
E-18	Item Name			Very Unlikely	Negligible	0
- X	tem Name			Vent Inlikely	okisilooN	c
	ומווו			Valy Clinkary	שמולוולוש	
EX-12	Remaining Construction Items			Very Unlikely	Negligible	0
EX-13	Planning, Engineering, & Design Not Applicable	Not Applicable		Very Unlikely	Negligible	0
			Adverse weather could delay project. Reduced production rates have been factored into the cost estimate so it is unlikely that there would be additional			
EX-14	Construction Management	Affect of adverse weather on project.	delay.	Unlikely	Marginal	-

"Saco River and Camp Ellis Beach, Shore Damage Mitigation Project" - PROJECT < \$40M Project Development Stage: Feasibility
Abbreviated Risk Analysis

	Construction Management		-	2	1	'	1	1	~	
Selected Work Breakdown Structure Items	idnning, Engineering, g Besign	~		1	'	•	1	•	,	
	Remaining Construction lea	1	1	1	1	-	1			
	arien rigil	1	ı	ı	1	•		1	1	
	anien mail	ı	1	1	•	•	1	1	1	
	Arien Name	ı	ı	ı	ı	•	1	ı	ı	
	Arien Name	1	1	ı	•	ı	ı	1	1	
	Arien Walle	1		1	•	1	1	1	•	
	Answer Manager 1	•	1	•	1	•	1	1	•	
	^{ƏLU} EN W	•	1	•	1	1	'	•	•	
	^{əwe} N wəy	•	1	1	•	'	'	'	•	
	Arnew Walle	•	1	1	1	•	•	1	ı	
	Beach Nourishment	•	2	2	-		1	1	2	
	Spur Jetty (Contract	-	1	ro	-	2	1	-	-	
		Project Scope	Acquisition Strategy	Construction Complexity	Volatile Commodities	Quantities	Fabrication & Project Installed Equipment	Cost Estimating Method	External Project Risks	
			Tγpical Risk El €ιγ eπts							

RECOMMENDED PLAN COST ESTIMATES

Saco Camp Ellis - Corrected Estimate 7-20-11

Title Page

This is the estimate for the Recommended Alt 6 Plan without project markups for escalation and contingency. This is a shore damage mitigation project. Construct new stone spur groin approximately 750' long to include a stone mattress foundation. Reinforce the existing Jetty to include stone mattress foundation. The spur groin and Jetty reinforcement will be constructed in 5' to 10' depth of water depending on the status of tides.

Assumptions Made:

-for all stone, used 1.4 conversion factor CY to Tons

-based on a survey conducted and vendor quotes, the location of source of stone materials is within 20 miles (Shaw Brothers has numerous quarries in the area)
-all stone materials will be delivered to and loaded at dock in Portland Maine, loaded on barges, then towed to the project site

-larger stone material will be placed by a crane or large excavator mounted on a spud barge

MCACES MII estimating program was used to development the estimate. The 2011 Davis Bacon Labor Rates for York Maine were used for labor only line items. Means estimating guide and vendor quotes were used as a backup references for developing user defined line items. The prime contractor markups consist of 10% FOOH, 7% HOOH, 12% profit and 2% bond. Because this project work site abuts the open sea the work productivity factor is set at 85% for marine/over water construction. For all other contract items the productivity is set at 95% in consideration of population density of the areas adjacent to project site.

Estimated by Mike Remy
Designed by CENAE
Prepared by Mike Remy
Preparation Date 7/18/2011
Effective Date of Pricing 9/28/2013

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E-21

Estimated Construction Time 365 Days

Saco Camp Ellis - Corrected Estimate 7-20-11

Description	Quantity	UOM	JOOH	НООН	Profit	Bond	ContractCost
Detailed Estimate			314,811	242,404	444,639	82,999	9,413,013
Mobilization		EA	17,573	13,531	24,820	4,633	236,282
(Note: Mobilization from assumed distance of 50 miles. Mobilize equipment and small tools from home office to Saco Maine.							
tool storage boxes and enclosed by temporary fencing. Assume 6 pieces of equipment, dozer, loader, backhoe, flatbed trailed boxes and enclosed by temporary fencing.	er, dump tru	ck and p	ickup. This	folder also	includes o	osts to m	ob and demob
spud barge and work barges.) MIL X-TRKDVRHV Outside Truck Drivers, Heavy	80.0	HD	124	96	176	33	1,672
MIL X-TRKDVRLT Outside Truck Drivers, Fleavy MIL X-TRKDVRLT Outside Truck Drivers, Light	80.0		107	83	152	28	1,443
MIL X-EQOPRLT Outside Equip. Operators, Light	40.0		231	178	326	61	3,108
MIL X-EQOPRMED Outside Equip. Operators, Medium	40.0		231	178	327	61	3,109
MIL X-CARPNTER Outside Carpenters	80.0	HR	132	102	186	35	1,775
MIL X-ELECTRN Outside Electricians	40.0	HR	197	152	278	52	2,648
MIL X-LABORER Outside Laborers, (Semi-Skilled)	160.0		203	156	287	53	2,728
(Note: assume two laborers two weeks for various tasks associated with preparing to move equipment to work site and set up							
RSM 015213400100 User defined for contractor yard property rental	24.0		1,200	924	1,695	316	16,135
MIL X-EQOPRHVY Outside Equip. Operators, Heavy	40.0		231	178	327	61	3,110
RSM 015113800430 Temporary Power, for temp lighting only, 11.8 KWH/month, average RSM 015213200350 Office Trailer, furnished, rent per month, 32' x 8', excl. hookups	1,000.0	MO	165 463	127 357	233 654	44 122	2,219
(Note: two each)	24.0	MO	403	337	004	122	6,228
RSM 015213201350 Storage Boxes, rent per month, 40' x 8'	24.0	MO	222	171	314	59	2,985
AF 015205001400 Toilet, portable, chemical, rent per month	48.0		404	311	571	107	5,432
(Note: two each for 24 months/48 months)				• • • • • • • • • • • • • • • • • • • •	٠, ١	,	0, .02
ÀF 015602500100 Temporary Fencing, chain link, 6' high, 11 ga	800.0	LF	276	213	390	73	3,711
AF 015807000010 Project Signs, sign, Hi-intensity reflectorized, buy, excl. posts	200.0	SF	327	252	462	86	4,397
GEN T45Z7120 TRUCK TRAILER, FLATBED, 40 TON (36.3 MT), 48' (14.6 M) LENGTH, 2 AXLE (ADD TOWING TRUCK)	40.0		26	20	37	7	354
EP T50XX025 TRUCK, HIGHWAY, 30,000 LBS GVW, 2 AXLE, 4X4 (CHASSIS ONLY-ADD OPTIONS)	40.0		103	79	146	27	1,387
MAP T50XX002 TRUCK, HIGHWAY, CONVENTIONAL, 3/4 TON PICKUP, 4X2	80.0		100	.77	141	26	1,345
EP L40KM003 LOADER, FRONT END, WHEEL, 2.50 CY BUCKET, ARTICULATED, 4X4	40.0		197	152	279	52	2,651
RSM 061333520300 User defined for mobilization of spud barge, including tug and crew	150.0 50.0		11,053	8,511	15,611	2,914 416	148,614
RSM 061333520300 User defined for mobilization of local work barges, including tug and crew Materials and Land Transportation	48.300.0		1,579 197,952	1,216 152,423	2,230 279,587		21,231 2,661,669
(Note: Costs to puchase and transport all stone materials. Based on a survey conducted and vendor quotes, it is assumed that				a materiale	is within 2	0 2, 19 0 1 miles (9	
has access to numerous quarries in the area).)	it the location)	iicc oi stoin	c materials	13 WILLIIII Z	o miles (C	naw brothers
Purchase Materials/Stone	48,300.0	TON	132,580	102.087	187,256	34.954	1,782,677
(Note: Cost for stone materials only as per ton at quarry cost. Does not include cost for mattress stone.)	,		,,,,,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,	,	.,,
RSM 023704500100 Under Layer/Core Stone	11,760.0	TON	29,400	22,638	41,525	7,751	395,314
RSM 023704500100 Armor Stone	30,100.0		90,300	69,531	127,540	23,807	1,214,178
MIL 027202001510 Toe Stone	6,440.0		12,880	9,918	18,192	3,396	173,185
Loading Trucks and Transportation To Docks	48,300.0		65,372	50,336	92,331		878,992
(Note: Costs to load stone into trucks at quarry and transport to Portland docks. Assume 20 mile haul from quarry to dock. Lo							
Loading Crew (Note: Load (57,680t/1.4) 41,200 cy of stone .5 to 13 tons per stone at quarry. Production rate of 36 cy per hour)	958.3	HK	33,258	25,608	46,973	8,768	447,184
MIL X-LABORER Outside Laborers, (Semi-Skilled)	1,916.7	HP	3,481	2,681	4,917	918	46,809
(Note: Assumed Davis Bacon Laborers: Group 3: General Laborer (for general traffic control))	1,310.7	1111	3,401	2,001	4,317	310	40,003
MIL X-EQOPRHVY Outside Equip. Operators, Heavy (for loader)	958.3	HR	1,901	1,464	2,686	501	25,567
(Note: Crane operatorAssumed Davis Bacon Power Equip. Operators Group 1)	000.0		.,	.,	_,000	. .	_0,007
ÈP L40KM003 LOADER, FRONT END, WHEEL, 3.00 CY BUCKET, ARTICULATED, 4X4	958.3	HR	4,724	3,638	6,673	1,246	63,524
EP C75PB002 CRANES, HYDRAULIC, SELF-PROPELLED, ROUGH TERRAIN, 20 TON, 64.1' BOOM, 4X4X4	1,916.7		19,692	15,163	27,812	5,192	264,775
MIL X-EQOPRHVY Outside Equip. Operators, Heavy (for crane)	1,916.7	HR	3,459	2,663	4,885	912	46,509
(Note: Assumed Davis Bacon Power Equip. Operators Group 1)							
Hauling Crew	958.3	HR	32,114	24,728	45,358	8,467	431,809

Saco Camp Ellis - Corrected Estimate 7-20-11

Description (Note: Assume 20 mile on way haul. Use 1.5 hours per round trip. Haul Q = 48,300 T. Truck Cap =15T Trk rate = 15/1.5	Quantity I		HOOH	Profit		ContractCost
Therefore need 5 Trks. Time == loading time = 938 HRS)) = 10 1/1111. LO	ading rate at Qua	arry – 50 C	1/111 🗶 1.4	1701 - 30	1/1111
MIL X-TRKDVRHV Outside Truck Drivers, Heavy	4,791.7 F		5,735	10,519	1,963	100,138
(Note: Assumed Davis Bacon Truck Drivers: Group 6 Assume cycle 1.5 hr round trip per truck 12 cy truck load. Haul 41,2						
GEN T40Z6860 TRUCK OPTION, DUMP BODY, REAR, 16-23.5 CY (12.2-18 M3) (ADD 45,000 LB (20,412 KG) GVW	4,791.7 F	HR 1,858	1,431	2,625	490	24,989
TRUCK)	4 701 7 1	ID 20.270	15 001	20.702	F 272	274.000
GEN T50Z7420 TRUCK, HIGHWAY, 45,000 LB (20,412 KG) GVW, 6X4, 3 AXLE (ADD ACCESSORIES)	4,791.7 F	,	15,691	28,782	5,373	274,000
MIL X-LABORER Outside Laborers, (Semi-Skilled) (Note: Assumed Davis Bacon Laborers: Group 3: General Laborer (for general traffic control) Assume 3 trucks running per	1,916.7 F		1,872	3,433	641	32,682
Marine Construction - Spur Groin & Reinforce Jetty	48.300.0 E		65,533	120,206	22,439	6,324,418
(Note: Assume material production rate of 150 tons per day average, or 322 days of work on site. Place 48,300 tons of breat					22,400	0,024,410
Loading Barges	958.3 T		17,296	31,726	5.922	302,028
(Note: All stone materials, including mattress stone. Loading time = load and haul time = 968 hrs.)		,	,	,	-,	,
MIL X-LABORER Outside Laborers, (Semi-Skilled)	958.3 F	HR 1,358	1,046	1,918	358	18,263
MIL X-EQOPRHVY Outside Equip. Operators, Heavy (for loader)	958.3 F	HR 2,125	1,636	3,002	560	28,575
(Note: Operate CraneAssumed Davis Bacon Power Equip. Operators Group 1)						
EP C75GV025 CRANES, HYDRAULIC, SELF-PROPELLED, ROUGH TERRAIN, 70 TON, 110' BOOM 4X4	958.3 F		14,614	26,806	5,004	255,190
(Note: equipment and labor cost should it become necessary to load barges with crane vs. driving onto and dumping. Assu	ume .5 hours loa	ading time averag	ge for 12 cy	truck deliv	ery. Ass	ume 10 cy or
14 tons of stone delivered per truck. 57,680 tons/14t= 4,120 trips x .33 hours per load = 1,373 hours.)	F7 000 0 7	TON 00 040	40.007	00.404	40.540	040.007
Barging Materials to Work Site	57,680.0 T		48,237	88,481	16,516	842,337
(Note: Barge the total of all stone materials including mattress stone. Crew hours input for one operator a deckhand and a n EP M10XX006 MARINE EQUIPMENT, FLAT-DECK CARGO BARGE, 120' X 45' X 7', 400 TON	maintenance en 1.536.0 F		6.142	11,266	2.103	107.250
(Note: 57,680 tons of stone required Assume 400 ton barge, hauls 300 tons per load x 192 trips x 8 hours per trip 40 mile	.,	,	- ,		,	. ,
deckhand/man per hour associated with barging.)	round trip (inch	dues loading and	unloading	uirie) – 1,0	Journal of the state of the sta	Assume i
EP M10XX033 MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT	1,536.0 F	HR 54,669	42,095	77.215	14,413	735,086
(Note: for misc movement of spud barge and delivery barges during breakwater construction, assum moving the spud barge				,=	,	,
Surveying	1.0 E		0	0	0	40,595
FOP FC-SURYR Surveyors	576.0 H	HR 0	0	0	0	30,914
(Note: Assume two men three days per month for 12 months of the contract period to determine existing elevations and other	her surveying ta	asks. Use costboo	ok line item	rate, there	is no Mai	ne Davis
Bacon rate for surveyors.)						
HTW 029110106124 Boat rental, with motor	24.0 [DAY 0	0	0	0	9,681
(Note: Assume surveyors can run the boat. Two days per month for 12 months. Includes rental, fuel and transportation.)	00 100 0 6	2)/	^	^	•	0.000.400
Stone Foundation Mats	20,100.0 S		0	0	0	3,092,468
(Note: 20,100 sy of stone filled foundation mats are required. 6,700 tons of 3"-6" stone to fill mats is required. Loading an included in all stone transportation and barging section.)	ia i ransportatio	on for mattress sto	one is not ir	iciuaea in t	inis sectioi	1. It IS
MIL 023704500600 Mesh mats 5'x30', stone filled, 12" deep- includes stone material, steel mesh mats, fill mats and	20,100.0 \$	SY 0	0	0	0	3,092,468
placement	20,100.0	0	U	U	U	3,032,400
(Note: unit cost based on historical data for 1' thick stone filled mesh mats, reference bidders on Seabrook Project Includes	s cost of 5'x30' i	mesh mats filled v	with 3"-6" s	tone and p	laced on s	ite. Abstract
from 2007 on New Jersey shoreline indicates constract bids averaging approx \$150 per sy installed. SF price of mattress						
mattress and stone fill.)		, ,	•			
Placing Stone Materials for Spur and Jetty	48,300.0 E	EA 0	0	0	0	2,046,990
(Note: 48,300 tons of stone material, does not include stone mattress placement)						
Under Layer /Core Stone	11,760.0 1		0	0	0	134,236
Placement Crew	470.4 H	HR 0	0	0	0	134,236
(Note: Place Rate is 300 Ton/ 8 hr shift or 25 T/HR)	470.4.1	ID 0	^	^	^	^
NON XX0XX510 BARGE MOUNTED CRANE, 100 TON, 150' BOOM, FOR LIFTING MIL B-EQOPRCRN Equip. Operators, Heavy	470.4 H 470.4 H		0	0	0 0	0 55,454
(Note: Assumed Davis Bacon Power Equip. Operators Group 1)	4/U.4 F	ii	U	U	U	33,434
MIL B-EQOPROIL Equip. Operators, Oilers / Grade Checker	470.4 H	HR 0	0	0	0	41,250
(Note: A laborer or an Oiler can be a grade checker, Group 6)	770.7		U	U	0	71,200
(a second and a second a second and a second a second and a second a second and a second and a second and a						

