Aquatic Eco-System Restoration
Chester Creek
Anchorage, Alaska

Designed By: TNH Inc.
Estimated By: CEPOA-EN-CE

Prepared By: Al Arruda / Anne D. Fore

Preparation Date: 09/03/03
Effective Date of Pricing: 10/01/03
Est Construction Time: 300 Days

Sales Tax: 0.00%

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Alt A, Trestle:
This estimate was constructed by HMS, Inc. based on 35% drawings and some major quantities prepared by Tryck Nyman Hayes, Inc., in conjunction with HDR of Anchorage, Alaska.

Prices are based on current local materials and equipment.
Crew ID and productive rates are based on MCACES cost books with minor variations to reflect job conditions.
Per client's instructions, both channel restoration and ARRC work will be bid as a single contract, and all work will be accomplished over two construction seasons.

The following sequence has been used for construction.
CHANNEL WORK: All lagoon work to be done when lagoon has been drained by Municipality of Anchorage for regular maintenance. Bike trail paving, fencing and landscaping will be done during the summer season.

ARRC WORK: Build temporary shoofly tracks to re-direct railroad traffic, build bridge and tracks, construct lagoon outfall to the inlet, connect new bridge and tracks to existing, demolish shoofly tracks and grade embankment.

Please note that this estimate excludes work to be performed by Municipality of Anchorage (MOA) (72" diameter slip line pipe, force main demolition and rehab existing concrete intake).

Piling and precast concrete girders prices are based on ARRC International Airport Terminal under construction. NFS fill, gravel, rip rap prices are from local sources (ASG, Wilder, State of Alaska bid tabulations of actual contracts).

This Total Project Cost estimate is unvalidated by USACE.
The total project cost is accepted without prejudice, but may require extensive updating or revision. The construction contingency allowance was changed to 20% and the SIOH to 8.0% for Civil Works program; and the estimate was repriced for a construction midpoint of Nov 2004 by USACE.

Alt B, Culvert:
This alternative substitutes a buried culvert for a minimum section of open channel construction and a trestle to cross it. This alternative cost estimate is based on Aquatic Ecosystem Restoration Design Technical Memeorandum, July 2003, and a generic cross-section prepared by Tryck Nyman Hayes, Inc. of Anchorage, Alaska. The deleted cost elements were taken from the Alt A, total project cost estimate by HMS, Inc. Prices are based on current local materials and equipment. Crew ID and productive rates are based on MCACES cost books. The construction contingency allowance was changed to 20% and the SIOH to 8.0% for Civil Works program; and the estimate was repriced for a construction midpoint of Nov 2004 by USACE.

The culvert is an 18 ft diameter round corrugated aluminum multiplate construction. The flow thalweg will be constructed inside the culvert. The culvert trench to be backfilled to original ground elevation and compacted to support the existing railroad trackage. The trackage will be permanently

replaced subsequent to the end of the gravel-haul season.

A constant ground elevation and cross-section was assumed over the length of the culvert for both channel excavation and and culvert trench/backfill quantities. It was assumed that both channel restoration and ARRC work will be bid as a single contract in Spring 2004, and all work will be accomplished over two construction seasons.

The following sequence has been used for construction.
CHANNEL WORK: All lagoon work to be done when lagoon has been drained by Municipality of Anchorage for regular maintenance.

CULVERT/ARRC WORK: ARR to temporarily remove & replace tracks and to halt railroad traffic during a 48-hour window while culvert is installed.

Quantities for Alt B excavation, backfill, and channel riprap provided by POA-EN-CW-PF.
USACE makes no stipulation as to the accuracy of the cost estimate aside from the assumptions stated.

	QUANTITY	UOM	CONTRACT	ESCALATN	CONTINGN	SIOH	TOTAL COST	UNIT COST
01 Restoration - Alt A Trestle								
01.1A CHANNEL CONSTRUCTION	9.90	ACR	1,903,942	77,532	396,295	190,222	2,567,991	259393.01
01.1B ARRC BRIDGE AND TRACKS	2215.00	LF	2,870,743	116,902	597,529	286,814	3,871,988	1748.08
TOTAL Restoration - Alt A Trestle	1.00	EA	4,774,685	194,434	993,824	477,035	6,439,979	6439979
02 Restoration - Alt B Culvert								
02.1A DELETE - CHANNEL CONSTRUCTION	178.20	LF	-236,794	-9,643	-49,287	-23,658	-319,382	-1792.27
02.1B DELETE - ARRC BRIDGE AND TRACKS	2215.00	LF	-2,870,743	-116,902	-597,529	-286,814	-3,871,988	-1748.08
02.1C ADD - CULVERT CONSTRUCTION	178.00	LF	1,053,540	42,902	219,288	105,258	1,420,989	7983.08
TOTAL Restoration - Alt B Culvert	1.00	EA	-2,053,997	-83,643	-427,528	-205,213	-2,770,381	-2770381
TOTAL Aquatic Eco-System Restoration	1.00	EA	2,720,688	110,792	566,296	271,822	3,669,598	3669598

** CONTRACTOR SETTINGS **

		AMOUNT	PCT	PCT S	RISK	DIFF	SIZE	PERIOD	INVEST	ASSIST	SUBCON
SW Site Work Prime Contractor											
Prime Contractor's Overhead	P		15.62								
Prime's Home Office Expense	P		4.00								
Prime Contractor's Profit	P		8.00								
Prime contractor's Bond	P		1.25								
Estimator's Contingency (12.00%)	P		12.00								
RR Railroad Subcontractor											
Prime Contractor's Overhead	P		16.51								
Prime's Home Office Expense	P		5.00								
Prime Contractor's Profit	P		7.00								
Prime contractor's Bond	P		1.00								
Estimator's Contingency (12.00%)	P		0.00								
PC Precast Concrete Subcontractor											
Prime Contractor's Overhead	P		22.35								
Prime's Home Office Expense	P		5.00								
Prime Contractor's Profit	P		7.00								
Prime contractor's Bond	P		1.00								
Estimator's Contingency (12.00%)	P		0.00								
TF Pile, Foundations Subcontractor											
Prime Contractor's Overhead	P		10.00								
Prime's Home Office Expense	P		4.50								
Prime Contractor's Profit	P		6.50								
Prime contractor's Bond	P		1.00								
Estimator's Contingency (12.00%)	P		0.00								
EL Electrical Subcontractor											
Prime Contractor's Overhead	P		10.00								
Prime's Home Office Expense	P		4.50								
Prime Contractor's Profit	P		6.50								
Prime contractor's Bond	P		1.00								
Estimator's Contingency (12.00%)	P		0.00								
SS Structural Steel Subcontractor											
Prime Contractor's Overhead	P		10.00								
Prime's Home Office Expense	P		4.50								
Prime Contractor's Profit	P		6.50								
Prime contractor's Bond	P		1.00								
Estimator's Contingency (12.00%)	P		0.00								

** CONTRACTOR SETTINGS **

		AMOUNT	PCT	PCT S	RISK	DIFF	SIZE	PERIOD	INVEST	ASSIST	SUBCON
PS Painting & Sealants Subcont.											
Prime Contractor's Overhead	P		10.00								
Prime's Home Office Expense	P		4.50								
Prime Contractor's Profit	P		6.50								
Prime contractor's Bond	P		1.00								
Estimator's Contingency (12.00%)	P		0.00								
PL Plumbing Subcontractor											
Prime Contractor's Overhead	P		10.00								
Prime's Home Office Expense	P		4.50								
Prime Contractor's Profit	P		6.50								
Prime contractor's Bond	P		1.00								
Estimator's Contingency (12.00%)	P		0.00								
AR Alaska Railroad											
Prime Contractor's Overhead	P		0.00								
Prime's Home Office Expense	P		0.00								
Prime Contractor's Profit	P		0.00								
Prime contractor's Bond	P		0.00								
Estimator's Contingency (12.00%)	P		12.00								

01.1A. CHANNEL CONSTRUCTION	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST

01. Restoration - Alt A Trestle
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01.1A. CHANNEL CONSTRUCTION	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
01.1A.01. Primary Facilities											
01.1A.01.17. Site Preparation											
01.1A.01.17.01. Site Clearing											
AF SW <02110 1050 > Clearing, wet, heavy brush & trees	1.30	ACR	COMCB88	0.34	27	1,450	1,130	0	0	2,579	1984.10
AF SW <02110 1050 > Clearing, wet, heavy brush & trees at access road	0.15	ACR	COMCB88	0.34	3	167	130	0	0	298	1984.10
TOTAL Site Clearing	1.45	ACR			30	1,617	1,260	0	0	2,877	1984.10

01.1A. CHANNEL CONSTRUCTION	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
01.1A.01.17.02. Site Demolition											
MIL SW <02046 1800 > Site dml, bituminous driveways	1900.00	SY	CLADB38	80.00	119	6,090	2,194	0	0	8,283	4.36
USR SW <02764 2779 > Cap and weld one end of 72" diameter "fish ladder"	1.00	EA	CLABB14	0.38	16	797	38	1,050	0	1,885	1884.85
USR SW <02240 0010 > Backfill pipe with gravel	118.00	CY	CODTB15	17.49	24	1,185	1,104	1,245	0	3,534	29.95
USR SW <02764 2779 > Cap 72" diameter other end and weld in place for abandoning	1.00	EA	CLABB14	0.38	16	797	38	1,050	0	1,885	1884.85
TOTAL Site Demolition	1900.00	SY			174	8,869	3,373	3,345	0	15,587	8.20
01.1A.01.17.03. Site Earthwork											
MIL SW <02225 0330 > Excav & load on truck,bucket drag line,3 CY,unclassified soil, bank	16760	CY	UOEHB12V	68.75	488	25,534	34,816	0	0	60,349	3.60
USR SW <02234 0339 > Dispose excavated unclassified soil	16760	CY	COEIB34B	13.75	1,218	58,672	45,542	0	0	104,214	6.22
MIL SW <02224 7120 > Excavating, bulk, dozer, trim banks, open site, shaping w/small dozer	2660.00	CY	CODTB10L	32.50	123	6,503	2,389	0	0	8,892	3.34
USR SW <02240 0010 > Type A material at tracks	357.00	CY	CODTB10B	21.43	25	1,324	1,481	4,463	0	7,267	20.36
USR SW <02240 0010 > Type A material at access road	916.00	CY	CODTB10B	21.43	64	3,396	3,800	11,450	0	18,646	20.36
MIL SW <02220 7000 > Compaction, struct/trench, 6" lifts, 2 passes18" wide, vib plate	1273.00	CY	ULABA1	25.00	51	2,484	313	0	0	2,797	2.20
M RSM SW <02270 0100 > Rip-rap, random, machine placed for slope protection	3876.00	CY	UOEHB12G	7.75	1,000	52,383	19,242	91,861	0	163,487	42.18
USR SW <02270 0099 > Stream substrate	3985.00	CY	UOEHB12G	6.30	1,266	66,285	24,349	217,183	0	307,816	77.24
M CIV SW <02266 0064 > Erosion control, nylon, 3 dimensional, 18 mil thick	8050.00	SY	CLABB80A	57.50	420	20,491	2,295	50,635	0	73,421	9.12
M MIL SW <02266 1110 > Erosion control, fence only, silt fence, 3' high, polypropylene	1320.00	LF	ALABCLAB2	45.00	59	2,862	0	713	0	3,575	2.71
TOTAL Site Earthwork	26527	CY			4,714	239,935	134,227	376,304	0	750,465	28.29
TOTAL Site Preparation	1.45	ACR			4,918	250,421	138,859	379,648	0	768,929	530295.66
TOTAL Primary Facilities	1.45	ACR			4,918	250,421	138,859	379,648	0	768,929	530295.66
01.1A.02. Support Facilities											
01.1A.02.18. Site Improvements											
01.1A.02.18.03. Walks, Steps and Ramps (Trails)											
MIL SW <02243 0010 > Base, prepare & roll sub-base, small areas to 2500 SY	3030.00	SY	COFGB32A	187.50	48	2,568	1,335	0	0	3,903	1.29
USR SW <02505 0010 > 2" AC pavement at trails	285.00	TON	COKCB25B	44.44	77	3,922	1,112	37,050	0	42,084	147.66

01.1A. CHANNEL CONSTRUCTION			QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
TOTAL Walks, Steps and Ramps (Trails)			3030.00	SY			125	6,489	2,447	37,050	0	45,987	15.18
01.1A.02.18.04. Site Development													
USR SW	<02842 0009 >	Bike trail signage	8.00	EA	ALABCLAB2	2.00	8	390	0	664	0	1,054	131.79
USR	< >	**WOOD/MESH FENCING**	1.00	EA		0.00	0	0	0	0	0	0	0.00
L USR SW	<02835 7895 >	Auger drill 18" diameter x 42" deep hole 72" o/c	200.00	EA	CLABB80	12.50	64	3,170	262	0	0	3,433	17.16
USR SW	<03372 2399 >	Concrete base (200)	7.00	CY	ULABC	0.44	56	2,740	0	644	0	3,384	483.45
M RSM SW	<02240 0020 >	Fill, borrow, for embankments, load, 1 mile haul, spread w/dozer	22.00	CY	CODTB15	150.00	1	26	24	118	0	168	7.64
USR SW	<02837 0005 >	6"x6"x80" treated wood post with chamfered top, exposed 44" above grade	1334.00	LF	ULABB1	33.33	120	5,897	0	6,403	0	12,301	9.22
L USR SW	<02836 2095 >	1/2" diameter top and bottom painted pipe rails, fixed to posts	2400.00	LF	CLABB80	80.00	120	5,944	492	3,360	0	9,796	4.08
L USR SW	<02836 2095 >	4" diameter top and bottom painted pipe rails, fixed to posts	1200.00	LF	CLABB80	23.53	204	10,105	836	16,560	0	27,501	22.92
USR SW	<02836 1845 >	4" pipe connections	400.00	EA	CLABB80A	6.67	180	8,782	983	7,400	0	17,165	42.91
L USR SW	<02836 0995 >	11 gauge vinyl coated 3'6" chain link mesh fence stretched taut and fixed to 1/2 rails	1200.00	LF	CLABB80A	19.56	184	8,981	1,006	17,700	0	27,687	23.07
USR SW	<02837 1499 >	12'0"x3'8" wooden gate assembly, painted	1.00	EA	ACARCARP2	0.14	14	742	0	925	0	1,667	1666.61
USR SW	<02837 1499 >	12'0"x6'0" wooden gate assembly, painted	1.00	EA	ACARCARP2	0.11	18	955	0	1,250	0	2,205	2204.74
USR SW	<02837 1499 >	12'0"x8'0" wooden gate assembly, painted	1.00	EA	ACARCARP2	0.08	24	1,272	0	1,720	0	2,992	2992.22
TOTAL Site Development			1200.00	LF			993	49,006	3,603	56,745	0	109,353	91.13
01.1A.02.18.05. Landscaping													
MIL SW	<02109 0156 >	Clear & grub, medium stumps, to 10" dia, w/ removal	0.60	ACR	CODEB30	0.15	12	605	562	0	0	1,167	1945.38
USR SW	<02109 0699 >	Remove shrubbery	10.00	EA	CODTB10B	2.50	6	318	356	0	0	673	67.34
MIL SW	<02952 0300 >	Planting, moving trees on site, 36" ball	9.00	EA	CODLB6	0.47	58	2,910	272	0	0	3,181	353.47
M MIL SW	<02241 0705 >	Loam or topsoil, furnish & place, imported, 4" deep at berm and disturbed areas	571.00	CY	CODFB10S	16.25	53	2,792	943	12,482	0	16,217	28.40
M RSM SW	<02932 0010 >	Seeding, athletic field mix, 8#/MSFpush spreader	42.50	MSF	ALABCLAB1	1.00	43	2,073	0	2,227	0	4,300	101.19
M MIL SW	<02947 0200 >	General planting, local varieties, trees, 2' - 3'	10.00	EA	COEIB17	5.63	7	355	93	1,424	0	1,872	187.15