Saco Camp Ellis - Corrected Estimate 7-20-11

Description MIL X-LABORER Outside Laborers, (Semi-Skilled)	Quantity 470.4		JOOH 0	НООН	Profit 0	Bond 0	ContractCost 37,532
(Note: Assumed Davis Bacon Laborers: Group 3: General Laborer)							,
Armor Stone	30,100.0	TON	0	0	0	0	687,161
Placement Crew	2,408.0	HR	0	0	0	0	687,161
(Note: Place Rate is 150 Ton/ 8 hr shift or 12.5 T/HR)							
NON XX0XX510 BARGE MOUNTED CRANE, 100 TON, 150' BOOM, FOR LIFTING	2,408.0		0	0	0	0	0
MIL B-EQOPRCRN Equip. Operators, Heavy	2,408.0	HR	0	0	0	0	283,870
(Note: Assumed Davis Bacon Power Equip. Operators Group 1)				_			
MIL B-EQOPROIL Equip. Operators, Oilers / Grade Checker	2,408.0	HR	0	0	0	0	211,160
(Note: A laborer or an Oiler can be a grade checker, Group 6)	0.400.0		0	0	^	•	100 100
MIL X-LABORER Outside Laborers, (Semi-Skilled)	2,408.0	HK	0	0	0	0	192,130
(Note: Assumed Davis Bacon Laborers: Group 3: General Laborer)	6 440 0	TON	0	0	^	0	72 510
Toe Stone Placement Crew	6,440.0 257.6		0	0	0	0	73,510 73,510
(Note: Place Rate is 200 Ton/ 8 hr shift or 25 T/HR)	257.0	пп	U	U	U	U	73,510
NON XX0XX510 BARGE MOUNTED CRANE, 100 TON, 150' BOOM, FOR LIFTING	257.6	HD	0	0	0	0	0
MIL B-EQOPRCRN Equip. Operators, Heavy	257.6		0	0	0	0	30,368
(Note: Assumed Davis Bacon Power Equip. Operators Group 1)	257.0	1111	Ü	Ū	U	U	50,500
MIL B-EQOPROIL Equip. Operators, Oilers / Grade Checker	257.6	HR	0	0	0	0	22,589
(Note: A laborer or an Oiler can be a grade checker, Group 6)	207.0		ŭ	ŭ	·	· ·	22,000
MIL X-LABORER Outside Laborers, (Semi-Skilled)	257.6	HR	0	0	0	0	20,553
(Note: Assumed Davis Bacon Laborers: Group 3: General Laborer)			-	_	•	_	
Additional Placement Costs	3,135.0	EA	0	0	0	0	1,152,083
(Note: Time = sum of under (470) plus Armor (2408) = toe stone (257) = 3135 hours)	·						, ,
ÈP M10XX008 MARINE EQÙIPMENT, FLAT-DECK CARGO BARGE, 150' X 45' X 9', 1,100 TON	3,135.0	HR	0	0	0	0	67,876
(Note: additional barge at work site for misc. use for sorting materials and loading and unloading materials and equipment.			otal hours re	equired for	constructio		
EP M10MZ011 MARINE EQUIPMENT, BOATS & LAUNCHES, TRUCKABLE WORKBOAT W/PILOT HOUSE & PUSH	3,135.0	HR	0	0	0	0	229,711
KNEES, INBOARD, 25.25' X 10' X 3.5'							
MIL X-LABORER Outside Laborers, (Semi-Skilled)	3,135.0		0	0	0	0	62,925
HNC 313219161650 Drainage geotextiles, non-woven polypropylene, 120 mils thick	9,380.0	SY	0	0	0	0	141,961
(Note: plans indicate 1' thick stone mattress required.)			_	_	_	_	
EP T15KM007 TRACTOR, CRAWLER (DOZER), 225 HP, POWERSHIFT, W/6.80 CY STRAIGHT TILL BLADE	1,567.5	HR	0	0	0	0	428,454
(Note: Assume 8 hours per day 20 days per month for 6 months = 480 hours)	4 505 5		•	•		•	40.070
MIL X-EQOPRHVY Outside Equip. Operators, Heavy (for loader)	1,567.5	HR	0	0	0	0	48,870
(Note: operate dozer on barge deck to push rock of barge)	200.0	LID	0	0	0	0	170 000
EP M10XX033 MARINE EQUIPMENT, TUGS, 60 FT LENGTH, 21 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT	360.0		•	•	U	U	172,286
(Note: for misc movement of spud barge and delivery barges during breakwater construction. assum moving the spud barge EP M10MZ005 MARINE EQUIPMENT, WORK BARGE, SECTIONAL, MEDIUM DUTY', W/ONE BUCKHEAD AND	3.135.0		0 (12) 10 (12)	0	0	0	0
SPUDS, 40' X 12' X 4', 36 TON	3, 133.0	ш	U	U	U	U	U
(Note: Assume spud barge required to sit over or adjacent to structure to assist and locate armor stone. Include cost for crain	ne on harde	as san	arata lina ita	m)			
Demobilization	1.0		14,178	10,917	20,026	3,738	190,644
(Note: demobilize equipments, clean lay down areas, remove temp fencing, etc.)	1.0		14,170	10,017	20,020	0,700	100,011
MIL X-CARPNTER Outside Carpenters	16.0	HR	26	20	37	7	355
MIL X-ELECTRN Outside Electricians	24.0	HR	118	91	167	31	1,589
MIL X-EQOPRHVY Outside Equip. Operators, Heavy	40.0	HR	76	59	108	20	1,027
MIL X-EQOPRMED Outside Equip. Operators, Medium	80.0	HR	140	108	197	37	1,879
MIL X-LABORER Outside Laborers, (Semi-Skilled)	240.0		305	235	431	80	4,105
(Note: assume three laborers two weeks for various tasks associated with preparing to move equipment back to home office	and general	cleanu	p and packi			site conti	
MIL X-TRKDVRHV Outside Truck Drivers, Heavy	40.0		62	48	88	16	836
MIL X-TRKDVRLT Outside Truck Drivers, Light	40.0	HR	54	41	76	14	722

Saco Camp Ellis - Corrected Estimate 7-20-11

Description	Quantity UOM	JOOH	НООН	Profit	Bond	ContractCost
HNC 017413200300 Cleaning Up, site debris clean up and removal	4.0 ACR	244	188	344	64	3,277
AF 015602500100 Temporary Fencing, chain link, 6' high, 11 ga	800.0 LF	0	0	0	0	0
(Note: labor only cost to dismantle chain link fencing)						
AF 015807000010 Project Signs, sign, Hi-intensity reflectorized, buy, excl. posts	200.0 SF	32	24	45	8	425
(Note: Used for labor to remove signs and posts during demobilization)						
RSM 015213201350 Storage Boxes, rent per month, 40' x 8'	2.0 MO	21	16	30	6	283
(Note: Cost to remove and return rental storage box at end of project)						
RSM 015213200350 Office Trailer, furnished, rent per month, 32' x 8', excl. hookups	2.0 MO	42	32	59	11	566
(Note: Cost to remove and return office trailer at end of project)						
GEN T45Z7120 TRUCK TRAILER, FLATBED, 40 TON (36.3 MT), 48' (14.6 M) LENGTH, 2 AXLE (ADD TOWING TRUCK)	40.0 HR	26	20	37	7	354
EP T50XX025 TRUCK, HIGHWAY, 30,000 LBS GVW, 2 AXLE, 4X4 (CHASSIS ONLY-ADD OPTIONS)	40.0 HR	103	79	146	27	1,387
MAP T50XX002 TRUCK, HIGHWAY, CONVENTIONAL, 3/4 TON PICKUP, 4X2	80.0 HR	100	77	141	26	1,345
EP L40KM003 LOADER, FRONT END, WHEEL, 2.50 CY BUCKET, ARTICULATED, 4X4	40.0 HR	197	152	279	52	2,651
RSM 061333520300 User defined for demobilization of spud barge, including tug and crew	150.0 MI	11,053	8,511	15,611	2,914	148,614
RSM 061333520300 User defined for demobilization of local work barges, including tug and crew	50.0 MI	1,579	1,216	2,230	416	21,231

Title Page

Print Date Thu 21 July 2011 Eff. Date 9/28/2014

U.S. Army Corps of Engineers Project Saco 6: Saco Chris Copy CE Alt 6 - 364,000 cy Beach Nourishment-Recommended Plan

Feasibility Estimate

This is the estimate for the Recommended Plan to purchase, deliver and spread 364,000 CY of upland sand on the beach at Camp Ellis in Saco, Maine. No general contractor markups are included. Productivity is set at 90%, Escalation at 6% (2% per year for three years to mid point of construction) AND CONTINGENCY OF 15% BASED ON ARA. THE MATERIAL SUPPLIER IS CONSIDERED TO BE THE PRIME CONTRACTOR FOR THIS EFFORT AND THE QUOTATION RECEIVED INCLUDES ALL MARKUP. FOR THE DELIVERED SAND. THE QUOTED COST ARE \$5.75 FOR THE SAND AND \$6.00 FOR DELIVERY WITHIN 15 MILES. \$12.00 PER YARD IS USED IN THIS ESTIMATE.

Estimated by Mike Remy

Prepared by Mike Remy Designed by CENAE

Preparation Date 3/28/2011

Effective Date of Pricing 9/28/2014

Estimated Construction Time 365 Days

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Estimate by W. Brassfield revised by C. Lindsay

Currency in US dollars

TRACES MII Version 4.1

Labor ID: NLS2010 EQ ID: EP09R01

Print Date Thu 21 July 2011 Eff. Date 9/28/2014 Feasibility Estimate

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Currency in US dollars

Labor ID: NLS2010 EQ ID: EP09R01

Proje Be Be Be Be Be	Project Owner Summary	Beach Nourishment Alt 6	Sand-Transport and Spead on Beach- 364,000 cy	Project Indirect Summary	Beach Nourishment Alt 6	Sand-Transport and Spead on Beach- 364,000 cy	Detailed Estimate3	Beach Nourishment Alt 6	Sand-Transport and Spead on Beach- 364,000 cy
	Project Owner	Beach Noi	Sand-Tra	Project Indirec	Beach Nor	Sand-Tra	Detailed Estin	Beach Not	

U.S. Army Corps of Engineers Project Saco 6: Saco Chris Copy CE Alt 6 - 364,000 cy Beach Nourishment-Recommended Plan	
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Time 14:46:12

Project Owner Summary Page 1

U.S. Army Corps of Engineers Project Saco 6: Saco Chris Copy CE Alt 6 - 364,000 cy Beach Nourishment-Recommended Plan	Feasibility Estimate
Print Date Thu 21 July 2011 Eff. Date 9/28/2014	

ProjectCost	5,545,768	5,545,768	5,545,768
Escalation Pr	272,966	272,966	272,966
ContractCost E	4,549,440	4,549,440	4,549,440
MON		000.0 CY	364,000.0 CY
Quantity		364,0	364,0
Description	Project Owner Summary	Beach Nourishment Alt 6	Sand-Transport and Spead on Beach- 364,000 cy

•					
Time 14:46:12	Project Indirect Summary Page 2	Bond ContractCost	4,549,440	12.50 4,549,440	12.50 4,549,440
	lirect Sur	Bond	3,558	3,558	3,558
	roject Inc	Profit	16,171	4,710 16,171 3,558	16,171
	<u>α</u>	HOOH	4,710	4,710	4,710
		HOOL	10,271	10,271	10,271
nmended Plan		CostToPrime JOOH HOOH Profit	146,730 10,271 4,710 16,171 3,558	0.40 146,730	0.40 146,730 10,271 4,710 16,171 3,558
nment-Recon		UOM Quantity		364,000.0	364,000.0
ers th Nourisl		MOO		Շ	Շ
U.S. Army Corps of Engineers Project Saco 6: Saco Chris Copy CE Alt 6 - 364,000 cy Beach Nourishment-Recommended Plan	Feasibility Estimate	Description			each- 364,000 cy
Print Date Thu 21 July 2011 Eff. Date 9/28/2014			Project Indirect Summary	Beach Nourishment Alt 6	Sand-Transport and Spead on Beach- 364,000 cy

(2)

U.S. Army Corps of Engineers Project Saco 6: Saco Chris Copy CE Alt 6 - 364,000 cy Beach Nourishment-Recommended Plan	Feasibility Estimate
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Print Date Thu 21 July 2011 Eff. Date 9/28/2014

Time 14:46:12

Description	Quantity	WON	-aborCost	EQCost	MatiCost	BareCost	DirectMU	Quantity UOM LaborCost EQCost MatlCost BareCost DirectMU CostToPrime
Detailed Estimate			24,437	102,735	0	0 4,495,172	19,558	146,730
Beach Nourishment Alt 6 (Note: This is cost out for 364,000 cy for beach nourishment.)	364,000.0 CY	Շ	0.07 24,437	0.28 102,735	00.0 0	12.35 4,495,172	0.05 19,558	0.40 146,730
8.00 0.07 0.28 0.00 Sand-Transport and Spead on Beach- 364,000 cy 364,000 CY 24,437 102,735 0 4, (Note: User created line item-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)	364,000.0 CY ks. Assume bank	CY ink run s	0.07 24,437 and for lower	0.07 0.28 24,437 102,735 I for lower price for Is	0.00 0 rrge quantit	2.00 12.35 0 4,495,172 antity.)	0.05 19,558	0.40 146,730
AF 023154904100 Sand FOB Job from Shaw Brothersmile one way haul, includes loading 364,000.0 LCY 0 0 0 4,368,000 0 0 4,368,000 0 0 0 4,368,000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	364,000.0 LCY TUAL COST OF SA	-CY IF SAND Ime cont	0.00 0 IS \$5.75/CY A ractor. \$12.00	0.00 0 7. AND ACT	0.00 0 UAL COST for this est	0.00 12.00 0 4,368,000 COST OF HAUL II	0.00 0 S \$6.00. THI	0.00 0 S INCLUDES
MIL X-LABORER Outside Laborers, (Semi-Skilled) (Note: One laborer to assist in sand speading operations on beach.)	2,426.7 HR	뚜	10.07 24,437	0.00	0.00	10.07 24,437	3.36 8,143	13.43 32,580
EP T15JD006 TRACTOR, CRAWLER (DOZER), 74 HP, LOW GROUND PRESSURE, W/2.15 CY ANGLE BLADE (ADD ATTACHMENTS)	2,426.7 HR	华	0.00	42.34 102,735	0.00	42.34 102,735	4.70 11,415	<i>47.04</i> 114,150

Time 10:14:32

Feasibility Estimate

This is the estimate for the Recommended Plan to purchase, deliver and spread 116,350 CY of upland sand on the beach at Camp Ellis in Saco, Maine. No general contractor markups are included. Productivity is set at 90%, Escalation at 6% (2% per year for three years to mid point of construction) AND CONTINGENCY OF 15% BASED ON ARA. THE MATERIAL SUPPLIER IS CONSIDERED TO BE THE PRIME CONTRACTOR FOR THIS EFFORT AND THE QUOTATION RECEIVED INCLUDES ALL MARKUP. FOR THE DELIVERED SAND. THE QUOTED COST ARE \$5.75 FOR THE SAND AND \$6.00 FOR DELIVERY WITHIN 15 MILES. \$12.00 PER YARD IS USED IN THIS ESTIMATE.

Estimated by Mike Remy

Designed by CENAE

Prepared by Mike Remy

Preparation Date 3/28/2011

Effective Date of Pricing 9/28/2014

Estimated Construction Time 365 Days

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Estimate by W. Brassfield revised by C. Lindsay

TRACES MII Version 4.1

Time 10:14:32

U.S. Army Corps of Engineers Project Saco 6: Saco CE Alt 6 - 116,350 cy Beach Nourishment-Recommended Plan

Table of Contents

Feasibility Estimate

Print Date Mon 25 July 2011 Eff. Date 9/28/2014

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Currency in US dollars

TRACES MII Version 4.1

TRACES MII Version 4.1
Currency in US dollars
Labor ID: NLS2010 EQ ID: EP09R01

Time 10:14:32	Project Owner Summary Page 1	Quantity UOM ContractCost Escalation ProjectCost 1,454,196 87,252 1,772,665 116,350.0 CY 1,454,196 87,252 1,772,665 116,350.0 CY 1,454,196 87,252 1,772,665
ded Plan		Quantity UOM Con 116,350.0 CY 116,350.0 CY
U.S. Army Corps of Engineers Project Saco 6: Saco CE Alt 6 - 116,350 cy Beach Nourishment-Recommended Plan	Feasibility Estimate	Description
Print Date Mon 25 July 2011 Eff. Date 9/28/2014		Project Owner Summary Beach Nourishment Alt 6 Sand-Transport and Spead on Beach- 116,350 cy

Project Indirect Summary

Print Date Mon 25 July 2011 Eff. Date 9/28/2014

Sand-Transport and Spead on Beach- 116,350 cy

Beach Nourishment Alt 6

Description

Project Indirect Summary Page 2

3,283

46,901

Quantity

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3,283

0.40 **46,901**

116,350.0

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0.40 **46,901**

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Time 10:14:32

U.S. Army Corps of Engineers Project Saco 6: Saco CE Alt 6 - 116,350 cy Beach Nourishment-Recommended Plan

Feasibility Estimate

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U.S. Army Corps of Engineers Project Saco 6: Saco CE Alt 6 - 116,350 cy Beach Nourishment-Recommended Plan

Print Date Mon 25 July 2011 Eff. Date 9/28/2014

Feasibility Estimate

4:32

Detailed Estimate Page 3

Description	Quantity		LaborCost	EQCost	MatlCost	BareCost	DirectMU	UOM LaborCost EQCost MatlCost BareCost DirectMU CostToPrime
Detailed Estimate			7,811	32,839	0	0 1,436,850	6,252	46,901
Beach Nourishment Alt 6 (Note: This is cost out for 116.350 cv for beach nourishment.)	116,350.0 CY	ბ	0.07 7,811	0.28 32,839	0.00 0	12.35 1,436,850	0.05 6,252	0.40 46,901
0.07 0.28 0.00 Sand-Transport and Spead on Beach- 116,350 cy (Note: User created line item-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)	116,350.0 CY ks. Assume bank r	CY ank run s	0.07 7,811 and for lower	0.07 0.28 7,811 32,839 or lower price for l	0.00 0 arge quanti	12.35 00 12.35 0 1,436,850 (annity.)	0.05 6,252	0.40 46,901
AF 023154904100 Sand FOB Job from Shaw Brothersmile one way haul, includes loading AF 023154904100 Sand FOB Job from Shaw Brothersmile one way haul, includes loading (Note: Material cost and hauling cost per vendor quote, Shaw Brothers Gorham Maine, July 2011. ACTUAL COST OF SAND IS \$5.75/CY AND ACTUAL COST OF HAUL IS \$6.00. THIS INCLUDES THE SUPPLIER MARKUP. Item is 'unassigned' to avoid duplicate markup since the supplier is assumed to be the prime contractor. \$12.00/cy used for this estimate.)	116,350.0 LCY TUAL COST OF SA ed to be the prime c	LCY OF SAND ime cont	0.00 0 IS \$5.75/C\ ractor. \$12	0.00 0 7. AND ACT 00/cy used	0.00 0 FUAL COST d for this esti	12.00 0 1,396,200 OST OF HAUL Is estimate.)	0.00 0 IS \$6.00. TH	0.00 0 IS INCLUDES
MIL X-LABORER Outside Laborers, (Semi-Skilled) (Note: One laborer to assist in sand speading operations on beach.)	775.7 HR	壬	7,811	0.00	0.00	10.07 7,811	3.36 2,603	<i>13.43</i> 10,414
EP T15JD006 TRACTOR, CRAWLER (DOZER), 74 HP, LOW GROUND PRESSURE, W/2.15 CY ANGLE BLADE (ADD ATTACHMENTS)	775.7 HR	壬	0.00	42.34 32,839	0.00	42.34 32,839	4.70 3,649	47.04 36,487

E-37

Feasibility Estimate

Time 10:09:03

This is the estimate for the Recommended Plan to purchase, deliver and spread 191,750 CY of upland sand on the beach at Camp Ellis in Saco, Maine. No general contractor markups are included. Productivity is set at 90%, Escalation at 6% (2% per year for three years to mid point of construction) AND CONTINGENCY OF 15% BASED ON ARA. THE MATERIAL SUPPLIER IS CONSIDERED TO BE THE PRIME CONTRACTOR FOR THIS EFFORT AND THE QUOTATION RECEIVED INCLUDES ALL MARKUP. FOR THE DELIVERED SAND. THE QUOTATION RECEIVED INCLUDES ALL MARKUP. FOR THE DELIVERED SAND. THE QUOTATION RECEIVED INCLUDES ALL MARKUP. 50 THE DELIVERED SAND IS USED IN THIS ESTIMATE.

Estimated by Mike Remy

Designed by CENAE

Prepared by Mike Remy

Preparation Date 3/28/2011

Effective Date of Pricing 9/28/2014

Estimated Construction Time 365 Days

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Estimate by W. Brassfield revised by C. Lindsay

Currency in US dollars

TRACES MII Version 4.1

U.S. Army Corps of Engineers Project Saco 6: Saco CE Alt 6 - 191.750 cy Beach Nourishment-Recommended Plan

Feasibility Estimate

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Currency in US dollars

Print Date Mon 25 July 2011 Fff Date 9/28/2014	U.S. Army Corps of Engineers Project Saco 6: Saco CE Alt 6 - 191.750 cv Beach Nourishment-Recommended Plan	Pian		Ë	Time 10:09:03
	Feasibility Estimate		Project (Project Owner Summary Page 1	ary Page 1
	Description	Quantity UOM C			ProjectCost
Project Owner Summary Beach Nourishment Alt 6 Sand-Transport and Spead on Beach- 191,750 cy		191,750.0 CY 191,750.0 CY	2,396,580 2,396,580 2,396,580	143,795 143,795 143,795	2,921,431 2,921,431 2,921,431
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Labor ID: NLS2010 EQ ID: EP09R01	Currency in US dollars		TRACES MI	TRACES MII Version 4.1	

Project Indirect Summary Page 2	Bond ContractCost	5,411 2,481 8,519 1,874 2,396,580	12.50 2,396,580	12.50 2,396,580
irect Sur		1,874	1,874	1,874
oject Ind	Profit	8,519	8,519	8,519 1,874
ፚ	HOOH Profit	2,481	5,411 2,481 8,519 1,874	2,481
	HOOL	5,411	5,411	5,411
	Quantity CostToPrime JOOH	77,295	0.40 77,295	0.40 77,295
			CY 191,750.0	CY 191,750.0
	MON		Շ	Շ
Feasibility Estimate				
	Description	Project Indirect Summary	Beach Nourishment Alt 6	Sand-Transport and Spead on Beach- 191,750 cy

U.S. Army Corps of Engineers Project Saco 6: Saco CE Alt 6 - 191.750 cy Beach Nourishment-Recommended Plan

Print Date Mon 25 July 2011 Eff. Date 9/28/2014

Time 10:09:03

U.S. Army Corps of Engineers Project Saco 6: Saco CE Alt 6 - 191.750 cy Beach Nourishment-Recommended Plan

Print Date Mon 25 July 2011 Eff. Date 9/28/2014

Feasibility Estimate

Detailed Estimate Page 3

Description	Quantity	MON	LaborCost	EQCost	MatiCost	Quantity UOM LaborCost EQCost MatiCost BareCost	DirectMU	DirectMU CostToPrime
Detailed Estimate			12,873	54,120	0	2,367,992	10,303	77,295
Beach Nourishment Alt 6 (Note: This is cost out for 191,750 cy for beach nourishment.)	191,750.0 CY	≿	0.07 12,873	0.28 54,120	0.00 0	12.35 2,367,992	0.05 10,303	0.40 77,295
0.07 0.28 0.00 Sand-Transport and Spead on Beach- 191,750 cy (Note: User created line item-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)	191,750.0 CY ucks. Assume bank	C√ ank run s	0.07 12,873 and for lower	0.07 0.28 12,873 54,120 for lower price for l	0.00 0 arge quantit)	00.00 12.35 0 2,367,992 uantity.)	0.05 10,303	0.40 77,295
AF 023154904100 Sand FOB Job from Shaw Brothersmile one way haul, includes loading AF 023154904100 Sand FOB Job from Shaw Brothersmile one way haul, includes loading (Note: Material cost and hauling cost per vendor quote, Shaw Brothers Gorham Maine, July 2011. ACTUAL COST OF SAND IS \$5.75/CY AND ACTUAL COST OF HAUL IS \$6.00. THIS INCLUDES THE SUPPLIER MARKUP. Item is 'unassigned' to avoid duplicate markup since the supplier is assumed to be the prime contractor. \$12.00/cy used for this estimate.)	191,750.0 LCY CTUAL COST OF SA med to be the prime o	LCY oF SAND ime cont	0.00 0 IS \$5.75/CY, ractor. \$12.0	0.00 0.00 0 0 75/CY AND ACTU, \$12.00/cy used for	0.00 0 2 UAL COST C 1 for this estim	2.00 12.00 0 2,301,000 COST OF HAUL IS is estimate.)	0.00 0 S \$6.00. TH	0.00 0 S INCLUDES
MIL X-LABORER Outside Laborers, (Semi-Skilled) (Note: One laborer to assist in sand speading operations on beach.)	1,278.3 HR	壬	10.07 12,873	0.00	0.00	10.07 12,873	3.36 4,290	<i>13.43</i> 17,163
EP T15JD006 TRACTOR, CRAWLER (DOZER), 74 HP, LOW GROUND PRESSURE, W/2.15 CY ANGLE BLADE (ADD ATTACHMENTS)	1,278.3 HR	壬	0.00	42.34 54,12 0	0.00	42.34 54,120	4.70 6,013	47.04 60,133

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Print Date Mon 25 July 2011 Eff. Date 9/28/2014 This is the estimate for the Recommended Plan to purchase, deliver and spread 235,733 CY of upland sand on the beach at Camp Ellis in Saco, Maine. No general contractor markups are included. Productivity is set at 90%, Escalation at 6% (2% per year for three years to mid point of construction) AND CONTINGENCY OF 15% BASED ON ARA. THE MATERIAL SUPPLIER IS CONSIDERED TO BE THE PRIME CONTRACTOR FOR THIS EFFORT AND THE QUOTATION RECEIVED INCLUDES ALL MARKUP. FOR THE DELIVERED SAND. THE QUOTATION RECEIVED INCLUDES ALL MARKUP. FOR THE DELIVERED SAND. THE QUOTATION RECEIVED INCLUDES ALL MARKUP. \$6.00 FOR DELIVERY WITHIN 15 MILES. \$12.00 PER YARD IS USED IN THIS ESTIMATE.

Estimated by Mike Remy Designed by CENAE

Prepared by Mike Remy

Preparation Date 3/28/2011

Preparation Date 3/26/2011

Effective Date of Pricing 9/28/2014

Estimated Construction Time 365 Days

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Estimate by W. Brassfield revised by C. Lindsay

Currency in US dollars

TRACES MII Version 4.1

U.S. Army Corps of Engineers Project Saco 6: Saco CE Alt 6 - 235,733 cy Beach Nourishment-Recommended Plan

Feasibility Estimate

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TRACES MII Version 4.1

Labor ID: NLS2010 EQ ID: EP09R01

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Currency in US dollars

Labor ID: NLS2010 EQ ID: EP09R01

Time 10:04:27	Project Owner Summary Page 1	Quantity UOM ContractCost Escalation ProjectCost	2,946,300 176,778 3,591,540 2,946,300 176,778 3,591,540 2,946,300 176,778 3,591,540
yineers Nourishment-Recommended Plan	ø,	Quantity UOM	235,733.0 CY 235,733.0 CY
U.S. Army Corps of Engineers Project Saco 6: Saco CE Alt 6 - 235,733 cy Beach Nourishment-Recommended Plan	Feasibility Estimate	Description	
Print Date Mon 25 July 2011 Eff. Date 9/28/2014			Project Owner Summary Beach Nourishment Alt 6 Sand-Transport and Spead on Beach- 235,733 cy

Time 10:04:27	Project Indirect Summary Page 2	Bond ContractCost	2,946,300	12.50 2,946,300	12.50 2,946,300
	Jirect Su		2,304	2,304	2,304
	roject Inc	Profit	3,050 10,473	3,050 10,473 2,304	3,050 10,473 2,304
	₫.	HOOH	3,050		3,050
		HOOL	6,652	6,652	6,652
ed Plan		UOM Quantity CostToPrime JOOH HOOH Profit	95,025	0.40 95,025	0.40 95,025
Recommende		Quantity		235,733.0	235,733.0
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U.S. Army Corps of Engineers Project Saco 6: Saco CE Alt 6 - 235,733 cy Beach Nourishment-Recommended Plan	Feasibility Estimate	Description			each- 235,733 cy
Print Date Mon 25 July 2011 Eff. Date 9/28/2014			Project Indirect Summary	Beach Nourishment Alt 6	Sand-Transport and Spead on Beach- 235,733 cy

U.S. Army Corps of Engineers Project Saco 6: Saco CE Alt 6 - 235,733 cy Beach Nourishment-Recommended Plan

Print Date Mon 25 July 2011 Eff. Date 9/28/2014

Feasibility Estimate

Detailed Estimate Page 3

0.40 **95,025** 0.40 **95,025** 0.00 95,025 13.43 21,099 47.04 73,926 CostToPrime AF 023154904100 Sand FOB Job from Shaw Brothersmile one way haul, includes loading 235,733.0 LCY 0 0 0 2,828,796 0 0 (Note: Material cost and hauling cost per vendor quote, Shaw Brothers Gorham Maine, July 2011. ACTUAL COST OF SAND IS \$5.75/CY AND ACTUAL COST OF HAUL IS \$6.00. THIS INCLUDES THE SUPPLIER MARKUP. Item is 'unassigned' to avoid duplicate markup since the supplier is assumed to be the prime contractor. \$12.00/cy used for this estimate.) DirectMU 12,666 12,666 0.05 **12,666** 4.70 7,393 0.00 3.36 5,274 12.35 **2,911,155** 12.00 10.07 15,826 2,911,155 2,911,155 42.34 66,533 BareCost Sand-Transport and Spead on Beach- 235,733 cy 15,826 66,533 0 2, (Note: User created line item-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.) 0.00 0.00 0.00 0.00 0.00 MatlCost EQCost 66,533 0.28 **66,533** 0.28 **66,533** 0.00 0.00 42.34 66,533 0.07 **15,826** 15,826 15,826 0.00 0.00 0.07 10.07 15,826 LaborCost N O O 235,733.0 CY 235,733.0 CY 1,571.6 HR 1,571.6 HR Quantity EP T15JD006 TRACTOR, CRAWLER (DOZER), 74 HP, LOW GROUND PRESSURE, W/2.15 CY ANGLE BLADE (ADD ATTACHMENTS) MIL X-LABORER Outside Laborers, (Semi-Skilled) (Note: One laborer to assist in sand speading operations on beach.) Beach Nourishment Alt 6 (Note: This is cost out for 235,733 cy for beach nourishment.) Description Detailed Estimate

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COST ESTIMATES OF ALTERNATIVE PLANS

Print Date Wed 24 October 2012 Eff. Date 9/28/2014

U.S. Army Corps of Engineers
Project Saco : Saco CE - 712,000 cy Beach Nourishment Estimate
Saco Camp Ellis - Corrected Estimate 7-20-11

Title Page

Saco CE - 712,000 cy Beach Nourishment Estimate
This is an estimate to purchase, deliver and spread 712,000 CY of upland sand on the beach at Camp Ellis in Saco, Maine. No general contractor markups are included. The beach nourishment contractor markups consist of 5% JOH, 3% HOH 10% profit, 2% bond and 15% constingency. Productivity is set at 90%, Escalation at 8% (2% for one year database adjustment and 2% percent per year for three years to mid point of construction).