01.1A. CHANNEL CONSTRUCTION		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
USR SW <02952 0299 >	Place average 18" diameter x 20'0" long dead trees and roots at pond bottom	20.00	EA	CODLB6	1.71	35	1,768	165	3,000	0	4,933	246.66
USR SW <02952 0299 >	Excavate and install 3'0"x3'0"x3'0" concrete anchor and tie to dead trees	20.00	EA	CODLB6	3.00	20	1,010	94	1,100	0	2,205	110.24
USR SW <02971 0010 >	1-year landscape maintenance and warranty	1.00	LOT	N/A	0.00	0	0	0	0	5,000	5,000	5000.00
TOTAL	Landscaping	42500	SF			233	11,832	2,485	20,233	5,000	39,549	0.93
01.1A.02.18.06. Special	Const. (Sheet Piling)											
USR < >	**SHEET PILE WIER/SPILLWAY**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR SW <02240 0019 >	Build temporary pad for rig and remove afterwards	550.00	CY	CODTB15	17.50	110	5,523	5,142	4,675	0	15,340	27.89
USR TF <02111 0009 >	Mobilization/demobilization rig via railroad	1.00	EA	N/A	0.00	0	0	0	0	8,655	8,655	8655.22
USR TF <02116 0009 >	Drive 30#/SF sheet pile end sections, 15'6" deep (2)	4.65	TON	CPIDB40	0.57	65	4,679	1,499	11,470	0	17,649	3795.45
USR TF <02116 0009 >	Drive weir section 13'0" deep (3)	9.36	TON	CPIDB40	0.67	112	8,068	2,585	23,089	0	33,742	3604.89
CIV SS <05140 0100 >	Steel cutting, hand burning, stl to 1/2" thick, w/ prep	12.00	LF	SIWWE14	8.75	1	103	19	0	0	122	10.18
USR SS <05130 0599 >	Weld sheet pile cap to entire weir	68.00	LF	SIWSE4	5.00	54	4,021	192	799	0	5,012	73.70
TOTAL	Special Const. (Sheet Piling)	934.00	SF			343	22,394	9,437	40,033	8,655	80,520	86.21
01.1A.02.18.9X. Other	Improvements											
USR < >	**PEDESTRIAN BRIDGE**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR < >	**Piling**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR TF <02358 0010 >	Mobilization/demobilization on site via haul route	1.00	LOT	N/A	0.00	0	0	0	0	3,709	3,709	3709.38
USR TF <02366 0229 >	Drive 12" diameter x 5/8" thick wall x 40'0" long pile 35'0" deep (5)	175.00	VLF	CPIDB50	31.11	79	5,523	1,230	8,114	0	14,866	84.95
USR TF <02366 5209 >	Weld 12" diameter cutting shed	5.00	EA	SIWWE14	0.67	7	562	106	525	0	1,193	238.64
USR TF <02366 4404 >	Cut pile to elevation	5.00	EA	SIWWE14	0.80	6	469	88	198	0	755	150.91
USR TF <02366 4404 >	Weld 16"x16"x3/4" thick pile cap	5.00	EA	SIWWE14	0.67	7	562	106	216	0	884	176.88
M MIL SS <05150 8210 >	Structural steel members, W shapes, 0-30 PLF, spans 10' to 45' to cap (2)	0.76	TON	SIWSE21	0.75	8	580	110	1,494	0	2,184	2873.72
M MIL SS <05150 8210 >	Structural steel members, W shapes, 0-30 PLF, spans 10' to 45', to cap 16x50# (1)	1.20	TON	SIWSE21	0.75	13	916	174	2,359	0	3,448	2873.72
USR SS <05134 1299 >	Weld 1/4"x9"x13" decorative plants to beams	4.00	EA	SIWSSSWK2	1.29	6	456	0	237	0	693	173.30
M RSM SS <05130 0400 >	Lightweight framing, angle, field fab'd, 4" & larger	660.00	LB	SIWSE3	55.00	36	2,666	199	367	0	3,232	4.90

01.1A. CHANNEL CONSTRUCTION		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
USR < >	**Abutments**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR PC <02214 0000 >	Excavate and backfill	32.00	CY	ALABCLAB1	0.67	48	3,251	0	389	0	3,640	113.75
USR PC <03372 4899 >	18" thick concrete abutment with 6" thick stem wall (2)	14.00	CY	CLABC20	10.00	11	781	176	1,788	0	2,745	196.08
USR PC <03217 0010 >	Bar reinforcement	1.05	TON	SIWRRODM4	0.33	13	1,041	0	1,385	0	2,426	2310.81
M CIV PC <03138 0500 >	Forms in place, 12" w, plywood, 1 use, ext spandrel, beams & girders	576.00	SF	ACARC2	28.13	123	8,949	0	2,159	0	11,108	19.28
USR PC <03150 6999 >	Extra for forming 12" beam slat	42.00	LF	ACARC1	26.67	6	454	0	140	0	594	14.15
USR < >	**Bridge**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR PC <06178 0009 >	5 1/8"x12" glulam beam	12.00	LF	ACARCARP2	10.37	2	170	0	275	0	445	37.10
USR PC <06178 0009 >	8 3/4"x31 1/2" glulam beam	101.00	LF	ACARCARP2	3.85	53	3,863	0	6,969	0	10,832	107.25
USR PC <06178 0009 >	8 3/4"x36" glulam beam	60.00	LF	ACARCARP2	3.33	36	2,648	0	4,736	0	7,383	123.06
USR PC <06056 1299 >	Beam connectors	14.00	EA	ACARCARP1	0.87	16	1,184	0	632	0	1,816	129.72
USR PC <06100 0011 >	3 1/2"x3 1/2" bolted deck ledger	110.00	LF	ACARCARP1	20.00	6	405	0	229	0	634	5.76
USR PC <06164 0499 >	3" recycled lumber decking screwed to beams	1100.00	SF	ACARCARP2	50.00	44	3,237	0	6,032	0	9,269	8.43
USR PC <05523 0499 >	Painted pipe center rail comprising 3" diameter x 37" verticals 84" o/c and (3) 2" diameter top, middle and bottom rails, fixed to decking	30.00	LF	SIWSE4	10.53	11	946	45	1,458	0	2,449	81.63
USR PC <05523 0499 >	Painted pipe guardrails comprising 4" diameter x 24" verticals 84" o/c, 4" diameter top rail and 3" diameter bottom rail fixed to beams	165.00	LF	SIWSE4	9.30	71	5,889	281	9,507	0	15,676	95.01
TOTAL	Other Improvements	1100.00	SF			603	44,551	2,513	49,210	3,709	99,984	90.89
TOTAL	Site Improvements	1.60	ACR			2,297	134,272	20,486	203,270	17,365	375,393	234620.48

01.1A.02.19. Site Civil/Mechanical Utilities

01.1A.02.19.9X. Other Civil/Mech. Utilities

USR < >	**Culverts**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR SW <02764 2500 >	72" diameter CMP culverts (2)	60.00	LF	CLABB13	5.60	75	3,747	940	12,330	0	17,016	283.60
USR SW <02214 0000 >	Excavate and backfill trenches	225.00	CY	ALABCLAB1	0.67	337	16,458	0	1,969	0	18,426	81.90
USR < >	**Sluice Gates**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR SS <05910 0000 >	Remove and replace existing sluice gate with 42"x42" stainless steel gate	1.00	EA	SIWSL5A	0.08	48	3,506	592	21,638	0	25,736	25736.01
USR SS <05910 0000 >	Remove and raise stop gate	1.00	EA	SIWSL5A	0.50	8	582	98	1,051	0	1,731	1731.25
TOTAL	Other Civil/Mech. Utilities	60.00	LF			469	24,292	1,630	36,988	0	62,910	1048.50
TOTAL	Site Civil/Mechanical Utilities	60.00	LF			469	24,292	1,630	36,988	0	62,910	1048.50

01.1A. CHANNEL CONSTRUCTION			QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
01.1A.02.20. Site Electrical Utilities													
01.1A.02.20.9X. Other Electrical Utilities **Broadcast Tower Grounding**													
NOTE: Work to be accomplished when lagoon is drained.													
USR	<	> **WORK AT BROADCAST TOWER**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR EL	<16180 0000	> Disconnect abandon existing grounding at tower base (88'0")	1.00	LOT	EELEELEC1	0.50	2	138	0	0	0	138	138.49
USR EL	<02214 0000	> Excavate and backfill for new ground strap trench	3.00	CY	ALABCLAB1	0.67	4	271	0	32	0	304	101.30
USR EL	<16181 6409	> 1/4"x4" copper strap laid in trench	100.00	LF	EELER19	13.89	18	1,251	0	2,782	0	4,033	40.33
USR EL	<16181 6299	> Braise new strap to existing tower straps	4.00	EA	EELER19	1.67	6	417	0	198	0	615	153.69
USR	<	> **GROUND FIELD WIRING**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR EL	<02270 0999	> Excavate rip rap from creek bed and stockpile	81.00	CY	CODEB3A	22.73	18	1,110	283	0	0	1,393	17.19
USR EL	<02230 0010	> Excavate trench 24" below creek bed and stockpile	81.00	CY	CODBB54	8.33	10	649	130	0	0	779	9.61
USR SW	<02230 0010	> Excavate 12"x12" ground wire trenches ditto	1346.00	CY	CODBB54	20.00	67	3,633	728	0	0	4,361	3.24
M CIV SW	<02266 0064	> Erosion control, nylon, 3 dimensional, 18 mil thick	134.00	SY	CLABB80A	57.50	7	341	38	843	0	1,222	9.12
RSM SW	<02216 2000	> Backfill, strl, sand & gravel, no cmpct, 75 HP dozer, 50' haul	1427.00	CY	CODTB10L	137.50	16	825	303	0	0	1,127	0.79
M RSM SW	<02240 0020	> Fill, borrow, for embankments, load, 1 mile haul, spread w/dozer	285.00	CY	CODTB15	150.00	7	334	311	1,533	0	2,178	7.64
MIL SW	<02220 7000	> Compaction, struct/trench, 6" lifts, 2 passes18" wide, vib plate	1712.00	CY	ULABA1	25.00	68	3,341	421	0	0	3,762	2.20
USR SW	<02270 0999	> Backfill stockpiled rip rap at stream bed	81.00	CY	CODEB3A	33.33	12	612	156	0	0	768	9.48
USR EL	<16180 0000	> Disconnect existing ground wires	120.00	EA	EELEELEC1	10.00	12	831	0	0	0	831	6.92
USR EL	<16181 6039	> #10 AWG plane ground wires laid in trenches	36764	LF	EELER18	330.00	368	23,510	0	30,456	0	53,967	1.47
USR EL	<16181 6299	> Braise #10 radials to 4" copper ground strap at tower	120.00	EA	EELER19	2.87	104	7,255	0	2,893	0	10,148	84.57
TOTAL Other Electrical Utilities			36864	LF			719	44,518	2,370	38,738	0	85,626	2.32
TOTAL Site Electrical Utilities			36864	LF			719	44,518	2,370	38,738	0	85,626	2.32
TOTAL Support Facilities			8.45	ACR			3,485	203,082	24,486	278,996	17,365	523,929	62003.41
TOTAL CHANNEL CONSTRUCTION			9.90	ACR			8,403	453,503	163,346	658,644	17,365	1,292,858	130591.67

01.1B. ARRC BRIDGE AND TRACKS			QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
01.1B. ARRC BRIDGE AND TRACKS													
01.1B.01. Primary Facilities													
01.1B.01.18. Site Improvements													
01.1B.01.18.06. Special Construction (Bridge)													
USR	<	> **EARTHWORK**	1.00	EA		0.00	0	0	0	0	0	0	0.00
MIL SW	<02232 0105	> Excavate & load, hydr excavator, 3/4 CY, wet matl	187.00	CY	CODEB12F	46.25	8	423	154	0	0	578	3.09
M RSM SW	<02240 0020	> Fill, borrow, for embankments, load, 1 mile haul, spread w/dozer	128.00	CY	CODTB15	150.00	3	150	140	689	0	978	7.64
MIL SW	<02220 7000	> Compaction, struct/trench, 6" lifts, 2 passes18" wide, vib plate	128.00	CY	ULABA1	25.00	5	250	31	0	0	281	2.20
M RSM SW	<02270 0100	> Rip-rap, random, machine placed for slope protection	56.00	CY	UOEHB12G	7.75	14	757	278	1,327	0	2,362	42.18
USR	<	> **PILING**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR TF	<02358 0010	> Mobilization/demobilization rig via railroad	1.00	LOT	N/A	0.00	0	0	0	0	12,365	12,365	12364.60
USR TF	<02366 5209	> Weld 30" diameter cutting shoes to piles	10.00	EA	SIWWE14	0.22	45	3,374	635	12,055	0	16,064	1606.42
USR TF	<02366 4404	> Splice 30" diameter piles	10.00	EA	SIWWE14	0.40	25	1,874	353	6,430	0	8,656	865.64
USR TF	<02366 4404	> Cut pile to elevation	10.00	EA	SIWWE14	0.50	20	1,499	282	618	0	2,400	239.97
USR TF	<02366 4404	> Weld 30" diameter x 1" plate with (6) anchor bolts to pile	10.00	EA	SIWWE14	0.25	40	2,999	564	7,295	0	10,858	1085.80
USR TF	<02366 0229	> Drive 30" diameter x 5/8" thick wall steel pile 35'0" deep (5)	175.00	VLF	CPIDB50	18.67	131	9,204	2,049	18,230	0	29,484	168.48
USR TF	<02366 0229	> Drive 30" diameter x 5/8" thick wall steel pile 49'0" deep (3)	147.00	VLF	CPIDB50	15.56	132	9,278	2,066	15,313	0	26,657	181.34
USR TF	<02366 0229	> Drive 30" diameter x 5/8" thick wall steel pile 70'0" deep (2)	140.00	VLF	CPIDB50	12.17	161	11,291	2,514	14,584	0	28,388	202.77
USR TF	<02366 0229	> Weld and erect 30" diameter piles above grade (8)	228.00	VLF	CPIDB50	26.92	119	8,314	1,851	23,751	0	33,917	148.76
USR PS	<09912 0010	> Epoxy paint exposed piles	1790.00	SF	APTRPORD1	33.33	54	2,578	0	1,439	0	4,017	2.24
USR	<	> **CONCRETE**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR PC	<03491 3990	> Install 13'0"x6'0"x4'0" thick precast concrete, cap over steel piles and bolts	2.00	EA	SIWSE7B	0.57	28	2,250	699	23,047	0	25,996	12998.04
USR PC	<03491 3990	> Install 13'0"x5'0"x4'0" thick precast abutment with 13'0"x5'0"x1'6" thick stem wall over piles	2.00	EA	SIWSE7B	0.44	36	2,893	899	27,350	0	31,143	15571.44
USR PC	<03491 3990	> 41'0"x45" deep precast concrete bulb tee girder comprising 16 1/2"x11 1/2" top bulb, 7"x19" stem wall and 22"x14 1/2" bottom bulb set over pile caps	12.00	EA	SIWSE7B	0.29	336	27,001	8,394	129,116	0	164,510	13709.20
USR PC	<07924 4359	> 1"x21 1/2"x12" elastomeric heavy pads under girders (12)	21.00	LF	AMABBRIC1	0.80	26	2,000	0	1,414	0	3,414	162.59