Mike Remy CENAE Mike Remy Estimated by Designed by Prepared by

9/28/2014 365 Days 3/28/2011 Preparation Date Effective Date of Pricing Estimated Construction Time

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EQ ID: EP09R01 Labor ID: NLS2010

Currency in US dollars

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October 2012	U.S. Army Corps of Engineers	.S. Army	Corps of E	ngineers					•	Time 11:37:48
Eff. Date 9/28/2014 Pro	oject Saco : Saco Saco Can	CE - 71 np Ellis -	rco : Saco CE - 712,000 cy Beach Nourishmen Saco Camp Ellis - Corrected Estimate 7-20-11	each Nouris Estimate 7	shment Est -20-11	imate			Detailed Est	Detailed Estimate Page 1
Description	Quantity UOM	MON	HOOL	H00H	Profit	Bond	Bond ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate			441,558	278,181	955,089	210,120	10,716,100	857,288	1,736,008	13,309,396
Beach Nourishment Estimate	712,000.0	Շ	441,558	278,181	955,089	210,120	10,716,100	857,288	1,736,008	13,309,396
(Note: This is cost out for 712,000 cy for beach nourishment.)										
Sand-Transport and Spead on Beach- 712,000 cy	712,000.0 CY	გ	441,558	278,181	441,558 278,181 955,089 210,120	210,120	10,716,100	857,288	1,736,008	13,309,396
(Note: User created line item-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)	d, ten mile haul	one way	in 12 CY	dump truck	cs. Assume	bank run	sand for lower	price for larg	ge quantity.)	
AF 023154904100 Sand FOB Job from Shaw Brothersmile one way haul, includes loading	712,000.0 LCY	ΓC	427,200	269,136	924,034	203,287	10,367,657	829,413	1,679,560	12,876,630
(Note: Material cost and hauling cost per vendor quote, Shaw Brothers Gorham Maine, July 2011. ACTUAL COST OF SAND IS \$5.75/CY AND ACTUAL COST OF HAUL IS \$6.00. THIS INCLUDES THE SUPPLIER MARKUP. Item is 'unassigned' to avoid duplicate markup since the supplier is assumed to be the prime contractor. \$12.00/cy used for this estimate.)	Brothers Gorham Maine, July 2011. ACTUAL COST OF SAND IS \$5.75/CY AND ACTUAL COST OF HAUL IS \$6.00. gned* to avoid duplicate markup since the supplier is assumed to be the prime contractor. \$12.00/cy used for this estim	า Maine, plicate ท	July 2011. arkup sinc	ACTUAL e the suppl	COST OF lier is assur	SAND IS §	55.75/CY AND /	ACTUAL COS actor. \$12.00	ST OF HAUL IS	\$6.00. estimate.)
MIL X-LABORER Outside Laborers, (Semi-Skilled)	4,749.0	詽	3,188	2,008	968'9	1,517	77,368	6,189	12,534	96,091
(Note: One laborer to assist in sand speading operations on beach.)	each.)									
EP T15JD006 TRACTOR, CRAWLER (DOZER), 74 HP, LOW GROUND PRESSURE, W/2.15 CY ANGLE BLADE (ADD ATTACHMENTS)	4,749.0	壬	11,170	7,037	24,160	5,315	271,075	21,686	43,914	336,675

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Currency in US dollars

U.S. Army Corps of Engineers Project Saco 6 : Saco Camp Ellis Alt 6 Saco Camp Ellis - Preliminary

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Saco Camp Ellis Alt 6

mattress. Assumptions are made in regards to actual stone source, cost and the general construction process and schedule. The spur groin and Jetty reinforcement will be constructed in 5' This is a shore damage mitigation project. Construct new stone spur groin approximately 750' long to include a stone mattress foundation. Reinforce the existing Jetty to include stone to 10' depth of water depending on the status of tides.

Assumptions Made:

for all stone, used 1.4 conversion factor CY to Tons

-the location of source of stone materials within 20 miles

-all stone materials will be loaded at dock in Portland Maine and barged to the project site

larger stone material will be placed by a crane or large excavator mounted on a spud barge

MCACES MII estimating program was used to development the estimate. The 2010 Davis Bacon Labor Rates for York Maine were used for labor only line items. Means estimating guide and vendor quotes were used as a backup references for developing user defined line items. The prime contractor markups consist of 10% FOH, 7% HOH, 10% profit, 2% bond, 25% contingency (15% for possible additional sub contractor costs and 10% minor final design changes, unforseen site and weather conditions) 6% escalation (2% for database update and 2% per year for two years to mid point of construction. Because this project abuts the open sea it is subject to tides, wave action and harse weather conditions, productivity level is set at 70%.

Estimated by Mike Remy Designed by CENAE Prepared by Mike Remy

Preparation Date 3/28/2011

Effective Date of Pricing 9/28/2013
Estimated Construction Time 365 Days

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Labor ID: NLS2010 EQ ID: EP09R08

Currency in US dollars

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	Saco Camp Ellis - Preliminary	Table of Contents
Description		Page
Project Notes		>
Detailed Estimate	:	***************************************
Mobilization		
Materials and Transportation	Materials and Transportation	2
Purchase Materials/Stone		2
Loading Trucks and Transportation To Docks		
Loading & Unloading Barges	Loading & Unloading Barges	2
Barging Materials to Work Site	Barging Materials to Work Site	3
Construct Spur Groin & Reinforce Jetty	Construct Spur Groin & Reinforce Jetty	3
Surveying		3
Materials for Spur and J		3
Stone Material, Steel Mats, Fill Mats and Placement		7
Demobilization	Demobilization	4

e Wed 30 March 2011	9/28/2013

Time 11:15:58 Detailed Estimate Page 1 5,489 4,676 8,105 3,885 2,249 2,559 22,942 3,134 4,818 5,492 2,887 7,069 4,829 5,722 2,436 5,491 26,957 20,997 620 ProjectCost 14,272,109 trailer, portable toilets, tool storage boxes and enclosed by temporary fencing. Assume 6 pieces of equipment, dozer, loader, backhoe, flatbed trailer, dump truck and pickup. This Assume a contractor yard will be set up with office 2,854,422 Contingency 74,597 ,588 1,098 ,098 935 4,199 1,098 1,414 1,144 450 627 964 5,391 577 1,621 777 996 124 487 Escalation 1,039 249 110 16,890 249 176 259 646,284 142 320 219 28 102 22 951 131 367 ContractCost 10,771,403 17,315 4,143 4,144 2,365 3,529 3,636 20,345 15,847 4,145 2,179 6,117 2,932 5,335 3,645 4,318 1,838 281,498 1,931 1,697 468 site.) to work site and set up etc. at work Bond 5,520 (Note: Mobilization from assumed distance of 50 miles. Mobilize equipment and small tools from home office to Saco Maine. 211,204 340 46 69 22 တ 8 8 7 311 43 57 55 7 85 36 33 2 Profit 960,018 1,543 1,813 25,089 1,412 369 369 211 315 545 476 325 385 <u>4</u> 369 261 42 151 5 U.S. Army Corps of Engineers Project Saco 6 : Saco Camp Ellis Alt 6 628,049 010, 1,186 HOOH 16,413 138 242 242 200 242 213 127 252 66 924 357 171 311 27 107 Saco Camp Ellis - Preliminary equipment JOOH 21,316 815,648 ,311 179 275 1,541 1,200 314 314 314 463 222 404 327 139 139 267 165 276 33 (Note: assume two laborers two weeks for various tasks associated with preparing to move MO O § õ SF 일 **Q** £ ջ E 뚶 ቿ 띺 띺 또 뚠 垩 Ä £ 뚶 ቿ 느 Ŗ 80.0 40.0 80.0 80.0 40.0 40.0 0.09 0. 40.0 24.0 0.1 24.0 24.0 800.0 80.0 Quantity 0: 48.0 200.0 40.0 1,000.0 40.0 older also includes costs to mob and demob spud barge and work barges.) RSM 015113800430 Temporary Power, for temp lighting only, 11.8 RSM 015213200350 Office Trailer, furnished, rent per month, 32'x MAP T50XX002 TRUCK, HIGHWAY, CONVENTIONAL, 3/4 TON GEN 745Z7120 TRUCK TRAILER, FLATBED, 40 TON (36.3 MT), AF 015602500100 Temporary Fencing, chain link, 6' high, 11 ga AF 015807000010 Project Signs, sign, Hi-intensity reflectorized. EP T50XX025 TRUCK, HIGHWAY, 30,000 LBS GVW, 2 AXLE, RSM 015213400100 User defined for contractor yard property RSM 015213201350 Storage Boxes, rent per month, 40' x 8' AF 015205001400 Toilet, portable, chemical, rent per month MIL X-EQOPRMED Outside Equip. Operators, Medium 48' (14.6 M) LENGTH, 2 AXLE (ADD TOWING TRUCK) MIL X-EQOPRHVY Outside Equip. Operators, Heavy 4NC 013113200550 Field Personnel, civil engineer MIL X-LABORER Outside Laborers, (Semi-Skilled) MIL X-EQOPRLT Outside Equip. Operators, Light MIL X-TRKDVRHV Outside Truck Drivers, Heavy MIL X-TRKDVRLT Outside Truck Drivers, Light (Note: two each for 24 months/48 months) MIL 013107000310 Civil superintendent MIL X-CARPNTER Outside Carpenters 4X4 (CHASSIS ONLY-ADD OPTIONS) MIL X-ELECTRN Outside Electricians KWH/month, average 8', excl. hookups Detailed Estimate buy, excl. posts Mobilization Description Print Date Eff. Date (

TRACES MII Version 4.1

Currency in US dollars

EQ ID: EP09R08

Labor ID: NLS2010

Print Date Wed 30 March 2011 Eff. Date 9/28/2013	U.S. Army Corps of Engineers Project Saco 6 : Saco Camp Ellis Alt 6	U.S. Army Corps of Engineers ect Saco 6 : Saco Camp Ellis	Engineers amp Ellis Al	t 6				:	Time 11:15:58
	Saco Ca	Saco Camp Ellis - Preliminary	eliminary					Detailed Es	Detailed Estimate Page 2
Description	Quantity UOM	HOOL	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
EP L40KM003 LOADER, FRONT END, WHEEL, 2.50 CY BUCKET, ARTICULATED, 4X4	40.0 HR	268	206	315	69	3,539	212	938	4,690
RSM 061333520300 User defined for mobilization of spud barge, including tug and crew	150.0 MI	10,714	8,250	12,611	2,774	141,492	8,490	37,495	187,477
RSM 061333520300 User defined for mobilization of local work barges, including tug and crew	50.0 MI	2,143	1,650	2,522	555	28,298	1,698	7,499	37,495
Materials and Transportation	52,611.0 TON	243,701	187,650	286,836	63,104	3,218,301	193,098	852,850	4,264,249
(Note: Cost to puchase and transport all stone materials.)									
Purchase Materials/Stone	48,300.0 TON	84,332	64,935	99,258	21,837	1,113,680	66,821	295,125	1,475,626
(Note: Cost for stone materials only as per ton at quarry cost. Doe	ses not include cost for mattress stone.)	for mattres	s stone.)						
RSM 023704500100 Under Layer/Core Stone	11,760.0 TON	17,640	13,583	20,762	4,568	232,953	13,977	61,732	308,662
RSM 023704500100 Armor Stone	30,100.0 TON	54,180	41,719	63,770	14,029	715,498	42,930	189,607	948,035
MIL 027202001510 Toe Stone	6,440.0 TON	9,660	7,438	11,370	2,501	127,569	7,654	33,806	169,029
HNC 013113200550 Field Personnel, civil engineer	1.0 MO	1,541	1,186	1,813	399	20,345	1,221	5,391	26,957
MIL 013107000310 Civil superintendent	1.0 MO	1,311	1,010	1,543	340	17,315	1,039	4,588	22,942
Loading Trucks and Transportation To Docks	57,680.0 TON	73,785	56,815	86,845	19,106	974,402	58,464	258,217	1,291,083
(Note: Costs to load stone into trucks at quarry and transport to F mattress stone.)	Portland docks. Assume 20 mile haul from quarry to dock. Load and transport all stone materials, including	sume 20 mi	ile haul fro	m quarry to	dock. Lo	ad and transpo	nt all stone m	naterials, incluc	ing
CIV 023154260170 Load trucks at Quarry	41,200.0 BCY	13,052	10,050	15,362	3,380	172,360	10,342	45,675	228,377
(Note: Stone materials range from .5 ton to 13 ton stones. Assume unit cost to be average cost for loading the various size stones.)	unit cost to be ave	rage cost for	r loading th	e various si	ze stones.	_			
Mit. 023154900545 Hauling, 20 cy truck, 40 miles round trip, factor up 25% for traffic around Portland and Portland dock areas.	41,200.0 LCY	56,341	43,383	66,314	14,589	744,038	44,642	197,170	985,850
(Note: Assume 20 cy per haul average, 40 mile round trip haul. Assume local quarry to Portland Maine docks)	ume local quarry to	Portland M	aine docks	_					
HNC 013113200550 Field Personnel, civil engineer	2.0 MO	3,081	2,372	3,627	798	40,690	2,441	10,783	53,914
MIL 013107000310 Civil superintendent	1.0 MO	1,311	1,010	1,543	340	17,315	1,039	4,588	22,942
Loading & Unloading Barges	57,680.0 TON	20,706	15,944	24,371	5,362	273,443	16,407	72,462	362,312
(Note: All stone materials, including mattress stone.)									
EP C75GV022 CRANES, HYDRAULIC, SELF-PROPELLED, YARD, 15 TON / 52' BOOM, 4X4, NON-ROTATING OPERATOR'S CAB	1,545.0 HR	11,905	9,167	14,012	3,083	157,213	9,433	41,662	208,308
(Note: equipment and labor cost should it become necessary to load barges vs. driving onto and dumping. Assume two hours loading time average for 20 cy truck delivery. Truck cannot be filled to capacity because of large size stone, therefore assume approx 15 cy or 20 tons of stone delivered per truck. 61,819 tons/20 t= 3,090 trips x 1/2 hours per load hours.)	ad barges vs. driving onto and dumping. Assume two hours loading time average for 20 cy truck delivery. Truck assume approx 15 cy or 20 tons of stone delivered per truck. 61,819 tons/20 t= 3,090 trips x 1/2 hours per load = 1,545	g onto and c cy or 20 tons	dumping. As s of stone d	ssume two lelivered pe	hours loac r truck. 61	ling time averaç ,819 tons/20 t=	e for 20 cy tr 3,090 trips x	uck delivery. T 1/2 hours per k	ruck iad = 1,545

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53,914

10,783

2,441

40,690

798

3,627

3,081 2,372

2.0 MO

HNC 013113200550 Field Personnel, civil engineer

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Description	Quantity	WON	HOOF	НООН	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
MIL 013107000310 Civil superintendent	2.0	MO	2,622	2,019	3,086	629	34,630	2,078	9,177	45,884
MIL X-LABORER Outside Laborers, (Semi-Skilled)	1,800.0	垩	3,098	2,385	3,646	802	40,910	2,455	10,841	54,206
Barging Materials to Work Site	57,680.0	TON	64,878	49,956	76,362	16,800	856,777	51,407	227,046	1,135,229
(Note: Barge the total of all stone materials including mattress stone.)	ie.)									
EP M10XX006 MARINE EQUIPMENT, FLAT-DECK CARGO BARGE, 120' X 45' X 7', 400 TON	1,536.0	띂	9,686	7,458	11,400	2,508	127,907	7,674	33,895	169,477
(Note: 57,680 tons of stone required Assume 400 ton barge, hauls 300 tons per load \times 192 trips \times 8 hours per trip 40 mile round trip (includes loading and unloading time) = 1,536 hours Assume 1 laborer/man per hour associated with barging.)	s 300 tons pe	er load x	192 trips x	8 hours p	er trip 40 n	nile round	trip (includes lo	ading and un	loading time) =	1,536
EP M10XX029 MARINE EQUIPMENT, TUGS, 58 FT LENGTH, 24 FT BEAM, 76" DRAFT, PUSH BOAT	1,536.0	至	50,800	39,116	59,792	13,154	670,865	40,252	177,779	888,896
(Note: Tug hours, assume same hours as barge. Assume tug operator and 2 crewmen on tug based on verbal vendor quote.)	itor and 2 cre	wmen o	n tug base	d on verba	l vendor qu	iote.)				
HNC 013113200550 Field Personnel, civil engineer	2.0	MO	3,081	2,372	3,627	798	40,690	2,441	10,783	53,914
MIL 013107000310 Civil superintendent	1.0	Θ	1,311	1,010	1,543	340	17,315	1,039	4,588	22,942
Construct Spur Groin & Reinforce Jetty	48,300.0	EA	534,422	411,505	629,015	138,383	7,057,544	423,453	1,870,249	9,351,246
(Note: Assume material production rate of 150 tons per day, or 322	days of wo	rk on sit	e. Place 4	8,300 tons	of breakw	ater ston	322 days of work on site. Place 48,300 tons of breakwater stone, not including mattress stone.	mattress sto	one.)	
Surveying	1.0	EA	4,346	3,346	5,115	1,125	57,387	3,443	15,207	76,037
HNC 013113200550 Field Personnel, civil engineer	1.0	Q Q	1,541	1,186	1,813	399	20,345	1,221	5,391	26,957
(Note: Cost for whatever engineering method is used to determine	ne elevations during breakwater construction.)	ring bre	akwater cor	nstruction.)						
FOP FC-SURYR Surveyors	192.0	뜻	882	681	1,042	229	11,686	701	3,097	15,484
(Note: Assume two men two days per month for 48 months to determine existing elevations and other surveying tasks.)	mine existing	ı elevatic	ons and oth	er surveyir	ng tasks.)					
HTW 029110106124 Boat rental, with motor	192.0	DAY	1,920	1,478	2,260	497	25,355	1,521	6,719	33,596
Placing Stone Materials for Spur and Jetty	48,300.0	EA	271,793	209,281	319,901	70,378	3,589,285	215,357	951,160	4,755,802
(Note: 48,300 tons of stone material, does not include stone mattress placement)	ss placeme	£								
RSM 023704500100 Under Layer/Core Stone	11,760.0 TON	NOL	18,445	14,203	21,710	4,776	243,587	14,615	64,551	322,753
(Note: Assume under layer/core stone will be partially dumped into position and partially placed by crane with clamshell.)	position and	partially	placed by	crane with	clamshell.)					
RSM 023704500100 Armor Stone	30,100.0	10N	94,422	72,705	111,135	24,450	1,246,934	74,816	330,438	1,652,188
(Note: Armor stone ranges from approximately 6-13 tons (place 4 s will be low. Assume 12 cy per hour placed.)	tones per ho	ur of 8 to	on average	or 3 cy pe	r stone), p	lacing and	4 stones per hour of 8 ton average or 3 cy per stone), placing and re-arranging will be slow, therefore production rates	/ill be slow, th	erefore product	ion rates
MIL 027202001510 Toe Stone	6,440.0 TON	NO.	12,106	9,322	14,249	3,135	159,877	9,593	42,367	211,837
e placi	ng in position by crane with clamshell.)	r crane v	vith clamsh	ell.)						
NON XX0XX510 BARGE MTD CRANE, 100T,150'B,LIFT & PILEDRIVING, 150'X 60'X 12'B	3,220.0	至	16,473	12,684	19,388	4,265	217,536	13,052	57,647	288,235

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Currency in US dollars

Labor ID: NLS2010 EQ ID: EP09R08

U.S. Army Corps of Engineers Project Saco 6 : Saco Camp Ellis Alt 6 Saco Camp Ellis - Preliminary

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Detailed Estimate Page 4

40,564 161,742 68,826 201,477 483,505 ProjectCost 51,020 296,683 976,972 (Note: Crane for spud barge, labor not included in this item because it is in placing armor stone line item. Assume approx productivity of 150 tons of material placed per day.) (Note: additional barge at work site for misc. use for sorting materials and loading and unloading materials and equipment. Assume one half total hours required for construction) Contingency 8,113 32,348 13,765 40,295 10,204 59,337 96,701 195,394 Bond ContractCost Escalation (Note: Assume spud barge required to sit over or adjacent to structure to assist and locate armor stone. Include cost for crane on barge as seperate line item.) 44,240 9,123 21,895 3,117 1,837 7,324 13,435 30,615 364,909 38,506 223,912 122,069 51,944 152,058 737,337 7,155 755 14,458 1,019 2,982 8 2,394 Profit 32,523 65,716 3,432 10,880 4,630 19,956 13,552 2,245 42,992 7,117 3,029 8,866 HOOH 13,056 21,277 JOOH 2,318 2,916 55,834 9,244 3,933 11,514 27,632 16,955 (Note: for misc movement of spud barge and delivery barges during breakwater construction) Quantity UOM 뜻 6.0 MO 3.0 MO 壬 또 3,220.0 HR 王 λ 9,380.0 1,610.0 1,610.0 1,343.0 1,610.0 EP M10XX028 MARINE EQUIPMENT, TUGS, 55 FT LENGTH, 20 FT BEAM, 5:0" DRAFT, 80 TON, TOW BOAT EP M10MZ011 MARINE EQUIPMENT, BOATS & LAUNCHES, TRUCKABLE WORKBOAT W/PILOT HOUSE & PUSH KNEES, INBOARD, 25.25' X 10' X 3.5' EP M10XX008 MARINE EQUIPMENT, FLAT-DECK CARGO BARGE, 150' X 45' X 9', 1,100 TON SECTIONAL, MEDIUM DUTY, W/ONE BUCKHEAD AND EP M10MZ005 MARINE EQUIPMENT, WORK BARGE (Note: plans indicate 1' thick stone mattress required.) HNC 313219161650 Drainage geotextiles, non-woven HNC 013113200550 Field Personnel, civil engineer MIL X-LABORER Outside Laborers, (Semi-Skilled) MIL 013107000310 Civil superintendent SPUDS, 40' X 12' X 4', 36 TON polypropylene, 120 mils thick Description

(Note: use historical data for 1' thick stone filled mesh mats, reference bidders on Seabrook Project Includes cost of 5'x30' mesh mats filled with 3"-6" stone and place on site.

(Note: Loading and Transportation for mattress stone is not included in this section. It is included in all stone transportation and barging section.)

20,100.0 SY

4,519,406

903,881

204,652

3,410,873

66,880

303,999

198,878

258,283

≿

20,100.0

includes stone material, steel mesh mats, fill mats and placement

MIL 023704500600 Mesh mats 5'x30', stone filled, 12" deep-

Stone Material, Steel Mats, Fill Mats and Placement

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4,519,406

903,881

204,652

3,410,873

66,880

258,283 198,878 303,999

Demobilization	1.0 EA	16,209	12,481	19,078	4,197	214,060	12,844	56,726	283,629
MIL 013107000310 Civil superintendent	1.0 MO	1,311	1,010	1,543	340	17,315	1,039	4,588	22,942
(Note: misc supervisory labor associated with cleanup and closeout of c	ut of contractor area and work site.)	d work site.	_						
MIL X-CARPNTER Outside Carpenters	16.0 HR	36	78	42	6	473	78	125	627
MIL X-ELECTRN Outside Electricians	24.0 HR	160	123	189	42	2,118	127	561	2,806
MIL X-EQOPRHVY Outside Equip. Operators, Heavy	40.0 HR	104	80	123	27	1,368	82	363	1,813
MIL X-EQOPRMED Outside Equip. Operators, Medium	80.0 HR	190	146	223	49	2,504	150	664	3,318
Mit X-LABORER Outside Laborers, (Semi-Skilled)	240.0 HR	414	319	488	107	5,471	328	1,450	7,249

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Description	Quantity UOM	JOOH	된	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
(Note: assume three laborers two weeks for various tasks associated with preparing to move equipment back to home office and general cleanup and packing equipment at work site contractor yard.)	ed with preparing	to move ec	luipment b	ack to hon	e office	and general cle	anup and pa	cking equipmer	nt at work
MIL X-TRKDVRHV Outside Truck Drivers, Heavy	40.0 HR	82	65	100	22	1,119	29	296	1,482
MIL X-TRKDVRLT Outside Truck Drivers, Light	40.0 HR	73	26	98	19	996	28	256	1,279
HNC 017413200300 Cleaning Up, site debris clean up and removal	4.0 ACR	280	215	329	72	3,695	222	626	4,896
AF 015602500100 Temporary Fencing, chain link, 6' high, 11 ga	800.0 LF	0	0	0	0	0	0	0	0
(Note: labor only cost to dismantle chain link fencing)									
AF 015807000010 Project Signs, sign, Hi-intensity reflectorized, buy, excl. posts	200.0 SF	43	33	20	Ξ	566	34	150	750
(Note: Used for labor to remove signs and posts during demobilization)									
RSM 015213200350 Office Trailer, furnished, rent per month, 32' \times 8', excl. hookups	2.0 MO	57	4	67	15	755	45	200	1,000
(Note: Cost to remove and return office trailer at end of project)									
RSM 015213201350 Storage Boxes, rent per month, $40^{\circ} \times 8^{\circ}$	2.0 MO	29	23	34	7	377	23	100	200
(Note: Cost to remove and return rental storage box at end of project)									
GEN T45Z7120 TRUCK TRAILER, FLATBED, 40 TON (36.3 MT), 48' (14.6 M) LENGTH, 2 AXLE (ADD TOWING TRUCK)	40.0 HR	35	27	45	တ	468	78	124	620
EP T50XX025 TRUCK, HIGHWAY, 30,000 LBS GVW, 2 AXLE, 4X4 (CHASSIS ONLY-ADD OPTIONS)	40.0 HR	139	107	164	36	1,838	110	487	2,436
MAP T50XX002 TRUCK, HIGHWAY, CONVENTIONAL, 3/4 TON PICKUP, 4X2	80.0 HR	129	66	151	83	1,697	102	450	2,249
EP L40KM003 LOADER, FRONT END, WHEEL, 2.50 CY BUCKET, ARTICULATED, 4X4	40.0 HR	268	206	315	69	3,539	212	938	4,690
RSM 061333520300 User defined for demobilization of spud barge, including tug and crew	150.0 MI	10,714	8,250	12,611	2,774	141,492	8,490	37,495	187,477
RSM 061333520300 User defined for demobilization of local work barges, including tug and crew	50.0 MI	2,143	1,650	2,522	555	28,298	1,698	7,499	37,495

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U.S. Army Corps of Engineers Project Saco 6: Saco CE Alt 6 - 364,000 cy Beach Nourishment Estimate Saco Camp Ellis - Preliminary

Title Page

Time 16:08:26

Saco CE Alt 6 - 364,000 cy Beach Nourishment Estimate

This is and estimate to purchase, deliver and spread 364,000 CY of upland sand on the beach at Camp Ellis in Saco, Maine. No general contractor markups are included. The beach nourishment contractor markups consist of 5% FOH, 3% HOH, 10% profit, 2% bond and 15% contingency. Productivity is set at 90%, Escalation at 8% (2% for one year database adjustment and 2% per year for three years to mid point of construction).

Mike Remy CENAE Mike Remy Estimated by Designed by Prepared by

3/28/2011 9/28/2014 365 Days Preparation Date

Effective Date of Pricing Estimated Construction Time

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EQ ID: EP09R08

EQ ID: EP09R08

Labor ID: NLS2010

U.S. Army Corps of Engineers	Project Saco 6: Saco CE Alt 6 - 364,000 cy Beach Nourishment Estimate	
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Time 16:08:26

	Saco	saco camp Ellis - Preliminary	reliminary					Detailed ES	Detailed Estimate Page 1
Description	Quantity UC	JOOL M	НООН	Profit	Bond	Quantity UOM JOOH HOOH Profit Bond ContractCost Escalation Contingency ProjectCost	Escalation	Contingency	ProjectCost
Detailed Estimate		261,534	261,534 164,766	565,698 124,453	124,453	6,347,128	507,770	1,028,235	7,883,134
Beach Nourishment Alt 6	364,000.0 CY	261,534	164,766	565,698	124,453	6,347,128	507,770	1,028,235	7,883,134
(Note: This is cost out for 364,000 cy for beach nourishment.)									
Sand-Transport and Spead on Beach- 364,000 cy	364,000.0 CY		261,534 164,766 565,698 124,453	565,698	124,453	6,347,128	507,770	1,028,235	7,883,134
(Note: User created line item-assume upland source for sand, to	ien mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)	way in 12 CN	/ dump truc	ks. Assum	e bank run	sand for lower	price for lar	ge quantity.)	
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	364,000.0 LCY 240,561 151,554 520,334 114,473	Y 240,561	151,554	520,334	114,473	5,838,147	467,052	945,780	7,250,979
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per vendor quote, Shaw Brothers Gorham Maine, October 2010.)	l trip. Assume bar	ık run sand a	t low cost pe	er cy, plus l	oading. M	aterial cost and	hauling cost	per vendor quot	e,Shaw
MIL X-LABORER Outside Laborers, (Semi-Skilled)	200.0 HR	143	90	310	89	3,474	278	563	4,315
(Note: One laborer for three months to assist in sand speading op	perations on beach.)	•							
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	364,000.0 BCY	.Y 20,829	13,123	45,054	9,912	505,507	40,441	81,892	627,840

U.S. Army Corps of Engineers Project Saco 25A: Saco Camp Ellis Alt 25A Saco Camp Ellis - Preliminary

Title Page

Time 11:15:02

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Saco Camp Ellis Alt 25A

This is a shore damage mitigation project. This is an estimate for alternative #25A which construction of one new 500' stone spur jetty, reinforcement existing jetty and construct two breakwaters. In addition to installing various layers of stone, there will be stone filled foundation mattresses installed prior to installation of the larger stone materials. The spur jetty is approximately 500' long and each of the two breakwaters are approximately 400' feet in length. The stone structures will be constructed in 5' to 10' depth of water depending on the status of

Assumptions Made:

-use a conversion factor of 1.4 for CYs to tons

-the location of source of stone materials within 20 miles

all stone materials will be loaded onto barges at a dock in Portland Maine and barged to the project site -stone material will be placed by a crane or excavator mounted on a spud barge

-contract period will be two years for construction

backup reference for developing user defined line items. The markups consist of 10% FOH, 7% HOH, 10% profit, 2% bond, 20% contingency (assume and allowance of 10% for prossible sub-contractor markups and allowance of 10% for unforseen site or weather conditions) 8% escalation (2% one year database adjustment and 2% per year for three years to midpoint of construction. Because this project abuts the open ocean, it is subject to tides, severe wave action and harse weather conditions, the general productivity level is set at 70%. MCACES MII estimating program was used to development the estimate. The labor rates are based on York County Davis Bacon Labor Rates. The Means estimating guide was used as a

Estimated by Mike Remy Designed by CENAE Prepared by Mike Remy

Preparation Date 3/28/2011 Effective Date of Pricing 3/28/2014

Estimated Construction Time 720 Days

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Labor ID: NLS2010 EQ ID: EP09R08

Currency in US dollars

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EQ ID: EP09R08

Labor ID: NLS2010

Currency in US dollars

U.S. Army Corps of Engineers Project Saco 25A: Saco Camp Ellis Alt 25A Saco Camp Ellis - Preliminary

Time 11:15:02

Detailed Estimate Page 1 S 5 6 Print Date Wed 30 March 2011 Eff. Date 3/28/2014

Description	Quantity U	HOOF WON	НООН	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate		1,206,503	929,007	1,420,054	312,412	15,933,002	1,274,640	3,441,528	20,649,170
Mobilization-plus	1.0 E	EA 23,135	17,814	27,230	5,991	305,516	24,441	65,991	395,949
(Note: Mobilization from assumed distance of 50 miles. Mobilize equipment and small tools from home office to Saco Maine. Assume a contractor yard will be set up with office trailer, portable toilets, tool storage boxes and enclosed by temporary fencing. Assume 6 pieces of equipment, dozer, loader, backhoe, flatbed trailer, dump truck and pickup. This folder also includes cost and mob demob of spud barge and work barges.)	e equipment porary fencing k barges.)	and small tools t g. Assume 6 pie	from home c eces of equi	office to Saccipment, doze	o Maine.	Assume a contractor yard will be set up with office backhoe, flatbed trailer, dump truck and pickup. The	actor yard wi d trailer, dum	III be set up wi np truck and pi	th office ckup. This
MIL X-TRKDVRHV Outside Truck Drivers, Heavy	80.0 H	HR 632	487	744	164	8,352	899	1,804	10,824
MIL X-TRKDVRLT Outside Truck Drivers, Light	80.0 H	HR 300	231	353	78	3,966	317	857	5,139
Mil. 013107000310 Civil superintendent	1.0 N	MO 1,311	1,010	1,543	340	17,315	1,385	3,740	22,440
MIL X-EQOPRHVY Outside Equip. Operators, Heavy	40.0 H	HR 343	264	404	88	4,534	363	979	5,876
MIL X-EQOPRLT Outside Equip. Operators, Light	40.0 H	HR 337	259	397	87	4,450	356	961	5,767
MIL X-EQOPRMED Outside Equip. Operators, Medium	40.0 H	HR 340	262	400	88	4,488	359	696	5,817
MIL X-CARPNTER Outside Carpenters	80.0	HR 388	299	456	100	5,121	410	1,106	6,637
MIL X-ELECTRN Outside Electricians	40.0 H	HR 386	297	454	100	5,095	408	1,101	6,603
MIL X-LABORER Outside Laborers, (Semi-Skilled)	160.0 H	HR 1,098	845	1,292	284	14,499	1,160	3,132	18,790
(Note: assume two laborers two weeks for various tasks associate	ed with prepar	ed with preparing to move equipment to work site and set up etc. at work site.)	ipment to wo	ork site and s	et up etc. a	at work site.)			
HNC 013113200550 Field Personnel, civil engineer	1.0 N	MO 1,541	1,186	1,813	399	20,345	1,628	4,394	26,367
RSM 015113800430 Temporary Power, for temp lighting only, 11.8 KWH/month, average	1,000.0	CSF 165	127	194	43	2,179	174	471	2,824
AF 015205000350 Office Trailer, furnished, rent per month, 32' \times 8', excl. hookups	24.0 N	MO 394	303	463	102	5,197	416	1,123	6,736
RSM 015213201350 Storage Boxes, rent per month, $40' \times 8'$	24.0 N	MO 222	171	261	57	2,932	235	633	3,800
AF 015205001400 Toilet, portable, chemical, rent per month	48.0 E	EA 404	311	476	105	5,335	427	1,152	6,915
(Note: two each for 24 months/48 months)									
AF 015602500100 Temporary Fencing, chain link, 6' high, 11 ga	800.0 LF	F 276	213	325	71	3,645	292	787	4,724
AF 015807000010 Project Signs, sign, Hi-intensity reflectorized, buy, excl. posts	200.0	SF 327	252	385	82	4,318	345	933	5,597
GEN T45Z7120 TRUCK TRAILER, FLATBED, 40 TON (36.3 MT), 48' (14.6 M) LENGTH, 2 AXLE (ADD TOWING TRUCK)	40.0 H	HR 36	78	42	თ	474	38	102	615
EP T50XX025 TRUCK, HIGHWAY, 30,000 LBS GVW, 2 AXLE, 4X4 (CHASSIS ONLY-ADD OPTIONS)	40.0 H	HR 141	108	166	36	1,858	149	401	2,408
MAP T50XX002 TRUCK, HIGHWAY, CONVENTIONAL, 3/4 TON PICKUP, 4X2	80.0	HR 135	1 0	159	35	1,780	142	384	2,306