01.1B. ARRC BRIDGE AND TRACKS			QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
USR PC <05108 0010 >	1" diameter x 12'0" long tie rod sleeved thru middle girders and bolted to end girders	7.00	EA	ACARCARP2	1.33	11	772	0	466	0	1,239	176.99
M RSM PC <05130 0400 >	Lightweight framing, angle, field fab'd, 4" & larger	6890.00	LB	SIWSE3	55.00	376	31,252	2,331	4,305	0	37,888	5.50
USR PC <03372 4899 >	8" thick concrete infill diaphragm in between girders	2.00	CY	CLABC20	10.70	1	104	23	255	0	383	191.60
M MIL PC <03217 0700 >	Reinforcing in place, walls, #3 to #7	0.25	TON	SIWRRODM4	0.38	3	220	0	254	0	474	1895.78
M CIV PC <03138 0500 >	Forms in place, 12" w, plywood, 1 use, ext spandrel, beams & girders	150.00	SF	ACARC2	28.13	32	2,330	0	562	0	2,893	19.28
USR PC <03372 1399 >	9" thick concrete deck slab	43.00	CY	CLABC20	15.09	23	1,589	358	5,492	0	7,439	173.01
USR PC <03372 4899 >	12" back wing concrete walls	14.00	CY	CLABC20	11.43	10	683	154	1,788	0	2,625	187.53
USR PC <03372 4899 >	8" thick concrete side walls	13.00	CY	CLABC20	11.43	9	634	143	1,660	0	2,438	187.53
M MIL PC <03396 2100 >	Finishing floors, add, hardener, metallic, .50 PSF, heavy service	1542.00	SF	ACMACEFI1	81.25	19	1,395	0	2,162	0	3,557	2.31
USR PC <03217 0010 >	Bar reinforcement concrete	6.50	TON	SIWRRODM4	0.33	78	6,447	0	8,573	0	15,020	2310.81
M CIV PC <03138 0500 >	Forms in place, 12" w, plywood, 1 use, ext spandrel, beams & girders	1763.00	SF	ACARC2	28.13	376	27,390	0	6,609	0	33,999	19.28
M CIV PC <03150 1000 >	Forms in place, elev slab, flat plate plywd to 15' high, 1 use	1753.00	SF	ACARC2	58.75	179	13,038	0	7,155	0	20,193	11.52
USR < >	**WALKWAYS**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR SS <05150 8389 >	Galvanized steel walkway framing bolted to concrete	5.75	TON	SIWSE21	0.40	115	8,228	1,559	25,950	0	35,737	6215.15
USR SS <05542 0000 >	1 1/8" deep galvanized steel grating	514.00	SF	SIWSE4	40.00	51	3,799	181	17,477	0	21,458	41.75
USR SS <05523 0499 >	42" high galvanized pipe, two-tier guardrail	257.00	LF	SIWSE4	16.00	64	4,749	227	8,707	0	13,682	53.24
TOTAL	Special Construction (Bridge)	129.00	LF			2,530	188,769	25,885	374,076	12,365	601,094	4659.65
01.1B.01.18.07. Special	Construction (Railroad)											
USR < >	**RAILROAD TRACKS AT NEW BRIDGE**	1.00	EA		0.00	0	0	0	0	0	0	0.00
M MIL RR <02422 2160 >	Railroad, ballast, crushed stone	94.00	TON	CLABB14	8.00	71	4,644	220	2,120	0	6,983	74.29
USR RR <02422 1399 >	7"x9"x8'6" creosoted wood ties laid at 19 1/2" o/c at bridge	82.00	EA	CLABB14	7.50	66	4,321	204	7,318	0	11,843	144.43
USR RR <02422 1399 >	7"x9"x8'6" creosoted wood ties laid at section where temporary shoofly removed	152.00	EA	CLABB14	7.50	122	8,009	379	13,565	0	21,953	144.43
USR RR <02422 3011 >	115# tracks fixed to ties (2/rail)	738.00	LF	CLABB13	20.00	258	17,059	4,279	23,905	0	45,242	61.30
M MIL RR <02422 3242 >	Railroad, 115 lb tie plate relay, ARA-A & AREA (2/tie)	474.00	EA	CLABB13	100.00	33	2,191	550	2,469	0	5,210	10.99
USR RR <02422 2149 >	Camcar screws (3/plate)	1422.00	EA	CLABB13	70.00	142	9,391	2,356	4,324	0	16,071	11.30
USR RR <02422 2149 >	Pandrol clip anchors (4/tie)	936.00	EA	CLABB13	46.67	140	9,272	2,326	21,656	0	33,254	35.53
USR RR <02422 3109 >	36" joint bar at track connection	12.00	PRS	CLABB13	28.00	3	198	50	992	0	1,239	103.28

01.1B. ARRC BRIDGE AND TRACKS	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
M MIL RR <02422 2110 > Railroad, track bolts & nuts, 1" (6/joint)	72.00	EA	CLABB13	187.50	3	178	45	208	0	430	5.97
USR RR <02422 2909 > Tie new tracks into existing	6.00	EA	CLABB13	5.00	8	555	139	555	0	1,249	208.20
TOTAL Special Construction (Railroad)	369.00	LF			846	55,818	10,546	77,110	0	143,475	388.82
TOTAL Site Improvements	627.00	LF			3,376	244,587	36,432	451,186	12,365	744,569	1187.51
01.1B.01.19. Site Civil/Mechanical Utilities											
01.1B.01.19.03. Storm Sewer Systems											
USR PL <15107 0010 > 4" diameter deck drain with grate and 24" long spout cast in concrete wall, 8'0" o/c	16.00	EA	MPLUQ1	0.80	40	2,302	0	4,906	0	7,208	450.49
TOTAL Storm Sewer Systems	16.00	EA			40	2,302	0	4,906	0	7,208	450.49
TOTAL Site Civil/Mechanical Utilities	16.00	EA			40	2,302	0	4,906	0	7,208	450.49
01.1B.01.20. Site Electrical Utilities											
01.1B.01.20.04. Exterior Comm. & Alarm Systems											
M MIL EL <16018 0680 > Conduit to 15' H, 4" dia, incl couplings only, steel rigid galv bolted to bridge walkway (1)	130.00	LF	EELEELEC2	6.50	40	2,770	0	3,403	0	6,173	47.48
TOTAL Exterior Comm. & Alarm Systems	130.00	LF			40	2,770	0	3,403	0	6,173	47.48
TOTAL Site Electrical Utilities	130.00	LF			40	2,770	0	3,403	0	6,173	47.48
TOTAL Primary Facilities	628.00	LF			3,456	249,659	36,432	459,495	12,365	757,950	1206.93
01.1B.02. Support Facilities											
01.1B.02.17. Site Preparation											
01.1B.02.17.01. Site Clearing											
USR < > **SHOOFLY**	1.00	EA		0.00	0	0	0	0	0	0	0.00
AF SW <02110 1050 > Clearing, wet, heavy brush & trees	1.50	ACR	COMCB88	0.34	31	1,673	1,303	0	0	2,976	1984.10
TOTAL Site Clearing	1.50	AC			31	1,673	1,303	0	0	2,976	1984.10

01.1B. ARRC BRIDGE AND TRACKS		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
01.1B.02.17.02. Site Demolition & Relocation												
USR RR <02422 2909 >	Remove railroad track for new shoofly (2)	520.00	LF	CLABB13	12.73	286	18,888	4,738	0	0	23,626	45.43
USR RR <02422 2909 >	Remove railroad track for bridge	260.00	LF	CLABB13	12.73	143	9,444	2,369	0	0	11,813	45.43
USR RR <02422 1399 >	Remove railroad ties	248.00	EA	CLABB14	13.33	112	7,351	348	0	0	7,699	31.04
USR RR <02422 2909 >	Remove temporary tracks after bridge built	2394.00	LF	CLABB13	12.73	1,317	86,959	21,811	0	0	108,771	45.43
USR RR <02422 1399 >	Remove temporary ties	758.00	EA	CLABB14	13.33	341	22,467	1,063	0	0	23,530	31.04
TOTAL	Site Demolition & Relocation	1587.00	LF			2,198	145,110	30,329	0	0	175,439	110.55
01.1B.02.17.03. Site Earthwork												
USR <	> **SHOOFLY**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR SW <02270 0999 >	Remove rip rap from embankment and stockpile	445.00	CY	CODEB3A	22.73	98	4,932	1,256	0	0	6,188	13.91
USR SW <02240 0010 >	Side dump NFS fill via railroad cars and form embankment	9005.00	CY	CODTB15	29.17	1,081	54,253	50,516	95,003	0	199,772	22.18
USR SW <02270 0999 >	Place stockpiled rip rap at new embankment	445.00	CY	CODEB3A	16.67	134	6,725	1,713	0	0	8,438	18.96
USR SW <02239 0011 >	Reduce embankment depth and spread, fill in ARRC right of way after bridge built	4502.00	CY	COFCB32E	56.00	225	11,458	12,237	0	0	23,695	5.26
TOTAL	Site Earthwork	13952	CY			1,537	77,368	65,722	95,003	0	238,093	17.07
TOTAL	Site Preparation	1.50	ACR			3,766	224,151	97,354	95,003	0	416,508	277672.15
01.1B.02.18. Site Improvements												
01.1B.02.18.06. Special Construction												
USR <	> **RAILROAD TRACKS -- TEMPORARY TRACKS AND SHOOFLY**	1.00	EA		0.00	0	0	0	0	0	0	0.00
M MIL RR <02422 2160 >	Railroad, ballast, crushed stone	1476.00	TON	CLABB14	8.00	1,107	72,915	3,450	33,291	0	109,656	74.29
M MIL RR <02422 2160 >	8" deep ballast	1300.00	TON	CLABB14	8.00	975	64,220	3,039	29,321	0	96,580	74.29
USR RR <02422 1399 >	7"x9"x8'6" creosoted ties at 19 1/2" o/c	758.00	EA	CLABB14	7.50	606	39,942	1,890	67,644	0	109,476	144.43
USR RR <02422 3011 >	115# tracks fixed to ties (2 rails)	2394.00	LF	CLABB13	20.00	838	55,338	13,880	77,544	0	146,762	61.30
M MIL RR <02422 3242 >	Railroad, 115 lb tie plate relay, ARA-A & AREA	1516.00	EA	CLABB13	100.00	106	7,009	1,758	7,897	0	16,663	10.99
USR RR <02422 2149 >	Camcar screws (3/plate)	4548.00	EA	CLABB13	70.00	455	30,036	7,534	13,829	0	51,400	11.30
USR RR <02422 2149 >	Pandrol clip anchors (4/tie)	3032.00	EA	CLABB13	46.67	455	30,036	7,534	70,150	0	107,720	35.53
USR RR <02422 3109 >	36" joint bar each side of track, 100'0" o/c	24.00	PRS	CLABB13	28.00	6	396	99	1,983	0	2,479	103.28
M MIL RR <02422 2110 >	Railroad, track bolts & nuts, 1"	144.00	EA	CLABB13	187.50	5	355	89	415	0	859	5.97
USR RR <02422 2909 >	Tie new tracks into exisitng	4.00	EA	CLABB13	4.67	6	396	99	370	0	866	216.46
USR RR <02422 2909 >	Remove shoofly track upon completion of new bridge	2397.00	LF	CLABB13	12.73	1,318	87,068	21,839	0	0	108,907	45.43

01.1B. ARRC BRIDGE AND TRACKS	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
USR RR <02422 1399 > Remove railroad ties	758.00	EA	CLABB14	13.33	341	22,467	1,063	0	0	23,530	31.04
TOTAL Special Construction	1197.00	LF			6,219	410,179	62,275	302,444	0	774,898	647.37
TOTAL Site Improvements	628.00	LF			6,219	410,179	62,275	302,444	0	774,898	1233.91
TOTAL Support Facilities	1.50	ACR			9,985	634,330	159,629	397,447	0	1,191,406	794270.95
TOTAL ARRC BRIDGE AND TRACKS	2215.00	LF			13,441	883,989	196,061	856,942	12,365	1,949,356	880.07
TOTAL Restoration - Alt A Trestle	1.00	EA			21,844	1337492	359,407	1515586	29,729	3,242,214	3242214

02. Restoration - Alt B Culvert

This alternative substitutes a buried culvert for a minimum section of open channel construction and a trestle to cross it.

This estimate is based on Aquatic Ecosystem Restoration Design Technical Memeorandum and a generic cross-section prepared by Tryck Nyman Hayes, Inc., in conjunction with HDR of Anchorage, Alaska. The deleted cost elements were taken from the total project cost estimate by HMS, Inc. Prices are based on current local materials and equipment. Crew ID and productive rates are based on MCACES cost books. The construction contingency allowance was changed to 20% and the SIOH to 8.0% for Civil Works program; and the estimate was repriced for a construction midpoint of Nov 2004 by USACE.

The culvert is an 18 ft diameter round corrugated aluminum multiplate construction. The flow thalweg will be constructed inside the culvert. The culvert trench to be backfilled to original ground elevation and compacted to support the existing railroad trackage. The trackage will be permanently replaced subsequent to the end of the gravel-haul season. A constant ground elevation and cross-section was assumed over the length of the culvert for both channel excavation and and culvert trench/backfill quantities.

It was assumed that both channel restoration and ARRC work will be bid as a single contract in Spring 2004, and all work will be accomplished over two construction seasons.

The following sequence has been used for construction.
CHANNEL WORK: All lagoon work to be done when lagoon has been drained by Municipality of Anchorage for regular maintenance.
CULVERT/ARRC WORK: ARR to temporarily remove & replace tracks and to halt railroad traffic during a 48-hour window while culvert is installed.

USACE makes no stipulation as to the accuracy of the cost estimate aside from the assumptions stated.

02.1A. DELETE - CHANNEL CONSTRUCTION	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
02.1A. DELETE - CHANNEL CONSTRUCTION											
02.1A.01. Primary Facilities											
02.1A.01. 8. Site Prep - Delete Channel Delete presumed channel construction in lieu of culvert construction.											
02.1A.01. 8.01. Site Clearing (USER)											
AF SW <02110 1050 > Clearing, wet, heavy brush & trees	-0.59	ACR	COMCB88	0.34	-12	-658	-513	0	0	-1,171	1984.10
TOTAL Site Clearing	0.59	ACR			-12	-658	-513	0	0	-1,171	-1984.10
02.1A.01. 8.03. Site Earthwork (USER)											
MIL SW <02225 0330 > Excav & load on truck,bucket drag line,3 CY,unclassified soil, bank	-9784	CY	UOEHB12V	68.75	-285	-14,906	-20,324	0	0	-35,230	3.60
USR SW <02234 0339 > Dispose excavated unclassified soil	-9784	CY	COEIB34B	13.75	-711	-34,251	-26,586	0	0	-60,837	6.22
MIL SW <02224 7120 > Excavating, bulk, dozer, trim banks, open site, shaping w/small dozer	-600.00	CY	CODTB10L	32.50	-28	-1,467	-539	0	0	-2,006	3.34
USR SW <02240 0010 > Type A material at tracks	-729.00	CY	CODTB10B	21.43	-51	-2,703	-3,024	-9,113	0	-14,840	20.36
MIL SW <02220 7000 > Compaction, struct/trench, 6" lifts, 2 passes18" wide, vib plate	-825.20	CY	ULABA1	25.00	-33	-1,610	-203	0	0	-1,813	2.20
M RSM SW <02270 0100 > Rip-rap, random, machine placed for slope protection	-271.00	CY	UOEHB12G	7.75	-70	-3,663	-1,345	-6,423	0	-11,431	42.18
M CIV SW <02266 0064 > Erosion control, nylon, 3 dimensional, 18 mil thick	-3669	SY	CLABB80A	57.50	-192	-9,340	-1,046	-23,080	0	-33,466	9.12
TOTAL Site Earthwork	178.20	LF			-1,369	-67,940	-53,068	-38,615	0	-159,623	-895.75
TOTAL Site Prep - Delete Channel	178.20	LF			-1,381	-68,598	-53,581	-38,615	0	-160,793	-902.32
TOTAL Primary Facilities	0.59	ACR			-1,381	-68,598	-53,581	-38,615	0	-160,793	-272531
TOTAL DELETE - CHANNEL CONSTRUCTION	178.20	LF			-1,381	-68,598	-53,581	-38,615	0	-160,793	-902.32

02.1B. DELETE - ARRC BRIDGE AND TRACKS	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
02.1B. DELETE - ARRC BRIDGE AND TRACKS											
02.1B.01. Primary Facilities											
02.1B.01.18. Site Improvements											
02.1B.01.18.06. Special Construction (Bridge)											
USR SW < > **EARTHWORK**	1.00	EA		0.00	0	0	0	0	0	0	0.00
MIL SW <02232 0105 > Excavate & load, hydr excavator, 3/4 CY, wet matl	-187.00	CY	CODEB12F	46.25	-8	-423	-154	0	0	-578	3.09
M RSM SW <02240 0020 > Fill, borrow, for embankments, load, 1 mile haul, spread w/dozer	-128.00	CY	CODTB15	150.00	-3	-150	-140	-689	0	-978	7.64
MIL SW <02220 7000 > Compaction, struct/trench, 6" lifts, 2 passes18" wide, vib plate	-128.00	CY	ULABA1	25.00	-5	-250	-31	0	0	-281	2.20
M RSM SW <02270 0100 > Rip-rap, random, machine placed for slope protection	-56.00	CY	UOEHB12G	7.75	-14	-757	-278	-1,327	0	-2,362	42.18
USR SW < > **PILING**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR TF <02358 0010 > Mobilization/demobilization rig via railroad	-1.00	LOT	N/A	0.00	0	0	0	0	-12,365	-12,365	12364.60
USR TF <02366 5209 > Weld 30" diameter cutting shoes to piles	-10.00	EA	SIWWE14	0.22	-45	-3,374	-635	-12,055	0	-16,064	1606.42
USR TF <02366 4404 > Splice 30" diameter piles	-10.00	EA	SIWWE14	0.40	-25	-1,874	-353	-6,430	0	-8,656	865.64
USR TF <02366 4404 > Cut pile to elevation	-10.00	EA	SIWWE14	0.50	-20	-1,499	-282	-618	0	-2,400	239.97
USR TF <02366 4404 > Weld 30" diameter x 1" plate with (6) anchor bolts to pile	-10.00	EA	SIWWE14	0.25	-40	-2,999	-564	-7,295	0	-10,858	1085.80
USR TF <02366 0229 > Drive 30" diameter x 5/8" thick wall steel pile 35'0" deep (5)	-175.00	VLF	CPIDB50	18.67	-131	-9,204	-2,049	-18,230	0	-29,484	168.48
USR TF <02366 0229 > Drive 30" diameter x 5/8" thick wall steel pile 49'0" deep (3)	-147.00	VLF	CPIDB50	15.56	-132	-9,278	-2,066	-15,313	0	-26,657	181.34
USR TF <02366 0229 > Drive 30" diameter x 5/8" thick wall steel pile 70'0" deep (2)	-140.00	VLF	CPIDB50	12.17	-161	-11,291	-2,514	-14,584	0	-28,388	202.77
USR TF <02366 0229 > Weld and erect 30" diameter piles above grade (8)	-228.00	VLF	CPIDB50	26.92	-119	-8,314	-1,851	-23,751	0	-33,917	148.76
USR PS <09912 0010 > Epoxy paint exposed piles	-1790	SF	APTRPORD1	33.33	-54	-2,578	0	-1,439	0	-4,017	2.24
USR SW < > **CONCRETE**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR PC <03491 3990 > Install 13'0"x6'0"x4'0" thick precast concrete, cap over steel piles and bolts	-2.00	EA	SIWSE7B	0.57	-28	-2,250	-699	-23,047	0	-25,996	12998.04
USR PC <03491 3990 > Install 13'0"x5'0"x4'0" thick precast abutment with 13'0"x5'0"x1'6" thick stem wall over piles	-2.00	EA	SIWSE7B	0.44	-36	-2,893	-899	-27,350	0	-31,143	15571.44
USR PC <03491 3990 > 41'0"x45" deep precast concrete bulb tee girder comprising 16 1/2"x11 1/2" top bulb, 7"x19" stem wall and 22"x14 1/2" bottom bulb set over pile caps	-12.00	EA	SIWSE7B	0.29	-336	-27,001	-8,394	-129,116	0	-164,510	13709.20
USR PC <07924 4359 > 1"x21 1/2"x12" elastomeric heavy pads under girders (12)	-21.00	LF	AMABBRIC1	0.80	-26	-2,000	0	-1,414	0	-3,414	162.59

02.1B. DELETE - ARRC BRIDGE AND TRACKS			QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
USR PC <05108 0010 >	1" diameter x 12'0" long tie rod sleeved thru middle girders and bolted to end girders	-7.00	EA	ACARCARP2	1.33	-11	-772	0	-466	0	-1,239	176.99
M RSM PC <05130 0400 >	Lightweight framing, angle, field fab'd, 4" & larger	-6890	LB	SIWSE3	55.00	-376	-31,252	-2,331	-4,305	0	-37,888	5.50
USR PC <03372 4899 >	8" thick concrete infill diaphragm in between girders	-2.00	CY	CLABC20	10.70	-1	-104	-23	-255	0	-383	191.60
M MIL PC <03217 0700 >	Reinforcing in place, walls, #3 to #7	-0.25	TON	SIWRRODM4	0.38	-3	-220	0	-254	0	-474	1895.78
M CIV PC <03138 0500 >	Forms in place, 12" w, plywood, 1 use, ext spandrel, beams & girders	-150.00	SF	ACARC2	28.13	-32	-2,330	0	-562	0	-2,893	19.28
USR PC <03372 1399 >	9" thick concrete deck slab	-43.00	CY	CLABC20	15.09	-23	-1,589	-358	-5,492	0	-7,439	173.01
USR PC <03372 4899 >	12" back wing concrete walls	-14.00	CY	CLABC20	11.43	-10	-683	-154	-1,788	0	-2,625	187.53
USR PC <03372 4899 >	8" thick concrete side walls	-13.00	CY	CLABC20	11.43	-9	-634	-143	-1,660	0	-2,438	187.53
M MIL PC <03396 2100 >	Finishing floors, add, hardener, metallic, .50 PSF, heavy service	-1542	SF	ACMACEFI1	81.25	-19	-1,395	0	-2,162	0	-3,557	2.31
USR PC <03217 0010 >	Bar reinforcement concrete	-6.50	TON	SIWRRODM4	0.33	-78	-6,447	0	-8,573	0	-15,020	2310.81
M CIV PC <03138 0500 >	Forms in place, 12" w, plywood, 1 use, ext spandrel, beams & girders	-1763	SF	ACARC2	28.13	-376	-27,390	0	-6,609	0	-33,999	19.28
M CIV PC <03150 1000 >	Forms in place, elev slab, flat plate plywd to 15' high, 1 use	-1753	SF	ACARC2	58.75	-179	-13,038	0	-7,155	0	-20,193	11.52
USR SW < >	**WALKWAYS**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR SS <05150 8389 >	Galvanized steel walkway framing bolted to concrete	-5.75	TON	SIWSE21	0.40	-115	-8,228	-1,559	-25,950	0	-35,737	6215.15
USR SS <05542 0000 >	1 1/8" deep galvanized steel grating	-514.00	SF	SIWSE4	40.00	-51	-3,799	-181	-17,477	0	-21,458	41.75
USR SS <05523 0499 >	42" high galvanized pipe, two-tier guardrail	-257.00	LF	SIWSE4	16.00	-64	-4,749	-227	-8,707	0	-13,682	53.24
TOTAL	Special Construction (Bridge)	129.00	LF			-2,530	-188,769	-25,885	-374,076	-12,365	-601,094	-4659.65
02.1B.01.18.07.	Special Construction (Railroad)											
USR SW < >	**RAILROAD TRACKS AT NEW BRIDGE**	1.00	EA		0.00	0	0	0	0	0	0	0.00
M MIL RR <02422 2160 >	Railroad, ballast, crushed stone	-94.00	TON	CLABB14	8.00	-71	-4,644	-220	-2,120	0	-6,983	74.29
USR RR <02422 1399 >	7"x9"x8'6" creosoted wood ties laid at 19 1/2" o/c at bridge	-82.00	EA	CLABB14	7.50	-66	-4,321	-204	-7,318	0	-11,843	144.43
USR RR <02422 1399 >	7"x9"x8'6" creosoted wood ties laid at section where temporary shoofly removed	-152.00	EA	CLABB14	7.50	-122	-8,009	-379	-13,565	0	-21,953	144.43
USR RR <02422 3011 >	115# tracks fixed to ties (2/rail)	-738.00	LF	CLABB13	20.00	-258	-17,059	-4,279	-23,905	0	-45,242	61.30
M MIL RR <02422 3242 >	Railroad, 115 lb tie plate relay, ARA-A & AREA (2/tie)	-474.00	EA	CLABB13	100.00	-33	-2,191	-550	-2,469	0	-5,210	10.99
USR RR <02422 2149 >	Camcar screws (3/plate)	-1422	EA	CLABB13	70.00	-142	-9,391	-2,356	-4,324	0	-16,071	11.30
USR RR <02422 2149 >	Pandrol clip anchors (4/tie)	-936.00	EA	CLABB13	46.67	-140	-9,272	-2,326	-21,656	0	-33,254	35.53
USR RR <02422 3109 >	36" joint bar at track connection	-12.00	PRS	CLABB13	28.00	-3	-198	-50	-992	0	-1,239	103.28

02.1B. DELETE - ARRC BRIDGE AND TRACKS	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
M MIL RR <02422 2110 > Railroad, track bolts & nuts, 1" (6/joint)	-72.00	EA	CLABB13	187.50	-3	-178	-45	-208	0	-430	5.97
USR RR <02422 2909 > Tie new tracks into existing	-6.00	EA	CLABB13	5.00	-8	-555	-139	-555	0	-1,249	208.20
TOTAL Special Construction (Railroad)	369.00	LF			-846	-55,818	-10,546	-77,110	0	-143,475	-388.82
TOTAL Site Improvements	627.00	LF			-3,376	-244,587	-36,432	-451,186	-12,365	-744,569	-1187.51
02.1B.01.19. Site Civil/Mechanical Utilities											
02.1B.01.19.03. Storm Sewer Systems											
USR PL <15107 0010 > 4" diameter deck drain with grate and 24" long spout cast in concrete wall, 8'0" o/c	-16.00	EA	MPLUQ1	0.80	-40	-2,302	0	-4,906	0	-7,208	450.49
TOTAL Storm Sewer Systems	16.00	EA			-40	-2,302	0	-4,906	0	-7,208	-450.49
TOTAL Site Civil/Mechanical Utilities	16.00	EA			-40	-2,302	0	-4,906	0	-7,208	-450.49
02.1B.01.20. Site Electrical Utilities											
02.1B.01.20.04. Exterior Comm. & Alarm Systems											
M MIL EL <16018 0680 > Conduit to 15' H, 4" dia, incl couplings only, steel rigid galv bolted to bridge walkway (1)	-130.00	LF	EELEELEC2	6.50	-40	-2,770	0	-3,403	0	-6,173	47.48
TOTAL Exterior Comm. & Alarm Systems	130.00	LF			-40	-2,770	0	-3,403	0	-6,173	-47.48
TOTAL Site Electrical Utilities	130.00	LF			-40	-2,770	0	-3,403	0	-6,173	-47.48
TOTAL Primary Facilities	628.00	LF			-3,456	-249,659	-36,432	-459,495	-12,365	-757,950	-1206.93
02.1B.02. Support Facilities											
02.1B.02.17. Site Preparation											
02.1B.02.17.01. Site Clearing											
USR SW < > **SHOOFLY**	1.00	EA		0.00	0	0	0	0	0	0	0.00
AF SW <02110 1050 > Clearing, wet, heavy brush & trees	-1.50	ACR	COMCB88	0.34	-31	-1,673	-1,303	0	0	-2,976	1984.10
TOTAL Site Clearing	1.50	AC			-31	-1,673	-1,303	0	0	-2,976	-1984.10

02.1B. DELETE - ARRC BRIDGE AND TRACKS	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
02.1B.02.17.02. Site Demolition & Relocation											
USR RR <02422 2909 > Remove railroad track for new shoofly (2)	-520.00	LF	CLABB13	12.73	-286	-18,888	-4,738	0	0	-23,626	45.43
USR RR <02422 2909 > Remove railroad track for bridge	-260.00	LF	CLABB13	12.73	-143	-9,444	-2,369	0	0	-11,813	45.43
USR RR <02422 1399 > Remove railroad ties	-248.00	EA	CLABB14	13.33	-112	-7,351	-348	0	0	-7,699	31.04
USR RR <02422 2909 > Remove temporary tracks after bridge built	-2394	LF	CLABB13	12.73	-1,317	-86,959	-21,811	0	0	-108,771	45.43
USR RR <02422 1399 > Remove temporary ties	-758.00	EA	CLABB14	13.33	-341	-22,467	-1,063	0	0	-23,530	31.04
TOTAL Site Demolition & Relocation	1587.00	LF			-2,198	-145,110	-30,329	0	0	-175,439	-110.55
02.1B.02.17.03. Site Earthwork											
USR SW < > **SHOOFLY**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR SW <02270 0999 > Remove rip rap from embankment and stockpile	-445.00	CY	CODEB3A	22.73	-98	-4,932	-1,256	0	0	-6,188	13.91
USR SW <02240 0010 > Side dump NFS fill via railroad cars and form embankment	-9005	CY	CODTB15	29.17	-1,081	-54,253	-50,516	-95,003	0	-199,772	22.18
USR SW <02270 0999 > Place stockpiled rip rap at new embankment	-445.00	CY	CODEB3A	16.67	-134	-6,725	-1,713	0	0	-8,438	18.96
USR SW <02239 0011 > Reduce embankment depth and spread, fill in ARRC right of way after bridge built	-4502	CY	COFCB32E	56.00	-225	-11,458	-12,237	0	0	-23,695	5.26
TOTAL Site Earthwork	13952	CY			-1,537	-77,368	-65,722	-95,003	0	-238,093	-17.07
TOTAL Site Preparation	1.50	ACR			-3,766	-224,151	-97,354	-95,003	0	-416,508	-277672
02.1B.02.18. Site Improvements											
02.1B.02.18.06. Special Construction											
USR SW < > **RAILROAD TRACKS -- TEMPORARY TRACKS AND SHOOFLY**	1.00	EA		0.00	0	0	0	0	0	0	0.00
M MIL RR <02422 2160 > Railroad, ballast, crushed stone	-1476	TON	CLABB14	8.00	-1,107	-72,915	-3,450	-33,291	0	-109,656	74.29
M MIL RR <02422 2160 > 8" deep ballast	-1300	TON	CLABB14	8.00	-975	-64,220	-3,039	-29,321	0	-96,580	74.29
USR RR <02422 1399 > 7"x9"x8'6" creosoted ties at 19 1/2" o/c	-758.00	EA	CLABB14	7.50	-606	-39,942	-1,890	-67,644	0	-109,476	144.43
USR RR <02422 3011 > 115# tracks fixed to ties (2 rails)	-2394	LF	CLABB13	20.00	-838	-55,338	-13,880	-77,544	0	-146,762	61.30
M MIL RR <02422 3242 > Railroad, 115 lb tie plate relay, ARA-A & AREA	-1516	EA	CLABB13	100.00	-106	-7,009	-1,758	-7,897	0	-16,663	10.99
USR RR <02422 2149 > Camcar screws (3/plate)	-4548	EA	CLABB13	70.00	-455	-30,036	-7,534	-13,829	0	-51,400	11.30
USR RR <02422 2149 > Pandrol clip anchors (4/tie)	-3032	EA	CLABB13	46.67	-455	-30,036	-7,534	-70,150	0	-107,720	35.53
USR RR <02422 3109 > 36" joint bar each side of track, 100'0" o/c	-24.00	PRS	CLABB13	28.00	-6	-396	-99	-1,983	0	-2,479	103.28
M MIL RR <02422 2110 > Railroad, track bolts & nuts, 1"	-144.00	EA	CLABB13	187.50	-5	-355	-89	-415	0	-859	5.97
USR RR <02422 2909 > Tie new tracks into exisitng	-4.00	EA	CLABB13	4.67	-6	-396	-99	-370	0	-866	216.46
USR RR <02422 2909 > Remove shoofly track upon completion of new bridge	-2397	LF	CLABB13	12.73	-1,318	-87,068	-21,839	0	0	-108,907	45.43

02.1B. DELETE - ARRC BRIDGE AND TRACKS	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
USR RR <02422 1399 > Remove railroad ties	-758.00	EA	CLABB14	13.33	-341	-22,467	-1,063	0	0	-23,530	31.04
TOTAL Special Construction	1197.00	LF			-6,219	-410,179	-62,275	-302,444	0	-774,898	-647.37
TOTAL Site Improvements	628.00	LF			-6,219	-410,179	-62,275	-302,444	0	-774,898	-1233.91
TOTAL Support Facilities	1.50	ACR			-9,985	-634,330	-159,629	-397,447	0	-1,191,406	-794271
TOTAL DELETE - ARRC BRIDGE AND TRACKS	2215.00	LF			-13,441	-883,989	-196,061	-856,942	-12,365	-1,949,356	-880.07

02.1C. ADD - CULVERT CONSTRUCTION

Assume 18ft diameter round culvert 120ft long, 0.25 inch thick aluminum.
Channel invert at -2.8ft MSL, culvert invert at -5MSL and bottom of excavation at -7ft MSL.
Culvert crown elevation is +13ft MSL, top of channel is +34ft MSL, and depth of cover is 21ft.
Trench side slope is 1:1 above +5MSL, and 1:1.5 below
Bedding is 2ft deep under culvert and 11ft total depth.
5ft wide riprap apron around each end of the culvert.
Construction window for interrupting rail traffic is 48 hours between 15 Oct and 15 May.
Shoring required for below-tide work, and utilities need to be relocated.