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Print Date Wed 30 March 2011	U.S. Army Corps of Engineers	3:02
Eff. Date 3/28/2014	.t 25A	
	Saco Camp Elits - Preliminary	SULS
Description	Pag	Page
Project Notes		>
Detailed Estimate		
Mobilization-plus		٠
Materials and Transportation		7
Purchase Materials/Stone	Purchase Materials/Stone	7
Loading Trucks and Transportation To Docks		7
Loading Barges	Loading Barges	~
Barging Materials to Work Site		က
Reinforce Jetty, Construct Spur and 2 Breakwaters		ო
Surveying		က
or Spur, Breakwaters and Jetty		က
Stone Materials, Steel Mesh Mat, Preparation and Placement of Stone Mattresses	Aattresses	4
Demobilization		4

Print Date Wed 30 March 2011 Eff Date 3/28/2014	وت	U.S. Arr	U.S. Army Corps of Engineers	Engineers	± 07.0					Time 11:15:02
) - -	Saco C	Saco Camp Ellis - Preliminary	reliminary	() T				Detailed Es	Detailed Estimate Page 2
Description	Quantity	MON	JOOH	НООН	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
EP L40KM003 LOADER, FRONT END, WHEEL, 2.50 CY BUCKET, ARTICULATED, 4X4	40.0	壬	303	233	356	78	3,996	320	863	5,179
RSM 061333520300 User defined item for mobilization of spud barge, includes tug and crew	150.0	₹	10,714	8,250	12,611	2,774	141,492	11,319	30,562	183,374
AF 015205000350 User defined for monthly rental of contractor storage yard.	24.0	Q Q	1,200	924	1,412	311	15,847	1,268	3,423	20,538
RSM 061333520300 User defined item for mobilization of work barges, includes tug and crew	50.0	₹	2,143	1,650	2,522	555	28,298	2,264	6,112	36,675
Materials and Transportation	86,550.0 TON	TON	402,743	310,112	474,029	104,286	5,318,604	425,488	1,148,819	6,892,911
(Note: Cost to puchase and transport stone materials. Does not include cost to purchase stone for mattresses)	ot include co	st to pur	chase stone	for mattre	sses)					
Purchase Materials/Stone	72,100.0 TON	NOT	125,616	96,724	147,850	32,527	1,658,872	132,710	358,316	2,149,898
(Note: Cost for stone materials only as per ton at quarry cost.		rchase m	attress stor	e in not inc	Cost to purchase mattress stone in not included here.)	_				
RSM 023704500100 Under Layer/Core Stone	17,920.0	NOF	26,880	20,698	31,638	6,960	354,976	28,398	76,675	460,048
RSM 023704500100 Armor Stone	43,960.0	NOT	79,128	60,929	93,134	20,489	1,044,960	83,597	225,711	1,354,268
Mil. 027202001510 Toe Stone	10,220.0	NO NO	15,330	11,804	18,043	3,970	202,447	16,196	43,729	262,371
HNC 013113200550 Field Personnel, civil engineer	1.5	Θ	2,311	1,779	2,720	598	30,517	2,441	6,592	39,550
MtL 013107000310 Civil superintendent	1.5	Θ	1,967	1,514	2,315	509	25,972	2,078	5,610	33,660
Loading Trucks and Transportation To Docks	86,550.0	NO NO	153,019	117,825	180,104	39,623	2,020,766	161,661	436,485	2,618,913
(Note: Costs to load stone into trucks at quarry and transport to stone material.)	to Portland	dock. As	sume 20 m	ile haul fror	n quarry to	dock. Th	Portland dock. Assume 20 mile haul from quarry to dock. This includes all stone materials, including mattress	itone materia	ls, including m	attress
CIV 023154260170 Load trucks at Quarry	36,550.0	BCY	27,418	21,112	32,271	7,100	362,081	28,966	78,210	469,257
(Note: Stone materials range from 3" to 13 ton stones. Assume unit cost to be average cost for loading the various size stones.)	e unit cost to	be avera	ge cost for I	oading the	various size	stones.)				
MIL 023154900545 Hauling, 20 cy truck, 40 miles round trip, factor up 25% for traffic around Portland and Portland dock areas.	86,550.0	ΓC	118,357	91,135	139,307	30,647	1,563,021	125,042	337,613	2,025,675
(Note: Assume 15 cy per haul average, 40 mile round trip haul. As	Assume loc	al quarry	sume local quarry to Portland Maine docks)	Maine dock	ŝ					
HNC 013113200550 Field Personnel, civil engineer	3.0	Q	4,622	3,559	5,440	1,197	61,035	4,883	13,183	79,101
MiL 013107000310 Civil superintendent	2.0	Θ	2,622	2,019	3,086	629	34,630	2,770	7,480	44,880
Loading Barges	86,550.0	NOT	33,382	25,704	39,290	8,644	440,835	35,267	95,220	571,323
EP C75GV022 CRANES, HYDRAULIC, SELF-PROPELLED, YARD, 15 TON / 52' BOOM, 4X4, NON-ROTATING OPERATOR'S CAB	2,164.0	Ŧ	20,893	16,088	24,591	5,410	275,912	22,073	59,597	357,582

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(Note: Cost for equipment and labor should it become necessary to load all stone onto barges vs. driving onto and dumping. Assume 1/2 hour loading time average for 20 cy truck/flat bed delivery. Truck or flatbed cannot be filled to capacity because of large size stone, therefore assume approx 15cy or 20 tons of stone delivered per truck. (86,550 tons/20 tons x 1/2 hr = 2164 hrs))

Print Date Wed 30 March 2011 Eff. Date 3/28/2014	Proje	U.S. Arm ct Saco 29 Saco Ca	U.S. Army Corps of Engineers I Saco 25A: Saco Camp Ellis / Saco Camp Ellis - Preliminary	U.S. Army Corps of Engineers Project Saco 25A: Saco Camp Ellis Alt 25A Saco Camp Ellis - Preliminary	t 25A				Detailed Es	Time 11:15:02 Detailed Estimate Page 3
Description	Quantity	I NOM	HOOL	НООН	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
HNC 013113200550 Field Personnel, civil engineer	3.0	QW QW	4,622	3,559	5,440	1,197	61,035	4,883	13,183	79,101
MIL 013107000310 Civil superintendent	0.9	MO	7,867	6,057	9,259	2,037	103,889	8,311	22,440	134,640
Barging Materials to Work Site	86,550.0	TON	90,727	69,860	106,785	23,493	1,198,131	95,850	258,796	1,552,778
EP M10XX006 MARINE EQUIPMENT, FLAT-DECK CARGO BARGE, 120' X 45' X 7', 400 TON	2,312.0	¥	4,954	3,815	5,831	1,283	65,426	5,234	14,132	84,792
(Note: Assume 400 ton barge averages 300 tons per load. 86,5 2,312 hours)	550 tons required divided by 300	luired divic	led by 300	= 289 trips	x 8 hours p	ər trip. 40	= 289 trips \times 8 hours per trip. 40 mile round trip (includes loading and unloading time)	(includes load	ding and unloac	ling time) =
EP M10XX029 MARINE EQUIPMENT, TUGS, 58 FT LENGTH, 24 FT BEAM, PUSH BOAT	2,312.0	Ä	80,069	61,653	94,241	20,733	1,057,386	84,591	228,395	1,370,372
(Note: Tug hours assume same hours at barge. Assume tug operator and 2 crewmen on tug based on verbal vendor quote.)	erator and 2	crewmen	on tug bas	ed on verba	I vendor qu	ote.)				
HNC 013113200550 Field Personnel, civil engineer	2.0	MO	3,081	2,372	3,627	798	40,690	3,255	8,789	52,734
MIL 013107000310 Civil superintendent	2.0	Θ	2,622	2,019	3,086	629	34,630	2,770	7,480	44,880
Reinforce Jetty, Construct Spur and 2 Breakwaters	86,550.0	TON	762,026	586,760	896,905	197,319	10,063,272	805,062	2,173,667	13,042,000
(Note: Assume material production rate of 150 tons per day, or 5	577 days of work on site.)	work on s	ite.)							
Surveying	1.0	E	3,766	2,900	4,433	975	49,739	3,979	10,744	64,462
HNC 013113200550 Field Personnel, civil engineer	1.0	MO	1,541	1,186	1,813	399	20,345	1,628	4,394	26,367
(Note: Cost for whatever engineering method is used to determine elevations during breakwater construction.)	ine elevatior	s during b	reakwater	constructior	~					
FOP FC-SURYR Surveyors	384.0 HR	Ŧ	1,770	1,363	2,083	458	23,373	1,870	5,049	30,291
(Note: assume two days per month for 24 months for assisting civil engineer with determining existing elevations and other surveying tasks.)	civil enginee	r with dete	ermining ex	isting eleva	tions and ot	her survey	ing tasks.)			
HTW 029110106124 boat rental, with motor	48.0	DAY	456	351	537	118	6,022	482	1,301	7,804
(Note: for surveying)										
Placement of Stone Materials for Spur, Breakwaters and Jetty	72,998.0	NO N	357,342	275,154	420,592	92,530	4,719,043	377,523	1,019,313	6,115,880
RSM 023704500100 Under Layer/Core Stone	17,920.0	TON	28,107	21,642	33,082	7,278	371,180	29,694	80,175	481,050
(Note: Assume under layer/core stone will be partially dumped in	into position	and partia	ily placed l	y crane wit	tto position and partially placed by crane with clamshell.)	_				
RSM 023704500100 Armor Stone	43,960.0	NOT	137,900	106,183	162,309	35,708	1,821,104	145,688	393,358	2,360,151
(Note: Armor stone ranges from approximately 6-13 tons (place will be low. Assume 12 cy per hour placed.)	4	er hour of	8 ton avera	ge or 3 cy p	oer stone), p	olacing and	stones per hour of 8 ton average or 3 cy per stone), placing and re-arranging will be slow, therefore production rates	/ill be slow, th	erefore product	tion rates
Mil. 027202001510 Toe Stone	7,300.0 TON	TON	13,723	10,567	16,152	3,553	181,227	14,498	39,145	234,871
(Note: Toe stone is approx .5 to 1 ton stone that will require placi	cing in position by crane with clamshell.)	on by cran	e with clan	ıshell.)						
NON XX0XX510 BARGE MTD CRANE, 100T,150'B,LIFT & PILEDRIVING, 150'X 60'X 12'B	3,845.0	Ŧ	10,986	8,459	12,930	2,845	145,077	11,606	31,337	188,019
(Note: Crane for spud barge, labor not included in this item because it is in placing 72,100 tons of stone. Assume approx productivity of 150 tons of material placed per eight hour day.)	ause it is in	placing 72	,100 tons c	f stone. A	ssume appr	ox produc	livity of 150 ton	s of material p	olaced per eigh	t hour day.)

Currency in US dollars

EQ ID: EP09R08

Labor ID: NLS2010

TRACES MII Version 4.1

Print Date Wed 30 March 2011 Eff. Date 3/28/2014	U.s Project S	U.S. Army Corps of Engineers Project Saco 25A: Saco Camp Ellis Alt 25A Saco Camp Ellis - Preliminary	of Engineers Camp Ellis Al Preliminary	t 25A				Detailed Est	Time 11:15:02 Detailed Estimate Page 4
Description	Quantity UOM	HOOF W	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
EP M10MZ005 MARINE EQUIPMENT, WORK BARGE, SECTIONAL, MEDIUM DUTY', W/ONE BUCKHEAD AND SPUDS, 40' X 12' X 4', 36 TON	3,845.0 HR	27,464	21,148	32,325	7,112	362,692	29,015	78,341	470,048
(Note: Assume spud barge required to sit over or adjacent to structure to assist and locate armor stone. Include cost for crane on barge as seperate line item.)	tructure to assist	and locate arm	or stone. Incl	ude cost for	crane on	oarge as sepera	ate line item.)		
EP M10XX008 MARINE EQUIPMENT, FLAT-DECK CARGO BARGE, 150' X 45' X 9', 1,100 TON	3,845.0 HR	5,697	4,387	902'9	1,475	75,237	6,019	16,251	97,508
(Note: additional barge at work site for misc. use for sorting mal	sterials and loadi	lerials and loading and unloading materials and equipment. Assume one half total hours required for construction)	ng materials	and equipme	ent. Assun	ne one half tota	Il hours require	ed for construct	tion)
EP M10MZ011 MARINE EQUIPMENT, BOATS & LAUNCHES, TRUCKABLE WORKBOAT W/PILOT HOUSE & PUSH KNEES, INBOARD, 25.25' X 10' X 3.5'	1,922.0 HR	21,037	16,198	24,760	5,447	277,810	22,225	60,007	360,042
(Note: assume onel half of hours for placement of stone)									
EP M10XX028 MARINE EQUIPMENT, TUGS, 55 FT LENGTH, 20 FT BEAM, 5'0" DRAFT, 80 TON, TOW BOAT	1,922.0 HR	71,155	54,790	83,750	18,425	939,675	75,174	202,970	1,217,819
(Note: assume one half of hours for stone placement for misc m	novement of spu	ovement of spud barge and delivery barges during construction)	ivery barges	during cons	truction)				
MIL X-LABORER Outside Laborers, (Semi-Skilled)	160.0 HR	1,098	845	1,292	284	14,499	1,160	3,132	18,790
(Note: assume two laborers two weeks for various tasks associated with preparing to move equipment to work site and set up etc. at work site.)	iated with prepar	ing to move equ	ipment to wo	ork site and	set up etc.	at work site.)			
HNC 013113200550 Field Personnel, civil engineer	9.0 MO	13,865	10,676	16,319	3,590	183,104	14,648	39,550	237,302
MIL 013107000310 Civil superintendent	4.0 MO	5,245	4,038	6,173	1,358	69,259	5,541	14,960	89,760
HNC 313219161650 Drainage geotextiles, non-woven polypropylene, 120 mils thick	17,160.0 SY	21,065	16,220	24,793	5,454	278,179	22,254	60,087	360,520
(Note: Use 15,600 sy plus 10% wast and overlap past perimeter		of structure footprints = 17,160 sy)	sy)						
Stone Materials, Steel Mesh Mat, Preparation and Placement of Stone Mattresses	14,450.0 TON	N 400,917	308,706	471,880	103,814	5,294,489	423,559	1,143,610	6,861,658
RSM 313613100600 Gabion boxes, galvanized steel mesh mats or boxes, stone filled, 12" deep	31,200.0 SY	400,917	308,706	471,880	103,814	5,294,489	423,559	1,143,610	6,861,658
(Note: Use historical data for 1' thick stone filled mesh mats, ref at breakwater and jetty sites.)	iference bidders on Seabrook Project. Includes cost materials for 5'x30' mesh mats filled with 3"-6" stone and placing them	on Seabrook Pr	oject. Include	es cost mate	rials for 5'	<30' mesh mats	s filled with 3"-	6" stone and p	lacing them

TRACES MII Version 4.1 Currency in US dollars EQ ID: EP09R08 Labor ID: NLS2010

318,310 22,440

53,052 3,740

19,649 1,385

245,610 17,315

4,816 340

21,890

18,598 14,321

1,010

1,311

1.0 MO

1.0 EA

(Note: misc supervisory labor associated with cleanup and closeout of contractor area and work site.)