02.1C.01. Primary Facilities

02.1C.01.18. Site Prep - Culvert

Prepare for presumed culvert construction in lieu of presumed channel construction.

02.1C.01.18.01. Site Clearing (USER)											
AF SW <02110 1050 > Clearing, wet, heavy brush & trees	0.53	ACR	COMCB88	0.34	11	591	461	0	0	1,052	1984.10
TOTAL Site Clearing	0.53	ACR			11	591	461	0	0	1,052	1984.10
02.1C.01.18.02. Special Const. (Coffer Dam)											
USR SW < > **SHEET PILE WIER/SPILLWAY**	1.00	EA		0.00	0	0	0	0	0	0	0.00
USR SW <02240 0019 > Build temporary pad for rig and remove afterwards	550.00	CY	CODTB15	17.50	110	5,523	5,142	4,675	0	15,340	27.89
USR TF <02111 0009 > Mobilization/demobilization rig via railroad	1.00	EA	N/A	0.00	0	0	0	0	8,655	8,655	8655.22
USR TF <02116 0009 > Drive 30#/SF sheet pile end sections, 15'6" deep (2)	4.65	TON	CPIDB40	0.57	65	4,679	1,499	11,470	0	17,649	3795.45
USR TF <02116 0009 > Drive weir section 13'0" deep (3)	9.36	TON	CPIDB40	0.67	112	8,068	2,585	23,089	0	33,742	3604.89
CIV SS <05140 0100 > Steel cutting, hand burning, stl to 1/2" thick, w/ prep	12.00	LF	SIWWE14	8.75	1	103	19	0	0	122	10.18
USR SS <05130 0599 > Weld sheet pile cap to entire weir	68.00	LF	SIWSE4	5.00	54	4,021	192	799	0	5,012	73.70

02.1C. ADD - CULVERT CONSTRUCTION	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
TOTAL Special Const. (Coffer Dam)	934.00	SF			343	22,394	9,437	40,033	8,655	80,520	86.21
02.1C.01.18.03. Site Earthwork (USER)											
MIL SW <02225 0330 > Excav & load on truck,bucket drag line,3 CY,unclassified soil, bank	8030.00	CY	UOEHB12V	68.75	234	12,234	16,681	0	0	28,914	3.60
USR SW <02234 0339 > Dispose excavated unclassified soil	8030.00	CY	COEIB34B	13.75	584	28,111	21,820	0	0	49,931	6.22
USR SW <02240 0010 > Backfill Type A material	7834.00	CY	CODTB10B	21.43	548	29,047	32,499	97,925	0	159,470	20.36
MIL SW <02220 7000 > Compaction, struct/trench, 6" lifts, 2 passes18" wide, vib plate	7834.00	CY	ULABA1	25.00	313	15,288	1,926	0	0	17,214	2.20
M RSM SW <02270 0100 > Rip-rap, random, machine placed for slope protection, 4.5FT THICK NORMAL TO SLOPE.	401.80	CY	UOEHB12G	7.75	104	5,430	1,995	9,523	0	16,948	42.18
USR SW <02270 0099 > Stream substrate IN CULVERT INVERT, 4.3FT THICK	568.10	CY	UOEHB12G	6.30	180	9,450	3,471	30,961	0	43,882	77.24
M CIV SW <02266 0064 > Erosion control, nylon, 3 dimensional, 18 mil thick	2994.20	SY	CLABB80A	57.50	156	7,622	854	18,834	0	27,309	9.12
TOTAL Site Earthwork	17875	CY			2,120	107,181	79,245	157,243	0	343,669	19.23
TOTAL Site Prep - Culvert	0.53	ACR			2,474	130,166	89,143	197,275	8,655	425,240	802339.18
02.1C.01.19. Culvert Set 18ft (216inch) diameter, 0.25 inch thick aluminum, multiplate bolted, 4.5FT X 9FT PLATES, 6 PLATES/RING, 27 RINGS/120LF.											
02.1C.01.19.9X. Civil/Mech. Utilities											
USR SW < > **Culvert**	1.00	EA		0.00	0	0	0	0	0	0	0.00
M MIL SW <02215 2460 > Backfill, sand bedding trenches, front-end loader, 1.5 CY	903.60	CY	CODFB10N	47.50	29	1,511	578	18,042	0	20,131	22.28
MIL SW <02220 7000 > Compaction, struct/trench, 6" lifts, 2 passes18" wide, vib plate	903.60	CY	ULABA1	25.00	36	1,763	222	0	0	1,986	2.20
USR SW <02764 2500 > 216" (18FT) diameter CMP culvert, 0.25 inch aluminum, multiplate bolted, 4.5FT X 9FT PLATES, 6 PLATES/RING, 27 RINGS/120LF. PRICE AND PRODUCTIVITY QUOTE FROM BRYAN EPLEY, CONTECH/CULFABCO, ANCHORAGE, 344-1144, 19 SEP 03. AA	120.00	LF	CLABB13	1.00	840	41,962	10,525	104,400	0	156,886	1307.39
TOTAL Civil/Mech. Utilities	120.00	LF			905	45,236	11,325	122,442	0	179,003	1491.69

02.1C. ADD - CULVERT CONSTRUCTION	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
TOTAL Culvert	120.00	LF			905	45,236	11,325	122,442	0	179,003	1491.69
02.1C.01.20. R&R Rail Road Trackage Remove/replace trackage for construction of culvert during rail outage. Replace permanent trackage following gravel shipping season.											
02.1C.01.20.24. Site Preparation - AK Railroad Temporarily remove/replace tacakage for culvert construction during 48 window. ARR required flag person to coordinate impacts to RR property and train movements. Per Tom Brooks, ARR, 265-2300 Assume 24hr/day for duration of railroad disruption, plus 12hr/day for remainder of 2 weeks. 3 day x 24hr/day = 72hrs 9 days x 12hr/day = 108hrs Total 180 manhours											
USR AR < > Remove 120lf Trackage by ARR. Per Tom Brooks, ARR, 265-2300, 17 Sep 03. AA	1.00	JOB		0.00	0	0	0	0	20,000	20,000	20000.00
USR AR < > Reinstall 120lf Trackage by ARR. Per Tom Brooks, ARR, 265-2300, 17 Sep 03. AA	1.00	JOB		0.00	0	0	0	0	30,000	30,000	30000.00
USR AR < > Railroad Damage Liability Insurance. Per Tom Brooks, ARR, 265-2300, 17 Sep 03. AA	1.00	JOB		0.00	0	0	0	0	10,000	10,000	10000.00
USR AR < > ARR required flag person to coordinate impacts to RR property and train movements. Per Tom Brooks, ARR, 265-2300, 17 Sep 03. AA Assume 24hr/day for duration of railroad disruption, plus 12hr/day for remainder of 2 weeks. 3 day x 24hr/day = 72hrs 9 days x 12hr/day = 108hrs Total 180 manhours	180.00	HR		0.00	0	12,600	0	0	0	12,600	70.00
TOTAL Site Preparation - AK Railroad	120.00	LF			0	12,600	0	0	60,000	72,600	605.00
02.1C.01.20.99. Special Construction (Trackage) (USER) Permanently replace trackage over culvert. ARR required flag person to coordinate impacts to RR property and train movements. Per Tom Brooks, ARR, 265-2300 Assume 24hr/day for duration of railroad disruption, plus 12hr/day for remainder of 2 weeks. 3 day x 24hr/day = 72hrs 9 days x 12hr/day = 108hrs Total 180 manhours											
USR RR < > **REPLACE RAILROAD TRACKS AT NEW CULVERT**	1.00	EA		0.00	0	0	0	0	0	0	0.00

02.1C. ADD - CULVERT CONSTRUCTION		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
USR AR < >	ARR required flag person to coordinate impacts to RR property and train movements. Per Tom Brooks, ARR, 265-2300, 17 Sep 03. AA Assume 24hr/day for duration of railroad disruption, plus 12hr/day for remainder of 2 weeks. 3 day x 24hr/day = 72hrs 9 days x 12hr/day = 108hrs Total 180 manhours	180.00	HR		0.00	0	12,600	0	0	0	12,600	70.00
M MIL RR <02422 2160 >	Railroad, ballast, crushed stone	30.56	TON	CLABB14	8.00	23	1,510	71	689	0	2,271	74.29
USR RR <02422 1399 >	7"x9"x8'6" creosoted wood ties laid at 19 1/2" o/c at culvert	74.00	EA	CLABB14	7.50	59	3,899	185	6,604	0	10,688	144.43
USR RR <02422 3011 >	115# tracks fixed to ties (2/rail)	240.00	LF	CLABB13	20.00	84	5,548	1,391	7,774	0	14,713	61.30
M MIL RR <02422 3242 >	Railroad, 115 lb tie plate relay, ARA-A & AREA (2/tie)	154.00	EA	CLABB13	100.00	11	712	179	802	0	1,693	10.99
USR RR <02422 2149 >	Camcar screws (3/plate)	462.00	EA	CLABB13	70.00	46	3,051	765	1,405	0	5,221	11.30
USR RR <02422 2149 >	Pandrol clip anchors (4/tie)	304.00	EA	CLABB13	46.67	46	3,012	755	7,033	0	10,800	35.53
USR RR <02422 3109 >	36" joint bar at track connection	4.00	PRS	CLABB13	28.00	1	66	17	331	0	413	103.28
M MIL RR <02422 2110 >	Railroad, track bolts & nuts, 1" (6/joint)	24.00	EA	CLABB13	187.50	1	59	15	69	0	143	5.97
USR RR <02422 2909 >	Tie new tracks into existing	2.00	EA	CLABB13	5.00	3	185	46	185	0	416	208.20
TOTAL	Special Construction (Trackage)	120.00	LF			273	30,642	3,425	24,892	0	58,958	491.32
TOTAL	R&R Rail Road Trackage	1.00	JOB			273	43,242	3,425	24,892	60,000	131,558	131558.46
TOTAL	Primary Facilities	0.53	ACR			3,652	218,644	103,893	344,609	68,655	735,801	1388305
TOTAL	ADD - CULVERT CONSTRUCTION	178.00	LF			3,652	218,644	103,893	344,609	68,655	735,801	4133.72
TOTAL	Restoration - Alt B Culvert	1.00	EA			-11,171	-733,942	-145,749	-550,948	56,291	-1,374,348	-1374348
TOTAL	Aquatic Eco-System Restoration	1.00	EA			10,673	603,550	213,658	964,638	86,020	1,867,866	1867866

		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
07. Relocation - Opt 1 Utilities Please note that this estimate is for utilities relocation work to be performed by others. The Aquatic Eco-System Restoration project requires relocation of two sewer forced main pipelines and two POL pipelines running parallel with the ARR trackage and crossing the proposed flow direction. Also a fiber optic cable will need to be located and protected. This estimate excludes 72" diameter slip line pipe, and rehab existing concrete intake.												
07. 5. Relocations												
07. 5.01. Primary Facilities												
07. 5.01.18. Site Prep - Culvert Prepare for presumed culvert construction in lieu of presumed channel construction.												
07. 5.01.18.05. Relocate Forced Sewer Systems Assume relocate two sewer forced main pipelines at about Sta 24+70, west of tracks, to below channel/culvert. Assume repipe 40ft lower to clear construction. Assume 160llf of pipeline removed, 4-45 degree joints installed and 220lf of pipeline installed for each relocated line.												
CIV SW <02046 3310 > Site dml, pipe removal, steel, welded connections		320.00	LF	CODLB6	14.00	69	3,464	323	0	0	3,788	11.84
M CIV SW <02661 1080 > Piping, 24" dia, blk stl, pl end, welded, 3/8" wall		440.00	LF	MSPFB35A	4.50	684	35,221	10,324	18,141	0	63,685	144.74
M CIV SW <02661 1460 > Piping, water dist, blk steel, coupling, 24" pipe		8.00	EA	MPLUQ22A	0.60	53	2,634	742	3,290	0	6,666	833.28
USR SW <15048 1116 > Radiograph Welds On Pipe Pipe =(10,518+ 64)/40 = 265 Elbow = 2 X 23 = 46 Tee = 3 X 16 = 48 Cap = 1 X 0 = 0 REDUCER 2 X 16 = 32 FLANGE 1 X 0 = 0 Iso Pits = 2 X 1 = 3 HYDRANT PITS 1 X 16 = 16 Total = 410		32.00	EA	MSPFA	1.00	40	2,027	0	960	0	2,987	93.33
USR SW <15048 1318 > Hyd Test,1000-2000LF,6"-12" Pipe		2.00	EA	MSPFI	0.02	292	13,966	0	0	0	13,966	6982.94
M CIV SW <02661 1620 > Piping kraft paper wrap, 24" OD, coating, coal tar epoxy		440.00	LF	N/A	0.00	0	0	0	2,904	0	2,904	6.60
TOTAL Relocate Forced Sewer Systems		2.00	EA			1,138	57,312	11,388	25,296	0	93,996	46998.01

07. 5. Relocations		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT COST
07. 5.01.18.07. Relocate POL Systems	Assume relocate two POL pipelines at about Sta 24+70, west of tracks, to below channel/culvert. Assume repipe POL 40ft lower to clear construction. Assume 160llf of pipeline removed, 4-45 degree joints installed and 220lf of pipeline installed for each relocated line.											
CIV SW <02046 3310 >	Site dml, pipe removal, 6"-12" dia, steel, welded connections	320.00	LF	CODLB6	14.00	69	3,464	323	0	0	3,788	11.84
USR SW <15048 1116 >	Radiograph Welds On Pipe Pipe =(10,518+ 64)/40 = 265 Elbow = 2 X 23 = 46 Tee = 3 X 16 = 48 Cap = 1 X 0 = 0 REDUCER 2 X 16 = 32 FLANGE 1 X 0 = 0 Iso Pits = 2 X 1 = 3 HYDRANT PITS 1 X 16 = 16 Total = 410	32.00	EA	MSPFA	1.00	40	2,027	0	960	0	2,987	93.33
USR SW <15048 1318 >	Hyd Test,1000-2000LF,6"-12" Pipe	2.00	EA	MSPFI	0.02	292	13,966	0	0	0	13,966	6982.94
USR SW <15048 1418 >	Pneu Test,1000-2000LF,6"-12"Pipe Includes Soaping Joints	2.00	EA	MSPFI	0.02	350	16,759	0	1	0	16,760	8380.07
USR SW <15048 2222 >	Protective Coating Spark Test Holiday	440.00	LF	MSPFE	250.00	4	209	9	0	0	218	0.50
USR SW <15048 2225 >	Warning Tape	440.00	LF	MSPFE	250.00	4	209	9	44	0	262	0.60
USR SW <15000 0000 >	POL Pipe 12 In	400.00	LF	MSPFH	4.39	296	14,094	662	30,880	0	45,636	114.09
USR SW <15000 0000 >	Add for coat & wrap pipe 12 In	400.00	LF		0.00	0	0	0	1,200	0	1,200	3.00
USR SW <15000 0000 >	Add coat & wrap pipe 12" joints	32.00	EA	MSPFB	6.25	13	608	0	211	0	819	25.61
USR SW <15066 00000>	SS long r ell 12"(3 X pipe dia)	8.00	EA	MSPFE	0.19	103	4,899	208	62,000	0	67,107	8388.35
USR SW <15000 0000 >	Add for coat & wrap Ell 12 In	8.00	EA	MSPFE	2.78	7	342	15	146	0	502	62.78
USR SW <15061 000 >	Pigging Verification & pig disp	440.00	LF	MSPFL	330.00	5	258	0	0	13	271	0.62
MIL SW < >	Compressor for pigging opeation	2.00	HR	A15XX014	1.00	0	0	77	0	0	77	38.70
TOTAL	Relocate POL Systems	2.00	EA			1,183	56,835	1,302	95,442	13	153,593	76796.34
07. 5.01.18.09. Exterior Comm. Systems												
CIV SW <02046 3310 >	Protect pipe conduit, 6"-12" dia, steel, welded connections	160.00	LF	CODLB6	14.00	34	1,732	162	0	0	1,894	11.84
TOTAL	Exterior Comm. Systems	1.00	EA			34	1,732	162	0	0	1,894	1893.78
TOTAL	Site Prep - Culvert	0.53	ACR			2,356	115,879	12,853	120,738	13	249,482	470721.66
TOTAL	Primary Facilities	0.53	ACR			2,356	115,879	12,853	120,738	13	249,482	470721.66
TOTAL	Relocations	1.00	EA			2,356	115,879	12,853	120,738	13	249,482	249482.48
TOTAL	Relocation - Opt 1 Utilities	1.00	EA			2,356	115,879	12,853	120,738	13	249,482	249482.48