Mil. 013107000310 Civil superintendent

Demobilization

MIL X-CARPNTER Outside Carpenters MIL X-ELECTRN Outside Electricians

3,962 5,876

979

245 363 11,634

1,939

1,327

221

82

1,024 3,057 4,534 8,977

8 8

272 404 800

89

264

231

MIL X-EQOPRHVY Outside Equip. Operators, Heavy MIL X-EQOPRMED Outside Equip. Operators, Medium

24.0 HR 40.0 HR 80.0 HR

16.0 HR

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Print Date Wed 30 March 2011 Fff Date 3/28/2014	Droiport	U.S. Army Corps of Engineers Project Saco 25A: Saco Camp Filis Alt 25A	of Engineers	# 25∆					Time 11:15:02
		Saco Camp Ellis - Preliminary	Preliminary					Detailed Est	Detailed Estimate Page 5
Description	Quantity U	HOOF WON	НООН	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
MIL X-LABORER Outside Laborers, (Semi-Skilled)	240.0 HR	R 1,647	1,268	1,938	426	21,748	1,740	4,698	28,185
(Note: assume three laborers two weeks for various tasks associal contractor yard.)	ited with prep	ed with preparing to move equipment back to home office and general cleanup and packing equipment at work site	luipment bac	k to home of	fice and g	enerał cleanup	and packing (equipment at w	ork site
MIL X-TRKDVRHV Outside Truck Drivers, Heavy	40.0 HR	R 316	243	372	82	4,176	334	905	5,412
MIL X-TRKDVRLT Outside Truck Drivers, Light	40.0 HR	R 150	116	177	39	1,983	159	428	2,570
HNC 017413200300 Cleaning Up, site debris clean up and removal	4.0 A	ACR 285	220	336	74	3,766	301	813	4,881
AF 015602500100 Temporary Fencing, chain link, 6' high, 11 ga	800.0 LF	O tı	0	0	0	0	0	0	0
(Note: labor only cost to dismantle chain link fencing)									
AF 015807000010 Project Signs, sign, Hi-intensity reflectorized, buy, excl. posts	200.0 SF	٦ 43	33	20	_	566	45	122	733
(Note: Used for labor to remove signs and posts during demobilizati	tion)								
AF 015205000350 Office Trailer, furnished, rent per month, 32' \times 8', exd. hookups	1.0 M	MO 29	23	8	7	377	30	8	489
(Note: Cost to remove and return office trailer at end of project)									
RSM 015213201350 Storage Boxes, rent per month, 40' x 8'	1.0 M	MO 14	Ξ	17	4	189	15	41	244
(Note: Cost to remove and return rental storage box at end of project)	(t								
GEN T45Z7120 TRUCK TRAILER, FLATBED, 40 TON (36.3 MT), 48' (14.6 M) LENGTH, 2 AXLE (ADD TOWING TRUCK)	40.0 HR	R 36	78	42	თ	474	38	102	615
EP T50XX025 TRUCK, HIGHWAY, 30,000 LBS GVW, 2 AXLE, 4X4 (CHASSIS ONLY-ADD OPTIONS)	40.0 HR	141	108	166	36	1,858	149	401	2,408
MAP T50XX002 TRUCK, HIGHWAY, CONVENTIONAL, 3/4 TON PICKUP, 4X2	80.0 HR	٦ 135	104	159	35	1,780	142	384	2,306
EP L40KM003 LOADER, FRONT END, WHEEL, 2.50 CY BUCKET, ARTICULATED, 4X4	40.0 HR	303	233	356	78	3,996	320	863	5,179
RSM 061333520300 User defined item for demobilization of spud barge, includes tug and crew	150.0 MI	10,714	8,250	12,611	2,774	141,492	11,319	30,562	183,374
RSM 061333520300 User defined item for demobilization of work barges, includes tug and crew	50.0 MI	2,143	1,650	2,522	555	28,298	2,264	6,112	36,675

Currency in US dollars

U.S. Army Corps of Engineers Project Saco 25A: Saco Camp Ellis Alt 25A - Beach Nourishment Estimate Saco Camp Ellis - Preliminary

Title Page

Time 11:40:05

Saco Camp Ellis Alt 25A - Beach Nourishment Estimate

This estimate is to purchase, deliver and spread 328,000 cy of beach nourishment sand on the Saco Camp Ellis beach.

The Means estimating guide was used as a backup reference for developing user defined line items. The markups consist of 5% FOH, 3% HOH, 5% profit, 2% bond, 15% contingency and 8% escalation (2% for one year of database adjustment and 2% per year for three years to mid point of construction)

Mike Remy CENAE Mike Remy Estimated by Designed by Prepared by

3/28/2011 9/28/2014 365 Days Preparation Date Effective Date of Pricing Estimated Construction Time

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E-71

Labor ID: NLS2010

EQ ID: EP09R08

Currency in US dollars

U.S. Army Corps of Engineers Project Saco 25A: Saco Camp Ellis Alt 25A - Beach Nourishment Estimate	Saco Camp Ellis - Preliminary
Print Date Wed 30 March 2011 Eff. Date 9/28/2014	

Time 11:40:05

	Saco	Saco Camp Ellis - Preliminary	reliminary					Detailed Es	Detailed Estimate Page 1
Description	Quantity UOM	JOOL M	ноон ноог	Profit	Bond	Bond ContractCost Escalation Contingency	Escalation	Contingency	ProjectCost
Detailed Estimate		430,235	331,281	506,387	111,405	5,681,660	454,533	920,429	7,056,622
Beach Nourishment 25A	328,040.0 EA	430,235	331,281	506,387	111,405	5,681,660	454,533	920,429	7,056,622
(Note: This is cost out for 328,040 cy for beach nourishment.)									
Sand-Transport and Spead on Beach-328,040 cy	328,040.0 CY		430,235 331,281 506,387 111,405	506,387	111,405	5,681,660	454,533	920,429	7,056,622
(Note: User created line itme-assume upland source for sand, (ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)	way in 12 C	dump truc	ks. Assum	e bank rur	sand for lower	r price for lar	ge quantity.)	
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	328,040.0 LCY		387,874 298,663 456,527 100,436	456,527	100,436	5,122,235	409,779	829,802	6,361,816
(Note: used Means estimating guide for 12cy load, 20 mile round Brothers Gorham NH, October 2010.)	d trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per vendor quote,Shaw	ık run sand a	t low cost p	er cy, plus	loading. M	aterial cost and	hauling cost	per vendor quo	e,Shaw
MIL X-LABORER Outside Laborers, (Semi-Skilled)	1,040.0 HR	5,723	4,407	6,736	1,482	75,579	6,046	12,244	698'866
(Note: One laborer for three months to assist in sand speading op	perations on beach.)	·							
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	328,040.0 BCY	.Y 36,638	3 28,212	43,123	9,487	483,846	38,708	78,383	926,009

BEACH RENOURISHMENT COSTS ALTERNATIVE PLANS

Print Date Wed 24 October 2012 Eff. Date 3/28/2111

U.S. Army Corps of Engineers Project Saco CBN: Saco - Beach Fill Only Hist SL- 432,000 cy Saco Camp Ellis - Corrected Estimate 7-20-11

Title Page

Saco - Beach Fill Only Hist SL- 432,000 cy
This is an estimate to provide, deliver and spread 432,000 CY of cyclical beach nourishment sand from and upland source. No general contractor markups are included. This is estimated as a separate contract for nourishment only. The markups consist of 5% JOOH, 3% HOOH,10% profit, 2% bond and 15% contingency. Productivity is set at 90% and escalation 8% (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of construction).

Mike Remy CENAE Mike Remy Estimated by Designed by Prepared by

3/28/2011 3/28/2111 365 Days Preparation Date

Estimated Construction Time

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EQ ID: EP09R08 Labor ID: NLS2010

Currency in US dollars

TRACES MII Version 4.1

October 2012		U.S. Army Corps of Engineers	Ingineers	000					Time 11:33:28	
Eff. Date 3/28/2111	lect Saco CBN: Saco - beach Fill Only Hist SL- 432,000 cy Saco Camp Ellis - Corrected Estimate 7-20-11	Sorrected	Only Hist : Estimate 7	5L- 432,000 -20-11	cy C			Detailed Est	Detailed Estimate Page 1	
Description	Quantity UOM JOOH HOOH Profit Bond ContractCost Escalation Contingency ProjectCost	JOOH	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost	
Detailed Estimate		306,151	192,875	192,875 662,204 145,685	145,685	7,429,927	594,394	1,203,648	9,227,969	
Beach Fill Renourishment	432,000.0 CY	306,151	192,875	306,151 192,875 662,204 145,685	145,685	7,429,927	594,394	1,203,648	9,227,969	
Sand-Transport and Spread on Beach	432,000.0 CY	306,151	192,875	306,151 192,875 662,204 145,685	145,685	7,429,927	594,394	1,203,648	9,227,969	
(Note: User created line itme-assume upland source for sand, ten	en mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)	in 12 CY	dump truc	cs. Assumo	e bank run	sand for lower	price for larg	e quantity.)		
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	432,000.0 LCY 280,821 176,917 607,415 133,631	280,821	176,917	607,415	133,631	6,815,200	545,216	1,104,062	8,464,478	
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw Brothers Gorham Maine, October 2010.)	l trip. Assume bank ru	in sand at l	ow cost pe	ır cy, plus l	oading. Ma	aterial cost and h	nauling cost p	oer price list 20	10, Shaw	
MIL X-LABORER Outside Laborers, (Semi-Skilled)	600.0 HR	1,601	1,009	3,463	762	38,857	3,109	6,295	48,260	
(Note: One laborer to assist in sand spreading operations on beach.)	ch.)									
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	432,000.0 BCY	23,729	14,949	51,325	11,292	575,870	46,070	93,291	715,231	

Print Date Wed 24 October 2012 Eff. Date 3/28/2011

U.S. Army Corps of Engineers Project Saco CBN: Saco-Beach Fill Only Inter SL Renourishment 505,000 cy Saco Camp Ellis - Corrected Estimate 7-20-11

Title Page

Saco-Beach Fill Only Inter SL Renourishment 505,000 cy
This is an estimate to provide, deliver and spread 505,000 CY of cyclical beach nourishment sand from and upland source. No general contractor markups are included. This is estimated as a separate contract for nourishment only. The markups consist of 5% JOOH, 3% HOH, 10% profit, 2% bond and 15% contingency. Productivity is set at 90% and escalation 8% (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of construction).

Mike Remy CENAE Mike Remy Estimated by Designed by Prepared by

3/28/2011 3/28/2011 365 Days Preparation Date Estimated Construction Time

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EQ ID: EP09R08 Labor ID: NLS2010

Currency in US dollars

TRACES MII Version 4.1

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Currency in US dollars

EQ ID: EP09R08

Labor ID: NLS2010

October 2012	U.S. Arm	U.S. Army Corps of Engineers	Engineers	400	5000 303				Time 11:35:34
Eff. Date 3/28/2011	Project Saco Cbn: Saco-Beach Fill Only Intel St. Renouls/Intel 303,000 cy Saco Camp Ellis - Corrected Estimate 7-20-11	- Corrected	er or Reno Estimate 7	unsniment. -20-11	500,000 cy			Detailed Est	Detailed Estimate Page 1
Description	Quantity UOM JOOH HOOH Profit Bond ContractCost Escalation Contingency ProjectCost	HOOF	H00H	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate		357,881	357,881 225,465 774,096 170,301	774,096	170,301	8,685,357	694,829	1,407,028	10,787,213
Beach Fill Renourishment	505,000.0 CY	357,881	225,465	774,096 170,301	170,301	8,685,357	694,829	1,407,028	10,787,213
Sand-Transport and Spread on Beach	505,000.0 CY	357,881	357,881 225,465 774,096 170,301	774,096	170,301	8,685,357	694,829	1,407,028	10,787,213
(Note: User created line itme-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)	n mile haul one wa	ıy in 12 CY	dump truck	cs. Assume	bank rur	sand for lower	price for larg	je quantity.)	
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	505,000.0 LCY		328,274 206,813 710,057 156,213	710,057	156,213	7,966,843	637,347	1,290,629	9,894,819
(Note: used Means estimating guide for 12cy load, 20 mile round t Brothers Gorham Maine, October 2010.)	trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw	run sand at	low cost pe	r cy, plus l	oading. M	aterial cost and	hauling cost	oer price list 20	10, Shaw
MIL X-LABORER Outside Laborers, (Semi-Skilled)	700.0 HR	1,868	1,177	4,040	889	45,333	3,627	7,344	56,303
(Note: One laborer for one month to assist in sand speading operations on beach.)	tions on beach.)								
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	505,000.0 BCY	27,738	17,475	59,998	13,200	673,181	53,855	109,055	836,091

(Note: Grading nourishment sand on Camp Ellis Beach)

U.S. Army Corps of Engineers Project Saco CBN: Saco - Beach Fill Only -High SL-Beach Renourishment Fill - 548,000 cy Saco Camp Ellis - Corrected Estimate 7-20-11

Print Date Wed 24 October 2012 Eff. Date 3/28/2014

Title Page

Saco - Beach Fill Only -High SL-Beach Renourishment Fill - 548,000 cy
This is an estimate to provide, deliver and spread 548,000 CY of cyclical beach nourishment sand from and upland source. No general contractor markups are included. This is estimated as a separate contract for nourishment only. The markups consist of 5% JOOH, 3% HOH, 10% profit, 2% bond and 15% contingency. Productivity is set at 90% and escalation 8% (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of construction).

Mike Remy CENAE Mike Remy Estimated by Designed by Prepared by

3/28/2014 365 Days 3/28/2011 Estimated Construction Time Preparation Date

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EQ ID: EP09R08 Labor ID: NLS2010

Currency in US dollars

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U.S. Army Corps of Engineers Project Saco CBN: Saco - Beach Fill Only -High SL-Beach Renourishment Fill - 548,000 cy Saco Camp Ellis - Corrected Estimate 7-20-11

Print Date Wed 24 October 2012 Eff. Date 3/28/2014

Time 11:36:42

Detailed Estimate Page 1

Description	Quantity	MON	JOOH	НООН	Profit	Bond	Quantity UOM JOOH HOOH Profit Bond ContractCost Escalation Contingency ProjectCost	Escalation	Contingency	ProjectCost
Detailed Estimate			388,328	244,647	244,647 839,954 184,790	184,790	9,424,280	753,942	1,526,733	11,704,956
Beach Fill Renourishment	548,000.0	≿	388,328	244,647	839,954 184,790	184,790	9,424,280	753,942	1,526,733	11,704,956
Sand-Transport and Spread on Beach	548,000.0 CY	≿	388,328	244,647	388,328 244,647 839,954 184,790	184,790	9,424,280	753,942	1,526,733	11,704,956
(Note: User created line itme-assume upland source for sand, ten	n mile haul or	ne way	n 12 CY o	fump truck	s. Assume	bank rur	mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)	price for larg	je quantity.)	
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	548,000.0 LCY 356,226 224,423 770,518 169,514	ΓC	356,226	224,423	770,518	169,514	8,645,207	691,617	1,400,524	10,737,348
(Note: used Means estimating guide for 12cy load, 20 mile round tr Brothers Gorham Maine, October 2010.)	ip. Assume	bank rur	sand at l	ow cost pe	r cy, plus k	oading. M	trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw	hauling cost	oer price list 20	10, Shaw
MIL X-LABORER Outside Laborers, (Semi-Skilled)	750.0	壬	2,001	1,261	4,329	952	48,571	3,886	7,868	60,325

MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer

(Note: One laborer for to assist in sand speading operations on beach.)

907,283

118,341

58,440

730,502

14,324

65,107

18,963

30,100

548,000.0 BCY

U.S. Army Corps of Engineers Project Saco CBN: Saco - Alt 6 Hist SL-Beach Renourishment Fill - 116,350 cy Saco Camp Ellis - Preliminary

Title Page

Time 15:56:38

Saco - Alt 6 Hist SL-Beach Renourishment Fill - 116,350 cy
This is an estimate to provide, deliver and spread 116,350 CY of cyclical beach nourishment sand from and upland source. No general contractor markups are included. This is estimated as a separate contract for nourishment only. The markups consist of 5% JOOH, 3% HOOH, 10% profit, 2% bond and 15% contingency. Productivity is set at 90% and escalation 8% (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of construction).