SRC	ITEM ID	DESCRIPTION	NO.	UOM	RATE	**** LABOR **** HOURS	**** LABOR **** COST	**** EQUIP **** HOURS	**** EQUIP **** COST	TOTAL COST
	ACARC1	3 carpnters			PROD = 100%				CREW HOURS = 2	
MIL	B-CARPNTERL	Carpenters	3.00	HR	52.99	3.00	158.96			158.96
MIL	B-LABORER L	Laborers, (Semi-Skilled)	1.00	HR	48.79	1.00	48.79			48.79
	TOTAL					4.00	207.75	0.00	0.00	207.75
	ACARC2	5 carpnters			PROD = 100%				CREW HOURS = 20	
MIL	B-CARPNTERF	Carpenters	1.00	HR	53.99	1.00	53.99			53.99
MIL	B-CARPNTERL	Carpenters	4.00	HR	52.99	4.00	211.95			211.95
MIL	B-LABORER L	Laborers, (Semi-Skilled)	1.00	HR	48.79	1.00	48.79			48.79
	TOTAL					6.00	314.73	0.00	0.00	314.73
	ACARCARP1	1 carpnter			PROD = 100%				CREW HOURS = 22	
MIL	B-CARPNTERL	Carpenters	1.00	HR	52.99	1.00	52.99			52.99
	TOTAL					1.00	52.99	0.00	0.00	52.99
	ACARCARP2	2 carpnters			PROD = 100%				CREW HOURS = 95	
MIL	B-CARPNTERL	Carpenters	2.00	HR	52.99	2.00	105.98			105.98
	TOTAL					2.00	105.98	0.00	0.00	105.98
	ALABCLAB1	1 laborer			PROD = 100%				CREW HOURS = 432	
MIL	B-LABORER L	Laborers, (Semi-Skilled)	1.00	HR	48.79	1.00	48.79			48.79
	TOTAL					1.00	48.79	0.00	0.00	48.79
	ALABCLAB2	2 laborers			PROD = 100%				CREW HOURS = 33	
MIL	B-LABORER L	Laborers, (Semi-Skilled)	2.00	HR	48.79	2.00	97.58			97.58
	TOTAL					2.00	97.58	0.00	0.00	97.58
	CLABB13	5 laborers + 1 crane, hydr, trk mtd, 60 ton			PROD = 100%				CREW HOURS = 158	
MIL	B-LABORER F	Laborers, (Semi-Skilled)	1.00	HR	49.79	1.00	49.79			49.79
MIL	B-LABORER L	Laborers, (Semi-Skilled)	4.00	HR	48.79	4.00	195.15			195.15
MIL	B-EQOPRCRNL	Equip. Operators, Crane/Shovel	1.00	HR	55.73	1.00	55.73			55.73
MIL	B-EQOPROILL	Equip. Operators, Oilers	1.00	HR	49.01	1.00	49.01			49.01
GEN	C80Z2280 E	CRANE, HYD, TRUCK MTD, 60 TON	1.00	HR	87.71			1.00	87.71	87.71
	TOTAL					7.00	349.68	1.00	87.71	437.39
	CLABB14	5 laborers + 1 loader, BH, wheel, 0.80 CY FE bkt			PROD = 100%				CREW HOURS = 19	
MIL	B-LABORER F	Laborers, (Semi-Skilled)	1.00	HR	49.79	1.00	49.79			49.79
MIL	B-LABORER L	Laborers, (Semi-Skilled)	4.00	HR	48.79	4.00	195.15			195.15
MIL	B-EQOPRLT L	Equip. Operators, Light	1.00	HR	53.98	1.00	53.98			53.98
GEN	L50Z4640 E	LOADER/BH, WH, 0.80 CY (0.6 M3)	1.00	HR	14.15			1.00	14.15	14.15
	TOTAL					6.00	298.92	1.00	14.15	313.07

SRC	ITEM ID	DESCRIPTION	NO.	UOM	RATE	**** LABOR **** HOURS	**** LABOR **** COST	**** EQUIP **** HOURS	**** EQUIP **** COST	TOTAL COST
*	CLABB80	2 laborers + 1 post driver, 30,000 lb impact			PROD = 100%				CREW HOURS =	97
MIL	B-LABORER F	Laborers, (Semi-Skilled)	1.00	HR	49.79	1.00	49.79			49.79
MIL	B-LABORER L	Laborers, (Semi-Skilled)	1.00	HR	48.79	1.00	48.79			48.79
MIL	B-TRKDVRLTL	Truck Drivers, Light	1.00	HR	45.59	1.00	45.59			45.59
MIL	B-EQOPRLT L	Equip. Operators, Light	1.00	HR	53.98	1.00	53.98			53.98
GEN	T50Z7400 E	TRUCK, 20,000 - 25,000 (9072 -	1.00	HR	15.48			1.00	15.48	15.48
GEN	T40Z7000 E	FLATBED,8' (2.4 M) X 20' (6.1 M	1.00	HR	0.92			1.00	0.92	0.92
	TOTAL					4.00	198.15	2.00	16.39	214.54
	CLABB80A	3 laborers + 1 flatbed truck, 20,000-25,000 GVW			PROD = 100%				CREW HOURS =	252
MIL	B-LABORER L	Laborers, (Semi-Skilled)	3.00	HR	48.79	3.00	146.36			146.36
GEN	T40Z7000 E	FLATBED,8' (2.4 M) X 20' (6.1 M	1.00	HR	0.92			1.00	0.92	0.92
GEN	T50Z7400 E	TRUCK, 20,000 - 25,000 (9072 -	1.00	HR	15.48			1.00	15.48	15.48
	TOTAL					3.00	146.36	2.00	16.39	162.76
	CLABC20	6 laborers + 1 concrete pump, 117 CY/hr			PROD = 100%				CREW HOURS =	1
MIL	B-LABORER F	Laborers, (Semi-Skilled)	1.00	HR	49.79	1.00	49.79			49.79
MIL	B-LABORER L	Laborers, (Semi-Skilled)	5.00	HR	48.79	5.00	243.94			243.94
MIL	B-CEMTFINRL	Cement Finishers	1.00	HR	52.95	1.00	52.95			52.95
MIL	B-EQOPRMEDL	Equip. Operators, Medium	1.00	HR	55.06	1.00	55.06			55.06
GEN	XMEZ9520 E	VIBRATOR, CONCRETE	2.00	HR	3.70			2.00	7.40	7.40
GEN	C55Z1960 E	CONCRETE PUMP,117 CY/HR (89 CMH	1.00	HR	83.13			1.00	83.13	83.13
	TOTAL					8.00	401.74	3.00	90.53	492.27
	CLADB38	3 laborers + 1 hydraulic hammer, 1,000 ft-lbs			PROD = 100%				CREW HOURS =	24
MIL	B-LABORER F	Laborers, (Semi-Skilled)	1.00	HR	49.79	1.00	49.79			49.79
MIL	B-LABORER L	Laborers, (Semi-Skilled)	2.00	HR	48.79	2.00	97.58			97.58
MIL	B-EQOPRLT L	Equip. Operators, Light	1.00	HR	53.98	1.00	53.98			53.98
MIL	B-EQOPRMEDL	Equip. Operators, Medium	1.00	HR	55.06	1.00	55.06			55.06
GEN	L50Z4640 E	LOADER/BH, WH, 0.80 CY (0.6 M3)	1.00	HR	14.15			1.00	14.15	14.15
GEN	H10Z3120 E	HYD HAMMER,1000 FT-LBS (1356N-M	1.00	HR	8.45			1.00	8.45	8.45
GEN	L40Z4410 E	LOADER, F/E, WHEEL, 4.00 CY	1.00	HR	66.29			1.00	66.29	66.29
GEN	H25Z3680 E	PAVEMENT-REMOVAL BUCKET, 36"	1.00	HR	3.47			1.00	3.47	3.47
	TOTAL					5.00	256.41	4.00	92.36	348.77
	CODBB54	1 eqoprlt + 1 trencher, chain, 63" D, 12" W			PROD = 100%				CREW HOURS =	77
MIL	B-EQOPRLT L	Equip. Operators, Light	1.00	HR	53.98	1.00	53.98			53.98
GEN	T30Z6760 E	TRENCHER, CHAIN, 12" (305 MM) W	1.00	HR	10.82			1.00	10.82	10.82
	TOTAL					1.00	53.98	1.00	10.82	64.80
	CODEB30	1 eqoprmed + 1 hydr excavator, crawler, 1.50 CY			PROD = 100%				CREW HOURS =	4
MIL	B-EQOPRMEDL	Equip. Operators, Medium	1.00	HR	55.06	1.00	55.06			55.06
MIL	B-TRKDVRHVL	Truck Drivers, Heavy	2.00	HR	48.13	2.00	96.27			96.27
GEN	H25Z3185 E	HYD EXCV, CRAWELR, 1.50 CY	1.00	HR	64.15			1.00	64.15	64.15
GEN	T50Z7420 E	TRUCK, 40,000 - 45,000 (18 144	2.00	HR	35.03			2.00	70.07	70.07

SRC	ITEM ID	DESCRIPTION	NO. UOM	RATE	**** LABOR **** HOURS	**** LABOR **** COST	**** EQUIP **** HOURS	**** EQUIP **** COST	TOTAL COST
GEN	T40Z7090	E REAR DUMP BODY, 12 CY (9.2 M3)	2.00 HR	3.13			2.00	6.26	6.26
	TOTAL				3.00	151.33	5.00	140.48	291.81
	CODEB3A	1 eqoprmed + 1 hydr excavator, crawler, 1.50 CY	PROD = 100%					CREW HOURS =	6
MIL	B-LABORER	F Laborers, (Semi-Skilled)	1.00 HR	49.79	1.00	49.79			49.79
MIL	B-LABORER	L Laborers, (Semi-Skilled)	3.00 HR	48.79	3.00	146.36			146.36
MIL	B-EQOPRCRNL	Equip. Operators, Crane/Shovel	1.00 HR	55.73	1.00	55.73			55.73
GEN	H25Z3185	E HYD EXCV, CRAWELR, 1.50 CY	1.00 HR	64.15			1.00	64.15	64.15
	TOTAL				5.00	251.88	1.00	64.15	316.04
	CODFB10N	1 eqoprmed + 1 loader, F/E, crawler, 1.50 CY	PROD = 100%					CREW HOURS =	19
MIL	B-EQOPRMEDL	Equip. Operators, Medium	1.00 HR	55.06	1.00	55.06			55.06
MIL	B-LABORER	L Laborers, (Semi-Skilled)	0.50 HR	48.79	0.50	24.39			24.39
GEN	L35Z4240	E LOADER, F/E, CRWLR, 1.50 CY	1.00 HR	30.39			1.00	30.39	30.39
	TOTAL				1.50	79.45	1.00	30.39	109.85
	CODFB10S	1 eqoprmed + 1 loader, F/E, wheel, 4WD, 1.50 CY	PROD = 100%					CREW HOURS =	35
MIL	B-EQOPRMEDL	Equip. Operators, Medium	1.00 HR	55.06	1.00	55.06			55.06
MIL	B-LABORER	L Laborers, (Semi-Skilled)	0.50 HR	48.79	0.50	24.39			24.39
GEN	L40Z4390	E LOADER, F/E, WHEEL, 1.75 CY	1.00 HR	26.84			1.00	26.84	26.84
	TOTAL				1.50	79.45	1.00	26.84	106.30
	CODLB6	1 eqoprlt + 1 loader, BH, wheel,0.80 CY F/E bkt	PROD = 100%					CREW HOURS =	95
MIL	B-LABORER	L Laborers, (Semi-Skilled)	2.00 HR	48.79	2.00	97.58			97.58
MIL	B-EQOPRLT	L Equip. Operators, Light	1.00 HR	53.98	1.00	53.98			53.98
GEN	L50Z4640	E LOADER/BH, WH, 0.80 CY (0.6 M3)	1.00 HR	14.15			1.00	14.15	14.15
	TOTAL				3.00	151.56	1.00	14.15	165.71
	CODTB10B	1 eqoprmed + 1 dozer, crawler, 181-250 HP	PROD = 100%					CREW HOURS =	395
MIL	B-EQOPRMEDL	Equip. Operators, Medium	1.00 HR	55.06	1.00	55.06			55.06
MIL	B-LABORER	L Laborers, (Semi-Skilled)	0.50 HR	48.79	0.50	24.39			24.39
GEN	T15Z6520	E DOZER, CRAWLER, 181-250 HP	1.00 HR	88.89			1.00	88.89	88.89
	TOTAL				1.50	79.45	1.00	88.89	168.35
	CODTB10L	1 eqoprmed + 1 dozer, crawler, 76-100 HP	PROD = 100%					CREW HOURS =	74
MIL	B-EQOPRMEDL	Equip. Operators, Medium	1.00 HR	55.06	1.00	55.06			55.06
MIL	B-LABORER	L Laborers, (Semi-Skilled)	0.50 HR	48.79	0.50	24.39			24.39
GEN	T15Z6440	E DOZER, CRWLR, 76-100 HP	1.00 HR	29.19			1.00	29.19	29.19
	TOTAL				1.50	79.45	1.00	29.19	108.64