Mike Remy CENAE Mike Remy Estimated by Designed by Prepared by

3/28/2011 3/28/2014 365 Days Estimated Construction Time Preparation Date

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Labor ID: NLS2010

EQ ID: EP09R08

Currency in US dollars

Time 15:56:38	Detailed Estimate Page 1	Quantity UOM JOOH HOOH Profit Bond ContractCost Escalation Contingency ProjectCost
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116,350		Bond
nent Fill -		Profit
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U.S. Army Corps of Engineers - Alt 6 Hist SL-Beach Renouri	Saco Camp Ellis - Preliminary	HOOP
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CBN: Sacc	Saco (Quantity
Project Saco (•	
Print Date Wed 30 March 2011 Eff. Date 3/28/2014		Description

Description	Quantily	MOM	HOOF	HOOH	Profit	Bond	Quantity UOM JOOH HOOH Profit Bond ContractCost Escalation Contingency ProjectCost	Escalation	Contingency	ProjectCost
Detailed Estimate			82,611	52,045	178,688	39,311	2,004,875	160,390	324,790	2,490,054
Beach Fill Renourishment	116,350.0 CY		82,611 52,045	52,045	178,688	39,311	2,004,875	160,390	324,790	2,490,054
Sand-Transport and Spread on Beach	116,350.0 CY		82,611	52,045	82,611 52,045 178,688	39,311	2,004,875	160,390	324,790	2,490,054
(Note: User created line itme-assume upland source for sand, ten mil	e haul one w	ay in 12	2 CY dur	np trucks	. Assume	bank run	ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)	price for larg	e quantity.)	
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	116,350.0 LCY 75,633 47,649 163,594 35,991	ΓC	75,633	47,649	163,594	35,991	1,835,529	146,842	297,356	2,279,727
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw Brothers Gorham Maine, October 2010.)	Assume banl	run sar	nd at low	cost per	cy, plus lo	ading. Ma	aterial cost and	hauling cost p	oer price list 20	10, Shaw
MIL X-LABORER Outside Laborers, (Semi-Skilled)	220.0	至	587	370	1,270	279	14,247	1,140	2,308	17,695
(Note: One laborer to assist in sand speading operations on beach.)										
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	116,350.0 BCY	BC≺	6,391	4,026	13,823	3,041	155,098	12,408	25,126	192,632

(Note: Grading nourishment sand on Camp Ellis Beach)

U.S. Army Corps of Engineers Project Saco CBN: Saco - Alt 6 Inter SL-Beach Renourishment Fill - 191,750 cy Saco Camp Ellis - Preliminary

Title Page

Time 15:55:33

Saco - Alt 6 Inter SL-Beach Renourishment Fill - 191,750 cy
This is an estimate to provide, deliver and spread 191,750 CY of cyclical beach nourishment sand from and upland source. No general contactor markups are included. Markups are 5% JOOH, 3% HOOH, 10% profit, 2% bond and 15% contingency. Productivity is set at 90% and escalation 8% (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of construction).

CENAE Mike Remy Mike Remy Estimated by Designed by Prepared by

3/28/2011 Preparation Date

3/28/2014 365 Days Effective Date of Pricing Estimated Construction Time This report is not copyrighted, but the information contained herein is For Official Use Only.

EQ ID: EP09R08

Labor ID: NLS2010

U.S. Army Corps of Engineers Project Saco CBN: Saco - Alt 6 Inter SL-Beach Renourishment Fill - 191,750 cy Saco Camp Ellis - Preliminary

Print Date Wed 30 March 2011 Eff. Date 3/28/2014

Time 15:55:33

Detailed Estimate Page 1

Description	Quantity	MOM	JOOH	H00H	Profit	Bond	Quantity UOM JOOH HOOH Profit Bond ContractCost Escalation Contingency ProjectCost	Escalation	Contingency	ProjectCost
Detailed Estimate			136,113	85,751	294,413 64,771	64,771	3,303,309	264,265	535,136	4,102,710
Beach Fill Renourishment	191,750.0 CY	≿	136,113	85,751	294,413	64,771	3,303,309	264,265	535,136	4,102,710
Sand-Transport and Spread on Beach	191,750.0 CY	Շ	136,113	136,113 85,751	294,413 64,771	64,771	3,303,309	264,265	535,136	4,102,710
(Note: User created line itme-assume upland source for sand, ten mi	le haul one	way in '	12 CY dur	np trucks	. Assume	bank run	ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)	price for larg	e quantity.)	
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	191,750.0 LCY 124,647 78,527 269,611 59,314	ΓC	124,647	78,527	269,611	59,314	3,025,034	242,003	490,055	3,757,092
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw Brothers Gorham Maine, October 2010.)	Assume bar	nk run sa	and at low	cost per o	cy, plus lo	ading. Ma	sterial cost and I	nauling cost p	er price list 20	I0, Shaw
MIL X-LABORER Outside Laborers, (Semi-Skilled)	350.0 HR	품	934	588	2,020	444	22,666	1,813	3,672	28,152
(Note: One laborer to assist in sand speading operations on beach.)										
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	191,750.0 BCY	BC≺	10,532	6,635	22,782	5,012	255,609	20,449	41,409	317,466

U.S. Army Corps of Engineers Project Saco CBN: Saco - Alt 6 High SL-Beach Renourishment Fill - 235,733 cy Saco Camp Ellis - Preliminary

Title Page

Time 15:57:52

Saco - Alt 6 High SL-Beach Renourishment Fill - 235,733 cy
This is an estimate to provide, deliver and spread 235,733 CY of cyclical beach nourishment sand from and upland source. No general contractor markups are included. This is estimated as a separate contract for nourishment only. The markups consist of 5% JOOH, 3% HOOH, 10% profit, 15% contingency. Productivity is set at 90% and 8% escalation (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of construction).

Mike Remy CENAE Mike Remy Estimated by Designed by Prepared by

3/28/2011 3/28/2014 Preparation Date

365 Days Effective Date of Pricing Estimated Construction Time This report is not copyrighted, but the information contained herein is For Official Use Only.

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EQ ID: EP09R08

Labor ID: NLS2010

Time 15:57:52

Detailed Estimate Page 1

Description	Quantity	MOU	HOOP	HOOH	Profit	Bond	Quantity UOM JOOH HOOH Profit Bond ContractCost Escalation Contingency ProjectCost	Escalation	Contingency	ProjectCost
Detailed Estimate		·	167,187	105,328 361,625 79,557	361,625	79,557	4,057,432	324,595	657,304	5,039,330
Beach Fill Renourishment	235,733.0 CY		167,187	105,328	361,625	79,557	4,057,432	324,595	657,304	5,039,330
Sand-Transport and Spread on Beach	235,733.0 CY		167,187	167,187 105,328 361,625 79,557	361,625	79,557	4,057,432	324,595	657,304	5,039,330
(Note: User created line itme-assume upland source for sand, ten m	ile haul one	way in	12 CY du	mp trucks	. Assume	bank run	ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)	price for larg	je quantity.)	
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	235,733.0 LCY 153,238 96,540 331,453 72,920	}	153,238	96,540	331,453	72,920	3,718,906	297,513	602,463	4,618,882
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw Brothers Gorham Maine, October 2010.)	Assume ba	nk run s	and at lov	v cost per	cy, plus lo	ading. Ma	aterial cost and	hauling cost p	oer price list 20	10, Shaw
MIL X-LABORER Outside Laborers, (Semi-Skilled)	375.0 HR	华	1,001	630	2,164	476	24,285	1,943	3,934	30,162
(Note: One laborer to assist in sand speading operations on beach.)										
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	235,733.0 BCY	3CY	12,948	8,157	28,007	6,162	314,240	25,139	50,907	390,286

U.S. Army Corps of Engineers Project Saco CBN: Saco - Alt 25A Hist SL-Beach Renourishment Fill 123,188 cy Saco Camp Ellis - Preliminary

Title Page

Time 15:59:52

Saco - Alt 25A Hist SL-Beach Renourishment Fill 123,188 cy
This is an estimate to provide, deliver and spread 123,188 CY of cyclical beach nourishment sand from and upland source. No general contractor markups are included. This is estimated as a separate contract for nourishment only. The markups consist of 5% JOOH, 3% HOOH, 10% profit, 2% bond and 15% contingency. Productivity is set at 90% and escalation 8% (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of construction).

CENAE Mike Remy Mike Remy Estimated by Designed by Prepared by

Preparation Date

3/28/2011 3/28/2014 365 Days Estimated Construction Time This report is not copyrighted, but the information contained herein is For Official Use Only.

Currency in US dollars

EQ ID: EP09R08

Labor ID: NLS2010

Labor ID: NLS2010

U.S. Army Corps of Engineers Project Saco CBN: Saco - Alt 25A Hist SL-Beach Renourishment Fill 123,188 cy Saco Camp Ellis - Preliminary

Print Date Wed 30 March 2011 Eff. Date 3/28/2014

Time 15:59:52

	Saco Camp Ellis - Preliminary	Ellis - Prelir	ninary	■	5	÷		Detailed Est	Detailed Estimate Page 1
Description	Quantity UOM JOOH HOOH Profit Bond ContractCost Escalation Contingency ProjectCost	HOOF I	HOOH	Profit	Bond	ContractCost	Escalation	Contingency	ProjectCost
Detailed Estimate		87,512	55,132	87,512 55,132 189,288 41,643	41,643	2,123,809	169,905	344,057	2,637,770
Beach Fill Renourishment	123,188.0 CY	87,512	55,132	87,512 55,132 189,288 41,643	41,643	2,123,809	169,905	344,057	2,637,770
Sand-Transport and Spread on Beach	123,188.0 CY	87,512	55,132	87,512 55,132 189,288 41,643	41,643	2,123,809	169,905	344,057	2,637,770
(Note: User created line itme-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)	ile haul one way in	12 CY dui	np trucks	. Assume	bank run	sand for lower	price for lar	je quantity.)	
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	123,188.0 LCY	80,078	50,449	80,078 50,449 173,209 38,106	38,106	1,943,405	155,472	314,832	2,413,709
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw Brothers Gorham Maine, October 2010.)	Assume bank run	sand at low	cost per	cy, plus lo	ading. Ma	aterial cost and	hauling cost	oer price list 20	I0, Shaw
MIL X-LABORER Outside Laborers, (Semi-Skilled)	250.0 HR	299	420	1,443	317	16,190	1,295	2,623	20,108
(Note: One laborer to assist in sand speading operations on beach.)									
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	123,188.0 BCY	992'9	4,263	14,636	3,220	164,214	13,137	26,603	203,953

U.S. Army Corps of Engineers Project Saco CBN: Saco -Alt 25A Int SL-Beach Renourishment Fill - 225,940 cy Saco Camp Ellis - Preliminary

Title Page

Time 15:52:44

Saco -Alt 25A Int SL-Beach Renounishment Fill - 225,940 cy
This is an estimate to provide, deliver and spread 225,940 CY of cyclical beach nounishment sand from and upland source. No general contractor markups are included. This is estimated as a separate contract for nounishment only. The markups consist of 5% JOOH, 3% HOOH, 10% profit, 2% bond and 15% contingency. Productivity is set at 90% and escalation 8% (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of constructiont).

CENAE Mike Remy Mike Remy Estirnated by Designed by Prepared by

3/28/2011 9/28/2014 365 Days Preparation Date Effective Date of Pricing Estimated Construction Time This report is not copyrighted, but the information contained herein is For Official Use Only.

EQ ID: EP09R08

Labor ID: NLS2010 EQ ID: EP09R08

Print Date Wed 30 March 2011	CBN: Caco	U.S. Army Corps of Engineers	ngineers	mont Fill	225 040 4				Time 15:52:44
	Saco Cal	Saco Camp Ellis - Preliminary	liminary		046,622	÷.		Detailed Est	Detailed Estimate Page 1
Description	Quantity UOM		HOOH	Profit	Bond	JOOH HOOH Profit Bond ContractCost Escalation Contingency	Escalation	Contingency	ProjectCost
Detailed Estimate		160,067	100,842	160,067 100,842 346,226 76,170	76,170	3,884,652	310,772	629,314	4,824,738
Beach Fill Renourishment	225,940.0 CY	160,067	100,842	160,067 100,842 346,226 76,170	76,170	3,884,652	310,772	629,314	4,824,738
Sand-Transport and Spread on Beach	225,940.0 CY	160,067	100,842	160,067 100,842 346,226 76,170	76,170	3,884,652	310,772	629,314	4,824,738
(Note: User created line itme-assume upland source for sand, ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)	d, ten mile haul one wa	y in 12 CY d	ump truck	s. Assume	bank rur	sand for lower	r price for lar	ge quantity.)	
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	225,940.0 LCY 146,872 92,529 317,684 69,890	146,872	92,529	317,684	068'69	3,564,413	285,153	577,435	4,427,001
(Note: used Means estimating guide for 12cy load, 20 mile round trip adjusted for 30 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw Brothers Gorham Maine, October 2010.)	und trip adjusted for 30 r er 2010.)	nile round tri	o. Assume	bank run	sand at lo	w cost per cy, p	olus loading.	Material cost ar	d hauling
MIL X-LABORER Outside Laborers, (Semi-Skilled)	400.0 HR	1,067	672	2,309	208	25,904	2,072	4,197	32,173
(Note: One laborer to assist in sand speading operations on beach.)	each.)								
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	.P., 225,940.0 BCY	12,128	7,641	26,233	5,771	294,335	23,547	47,682	365,564
(Note: Grading nourishment sand on Camp Ellis Beach)									
HNC 312323184100 Hauling, sand, 12 C.Y. truck, 5 mile haul, includes loading	0.0 LCY	0	0	0	0	0	0	0	0

U.S. Army Corps of Engineers Project Saco CBN: Saco - 25A High SL-Beach Renourishment Fill - 285,879cy Saco Camp Ellis - Preliminary

Title Page

Time 15:53:56

Saco - 25A High SL-Beach Renourishment Fill - 285,879cy
This is an estimate to provide, deliver and spread 285,879 CY of cyclical beach nourishment sand from and upland source. No general contractor markups are included. This is estimated as a separate contract for nourishment only. The markups consist of 5% JOOH, 3% HOOH, 10% profit, 2% bond and 15% contingency. Productivity is set at 90% and escalation 8% (2% for one year data base adjustment and assume 2% per year for approximately three years to mid point of construction).

Mike Remy CENAE Mike Remy Estimated by Designed by Prepared by

3/28/2011 Preparation Date

9/28/2014 365 Days Effective Date of Pricing Estimated Construction Time This report is not copyrighted, but the information contained herein is For Official Use Only.

Currency in US dollars

EQ ID: EP09R08

Labor ID: NLS2010

U.S. Army Corps of Engineers	Project Saco CBN: Saco - 25A High SL-Beach Renourishment Fill - 285,879cy	Saco Camp Ellis - Preliminary

Time 15:53:56

Detailed Estimate Page 1

1				i	,				
Description	Quantity	OOC WO	티	Profit	Bond	Quantity UOM JOOH HOOH Profit Bond ContractCost Escalation Contingency ProjectCost	Escalation	Contingency	ProjectCost
Detailed Estimate		202,87	202,872 127,809	438,812 96,539	96,539	4,923,473	393,878	797,603	6,114,953
Beach Fill Renourishment	285,879.0 CY		202,872 127,809 438,812	438,812	96,539	4,923,473	393,878	797,603	6,114,953
Sand-Transport and Spread on Beach	285,879.0 CY		202,872 127,809 438,812 96,539	438,812	96,539	4,923,473	393,878	797,603	6,114,953
(Note: User created line itme-assume upland source for sand, ten r	mile haul one v	vay in 12 CN	dump truck	cs. Assume	bank run	ten mile haul one way in 12 CY dump trucks. Assume bank run sand for lower price for large quantity.)	price for larg	je quantity.)	
AF 023154904100 Sand material plus hauling, sand, 12 C.Y. truck, 10 mile one way haul, includes loading	285,879.0 LCY 185,835 117,076 401,961 88,431	3Y 185,83	117,076	401,961	88,431	4,510,006	360,800	730,621	5,601,427
(Note: used Means estimating guide for 12cy load, 20 mile round trip. Assume bank run sand at low cost per cy, plus loading. Material cost and hauling cost per price list 2010, Shaw Brothers Gorham Maine, October 2010.)	o. Assume ban	k run sand a	t low cost pe	r cy, plus la	ading. Ma	aterial cost and	hauling cost p	oer price list 20	10, Shaw
MIL X-LABORER Outside Laborers, (Semi-Skilled)	500.0 HR	٦,334	14 841	2,886	635	32,381	2,590	5,246	40,217
(Note: One laborer to assist in sand speading operations on beach.)									
MIL 023103303030 Rough grading, open site, small area, 75 H.P., dozer	285,879.0 BCY	CY 15,703	9,893	33,965	7,472	381,086	30,487	61,736	473,309

(Note: Grading nourishment sand on Camp Ellis Beach)