SRC	ITEM ID		DESCRIPTION	NO.	UOM	RATE	**** LABOR **** HOURS	**** LABOR **** COST	**** EQUIP **** HOURS	**** EQUIP **** COST	TOTAL COST
	CODTB15		1 eqoprmed + 1 dozer, crawler, 181-250 HP		PROD = 100%					CREW HOURS =	72
MIL	B-EQOPRMEDL		Equip. Operators, Medium	1.00	HR	55.06	1.00	55.06			55.06
MIL	B-LABORER L		Laborers, (Semi-Skilled)	0.50	HR	48.79	0.50	24.39			24.39
MIL	B-TRKDVRHVL		Truck Drivers, Heavy	2.00	HR	48.13	2.00	96.27			96.27
GEN	T50Z7420	E	TRUCK, 40,000 - 45,000 (18 144	2.00	HR	35.03			2.00	70.07	70.07
GEN	T40Z6860	E	REAR DUMP BODY,16-23.5 CY (12.2	2.00	HR	2.33			2.00	4.66	4.66
GEN	T15Z6520	E	DOZER, CRAWLER, 181-250 HP	1.00	HR	88.89			1.00	88.89	88.89
	TOTAL						3.50	175.72	5.00	163.62	339.34
	COEIB17		1 trkdvrhv + 1 truck, dump, 12 CY		PROD = 100%					CREW HOURS =	2
MIL	B-LABORER L		Laborers, (Semi-Skilled)	2.00	HR	48.79	2.00	97.58			97.58
MIL	B-EQOPRLT L		Equip. Operators, Light	1.00	HR	53.98	1.00	53.98			53.98
MIL	B-TRKDVRHVL		Truck Drivers, Heavy	1.00	HR	48.13	1.00	48.13			48.13
GEN	L50Z4640	E	LOADER/BH, WH, 0.80 CY (0.6 M3)	1.00	HR	14.15			1.00	14.15	14.15
GEN	T50Z7420	E	TRUCK, 40,000 - 45,000 (18 144	1.00	HR	35.03			1.00	35.03	35.03
GEN	T40Z7090	E	REAR DUMP BODY, 12 CY (9.2 M3)	1.00	HR	3.13			1.00	3.13	3.13
	TOTAL						4.00	199.69	3.00	52.31	252.00
	COEIB34B		1 trkdvrhv + 1 truck, dump, 16-23.5 CY		PROD = 100%					CREW HOURS =	1091
MIL	B-TRKDVRHVL		Truck Drivers, Heavy	1.00	HR	48.13	1.00	48.13			48.13
GEN	T50Z7420	E	TRUCK, 40,000 - 45,000 (18 144	1.00	HR	35.03			1.00	35.03	35.03
GEN	T40Z6860	E	REAR DUMP BODY,16-23.5 CY (12.2	1.00	HR	2.33			1.00	2.33	2.33
	TOTAL						1.00	48.13	2.00	37.36	85.50
	COFGB32A		2 eqoprmed + 1 roller,vib,sd,S/P,12 ton,84"x60"		PROD = 100%					CREW HOURS =	16
MIL	B-LABORER L		Laborers, (Semi-Skilled)	1.00	HR	48.79	1.00	48.79			48.79
MIL	B-EQOPRMEDL		Equip. Operators, Medium	2.00	HR	55.06	2.00	110.12			110.12
GEN	G15Z3080	E	GRADER, MOTOR, ARTICULATED	1.00	HR	36.07			1.00	36.07	36.07
GEN	R50Z5810	E	ROLLER, VIB, ST, S/P 12 T	1.00	HR	46.56			1.00	46.56	46.56
	TOTAL						3.00	158.91	2.00	82.63	241.53
	COKCB25B		8 laborers + 1 roller,vib,tandem,S/P,12Ton,84"w		PROD = 100%					CREW HOURS =	6
MIL	B-LABORER F		Laborers, (Semi-Skilled)	1.00	HR	49.79	1.00	49.79			49.79
MIL	B-LABORER L		Laborers, (Semi-Skilled)	7.00	HR	48.79	7.00	341.52			341.52
MIL	B-EQOPRMEDL		Equip. Operators, Medium	4.00	HR	55.06	4.00	220.24			220.24
GEN	A30Z0640	E	ASPHALT FINISHER, 10' (3.1 M),W	1.00	HR	64.37			1.00	64.37	64.37
GEN	R45Z5690	E	ROLLER, VIB, TANDEM, S/P 12 T	2.00	HR	45.03			2.00	90.05	90.05
GEN	R30Z5645	E	ROLLER, STATIC, S/P,13 T (12 MT	1.00	HR	19.00			1.00	19.00	19.00
	TOTAL						12.00	611.54	4.00	173.43	784.97
	COMCB88		6 eqoprmeds + 1 log chipper, 22" capacity		PROD = 100%					CREW HOURS =	4
MIL	B-LABORER L		Laborers, (Semi-Skilled)	1.00	HR	48.79	1.00	48.79			48.79
MIL	B-EQOPRMEDL		Equip. Operators, Medium	6.00	HR	55.06	6.00	330.36			330.36
GEN	L60Z4800	E	LOG FELLER/BUNCHER, 20" (508 MM	2.00	HR	43.30			2.00	86.61	86.61
GEN	B20Z1000	E	LOG CHIPPER, 22" (559 MM) CAP	1.00	HR	119.14			1.00	119.14	119.14
GEN	L60Z4760	E	LOG SKIDDER, CABLE	2.00	HR	29.50			2.00	59.00	59.00

SRC	ITEM ID	DESCRIPTION	NO.	UOM	RATE	**** LABOR **** HOURS	**** LABOR **** COST	**** EQUIP **** HOURS	**** EQUIP **** COST	TOTAL COST
GEN	T15Z6440 E	DOZER, CRWLR, 76-100 HP	1.00	HR	29.19			1.00	29.19	29.19
GEN	C05Z1210 E	CHAIN SAW, 24"-43"	1.00	HR	1.51			1.00	1.51	1.51
	TOTAL					7.00	379.15	7.00	295.45	674.59
	CPIDB40	5 piledrvrs + 1 crane, crawler,drag/clam, 50 ton			PROD = 100%				CREW HOURS =	44
MIL	B-PILEDRVRF	Pile Drivers	1.00	HR	61.65	1.00	61.65			61.65
MIL	B-PILEDRVRL	Pile Drivers	4.00	HR	60.65	4.00	242.60			242.60
MIL	B-EQOPRCRNL	Equip. Operators, Crane/Shovel	2.00	HR	55.73	2.00	111.46			111.46
MIL	B-EQOPROILL	Equip. Operators, Oilers	1.00	HR	49.01	1.00	49.01			49.01
GEN	C85Z2395 E	CRANE, CRWLR, DRAG/CLAM, 2.0CY	1.00	HR	75.87			1.00	75.87	75.87
GEN	P30Z4920 E	PILE HAMMER,VIB,80T(73 MT) FORC	1.00	HR	73.02			1.00	73.02	73.02
	TOTAL					8.00	464.72	2.00	148.88	613.60
	CPIDB50	8 piledrvrs + 1 crane, crawler,drag/clam, 50 ton			PROD = 100%				CREW HOURS =	6
MIL	B-PILEDRVRF	Pile Drivers	2.00	HR	61.65	2.00	123.30			123.30
MIL	B-PILEDRVRL	Pile Drivers	6.00	HR	60.65	6.00	363.90			363.90
MIL	B-EQOPRCRNL	Equip. Operators, Crane/Shovel	2.00	HR	55.73	2.00	111.46			111.46
MIL	B-EQOPROILL	Equip. Operators, Oilers	1.00	HR	49.01	1.00	49.01			49.01
MIL	B-LABORER L	Laborers, (Semi-Skilled)	3.00	HR	48.79	3.00	146.36			146.36
GEN	C85Z2395 E	CRANE, CRWLR, DRAG/CLAM, 2.0CY	1.00	HR	75.87			1.00	75.87	75.87
GEN	P10Z4840 E	PILE LEADS, 8"X 26"(203-660 MM)	1.00	HR	12.71			1.00	12.71	12.71
GEN	P20Z4880 E	PILE HAMMER, DBL, 15,100 FT-LBS	1.00	HR	36.99			1.00	36.99	36.99
GEN	A15Z0180 E	AIR COMPRESSOR, 1200CFM (34CMM)	1.00	HR	48.54			1.00	48.54	48.54
GEN	A20Z0490 E	AIR HOSE,3.0"(76MM) X 100'(31M)	1.00	HR	1.16			1.00	1.16	1.16
GEN	C05Z1210 E	CHAIN SAW, 24"-43"	1.00	HR	1.51			1.00	1.51	1.51
	TOTAL					14.00	794.03	6.00	176.79	970.82
	EELEELEC1	1 electrn			PROD = 100%				CREW HOURS =	14
MIL	B-ELECTRN L	Electricians	1.00	HR	56.00	1.00	56.00			56.00
	TOTAL					1.00	56.00	0.00	0.00	56.00
	EELER18	1 electrn + 2 laborers			PROD = 100%				CREW HOURS =	111
MIL	B-ELECTRN F	Electricians	0.30	HR	57.00	0.30	17.10			17.10
MIL	B-ELECTRN L	Electricians	1.00	HR	56.00	1.00	56.00			56.00
MIL	B-LABORER L	Laborers, (Semi-Skilled)	2.00	HR	48.79	2.00	97.58			97.58
	TOTAL					3.30	170.68	0.00	0.00	170.68
	EELER19	3 electrns			PROD = 100%				CREW HOURS =	51
MIL	B-ELECTRN F	Electricians	0.50	HR	57.00	0.50	28.50			28.50
MIL	B-ELECTRN L	Electricians	2.00	HR	56.00	2.00	112.01			112.01
	TOTAL					2.50	140.51	0.00	0.00	140.51

SRC	ITEM ID	DESCRIPTION	NO.	UOM	RATE	**** LABOR **** HOURS	**** LABOR **** COST	**** EQUIP **** HOURS	**** EQUIP **** COST	TOTAL COST
	MPLUQ22A	2 plumbers + 1 crane, hydr, trk mtd, 14 ton			PROD = 100%				CREW HOURS =	13
MIL	B-PLUMBER L	Plumbers	1.00	HR	50.47	1.00	50.47			50.47
MIL	B-PLUMBER A	Plumbers	1.00	HR	42.60	1.00	42.60			42.60
MIL	B-LABORER L	Laborers, (Semi-Skilled)	1.00	HR	48.79	1.00	48.79			48.79
MIL	B-EQOPRCRNL	Equip. Operators, Crane/Shovel	1.00	HR	55.73	1.00	55.73			55.73
GEN	C80Z2240 E	CRANE, HYD, TRUCK MTD, 14 TON	1.00	HR	55.62			1.00	55.62	55.62
	TOTAL					4.00	197.59	1.00	55.62	253.21
	MSPFA	1 stm/pipe			PROD = 100%				CREW HOURS =	64
MIL	B-STM/PIPEL	Steam / Pipefitters	1.00	HR	50.47	1.00	50.47			50.47
MIL	B-STM/PIPEF	Steam / Pipefitters	0.25	HR	51.47	0.25	12.87			12.87
	TOTAL					1.25	63.33	0.00	0.00	63.33
	MSPFB	3 stm/pipe			PROD = 100%				CREW HOURS =	5
MIL	B-STM/PIPEF	Steam/Pipefitters	0.50	HR	51.47	0.50	25.73			25.73
MIL	B-STM/PIPEL	Steam/Pipefitters	1.00	HR	50.47	1.00	50.47			50.47
MIL	B-STM/PIPEA	Steam/Pipefitters	1.00	HR	42.60	1.00	42.60			42.60
	TOTAL					2.50	118.80	0.00	0.00	118.80
	MSPFB35A	3 laborers + 1 crane, hydr, trk mtd, 80 ton			PROD = 100%				CREW HOURS =	98
MIL	B-LABORER F	Laborers, (Semi-Skilled)	1.00	HR	49.79	1.00	49.79			49.79
MIL	B-LABORER L	Laborers, (Semi-Skilled)	2.00	HR	48.79	2.00	97.58			97.58
MIL	B-SKILLWKRL	Skilled Workers	1.00	HR	57.64	1.00	57.64			57.64
MIL	B-PLUMBER L	Plumbers	1.00	HR	50.47	1.00	50.47			50.47
MIL	B-EQOPRCRNL	Equip. Operators, Crane/Shovel	1.00	HR	55.73	1.00	55.73			55.73
MIL	B-EQOPROILL	Equip. Operators, Oilers	1.00	HR	49.01	1.00	49.01			49.01
GEN	C80Z2300 E	CRANE, HYD, TRUCK MTD, 80 TON	1.00	HR	98.32			1.00	98.32	98.32
GEN	W35Z8635 E	WELDER, 200 AMP, TRAILER MTD	1.00	HR	7.26			1.00	7.26	7.26
	TOTAL					7.00	360.21	2.00	105.58	465.79
	MSPFE	3 stm/pipe + 1 welder, 300 amp, skid mtd			PROD = 100%				CREW HOURS =	48
MIL	B-STM/PIPEF	Steam/Pipefitters	0.50	HR	51.47	0.50	25.73			25.73
MIL	B-STM/PIPEL	Steam/Pipefitters	1.00	HR	50.47	1.00	50.47			50.47
MIL	B-STM/PIPEA	Steam/Pipefitters	1.00	HR	42.60	1.00	42.60			42.60
GEN	W35Z8680 E	WELDER, 300 AMP, SKID MTD	1.00	HR	5.04			1.00	5.04	5.04
	TOTAL					2.50	118.80	1.00	5.04	123.84
	MSPFH	2 stm/pipe + 1 welder, 200 amp, skid mtd			PROD = 100%				CREW HOURS =	91
MIL	B-STM/PIPEF	Steam/Pipefitters	0.25	HR	51.47	0.25	12.87			12.87
MIL	B-STM/PIPEL	Steam/Pipefitters	1.00	HR	50.47	1.00	50.47			50.47
MIL	B-STM/PIPEA	Steam/Pipefitters	1.00	HR	42.60	1.00	42.60			42.60
MIL	B-LABORER L	Laborers, (Semi-Skilled)	1.00	HR	48.79	1.00	48.79			48.79
GEN	W35Z8635 E	WELDER, 200 AMP, TRAILER MTD	1.00	HR	7.26			1.00	7.26	7.26
	TOTAL					3.25	154.72	1.00	7.26	161.99

SRC	ITEM ID	DESCRIPTION	NO.	UOM	RATE	**** LABOR **** HOURS	**** LABOR **** COST	**** EQUIP **** HOURS	**** EQUIP **** COST	TOTAL COST
	MSPFI	3 stm/pipe			PROD = 100%				CREW HOURS =	267
MIL	B-STM/PIPEF	Steam/Pipefitters	0.50	HR	51.47	0.50	25.73			25.73
MIL	B-STM/PIPEL	Steam/Pipefitters	1.00	HR	50.47	1.00	50.47			50.47
MIL	B-STM/PIPEA	Steam/Pipefitters	1.00	HR	42.60	1.00	42.60			42.60
MIL	B-LABORER L	Laborers, (Semi-Skilled)	1.00	HR	48.79	1.00	48.79			48.79
	TOTAL					3.50	167.59	0.00	0.00	167.59
	MSPFL	3 stm/pipe			PROD = 100%				CREW HOURS =	1
MIL	B-STM/PIPEF	Steam/Pipefitters	1.00	HR	51.47	1.00	51.47			51.47
MIL	B-STM/PIPEL	Steam/Pipefitters	1.00	HR	50.47	1.00	50.47			50.47
MIL	B-STM/PIPEA	Steam/Pipefitters	1.00	HR	42.60	1.00	42.60			42.60
MIL	B-LABORER L	Laborers, (Semi-Skilled)	1.00	HR	48.79	1.00	48.79			48.79
	TOTAL					4.00	193.32	0.00	0.00	193.32
	SIWRRODM4	4 rodmen			PROD = 100%				CREW HOURS =	3
MIL	B-RODMAN L	Rodmen, (Reinforcing)	4.00	HR	59.53	4.00	238.12			238.12
	TOTAL					4.00	238.12	0.00	0.00	238.12
	SIWSE21	6 strsteels + 1 crane, hydr, trk mtd, 60 ton			PROD = 100%				CREW HOURS =	3
MIL	B-STRSTEELF	Structural Steel Workers	1.00	HR	60.53	1.00	60.53			60.53
MIL	B-STRSTEELL	Structural Steel Workers	5.00	HR	59.53	5.00	297.65			297.65
MIL	B-EQOPRCRNL	Equip. Operators, Crane/Shovel	1.00	HR	55.73	1.00	55.73			55.73
MIL	B-EQOPROILL	Equip. Operators, Oilers	1.00	HR	49.01	1.00	49.01			49.01
GEN	C80Z2280 E	CRANE, HYD, TRUCK MTD, 60 TON	1.00	HR	87.71			1.00	87.71	87.71
	TOTAL					8.00	462.92	1.00	87.71	550.63
	SIWSE3	2 strsteels + 1 welder, 300 amp, trailer mtd			PROD = 100%				CREW HOURS =	12
MIL	B-STRSTEELF	Structural Steel Workers	1.00	HR	60.53	1.00	60.53			60.53
MIL	B-STRSTEELL	Structural Steel Workers	1.00	HR	59.53	1.00	59.53			59.53
MIL	B-WELDERS L	Welders, Structural Steel	1.00	HR	59.63	1.00	59.63			59.63
GEN	W35Z8640 E	WELDER, 300 AMP, TRAILER MTD	1.00	HR	11.41			1.00	11.41	11.41
GEN	XMEZ9480 E	TORCH, OXYGEN/ACETYLENE	1.00	HR	2.00			1.00	2.00	2.00
	TOTAL					3.00	179.69	2.00	13.41	193.10
	SIWSE4	4 strsteels + 1 welder, 300 amp, trailer mtd			PROD = 100%				CREW HOURS =	48
MIL	B-STRSTEELF	Structural Steel Workers	1.00	HR	60.53	1.00	60.53			60.53
MIL	B-STRSTEELL	Structural Steel Workers	3.00	HR	59.53	3.00	178.59			178.59
GEN	W35Z8640 E	WELDER, 300 AMP, TRAILER MTD	1.00	HR	11.41			1.00	11.41	11.41
	TOTAL					4.00	239.12	1.00	11.41	250.53
	SIWSL5A	3 strsteels + 1 crane, hydr, S/P, RT,4WD, 20 ton			PROD = 100%				CREW HOURS =	14
MIL	B-STRSTEELF	Structural Steel Workers	1.00	HR	60.53	1.00	60.53			60.53
MIL	B-STRSTEELL	Structural Steel Workers	2.00	HR	59.53	2.00	119.06			119.06
MIL	B-EQOPRCRNL	Equip. Operators, Crane/Shovel	1.00	HR	55.73	1.00	55.73			55.73
GEN	C75Z2160 E	CRANE, HYD, R/T, 20T (18 MT),	1.00	HR	39.76			1.00	39.76	39.76
	TOTAL					4.00	235.32	1.00	39.76	275.08

SRC	ITEM ID	DESCRIPTION	NO.	UOM	RATE	**** LABOR **** HOURS	**** LABOR **** COST	**** EQUIP **** HOURS	**** EQUIP **** COST	TOTAL COST
	SIWSSSWK2	2 strsteels			PROD = 100%				CREW HOURS =	3
MIL	B-STRSTEELL	Structural Steel Workers	2.00	HR	59.53	2.00	119.06			119.06
	TOTAL					2.00	119.06	0.00	0.00	119.06
	SIWWE14	1 welder + 1 welder, 300 amp, trailer mtd			PROD = 100%				CREW HOURS =	24
MIL	B-WELDERS F	Welders, Structural Steel	1.00	HR	60.63	1.00	60.63			60.63
GEN	W35Z8640 E	WELDER, 300 AMP, TRAILER MTD	1.00	HR	11.41			1.00	11.41	11.41
	TOTAL					1.00	60.63	1.00	11.41	72.04
	ULABA1	1 laborer + 1 concrete saw, 6.63" depth			PROD = 100%				CREW HOURS =	436
MIL	B-LABORER L	Laborers, (Semi-Skilled)	1.00	HR	48.79	1.00	48.79			48.79
GEN	C60Z1970 E	CONCRETE SAW, 6.63" (168 MM)	1.00	HR	6.15			1.00	6.15	6.15
	TOTAL					1.00	48.79	1.00	6.15	54.94
	ULABB1	3 laborers			PROD = 100%				CREW HOURS =	40
MIL	B-LABORER F	Laborers, (Semi-Skilled)	1.00	HR	49.79	1.00	49.79			49.79
MIL	B-LABORER L	Laborers, (Semi-Skilled)	2.00	HR	48.79	2.00	97.58			97.58
	TOTAL					3.00	147.36	0.00	0.00	147.36
	ULABC	4 laborers			PROD = 100%				CREW HOURS =	16
MIL	B-LABORER F	Laborers, (Semi-Skilled)	0.50	HR	49.79	0.50	24.89			24.89
MIL	B-LABORER L	Laborers, (Semi-Skilled)	3.00	HR	48.79	3.00	146.36			146.36
	TOTAL					3.50	171.26	0.00	0.00	171.26
	UOEHB12G	1 eqoprcrn + 1 crane, crawler, drag/clam, 17 ton			PROD = 100%				CREW HOURS =	1240
MIL	B-EQOPRCRNL	Equip. Operators, Crane/Shovel	1.00	HR	55.73	1.00	55.73			55.73
MIL	B-EQOPROILL	Equip. Operators, Oilers	1.00	HR	49.01	1.00	49.01			49.01
GEN	C85Z2370 E	CRANE, CRWLR, DRAG/CLAM, .5OCY	1.00	HR	36.02			1.00	36.02	36.02
GEN	B25Z1040 E	BUCKET, CLAMSHELL, 0.630 CY	1.00	HR	2.46			1.00	2.46	2.46
	TOTAL					2.00	104.74	2.00	38.47	143.21
	UOEHB12V	1 eqoprcrn + 1 crane, crawler, drag/clam, 75 ton			PROD = 100%				CREW HOURS =	218
MIL	B-EQOPRCRNL	Equip. Operators, Crane/Shovel	1.00	HR	55.73	1.00	55.73			55.73
MIL	B-EQOPROILL	Equip. Operators, Oilers	1.00	HR	49.01	1.00	49.01			49.01
GEN	C85Z2400 E	CRANE, CRWLR, DRAG/CLAM, 3.0CY	1.00	HR	140.15			1.00	140.15	140.15
GEN	B35Z1140 E	BUCKET, DRAGLINE, 3.0 CY	1.00	HR	2.67			1.00	2.67	2.67
	TOTAL					2.00	104.74	2.00	142.81	247.55

SRC LABOR ID	DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	RATE	UOM	UPDATE	**** TOTAL **** DEFAULT	HOURS
MIL B-CARPNTER	Carpenter (10% more)	30.91	0.0%	32.0%	12.20	0.00	52.99	HR	08/27/03	31.68	320
MIL B-CEMTFINR	Cement Finishers (10% more)	31.91	0.0%	34.7%	9.95	0.00	52.95	HR	08/27/03	28.47	1
MIL B-ELECTRN	Electricians (10% more)	35.66	0.0%	22.7%	12.25	0.00	56.00	HR	08/27/03	34.32	287
MIL B-EQOPRCRN	Equip. Operators, Crane/Shovel	31.71	0.0%	44.2%	10.01	0.00	55.73	HR	08/27/03	32.62	1850
MIL B-EQOPRLT	Equip. Operators, Light	30.41	0.0%	44.6%	10.01	0.00	53.98	HR	08/27/03	28.51	313
MIL B-EQOPRMED	Equip. Operators, Medium	31.04	0.0%	45.1%	10.01	0.00	55.06	HR	08/27/03	30.27	706
MIL B-EQOPROIL	Equip. Operators, Oilers	24.99	0.0%	56.1%	10.01	0.00	49.01	HR	08/27/03	24.69	1767
MIL B-LABORER	Laborers, (Semi-Skilled)	25.24	0.0%	47.7%	11.50	0.00	48.79	HR	08/27/03	23.81	4539
MIL B-PILEDRVR	Pile Drivers	26.64	0.0%	81.9%	12.20	0.00	60.65	HR	08/27/03	34.73	267
MIL B-PLUMBER	Plumbers (10% more)	33.33	0.0%	18.0%	11.15	0.00	50.47	HR	08/27/03	34.82	124
MIL B-RODMAN	Rodmen, (Reinforcing)	27.50	0.0%	67.0%	13.60	0.00	59.53	HR	08/27/03	36.56	13
MIL B-SKILLWKR	Skilled Workers	35.30	0.0%	33.1%	10.65	0.00	57.64	HR	02/05/03	25.96	98
MIL B-STM/PIPE	Steam/Pipefitters (10% more)	33.33	0.0%	18.0%	11.15	0.00	50.47	HR	08/27/03	35.95	1088
MIL B-STRSTEEL	Structural Steel Workers	27.50	0.0%	67.0%	13.60	0.00	59.53	HR	08/27/03	39.57	279
MIL B-TRKDVRHV	Truck Drivers, Heavy	31.40	0.0%	22.8%	9.57	0.00	48.13	HR	08/27/03	24.66	1244
MIL B-TRKDVRLT	Truck Drivers, Light	29.20	0.0%	23.3%	9.57	0.00	45.59	HR	08/27/03	23.25	97
MIL B-WELDERS	Welders, Structural Steel	28.40	0.0%	67.0%	12.20	0.00	59.63	HR	08/27/03	39.24	36

SRC	ID.NO.	EQUIPMENT DESCRIPTION	DEPR	FCCM	FUEL	FOG	TR WR	TR REP	EQ REP	TOTAL RATE	** TOTAL ** HOURS
MIL	A15XX014	AIR COMPR, 900 CFM, 100 PSI	6.60	2.91	15.31	5.32	0.20	0.04	8.32	38.70 HR	2
GEN	A15Z0180	AIR COMPRESSOR, 1200CFM (34CMM),	9.41	4.13	17.01	5.91	0.20	0.04	11.85	48.54 HR	6
GEN	A20Z0490	AIR HOSE,3.0"(76MM) X 100'(31M),	0.36	0.05					0.75	1.16 HR	6
GEN	A30Z0640	ASPHALT FINISHER, 10' (3.1 M),WH	17.64	7.13	7.53	2.62	1.17	0.22	28.07	64.37 HR	6
GEN	B20Z1000	LOG CHIPPER, 22" (559 MM) CAP	28.48	9.17	29.16	11.62	0.31	0.06	40.33	119.14 HR	4
GEN	B25Z1040	BUCKET, CLAMSHELL, 0.63 CY	1.03	0.37					1.06	2.46 HR	1240
GEN	B35Z1140	BUCKET, DRAGLINE, 3.0 CY	1.13	0.37					1.17	2.67 HR	218
GEN	C05Z1210	CHAINSAW, 24" - 43"	0.15	0.02	0.20	0.58			0.56	1.51 HR	10
GEN	C55Z1960	CONCRETE PUMP,117 CY/HR (89 CMH)	22.58	6.68	14.47	5.02	0.76	0.14	33.48	83.13 HR	1
GEN	C60Z1970	CONCRETE SAW, 6.63" (168 MM)	0.89	0.22	2.60	1.03			1.40	6.15 HR	436
GEN	C75Z2160	CRANE, HYD, R/T, 20T (18 MT),	11.18	5.65	5.95	2.21	1.15	0.21	13.41	39.76 HR	14
GEN	C80Z2240	CRANE, HYD, TRUCK MTD, 14 TON	16.98	8.45	9.72	4.34	0.75	0.14	15.24	55.62 HR	13
GEN	C80Z2280	CRANE, HYD, TRUCK MTD, 60 TON	25.46	14.36	15.07	4.86	1.11	0.21	26.65	87.71 HR	161
GEN	C80Z2300	CRANE, HYD, TRUCK MTD, 80 TON	28.05	17.80	12.56	4.05	1.93	0.36	33.58	98.32 HR	98
GEN	C85Z2370	CRANE, CRWLR, DRAG/CLAM, .50CY	10.94	4.63	5.29	2.10			13.06	36.02 HR	1240
GEN	C85Z2395	CRANE, CRWLR, DRAG/CLAM, 2.0CY	25.07	12.28	4.73	1.99			31.80	75.87 HR	50
GEN	C85Z2400	CRANE, CRWLR, DRAG/CLAM, 3.0CY	41.70	23.20	12.66	3.45			59.13	140.15 HR	218
MAP	D30RD002	DRILL,AUGER, 6' DIA, 25'DEPTH	9.70	3.81	15.69	6.22			15.24	50.67 HR	97
GEN	G15Z3080	GRADER, MOTOR, ARTICULATED	9.94	5.23	6.01	2.54	0.53	0.10	11.72	36.07 HR	16
GEN	H10Z3120	HYD HAMMER,1000 FT-LBS (1356N-M)	2.64	0.65		1.00			4.16	8.45 HR	24
GEN	H25Z3185	HYD EXCV, CRAWELR, 1.50 CY	18.91	7.44	9.22	4.35			24.24	64.15 HR	10
GEN	H25Z3680	PAVEMENT-REMOVAL BUCKET, 36"	1.39	0.34					1.74	3.47 HR	24
GEN	L35Z4240	LOADER, F/E, CRWLR, 1.50 CY	6.65	2.62	4.74	2.23			14.15	30.39 HR	19
GEN	L40Z4390	LOADER, F/E, WHEEL, 1.75 CY	6.91	3.12	4.76	2.48	1.13	0.21	8.22	26.84 HR	35
GEN	L40Z4410	LOADER, F/E, WHEEL, 4.00 CY	16.96	7.82	10.69	5.57	4.21	0.78	20.27	66.29 HR	24
GEN	L50Z4640	LOADER/BH, WH, 0.80 CY (0.6 M3),	3.15	1.46	3.16	1.25	0.70	0.13	4.30	14.15 HR	139
GEN	L60Z4760	LOG SKIDDER, CABLE	8.21	3.01	5.59	1.94	0.85	0.16	9.74	29.50 HR	8
GEN	L60Z4800	LOG FELLER/BUNCHER, 20" (508 MM)	11.60	4.34	8.26	2.87	2.05	0.38	13.80	43.30 HR	8
GEN	P10Z4840	PILE LEADS, 8"X 26"(203-660 MM),	4.11	1.36	0.63	0.25			6.36	12.71 HR	6
GEN	P20Z4880	PILE HAMMER, DBL, 15,100 FT-LBS	9.62	3.12		1.90			22.34	36.99 HR	6
GEN	P30Z4920	PILE HAMMER,VIB,80T(73 MT) FORCE	15.60	5.17	15.80	6.27			30.18	73.02 HR	44
GEN	R30Z5645	ROLLER, STATIC, S/P,13 T (12 MT)	5.22	1.81	3.74	1.11	0.99	0.18	5.94	19.00 HR	6
GEN	R45Z5690	ROLLER, VIB, TANDEM, S/P 12 T	11.35	3.63	7.22	2.87			19.95	45.03 HR	13
GEN	R50Z5810	ROLLER, VIB, ST, S/P 12 T	10.94	3.59	9.79	3.88	0.67	0.12	17.57	46.56 HR	16
GEN	T15Z6440	DOZER, CRWLR, 76-100 HP	6.33	2.75	5.00	2.23			12.88	29.19 HR	78
GEN	T15Z6520	DOZER, CRAWLER, 181-250 HP	24.33	9.57	12.11	4.20			38.69	88.89 HR	467
GEN	T30Z6760	TRENCHER, CHAIN, 12" (305 MM) W	2.86	0.93	2.14	0.74	0.08	0.02	4.05	10.82 HR	77
GEN	T40Z6860	REAR DUMP BODY,16-23.5 CY (12.2-	0.96	0.31					1.06	2.33 HR	1235
GEN	T40Z7000	FLATBED,8' (2.4 M) X 20' (6.1 M)	0.41	0.13					0.38	0.92 HR	349
GEN	T40Z7090	REAR DUMP BODY, 12 CY (9.2 M3)	1.26	0.40		0.09			1.38	3.13 HR	10
GEN	T50Z7400	TRUCK, 20,000 - 25,000 (9072 -	3.08	1.20	4.94	1.59	1.03	0.19	3.44	15.48 HR	349
GEN	T50Z7420	TRUCK, 40,000 - 45,000 (18 144 -	9.27	3.00	9.46	3.29	0.44	0.08	9.49	35.03 HR	1244
GEN	W35Z8635	WELDER, 200 AMP, TRAILER MTD	0.48	0.20	4.53	1.35	0.03	0.01	0.66	7.26 HR	189
GEN	W35Z8640	WELDER, 300 AMP, TRAILER MTD	0.56	0.23	7.55	2.25	0.04	0.01	0.77	11.41 HR	84
GEN	W35Z8680	WELDER, 300 AMP, SKID MTD	0.72	0.29	2.31	0.69	0.04	0.01	0.98	5.04 HR	48
GEN	XMEZ9480	TORCH, OXYGEN/ACETYLENE	0.23	0.02		1.50			0.25	2.00 HR	12
GEN	XMEZ9520	VIBRATOR, CONCRETE	1.04	0.16	0.69	0.48			1.33	3.70 HR	3

No errors detected...

* * * END OF ERROR REPORT * * *